



# **Spey Fisheries Management Plan 2009 – 2014.**

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**Spey Research Trust Report 01/09**

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**marinescotland**



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# **Spey Fishery Management Plan 2009 -2014**

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## **1. Scope of the Plan**

This Fishery Research and Management Plan is prepared by the Spey Research Trust in order to facilitate the proper management of all fish species in the Spey Fishery District. It provides a framework for within which the Spey Fishery Board can identify target areas for research and apply specific funding. It builds on previous Plans and policies (Spey Fishery Board 1993 and 1998, Spey Catchment Steering Group 2003)

Inherent in the drive towards a scientific approach to the management of the Spey's fish species on a catchment wide basis is the integrated nature of the research and management. Much of the applied research proposed in this plan builds on existing monitoring routines allowing management decisions to be improved further. There is nonetheless a considerable element of research within these proposals which will be of benefit to the future of Spey stocks and of interest to other rivers and areas of the UK.

The fish and their habitats are affected by many factors and so an integrated catchment management approach is desirable for their effective management. This approach was fully embraced in 2003 with the publication of the first Spey Catchment Management Plan (Spey Catchment Steering Group, 2003). This ambitious document provided the backdrop for much of the Boards research and management efforts in the last few years. This Plan does not seek to review or replace the Spey Catchment Management Plan but focuses on more specific issues directly relating to the management of the Spey fish stocks.

It also recognizes and incorporates new requirements and commitments developed from the Water Framework Directive (WFD), as part of the implementation of the ambitious legislation the Scottish Environment Protection Agency (SEPA) is currently writing a River Basin Management Plan for the whole of Scotland, apart from the Solway and Tweed. Part of this will comprise a North-East Area including the Spey. This Fishery Management Plan which will be an area specific building block of this national plan.

The following key documents are also important in the development of the Plan and provide readers with more detailed background information:- A Strategic Framework for Scottish Freshwater Fisheries (Scottish Government 2008), The Cairngorms National Park Plan, (CNPA 2007), The Cairngorms Local Biodiversity Action Plan (Cosgrove, 2002), Land Use in The River Spey Catchment (Jenkins 1988).

With more specific reference to fisheries two supporting documents should be viewed alongside the current Plan. First the Spey Research Trust Inventory of Resources, Information and Current Actions (Redgewell and Laughton, 2008) which provides extensive details of work carried out to date on fisheries within the River Spey. Secondly The Spey Research Trust will be re-constituted in 2009 as the Spey Foundation and The Spey Foundation Business Plan (*in prep*) will also be available shortly.

The river is designated as a Special Area of Conservation (SAC) for salmon, sea lamprey, otters and freshwater pearl mussels and so the responsibility for the its management involves a range of bodies. This Plan seeks to highlight key areas of responsibility for the Spey Fishery Board and Spey Research Trust. It does not take away current management responsibilities from existing organisations. However, it does seek to encourage close liaison and build on the already good working relationships that exist.

## 2. Spey Catchment

The River Spey is the seventh largest river in Britain, with a catchment area of over 3,000km<sup>2</sup>, and a stream network length of about 36,500km, of which the Spey mainstem comprises 157km. The River Spey emerges from Loch Spey in the Monadhliath Mountains and flows in a north-easterly direction to drain into the Moray Firth at Spey Bay (Figure 1).

The Spey Fishery District includes the River Spey and its tributaries plus 32 km of coastline in the Moray Firth, from Lossiemouth to the west of the Spey estuary to Cowhythe Head in the east. The coastal district extends 3 nautical miles out to sea (Figure 1). A number of smaller coastal burns including the Cullen and Buckie Burns, which both flow directly into the Moray Firth, are also included within the district.

