WESTER ROSS FISHERIES TRUST

REVIEW JULY 2012

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REVIEW

by

Peter Cunningham and Jonah Tosney, with contributions from Sue Pomeroy, Dr Lorna Brown and Gunnar Scholtz

July 2012

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

Autumn, the season when trout, salmon and arctic charr gather in spawning streams, is perhaps the best time of year for learning about the status of fish populations in Wester Ross. (clockwise, from top left): Gairloch High School pupil Chris Young and Roger McLachlan by a trout spawning burn in October 2011 and a bucket with salmon parr and mature loch trout; Riparian alder trees by a salmon spawning stream in the Gruinard headwaters, November 2011 (by Ben Rushbrooke); Male arctic charr from a charr spawning stream, November 2011 (by Ben Rushbrooke); male 'ferox' brown trout from a spawning stream in the Loch Maree catchment, October 2011. Please contact a WRFT Biologist if interested in helping with fish sampling work in Autumn 2012.

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WRFT Biologist, Jonah Tosney, about to release an Arctic Charr into Loch Sgamhain in November 2011 (photo by Peter Cunningham).

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Preface

The pace and variety of work carried out by the Trust continues unabated, as will be very clearly seen from the breadth of the reports and information in this Review. It makes fascinating reading; even for those directly involved in the Trust's organisation and work.

We have had some changes among the Trustees, and although delighted to welcome Dr Melanie Smith of the University of the Highlands and Islands, we were very sorry to lose Professor Barry Blake and Ian Fergusson who had both contributed so much. They were followed later in the year by Graeme Wilson who will be very much missed, not only by the Trust but equally by the fishers on the Little Gruinard who he looked after so well. We have also welcomed Henry Dalgety of the Scottish Salmon Company and expect to have a new Trustee from the north of our area in place very shortly.

As ever, minds have been concentrated on finance to allow us to keep moving forward and yet again the stalwart efforts of Peter Jarosz have borne much fruit. In addition to the endless new sources of funding which he tracks down, our biologists carry out a number of contracts, largely in the area of renewable energy projects which bring valuable income. As well as all his work in the southern part of our area, Jonah Tosney has also done – and will continue in 2012 to do - a lot of survey and electro-fishing work for the Skye Fisheries Trust which yields a very useful contribution towards our costs. It was most encouraging that UHI have confirmed that we will be able to keep him as our second biologist for a further 3 years.

Although it becomes annually more difficult to keep our income ahead of our costs, we continue to deliver a steadily increasing volume of valuable work whilst at the same time, thanks to Ronnie Mullaney's expert management, the books remain in balance.

As ever, and particularly given its current rapid expansion, the salmon farming industry and concerns about sea lice hold our attention. We are however encouraged by the development of relations with the industry as we work to improve constructive dialogue and better mutual understanding with aquaculture: as reported in section 3 of this Review.

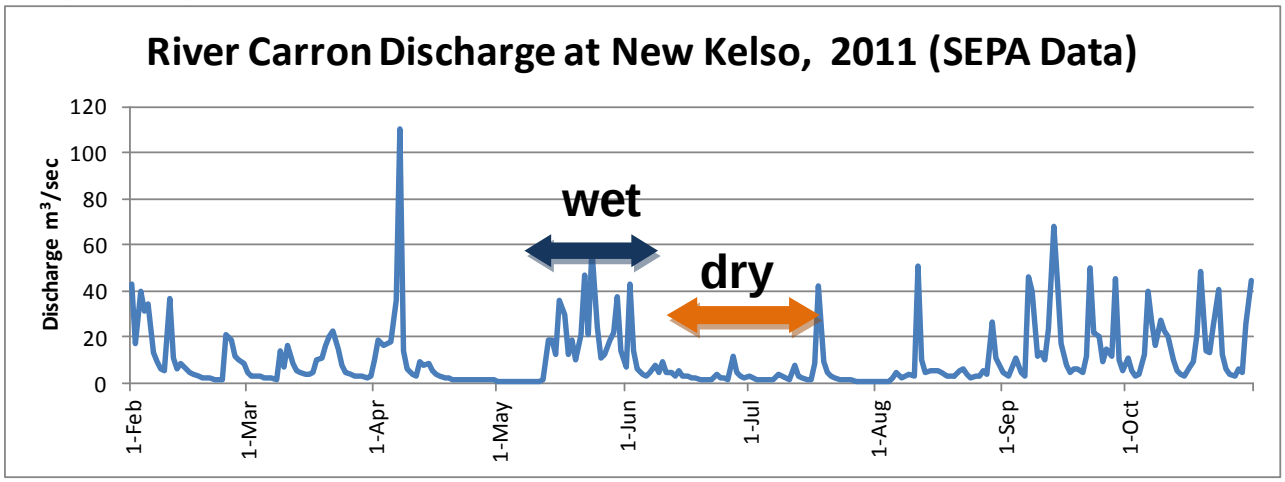
There is much - and a huge variety - of interest within. None of this would have been achieved without the tireless efforts, boundless enthusiasm and energy and sheer hard work of Peter Cunningham and Jonah Tosney to both of whom great credit and thanks are due. I must also express our sincere appreciation of all those valiant amateurs who give so freely of their time and effort to helping them. Many who read this Review will recognise that very many of those listed on page 40 fit the "amateur" description. They also serve . . . . . who only carry buckets!

John Mackenzie

Part 1 **Introduction**

This report provides a summary of our work over the past 13 months. For the wild salmon and sea trout of the Wester Ross Fisheries Trust area, this period has been one of mixed fortunes. Weather and river conditions presented some of the biggest challenges for both fish populations and for field teams attempting to keep account of them. Figure 1.1 shows how water levels in the River Carron fluctuated in 2012.

Figure 1.1 Water discharge recorded at the gauging station on the River Carron at New Kelso February – October 2011 (SEPA data)



The Carron, like other rivers in Wester Ross, is a spate stream. In April 2011, an exceptionally high spate may have washed-out salmon alevins from the bed of the river. Thereafter, a period of dry weather prevailed through late April into early May 2011 [and again in spring 2012]; and in some of the smaller streams, water levels were so low that smolts were unable to migrate downstream to the sea. Following several days of heavy rain in mid May, rivers rose to some of the highest levels in our records for that time of year. Remaining salmon and sea trout smolts were swept out to sea a few weeks later than usual. However, for the arrival of the first 2 Sea Winter [2SW] salmon back from the Greenland seas, the rains came at just the right time. Anglers enjoyed some of the best early summer sport for many years, and by the end of the season catches of 2SW salmon were some of the highest in recent years (see Part 2.2).

With little freshwater entering the sea in the second half of June 2011, levels of sea lice infection on sea trout were high enough in some areas to compromise fish health (Part 3). Our juvenile fish survey season (July – October) went generally well; many rivers and coastal streams were visited providing some interesting results (Part 2.1). We were able to explore some of the trout and salmon spawning streams later in the year. For Trust biologists, a highlight of the year was the Wild Trout & Arctic Charr Discovery Week in November 2011 (Part 4).

Over the past year we have learned much from older fishermen about the sea fisheries of the area (Part 5) and met many enthusiastic younger ones (Part 8). As I write, it is warm outside, the sea is calm, and terns are fishing in the harbour. There are always new questions to answer: are the sea trout post-smolts which we sampled in the estuary by the office growing quickly on the sandeels which have already been seen around the coast? Will they grow as fat by the end of June as those seen in 2009?

I watched a Basking Shark filtering zooplankton just off Sand beach (Loch Gairloch) on my way in this morning, the first I've seen this year. That's a good sign (sandeels eat zooplankton too), and always a good way to start the day . . .

Peter Cunningham, June 2012

Part 2 **Salmon and sea trout stocks**

2.1 Juvenile fish surveys

The primary aim of the WRFT electro-fishing survey is to maintain an understanding of the distribution and relative abundance of juvenile salmon (*Salmo salar*). Other fish recorded over past year included Brown Trout (*Salmon trutta*), Eel (*Anguilla anguilla),* Minnow (*Phoxinus phoxinus*) and Arctic Charr (*Salvelinus alpinus*).

Electro-fishing surveys highlight problems and opportunities for fisheries management. Our surveys have indicated that most of the freshwater habitat within core parts of the major salmon rivers has supported relatively healthy populations of juvenile salmon, even during periods when rod catches of adult fish were at their lowest in the late 1990s and early 2000s. In contrast, we found much variation in the smaller streams. In some years, juvenile salmon were absent, or present in some headwater streams at much lower densities than in 'core' areas further downstream (see WRFT Review May 2011). Headwater streams are more sensitive to changes in numbers of adult salmon returning at spawning time. Problems relating to recruitment of juvenile fish are often first uncovered through surveys of the headwater streams that are most difficult for adult fish to reach.

In 2010 and 2011, WRFT juvenile fish survey expeditions visited both 'marginal' areas and some core areas. Our aim was to answer the following questions:

- *To what extent have salmon utilised all accessible nursery habitat within respective river systems?'*
- *Are there as many juvenile salmon as there should be?*
- *Is management intervention required to support or improve juvenile fish production and enhance natural recruitment of wild fish?*

The following section presents a summary of where we surveyed and what we found.

Salmon jumping at a waterfall in the headwaters of the Gruinard River system in October 2010 (composite photo by Ben Rushbrooke). Subsequently in 2011, many small juvenile salmon were recorded below these falls, however above the falls there were just a few much larger juvenile salmon. See text for further details.

