Part 5 **Fisheries Management in the WRFT area: actions past and present**

5.1 Management structures

Until the late 1980s the rivers and lochs of Wester Ross were still well known for prolific salmon and sea trout fisheries (see Part 3). During the 1990s stocks around northwest Scotland declined to their lowest levels. WRFT was set up in 1996 in response to the need for solutions to fisheries problems and to improve the management of wild fisheries. The Trust was set up by local salmon fisheries boards concerned about the collapse of fish catches with invited representatives from the local council, representatives from salmon faming companies and angling clubs. Subsequently, the Trust has worked with fisheries managers, landowners, Scottish Natural Heritage, The Highland Council, and a range of other individuals and organisations; and currently employs one full-time biologist and several part-time assistants.

Wester Ross Fisheries Trust now works alongside the Wester Ross Area Salmon Fishery Board (WRASFB). The new board was set up in 2006 and covers the fisheries from the River Kanaird south to the Applecross River. Rivers within the WRFT area to the south of the Applecross River are not part of the new WRASFB; these comprise all rivers from the Kishorn and Carron south to the Barrisdale. Since formation of the new board, the former Kanaird, Broom, Gruinard and Ewe District salmon Fishery Boards have been disbanded. One of the recommendations presented later in this report is that there may be advantages in resurrecting more localized river management groups (of 'sub-board' type) to co-ordinate and take forward and review any river-specific fisheries issues that are of little concern to the larger WRASFB. The River Shiel sub-board of the Lochaber & District Salmon fishery board is an example of the sort of group that might be appropriate to oversee a river-specific work programme e.g. the restoration of fisheries in Loch Maree. Outwith the new WRASFB area, the River Carron proprietors work together to guide the River Carron Fishery Restoration Programme, led by Bob Kindness. Further south (from the river Ling to Barrisdale), river management initiatives activities are largely estate based.

More recently, in line with other fisheries trusts and foundations in Scotland belonging to the umbrella organisation 'Rivers and Fisheries Trusts Scotland' [RAFTS], the Wester Ross Fisheries Trust remit has extended to other freshwater fish species, including Brown trout, Arctic char, European eel and lampreys. The Trust is as well placed as any other organisation to monitor the status of these fishes within its local area.

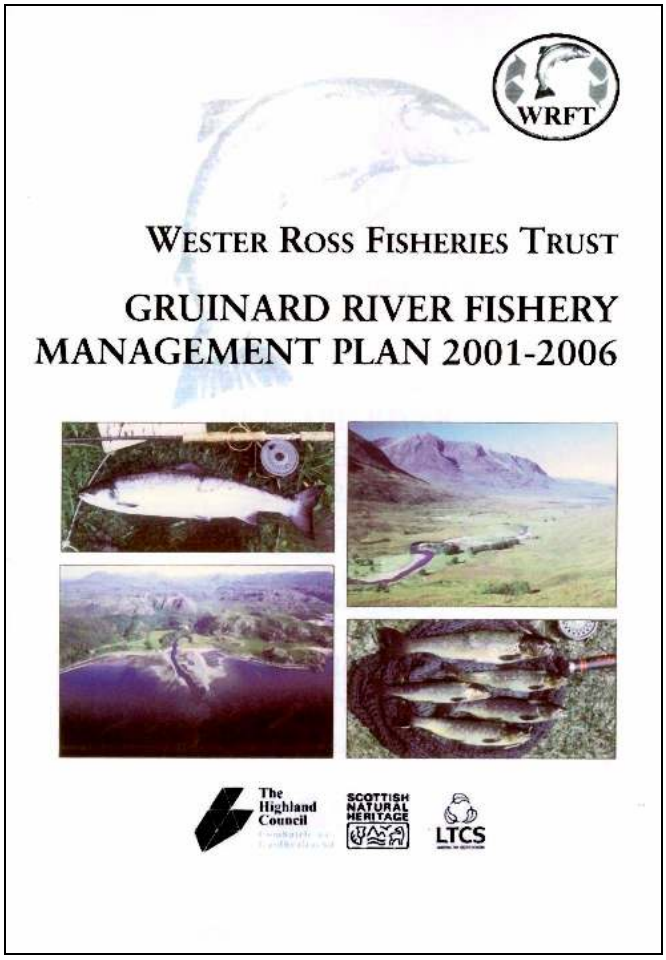
Meanwhile, under the EU habitats and Species Directive which came into being in 2000, Scottish Natural Heritage [SNH] have responsibilities for listed species, including all lamprey species and the Atlantic salmon (*Salmo salar*). The Little Gruinard river was designated as a Special Area of Conservation [SAC] for the Atlantic salmon (*Salmo salar*), and it is the responsibility of SNH to ensure that the river system maintains 'favourable status' for Atlantic salmon. The Atlantic salmon, Brown trout (*Salmo trutta*) and Arctic char (*Salvelinus alpinus*) were recently added to the UK Biodiversity Action Plan priority species list and are now also listed in the Scottish Biodiversity Strategy list of priority species.

