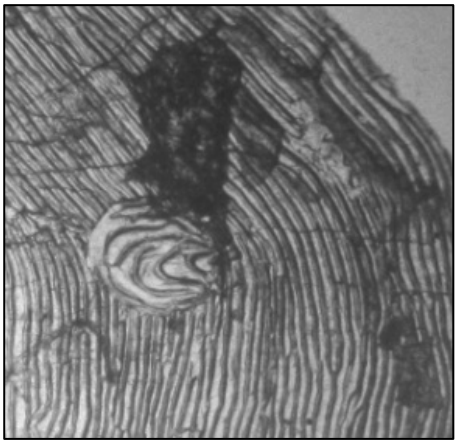
WESTER ROSS FISHERIES TRUST

REVIEW MAY 2011



 www.wrft.org.uk Registered Charity Number SCO24787

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REVIEW

by

Peter Cunningham, Jonah Tosney, Bob Kindness, Dr Lorna Brown, Gunnar Scholtz and Elaine Fraser

May 2011

Cover photos (all photos © WRFT unless stated otherwise):

(clockwise from top left) Alasdair Macdonald and daughter Sophie with her first every salmon from the Dundonnell River caught on 12th July 2010 (photo Mhairi Macdonald); Loch Ghiuragarstidh in November 2010; Sea trout of 58cm taken in Loch Gairloch sweep net in June 2010; part of scale from sea trout of 480mm taken in Loch Gairloch in August 2010 with circular mark attributed to Cryptocotyle lingua infection; chewed salmon jaw as found beside primroses on a wee green island in the Little Gruinard River in May 2010; 'Tink' with bucket of juvenile salmon and trout from the Allt Cham Loin Mhoir, August 2010.

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Mark and Kirsty Williams recording details of juvenile fish in August 2010 (Peter Cunningham)

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Preface

The preface to the last WRFT Annual Review (May 2010) predicted harder financial times and an increasing focus on partnerships and generation of funds from new sources. There was an inherent implication that the Trust might need to rein its ambitions in an increasingly constrained external financial environment. This situation has certainly materialized for some of our long term partners, such as Scottish Natural Heritage and Highland Council, but for the Trust itself the reality has been remarkably positive.

In December 2010 we realized a long-debated ambition to appoint a second biologist. Jonah Tosney was recruited through a partnership agreement with Inverness College whereby the costs and the biologist's services are evenly split between the two institutions. Jonah is based at Loch Carron and works closely with WRFT Trustee Bob Kindness as well as Dr Melanie Smith of Inverness College. This arrangement has allowed the sharing of geographical responsibilities, with Jonah dealing with the southern areas of Wester Ross, leaving Peter Cunningham focusing on the north. The association with Inverness College has also put us alongside a major new research initiative, the Carron Research Project, currently under development. A major vote of thanks is due to Peter Jarosz and Melanie Smith who between them hatched this collaborative arrangement.

The recruitment of a second biologist was, in part, facilitated by another partnership agreement. The Skye Fisheries Trust was established in 2009, and presented its Fisheries Management Plan in 2010. The SFT has clear ideas of its requirements and priorities but is currently constrained in the human resources it can bring to bear on execution of the FMP. It has, therefore, been agreed that the WRFT second biologist will carry out electro-fishing surveys for SFT during 2011, alongside our own southern rivers survey programme. An efficient use of resources in demanding times.

Partnership was also responsible for another unexpected improvement in our fortunes. The highly controversial TWG project was scheduled to end in March 2011 with little hope of continuation. In 2010, the west coast Trusts came together under the prompting of Charles Marshall of West Sutherland Fisheries Trust, to develop the basis for a successor project proposal to be put to the Scottish Government. After a good deal of work by Callum Sinclair of RAFTS this has resulted in the funding of a new "Aquaculture Project" that will benefit all west coast Trusts. Under this project we will continue to receive funding for sweep netting (sea lice assessment) as well as benefitting from central coordination of this and other activities aimed at minimizing the impact of fish farming.

Generation of financial support for Trust activities has also progressed under the unrelenting enthusiasm of Peter Jarosz. We have been fortunate to secure funding from the Robertson Trust for our education work, and Peter Cunningham has generated valuable revenue through his consultancy survey work. All in all, the financial picture remains better than expected and will hopefully enable us to keep on the services of a second biologist for a second year, as well as continue to seek innovative approaches to improving the well-being of wild salmonid fish. Thanks are due to Ronnie Mullaney for keeping the finances under control as they become ever more diverse.

Finally, thanks must be given to the many people who have supported the Trust in the year under review. Without the volunteers, sweep netters, electro-fishers, financial donors and other supporters, the activities reported in this review would simply not have happened.

Prof Barry Blake (WRFT Vice chair), May 2011

Part 1 **Introduction**

This report provides a summary of our work over the past year. Despite excellent rod catches of salmon in 2010, the past 12 months have been somewhat challenging for wild fish and fisheries managers around Wester Ross. April 2010 was cool; much of May and June were dry hindering the downstream migration of smolts from some river systems (see Part 2.3). As local schools broke up for their summer holidays at the beginning of July, a period of less settled weather began which lasted through the remainder of the summer. River levels rose. The subsequent rod catches of salmon and grilse were for some rivers the best on record (see Part 2.2). However, conditions at times were less than ideal for juvenile fish surveys (see Part 2.1). At some sites, the spring drought may have taken its toll on juvenile salmon populations. River levels remained high through much of September to November. Then, just before the salmon spawning season, water levels dropped and remained very low. In mid December, long after the period when spawning usually takes place in most streams, temperatures plummeted to some of the coldest for many years, and ice penetrated deep into river gravels.

Over the past 15 years we have learned much about the productive capacity of freshwater habitats in Wester Ross. At a 'stocking' workshop in May 2010 we considered options for managing different rivers and different types of river habitat (see Part 5.1). For wild salmon, there are areas of 'core' habitat which consistently support high densities of juvenile fish, including parts of the two Gruinard Rivers and the River Ewe below large lochs where the riverbed is particularly stable. In contrast, 'marginal' streams (e.g. the Tournaig river system) and headwater areas above lochs and complex waterfalls (e.g. the upper Bruachaig) are places where the survival of salmon populations from from one generation to the next is much more precarious (see Box 5.1). In some years, environmental conditions are favourable for producing young fish with adequate flows for migrating salmon, buried eggs, juvenile fish; in other years, droughts, streambed-scouring spates, or other largely natural events may reduce the size of fish populations, or hinder spawning by adult fish. This spring (April to early May 2011), the Wester Ross area experienced a period of sustained drought with air temperatures of up to 23^{o}C three very damaging wildfires (by Dundonnell, Torridon and Glen Shiel), and some of the smaller burns almost dried up (automated weather reports can be found at the Two Lochs Radio webpage www.2lr.co.uk). Will we find wild juvenile salmon in headwater streams when we carry out electro-fishing surveys later in the year?

During the past year, a fishery management plan was produced for the Little Gruinard River where a 'Catch and Release' policy was first adopted in Scotland (see Part 4). The catchment area is regarded as one of the largest 'wilderness' areas of the UK. The FMP, and a presentation 'Refertilising Scotland' given at the Reforesting Scotland Annual Meeting in Torridon in September 2010, considered whether parts of Wester Ross have been impoverished by changes in the ecology and land use practices of people over many hundreds of years. Other issues which remain a focus of WRFT activity include the marine environment where the Trust continues to carry out a programme of sweep net monitoring to assess the health of sea trout (see Part 3); and biosecurity (see Part 5), with the new collaborative Scottish Mink Initiative now underway. As ever, the Trust carries out its remit to raise awareness and levels of understanding of wild fish and the problems they face through its schools-based education programme (see Part 8).

We hope you'll find something of interest in the following pages. Please keep in touch; and let us know if you have any comments on any of our work over the past year or on our plans for the year ahead.

Peter Cunningham, May 2011

info@wrft.org.uk

Part 2 **Salmon and sea trout stocks**

2.1 Juvenile fish surveys

A primary aim of the Trust's work is to maintain an up-to-date understanding of the health of fish populations within the area covered by Wester Ross Fisheries Trust, which extends from the River Kanaird to the north of Ullapool to the Barrisdale River in Knoydart. Between July and October each year, surveys are carried out by electro-fishing teams to assess the status of the juvenile salmon population. Teams aim to visit all river systems which support a salmon fishery at least once every two years. In 2010, as in other recent years, most sites were surveyed using the SFCC semi-quantitative timed protocol where 'Catch Per Unit Effort' [CPUE] type data is produced reflecting the occurrence and relative abundance of fish of different species and age classes (see WRFT Review May 2009).

In 2010, sites were surveyed on the Kanaird, Ullapool, Lael, Dundonnell, Gruinard, Tournaig, Ewe, Sguod, Sand, Kerry, Badachro, Torridon and Balgy rivers by the WRFT e-fish team (Peter Cunningham, supported by David Mullaney, Roger McLachlan, Gary Bulmer, Norman Thomas, Clint Barker, Ben Rushbrooke, estate staff and volunteers). Many of the sites fished on these systems were in 'marginal habitat' areas considered to be relatively sensitive to changes in the overall health of salmon populations (see also Box 5.1). In addition, a team from SEPA carried out an electro-fishing survey of the lower River Elchaig in the south of the WRFT area.

Results

The following section summarises the results of the juvenile fish survey in 2010, from north to south. Results are also presented in Figures 2.1 – 2.3. Table 1 defines the Catch Per Unit Effort (CPUE) grades used in the following text.

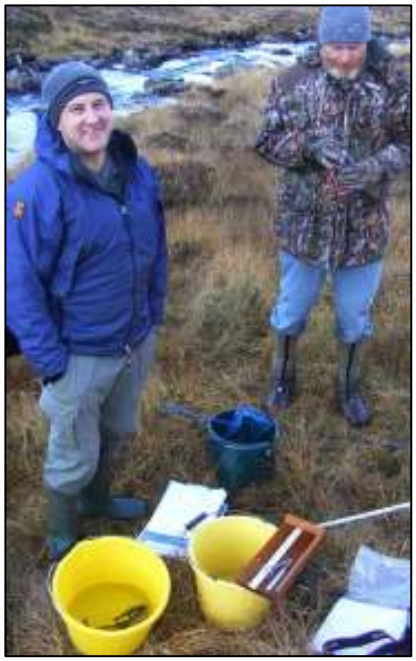
Table 2.1 Definition of Catch per Unit effort grades as used in the following text.

CPUE	**Grade**
0	Absent
0.1 – 0.5 fish per minute	Very low
0.6 – 1.0 fish per minute	Low
1.1 – 2.0 fish per minute	Moderate
> 2 fish per minute	High

Results generally reflected healthy salmon populations which are believed to be at near carrying capacity. However, at some sites, capture rates recorded were lower than on some previous occasions, and may relate to drought conditions earlier in 2010. The following section provides a summary of river specific details:

Kanaird (15/10): Above the Langwell Falls by Glen Cottage, large salmon fry (63mm – 77mm) were found at moderate CPUE, however only one salmon parr was found. Trout fry and eels were also recorded here. In the middle Runie, smaller salmon fry (47mm-56mm) and parr were recorded at low CPUE in addition to trout fry and minnow (both at very low CPUE). **Ullapool** (15/10): Salmon fry were recorded at high CPUE in the burn by Rhidorroch House and parr at low CPUE. Trout fry and older trout were also recorded at moderate & low CPUE respectively. At the top of the Ullapool River (Loch Achall outflow) salmon fry were present at high CPUE; only one other fish was taken here, a salmon parr of 120mm. Other sites in this system were fished in 2009 (also shown on Figs 2.1 and 2.2). **Lael** (16/11): Sites were fished late in the season as part of a contract for NPower. Brown trout including young of the year were found at several sites above the new powerhouse and falls; salmon (fry and parr) were recorded below the powerhouse demonstrating salmon spawning within the lower Lael in both 2008 and 2009.

Dundonnell (14/8 & 13/10): Salmon fry and parr were present at all main river sites, generally at low or moderate CPUE, though at high fry CPUE at the tail of the Shepherd's Pool. Trout were present at high CPUE in the Cemetery Burn. Juvenile salmon grow quickly in the Dundonnell River (see WRFT Review May 2009), however CPUE values are sometimes not as high as in other sites. Interpreting whether the river is at carrying capacity or not is not straightforward; juvenile fish densities may have been reduced by very low flows in May and June 2010, or redd washout earlier in the year. Eels were also recorded in the main river and were filmed by Chris Daphne of West Sutherland Fisheries Trust at the Dundonnell Biodiversity event on 14/8.



Gruinard (10/11): An expedition set off to explore the Ghuisachain burn late in the year. The day was cold with water temperature below 4°C. The the purpose of the survey was to find out how far upstream juvenile salmon were present, and also to look for possible spawning sea trout and charr, reported in previous years. Care was taken to avoid fishing in places where trout may have already spawned. At the bottom of the burn near its confluence with the main Gruinard River, small salmon fry (0+ fry, 36mm - 46mm) and two year classes of small parr (1+ parr, 58mm - 74mm) were found, indicating high densities of juvenile fish in this section of river. Above the cascade section, juvenile salmon were also found to within 400m of the loch. These fish were recorded at much lower CPUE than at the bottom of the tributary, but were much larger for their age (0+ fry, 51mm-70mm; 1+ parr, 102mm-124+mm). Only brown trout were recorded in the river above Loch Ghuisachain; there were no signs of Arctic charr.

(left) Ben Rushbrooke and Roger McLachlan with a bucket of wee salmon (and bar of fruit and nut chocolate) by the Ghuisachain Burn on 10th November 2010; (below) Our largest salmon parr of the year: 173mm (age ?3+), from the Ghuisachain Burn [photo by Ben Rushbrooke]

Some smaller burns

Laide Wood (20/8): Juvenile trout (62mm – 163mm) and eels (123mm – 340mm) were recorded during the 'aquatic beasties' discovery day which included electro-fishing of two sites and invertebrate sampling. **Tournaig** (4/8): Trout, eels and salmon parr (but not fry) were recorded at the top site within the WGS 'jungle' enclosure; lower down the Allt na Coille, salmon fry and trout fry were recorded at high to very low CPUE, parr at low – very low CPUE. Of note, minnows were found in the flats above the 'top falls' for the first time; and at the second site above the loch (up to pool below lower falls) where salmon parr densities are usually highest, 45 eels ranging in size from 105mm to 480mm were found with only 9 salmon parr in 20mins fishing. **Sguod** (11/8) Trout fry were recorded at high CPUE at sites in all three tributaries and in the main river below the loch; salmon fry were present only in the north burn; and salmon parr were present in all three tributaries and the main river. **Sand** (3/7) Salmon fry, a parr, trout and eels were recorded at the electro-fishing demonstration at the 'Gairloch Gathering'.

River Ewe system sites

Garbhaig (4/10): Between the road bridge and Loch Maree, both salmon fry and trout fry were recorded at moderate CPUE, along with a salmon parr, eels and minnows (all at low or very low CPUE). In the **Slattadale burn** nearby (4/10), only two salmon fry were recorded in a total of 25.5 minutes fishing at three sites. Salmon parr were present at the middle site at moderate CPUE, and a salmon parr was lost from the net by the concrete forestry bridge: the furthest up the burn salmon have been recorded to date. Trout fry and larger trout were present at all sites in the burn, with high trout fry CPUE at the top (concrete bridge) site. Minnows and eels were recorded at the lowest site in the burn. Native riparian vegetation of willows and other trees and scrub has now been restored along much of the existing riparian corridor; however during spate flows the stream has flooded into a new channel in conifer plantation nearby. What should be done?

Bruachaig (7/7): Sites were fished below and above the falls complex prior to stocking out salmon fry (see Part 5). The river was high and only the margins could be fished. Salmon fry and parr were recorded below the falls. Above the falls, at sites above and below the Professor's Pool, 15 parr (88mm-102mm) were caught demonstrating that many of the salmon fry stocked in 2009 had survived; no wild salmon fry were found.

- - -

Gairloch rivers

Kerry (3/9): Salmon fry were recorded at high CPUE at all three main river sites; parr were also recorded at moderate CPUE. At the lowest site, a trout – salmon hybrid was recorded *(left, top fish)*; and some of the fry were heavily infected with freshwater pearl mussel larvae (glochidia). **Badachro** (6/8): Fry were recorded at over 5 per minute in the main river above the Loch Bad a'Chrotha, and at high CPUE in the lower part of the Allt a'Ghuibhais. Salmon parr were recorded at moderate CPUE at both sites. A salmon parr was recorded 40m below Loch Clair for the first time, along with many trout fry (3 fish / min).