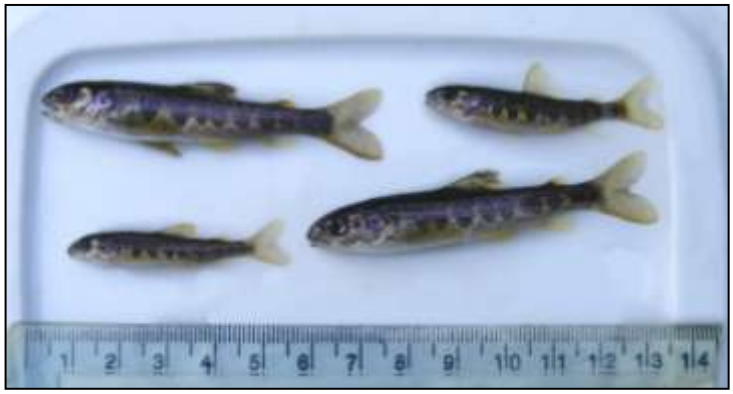
The following section provides a brief summary of results for 2011, river by river (north to south). Figures 2.1 and 2.2 show the results for salmon and trout respectively, expressed as 'Catch per Unit Effort' (or presence – absence for some southern waters). Table 2.1 defines the CPUE grades referred to in the subsequent text.

Table 2.1 Definition of Catch-per Unit Effort [CPUE] 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

Kanaird (12th Aug): both salmon fry and parr were recorded at the site by Glen Cottage above Langwell at low CPUE. Below the falls, fry were recorded at high CPUE indicative of much higher densities. Five sites were fished in the River Runie sub-catchment. At a site 400m downstream from the Drumrunie Falls, both salmon fry and parr were present at moderate CPUE. At a site in the other tributary, the Allt Liathdoire, salmon fry were present at high CPUE, and parr at moderate CPUE. In the small, weedy stream which flows out of Lochan Dubha, no salmon were found; however trout and minnows were recorded. Further downstream at the site in the Runie 'Flats', both salmon fry and parr were present at moderate CPUE (fish per minute) indicative of healthy populations.

Ullapool (7th Oct): the river was much higher than anticipated on the day of survey and fish were harder to catch than usual. Nevertheless, CPUEs of almost 1 fry and 0.5 parr per minute were recorded by fishing the shallow margins of the Rhidorroch River at East Rhidorroch indicative of healthy juvenile populations *(right)*. Below Cadubh, fry were recorded in shallow water in the inside of a bend at almost 2 fish per minute; no parr were caught here. However, in the Allt Dail a' Bhraid some large parr were caught at high CPUE in addition to a selection of mature trout using spate conditions to run up from Loch Achall to spawn. Both salmon fry and parr were recorded at over 1 fish per minute in the Rhidorroch House burn.



Broom (25th Aug): our first observation was of major changes in the streambed of the Allt a' Bhraighe and Allt a' Mhuillinn following a flash flood a few weeks earlier. Much fresh sediment had been deposited in respective river channels changing the habitat for fish. In the Allt a' Mhuillinn, where WRFT initiated a riparian woodland project in 2001, the streambed had been raised by over 30cm to a level higher than that of the field on either side of the embankments *(right).* Remarkably, juvenile salmon were found in both tributary streams, at low CPUE. In the Allt a' Bhraighe by the Wood Turning Centre, three large salmon parr were found in 10 minutes fishing. In the Allt a' Mhuillinn, salmon fry were recorded at low CPUE. In the mainstem River Broom in a section of riffle above Inverbroom Bridge, salmon fry were recorded at moderate CPUE; and parr at low CPUE. Further upstream, at Achindrean, the water depth and flow were too high for using the back pack

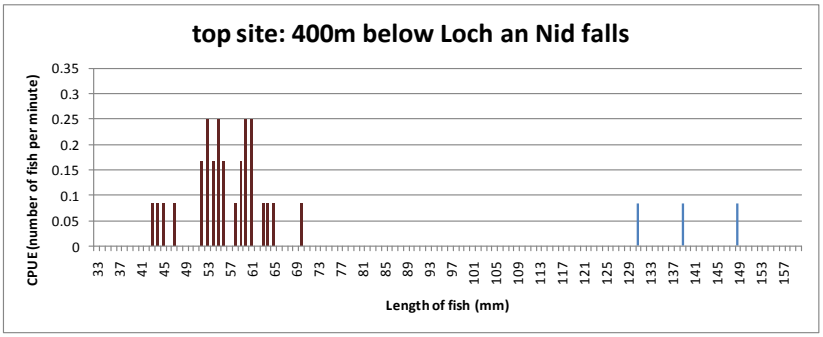
equipment. Salmon fry were recorded along the margins of the channel at very low CPUE and parr at low CPUE. In May 2012, following a report from SEPA of dead trout in the Broom above Achindrean Bridge, three sites were surveyed on 10th May 2012 (not shown on Figures 2.1 and 2.2). Salmon parr (including pre-smolts) were recorded at moderate – high CPUE at Achindrean Bridge and Inverbroom Bridge. Two salmon fry were recorded at the latter site, however given the time of year, we fished away from areas where salmon may have spawned. We concluded that the juvenile salmon population was in good health.

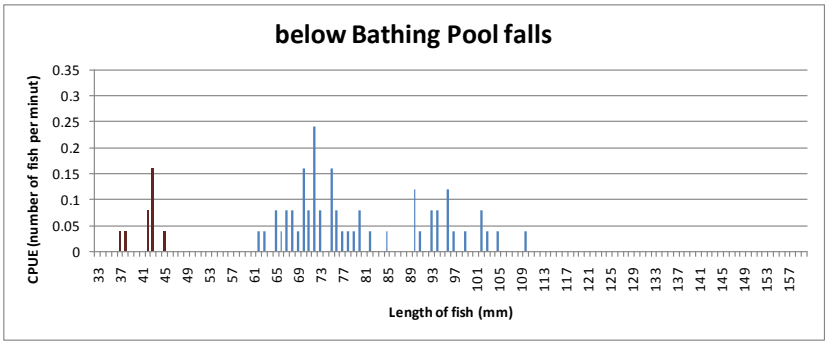
Gruinard: In the **mainstem Gruinard River** below Loch na Sealga (3rd & 4th Oct): both salmon fry and parr were recorded by the SEPA electro-fishing team. Sites fished were measured enabling minimum estimates of fish densities to be obtained. These are as follows:

- Lower site (GRDS1): 17.8 fry per 100m^2 and 15.4 parr per 100m^2
- Upper site (GRDS2): 13.3 fry per 100m^2 and 13.3 parr per 100m^2

In the **Gruinard headwaters** (27th Oct), the size and relative abundance of juvenile salmon varied. Figure 2.3 contrasts the size and frequency of juvenile salmon of respective ages in the **Abhainn Srath na Sealga** above and below the Bathing Pool falls [photo on p7]. At the two sites fished below the falls, salmon fry were small (37mm – 45mm) and outnumbered by parr (65mm – 110mm) which were recorded at high CPUE. However, at the site 400m above the falls (in the **Abhainn Loch an Nid**) salmon fry were much larger (60mm – 77mm) though present at very low CPUE. Only one parr, a large fish of 154mm, was found in 22 minutes fishing at this site (very low CPUE). Further upstream, at the site midway up to the Loch an Nid falls, there were more fry but they were not quite so large (54mm – 78mm) as at the downstream site (GRDT38). No parr were found at this middle site. At the top site, 400m below the Loch an Nid falls (upstream limit for salmon), salmon fry were found at high CPUE; however, they were were smaller (43mm – 70mm) than those nearer the falls). Salmon parr of 131mm, 139mm and 149mm were also found at this top site.

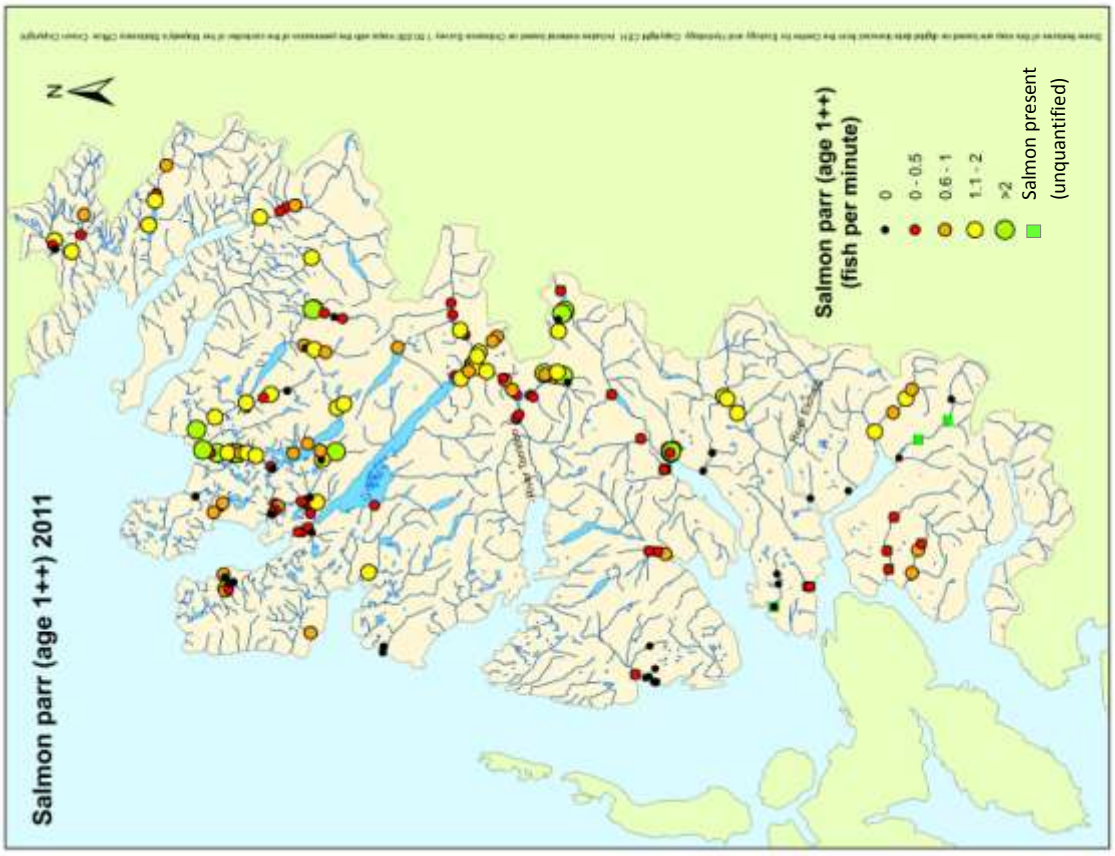
Figure 2.3 Size – frequency graphs for juvenile salmon caught at two sites in the headwaters of the Abhainn Strath na Sealga above and below the 'Bathing Pool' falls on 27 Oct 2011. Fry are shown in dark red, parr in blue.