Finally, under the auspices of SEPA and a West Highland Area Advisory Group of local stakeholders, a River Basin Management Plan (RBMP) is in preparation for the West Highland Area. This plan aims to bring all waters within the area to 'favourable ecological status' within a set period of time, in fulfillment of the Water Frameworks Directive (WFD) legislation.

Management structures are still evolving within the WRFT area as new legislation comes into operation (e.g. The Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 which set new arrangements for obtaining permissions to stock fish).

5.2 WRFT Fisheries Management Plans

Over the past 12 years, the Trust has carried out baseline surveys of juvenile fish populations and habitats along many of the river systems that enter the sea between Loch Broom and Loch Hourn (inclusive). Results of these initial surveys were reported in river specific Fisheries Management Plans [FMPs]. Each 'five year plan' presented a number of recommendations for actions to restore fish production. To date, FMPs have been produced for the rivers Kanaird, Broom, Dundonnell, Gruinard, Ewe (including Loch Maree), Balgy, Ling, Carron and most recently the Ullapool River (see Butler, 2000 etc. & Cunningham *et al* 2003 etc.). The Trust has also produced short reports presenting the results of research, surveys and monitoring, with the primary aim of providing useful advice to those directly involved with fisheries management.



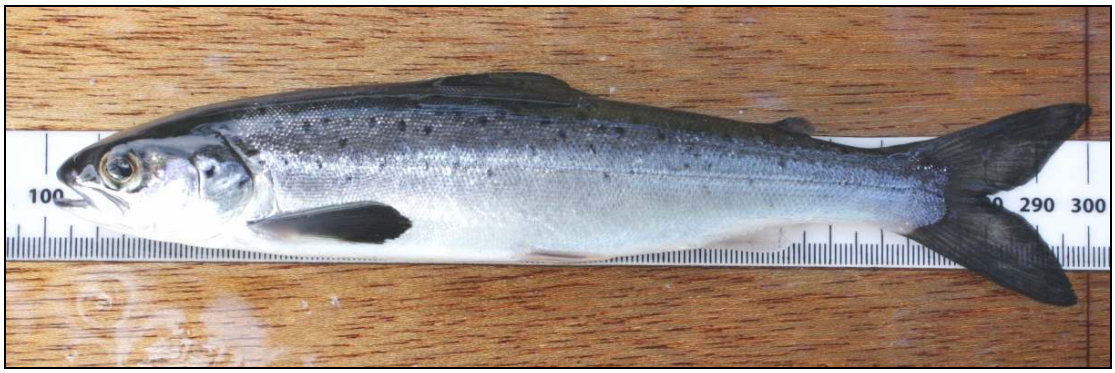
All FMPs concluded from the analyses of fish catches that numbers of salmon and sea trout returning to respective waters fell during the late 1980s and early 1990s. Some fisheries collapsed; others declined to about 30% of former levels. All plans concluded that a major factor for depleted fish populations was a decline in rates of marine survival of salmon and sea trout: a large proportion of smolts were dying at sea. In some years during the 1990s, not enough fish were returning to spawn to saturate accessible habitat with young fish. The collapse of major sea trout fisheries during the late 1980s and 1990s was attributed primarily to epizootics of sea lice emanating from fish farms. WRFT documented severe lice epizootics affecting wild sea trout smolts in Little Loch Broom and Loch Ewe. Because angling effort also collapsed, catch records alone do not provide clear indication of stock sizes. For example, up to 10 boats fished from the Loch Maree Hotel until the early 1990s; by 2004 there was only one boat fishing regularly from the hotel (see Part 4 for further details).

All plans present maps of the distribution of juvenile fish from data recorded during electro-fishing surveys of riverine habitats. Some surveys (Kanaird, Ewe [Bruachaig], Ling, Balgy, Carron, Ling) showed that there were gaps in the distribution of juvenile salmon during the late '90s - 2002 in areas known to be accessible to adult fish. [Subsequent surveys of the upper Gruinard, Elchaig, Glenmore (Glenelg) and Tournaig system revealed further gaps in distribution.] Data describing densities of salmon parr and juvenile trout were more difficult to interpret, but all plans considered that the densities recorded during surveys of some parts of respective rivers were below the carrying capacities of respective areas. All plans concluded that larger numbers of wild salmon and sea trout smolts could be produced from respective systems than were being produced.