- - -

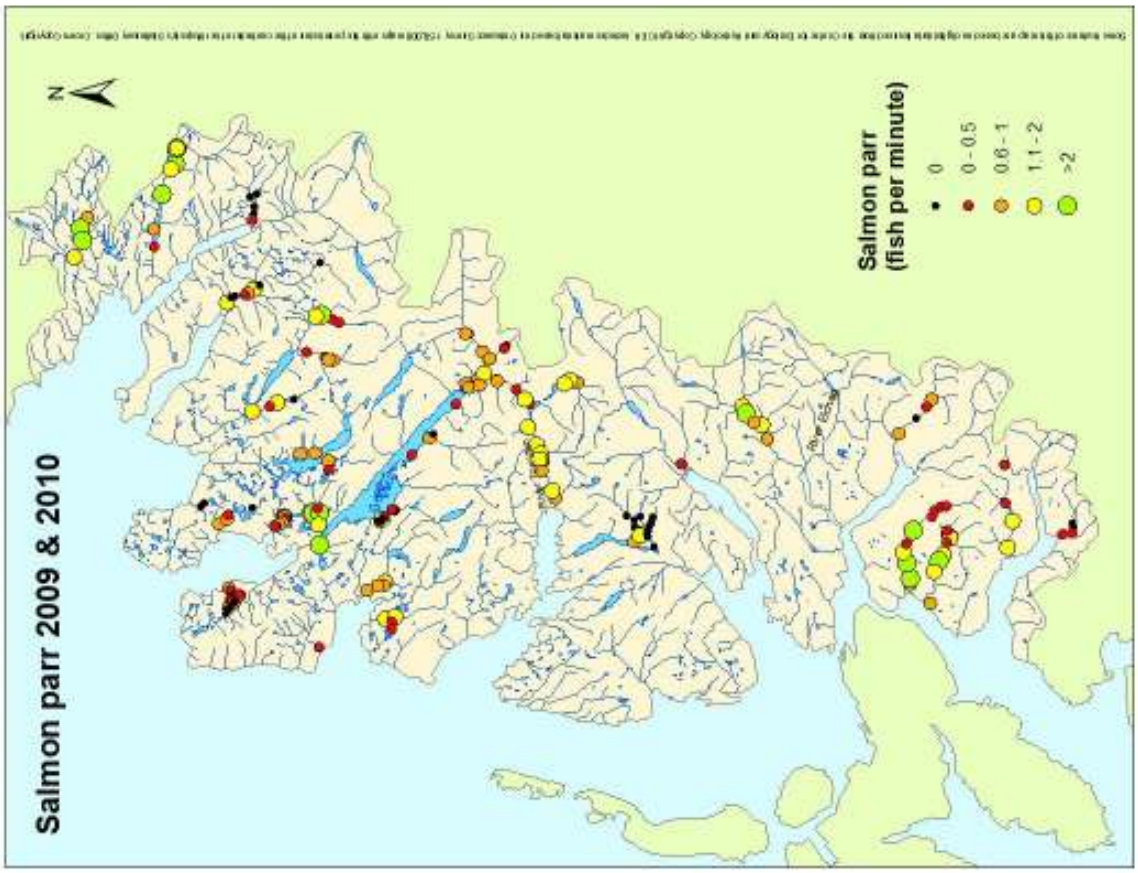
Torridon (31/8): In the Allt Coire an Annioich above the road bridge (and fishing lochan) juvenile salmon outnumbered juvenile trout; parr were present at moderate CPUE. In the main river and Thrail, salmon fry and parr were found at all sites, generally at moderate or low CPUE. Eels were also recorded at moderate CPUE in the Thrail.

Balgy (8/9 & 9/9): In the accessible part of the Abhainn Dearg by the Lodge, salmon fry and parr were recorded at moderate CPUE. No salmon were found in the Allt a' Ghiubhais above Loch an Loin. Trout fry were present at high CPUE at the lowest site, minnows were also present. Trout of up to 210mm were caught further up this burn.

(right) A thick matt of filamentous algae covered the streambed of the Alltan Eisg (Balgy) below the WGS scheme on 8/9/2010. Too much fertiliser?

Elchaig (1/9): The SEPA electro-fishing team surveyed three sites in the lowest 2km of the river above the tidal limit, finding over 50 fry and 25 parr per $100m^3$ (equivalent to very high CPUE). A WRFT survey of all the salmon rivers in the south of the WRFT area is scheduled for 201

Figure 2.1 Distribution and relative abundance of salmon fry and (below) salmon parr in the WRFT area in 2008 and 2009



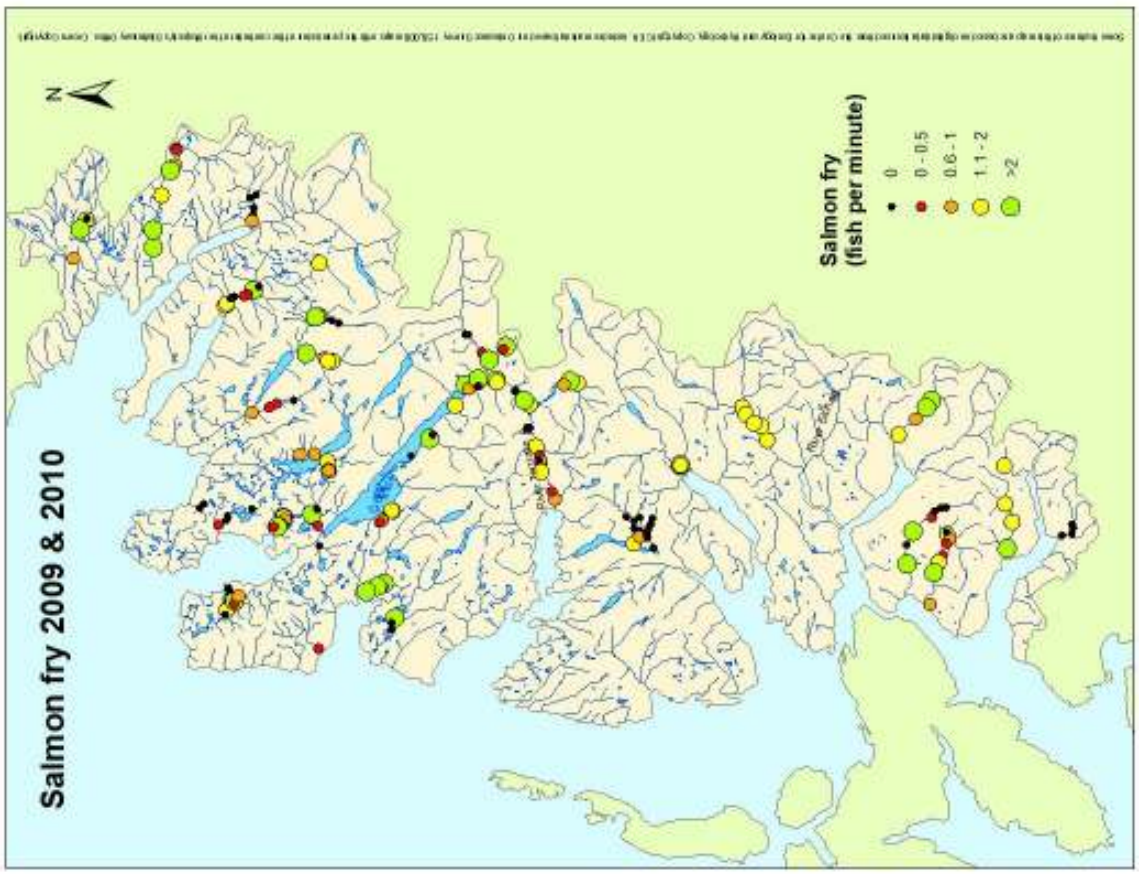


Figure 2.2 Distribution of trout fry at electro-fishing sites surveyed in the WRFT area in 2009 and 2010.

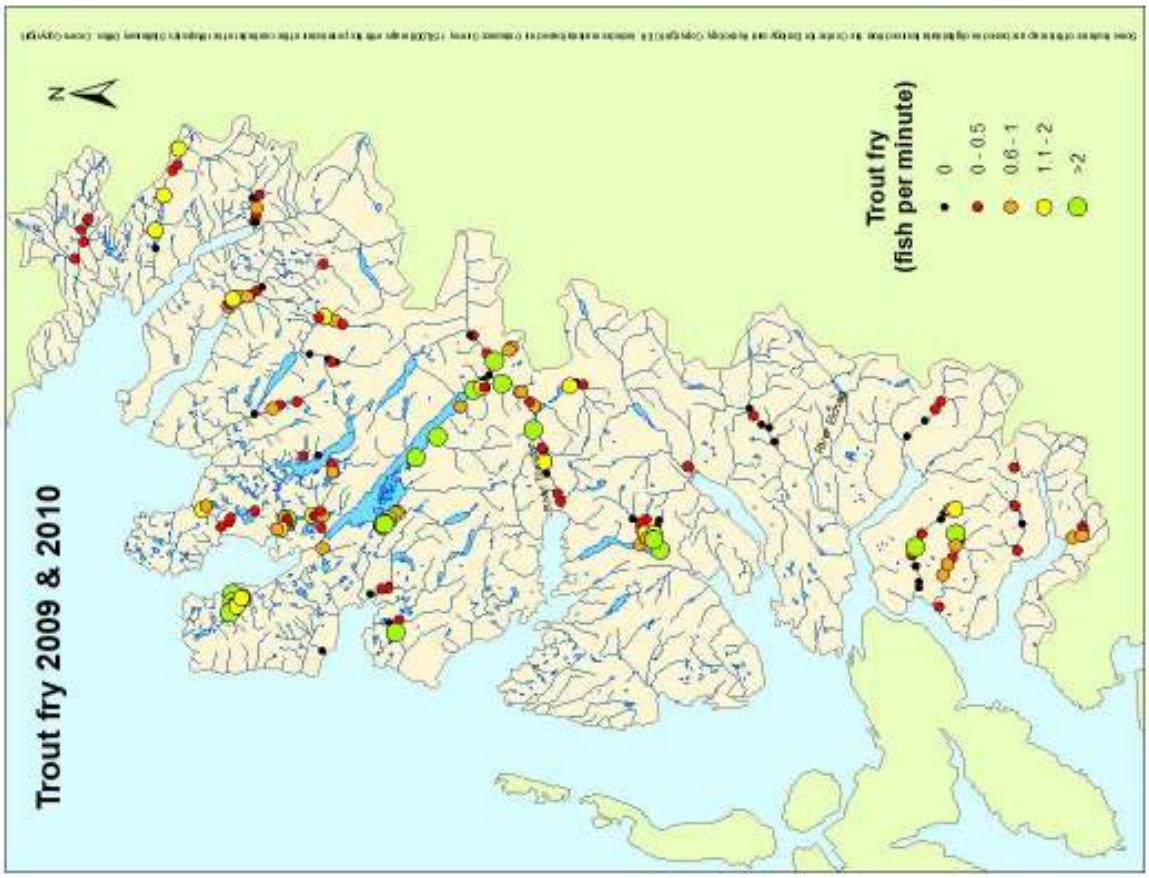
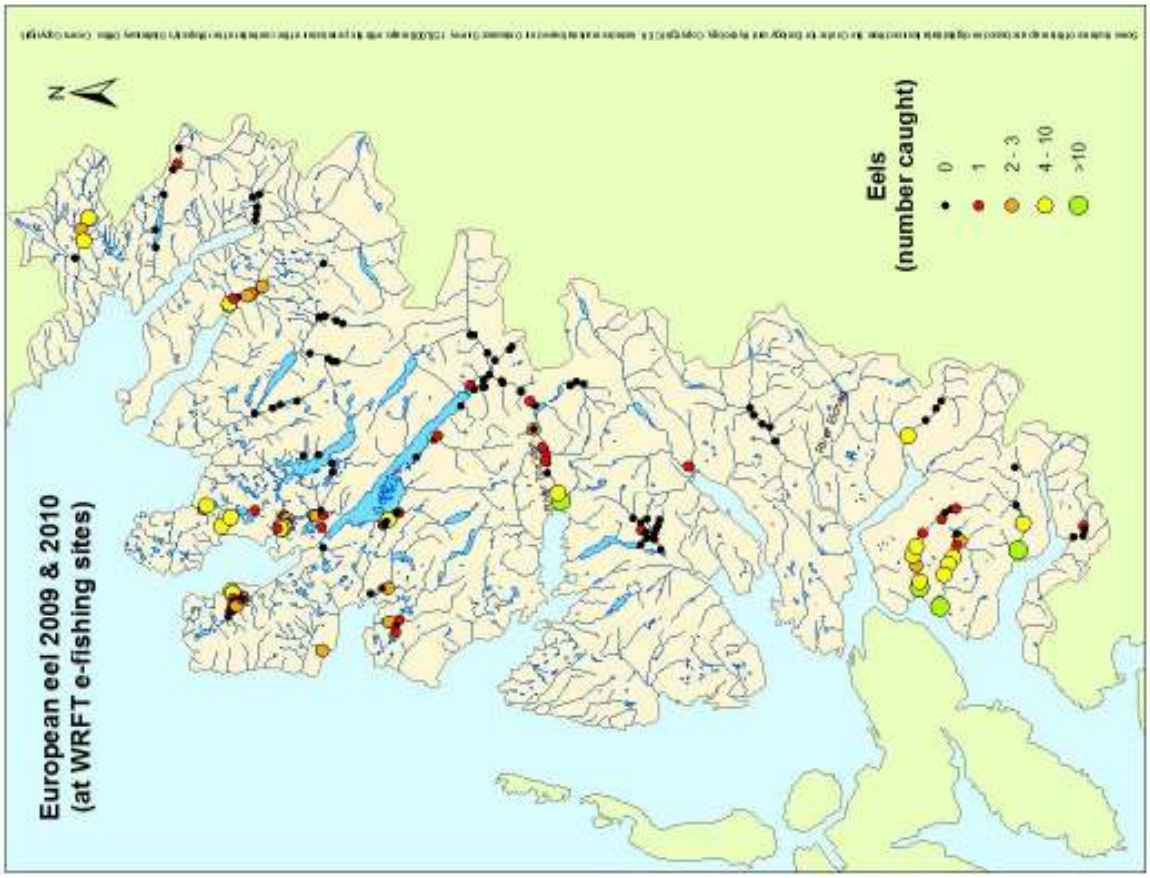


Figure 2.3 Distribution of eels recorded at electro-fishing sites within the WRFT area in 2009 and 2010.



2.2 Rod catches

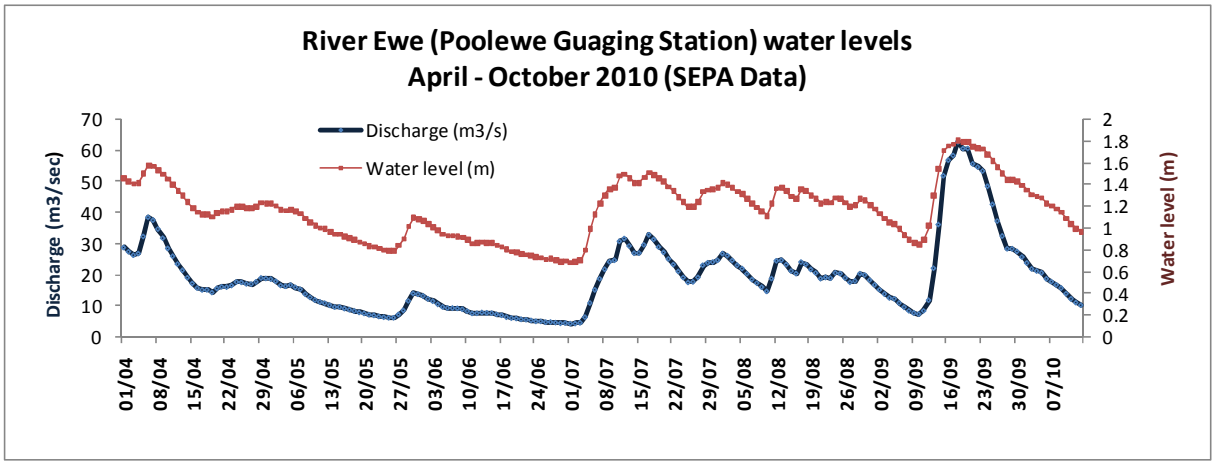
Rod catches provide an indication on the performance of respective fish populations. For rivers in Wester Ross, catch records should be interpreted with caution. Many rivers, particularly the smaller waters are only productive at relatively high flows and 'fishing effort' is variable.

The following graphs are based on data reported at the end of the season to WRFT; and for some rivers, the Scottish Government's official Marine Scotland figures from catch returns submitted from rivers in the WRFT area for the 2010 season. Some discrepancies became evident between 'official' figures and those reported to the biologist. These are being addressed; the graphs presented below are based on what are considered to be the most accurate figures.