Our survey again demonstrated that the Abhainn Loch na Nid above the falls represents marginal habitat for salmon. Densities of juvenile salmon were clearly below carrying capacity, and in the absence of competition for food, they had grown faster than those found below the falls.

Figure 2.1 Distribution of salmon fry and (below) salmon parr within the WRFT area in 2011. Green squares show sites where juvenile salmon were recorded (age class not specified).



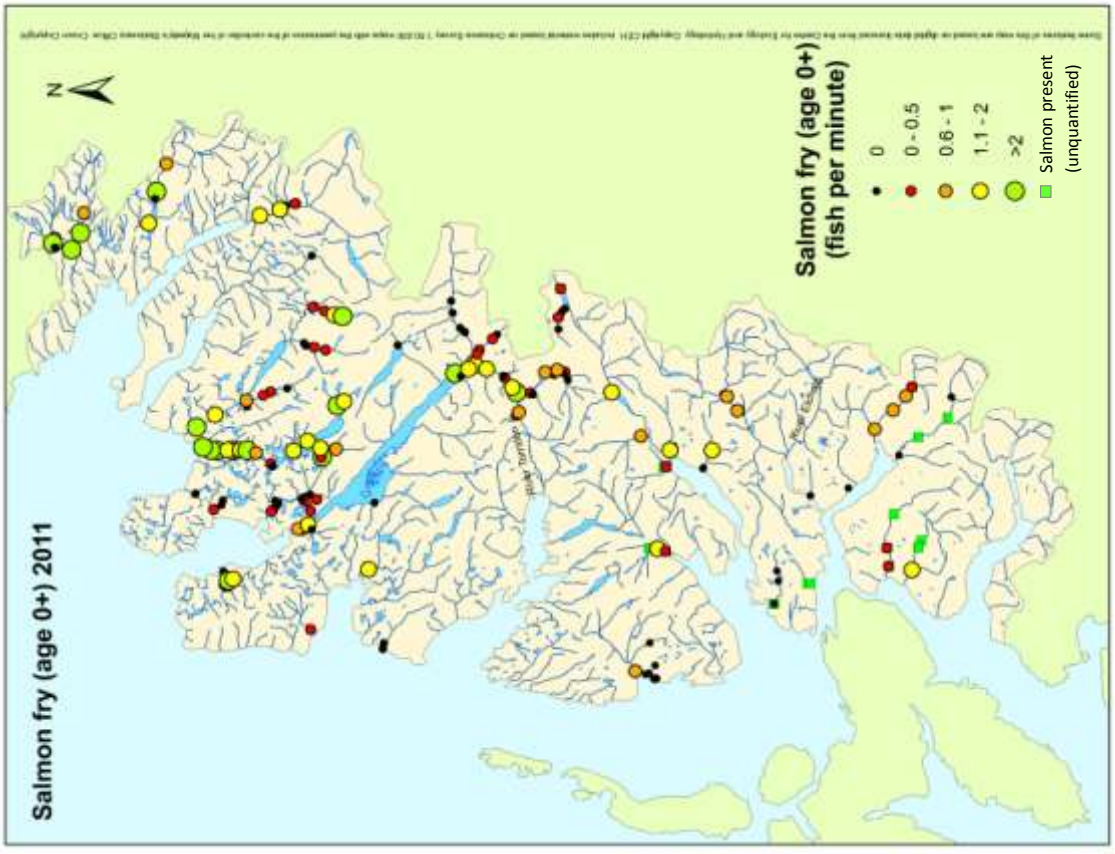
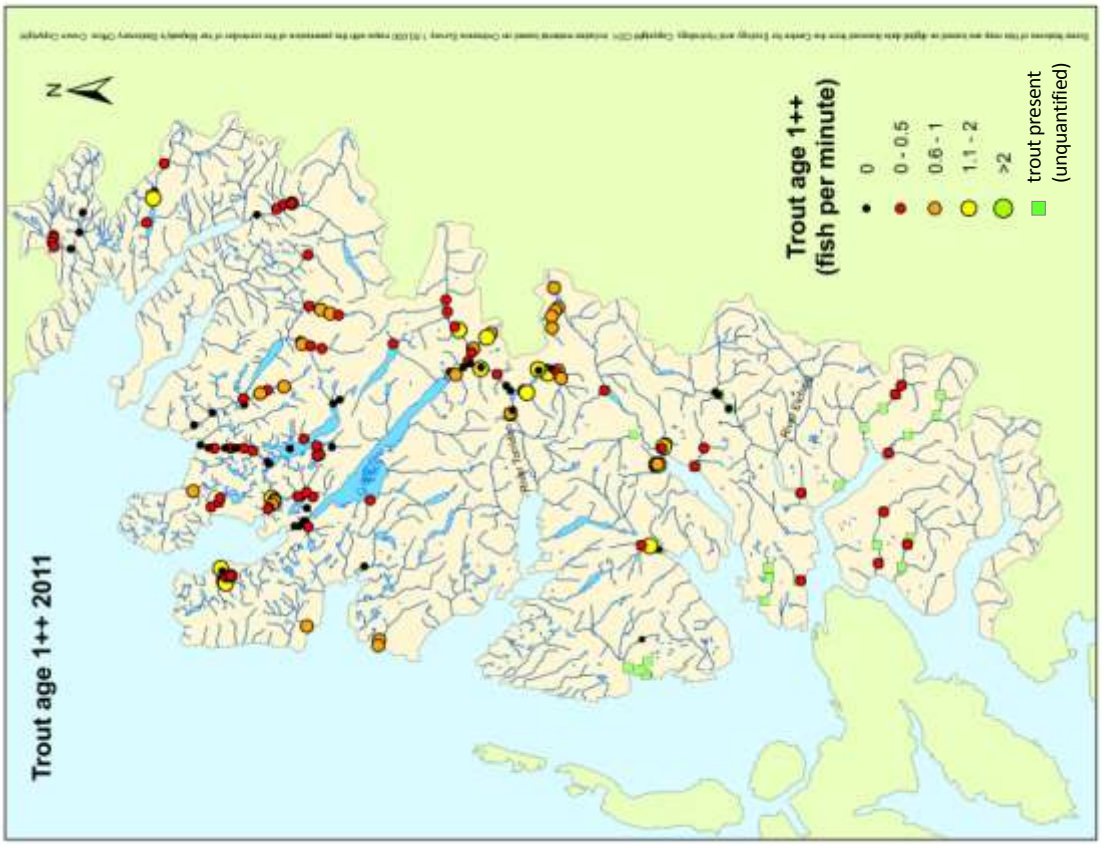
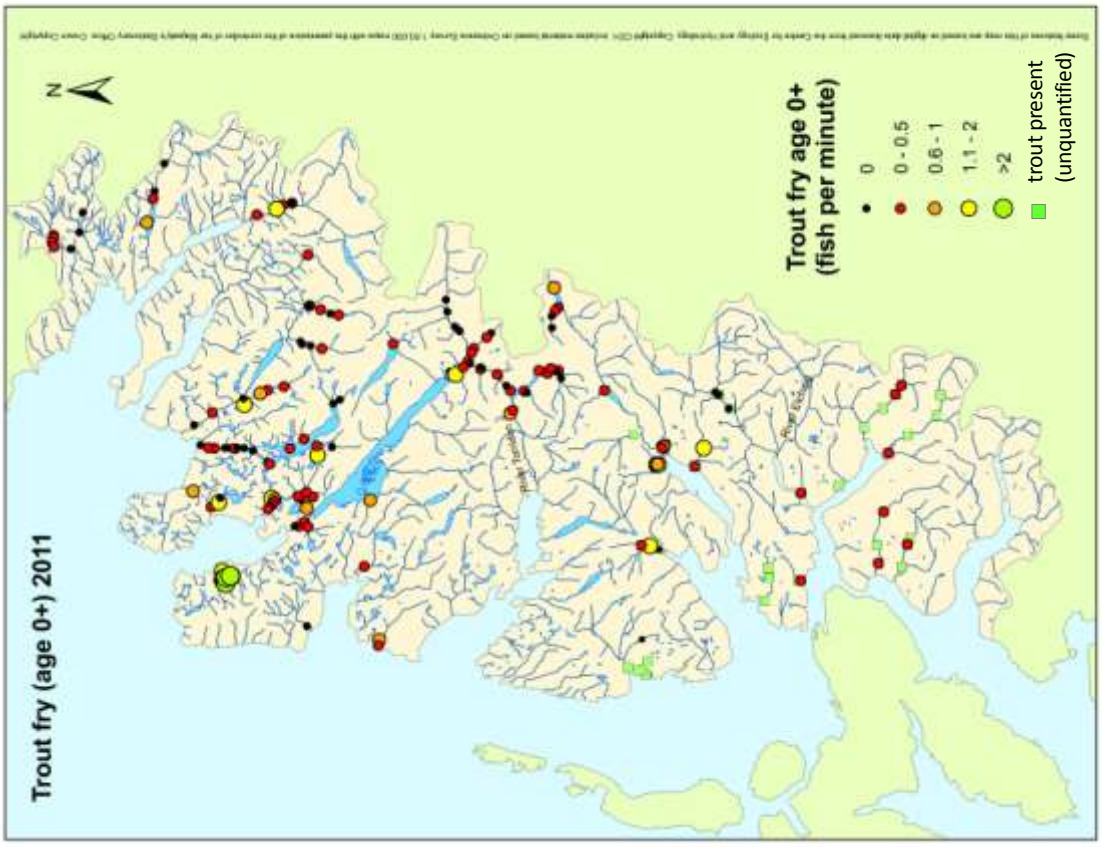


Figure 2.2 Distribution of juvenile trout within the WRFT area in 2011 from electro-fishing surveys. Green squares show sites where juvenile trout of were recorded (age class not specified).