From habitat surveys, a common conclusion was that vegetation – particularly tree cover within riparian areas - was more restricted than it could be (e.g. Kanaird, Ullapool, Gruinard, Balgy) due to grazing by sheep, deer and cattle. Related problems discussed in several plans were of erosion of stream banks, redd washout caused by the scouring of spawning gravels, streambed instability and seasonal reduction in available food for juvenile fish. Increasingly intensive rainfall, related to climatic change, was suggested as a contributory factor. Elsewhere (e.g. Broom, Carron), non-native plants such as *Rhododendron ponticum*, Japanese knotweed and exotic conifers were spreading along river banks, out-competing more useful native plants.

All FMPs present a list of recommendations for actions to improve the productivity of respective fisheries. These, and examples of actions subsequently taken are reviewed in the sections below.

Late salmon smolt, taken in downstream trap at Tournaig in July 2008.



5.3 Management activities

5.3.1 Data collection and monitoring

All data collection, research and monitoring carried out by the trust is aimed at informing fisheries conservation and management.

Electro-fishing surveys

These are carried out by WRFT staff and subcontractors trained to SFCC Electro-fishing course standards, primarily focussing on salmon habitat within river systems in the WRFT area. Most river systems have been surveyed several times; results inform fisheries managers. Currently the trust aims to survey each river once every two year for the purposes of informing local management.

Scale reading

In addition to scales collected during electro-fishing surveys, anglers donate scales of rod caught fish. These are used to age fish and determine farmed or wild origin.

Habitat surveys

Riverine habitat surveys were carried out following SFCC habitat survey protocols for rivers. These provided baseline data for WRFT Fisheries Management Plans and other reports.

Sea lice monitoring

WRFT monitors sea lice on wild sea trout in spring – early summer at a variety of sites.

Other work

Various research studies of lochs, rivers, river life, genetics *etc.* have been carried out by the Trust or in collaboration with other researchers to provide good quality data from which conservation and other fisheries management activities can be based.

5.3.2 Predator control

WRFT initiated a seal monitoring project of seal numbers in Kyle Rhea in 2005 and 2006 in collaboration with the Sea Mammal Research Unit at Getty Marine Laboratory, St Andrews University; supported by Highland & Islands Enterprise as part of an AMA funding package.

In 2004, WRFT held a Seal Management Workshop at its office in Gairloch, in collaboration with Spey Fisheries Board and Sea Mammal Research Unit. The workshop was aimed at informing keepers and ghillies of sea biology, identification and methods & protocols for control.

Seals are subject to control by keepers during the open season, and in 2006 and 2007, special permissions were granted to specified keepers within the WRASFB area by the Scottish Executive to shoot small number of rogue Common seals if they were found within rivers.

5.3.3 Habitat intervention

Many opportunities for habitat restoration and improvement are presented in FMPs. Some are catchment wide; others are site specific. These include: restoration of fish access, restoration of degraded in-stream and riparian habitats (often by limiting grazing pressures), control of invasive non-native plants. These are discussed as follows:

- *Kanaird*

'Prior to the formation of the Trust there was no coherent policy over management of the river' (Fenwick, 2005 *pers comm*). One of the problems highlighted in the FMP published in 2000 was of grazing by sheep and deer along the riparian corridor. Proprietors, with grant support from SNH and WGS, have subsequently followed recommendations and fenced off sections of both the Runie and the Kaniard. By 2005, alders and other vegetation were already beginning to protect the banks from incursions of the river, helping to stabilise it and were providing additional food for juvenile fish.

- *Ullapool*

WRS schemes were established prior to the publication of the Ullapool River FMP in 2006, to enclose areas of native pinewood and promote regeneration (part of Rhidorroch SAC), and to establish new areas of native woodland. These schemes will all help to increase the available food supply for fish.

The FMP highlighted unstable areas in the upper catchment areas from where materials were eroding. Because of complicated land ownership, complex technical challenges (remoteness, watergates) and closure of the WGS scheme, it has not been possible to progress possible solutions to date.