Salmon

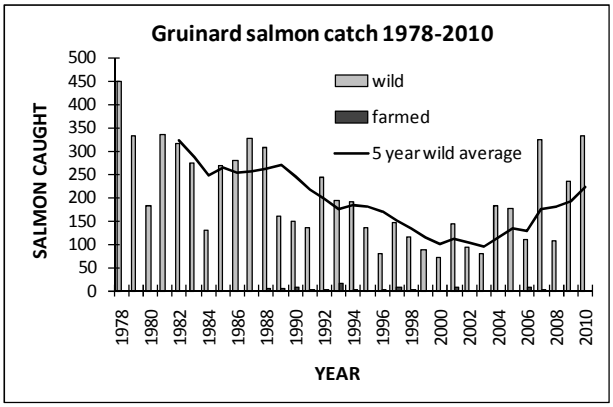
In common with many other parts of Scotland, rod catches of salmon in 2010 were some of the highest on record for some of the rivers in Wester Ross. The season started slowly with low water and difficult fishing conditions; few spring fish were caught. Then from the beginning of July, things picked up with both grilse and larger salmon taken. Water levels remained high enough to allow fish to enter from the sea and for angling for much of the rest of the season (Figure 2.4).

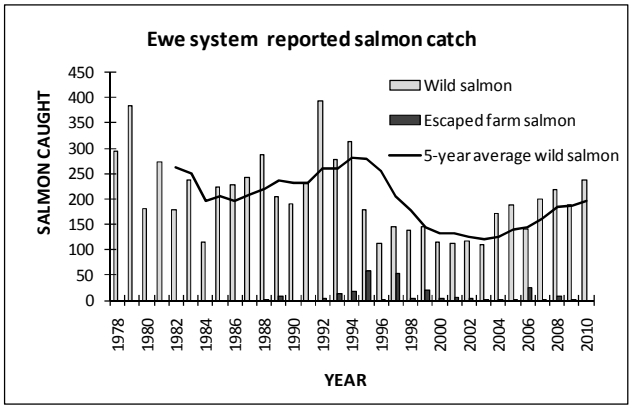
Figure 2.4 River Ewe levels April – September 2010 (SEPA data).



The Gruinard and Ewe both recorded their best catches for many years (Figure 2.5) [some fish may be missing from the 'official' Ewe catch record]. One escaped farm salmon was recorded in the Gruinard catches, there were no reports of escaped farm salmon from the River Ewe.

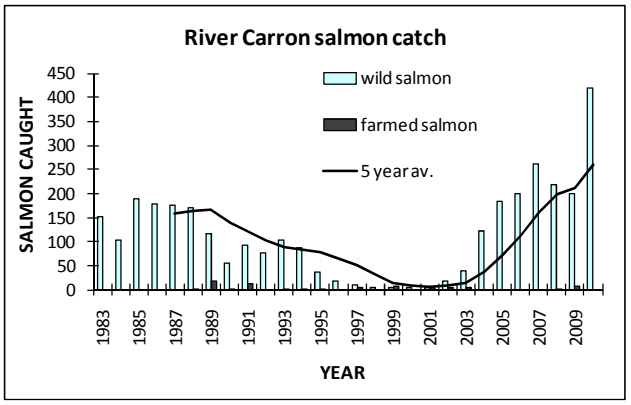
Figure 2.5 Both the Gruinard River and River Ewe recorded their highest rod catches of salmon for 15+ years.

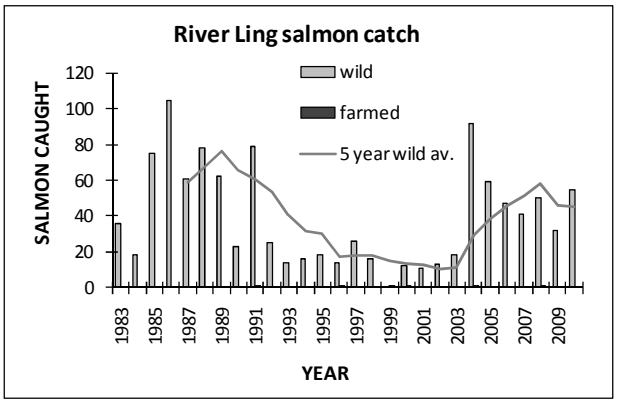




The River Carron had an outstanding season after a slow start. The recorded catch of over 400 salmon and grilse is the highest for any river within the WRFT area since the 1970s, and surpasses the previous record recorded catch of 261 for the River Carron by a substantial margin. One rod, WRFT Trustee Bob Kindness, recorded over 100 fish. The Carron also produced the largest reported salmon from a WRFT river in 2010: a 28.5lb cock fish which taken by WRFT Trustee, Richard Wilson. Further south the River Ling also had a good season after a slow start, fishing effort was patchy towards the end of the season. The Ling is noted as an 'early' river, so low water conditions in May and June were unhelpful.

Figure 2.5 River Carron and River Ling rod catch of salmon for 2010.





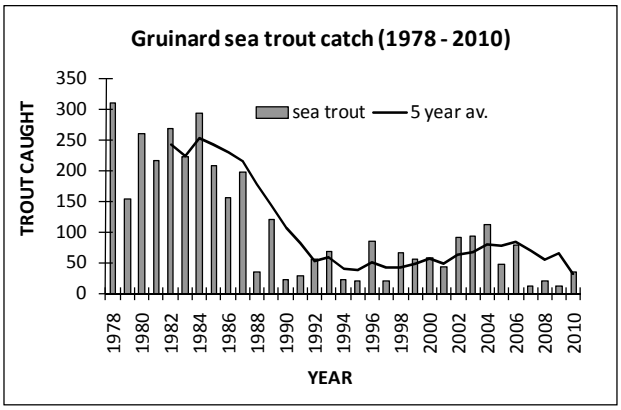
Escaped farm salmon

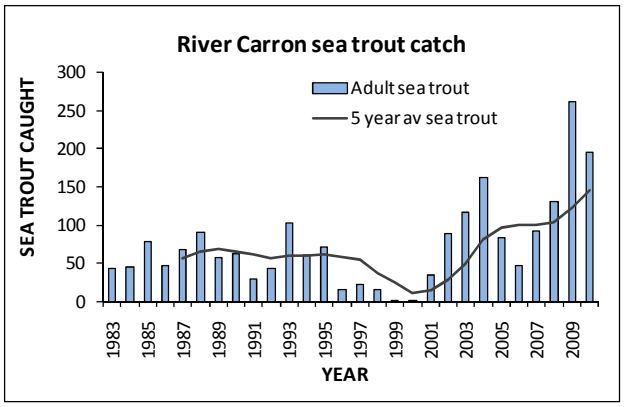
Only two escaped farm salmon were reported in rod catches received to date: one in the Gruinard, the other in the Croe. This is the lowest recorded catch of escaped farm salmon for the river systems from which catch records have been received within the WRFT area for many years.

Sea trout

In contrast to salmon, reported rod catches of sea trout for the season were generally modest or poor, with the exception of the River Carron which recorded over 150 (Figure 2.6). The Gruinard reported another poor catch of less than 50 sea trout.

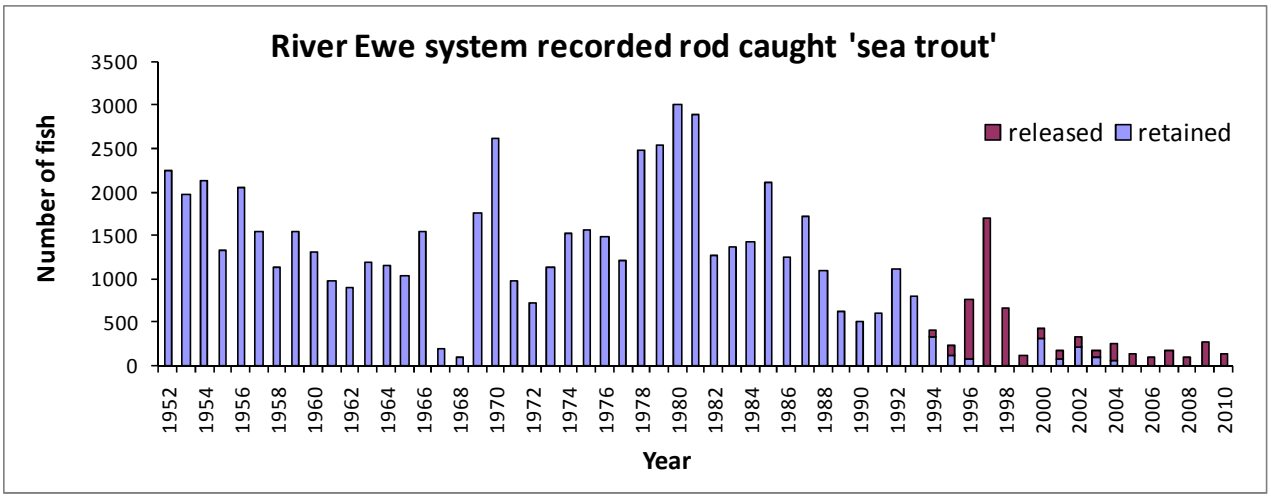
Figure 2.6 Gruinard River and River Carron reported rod catches of sea trout in 2010.





Just over 100 sea trout were reported from the Ewe system (Figure 2.7), the largest only 4lb.

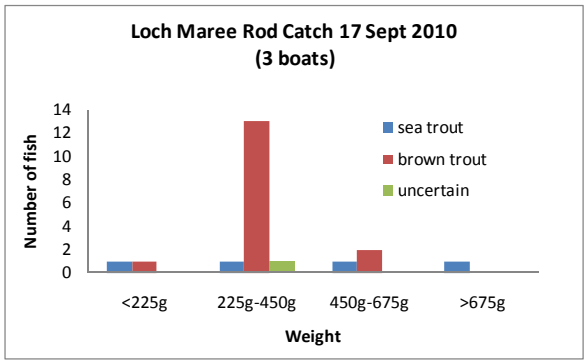
Figure 2.7 River Ewe system recorded sea trout catch, 1952 – 2010



With reduced fishing effort on Loch Maree in recent years compared to the 1970s, 80s and early 90s, three boats set out on 17 September 2010 from the Loch Maree Hotel, each with an experienced ghillie (Ala MacKenzie, Alan Jackson and Fred Robertson) **to assess** a sample catch. The day was cold, with showers and NW breeze. 21 trout were retained for measuring (all sea trout were subsequently released) and scale samples were taken to confirm identity.

Scale reading confirmed that the majority of fish taken were brown trout, with a minority of sea trout (Figure 2.8). Two silvery fish initially listed as sea trout were found to be brown trout. Andrew Ramsay *(left)* caught the largest sea trout, a fish of 876g (nearly 2lb). Thank you to Ben Hadfield of Marine Harvest for supporting this Loch Maree fishing day and Nick Thomson at the Loch Maree Hotel for soup and sandwiches.

Figure 2.8 A day's catch from the Loch Maree Hotel, 17 September 2010: 3 boats each with n experienced ghillie. Fish identity is based on the reading of scales. (right) The largest sea trout taken.



In recent years, Loch Maree has become more of a brown trout loch than a sea trout loch. Some good brown trout up to 4lb have been reported. However, the run of sea trout smolts to Loch Ewe is still considerable (see Part 2.3) and the potential for the loch to be restored as a sea trout fishery remains. The restoration of the formerly prolific Loch Maree sea trout fishery remains the biggest fisheries management challenge within the WRFT area (see WRFT Fisheries Management Plan 2009+).

2.3 River Ewe Rotary Screw trap

To learn more about smolts migrating to sea from the River Ewe-Loch Maree system, Inveran Estate purchased a rotary screw screw trap in 2009. In 2010, this was exchanged on loan for a larger rotary screw trap belonging to the Spey DSFB, which was delivered on 19th March 2010.

(left) unloading the Spey Rotary screw Trap beside the River Ewe on a windy day in April 2009 (photo Peter Maguire); (right) Roger McLachlan and Ray Dingwall checking the trap in May 2010.

The trap was initially operated below the Flats Pool without success. On 23rd April 2010 the trap was moved to the T-Pool of the River Ewe where it remained until the 5th of June. The first fish, a salmon smolt, was recorded on the 29th of April. The largest catches were taken during the week of 13th – 20th May when salmon smolts were dominant (Figure 2.9). Few fish were taken during a period of very low flows between 20th May and 26th May. There was a second peak in catches during the week of 27th May to 3rd June, following a rise in water level. Catches of sea trout smolts and over-wintered finnock were equal to or greater than those of salmon smolts during this later period.

In total 525 salmon smolts and 227 sea trout (smolts and over-wintered finnock) were taken in the trap between 29th April and the 5th June 2010. This suggests a ratio of approximately 2.5 salmon for every sea trout smolt. Many of the smolts of both species were recorded as predator damaged (Figure 2.10). 19 salmon smolts were fin clipped indicating that they had been stocked (3.6%)

Figure 2.9 Catches of salmon and sea trout smolts and over-wintered finnock in the River Ewe rotary screw trap 29th April to 5th June 2010.

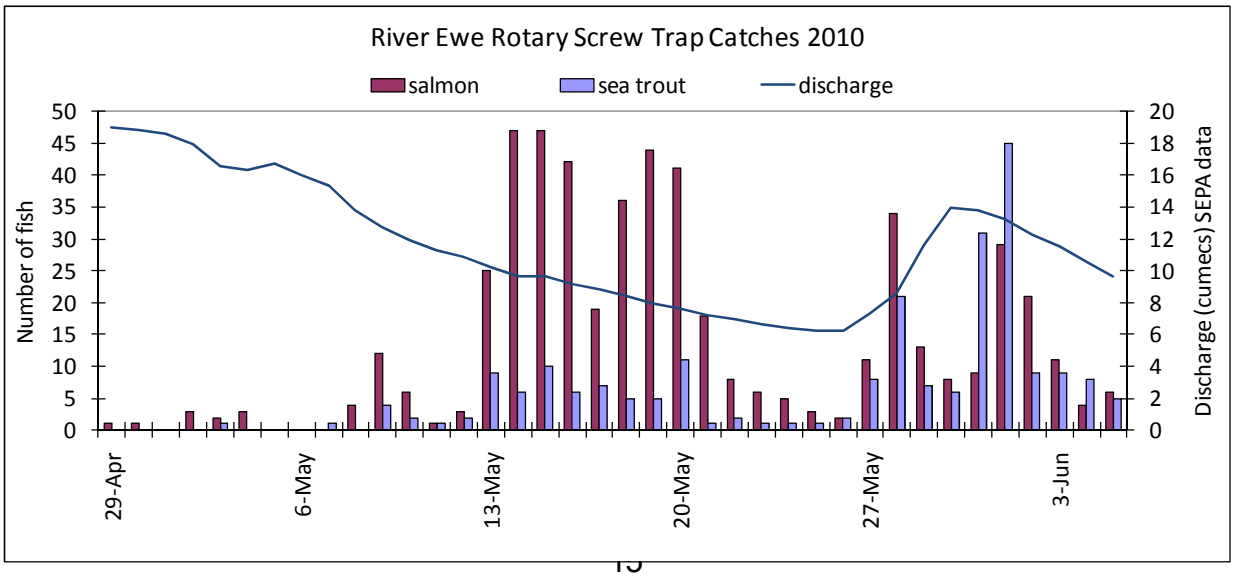
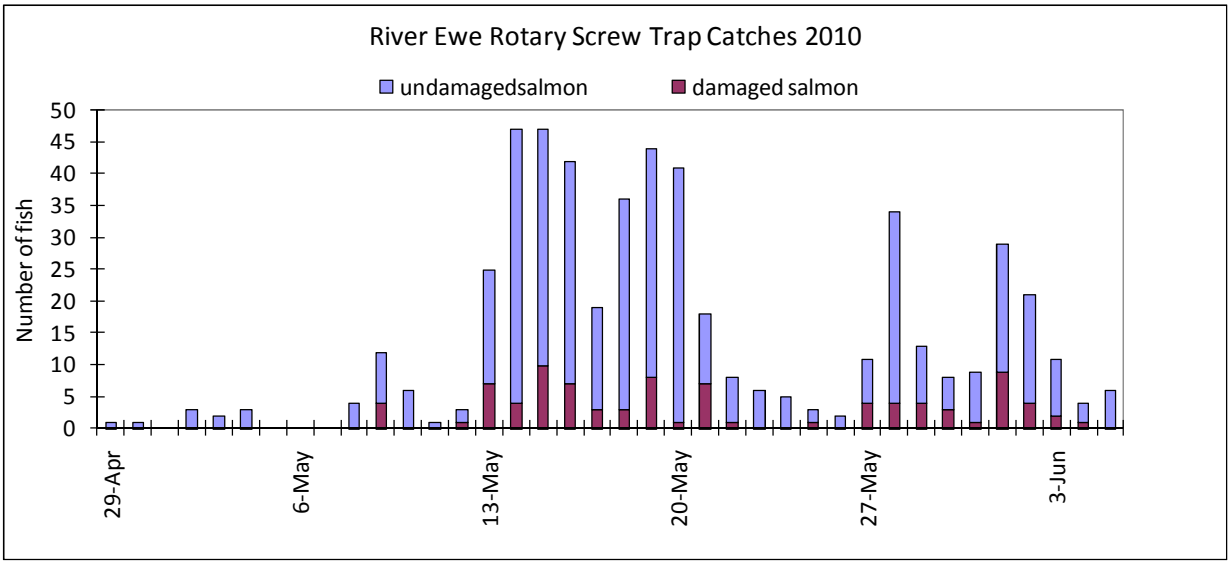
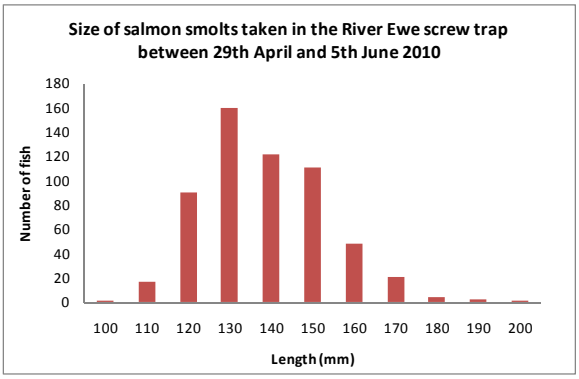


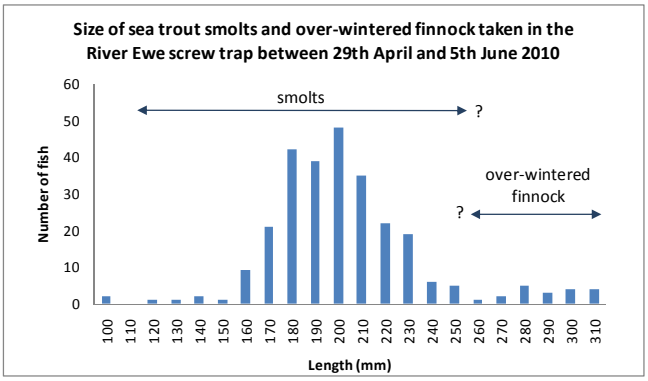
Figure 2.10 Undamaged and damaged salmon smolts recorded in the River Ewe rotary screw trap in 2010.