In the **Abhainn Gleann na Muice** (1st Nov), salmon parr were more numerous than fry indicative of a poor 2011 salmon yearclass. Opportunities for protecting and restoring riparian alder trees along this burn to support juvenile salmon production were reviewed in a subsequent report.

Little Gruinard River system: sites were surveyed throughout the Little Gruinard River system in August and September 2011 as part of a contract for SNH to assess the 'site condition' of Atlantic Salmon Special Areas of Conservation [SACs] in Scotland. Juvenile salmon were found throughout the system, usually at moderate or high CPUE indicative of healthy populations. Salmon fry and parr were small at most sites in the mainstem except at the Stepping Stones above the 'Boat Pool'. Above the Dubh Loch, fast growing juvenile salmon were found in the south facing burns. In addition to salmon, trout and eels, minnow and charr fry were recorded above the Fionn Loch. Further details will be provided in the contract report.

Clint Barker, Garry Bulmer and Peter Cunningham surveying juvenile salmon in the Little Gruinard River in August 2011 (photo Dave Barclay)

Laide (Sand) burn (11th Aug): the annual Laide Community Woodland 'Aquatic Beasties' demonstration day provided the opportunity for recording trout and eels along with much other wildlife. In years gone by, salmon were also present in this system. Improvements to the road culvert under the A832 are required to ease passage for migratory fish into this system, and to foster recolonisation by salmon.

Allt Beith (18th Aug): three sites were fished, including two above the partly restored fish ladder. However, only one salmon fry was found: at the site below the fish ladder. Salmon parr were also present here and also at the 'Goose Loch' outflow above the fish ladder. Salmon may have difficulty spawning within this small stream when water levels are low as they were in November 2010 – one possible reason for a lack of fry in 2011.

Tournaig (27th Jul): salmon parr were recorded at all 6 sites in the Allt na Coille above Loch nan Dailthean. However salmon fry were only found at the lowest two sites below a small water fall 400m above the loch. The absence of salmon fry above the falls correlates with low water during the spawning season in 2010.

Ewe system: sites were fished throughout the system in July and August, including contract sites in headwater streams. In the **Kernsary sub-catchment** (2nd & 15th August), densities of salmon fry and parr were a little lower than usual. However, both fry and parr were recorded at moderate CPUE at all main sites below the waterfalls on respective burns. Fry and parr were recorded at very low CPUE in the **Inveran River**, and their relatively large size may be indicative of growth rates unrestrained by fish densities (i.e. populations below carrying capacity). Juvenile trout were also present at similar or comparable CPUE for many of the Kernsary sub-catchment sites.

Salmon fry and parr were recorded in the shallow water at the side of the **River Ewe** (15th Aug), however only trout were caught in the Tollie burn above the road bridge (18th Aug). Salmon fry were 'seen' but not caught in the **Slattadale Burn** on 23rd Jun (demonstration for Poolewe Primary School); parr and both trout fry and larger trout were also present. The day was memorable for its midges. In the **Kinlochewe River** and **A' Ghairbhie** up to Loch Clair (various sites fished in July and August), salmon fry and parr were present at all sites at lower CPUE in 2011 compared to 2010. In the **Bruachaig** (14th Jul), salmon fry were outnumbered by parr below Kinlochewe lodge indicative of poor recruitment from 2010 spawning than 2011 spawning. Salmon fry of wild origin were not recorded above the Bruachaig falls.

In the Docherty Burn, salmon parr were found at all 5 sites surveyed; however, very few salmon fry were recorded except near the burn mouth. Trout fry and 1+ trout (including progeny of sea trout?) were more numerous than salmon.

When there are many young salmon competing for available territory and food in small fast flowing streams, small trout can be out-competed by salmon. However, when trout grow larger, tables can be turned. An unexpectedly large trout of 267mm *(shown below)* was caught in a shallow pool at the highest site; nearby salmon parr were of just about the right size to sustain a spotty old trout of this size with piscivorous tendencies.

(Photo S. Kett). . .

In headwater streams above **Loch Clair** (27th Jul), salmon fry and parr were recorded at very low CPUE, possibly a reflection of very low water levels earlier in the year. The water temperature was recorded at a high 18C; this may have also reduced the effectiveness of fishing equipment. In the **Coulin River**, water temperatures of up to 21C were recorded on 26th Jul, which may partly explain low CPUE for salmon fry and parr compared to some earlier years. No salmon fry were recorded in the shady gorge above the stone bridge; here the water temperature was only 15C. However, salmon parr were recorded at over 3 fish per minute here. It seemed as if these fish had swum upstream to escape the bright sunshine and high temperatures in the Coulin River further downstream. Brook trout and brown trout were also recorded in the shady section here; and at higher sites in streams above the area accessible to salmon and sea trout.

Sguod system (9th Aug): salmon fry were found in the three burns above the loch, but not in the river below the loch. CPUE for fry and trout fry (including stocked fish) at some sites in the north burn were amongst the highest recorded anywhere within the WRFT area in 2011, reflecting stable habitat and relatively stable flows from the peatlands.

Sand [Gairloch] (2nd Jul): at the e-fishing demonstration at the 10th Gairloch Gathering, salmon parr, a salmon fry, juvenile trout, a finnock, a salmon-trout hybrid, 2 eels and a flounder (of 78mm) were caught in 10 minutes fishing at the usual site below the ford, providing much to talk about.

Kerry (30th Sept): despite relatively high water on the day of survey, salmon fry were recorded at high CPUE above the road bridge. However, water levels were too high to catch many of the parr in deeper water.

South Erradale River (30th Sept): trout and eels were caught; however water levels were too high for CPUE values to have much significance in terms of assessing relative abundance. No finnock or juvenile salmon were caught or seen. This river is considered to be large enough to support a small salmon population and runs of sea trout, depending upon water levels and levels of predation. [Please contact WRFT Biologist if interested . . .]

Applecross River (31st Aug): juvenile salmon and trout were recorded. Salmon are stocked into this system: the status of wild salmon in this system is not known.

River Kishorn (4th Oct): four sites on the Kishorn River were surveyed. A salmon smolt farm is present in the upper reaches of the river. The river has been stocked with both sea trout and salmon in recent years. Salmon were found at all sites, including a number of fish that were thought to be escapees from the smolt farm. The site on the tributary running off limestone bedrock was particularly rich in fish, invertebrate and plant life However, this tributary had been stocked in 2011 prior to the survey date, so it was not possible to estimate wild fish productivity. Genetic samples were taken from all salmon captured on the Kishorn River for analysis by Marine Scotland as part of a Scotland-wide project.

River Carron. Salmon and trout were present at all four sites in mainstem on 26th August with eels found at 3 sites, and stickleback and invasive minnow above Loch Sgamhainn. This system is stocked each year with juvenile salmon and trout. At one site on the unstocked River Lair on 4th October, juvenile salmon thought to be of wild origin were recorded. There are no major obstacles to fish passage on the River Carron, and spawning habitat is good. However, the substrate in some areas is highly mobile presenting the risk of wash-out of eggs and juvenile fish during a spate. On 2nd August, 4 sites were fished in the Allt Coire Crubhie. Only one salmon fry was found. Parr were present at all sites, including the highest site where they were thought to be of wild origin. Juvenile salmon thought to include both wild and stocked fry were recorded in the River Taodail on 29th Sept.

Allt Duirinish (21st Jul): salmon were not found in the Allt Duirinish in 2011 and have possibly never used this burn due to its small size. Minnows were found in large numbers at the top site, probably introduced by anglers using them as live bait for another introduced species, pike, known to be present in Loch Achaid na h-Inich. Trout were common at all sites, and eels were found at the lowest site.

Balmacara burn (14th Nov): two sites were surveyed. A salmon parr was found at each of the sites, suggesting that small numbers of salmon have spawned in the burn recently. Trout productivity was high at both sites, possibly due to enrichment by limestone fed burns and septic tank discharge from Balmacara. This is a relatively small river feeding into Loch Alsh and is probably too small to support a continuous salmon population. However, salmon were also found in the burn by Wester Ross Fisheries Trust in 2009 and the burn is assumed to produce sea trout.

River Ling (15th Nov): the River Ling has one of the largest catchment areas in the southern half of the WRFT area, but contains a number of sizeable waterfalls which restrict salmon access to the section of river below the falls a few hundred metres above the Blackwater confluence. Two sites were surveyed on a warm sunny day late in the year below the confluence and salmon fry and parr were recorded at both sites. Salmon were also seen spawning in several places in the upper part of the river, and to minimise disturbance to spawning fish, other sites were not surveyed. Instead we observed some of the earliest salmon spawning activity recorded to date within the WRFT area, with male fish chasing each other into shallow water in bright sunshine.

River Croe (26th Oct): the River Croe is owned by the National Trust for Scotland and has been closed to anglers in recent years following a decline in fish numbers. However, good numbers of salmon were found at the lowest three sites, with reasonable numbers the highest site. Trout were present at all sites in low densities and eels were present at the three lowest sites. The substrate was mobile in places, posing the threat of egg and juvenile wash out. However, the surveys showed that reproduction in recent years in this unstocked river had been successful.