- *Broom*

Much of the accessible channel of the main stem Broom is man-made. Surrounding fields are protected by embankments of boulders designed by Sir John Fowler (who also designed the Forth Rail Bridge). The FMP was published in 2002 and has been well received by river fishery proprietors. Earlier, with grant support from SNH, two tributary burns (Sawmill Burn and Glacour Burn) were enclosed by sheep fences and alders planted. Initially there were problems with sheep getting in (under the water gate). However, trees are growing, and fish densities have shown slight improvements.

Overall, the riparian habitat along the accessible area of the Broom was judged to be in good condition, with healthy alder woodlands. However, the FMP recommended that the spread of rhododendron and Japanese knotweed should be prevented. The new proprietor of Inverbroom Estate is developing a series of WGS projects to restore native woodlands within the Broom catchment area. Discussions to initiate some in-stream improvements that would benefit salmon and sea trout production have taken place. Given the artificial nature of the main channel, some improvements for the benefit of wild fisheries may be acceptable to 'conservationists' and a meeting of proprietors may take place later in 2005 to agree priorities for action.

- *Dundonnell*

Following the publication of the FMP in 2000, WRFT assisted Dundonnell Estate with applications for grant support from SNH for riparian habitat improvements in the upper part of the accessible area. Subsequently, large sections of both the main river and important spawning tributaries have been fenced off from sheep, to promote stream bank stabilisation and growth of lusher vegetation. These improvements will benefit other wildlife including otters and song birds.

The two estates through which the river flows have tended to work independently from each other. Closer collaboration may be of advantage to achieving an outcome that all desire.

- *Gruinard*

The FMP, published in 2001, demonstrated that the Gruinard has one of the healthiest salmon populations in the WRFT area, with high densities of juvenile salmon in core areas. However, there were extensive sections of river, particularly above Loch na Sealga with degrading riparian vegetation and erosion due partly to grazing pressures. The FMP recommended that sections of the river bank in several parts of the catchment area should be fenced off to foster rejuvenation of riparian vegetation. Options for WGS schemes were considered at some length. However, land managers ultimately felt that enclosing large areas of floodplain would interfere with deer movements and reduce the amount of winter grazing available. Because of the remoteness of the area, concerns were expressed that enclosures with water gates would be difficult to manage. Other options are being considered.

Sheep and cattle are grazed in the upper catchment during the summer. Information has not been sought regarding recent changes in deer numbers. **Abhain Gleann na Muice** is one of the finest headwater salmon nursery streams within the WRFT area. In some places the roots of old alders trees are still able to hold the river banks together. Further actions at catchment management scale to restore fertility and allow regeneration of native riparian woodlands would be beneficial for production of juvenile salmon along some of the most important headwater spawning streams within the WRFT area. In the medium term to long term, other wildlife production, including that of grazing animals would also benefit.

En-route to an electro-fishing site in Gleann na Muice, River Gruinard catchment.

- *Ewe*

The FMP was published in 2002. This system is dominated by Loch Maree which represents over 90% of the 'wetted' area. Formerly, the Loch Maree sea trout fishery was the most important fishery in the area in terms of catches and employment. Recommendations for habitat improvements included fencing off riparian areas from sheep and deer and improving fish access into a number of spawning burns.

Subsequently, Coulin Estate has made considerable progress in line with FMP recommendations, and new WGSs have been established along the 'Farmhouse burn' a principle tributary for spawning sea trout. Elsewhere, WRFT in partnership with Forestry Commission Scotland, have cleared non-native trees away from the Slattadale Burn a principle sea trout spawning burn entering Loch Maree. Several road culverts on spawning burns have also been modified by The Highland Council to ease passage for sea trout and salmon.

Other habitat improvement projects currently being discussed include: Tollie Burn restoration, Loch na Fideil Burn improvements, Taagan burn. Letterewe Estate has enclosed a section of Allt na Muice (nr Heights of Kinlochewe) within a WGS; this will be beneficial for wild fish populations.

Areas where sheep and deer have not yet been excluded (as recommended in the Ewe FMP) include the Docherty Burn and parts of the Bruachaig. In these areas, the land management priority is for sheep and deer production; and as for the Gruinard, recommendations for juvenile salmon and trout may have been seen to be in conflict with those of providing grazing. Road construction work along the Docherty burn caused some destabilization in 2006-2007: there is potential for further habitat restoration and improvement projects along this burn following completion of road works.

WRFT have yet to assess the quality of habitats for fish within Loch Maree and other lochs and of management needs. This is further discussed below.

- *Balgy*

The Balgy system is dominated by Loch Damph, which formerly supported the second most productive sea trout fishery within the WRFT area. The habitat surveys for the FMP focussed on riparian habitat. Following publication of the FMP, native woodland restoration projects have been initiated above Loch Damph. Fisheries managers focused their efforts on a stocking programme until 2005. Genetic studies of the salmon population are being undertaken by FRS.