Most salmon smolts were between 130 and 160mm in length (Figure 2.11). Sea trout smolts were mostly between 170 and 230mm in length (Figure 2.12); larger sea trout were assumed to be over-wintered finnock on their way to sea for a second time.

Figure 2.11 (left) Recorded lengths of salmon smolts and Figure 2.12 (right) lengths of sea trout taken in the River Ewe rotary screw trap in 2010.





In comparison to the River Carron (see WRFT Reviews May 2009 & 2010), there was a higher proportion of sea trout smolts vs. salmon in the Ewe catch and the average sizes of both salmon and sea trout smolts were larger in the Ewe.

In conclusion, the Ewe Screw trap has already demonstrated that despite relatively low sea trout catches in recent years, there is a still a sizable run of sea trout smolts (estimated at between 5000 – 10,000 based on trap catch ratios and estimates of salmon smolt runs from river habitat and electro-fishing surveys).

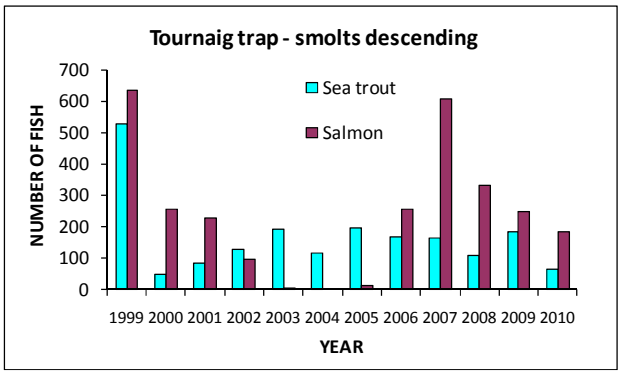
The trap was operated by Ray Dingwall and Roger McLachlan. Angus Morrison and the Scottish Government (via RAFTS) provided financial support for this project. The Spey Salmon Fisheries Board, Neil Morrison & Simon Stewart (Coulin Estate) , Bill Whyte, Graeme Wilson, Ben Rushbrooke and Prof Peter Maguire also assisted with installation of the trap.

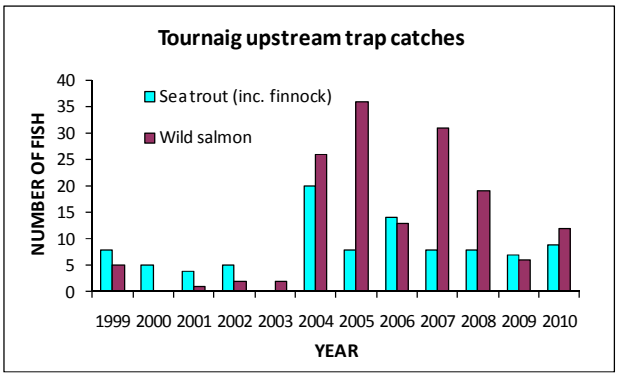
2.4 Tournaig trap project

Supported in 2010-2011 by Marine Harvest Ltd.

The Tournaig trap project was set up in 1999 to monitor salmon and sea trout populations in the little Tournaig River system near Poolewe. Upstream and downstream traps are situated in a fish ladder which was built over 100 years ago to provide passage for fish around a waterfall near the mouth of the river. Further background information can be found in the WRFT Review May 2009 (see www.wrft.org.uk). In 2010, traps were operated by Ben Rushbrooke of Garden Cottage Nursery between late March and early November.

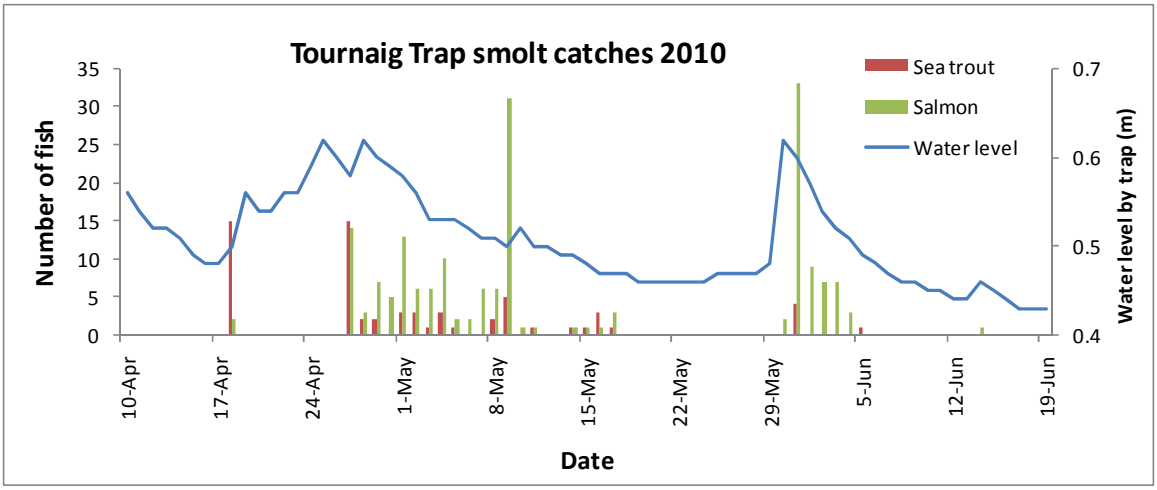
Figures 2.13 and 2.14 Catches of salmon and sea trout in downstream and upstream traps at Tournaig.



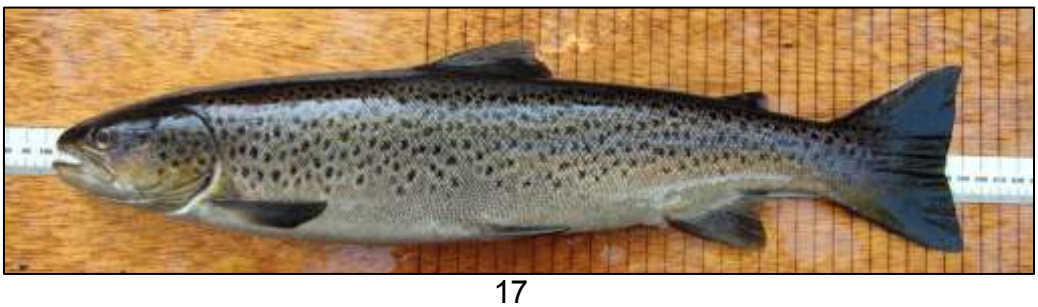


The runs of both salmon and sea trout smolts leaving the system were the lowest recorded since 2005 (Figure 2.13). Many of the salmon smolts were delayed due to a late spring and low water, the largest daily catch of 33 salmon smolts was taken on 31st May almost a month later than the normal peak (Figure 2.15).

Figure 2.15 Daily smolt catches vs. water level at Tournaig trap in 2010.



The number of adult salmon entering the system was higher than in 2009, though lower than might have been anticipated given high rod catches in nearby rivers (Figure 2.14). The sea trout catch included a fish of 470mm taken on 30/9, the biggest sea trout taken in the trap to date, since 1999 (*photo: Ben Rushbrooke*).



Part 3 **Marine Environment**

3.1 Sea trout monitoring in Wester Ross

Sea trout were sampled from Loch Ewe, Loch Gairloch and from the mouth of the River Carron by the WRFT sweep netting team in 2010 and winter 2011 to assess their size, condition and parasite burdens. In addition, samples of sea trout were taken by rod and line from inter tidal pools of River Ewe and Gruinard River and using a fyke net in the Dundonnell River. In April 2011, a report was prepared presenting the results of sea trout sampling, including recorded details of all sea trout sampled, during the period May 2009 – April 2011. This report can be downloaded from the WRFT website – follow links at www.wrft.org.uk/marine/sealouse.

Results for 2010

Loch Ewe: in total 34 sea trout were sampled either by sweep net or rod and line from the River Ewe. The largest sample was of 15 fish taken in the sweep net at Boor Bay on 15th June. These fish were small (average length 167mm), thin (average condition factor [1]of 1.00), but mostly lice free with only 5 fish carrying lice (maximum of 17 *Lepeophthierus salmonis* per fish). Only 6 fish were caught in July: 4 small post-smolts in a sweep net sample at Boor Bay on 15th July, and two larger fish (including one of 430mm) by rod and line from the River Ewe on 16th July. All these fish were thin for the time of year, with condition factors of less than 1.20. There were less than 10 lice on any these fish.

In August and September, some larger fish were caught. On 3rd August the sweep net team sampled the shore at Inverasdale, catching a plump sea trout of 351mm, condition factor 1.35. However another sea trout of 311mm had a condition factor of only 1.10. Large sandeels (estimated length 10cm +) were seen coming out of the net as it was pulled in; were these too big for smaller trout to feed on? The larger fish carried 67 sea lice (mostly pre-adult and adult lice), had a partially eroded dorsal fin, and was the lousiest sea trout seen in Loch Ewe in 2010.

(left) The sweep net sampling team by Inverasdale on 3rd August 2010, and (below) the 351mm sea trout taken.

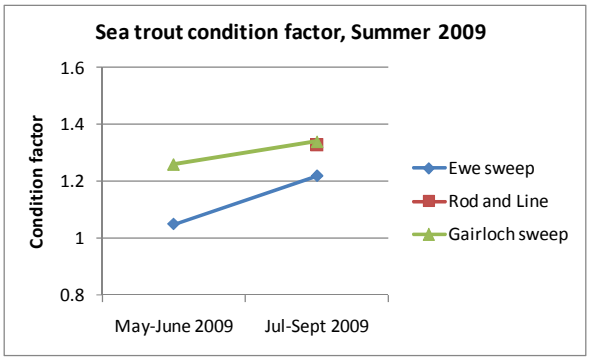
[1] Condition factor: (weight in grams x100) / (length in mm/10)^3

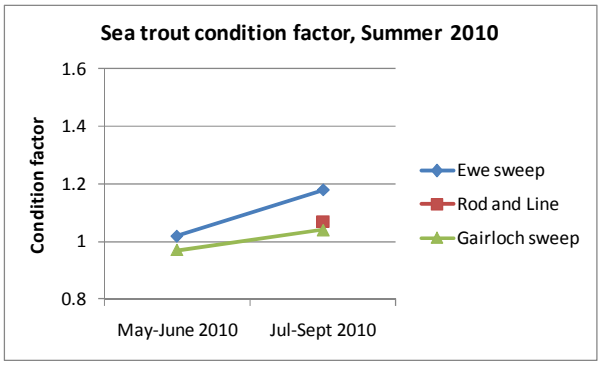
Five small (165 - 193mm) post smolt sea trout were taken in the Boor Bay sweep net on 12 August; with condition factors of up to 1.35 indicating reasonable growth; and a further two fish of 197mm and 265mm on 13th September, along with many sprats which the sea trout may have been feeding on.

Sea trout and sprats taken at Boor Bay in the sweep net on 13 September 2010.

Samples were taken in **Loch Gairloch** sweep nets in May, June, July, August, September and October 2010. Many of the fish taken in August and thereafter were in their second or third summer at sea, with fewer post-smolts (pre-finnock). Lice numbers were again generally higher than on sea trout taken in Loch Ewe. Many of the larger fish (of over 300mm) had over 20 lice and dorsal fin damage associated with sea louse infection. Fish were generally thinner in 2010 for the time of year than in 2009 (Figure 3.1).

Figure 3.1 Changes in average condition factor of fish samples in 2009 and 2010 in Loch Ewe and Loch Gairloch.





The lousiest fish sampled was a post-smolt taken in Charleston Bay in May 2010, with 126 lice, mainly chalimus lice. Another post-smolt sea trout in the same sample had 76 mainly chalimus lice. These were very much the odd ones out: no other fish in the sample of 30 fish had more than 10 chalimus lice. It's possible that these fish had come into Loch Gairloch from elsewhere. In February – March 2011, 15 sea trout were taken in the sweep net, the size range of which was similar to that of February 2010 with mean length of 324mm (over-wintered finnock and sea trout). These fish were thin with an average condition factor of 0.69. All fish were infected with sea lice, with an average of 16.27 lice per fish (range 3 – 69 lice). In addition to sea louse damage, some of these fish were very heavily infected with the parasite *Cryptocotyle lingua*, with up to an estimated 50 black spots per square centimeter of tailfin, suggesting an overall parasite burden of over 1000 cysts / fish (see Box 3.1). Some of the scales of sea trout have circular marks which have been attributed to *C. lingua* damage.

In the **River Carron** estuary, a total of 99 trout were caught on sweeps in June and August. Fish included many small trout which may have been to sea and other 'estuarine trout. Most fish were lice free, one fish in June had 65 lice. In the north of the WRFT area, early-returned post-smolt sea trout with an average of more than 20 lice were taken in the **Dundonnell River** fyke net and the **Gruinard River** estuary by rod and line suggesting higher lice infection levels in lower waters. Data from sweep net sampling of sea trout in the **River Kanaird** estuary has not been made available to WRFT.

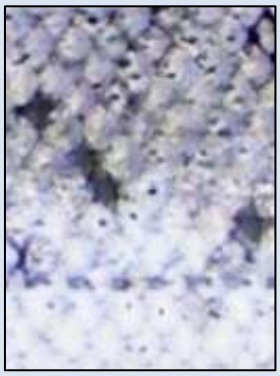
Sweep net monitoring by WRFT in 2010 was funded by the Scottish Government via the Tripartite Working Group.

Box 3.1 'Black spot' (*Cryptocotyle lingua* cysts) on sea trout in Wester Ross

The fluke, *Cryptocotyle lingua,* is a digenean trematode which causes 'black spot' disease of fish. The parasite has a complex life cycle requiring three hosts: a gastropod mollusc, normally the Common Periwinkle, *Littorina littorea*; a fish (e.g. Butterfish, gurnards, Cod, Pollack, and sea trout), and finally a fish eating bird, usually a gull *Larus* spp..