Jonah Tosney electro-fishing a site in the River Croe (photo by Patrick-Ullman Campbell)

River Shiel. Three sites were surveyed in conjunction with SEPA biologists on 18th Jul, with a further site on Allt Undalain fished by WRFT on 14th Nov. Both salmon and trout were present in good numbers at the downstream sites, however, no salmon were present at the upstream site or the site on Allt Undalain, access to both of which is obstructed by waterfalls.

Glen More (28th Oct): Salmon and trout were found at all sites, with trout generally in higher densities than the salmon. Eels, sticklebacks and lamprey sp. transformers were also found in a back-water at the lowest site.

Gleann Beag (28th Oct): As with the nearby Glen More, both salmon and trout were found at each site, although in the Gleann Beag salmon were found at higher densities than the trout. The upper site, thought to be inaccessible to salmon in recent years due to an obstacle (fallen tree) to passage. This obstacle has been removed and salmon were found above this site. No other species were found on the Gleann Beag.

Summary

In 2011, juvenile **salmon** were as widely distributed within the WRFT area as at any time since the formation of the Trust in 1996. However, salmon fry were absent or were found at lower CPUE than salmon parr at many sites including those in the Gruinard headwaters, Allt Beith, Tournaig, Ewe headwaters and upper Carron. A combination of low water during the spawning season in 2010, freezing conditions in December 2010, a very large spate in April 2011, and perhaps also subsequent drought conditions and competition between surviving salmon fry and a strong year class of 1+ parr may have led to a weaker 2011 salmon fry year class, despite high numbers of grilse recorded in rod catches in 2010. However, numbers of both fry and parr at 'core' main river sites were considered to be adequate to maintain healthy salmon populations in the river systems that support salmon fisheries (pending reasonable marine survival of salmon smolts emigrating in 2011 and 2012).

For **trout** (including sea trout) populations, the picture remains unclear. Of the smaller 'sea trout' systems, Sguod (which is stocked) and Duirinish had the highest densities of juvenile fish; water levels were too high at the little South Erradale River to interpret results.

Electro-fishing surveys on rivers to the north of the Carron were led by Peter Cunningham and Roger McLachlan. Surveys of the River Carron (except Taodail and Allt Coire Crubaidh) and rivers to west and south (except the Ling) were led by Jonah Tosney. E-fishing teams included David Mullaney, Garry Bulmer, Ben Rushbrooke, Clint Barker, Karen Starr, Patrick Ullman-Campbell, Andrew Ramsay and volunteers Dave Barclay, Chris Young and others from local estates and SNH Beinn Eighe NNR.

Karen Starr by an electro-fishing site in the headwaters of the River Ewe system in July 2011.

2.2 Rod catches

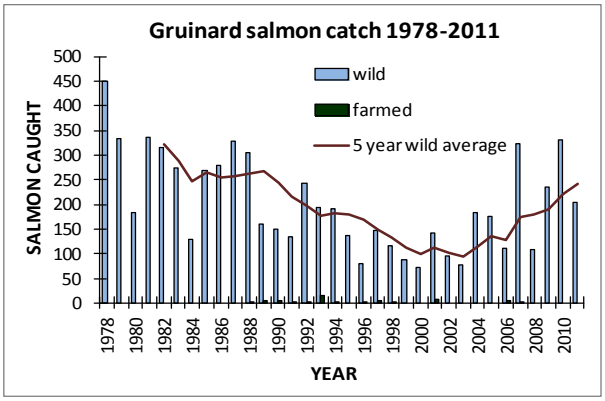
Rod catches of salmon and sea trout provide an indication of relative numbers of adult fish returning to local rivers. For many of the river systems of Wester Ross, rod catches should be interpreted with caution. Fishing effort is variable between and within years. The success of skillful anglers (and ghillies) depends not only upon whether or not there are fish to catch, but also upon river levels and weather conditions at the time when they are fishing. Nevertheless, when the rod catches of several rivers are considered together, patterns and trends can emerge that provide a useful indication of variations in the numbers and composition of respective adult fish populations between years.

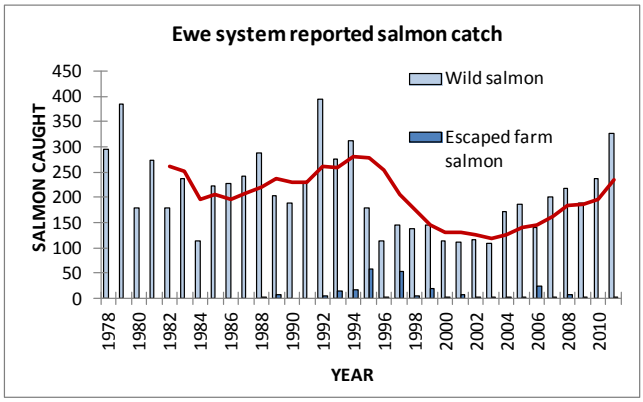
This section presents a summary of some of the catch data received from local estates and from the Scottish Government.

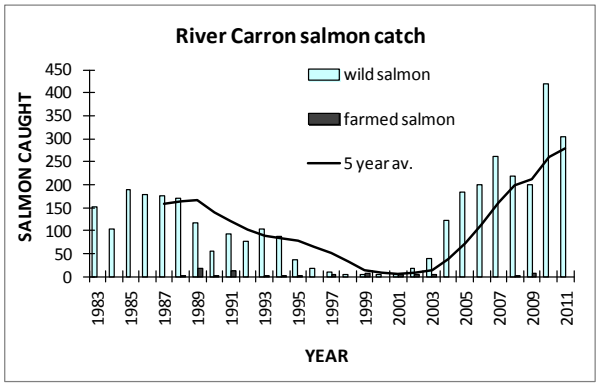
Salmon catches

For several rivers, rod catches of salmon in 2011 were amongst the highest this century. Figure 2.4 presents rod catches of salmon for the three of the most productive river systems within the WRFT area.

Figure 2.4 Rod catches of salmon for the Gruinard, Ewe and River Carron. The data used in these graphs are Crown copyright, used with the permission of Marine Scotland Science. Marine Scotland is not responsible for interpretation of these data by third parties.







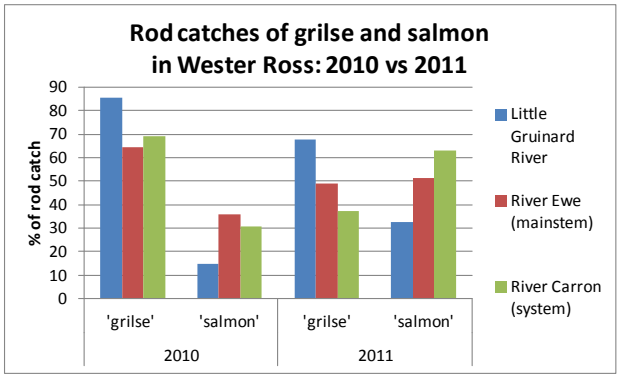
Jon Penny with a salmon of 21lb from the River Ewe in September 2011 (photo Ray Dingwall)

For the River Ewe, 2011 was the best year since 1992 for salmon catches. For other rivers, 2011 was also a good year, but in terms of total numbers of fish, not as good as 2010. Following reports from ghillies and anglers that there were more big multi-sea winter salmon and fewer grilse in 2011 than in 2010, catch records were investigated further. For this we went directly to the river managers to find out what had been recorded.

Grilse vs. salmon

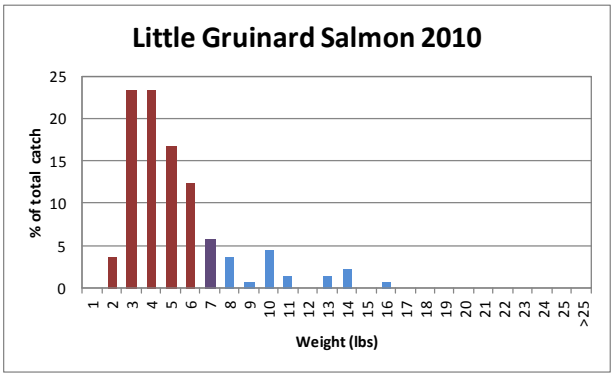
Detailed catch data were kindly provided by Graeme Wilson for Little Gruinard, Ray Dingwall for River Ewe and Bob Kindness for River Carron. Figure 2.5 shows the relative proportions of 'grilse' vs. multi-sea winter 'salmon' for respective rivers for 2010 and 2011. For the Little Gruinard and Ewe, fish of up to 7lb were classed as 'grilse' and all fish over 7lb were classed as 'salmon'. For the River Carron, Bob Kindness provided a breakdown of 'grilse' vs. 'salmon'. For all rivers, some of the fish taken towards the end of the season, in the 6lb - 10lb size range may be incorrectly ascribed here; however, note that there is consistency from one year to the next.

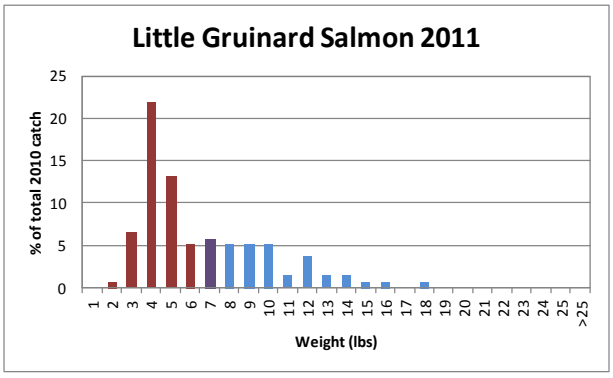
Figure 2.5 Rod catches of 'grilse' vs. 'salmon' for the Little Gruinard River, River Ewe and River Carron in 2010 & 2011.