- *Carron*

A major fisheries restocking programme on the River Carron, supported by Seafield College, has been underway since 1996. The FMP for the Carron addressed some of the habitat issues. A key recommendation and opportunity for the river is for restoration of native riparian woodlands within the Forestry Commission Scotland [FCSs] 'Achnashellach Forest'. FCS managers have indicated that the forest to the south of the A890 is no longer commercially viable and that they intend to promote native woodlands. However, a major challenge will be control of *Rhododendron ponticum* – spreading from Glencarron lodge, around Achnashellach and Loch Dughaill. Scottish Native Woods submitted a bid for Heritage Lottery Funds to support a restoration programme.

There are other opportunities for riparian woodland restoration along spawning burns. It is not clear whether or not recommendations presented in the WRFT River Carron Fisheries Management Plan will help to bring about further actions to improve habitats for fish and other wildlife within the system.

- *Ling*

Several WGS schemes were already established prior to the publication of the FMP.

- *Other rivers*

There are many other WGS schemes within the WRFT area which have enclosed areas that have freshwater lochs or streams. These include the Balle mhor (Gairloch Estate) WGS, Scotland's largest, which involved planting over 3 million native trees. This will benefit wild fish populations in the gairloch hills, the Loch Maree sea trout fishery (including several spawning burns), and parts of the upper River Kerry catchment.

Letterewe Estate established enclosures to promote natural regeneration in parts of the Little Gruinard catchment area, including part of the Little Gruinard River, and a large area in the Beannach lochs subcatchment. These enclosures have not been planted; the aim was to find out the extent to which natural regeneration would establish new woodlands.

Parts of the Torridon River catchment are enclosed within woodland schemes (National Trust of Scotland); and Barrisdale catchment (John Muir Trust) though riparian habitat along main rivers are not included within schemes.

In the south of the WRFT area, much of the Glenmore and Glenbeag river banks are already fenced off from grazing by sheep or cattle and riparian alder woodlands are healthy. There are opportunities for additional protection of headwater streams.

Summary

Areas where restoration of riparian vegetation would benefit wild fisheries were identified in all 10 river systems for which WRFT Fisheries Management Plans have been prepared. All FMPs recommended that to stabiles river banks and enhance cover and food for juvenile fish, grazing livestock should be excluded from sections of river bank through fencing to allow regeneration of stronger and lusher vegetation. Riparian woodland projects have been initiated in the Kanaird, Broom, Dundonnell, Ewe and Balgy catchments. There is a need for monitoring of juvenile salmon and trout populations in areas where grazing animals have been excluded to assess whether there have been any changes in carrying capacity and production capacity.

In the Gruinard and other parts of the Ewe catchment, recommendations have not been implemented primarily because of concerns that the area of grazing for sheep and deer would be reduced, deer movements would be impeded, or that water gates in remote areas would be difficult to establish and maintain.

5.3.4 Stocking

Nearly all FMPs recommended the development of restocking programmes for salmon and/or sea trout using progeny of native stocks as 'high priority'. Recommendations specified where fish should be stocked and what should be stocked (progeny of native fish). Exceptions include the Broom, where electro-fishing data provided no evidence of a serious shortage of juvenile fish; and the Carron where a major restocking programme was already underway. Note that recommendations to stock change from year to year according to the findings of juvenile fish surveys and other information. Also, recent work by geneticists caution against stocking except as a last resort (Verspoor *et al* [eds] 2007).

- *Kanaird*

Until the publication of the FMP, the Kanaird was stocked periodically with salmon ova of east coast river origin. In line with recent research by geneticists, the FMP recommended that only native stocks should be used. Salmon and sea trout fry have been stocked annually into the Runie by Bob Kindness of Seafield College. Subsequently estates with support from WRFT have collected salmon parr which are being grown on as a captive broodstock at FRS Aultbea Fish Cultivation Unit. Small numbers of fish were stocked in 2004 and 2005. Since then there has been no stocking of the Kanaird above Langwell, electro-fishing surveys indicate adequate spawning of wild fish in headwater areas.

- *Broom*

There has been no recent stocking. A recommendation to establish a hatchery for supplementary stocking was considered to be of 'medium' priority in view of adequate wild spawning in recent years. There are opportunities for small scale stocking of sea trout progeny into some of the drainage ditches that feed into the river – these may be discussed at a future date.