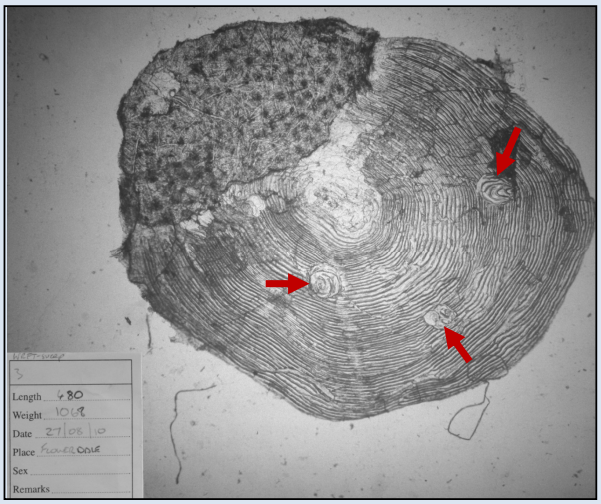
Sea trout and other fish with *Cryptocotyle lingua* infection have been recorded from all WRFT sweep netting sites, and indeed the presence of this parasite on sea trout has be used as an indicator that the fish has been in the marine environment. In 2010 and 2011 some of the fish taken in Loch Gairloch had particularly dense black spotting attributed to *Cryptocotyle lingua* infection. As a measure of infection levels, an estimate of the number of black spots per cm^2 of tail fin was recorded, with up to 50 spots per cm^2 on some of the sea trout taken in Charleston Harbour.

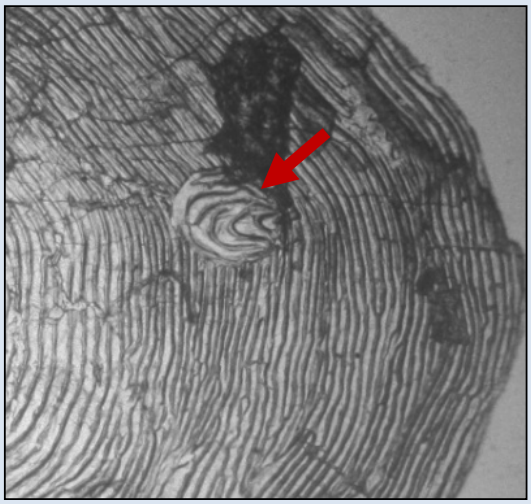
Black spots (?Cryptocotyle lingua cysts) on sea trout taken in Charleston Bay in September 2010.



Scale samples from some sea trout taken in Loch Gairloch had circular marks which have been interpreted as *Cryptocotyle lingua* marks (*below*). The high prevalence of *?Cryptocotyle lingua* may be related to high densities of other hosts. Byers *et al* (2008) investigated the '*Controls of spatial variation in the prevalence of trematode parasites infecting a marine snail*' and concluded that '*Trematode prevalence appears to be predominantly determined by local site characteristics favoring high gull abundance*'. In Loch Gairloch, particularly high numbers of gulls (300++) and ducks (including up to 200 Goldeneye during winter months) congregate around the discharge pipe of the Inverkerry Salmon farm in winter close to where sea trout have been sampled. Rocky shores and mussel beds nearby may provide ideal habitat for winkles.

Scale from a sea trout of 480mm taken in Charleston Bay, Gairloch 27th August 2010.





Box 3.2 *Paragnathia formica* an unusual fish parasite?

Keen angler David Holland recently reported an interesting find to Wester Ross Fisheries Trust. While fishing for sea trout in Loch Long, David noticed small orange parasites on a number of the fish. These creatures are about 2 – 6 mm long, easily detached from the fish and highly mobile once removed. The bugs were identified by Jim Raffell of Marine Scotland as, an estuarine fish parasite. Little is known about the parasite other than that the larval stages (pictured) require three feeds of fish blood throughout their life cycle. Adults live in burrows in the sides of muddy estuaries or saltmarsh. They have previously been recorded in Scotland, although their range and abundance are unclear. They are known to feed on cod and goby but have not previously been reported on salmonids (Tinsley and Reilly, 2002).

(left) Paragnathia formica from sea trout caught in Loch Long (by Loch Alsh) in May 2011.

(right) this sea trout, taken in the River Carron on 22 May 2008, had two parasites (in addition to a pre-adult Lepeophtheirus salmonis) which at the time were wrongly identified; from the close-up photo taken (lower right), these also appear to be Paragnathia formica.

If anyone spots these creatures or has any further information, could you please contact Jonah at jonah.tosney@inverness.uhi.ac.uk or 01520 722882.

Reference:

Tinsley, M.C. & Reilly, S.D. (2002) Reproductive ecology of the saltmarsh dwelling marine ectoparasite *Paragnathia formica* (Crustacea: Isopoda). Journal of Marine Biology 82. 79 – 84.

3.2 RAFTS Aquaculture Project 2011-12

At the end of the financial year 2010 – 2011, the Tripartite Working Group (TWG) was disbanded. Towards the end of the three-year Scottish Government funded TWG sweep netting programme, data on sea trout and sea lice collected by participating fisheries Trusts was pooled for analyses by the Marine Science Scotland scientists. One analysis (which is ongoing) is looking further at relationships between the salmon farming industry and levels of lice infection on sea trout (please see www.wrft.org.uk for earlier WRFT analyses).

During the past year, representatives of individual fisheries trusts, RAFTS, Marine Scotland Science, and the Scottish Government met to develop a new project in support of the aquaculture industry. A new project has been agreed which will be funded by the Scottish Government in 2011-12. This RAFTS-led project will include a programme of sweep netting for sea trout between May and mid July 2011 that aims to build on existing data sets, with the aim of providing clearer guidance for the planning authorities that are responsible for the siting of salmon farms. Dr Donna-Claire Hunter and Diane Kennedy, have been appointed by RAFTS as the new Aquaculture Project Officers. To help safeguard the health of wild fish populations in respective waters, the Wester Ross Fisheries Trust will continue to support local Area Management Groups in Loch Ewe, Loch Torridon, Loch Carron and Loch Alsh area for the foreseeable future.

3.3 Sea trout scale reading workshop

The life history of trout and salmon can often be interpreted via the examination under magnification of scales from respective fish. Scale reading provides information such as 'smolt age' (the number of years the fish spent in freshwater prior to migrating to sea), 'age at spawning', and growth rates. Notable studies of sea trout from the River Ewe system, based on scale reading, include that of Nall (1926 & 1930) and Walker (1980). Both these studies were based on examination of scale samples from over 1000 fish, including samples from sea trout of up to 10lb.

On 17th February 2011, WRFT held a sea trout scale reading workshop in Gairloch. Dr Andy Walker provided training and assisted with the reading of sea trout scales collected as part of the WRFT sea trout sampling programme. Samples of scales from the sweep netting sea trout sampling programme were compared with those from other sea trout and other 'trout' collected within Wester Ross in recent years. As an initial output from the workshop, an online trout scale catalogue is being developed. This can be found via links at: http://www.wrft.org.uk/fishes/trout.cfm.

(right) Jonah Tosney, Ray Dingwall, Lucy Ballantyne and Ben Rushbrooke with Dr Andy Walker at the WRFT Sea trout scale reading workshop in February 2011.

The figure (left), reproduced from Nall 1930, is of a scale from the then oldest known sea trout in the world (from the Kinlochewe River), and illustrates freshwater growth with 4 winter checks (numbered from bottom, 1-4), marine growth (3 maiden winter checks, numbered 1-3), and 11 spawning marks 'SM' (1st SM – 11th SM) where the bottom edge of the scale has been eroded during the winter period prior to regrowing the following summer. Total age: 18+ years.

The workshop was funded by the Scottish Government via the Tripartite Working Group.

References:

Nall, G.H. (1930) The Life of the Sea Trout, Seeley, Service & Co. Ltd, London

Walker, A.F. (1980) A Report on the Growth Rate, Size and Age Composition of Sea Trout Caught by Anglers Fishing Lochs Maree, Clair and Coulin in 1980. Freshwater Fisheries Laboratory report, Scottish Office.

3.4 Marine Protected Areas around Wester Ross?

On 10 March 2010, Scotland's Marine Bill received Royal Assent, making it the Marine (Scotland) Act. The Marine (Scotland) Act established a new power for 'Marine Protected Areas' [MPAs] in the seas around Scotland, to recognise features of national importance and to meet international commitments for MPAs. This complements the MPA power introduced through the UK Marine and Coastal Access Act for offshore waters around Scotland. MPAs are an important mechanism for protecting Scotland's seas. Scotland has international commitments to establish an ecologically coherent network of MPAs under OSPAR and the World Summit on Sustainable Development. Together with existing 'Natura' sites, the new MPA power will help Scotland meet these commitments. A network of well-managed MPAs will, alongside other management measures, underpin our future use of the seas around Scotland. Scottish Natural Heritage is providing guidance and technical advice to Marine Scotland on the selection of Nature Conservation MPAs and the development of an 'ecologically coherent' network. Scottish Ministers will decide which sites to designate as MPAs and for what.

In summer 2010, SNH commissioned a survey of the 'Ullapool Approaches' including the Summer Isles, Loch Broom, Little Loch Broom, Gruinard Bay, Loch Ewe, Loch Gairloch and the outer embayment of the Approaches, to assess the status of habitat features and benthic species in this area. A total of 11 MPA search features were recorded in the survey area. Beds of *Zostera marina* (sea grass) were located in northwest Loch Gairloch and southeast Gruinard Bay, possibly representing the richest examples of this MPA search feature along the mainland coastline of northern Scotland. However, no evidence of the continued presence of several other MPA search features was obtained, including: horse mussel beds, inshore deep mud with burrowing heart urchins, *Palinurus elephas* (Crawfish [which is still fished for around Wester Ross using tangle nets]), *Glossus humanus* (Heart cockle), *Atrina fragilis* (Fan mussel).

Can MPAs help to safeguard salmon and sea trout populations? Both Atlantic Salmon (*Salmo salar*) and Sea Trout (*Salmo trutta*) have been recognised as 'Priority Marine Features': important components of Scotland's marine biodiversity, along with many other species and habitats.

In October 2010, Peter Cunningham was invited to the Community of Arran Seabed Trust [COAST]'s Symposium on 'Empowering Coastal Community Stakeholders' where a wide range of experiences, including those of COAST in achieving the designation of Scotland's first 'no-take zone', were described and discussed. With the support of academic institutions, lawyers and local politicians, 'COAST' is leading a bottom-up campaign to restore marine wildlife and fish populations to the Clyde. See www.arrancoast.com. Could lessons be learned from COAST to help restore and protect fish populations in the seas around Wester Ross, including sea trout populations?

At a meeting in Gairloch on 15th December 2010, we learnt more about the role of SNH in progressing the Scottish MPA project and the Ullapool Approaches survey. A range of views were expressed. In so far as mobile fishing (trawling and dredging) is already banned in some sea lochs, there are already conservation areas in the seas around Wester Ross (e.g. via an existing fishing order to protect spawning herring in Loch Gairloch). However, local fishermen were concerned that MPAs could threaten, rather than help safeguard, their livelihoods. Representatives of local commercial fishing associations are currently developing a fisheries management plan of their own, via the North West Inshore Fisheries Group http://www.scotland.gov.uk/Topics/marine/Sea-Fisheries/InshoreFisheries/IFGsMap/NorthWestIFG.

The year ahead may be a significant one for the future of wild sea trout, salmon and other fish in the seas around Wester Ross. Will additional areas be designated for protection in the seas around Wester Ross? What will they aim to protect? Will they be 'ecologically coherent'? What fisheries management measures will the local IFG recommend? Thank you to Dr Colin Trigg and Katie Gillham of SNH for reporting the SNH survey findings and explaining what the Scottish Government's MPA project is about.

Part 4 **Little Gruinard River Fisheries Management Plan**

This document, drafted in 2010, focuses upon both the remarkable wild salmon of the Little Gruinard River and the wild trout of the Fionn Loch. Information is drawn together from previous studies, including 'The Little Gruinard Atlantic salmon catch and release tracking study' (Walker and Walker, 1991), contemporary studies of brown trout, and more recent surveys of habitat and juvenile fish populations within the Little Gruinard River system carried out by the Wester Ross Fisheries Trust.

The Little Gruinard River is the only Special Area of Conservation (SAC) for Atlantic salmon (*Salmo salar*) in the west of mainland Scotland between the River Naver in Sutherland and the River Endrick which flows into Loch Lomond. The Little Gruinard is therefore of particular importance for securing the conservation of a native wild salmon population in this part of Europe for future generations.

(right) Lower part of the Gorge, Little Gruinard River. To reach the Fionn Loch and spawning streams which flow into it, some salmon scramble over several small falls and cascade sections.

(below) As good as it gets for a salmon parr? The bed of the Little Gruinard River just above the mouth of the Allt Riabhach: an exceptionally stable streambed with plenty of places for small fish to hide between cobble and boulder-sized stones. Note how the stones are of irregular shape – rather than rounded: finer material has been winnowed away, and many of the stones exhibit chemical erosion rather than abrasion from movement of stones along the streambed. However, wide shallow sections such as this may obstruct adult salmon at low flows: smaller grilse may be less vulnerable (to being taken by an otter) than larger salmon.

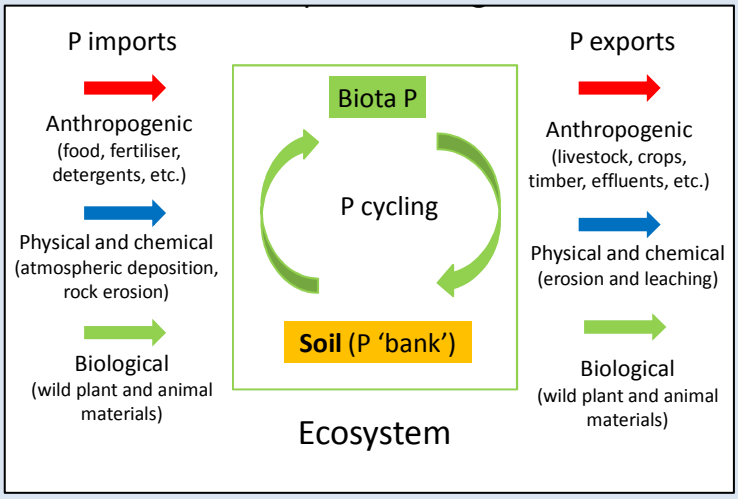
Proposed actions in the Fisheries Management Plan are aimed at maintaining favourable status for the Atlantic salmon SAC, conserving and learning more about wild Brown trout, Arctic Charr and Freshwater pearl mussel populations, and restoration of ecosystem fertility (see Box 4.1) within the catchment area. The Little Gruinard River Fisheries Management Plan 2011+ can be downloaded in 5 sections from the 'downloads' page of the WRFT website at www.wrft.org.uk/downloads.

(left) Bog Asphodel, a characteristic plant of infertile open ground. (right) The islands of the Fionn Loch may represent vegetation types that were once more widespread within the Little Gruinard catchment.

Box 4.1 Phosphorus budgets for Wester Ross?

At the 'Reforesting Scotland' annual meeting on 27th September 2010 in Torridon, Peter Cunningham considered how catchment fertility affected production of juvenile salmon and other wildlife using examples from Wester Ross. A key area of contention is whether or not the fertility of catchment areas has declined as a result of changes brought about by man. Are river catchments within Wester Ross and the rivers that drain from them as fertile and productive as they should naturally be?

Biological productivity across much of Wester Ross is limited by the availability of phosphorus. Natural ecosystems are often characterised by the cycling of inorganic P from the soil into biota, and back to the soil *(right).* P can be gained or lost through anthropogenic inputs (e.g. fertilisers, run off from domestic sources), by atmospheric deposition and chemical weathering of base rocks, or through the transfer of living or dead organisms.



200 salmon carcasses contain the same amount of phosphorus as three red deer or about 1,000kg – 1,500kg of dried plant material



x 200 or x 1,000kg or x 3

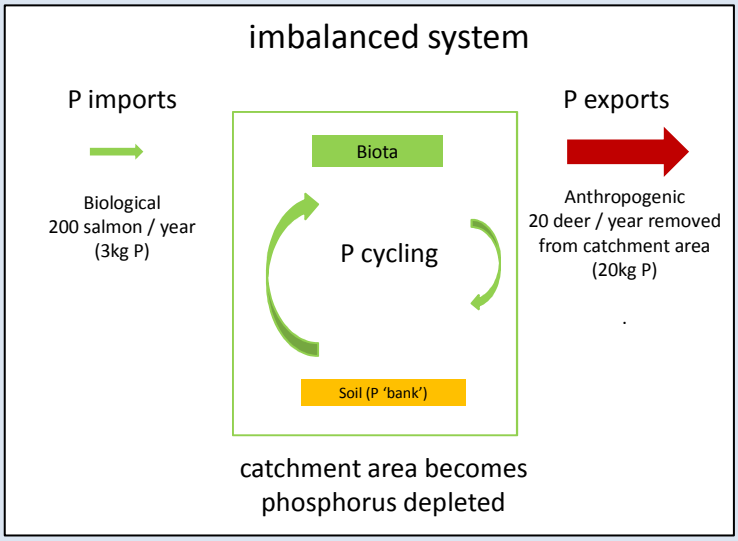
= ~ 3kg of Phosphorus

Some catchments in Wester Ross have very little human habitation. Underlying rocks are hard and insoluble yielding relatively little P. The P budget, and catchment fertility, may therefore be largely determined by the gains or losses of P via plants and animals *(left).* Most adult salmon die after spawning; salmon carcasses (together with fish ingested by other animals) represent a net gain of P (of marine origin) into a catchment area.