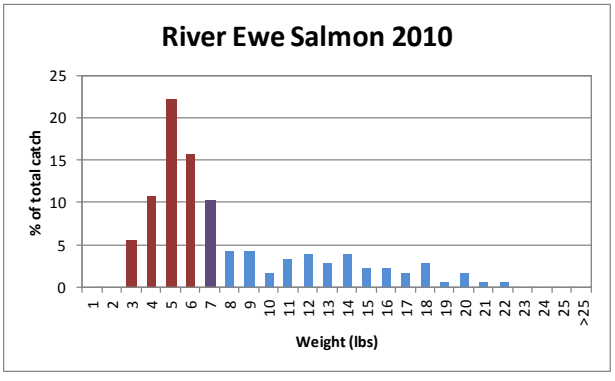


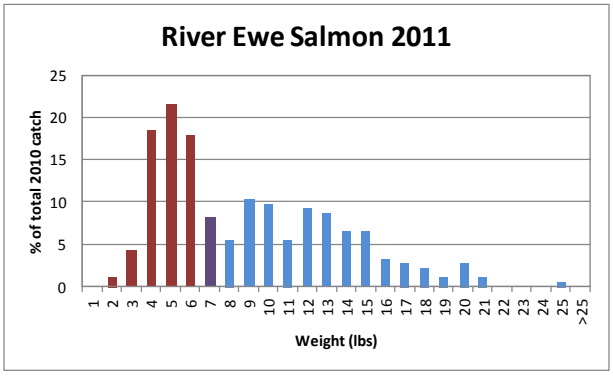
Size-frequency graphs are presented for the River Ewe and Little Gruinard in Figure 2.6 where catches of salmon are plotted as proportions of the total number of salmon caught in respective rivers in 2010, to enable comparison between the relative abundance of fish in each size class between years.

Figure 2.6 Comparison of sizes of salmon taken in the Little Gruinard River and, River Ewe 2010 and 2011. Columns coloured red are assumed to be nearly all grilse; those blue, nearly all Multi-Sea Winter [MSW] salmon, and the purple column fish which may be more even proportions of grilse and salmon.







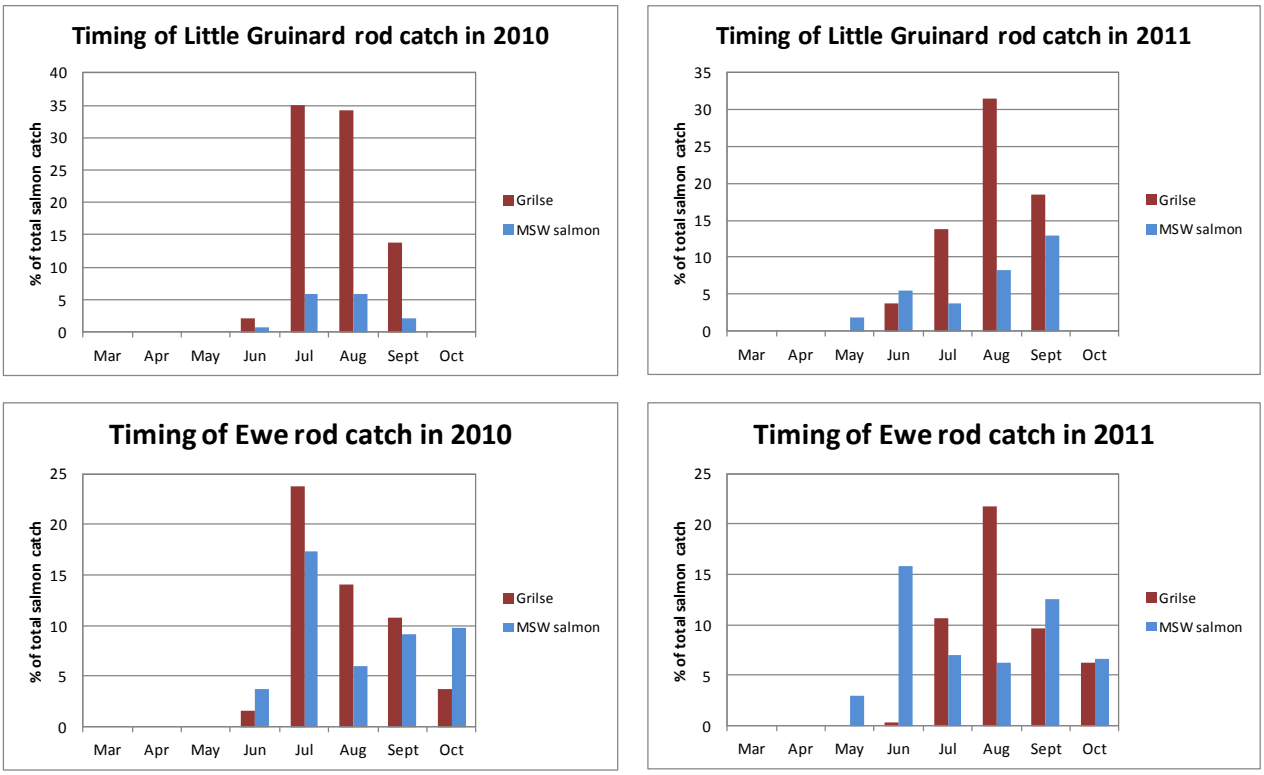


All three rivers recorded much higher proportions of 'salmon' and lower proportions of 'grilse' in 2011 than in 2010. The catch of larger salmon of 8lb and upwards in the River Ewe in 2011 was over twice that of 2010. Although the overall combined catch of salmon and grilse taken in the Little Gruinard in 2011 was less than in 2010, more fish of 8lb and larger were taken in 2011 than in 2010 (and than in any year since at least 1990).

Timing of rod catch

Figure 2.7 compares the timing of rod catches of salmon for the three fisheries in 2010 with 2011.

Figure 2.7 Comparison of timing of rod catches of salmon in the Little Gruinard and River Ewe in 2010 and 2011. Separation of 'grilse' from multi-sea winter salmon ['MSW salmon'] is based on fish sizes, and for a small proportion of fish may be inaccurate especially towards the latter part of the season.



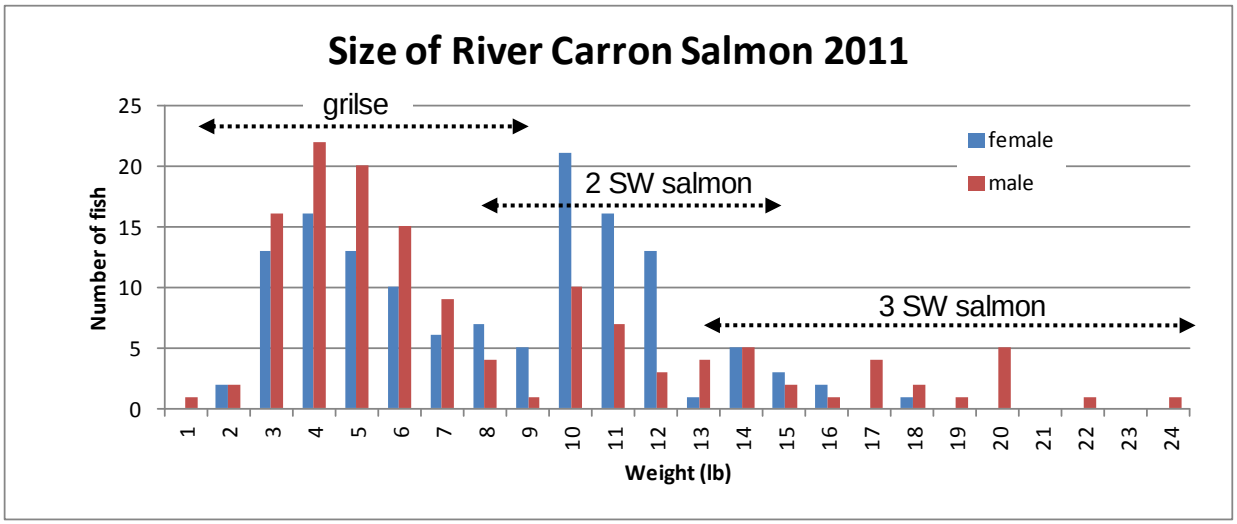
More MSW salmon were caught in the early part of the season (before July) in 2011 than in 2010. This is partly a reflection of weather: June 2010 was dry; mid May to mid June 2011 was unusually wet. The peak month for catches of grilse-sized fish in 2011 was in August, where as in 2010 it was July. Again, this may be partly a reflection of water levels: July 2011 was largely dry with low river levels, whereas July 2010 was wet with higher rainfall and river levels. However, it may also relate to the strength of respective runs of salmon.

Other rivers in Scotland including the River Conon in Easter Ross also recorded higher catches of earlier running MSW salmon in 2011 than in 2010, with a longer term decline in numbers of grilse (McKelvey, *pers comm*.). It has been suggested that changes in salmon populations relate to long-term cycles in the performance of salmon in the marine environment. In the last few years, the seas around Greenland where the salmon which spend a second or third winter at sea [multi-sea winter salmon] feed have been very productive in contrast to the seas to the west of Norway where many salmon in their first year at sea feed, as we were told at Poolewe Village Hall by AST Chief Executive Tony Andrews in July 2011.

Sex ratios of male and female grilse and salmon

Bob Kindness provided an intriguing data set from the River Carron which suggests that in 2011 there were differences between the relative proportions of male and female fish in different sea-age classes of salmon. Figure 2.8 compares the sizes of fish classed as male or female for the River Carron for 2011. Some rod caught fish were not easily recognised as either male or female so these have been excluded.