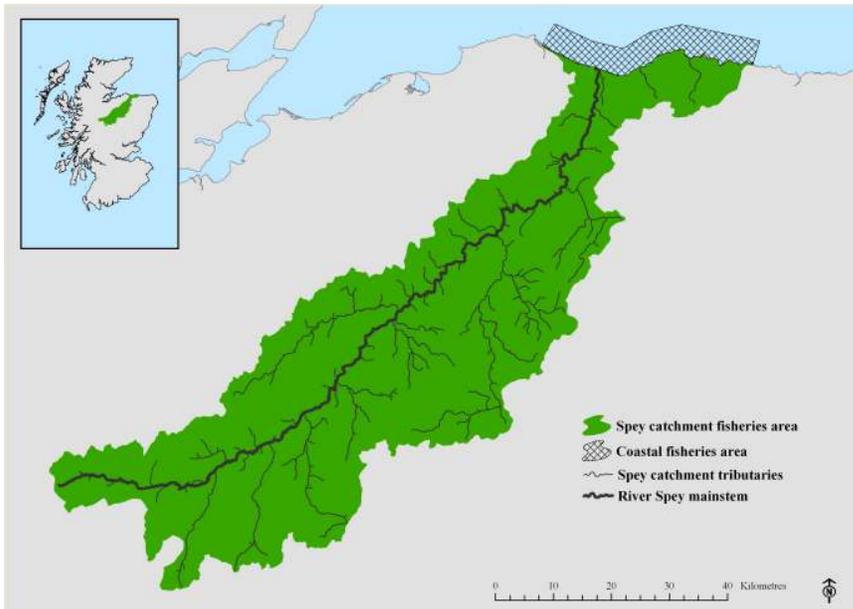


Figure 1. Spey Fishery District

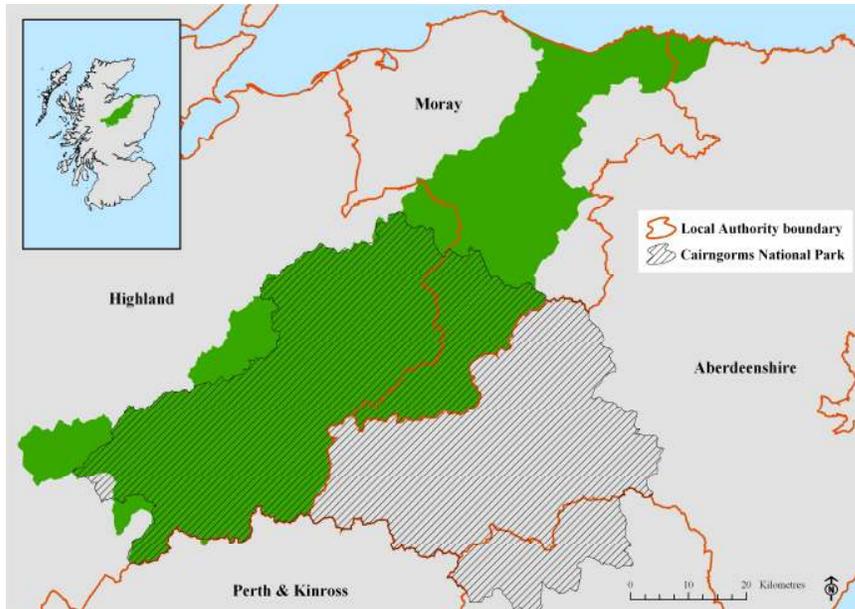


Figure 2. Spey catchment Local Authority and National Park boundaries

The catchment is split between two Local Authority administrations, the Highland and Moray Councils, and 63% of the catchment is within the Cairngorms National Park (Figure 2).

Badenoch, Strathspey and Speyside can be classed as a low population density area. The settlement pattern is one of small planned towns housing less than 3,000 residents, e.g. Kingussie, Grantown, Aberlour and Fochabers, and, small villages of less than 500 residents, e.g. Nethybridge, Carrbridge, Craigellachie and Garmouth. However, recent years has seen a substantial growth in housing within the Aviemore area increasing demands for water supply in particular.

Much of the Spey catchment is dominated by Palaeozoic metamorphic crystalline rocks and granitic intrusions, while the Moray Firth coastal plain has been cut in conglomerate and sandstones of the Old Red Sandstone series solid geology. The river system was initiated in the mid-Tertiary but the Post-glacial period was characterised by numerous river capture events.

Hill farming, forestry and sporting estates dominate the land-use pattern in the upper catchment, while cattle rearing, extensive commercial forestry and arable farming become more prevalent as the valley floor widens.

The flow of water through the catchment is monitored by SEPA, using a network of gauging stations. The lowest station at Boat o'Brig shows an average daily flow of about  $65\text{m}^3\text{s}^{-1}$  with a dry weather flow of about  $19\text{m}^3\text{s}^{-1}$ . There are two major sources of potable water abstraction in the River Spey catchment, a surface water abstraction from Loch Einich and a groundwater abstraction from the river terrace gravels at Fochabers (the Dipple Wellfield). There also remain a few local village supplies as well as numerous private sources.

There are two main hydro schemes in operation in the upper catchment. Firstly, Scottish & Southern Energy plc diverts water from the catchments of the rivers Tromie and Truim to Loch Ericht (Tummel/Tay catchment). Secondly, Rio Tinto Alcan diverts water from the upper Spey at Spey Dam to Loch Laggan for hydro-power generation at Fort William.

### **3. Fisheries Management on the Spey**

Management of salmon and sea trout within the River Spey catchment is largely the responsibility of the Spey District Salmon Fishery Board (SFB). However, since the Spey is an SAC for salmon, otter, sea lamprey and freshwater mussels, the SFB liaise closely with Scottish Natural Heritage, Scottish Environment Protection Agency, Highland and Moray Councils, and a range of other bodies to determine appropriate management of the river and its designated species.