Peter proposed that over many years, the 'export' of deer and livestock carcasses represented an unnatural net loss of fertility from many areas (*right).*

A case could be made for 'ecological refertilisation' to replace 'harvested' phosphorus and thereby restore fertility to large areas of upland Scotland. The presentation can be found in full via the WRFT website or by googling 'Refertilising Scotland'; all comments welcome.

(salmon carcass picture by Keith Williams)



Part 5 **RAFTS & Scottish Government Projects**

5.1 Stocking workshop

Stocking remains a complex and sometime controversial issue. Many of the rivers and lochs in the Wester Ross area have been subject to stocking programmes over the past 50 years or more. These have usually been aimed at restoring or enhancing salmon and sea trout fisheries within the area. What good has this done?

This workshop which took place on the 28th May 2010 at Poolewe Village Hall was attended by 25 people comprising geneticists, fishery managers, and a range of other interested people. The primary aim of the workshop was to review existing and proposed fish stocking programmes with a view to providing guidance for future restoration and management of local fisheries such as the Loch Maree sea trout fishery and the Bruachaig (see Part 5.2) in light of experiences reported elsewhere and current scientific advice.

In contrast to the East of Scotland, rivers in Wester Ross are typically short, steep and infertile. There are extensive areas of stable, productive water in some of the larger rivers, particularly in areas downstream of lochs where densities of juvenile salmon have been consistently high (e.g. rivers Gruinard, Little Gruinard and Ewe). These areas represent 'core' habitat for the production of wild salmon (see Box 5.1). However, small headwater streams, especially those above waterfalls, and some smaller rivers (such as the little Tournaig river, and Docherty burn above Kinlochewe) provide shallow, less stable habitat, where wild salmon have a more challenging struggle to complete their life cycle, especially when rates of marine survival fall. Juvenile salmon populations were extirpated from some 'marginal' areas in the 1990s; some of these waters have since been recolonised by straying salmon [see WRFT Review May 2010].

Dr Alistair Duguid (from SEPA) summarised the remarkable genetic diversity of Brown Trout (*Salmo trutta*) across the range of the species. Wild trout have even greater genetic diversity than salmon; and much of this is likely to be adaptive. Studies have shown that some Scottish lochs, including Loch Awe and Loch Laggan, support two or more distinct 'sympatric' trout populations. 'Ferox' trout spawn in the outflows of these lochs; their progeny must be adapted to swim upstream into the loch from nursery areas in contrast to the other trout populations which spawn in streams which feed the loch. Within the Loch Maree catchment, Loch na h' Oidhche trout are already know to be genetically quite distinct from other trout in the area; there may be geneticly different sea trout producing populations within lower parts of the system. **Mark Coulson** (RAFTS geneticist) presented the results of the initial DNA analyses of wild salmon samples collected from the WRFT area. Further analyses using different genetic markers could clarify the extent of genetic variation within the area and levels of genetic introgression (e.g. with non-native fish).]

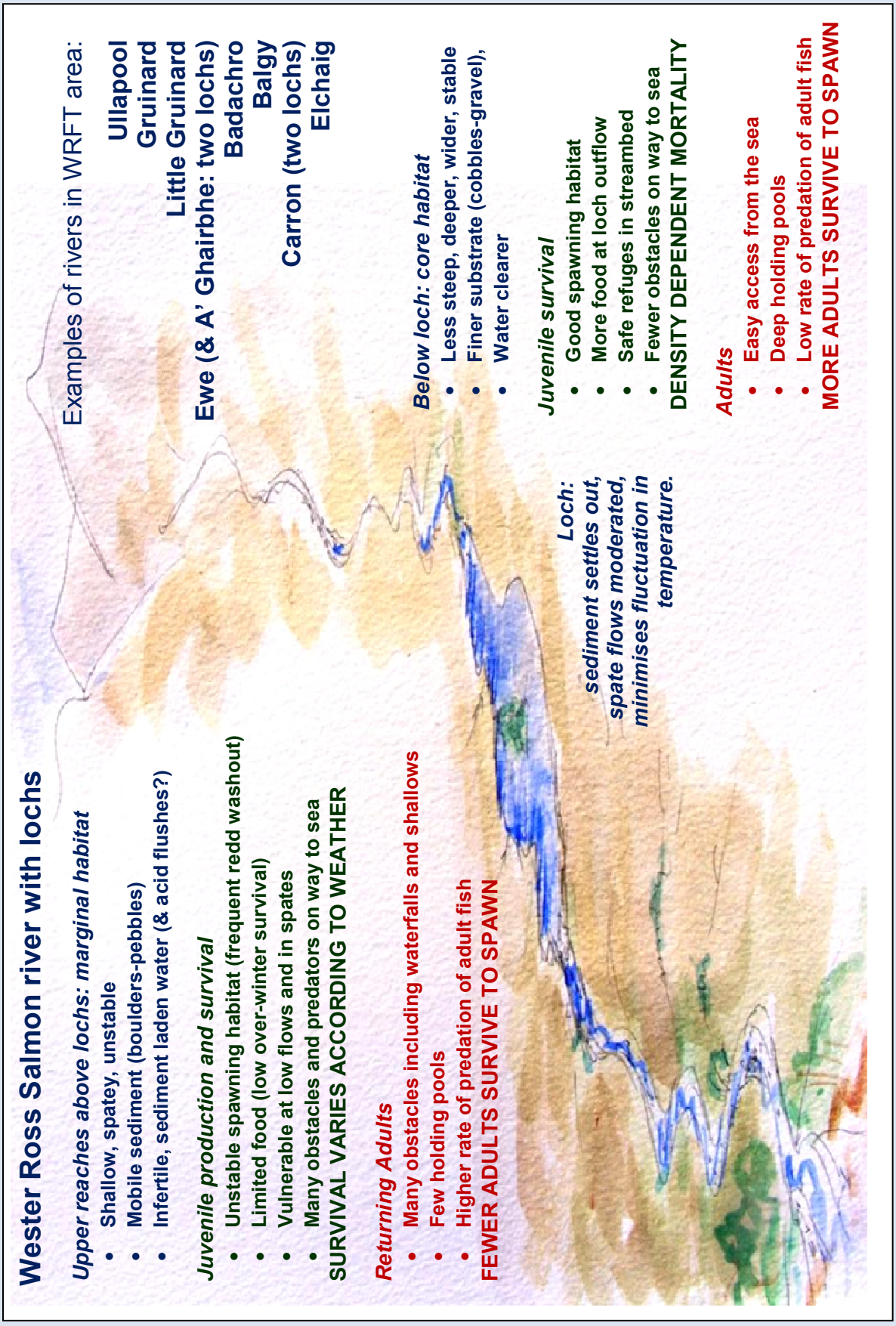
Ross Gardiner (Marine Scotland) summarised legal aspects of stocking and the process by which decisions are made regarding stocking applications. In much of Wester Ross, the Wester Ross Area Salmon Fishery Board assesses applications to stock salmon or sea trout; this aims to achieve a level of consistency with the Marine Scotland process in the best interests of the wild fish populations concerned.

Experiences from elsewhere

Simon McKelvie (Cromarty Firth Fisheries Trust) stressed that the Conon River system's stocking programme, supported by Scottish and Southern Energy, was entirely the result of the unique situation that existed in the past. To compensate for the loss of extensive areas of nursery habitat for wild salmon as hydropower reservoirs were developed in the 1950s, an agreement was reached to stock the upper Bran, and support Conon hatchery operations. Only areas affected by hydropower schemes within the catchment are stocked. By working in

Box 5.1 'Core' and 'marginal' salmon habitat in Wester Ross

Wild salmon face different challenges in different parts of Wester Ross. The figure below compares how the whole life-cycle success of salmon populations living in areas above and below a loch may vary.



collaboration with scientists from Marine Scotland and further afield, many pioneering research studies had been undertaken.

Jon Gibb (River Lochy) also stressed that anthropomorphic impacts were the main reason behind the need for a stocking programme in the Lochy. Of particular concern was the sea lice problem. During the 8 years up to 2008, in the year following 'year 2' of the production cycle of salmon farms in Loch Linnhe, grilse catches were very low. In intervening years, grilse catches were much higher. Sea lice levels on sea trout sampled in the sea nearby by the Lochaber Fisheries Trust were much higher in 'year 2' of the production cycle. To maintain a productive fishery, a salmon smolt ranching programme was being initiated where a proportion of fish would be treated to give them greater resistance to sea lice infection prior to release.

Bob Kindness (River Carron restoration programme) described how, from early this century, rod catches had initially increased in parallel to the numbers of juvenile salmon stocked. More recently, with many more wild fish in the system, the majority of smolts leaving the system were thought to be progeny of wild spawned fish. However, to off-set against possible redd washout, Bob felt that the fishery still benefited from the stocking programme. Smolts leaving the system have been monitored using a rotary screw trap; using mark and recapture methods, data on repeat rod-capture rates for adult salmon had been collected indicating that in some years 10% or more of salmon are caught more than once (see also Part 6).

The discussion that followed addressed two issues:

- should stocking be used to restore wild salmon populations in a 'marginal' headwater stream above a difficult water fall [e.g. the upper Bruachaig (Ewe system)]

- should stocking be used to restore the Loch Maree sea trout fishery?

Restoration of salmon production in headwater streams

To safeguard wild salmon populations, almost all delegates supported the view put forward by geneticists that rivers should if possible not be stocked, and every effort should be made to allow wild fish to recolonise naturally. However, to support production of fish for fisheries, most delegates accepted that a different option might be worth investigating. For the Bruachaig (see Part 5.2), the development of a captive broodstock using, where available, early running Ewe fish as well as Kinlochewe River fish might pose least risk to existing wild salmon populations within the system (assuming those fish could be kept alive through the summer until spawning time and that their removal would not be detrimental to an existing population elsewhere within the system). It was suggested that such a broodstock, to produce 100k+ eggs or fry per year, could be grown on for much the same cost as the existing stocking programme (around £5k per year). Advice from geneticists should be sought at all stages.

Loch Maree sea trout fishery restoration

The priority action should be further clarification of genetic status of wild populations. Trout show greater genetic variation than salmon populations, and lochs such as Loch Maree are likely to have more than one distinct trout population. It was suggested that until problems at sea were resolved there would be little benefit from a stocking programme in any case. Ranching sea trout smolts and feeding them on a diet to include anti sea lice infection prophylactic was proposed as an option if lice problems were to recur, but would only give short-term protection from sea lice. This was also judged to be of high risk to the genetic integrity of the native sea trout population.

Thank you to all participants for very useful meeting for WRFT and for contributing to the resolution of complex issues. The meeting was part funded by the Scottish Government via RAFTS.

5.2 River Bruachaig salmon restoration project

This project aims to restore a self-sustaining wild salmon population above the falls complex on the Bruachaig River between Incherill and the Heights of Kinlochewe. Adult salmon were again captured using rod and line from the Kinlochewe River in the autumn in 2009 and 2010 and transferred to Coulin Estate hatchery where eggs were stripped, fertilised and incubated. In both 2009 and 2010, Neil Morrison and Simon Stewart had to contend with sustained periods of severe frost. However, rates of egg – hatch survival have remained good (?80-90% survival).

In June 2009, approximately 25,000 fed salmon fry were stocked out above the falls around the Heights of Kinlochewe and above Leckie. This is the largest stocking out of salmon fry into the system to date. In 2010, approximately 10,000 fry were stocked into the burn around the Heights of Kinlochewe in early July 2010 as fed fry. Another 500 of these fish have been retained to be grown on as a captive broodstock for future years.

A Bruachaig summer spate, 7 July 2010. There were frequent spates in July and August 2010, providing wild salmon with opportunities to recolonise the upper Bruachaig. Will salmon fry of wild origin be found above the falls in 2011?

Despite difficult high water river conditions, eight large 1 year old salmon parr were recorded in 20 minutes electro-fishing at the side of the main channel at the tail of the Professor's Pool on 7th July 2010. This demonstrates that fry stocked in 2009 had survived and grown well.

It is becoming clear that it will not be possible to stock available habitat above the Bruachaig falls to near 'carrying capacity' using eggs from adult fish taken downstream alone. Therefore, options for rearing a River Carron type 'captive broodstock' are being explored.

Below (left) Neil Morrison and Simon Stewart at the Coulin Estate hatchery in November 2010; (right) three trout from the Coulin Farmhouse Burn. Both sea trout and brown trout spawn together in this burn, relative proportions of which may vary from year to year.

5.3 The Scottish Mink Initiative

Scottish Mink Initiative
Working with Communities to Protect Native Wildlife

www.watervolescotland.org

The American mink (Neovison vison) was introduced to the UK for fur farming and feral populations established from escapes or releases from these farms. Mink are generalist predators and can have devastating impacts on native wildlife including fish populations. Although mink appear to have spread steadily throughout Scotland since the 1950s, various recent surveys have implied that the north west of Scotland is mink-free. However, since the last survey in 2008 there have been repeat sightings and trappings of mink suggesting that the range is further north than currently documented. The following articles have been provided by local mink officer, ***Gunnar Scholtz*** *[below], and PhD student,* ***Elaine Fraser*** *[introduction above and Box 5.2].*

Earlier this year the Scottish Mink Initiative (SMI) took on the coordinated approach of a large scale mink control program across the north of Scotland, which builds upon three previous independently funded sister projects: Cairngorms Water Vole Conservation Project; North East of Scotland Water Vole Project; and the North West Highlands Mink Control Project. The initiative is a partnership Initiative between RAFTS, SWT, SNH and the University of Aberdeen.

The overall aim of the Initiative is the protection of nationally significant populations of water voles, salmonids, ground nesting birds and other native riparian biodiversity by establishing a sustainable management framework to create and maintain an area free of breeding mink extending from the mid-Tay to the South Esk, around the east coast to the River Nairn; with a belt reaching from Dornoch and Cromarty on the east to Ullapool on the west. At the moment we cover an area of approximately 20,000 square kilometres, from north Tayside to Aberdeenshire, the Cairngorms, and Moray and across the northwest Highlands. These areas are covered by 4 locally based Mink Control Officers and managed by the Initiative Coordinator.

We are working closely with local organisations and volunteers in setting up a comprehensive network of mink rafts and tunnels. Each local officer is at hand to give advice and training on where to set up a raft, and how to maintain and monitor it. Rafts and tunnels are mink monitoring devices; they can help indicate whether a mink is present in the area by tracking foot prints and scat. While animal control will be necessary, animal welfare considerations will be paramount to the Initiative's operations.

For the Highland region and Wester Ross, the Initiative is increasing the amount of rafts and monitoring tunnels in the Loch Broom area and further north towards Assynt. We are aware that mink have been seen and on one occasion captured as far north as Scourie. Therefore by increasing trapping effort between Ullapool, Dingwall, Dornoch and past Ledmore and into Assynt the number of new incomers who want to establish themselves in the area will be reduced.

The area south of Loch Broom is part of Elaine Fraser of the University of Aberdeen's study into coastal mink populations. Elaine has been monitoring, tracking and trapping in the area with the help of increasing numbers of volunteers for the past few years (see Box 5.1).

Box 5.2 Managing Mink Control in NW Scotland

by Elaine Fraser

I am conducting research in to the invasion of mink in the west of Scotland for my PhD at the University of Aberdeen. There are 3 main threads to my research;

- To establish the distribution and spread of mink in Scotland using recent and historical records;
- To establish whether mink are reliant on the coast, in the west, as a source of food; and
- To identify key dispersal routes in to the north of Scotland.

The ultimate aim of this project is to develop management plans for the control of mink in North West Scotland. Study sites have been set up in the south of the WRFT area to monitor the distribution of mink and their use of different habitats. Monitoring tunnels and rafts are located by the River Shiel, River Croe, shores of Loch Duich as well as on Balmacara estate, and additionally on Skye. Preliminary results indicate that mink are present on the River Shiel, Loch Duich and the coast line north of Kyle of Lochalsh; mink have not been detected on the River Croe. I aim to eventually trap mink at these study sites so that I can use the carcasses to analyse and compare the diet and genetics of mink in this area with mink elsewhere in Scotland.

The capture of several mink in the north of the WRFT area last summer understandably caused concern and so I am now working with WRFT to increase awareness and monitoring of mink in the area. I have provided some monitoring tunnels, rafts and live cage traps to allow any willing volunteers to survey for mink, and trap when necessary. I will collect any carcasses as these will be invaluable to my study. If anyone has any mink sightings they would like to report or any carcasses they would like to donate to me I would be very grateful. Please contact me at: elaine.fraser@abdn.ac.uk, tel: 07801 953 436.