Figure 2.8 Numbers of male vs. female salmon of each size class recorded in rod catches for the River Carron in 2011. Note that not all fish could be differentiated and some rod caught fish were not included in this analysis.



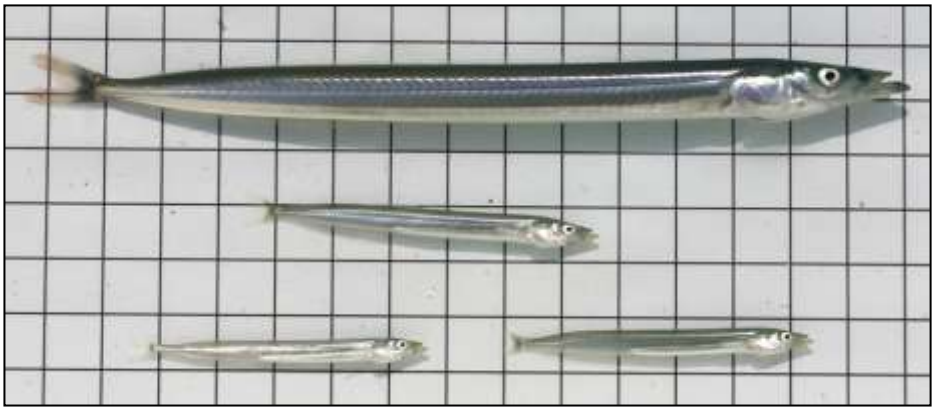
Note that higher proportions of 'grilse' were male; higher proportions of smaller 'salmon' (?2 sea-winter fish) were female, and nearly all the largest 'salmon' of 17lb and more (?3 sea-winter salmon) were male.

Bob Kindness with a male salmon of 20lb taken on the 26th May 2011 from the River Carron. Not only were the numbers of MSW fish greater than ever before on the Carron, the average weight of these fish was also higher. It was also a very good year for Carron Spring salmon, with 30 fish with an average weight of over 12 pounds landed before the end of June.

The importance of fish abundance in inshore waters and the first few weeks at sea

The high rod catches of grilse in 2010 and 2SW salmon in 2011 demonstrate that the 2009 salmon smolt-year class was particularly successful at sea. In June and early July 2009, sea trout recorded by the WRFT fishing team were unusually fat with condition factors of up to 1.4. The high catch of two sea-winter [2SW] salmon in 2011 is consistent with the hypothesis that for salmon fisheries, the first few weeks at sea for post-smolt salmon are critical (reviewed by Rikardsen & Dempson, 2011). Given an abundance of prey for post-smolts (e.g. small sandeels) and an abundance of alternative prey (e.g. large sandeels) for the birds (e.g. heron, merganser, cormorant, gannet) and fish (e.g. pollack, coalfish, cod) that are known to eat salmon smolts and post-smolts, rates of marine survival for salmon can be much higher than in years when other prey fish are scarce.

Greater Sandeel and ?Lesser Sandeels caught in Loch Gairloch in July 2009 (photo by Steve Kett). Rates of marine survival of salmon are higher when sandeels and herring fry are abundant in coastal waters as smolts enter the sea. (p.s. large numbers of sandeels were seen behind the sweep net in Gruinard Bay in May 2012).



To conclude, catches of salmon during the period 2010-2011 support the hypothesis that the abundance of food fishes within the marine environment, including coastal waters, is vital to the success of salmon at sea. Therefore, actions which protect sandeels, herring, sprat and other marine fishes around our shores can indirectly help to ensure the highest rates of marine survival of salmon at sea, and subsequently, provide the best prospects of good fishing for the anglers visiting the rivers of Wester Ross and other parts of Europe.

To protect and support the restoration of habitats that are important to spawning herring, juvenile cod, whiting and other fish species, WRFT supported a third party bid, submitted in May 2012 on behalf of the local communities, for designation of a Nature Conservation MPA for Loch Gairloch and part of Loch Ewe. Further details of this bid can be found in Part 3.4.

Reference

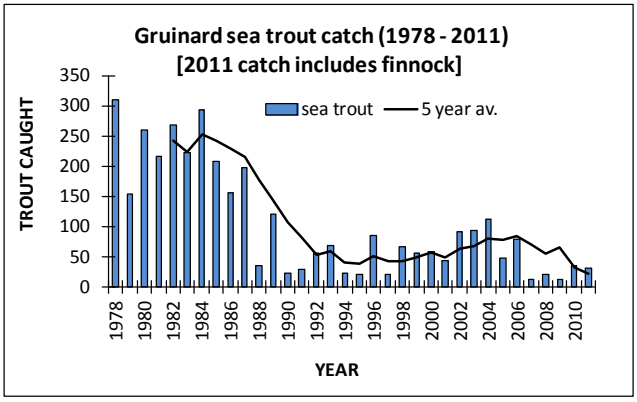
Rikardsen, A.H. & J.B. Dempson (2011). Dietary life-support: The Food and Feeding of Atlantic Salmon at Sea (Chapter 5). In: Salmon Ecology (Aas, Ø, Einum, S., Klemetsen, A., Skurldal. J. eds). Blackwell 467pp.

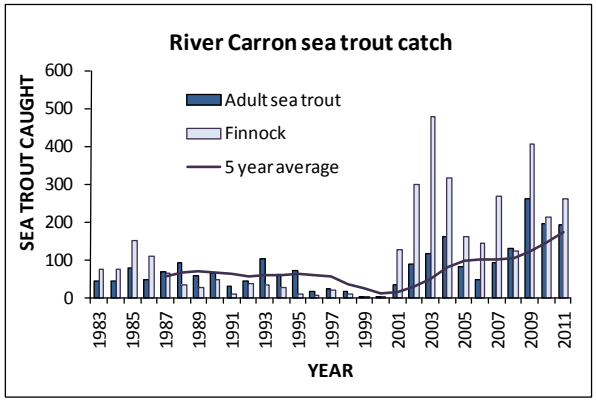
Sea trout catches

In recent years, recorded rod catches for sea trout have been rather less useful as indicators of the status of respective sea trout poulations than in the past. In 2011, the Loch Maree Hotel which formerly supported the most productive sea trout fishery in the WRFT area remained closed throughout the angling season [it is currently being renovated and is expected to re-open later in 2012]. Fishing effort for sea trout in other rivers tended to be rather inconsistent: most river anglers fished for salmon in 2011; sea trout were taken incidentaly, almost as bi-catch.

Figure 2.9 presents sea trout catch graphs for the Gruinard River and River Carron system.

Figure 2.9. Recorded sea trout catches for the Gruinard River and the River Carron. Figures were provided by local river managers, Bill Whyte and Brian Fraser; and Bob Kindness.

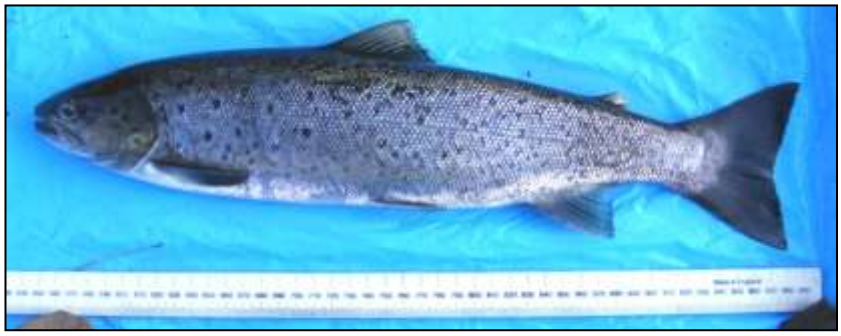




More useful information about sea trout in Wester Ross was gathered via the sweep netting programme (see Part 3.1), spawning burn surveys, and a sweep of Loch Dughaill in November 2011 (see Part 4).

In additon, WRFT and Marine Harvest had a joint fishing day of Loch Maree on 15 September. With bright sunshine and little wind, conditions were difficult for fishing. Five trout were caught, of which four were sea trout. The largest sea trout caught was a fish of 425mm, 787g, in good condition, caught by WRFT Trustee, Prof Dave Barclay.

(right) Roger McLachlan casting a line on the northshore beat of Loch Maree.(below) The 425mm sea trout caught by Dave Barclay, aged by scale reading as a 3.2+sm+. See on-line WRFT wild trout report 2011 for more information about this and the other fish caught.

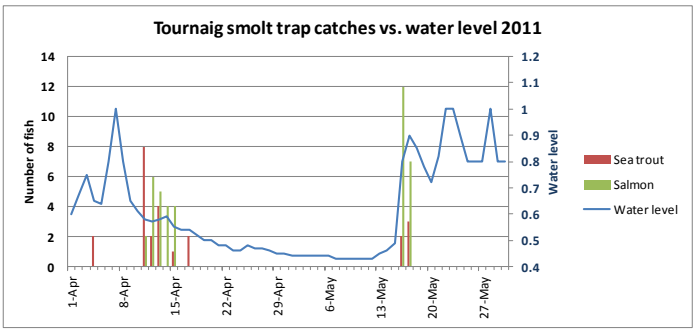


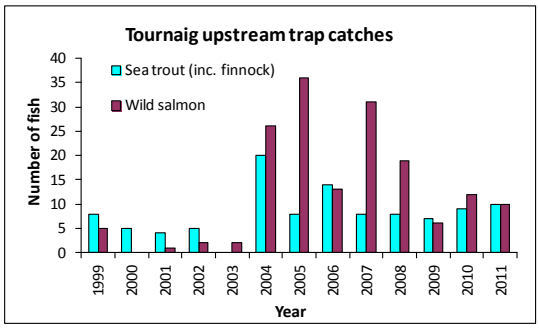
2.3 Tournaig trap project

Supported in 2011-2012 by Marine Harvest Ltd.