The SFB was established under the 1860's Salmon Fisheries legislation as subsequently amended and stated in the Salmon Act 1986 and the Salmon Conservation (Scotland) Act 2001. This legislation has recently been streamlined into the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003.

It is empowered under the legislation to take such acts as considered expedient for the protection, enhancement and conservation of Atlantic salmon and sea trout stocks and fisheries. The SFB is responsible for the Spey Fishery District, which includes 52 rod fisheries within the mainstem of the Spey and its tributaries.

The Spey Research Trust is a registered charity (Charity number: ED 387/81/GWM) that was constituted in 1982 with the aim of ‘*advancing the study of and research into salmon in the District of the River Spey*’. It was one of the first catchment based research trust established in Scotland. The SRT joined Rivers and Fisheries Association Scotland (RAFTS) in 2004, and the Scottish Fisheries Co-ordination Centre (SFCC) in 1997.

#### *Fish species occurring in the Spey catchment*

##### i. Native species

Atlantic salmon (*Salmo salar*); Brown/sea trout (*Salmo trutta*); Eel (*Anguilla anguilla*); Arctic charr (*Salvelinus alpinus*); Three spined stickleback (*Gasterosteus aculeatus*); River lamprey (*Lampetra fluviatilis*); Brook lamprey (*Lampetra planeri*); Sea lamprey (*Petromyzon marinus*); Flounder (*Platichthys flesus*).

##### ii. Non-native species (Historical Introductions)

Rainbow trout (*Oncorhynchus mykiss*); Northern pike (*Esox lucius*); Minnow (*Phoxinus phoxinus*).

##### iii) Non-native species (Recent Introductions)

Roach (*Rutilus rutilus*); Rudd (*Scardinius erythrophthalmus*); Orfe (*Leucisus idius*); Tench (*Tinca tinca*); Goldfish (*Carassius auratus*).

#### *Salmon and sea trout fisheries*

A significant salmon and sea trout net fishery existed within the Spey District from 1850 to 1950s. However, a decline began in the late 1950s which continued until the buying out, by the North Atlantic Salmon Conservation Fund, of stake and bag nets in 1990 and

the net and coble fishery in 1993. The netting rights have been held by the SFB since the buy-out.

From the 1850s onwards, rod fishing became increasingly fashionable and angling became a sport for visitors as well as locals and early angling records for the River Spey are documented in 1870. The river is fished all the way up to Spey Dam, but most salmon and sea trout fishing takes place between Aviemore and the mouth. Of the tributaries the Avon offers the best angling while the Dulnain, Feshie and Truim are also regularly fished. There are around thirty salmon fishing proprietors along the mainstem of the River Spey and in addition there are nine angling associations.

#### *Other fisheries*

There are a number of loch based fisheries within the Spey catchment offering trout, pike and charr fishing opportunities. In addition put and take fisheries are also operated at Rothiemurchus, Inverlochy, Craggan and Rothes. These fisheries are generally stocked with rainbow trout and or brown trout although other species have also been tried.

## **4. Fisheries Research in the Spey**

The Spey Research Trust (SRT) have conducted extensive range of research primarily to support the management decisions of the SFB but additional contract research for a wide range of other Fishery Boards, government agencies and commercial companies has also been completed to assist in revenue generation and to gain insight into restoration and management activities.

At the core of the research programme has been gaining a better understanding of the fragile spring salmon stocks which had until recently been in decline. Radio-tracking studies provided an insight into the preferred spawning locations and ongoing juvenile surveys provide a yearly health check on the distribution and abundance of salmon fry.

Gaps in the salmon stock can also be quickly identified and re-stocking with suitable hatchery reared juveniles is then implemented.

Work on the most suitable salmon stock to raise in the hatchery was conducted in the late 1980s and identified that the progeny of spring salmon were more likely to return as springers than using later running grilse. In addition fed fry were found to be more successful after release than using unfed fry. These principles have been maintained in the two hatcheries operated by the Board and developed further. If an area is identified as requiring stocking broodstock from as close as possible is utilised. Thus salmon from a particular tributary are only crossed with others from that tributary in an effort to maintain genetic integrity. The Board are keenly aware that information from elsewhere indicates salmon populations are made up from many sub-populations. It is highly likely that the Spey's salmon population is also made up of a number of sub-populations. To examine this further the Board, will soon sponsor a major examination of the genetic structure of the Spey salmon. In addition this ambitious project will also examine their return rates of hatchery origin salmon to the Spey fishery. An extensive bank of salmon tissue has already been collected and awaits analysis. The resulting information may lead to further refinements of the hatchery policy on the Spey.