Monitoring mink is an easy undertaking and not hugely time consuming. Rafts and tunnels are distributed free of charge to any willing volunteer or organisation within the Initiative area. . Once in place on a stretch of running water, a basket filled with floral Oasis is put into place. This keeps a clay pad moist and ready to record any animal tracks left behind by passing visitors. The clay is checked as often as possible, but at least every fortnight and only involves a short walk to the raft and a visual check for prints. If prints are discovered a live capture cage trap will be inserted into the tunnel and this then requires checking every 24 hours. Along the coastline we do not use rafts but wooden tunnels on the shore, which work in exactly the same way, but are not exposed to the tide and storm surges as rafts would be.

The Initiative signals a £920,000 investment in native wildlife conservation, thanks to support from SNH, Tubney Charitable Trust, Cairngorms National Park Authority and the Scottish Government and the European Community Cairngorms, Highland, Moray, Rural Aberdeenshire and Rural Tayside Local Action Groups LEADER 2007-2013 Programme. The program will run until the autumn of 2013, by which stage the long term sustainability of mink control in the Initiative areas will be transferred to local organisations.

If you have seen any sign of mink, or know someone who has please pass on that information to either the local Mink Officer or any of the staff at the WRFT. Also if anyone would like any further information on how to monitor for mink or would like to get involved please contact, Gunnar Scholtz the Highland Mink Control Officer on 07825 184 080, gunnar@rafts.org.uk; Elaine Fraser on 07801 953 436, elaine.fraser@abdn.ac.uk; or Peter Cunningham, info@wrft.org.uk.

Part 6 **Research plans for the River Carron**

The River Carron Restoration Project was formally established in August 2009 but is founded on the long standing work of freshwater fisheries expert, Bob Kindness of Inverness College UHI. Since 1995, Bob has been working on a salmon and sea trout reintroduction programme with the primary aim of increasing wild North Atlantic Salmon and Sea Trout (known as Salmonid) populations in the River Carron, reinstating the river as a viable fishery. Research has also been investigating the reasons for the decline in numbers, whether restocking alone could bring fish back to the river and if this could provide a model for other similarly affected rivers. In the following article, ***Bob Kindness*** *and biologist,* ***Jonah Tosney****, provide an outline of plans for the future.*

Following the dramatic collapse of both salmon and sea trout stocks in the River Carron in the late 1990's, a programme was established by Bob Kindness in an attempt to return the river to its former glory. Unlike approaches taken on many rivers, the programme was stock based rather than habitat based since the river had ample good habitat but a dearth of young stock to occupy it. This represented the best use of limited resources. Starting in 1995, a captive broodstock, based on native stocks, was developed to enable significant numbers of eggs to be produced. This broodstock is regularly replenished by bringing in new stock taken from wild fish.

The first stocking of significant numbers took place in 2001 and this was followed by a sudden leap in catches in 2004. Since then stocking has continued and salmon catches reached a record at 262 in 2007. Following three quiet winters without any major spates and more stocking, the 2010 season saw a recorded salmon catch of 419, eclipsing the 2007 record by a considerable margin. Of more significance than a single record year, is that the 5-year average salmon rod catch has risen from 6.2 in 2001 to 262 in 2010. It seems fair to say that the river has been fully restored and that the 2010 catch is indicative of a stock of returning adults greater than when stocks were abundant in the past.

It would be expected that good numbers of returning adults would result in healthy numbers of fry the following year which in turn would generate plenty of smolts. However, many factors can influence the young fish before they can successfully leave the river as smolts. Winter spates and predation can take a heavy toll on young fry with no guarantee of a good smolt run and, if fish don't leave the river, then they cannot return as adults.

Salmon smolts and lurking trout in the Carron smolt trap. Over 800 smolts were captured this day (photo David Higgins).

The Carron has had a healthy number of fry and parr in recent years and, to investigate how this translates into smolt numbers, a rotary screw trap has been deployed in the lower part of the river for the last four years. In the first two years, reasonable numbers of salmon smolts were caught but it was difficult to estimate total smolt

output since there were periods in each year of high water flows when fish could not be caught. In 2010, only a few "fishing" days were lost to high water and almost 6,000 salmon smolts entered the trap, however, the total smolt run was still difficult to ascertain. This year, there have been excellent fishing conditions (low water) throughout the whole of the smolt run to date (up to the 9th of May) and already 6,600 salmon smolts have been caught. To estimate how this translates into total smolt output, a batch of 550 recognisable smolts were released from a release pond. 90 (16.3%) of these smolts came into the trap. Based on these figures, around 40,000 salmon smolts have descended the river to date. Interestingly, the total number of salmon smolts predicted as being produced from the riverine habitat of the Carron, as presented in the River Carron Management Plan, is between 16,000 and 17,000.

The stocking of the Carron has involved various stages in the life-cycle of the salmon and, since many of these stages have been un-marked and therefore unrecognisable from naturally produced fish, it has not been possible to assess the contribution made by each stage. Over the next few years, Inverness College UHI are planning to undertake detailed research work to establish the success rates of hatchery-reared fish by tagging and monitoring all future stocked salmon. It is hoped that this work will provide guidance on stocking strategies for future stocking programmes on comparable rivers.

In addition to ascertaining the success rates of fish stocked at different life stages, the project will examine a number of other ecological questions. Following in the footsteps of Wester Ross Fisheries Trust's on-going work described in last year's annual report, we will make an estimation of the carrying capacity of the river taking into account land use, macro-invertebrate populations and varying habitat types. The project also aims to analyse peat cores from the Carron catchment to examine historical changes in riparian land-use. It is hoped that the combination of the historical data, the carrying capacity work and the analysis of the stocking program will provide and excellent management framework for the Carron and other rivers.

The recent recovery in the river's fish populations is also likely to have had a wider range of ecological and socio-economic benefits which will also be examined. A large variety of other species are reliant to some extent on the river's fish populations. The most obvious of these are the predators, including otters, seals and fish-eating birds, but also affected are creatures such as freshwater pearl mussels, which are reliant upon salmonids for part of their life cycle and a wide variety of invertebrates which feed upon the remains of any fish that die in the river.

The economic benefits of the recovery are obvious but as yet unproven – much larger numbers of day tickets are now sold to anglers and as the Carron's reputation as a salmon and sea trout fishery grows, the numbers of anglers coming from further afield to stay in the area looks set to increase. The combination of these economic and ecological benefits – the extent to which the fish provide an "ecosystem service" – will be the focus for a major part of the research undertaken by Inverness College.

The project is already benefitting from work carried out by Wester Ross Fisheries Trust in previous years (notably historic electro-fishing and sweep netting survey data) and the Trust are playing an active part in advising and supporting Inverness College in this project.

Inverness College and WRFT biologist Jonah Tosney releasing a sea trout into the River Carron.

Details on the work being carried out on the Carron, including Bob and Jonah's river blog are available on the River Carron Restoration Project website http://www.rivercarron.org.uk/ .

Part 7 **Consultations and responses**

WRFT is often asked to provide comments to planning authorities (The Highland Council) or statutory organisations (SEPA, SNH or the Wester Ross Area Salmon Fishery Board) regarding proposed applications. The two main areas of development where the views of the Trust have been sought over the past year are: hydropower and aquaculture.

Hydropower [HP] project applications

Financial incentives from Government have led to a spate of new hydropower projects within the WRFT area. All of the proposed schemes have been 'run of the river' [RoR] projects, where water from a stream is diverted via an intake weir into a pipeline which leads to a turbine from which it is returned to the stream. Thanks to the Water Frameworks Directive and subsequent supporting legislation, SEPA have recently developed new guidelines for HP developers in collaboration with wild fisheries interests, outlining the supporting information that is required when an HP application is submitted for Controlled Activities Regulation [CAR] authorization. The guidance recognizes potential threats to wild fish populations and outlines the level of detail of supporting information that an applicant should provide to ensure wild fish populations and fisheries considerations are adequately addressed and protected. The guidance can be found on the SEPA website at http://www.sepa.org.uk/water/hydropower.aspx .

Over the past year, proposed HP projects largely affect sections of rivers above impassable falls which are inaccessible to salmon and sea trout. Brown trout and eels are usually present. To date SEPA have set conditions to safeguard wild fish populations which have covered our own concerns, and there has been little cause for additional comment.

Salmon farm applications

In contrast to hydropower, our understanding of the threats posed by salmon farming to wild sea trout and salmon in the marine environment has, at least until very recently, not always been openly shared by the industry or representatives of Government agencies. Over the past year, several companies have outlined plans for new farms within the area, or to increase the size of existing farms. In contrast to hydropower development, SEPA's primary role has been to issue a 'discharge consent' linked to biomass, for discharges of fish farm wastes including chemical treatment residues (e.g. those used to control parasitic sea lice on farms) into surrounding waters, not to set limits on levels of emissions of parasitic sea lice *Lepeophtheirus salmonis* larvae to safeguard wild fish populations. Lice threshold levels in the industry's 'Code of Good Conduct' are used by Marine Science Scotland's Fish Health Inspectorate to regulate on-farm sea lice levels. These take no account of the number of fish on a farm, and therefore, the potential overall size of the louse population on a farm; or where several farms are present within an area, the cumulative size of the louse population within an area. In response, the Trust has sometimes taken and submitted the view that threats to wild fish populations have not been adequately addressed and covered by other authorities.

There are now several very large farms within the WRFT area where the consented biomass exceeds 2,000 tonnes (representing about 1 million farm salmon). Over the past year WRFT expressed concern about several developments; for example, that at a proposed biomass of 2,500 tonnes, Marine Harvest's Upper Loch Torridon farm would threaten wild fish in nearby waters unless sea lice were more tightly controlled than proposed[2]. Within the Lochalsh area, there may soon be three farms of this size within 20km of each other, and large farms are being considered in other areas. The year ahead may be a challenging one.

[2] The Wester Ross Area Salmon Fishery Board's submission, including WRFT comments, can be found via: http://wam.highland.gov.uk/wam/caseFile.do?category=application&caseNo=10%2F03954%2FFUL

Part 8 **Education Projects**

Supported by SNH, The Royal Society and The Scottish Government via RAFTS

*In December 2010, Wester Ross Fisheries Trust received an award from the Highland Council in recognition of the educational projects, led by **Dr Lorna Brown**, that the Trust undertakes in both primary and secondary schools in Wester Ross. The Trust hopes that both primary and secondary pupils in Wester Ross will continue to benefit from and enjoy these projects into the foreseeable future. In the article below, Lorna provides a summary of education project activity over the past year.*

Spring 2010 saw the start of the second year of our **Living Lochs project**. Having trialled the project with Gairloch High School pupils in 2009 we headed to Plockton High in May 2010 to work with three first year classes. The project aims to encourage pupils to think about what kinds of wildlife may live within a loch system, which species are rare or endangered and how they all link together as part of the local ecosystem. We then ask them to consider what would happen if there was a pollution incident.

The Plockton High School teachers were fantastic, rearranging the timetable to fit in the fieldtrips. The weather was great, the wildlife was plentiful and the pupils really enjoyed themselves. In fact the only negative point raised on their feedback sheets was that they would have like to spend longer at the loch! Many, many thanks to Rule and Barbara from the National Trust Ranger service and Sandy from the Highland Council Ranger Service for all their help on the fieldtrips.

At the end of 2010 pupils from Kinlochewe and Torridon Primary Schools had a combined field trip to Coulin to see if we could hunt down "their babies" with the electrofishing equipment. This was the final phase of the Salmon and Trout in the Classroom project started with these schools in early 2010. The Kinlochewe pupils had hatched and released sea trout while Torridon had salmon. Before starting the electrofishing we all dangled over the bridge to spot the spawning Artic Charr. We went on to find sea trout and salmon fry, possibly hatched in the two schools, as well as some parr. We had a magical moment at the end of the day when we saw the silhouette of a large salmon leaping in a pool just as we headed back towards school. Thank you to Neil Morrison of Coulin Estate for the salmonid eggs and access for our fieldtrips.

In 2011 our **Salmon and trout in the Classroom project** entered its 8th year, with return visits to Poolewe and Ullapool Primary Schools. This year we had a new school on board, Scoraig Primary. The village is only accessible by boat and the rough track to the school only accessible by Landrover when the ground is dry. Despite lugging equipment in and out of boats and trundling up boggy tracks with wheelbarrows, the tank and eggs got to the school all in one piece! As in previous years the thermostatically controlled tanks proved to be a great success with very few dead eggs and in all schools the pupils ran the project with minimal input from the teachers. Ray Dingwall joined us for the Poolewe release trip and Alasdair MacDonald joined us at Dundonnell. The Ullapool pupils were also lucky enough to have a little 'behind the scenes' visit to Alasdair's own hatchery. Many thanks to both for continued enthusiasm for our school projects and of course for the donation of salmon eggs, without which the project could not run. Unfortunately complex travel arrangements and torrential rain meant that the little Scoraig salmon had to be returned to Alasdair's hatchery but we hope to get the pupils out this term.

(left) Lorna with a classroom salmon hatchery at Scoraig.

Thank you to all our funders. Living Lochs was part funded by RAFTS and WRFT. Salmon in the Classroom was funded by SNH and RAFTS in 2010 and SNH, the Robertson Trust and WRFT in 2011.

Part 9 **Conclusions and the year ahead**

The WRFT Fisheries Management Plan 2009+ which sets out the purpose and objectives of the Trust was completed in 2009 (see: http://www.wrft.org.uk/downloads/files.cfm?id=17). Over the past year the Trust has made the following progress towards the objectives stated in the WRFT FMP:

- **Conservation of wild salmon populations:** The 2010 electro-fishing survey and rod catches indicated that wild salmon populations were generally stronger than 10 years earlier. However, some smaller populations remain fragile (e.g. Tournaig). The Little Gruinard River (Atlantic Salmon SAC) Fisheries Management Plan which aims to safeguard wild salmon in the Little Gruinard River was completed. Our understanding of the genetic status of salmon populations and productive capacity of different habitats is progressing via the ongoing FASMOP Project and Carrying Capacity Projects (reported in WRFT Review May 2010). In 2011 the Trust will also carry out a juvenile fish survey of the rivers in the southern part of the WRFT area and many of those further north. Education projects to raise awareness of wild salmon and the problems they face were undertaken and there are plans to continue these.

- **Restoration of sea trout production in the River Ewe – Loch Maree system**: In 2010, sea lice were monitored on wild sea lice at Poolewe and the results were discussed by members of the Loch Ewe AMG and reported with other sea lice data in the WRFT Sea trout monitoring report (see www.wrft.org.uk). There have been no severe sea lice epizootics in Loch Ewe since 2007, though the threat remains. The need for a sea trout stocking programme within the River Ewe catchment was considered at the WRFT Stocking workshop in May 2010, and the view taken by those present was that the priority action should be further clarification of the genetic status of trout populations. Opportunities to protect and restore marine habitats and prey species of importance for sea trout are being considered further. Sea trout and sea lice monitoring will continue in 2011.

- **Restoration of salmon production in areas where stocks have been lost:** In 2010, the Trust entered into a collaborative venture with the University of The Highlands and Islands and the River Carron Restoration Project to see what lessons can be learned from the River Carron for restoration of rivers in other areas over the years ahead. WRFT now shares a second biologist, Jonah Tosney, with this project. The Bruachaig Salmon Restoration Project will continue in 2011.

- **Restoration of sea trout production in other areas outwith the River Ewe - Loch Maree:** The Trust's main activity in 2010 was continued monitoring of sea trout in the marine environment in Loch Gairloch, Loch Carron and in support of activities at Dundonnell and Sguod. In 2011, this work will continue and be extended to include monitoring of sea trout in the River Kanaird estuary as part of the new collaborative RAFTS Aquaculture Initiative. The Trust also kept in close touch with Marine Scotland Science's Sea trout Project based at Shieldaig in Loch Torridon.

Other activities carried out by the Trust over the past year (and ongoing) include:

- **Information provision:** initiation of a project to provide anglers with information on local fisheries.

- **Biosecurity:** support for North American mink monitoring and control programmes (including the new Scottish Mink Initiative), participation in training courses to learn about threats of alien aquatic plants and raising awareness of other threats (e.g. North American Signal Crayfish).

- **Marine Conservation & Management:** participation in events aimed at learning more about the inshore marine environment and opportunities for restoring inshore fish populations of importance to salmon and sea trout. With further expansion of the salmon farming industry and designation of marine protected areas both possible within the WRFT area during the next 12 months, the marine environment may become the focus of an increasing level of WRFT activity over the year ahead.