- *Dundonnell*

In line with FMP recommendations, both estates established hatcheries. Currently, one of the estates has a stocking programme, recycling eggs of rod caught salmon and sea trout. The primary aim of stocking is to supplement wild fish spawning, especially if there is redd washout. Additional eggs and fry have been produced from native broodstocks maintained by Seafield College.

- *Gruinard*

The FMP recommended a stocking programme for both salmon and sea trout. Both estates have established hatcheries to recycle eggs from rod caught native salmon and sea trout. Following the publication of the FMP catches of salmon increased and the need to stock mainstem areas was reconsidered. Core sections of the river are currently judged to be more than adequately stocked by progeny of natural spawnings and only headwater streams are currently stocked. One estate stocked in 2003 and 2004 with support from WRFT, targeting marginal areas where wild fish had not spawned. Surveys in 2003 demonstrated that an initial stocking of salmon eggs in the headwaters of Allt Loch an Nidd had been successful: fry had grown well; likewise stocking of salmon into the Guishachan burn above the obstacle section. There are no plans for any stocking in 2008.

- *Ewe*

The FMP recommended a stocking programme for both salmon and sea trout, including 500,000 trout fry to be stocked annually into Loch Maree. One estate (Coulin) followed the recommendation to set up a stocking programme. Using a captive broodstock of native sea trout,

and rod caught salmon, eggs were incubated at a new estate hatchery and stocked into spawning burns around Lochs Coulin and Clair. Assistance was provided by WRFT. The estate feels that production of salmon and sea trout smolts in respective lochs has subsequently increased. A pair of Black-throated divers raised 2 chicks in 2003 for the first time in many years. This programme is reviewed each year in light of the distribution and abundance of wild spawning fish, and the latest advice from the WRFT and FRS geneticists.

Elsewhere stocking has been ad hoc. The former Ewe DSFB purchased sea trout fry of native origin from Seafield College in 2003 and in some earlier years. To date there are no firm plans to establish a second hatchery for the river system. There was a view amongst some proprietors and fisheries scientists that the wild sea trout population may recover just as quickly without a stocking programme – following improvements in marine survival (i.e. prevention of local sea lice epizootics). Habitat management is currently considered to be of higher priority than a stocking programme. Nevertheless, the need for a second hatchery is still being considered.

Since the publication of the Ewe FMP, Mr Pat Wilson, the proprietor of Kinlochewe Estate, provided the Trust with a written testimony that the upper Bruachaig formerly supported a salmon population: he observed otter-killed salmon carcasses on river banks in headwater areas some 10km above the main falls in the 1970s. No juvenile salmon have been found above the main falls since 1999. Above this point there is approximately 50,000 m^2 of good juvenile salmon rearing habitat with a potential for production of 5-10,000 smolts per year, which translates to an additional ~20+ rod caught salmon / per year, potentially worth some £20,000 / year to the fishery (plus an increase in capital value of £100,000). It is likely that this area formerly supported the early running salmon population of the Ewe. WRFT with support from FRS Aultbea Fish Cultivation Unit has established a small captive broodstock of salmon from which about 800 fry were stocked in 2004.

- *Balgy*

Salmon smolt cages were established within Loch Damh in 1986 and there are currently two smolt production sites, with a combined total permitted biomass of 85 tonnes. In 2001 (following production of the FMP) over 60% of smolts leaving Loch Damh were thought from scale readings to be of farm origin following investigations by WRFT. A native broodstock grown from parr captured by WRFT was reared at FRS Aultbea Fish Cultivation Unit and progeny were stocked in 2004 and 2005. A hatchery for the river was set up in 2004 to recycle salmon and sea trout eggs from rod caught salmon but was operated for only one year with limited success.

- *Carron*

Smolt cages were established in Loch Sgamhain at the top of the system in the early 1980s. Escaped farm parr were recorded during e-fishing surveys in down stream areas. The restocking programme for the Carron was initiated by Bob Kindness of Seafield College in the mid 1990s prior to the formation of the WRFT. The River Carron FMP (2004) provided recommendations for monitoring stocking and the natural recovery of the wild population. Catches of both sea trout and salmon recovered substantially over the past 4 years, and the FMP recommended that large sections of the river should not be stocked in 2006 to minimise competition for progeny of wild fish. The capture of tagged salmon, marked as smolts prior to release in smolt ponds demonstrates that stocking has contributed to the recovery of the rod catch. The Carron restocking programme and salmon fishery are discussed in more detail in the WRFT Reviews 2006 and 2007.