Alongside this core research the Board has implemented a range of extensive habitat management projects on the Batten, Conglass and Milton Burns and more are planned. In addition over 100 man-made obstructions, which prevent or hinder salmon and sea trout from reaching upstream spawning areas, or restrict the free passage of smolts, have been identified within the Spey system. Some have recently been removed through the EU funded CASS LIFE Project and Northern Periphery Project. However, obstacles are still hindering or stopping salmonid access to valuable spawning habitat and 'new' obstacles are still, on occasion, being discovered.

River engineering works and other major developments within the catchment have the potential to affect the river and the fish populations within it. The Board is regularly consulted for guidance regarding developments such as windfarms, hydro-schemes, water

abstractions and flood alleviation schemes as well as smaller developments. In addition where monitoring is required the SRT are often contracted to undertake such work. However, occasionally developments which pose a threat to watercourses still slip through and there is a need to improve the consultation process. River engineering works remain a concern and better quantitative information on the responses of the fish populations to such works is much needed. Extensive monitoring of the effects of thermal discharges from the Speyside distilleries has been undertaken but has provided no clear evidence of adverse impacts on the salmonid populations. Nonetheless, where larger significant temperature uplifts still occur efforts are made to reduce discharge temperatures as a precautionary measure. In general the precautionary principle is applied regarding significant developments within the catchment. Water abstraction in particular has become an area of concern with increasing demands for potable water supply and substantial hydro abstraction already in place. Recently the SFB commissioned Envirocentre Ltd, to provide an overview of all the existing water abstraction within the Spey catchment. Such a study was long overdue and the results will help guide management of existing water abstractions and new ones in the future.

Monitoring of the returning salmon stocks still largely relies on catch data but the successful operation of an acoustic counter near Boat o'Brig allowed a stock escapement model to be developed. Further installation of counters on the Truim, Dullan and Spey Dam is allowing more robust adult fish datasets to be gathered. The smolt output from the river is also being measured. A long term smolt trap has been in place at Spey Dam and with EU CASS LIFE funds the trap was recently overhauled and should provide data well in to the future. Smolt data from various other burns and tributaries has also been collected and the advent of rotary screw traps allowed data on the overall Spey smolt run to be collected for the first time in 2006 to 2008. This was an ambitious undertaking but salmon smolts were captured and production estimates produced which were similar to desk calculations. Emphasis now moves to producing more detailed smolt counts for various Spey tributaries.

The late 1990s saw a considerable change in the approach of anglers to their sport with catch and release beginning to take root. Initial concerns on the survival and recapture rates of salmon after release prompted the SRT, with considerable support from the Spey ghillies, to examine this issue with a major tagging project. The results were ground breaking with recaptures of the spring salmon being very high while later running salmon and grilse recaptures much lower. The results prompted the Board to introduce a strong conservation policy which included catch and release at its heart and from its inception in 2003 return rates have been close to 70% each year.

Recent declines in the catch rates of sea trout have worried anglers, ghillies, and proprietors alike. The decline has not been unique to the Spey with similar reports arising from other Moray Firth rivers and further afield. The Moray Firth Sea trout project has been started to address the problem and the SRT and Board both support the initiative. There is some good data on trout populations within the Spey but there is much to do to improve it.

Little data on the populations of other fish species such as charr, pike and eels exist and currently with no formal management structure in place nor a definite source of funds to collect data on these species effective management remains a considerable challenge.

Predation on fish by sawbill ducks (goosander and merganser) and cormorants is an issue that concerns many fishery owners and anglers. The smolts provide a valuable food source for sawbills and cormorants and the latter species commonly take fish between 5 and 15 cm (2 to 6 inches) in length, but have been recorded eating fish of over 40 cm (16 inches) and eels of over 60 cm (24 inches) long (EA figures). However, all birds are afforded protection under wildlife legislation and indiscriminate culling is not acceptable. Also, the impact of predatory birds on fish stocks has not been accurately quantified within the Spey catchment. Certainly more research needs to be undertaken into the impact of predatory birds on salmonids.

Where there is clear evidence of serious damage to fisheries, the control of bird predation by shooting as an aid to scaring is permissible if sanctioned and licensed by Scottish Ministers. The Spey Fishery Board receives an annual license to shoot small numbers of sawbills and cormorants but the benefits have not yet been quantified.

The SFB continues to count these species once every two months, weather and river conditions permitting and the SFB is working with SNH and the Scottish Government to establish a Moray Firth-wide management scheme for sawbill ducks and cormorant. Since the Inner Moray Firth and Cromarty Firth are designated as SPAs for these species, future schemes must weigh up the conservation obligations of DSFBs against those of other relevant authorities.