Part 10 **Financial Statement**

For the year ended 31 March 2011

Incoming resources	Unrestricted Funds £	Restricted Funds £	2010-11 Total £	Unrestricted Funds £	Restricted Funds £	2009-10 Total £
Incoming resources from generated funds						
Voluntary income						
WRASFB	23000			23000		23000
Membership	650			520		520
Sub Total	23650		23650	23520		23520
Activities for generated funds						
Investment Income	716			794		794
Gift Aid	1520			2240		2240
Sub Total	2236		2236	3034		3034
Incoming resources from charitable activities (unrestricted)						
Inveran Estate				2000		2000
Coulin Estate	2000			2000		2000
Fish Farms	4971			4866		4866
Southern River Proprietors	5012			4972		4972
Whitley Animal Protection Trust (via RAFTS)	744			845		845
Individual donations	210			170		170
Sales	569			1455		1455
Contracts	5394			0		0
Sub Total	18900		18900	16308	0	16308
Total voluntary incoming resources	44974		44974	42862	0	42862
Incoming resources from charitable activities (restricted)						
SNH (for Salmon & Trout in Classroom)		2280			4408	
SG via RAFTS (Salmon & Trout in Classroom)		1150			0	
Robertson Trust (Salmon & Trout in Classroom)		2000			0	
Crown Estate (Sweep netting / Lice monitoring)		14843			16231	
Marine Harvest (Tournaig Trap)		2575			2500	
SG via RAFTS (Carrying Capacity Project)		5000			4866	
SG via RAFTS (Living Lochs/Lochan life)		2992			3025	
SG via RAFTS (Stocking Workshop)		2094			0	
RAFTS (Mink Awareness Project)		500			0	
SG via RAFTS (Herring Rediscovery Project)		0			2626	
SG via RAFTS (Bruachaig Salmon Project)		2500			436	
SG via RAFTS (Sea Lice Review Meeting)		0			823	
SG via RAFTS (Biosecurity Plan)		1000			2500	
SG via RAFTS (Angling Information Project)		1833			0	
SG via RAFTS (Little Grunaird FMP Printing)		600			0	
SG via RAFTS (Electro-fishing Training)		400			0	
Sub Total	0	39767	39767	0	37415	37415
Total Income	44974	39767	84741	42862	37415	80277
Figures shown in Book keeping			79138			80278

Acronyms:

WRASFB: Wester Ross Area Salmon Fishery Board

SNH: Scottish Natural Heritage

SG: Scottish Government

RAFTS: Rivers and Fisheries Trusts Scotland

Financial statement for the year ended 31 March 2010 (continued):

Resources expended	Direct Costs £	Support Costs £	2010-11 Total £	Direct Costs £	Support Costs £	2009-10 Total £
Costs of generating funds						
Fundraising trading cost of goods sold			0			0
Charitable activities			0			0
Costs of activities in furtherance of charity's objectives						
Support Costs						
Wages & Contract labour	11866			15463		
Insurance	1482			1514		
Telephone	707			675		
Heat & Light	802			669		
Subscriptions	1327			1241		
Training expenses	450			285		
Printing / Post / Stationery	1626			2742		
Sundry expenses	1816			2599		
Computor equipment	90			0		
Maintenance	717			388		
Sub Total	20883	0	20883	25576	0	25576
Charitable activities direct costs						
Motor vehicle travel & subsistance expenses		5073			4854	
Wages, Social Security, Pension		39209			38622	
Equipment hire / repairs					894	
Equipment new		1504			2202	
Governance costs		1703			1631	
Depreciation						
RAFTS / FRS Commission		1000			1000	
Sundry		927			1265	
Sub Total	0	49416	49416	0	50468	50468
Charitable activities total costs	20883	49416	70299	25576	50468	76044
Figures as shown in book keeping			73091			76046

IMPORTANT NOTICE

The 2011 figures are for information only and have not been checked or audited.

The figures have been checked to Book keeping
However there will be adjustments made by the Accountants

Acknowledgements

Wester Ross Fisheries Trust has received a great deal of help and advice over the past year. Thank you to:

Aaron Forsyth
Alasdair Macdonald (Dundonnell Estate)
Ala MacKenzie
Alan Jackson
Alan McGillivray
Alan Wells (RAFTS)
Alison MacLennan (RSPB)
Alison Rowe
Alastair Pearson
Dr Alasdair Duguid (SEPA)
Andrew Graham-Stewart
Andrew Slaughter
Dr Andrew Walker
Andrew Wallace (RAFTS)
Angus Morrison
Anne and Alex Gray
Antony Watkins (SEPA)
Barbara MacDonald (Letterewe)
Prof Barry Blake
Ben Hadfield (Marine Harvest)
Ben, Ron and Lesley Rushbrooke
Bill and Fergus Anderson
Bill Whyte (Gruinard Estate)
Billy Forbes
Bob Kindness (River Carron Restoration
Brian Fraser
Callum Sinclair (RAFTS)
Carl Forbes
Catherine Vine
Chris Daphne (West Sutherland FT)
Dr Chris Horrill (RAFTS Invasive species)
Clint Barker
Dr Colin Bean (SNH)
Dr Colin Trigg (SNH)
Prof Andrew (Dave) Barclay
David, Dougie and Flora Foreman
David Stewart (MS Science)
Donald Macleod
Donald Rice
Donna-Clare Hunter (RDO)
Dundonnell Estate
Elaine Fraser
Eilean Darach Estate
Eoghain Maclean
Dr Eric Verspoor (MS Science)
Ewen and Jenny Scobie and family
Fergus Mackenzie
Frank Buckley
Frank Kalinowski
Fred Robertson
Garry Bulmer
Gilpin Bradley
Graeme Wilson
Greg Jeffries
Gunnar Scholtz (Mink Project Officer)
Hugh Richards (WRF)
Jackie Anderson (MS Science)
Dr James Merryweather
Jim Raffell
Dr John Armstrong (MS Science)
John Ogle & family and friends
John Mackenzie,
Johnie Parry
Jon Gibb (River Lochy)
Karen Starr
Katie Gillham (SNH)
Kenny Nelson (SNH)
Kenneth Maclean
Kevin Ginty
Letterewe Estate
Les & Sheila Bates
Lindsey Duncan (HC Countryside Ranger)
Lois Canham (Mink Project Officer)
Dr Lorna Brown
Marcus Simpson
Mark Coulson and Lucy Webster (RAFTS Genetics)
Mark Williams and family
Mary Gibson (SNH)
Dr Melanie Smith
Neil Morrison
Nick Benge (Watergems)
Nick Thomson and family (Loch Maree Hotel)
Nicola Tallach (SNH)
Norman Thomas
NTS Inverewe Gardens staff
School teachers and pupils too many to name!
Paul Bolton (NTS Countryside ranger)
Prof Peter Maguire
Philip Smith
Ray Dingwall
Richard Munday
Richard Wilson, family and friends
Roderick MacIvor
Roger Macdonald (Gairloch Estate)
Roger Brook
Roger and Tracy McLachlan
Rosie Norman
Ross Gardiner (MS Science)
Col Sandy Lindsay
Simon MacKelvey (Cromarty Firth Fisheries Trust)
Simon Stewart (Coulin Estate)
Dr Shona Marshall (West Sutherland FT)
Spey DSFB
Dr Steve Kett (Middlesex University)
Tim Fison
Tom Forest (WREN)
Tournaig Estate (& their ATV)
Veronica and David Mullaney

…and all the other anglers, keepers and ghillies, fish farmers, school teachers, schoolchildren and parents, and everybody else who has helped us with our work.

Supporting wild fisheries and the Trust's Work

The current work programme for 2011 – 2012 includes excursions to sample trout lochs and streams, electro-fishing surveys of many of the rivers between Ullapool and Knoydart, sweep netting for sea trout, river surveys, a herring 'rediscovery project' and much else which may be of interest. There are many opportunities for becoming actively involved with the work of the Trust or for simply coming along for a day in the field to find out what we do. Please contact the WRFT Biologist for further details.

WRFT sweep netting team: Bill and Fergus Anderson, Rosie Norman, Marcus Simpson and Peter Cunningham (with fish) in Charleston Bay on 27th August 2010.

EWEN MACKAY SCOBIE
25.07.1950 - 24.02.2011

Ewen was born on the Black Isle and spent his earlier years helping to farm the family farm at Coulmore. In 1970 he joined the Queens own Highlanders in Germany, having been commissioned at Mons the previous year. He was not your run-of-the-mill officer but an independent, free-thinking spirit whose Jocks would follow him wherever he went.

He was extremely fit and for his last 2 years in the army ran the Army Youth Team which allowed him to take his team rock climbing and adventure training – he loved nothing better than roaming free in the Highlands.

After 2 years travelling in New Zealand and Australia he returned home in 1977 to help run Rhidorroch Estate in Ullapool. It was here that he set up house with his wife Jenny and produced 3 lovely girls, Kimmy, Katy and Kirsty. They farmed sheep and ran sporting lets, including stalking, rough shooting and fishing. The lodge was let out during the summer and Ewen used to ghilly for the tenants. The Ullapool River is a superb west coast river and one of the few that has a spring run of salmon.

The preservation of this river became one of Ewen's life's aims. He was a founding member of the WRFT and was instrumental in the campaign to defeat the fish farm at Annat Bay. He and his family regularly helped with the electro-fishing on Rhidorroch and Ewen was always available to help with a ready smile and bucketfuls of humour. Ewen also set up a small salmon hatchery to produce fry from spring fish which were seeded into the Ullapool as far upstream as Smokey Falls.

It was not just salmon that interested Ewen. He was a great lover of the wild trout that inhabited the myriad of hill lochs on the Estate. It wasn't for him the fancy fishing gear and garb, but old trusty rods and tweeds and his favourite salmon fly was tied from the tail of his faithful collie, Queenie. This fly far outlasted Queenie and whether or not it was the magic of the fry or the skill of the fisher, it always came up trumps.

He continued to fight for the protection of wild salmon and trout right up until his death. He was a great friend to many and a most generous host. New Years eve's parties at Rhidorroch were legendary. However – he will be best remembered for his enthusiasm to see young people learn and discover the delights of fishing. He had a font of knowledge and usually a trail of people behind him eager to listen and learn. He will be sadly missed by all who knew him and leaves behind his wife, Jenny and his 3 children who, I am sure, will all continue to fight the good fight.

MW

Wester Ross Fisheries Trust
Harbour Centre, Gairloch, Ross-shire, IV21 2BQ

Tel: 01445 712 899
Email: admin@wrft.org.uk

WRFT Registered Charity No: SCO24787

1. Member details

Please complete details

Title: Ms Miss Mrs Mr

First name: _____

Surname: _____

Postal address: _____

_____

_____

_____ Post code: _____

Tel: _____

E-mail: _____

2. Renew my membership

		Please Tick
One year	**£20**	
Single Life (1 card)	**£150**	
Joint Life (2 cards)	**£200**	

Rates are valid until 31/12/2010

3. Payment details

Membership Fees (from section 2)	£
Donation	£
TOTAL DUE	£

4. Method of payment

a. ☐ I enclose a cheque payable to Wester Ross Fisheries Trust for £

b. ☐ I would like to pay by Standing Order (please fill in the Standing Order form below – UK bank account holders only)

5. Gift Aid

Use gift aid and you can make your donation worth more. For every pound you give to us, we get an extra 28 pence from the Inland Revenue and it costs you nothing.

I want all donations I've made since 6 April 2000, and all donations I make in the future, to be Gift Aid until I notify you otherwise.

To qualify for Gift Aid, what you pay in income tax or capital gains tax must equal the amount we will claim in the tax year.

Just tick the box and sign below: ☐

Signature Date / /

Please return this completed form to: **Wester Ross Fisheries Trust, Harbour Centre, Gairloch, IV21 2BQ**

Data Protection: The information you provide will be held for processing your membership and for mailing with information about Wester Ross Fisheries Trust. Your details will only be used by Wester Ross Fisheries Trust and will not be made available to any other organisation.

Instruction to your Bank or Building Society to pay Standing Order to:

Bank Name & Address: Bank of Scotland – Gairloch Office

Account Name: Wester Ross Fisheries Trust **Sort Code:** 80-06-87 **Account No:** 06000911

PLEASE PAY THE FOLLOWING

Amount £ In Words

Commencing:

Thereafter: Due Date: Annually On / /

TO BE DEBITED FROM MY ACCOUNT

Bank Name: _____

Bank Address _____

_____ Postcode _____

Name(s) of account holder(s)

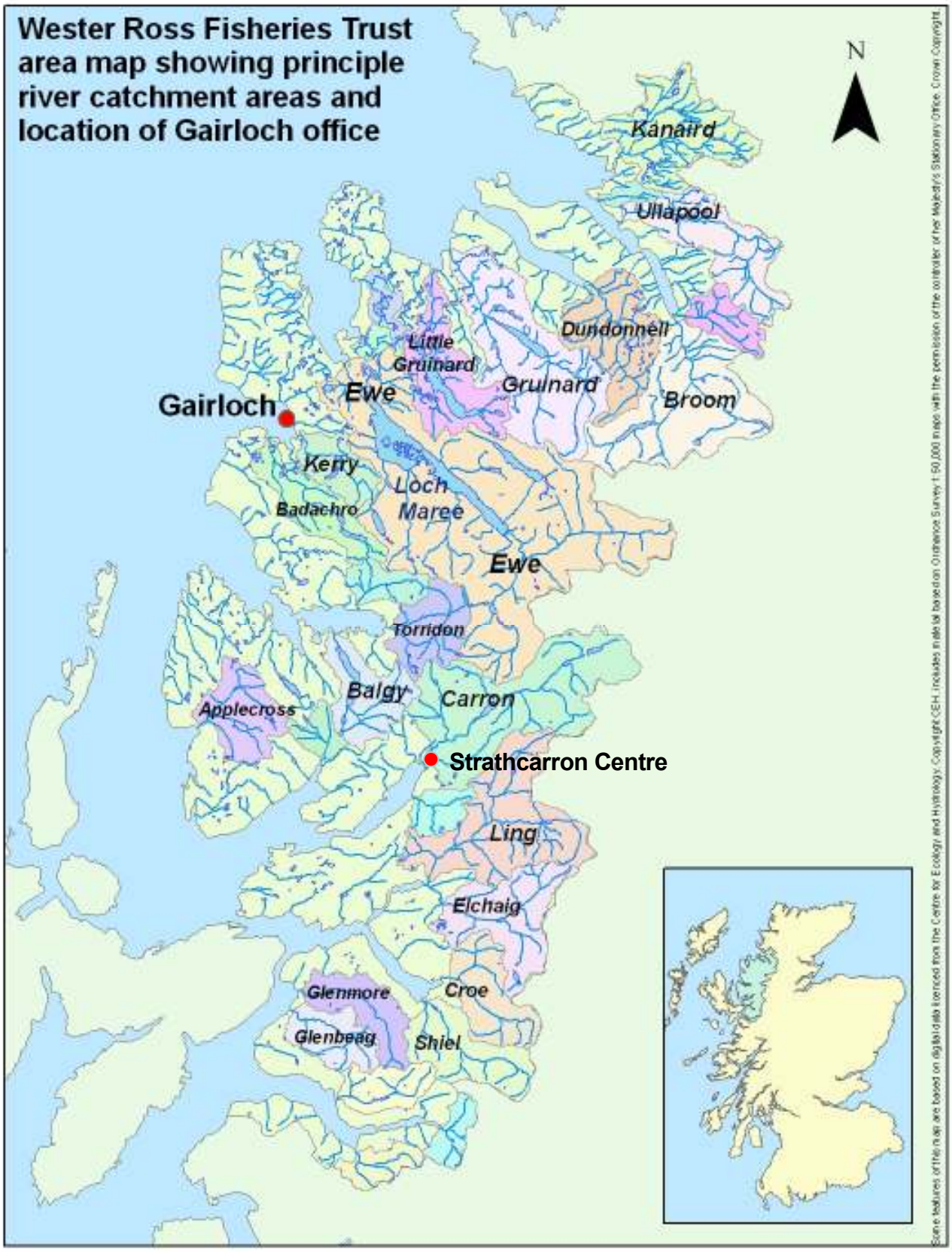
Branch sort code ☐☐-☐☐-☐☐ Bank/ Building Society Account Number ☐☐☐☐☐☐☐☐

WRFT Ref. No: (office use only)

Instruction to your Bank or Building Society: Please pay Wester Ross Fisheries Trust Standing Order Mandate from the account detailed in this instruction. I understand that this Instruction may remain with the WRFT and, if so, details will be passed electronically to my Bank/Building Society. A photo copy may also be kept on file with the SGA.

Please cancel all previous standing order and/or direct debit mandates under Wester Ross Fisheries Trust.

Signature(s) Date / /


Wester Ross Fisheries Trust
area map showing principle
river catchment areas and
location of Gairloch office
N
Kanaird
Ullapool
Dundonnell
Little
Gruinard
Gruinard
Broom
Ewe
Gairloch
Kerry
Loch
Maree
Badachro
Ewe
Torridon
Balgy
Carron
Applecross
Strathcarron Centre
Ling
Elchaig
Glenmore
Croe
Glenbeag
Shiel

The wild trout of a coastal stream system in Wester Ross