- *Ling*

The Ling FMP recommended that a stocking programme be developed using locally native salmon. Nonach Estate subsequently established holding tanks and developed a successful system for transferring rod caught salmon to the tanks where they are retained for stripping. From

2002, the Ling has been stocked with progeny of rod caught native salmon. Assistance was provided by FRS Aultbea Fish Cultivation Unit, and latterly by Seafield College. Although there was a substantial increase in the number of rod caught salmon in 2004, this was considered to be primarily due to improved marine survival as it was mirrorred in rivers which had not been stocked elsewhere in the area.

Summary

All rivers have (or already had) stocking programmes to supplement natural recruitment. Many estates established their own hatcheries. All now use only progeny of native salmon or sea trout. There is evidence from electro-fishing survey that densities of juvenile salmon have increased in a few areas (see Part 3); but e-fishing surveys have tended to focus on established sites where progeny of wild spawnings are present. Further information describing the genetic status of salmon populations is required to be able to refine guidance for local fisheries. The genetic composition of the Balgy and Carron salmon populations may have changed following the establishment of farm smolt production units. The remarkable recovery of rod catches in the Carron has been attributed to be primarily due to the stocking programme. However a comparable recovery in the number of rod caught salmon from the Ling and other rivers appears to be primarily due to other factors. There is a need for closer monitoring of the outcome of stocking programmes.

5.3.5 Exploitation control

All FMPs recommended that nearby netting stations should remain closed until wild stocks had recovered. No netting stations were operated within the WRFT area in 2004. All FMPs recommended that anglers should return any wild (but not escaped-farmed) rod caught fish. This recommendation was supported by the results of a radio-tagging study of rod caught fish in the River Ewe in 2001-2 which demonstrated that a majority of released rod caught fish survived to spawn. Where stocking programmes were recommended (see below) the retention of rod caught fish as broodstock was considered appropriate.

Subsequently, many rivers have adopted a policy of catch and release for all salmon and sea trout. Exceptions have been the Gruinard and parts of the Ewe system. Stocks of fish in these both rivers had not collapsed to the extent of those in other rivers, and some proprietors felt that retention of a minority of rod caught salmon, to satisfy some of their clients, would not significantly affect the recovery of fish population.

A catch and release policy was first introduced to the Little Gruinard in 1990. Radio-tagging studies on the Little Gruinard in 1991 and by WRFT on the Ewe in 2001 demonstrate that a majority of rod caught fish can survive to spawn if handled carefully prior to release. The Little Gruinard was designated as a Special Area of Conservation for Atlantic salmon, under EU legislation, following discussions with WRFT. Although a FMP has not been produced for this river; several short reports were produced during 1990 – 2007.

Although most rivers operate a ‘fly-only’ policy, some fisheries, including Loch Maree (Ewe system) continued to allow use of other lures with large treble hooks. Such hooks are more likely to cause lethal damage to fish. There is a need to review this practice where catch and release is also policy.

In summary, all rivers have accepted the need to ensure that as many salmon and sea trout are able to spawn as possible until stocks recover. On many fisheries there is a ‘catch and release policy’, and anglers are expected to return all fish. Elsewhere (e.g. Ewe and Gruinard) anglers are strongly encouraged to return fish. Although it is difficult to quantify the outcome of this policy, during a period when numbers of spawning fish may have been below ‘spawning target’ levels, any additional spawning fish will have contributed to an increase in juvenile production.

5.3.6 Easing of barriers

There are a limited number of manmade barriers in which obstruct passage of fish in wester Ross. The River Ewe FMP (Butler, 2002) describes some of the culverts along the side of Loch Maree which were made passable through provision of baffles. Passage for fish through a culvert beneath a road bridge over a small tributary which flows into the River Kerry was also eased in this way.

5.3.7 Poaching control

This is limited to salmon rivers and areas around river estuaries by Estate staff with bailiffiing cards. The Scottish Fishery Protection Agency patrols other areas.

5.3.8 Genetic studies

One of the most pressing questions for fisheries managers relates to the genetic status of salmon and sea trout populations within the WRFT. Studies have shown that 'native' salmon have higher whole life cycle fitness levels than 'non-native' fish stocked into a river system as eggs or juvenile fish. Although all rivers now stock only fish of native progeny, the degree to which the larger rivers (e.g. Ewe and Gruinard) have separate populations which spawn in different parts of respective catchments is unknown. Are the early running fish of the Ling and Ullapool rivers essentially the same as those that return later? To what extent have escaped farmed salmon that have spawned in rivers within the WRFT area altered the genetic composition of respective 'native' populations?