Both common and grey seals predate on salmon and trout within the Spey coastal fishery area and the Spey estuary. The Moray Firth Seal Management Plan was implemented in 2005 with the aim of protecting salmon and sea trout stocks while also maintaining the conservation status of the Dornoch Firth SAC for common seals. The scheme introduced the approach of managing seals and salmon over a large geographical area, the training of nominated marksmen to an agreed standard, and the accurate reporting of all seals shot. The Moray Firth Seal Management Plan will continue throughout 2008 in its third and final year as a pilot scheme for Scotland.

Recent years have also seen a growing threat to our native fish and fauna populations from non-native species. SRT surveys of several mid Spey lochs and ponds indicated that misguided introductions of roach, rudd, tench and orfe had established. Eradication may be possible in some ponds but in the larger lochs such as Loch Beag this seems unlikely at the moment. Non native plants such as giant hogweed, Japanese knotweed and Himalayan balsam are widespread in the lower mainstem and burns. Concerted control is required. Particular to the Spey is the problem of *Ranunculus sp.* which was introduced in the 1970s. SRT surveys indicate this is widespread and can have detrimental effects on SAC species such as FW mussels. No chemical control currently exists and physical removal is both dangerous and largely ineffective. Alongside this American signal

crayfish, which are present in the neighbouring River Nairn, and *Gyrodactylus salaris* remain a constant threat.

In recent years the low abundance of Atlantic salmon appears to be related to poor survival at sea. For some monitored stocks, marine mortality is currently twice as high as in the 1970s. Many factors may affect marine mortality of salmon including environmental changes, diseases and parasites, predation, competition, availability of food, exploitation (including by-catch in pelagic fisheries targeting other species) and factors operating in fresh water which subsequently influence survival in the sea. However, there is a lack of understanding of the marine phase of the salmon's life-cycle due, in part, to the expense of conducting research at sea. This is largely out with local control although SFB/SRT is supporting larger National and International initiatives aimed at improving the understanding marine phase of the salmon and sea trout.

Alongside research and management the Board have recognised the value of education and through the SRTs "Salmon Go To School" initiative have taken a very positive role in promoting awareness of the importance of the salmon resource to the local primary schools. The project has broadened its remit in the last few years with additional options such as "Bugs and Beastie Hunt", fly tying and fishing days again supported with EU funding. Work experience placements from secondary schools are supported while numerous BSc and MSc projects have been completed. The Board also have a Publicity sub-committee which seeks to promote the fisheries management to a wider audience through regular briefings and events.

## 5. The Fisheries Management Plan 2009-2014.

### 1. The Environment

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
1.1 Marine Environment	Currently marine survival for both salmon and sea trout is low leading to poor adult return rates.	SFB has supported mixed stock netting buy-outs and marine research programmes operated through Atlantic Salmon Trust and other organisations.	Where possible and of benefit to the Spey consider support for mixed stock netting fishery buy outs.  Maintain liaison with AST, FRS, NASCO regarding marine research programmes.
1.2 Freshwater Environment	<p>Water quality is generally good within the Spey catchment. However, some discharges from sewage treatment works may be having an adverse effect on the river habitat and fish populations.</p> <p>Thermal discharges from some distilleries are also increasing growth rates of salmonids.</p> <p>Demand for potable water is increasing as populations increase within the catchment.</p> <p>Hydro-power generation is an important renewable energy resource and can have significant effects on salmonid populations</p>	<p>Seek to minimise any reduction in water quality or quantity within the Spey catchment</p> <p>To ensure that future developments have a minimal negative impact on the river flow and water quality.</p>	<p>Continue to provide expert advice on the requirements of fish with respect to water quantity and quality.</p> <p>Continue to review existing and planned water abstraction operations within the Spey.</p> <p>Continue monitoring of cooling water discharges from distilleries and help develop remedial programmes to alleviate the effects.</p> <p>Ensure that all existing hydro schemes have effective means of adult access and smolt egress through the dams.</p> <p>Ensure that all existing abstraction schemes have effective means of adult access and smolt screening on intakes.</p> <p>Ensure that there is there is little or no loss of fish habitat or access through any proposed new or existing water abstraction scheme.</p>

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
1.3 Land Use	<p>Physical riverworks such as bank repairs, bridge and culvert construction or repair, drainage channels can all affect fish populations.</p> <p>Historically the Spey has remained largely free from large scale developments. However, recent wind farm developments have raised concerns regarding run-off.</p> <p>Forestry and agriculture practices can potentially affect the quality and quantity of water entering the Spey.</p> <p>Significant housing and industrial developments have been implemented or are planned for the catchment.</p>	<p>To ensure that future developments have a minimal negative impact on the riverine and riparian habitat.</p> <p>To strengthen links with SNH, SEPA and Local Authorities and ensure that future developments have a minimal negative impact on the river flow, water quality and fish populations.</p> <p>To improve understanding of how riverworks impact on fish and fish habitats.</p>	<p>Continue to provide expert advice to SNH, SEPA and Local Authorities during the planning of developments which may affect riverine habitat and fish populations.</p> <p>Continue close liaison with SEPA and SNH and other statutory bodies regarding developments which may affect the river and fish populations.</p> <p>Provide best practice advice to organisations involved in engineering works.</p> <p>Consider developing a research project to examine the impacts of river works on fish populations and their habitat.</p>

## 2. Adult Salmon and Trout Stocks

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
2.1 Adult Salmon and Trout Escapement, Exploitation And Conservation.	<p>Encourage and promote sustainable angling for salmon and trout in the Spey catchment.</p> <p>Maintaining sufficient numbers of adults escape to maximise egg deposition.</p> <p>Poor data on exploitation rates for salmon and particularly trout.</p> <p>Over 100 man-made obstructions are affecting salmon and trout access.</p>	<p>Continue to raise awareness of the importance of salmon and sea trout fisheries and highlight the need for stringent conservation practices.</p> <p>Regularly review and if necessary implement conservation policies for salmon and sea trout.</p> <p>Maximise the numbers of adult salmon and trout reaching spawning areas and increase egg deposition.</p> <p>Improve data on exploitation rates for adult salmon and trout and examine this for discrete sub-populations along with development of stock recruitment models.</p> <p>Improve data on adult salmonid spawning distribution in the Spey catchment</p>	<p>Regularly re-assess conservation policies in light of catch and return figures.</p> <p>If catch and release programmes maintained ensure minimum target of 50% release rate achieved and maintained for both salmon and sea trout.</p> <p>Source funding and continue programme of man-made obstacle removal.</p> <p>Continue and improve monitoring programmes for adult salmonids, using catch data and fish counters.</p> <p>Establish project to identify the sub-population structure of the salmon and trout within the Spey using genetic marker techniques.</p> <p>Review existing data on exploitation rates and explore potential projects to acquire new data if required.</p> <p>Develop survey programme to determine spawning distribution of adult salmonids within the Spey.</p> <p>Develop stock recruitment models.</p>

### 3. Juvenile Salmon and Trout Stocks

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
3.1 Juvenile Salmon and Trout distribution and abundance	<p>Data on juvenile salmon and trout distribution is required.</p> <p>Data on juvenile salmon and trout abundance is required.</p> <p>Carrying capacity for Spey tributaries varies but it remains unknown whether even the tributaries with high fish densities are at full carrying capacity.</p>	<p>Survey Spey and tributaries to determine yearly distribution and abundance of juvenile salmon and trout. Identify problem areas and target for enhancement.</p> <p>A better understanding of carrying capacity will help in managing tributaries and in particular developing better enhancement strategies.</p>	<p>Re-structure electro-fishing surveys to provide better distribution data for salmon and trout.</p> <p>Establish core EF survey sites to provide abundance data and repeat these yearly.</p> <p>Ensure these core sites are suitable for River Spey SAC monitoring purposes.</p> <p>Continue assessment of long term EF datasets.</p> <p>Consider projects to examine carrying capacity of selected tributaries.</p>
3.2 Salmon and Trout Smolt Production	<p>Data on smolt production is available for parts of the Spey catchment but is limited.</p> <p>Smolt data from the whole Spey smolt run was collected (2005 to 2007) but improvements in the approach are required.</p>	<p>To provide better measure of the salmon and trout output from the River Spey and in time a more robust dataset than juvenile EF data.</p>	<p>Continue operation of Spey Dam snolt trap.</p> <p>Establish rotary screw traps on two tributaries of the Spey.</p> <p>Re-assess main stem smolt data.</p> <p>Explore funding possibilities for further trapping of smolts within the catchment.</p> <p>Develop stock recruitment models.</p>

#### 4. Protection of Salmon and Trout Stocks

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
4.1 Predation of salmon and trout by sawbill ducks, cormorants, seals, mink and other animals is often perceived as a problem by anglers and fishery owners.	<p>Determine the effects of bird and seal predation on salmon and sea trout stocks and develop acceptable control methods.</p> <p>Mink predation on juvenile salmonids is reducing smolt output.</p>	Work within the Moray Firth predator management framework, to develop sustainable strategies for managing the impact of predators upon salmonids.	<p>Continue and improve sawbill duck, cormorant and seal counts.</p> <p>Develop Moray Firth Sawbill Duck and Cormorant Management Program.</p> <p>Continue participation in the Moray Firth Seal Management Programme.</p> <p>Continue participation in the Cairngorm National Park mink eradication project.</p> <p>Investigate other predator control methods.</p> <p>Develop data collection for other predators which may affect salmonid populations.</p>