To answer these and many other questions, WRFT has collected fin clips of salmon parr during electro-fishing work for DNA analyses at FRS Freshwater Laboratory. The results of initial analyses are eagerly awaited. Further samples were collected in 2005 for the collaborative Atlantic Salmon Arc Project (ASAP) which is profiling salmon populations from rivers across NE Atlantic seaboard; and in 2007 and 2008 for the SALSEA project and fo inform local management.

Collecting samples for genetic analyses at Tournaig.

5.3.9 Sea lice monitoring & area management groups

In line with the recommendations of the Tripartite Working Group, WRFT has fostered closer working relationships between wild fisheries interests and fish farmers to resolve issues such as sea lice epizootics. All FMPs have recommended that wild fisheries interests seek formation of an Area Management Group [AMG]. Area Management Agreements were signed in 2002 for Lochcarron-Kishorn and Loch Torridon, and in 2005 for Loch Duich – Alsh – Hourn, and Loch Ewe. Information relating to the health of wild and farmed fish is exchanged in confidence within the confines of the Area Management Group.

That the fisheries of the River Carron are amongst the most improved within the WRFT area appears to be due in part to the success of members of the Lochcarron AMG in minimising the impacts of sea lice within the area (in addition to the major restocking programme). Good working relationships have developed within the group. Issues that may be of concern to fish farmers or wild fisheries interests have been raised, discussed and solutions mutually agreed. Wild fisheries proprietors respect the importance of the local fish farming industry to the local economy and have adopted a policy of collaboration rather than confrontation with regard to fisheries restoration. This policy, together with the largest stocking programme in the WRFT area appears to have contributed to the substantial increase in fish catches from the river. Further monitoring is required to clarify this.
In Loch Torridon, the AMG has facilitated research by FRS which has clarified relationships between sea lice, wild fish and farmed fish. Although numbers of sea trout returning to local river systems have yet to show clear signs of recovery – such a recovery is eagerly anticipated.

Elsewhere it has taken longer to establish AMGs than anticipated. In the Two Brooms area (Gruinard Bay to Loch Broom) the wild fisheries group was unable to agree the terms of an Area Management Agreement with local fish farm representatives. WRFT recorded very high levels of sea lice on sea trout in Little Loch Broom in the late 1990s-2001 and lice epizootics were reported from other parts of the area during these years. A sticking point was the issue of 'synchonisation' of farm production cycles, set against proposals for large scale expansion in farm salmon production within the area. WRFT continues to monitor sea lice on wild fish around the area.

The Loch Ewe AMA had was delayed because of concerns amongst some wild fisheries interests that signing an agreement might weaken the case for relocation of the salmon farms out of the loch. There has been a biennial series of sea lice epizootics affecting wild sea trout in Loch Ewe, with the most recent occurring in 2007. In view of the importance of Loch Ewe to wild salmon and sea trout, wild fisheries interests maintain pressure for relocation. An AMA was signed early in 2005 as a 'best way forward'.

Signing of the Loch Duich AMA also took a little longer than anticipated because it was considered important to gain the support of all parties, including all proprietors, prior to signing. The terms of an AMA have now been agreed by all parties and the first meeting of the AMG took place in spring 2005.

Summary

WRFT has fully supported the AMA process as a means of improving working relations between wild and farmed fish interests, and thereby improving management for the health of both wild and farmed fish. The AMA process may have contributed to a recovery of wild fisheries in the Lochcarron – Kishorn area. Elsewhere improvements in fish health, specifically sea lice epizootics, may be reported by WRFT through continued monitoring of wild fish in estuaries. However, following several years of improved fish health, 2007 was a step backwards. Serious sea lice epizootics affecting sea trout were reported in many sea lochs within the WRFT area including Loch Ewe, and Loch Torridon where FRS monitors the Shieldaig sea trout population. Lice levels were also high in many sea lochs in 2008 (Hayes, 2008)

5.3.10 Education and raising awareness of fisheries management

WRFT has recently established a website (www.wrft.org.uk) and publishes an annual review and two newsletters each year.

WRFT attends local country days and gatherings, and organises a 'family day' each year to extend awareness of the trust work. These are usually well attended by a mixture of local residents and visitors.

The Trust has also worked closely with schools, including a series of school projects from 'Science saving Sea trout' and 'Salmon in the Classroom' to 'Life in Lochans'. Sometimes it seems that children (and their parents) are becoming increasing detached from the natural world around them; WRFT does what it can to redress this unhealthy situation.

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