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
4.2 Non Native species	<p>Non -native fish species were introduced to several lochs and ponds within the Spey catchment. Problem is still localised but steps need to be taken to prevent non-native populations becoming established elsewhere in the river.</p> <p>Both instream and riparian non native plant species are becoming more abundant and leading loss of native vegetation.</p>	<p>Removal of non native fish and plants from the Spey catchment.</p> <p>Prevention of further non-native fish species from entering the catchment</p> <p>Prevention of further non-native plant species from entering the catchment.</p>	<p>Support the introduction of better controls on the transfer of fish within Scotland to curb the spread of unwanted species and reduce risks to valuable native populations.</p> <p>Develop eradication strategies for existing populations of non native fish within the Spey.</p> <p>Encourage anglers to report any sightings of alien fish species and retain any non-native fish captures..</p> <p>Map alien plant species distributions and liaise with relevant partner organisations to develop plans for alien plant species eradication.</p> <p>Develop education strategy to prevent the further introduction of non-native plants or animals to the Spey catchment.</p> <p>Develop an eradication strategy for the removal of the non-native Ranunculus sp, from the mainstem of the Spey.</p> <p>Develop an eradication strategy for the removal of the non-native invasive plants such as Giant hogweed, Japanese knotweed, Himalayan Balsam, from the catchment.</p>

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
4.2 Gyrodactylus salaris introduction.	The threat of GS introduction is ever present and strategies need to be put in place to prevent its accidental introduction into the system.	To prevent the arrival of GS within the Spey catchment.	<p>Raise awareness of the GS threat and inform anglers and fisheries of the methods for preventing GS infection within Scottish waters</p> <p>Educate and advise anglers and fishery staff through newsletters and distribution of Code of Practice.</p> <p>Encourage stronger controls on anglers including the disinfection of tackle, clothing, etc when the visit Speyside fishing locations.</p>
4.3 Fish Disease Outbreaks	No major outbreak of fish disease has occurred in recent years but it has happened in the past and no thought has been given with regards to damage limitation.	<p>Improve awareness of fish diseases among proprietors, ghillies and anglers.</p> <p>Plans to deal with fish disease outbreaks on the Spey.</p>	<p>Source and distribute relevant literature on fish diseases to proprietors, ghillies and anglers.</p> <p>Consider development of a contingency plan to deal with fish disease outbreaks on the Spey.</p> <p>Ensure staff can access relevant training in sampling diseased fish.</p>

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
4.4 Illegal Fishing (Poaching)	<p>Illegal fishing for salmon and sea trout is still practised particularly on the coastal areas of the Spey district.</p> <p>Anglers do occasionally fish the Spey without permission or appropriate fishing permit.</p>	To reduce and if possible eliminate illegal fishing for salmon and sea trout.	<p>Maintain well trained bailiff squad.</p> <p>Maintain close liaison with the Police, particularly Wildlife Crime officers.</p> <p>Where sufficient evidence is collected, pursue convictions of captured poachers.</p>

## 5. Enhancement of Salmon and Trout Stocks

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
5.1 Habitat Management and Enhancement	<p>In general the fish habitat within the Spey is very good however, a certain level of salmonid habitat loss and degradation over time due to poor land management practices.</p> <p>Some baseline habitat surveys have been completed for the Spey but better data is required for spawning distribution, parr habitat etc.</p> <p>Habitat improvement schemes have ameliorated problems in certain areas, but there is scope for further improvements.</p>	<p>To maintain the high quality habitat that is present in most areas of the Spey catchment</p> <p>Identify river reaches where fish habitat is degraded and implement improvements.</p> <p>Improved the numbers of juvenile salmonids across the age classes and smolt output.</p>	<p>Initiate and conduct a suitable habitat survey over the range of Spey tributaries to identify key fish features (spawning beds, degraded areas etc).</p> <p>Prepare a detailed map of key fish habitat features and degraded areas potentially requiring remedial action for the catchment.</p> <p>Identify instream habitats which require improving (e.g. canalisation, side-channels) and draw up plans for habitat improvement projects.</p> <p>Encourage best practice, e.g. exclusion zones to prevent access to instream and riparian areas by grazing animals.</p> <p>Initiate new habitat improvement projects in partnership with proprietors, farmers and external organisations, such as FWAG.</p> <p>Maintain established habitat improvement areas such as the Batten Burn, Conglass Burn, etc.</p> <p>Utilize existing habitat improvement areas to show the benefits of improved riparian management.</p>

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
5.2 Hatchery Stocking	<p>Supplementing natural production by releasing hatchery salmon into areas where they are absent.</p> <p>Broodstock are captured from as close as possible to the target area for stocking however, salmon populations are likely to be highly structure and operation may affect the genetic integrity of stocks.</p> <p>Surveys indicate positive benefits in some areas with juveniles surviving well, benefits unclear in others.</p> <p>No data to show benefit or otherwise to the rod fishery.</p>	To refine hatchery stocking activities to benefit the River Spey.	<p>Develop and continually review salmon stocking policy.</p> <p>Continue to maintain good stocking records and collection of tissue samples.</p> <p>Improve monitoring of the hatchery stock after release into tributaries.</p> <p>Re-examine hatchery operations when genetics project has determined Spey salmon sub-population structure.</p> <p>Re-examine hatchery operations when genetics project has determined contribution of hatchery stocking policy to rod fishery.</p>
5.3 Brown Trout Stocking	<p>Brown trout are stocked regularly into a number of locations in the upper Spey.</p> <p>Currently no data on the effect of this activity on the native trout and salmon stocks</p> <p>Brown trout are not always of Spey origin.</p>	To review brown trout stocking activities and ensure they are not detrimental to the Spey.	<p>Establish the numbers and the locations of stocked brown trout and their re-capture rates.</p> <p>Explore the possible research to look at the effects of the brown trout stocking on salmon and native trout.</p> <p>Seek ways of stopping the use of brown trout stock from out with the Spey since these may introduce disease/parasites and threaten genetic integrity of existing stocks.</p>

## 6. Management of Other Fish Species

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
6.1 Other Native Fish Species	<p>Reasonable data on the distribution of the three lamprey species and the eel but more is required.</p> <p>Other than presence or absence data there is little data on pike and charr populations.</p> <p>Growing popularity of pike fishing on several lochs but no management of the resource or the anglers.</p>	To improve data on other native fish species and develop more robust management.	<p>Promote further surveys of native fish species.</p> <p>Promote projects to examine the ecology and importance of native fish species.</p> <p>Promote CNP guidelines for pike angling.</p> <p>Liaise with pike fishing clubs to foster improved management of the resource.</p>

## 7. Education and Publicity

Factor	Summary of Issue(s)	Management Aims and Strategy	Action Proposed
7.1 To educate and publicise fisheries management on the Spey.	<p>Declining interest in younger people regarding fishing and countryside management.</p> <p>General lack of understanding fisheries management across a wide cross section of the community.</p>	<p>To publicise fisheries research and management on the River Spey.</p> <p>To provide educational opportunities for various age classes of students to study and understand aspects of fisheries management.</p>	<p>Promote the fisheries research and management on the Spey through regular publications, presentations and events.</p> <p>Continue to develop fisheries education projects such as “Salmon Go To School” with local schools.</p> <p>Continue to offer student work experience placements and tertiary level study projects.</p> <p>Explore opportunities for offering training facilities for fisheries management students with Colleges and Universities.</p>
7.2 To contribute to wider National Fisheries Management	Need to improve fisheries management within Scotland.	Seek to improve fisheries management across Scotland through contributing to National management organisations.	<p>Maintain membership and continue to contribute to National Fishery organizations such as RAFTS, SFCC, ASFB and others..</p> <p>Continue to maintain strong links with FRS, SNH and SEPA. In particular continue to contribute to Area Advisory Groups and development of Basin Management Plans.</p> <p>Continue to develop links with Local Authorities and other relevant Agencies.</p>

## **6. Duration and Review**

The lifespan of this plan is six years, commencing 1<sup>st</sup> January 2009 and ending 31<sup>st</sup> December 2014. During this time the plan will be regularly reviewed by the Spey Research Committee. Regular updates will be presented through the SFB Annual Reports, Monthly Briefings and on [www.speyfisheryboard.com](http://www.speyfisheryboard.com).

## **7. Consultation**

Draft versions of the Spey Fisheries Management Plan were circulated to the following organisations and the author is grateful for their useful comments,

Scottish Environment Protection Agency

Scottish Natural Heritage

Fisheries Research Services

Cairngorms Local Biodiversity Officers

Royal Society for Protection of Birds

World Wildlife Fund (Scotland)

Moray Council

Highland Council

Cairngorms National Park Authority

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## 9. Glossary of Acronyms

ASFB	Association of Salmon Fishery Boards
CAR	Controlled Activities Regulations
CNP	Cairngorms National Park
FC	Forestry Commission
FRS	Fisheries Research Services
FWAG	Farming, Wildlife Advisory Group
GIS	Geographic Information System
RAFTS	River and Fishery Trusts Scotland
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency
SFB	Spey Fishery Board
SFCC	Scottish Fisheries Co-Ordination Centre
SNAP	Scottish National Anglers' Association
SNH	Scottish Natural Heritage
SRDP	Scottish Rural Development Plan
SRT	Spey Research Trust
WFD	Water Framework Directive

## 10. References

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