This project, to learn about the performance of salmon and trout populations in a small river system by Loch Ewe, has now been running since 1999. During the period of time since then we have recorded the extirpation and recolonisation of a salmon populations within the system, and changes in numbers of sea trout emigrating and entering the river system through operation of upstream and downstream traps within an old fish ladder at the mouth of the system and an annual electro-fishing survey of the spawning streams accessible to salmon within the system.

In 2011 traps were operated by Ben Rushbrooke; Roger McLachlan and Ryan MacLean provided cover when Ben was away. Results were mixed. Following a period of drought in April and early May 2011, the stream level at the trap site rose in mid-May 2011 to unprecedented levels for the time of year, over-topping the screens which direct migrating smolts into the trap *(below, left).* Therefore the total recorded counts of migrating smolts (33 sea trout & 78 salmon) represent only a portion of the total smolt runs.





The new upstream trap (constructed by Scott MacLean) was more successful in catching fish migrating into the system. In total, 10 salmon and grilse, and 10 finnock and larger sea trout were recorded *(above, right).* The largest salmon was a hen fish of 79cm taken on *(below),* one of the largest female salmon recorded to date entering the system. Nearly all adult fish entering the system have been photographed by Ben over the past 10 years. This photographic data set of over 140 salmon was used in 2011 to provide an indication of proportions of predator damaged fish entering the river. Approximately 10% of salmon had predator damage.

The electro-fishing survey in August 2011, described earlier, provided some interesting results. Salmon fry were recorded only in the lower part of the spawning burn; there was no evidence that adult salmon had spawned above the falls 400m above the loch in 2010 (see Part 2.1). This correlates with sustained low water during the salmon spawning season in November and early December 2010. Water levels may have been too low for salmon to ascend the spawning burn to reach the higher spawning areas.

Part 3 **Marine Environment**

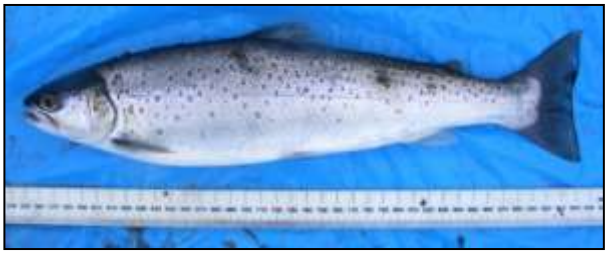
3.1 Sea trout monitoring in Wester Ross

Supported by the Scottish Government via the RAFTS Aquaculture Project

Sea trout formerly supported some of the most productive and economically important rod fisheries in Wester Ross, most notably the Loch Maree sea trout fishery. Over the past year, WRFT biologists have continued to investigate the performance of sea trout in the marine environment to better understand the challenges facing sea trout populations in different areas. In 2011, samples of sea trout were caught between March and September from sites from the River Kanaird estuary in the north to the River Carron in the south. The primary objective of sampling was to obtain sea trout to assess their health and growth and to pass on this information to those with an interest in sea trout fisheries and sea lice management.

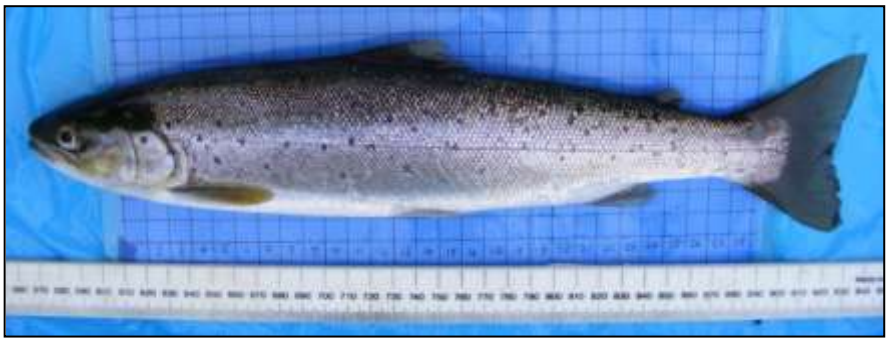
223 sea trout were sampled from sites in or near coastal waters in Wester Ross during 2011. Most of these fish were taken from estuary or beach sites using a 50m long sweep net with a minority of fish taken from river estuaries using a fyke net or rod and line. Levels of infection by parasitic sea lice (*Lepeophtheirus salmonis*) on sea trout were variable. In early June 2011, lice numbers on small sea trout sampled in Loch Ewe were low (less than 10 lice per fish). Towards the end of June, sea trout taken from the Kanaird estuary and Gruinard Bay had moderate to high (over 100 lice per fish) numbers of small chalimus lice. Some of the small sea trout taken in a fyke net at Dundonnell in early July also carried over 100 lice. Lice levels on post-smolt sea trout were highest during the period of drier weather in late June to early July when there was the least discharge of freshwater into sea lochs.

Processing sea trout taken in the sweep net on the beach at Mungasdale, Gruinard Bay on the 15th June 2011; and (right) the two largest sea trout taken that day.

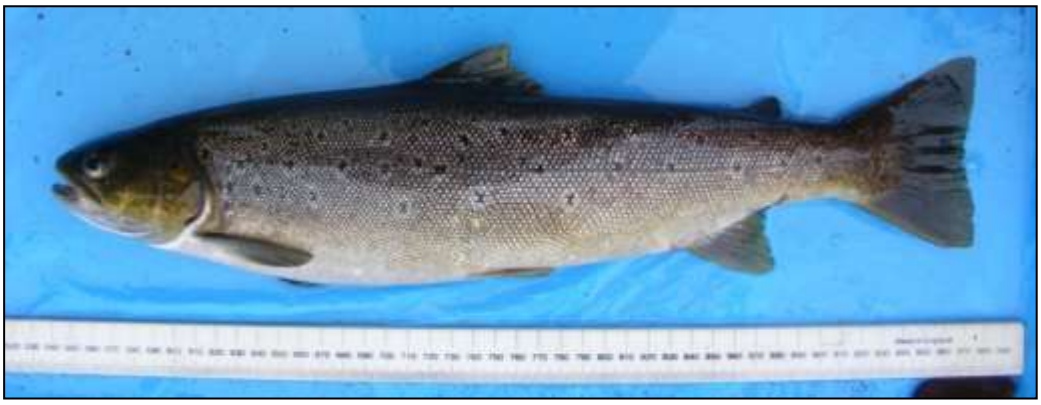


Fish were generally in similar condition to those sampled in 2010 but not as 'fat' as those caught in 2009. The largest sea trout were taken in Loch Gairloch. On 4th August 2011, 6 sea trout were caught in Flowerdale Bay, Loch Gairloch. The two largest fish were over 450mm & 1kg in weight. Both of these fish were recaptures. One fish had previously been captured in September 2010 in Flowerdale Bay and carried over 200 pre-adult and adult lice and had a 'raw' eroded dorsal fin on 4 August. The other large trout, previously captured in February 2011 at the mouth of the River Kerry, had only 12 lice and was in much better condition. Three of the sea trout caught in Loch Gairloch on 27th September were also identified from photographs (by matching spots) as recaptures, including the two recaptured fish taken on 4 August. The fish that had over 200 lice on 4 August, had only 80 lice on 27 September, and was again the lousiest fish in the sample. This fish had grown more slowly in 2011 than the other two recaptured trout. One of the other recaptured fish is shown below. Two of the other trout were over 50cm in length. Sea trout of over 1kg were also taken in Gruinard Bay and Loch Ewe.

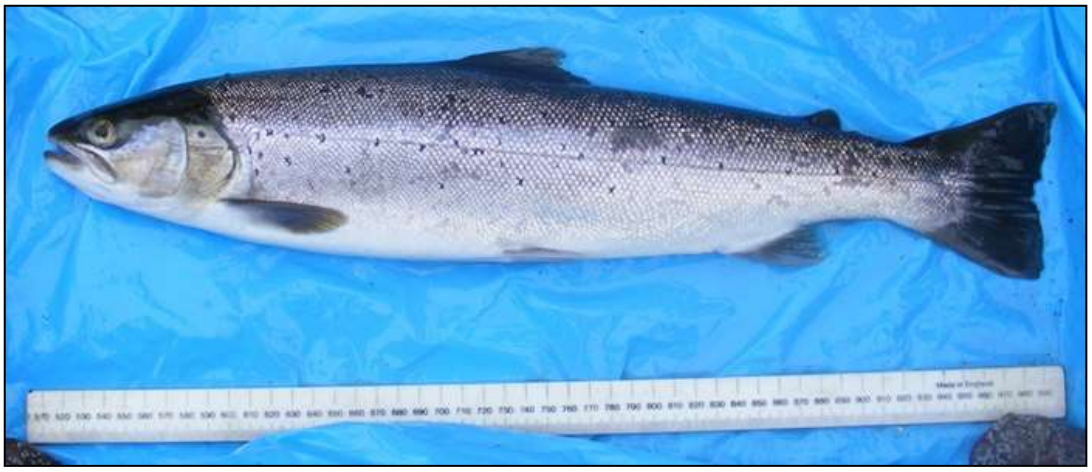
***Growth of a Gairloch sea trout**: 18th March 2011: 350mm, 416g, condition factor 0.97.*



27th September 2011: the same sea trout, now 425mm, 828g, , condition factor 1.08, in spawning colouration (3rd time of capture) . . .



. . .and again, 22nd May 2012: 485mm, 1070g, (5th time of capture).



To learn more about the distribution of spawning sea trout in freshwater, several trout spawning streams were sampled in autumn 2011. One sea trout was found in a spawning stream above Loch Sguod on 10th October, along with many smaller brown trout. Over 40 trout were sampled from spawning streams in the Kernsary sub-catchment (Ewe system) in late October 2011. Although some of these fish were large (over 40cm in length), from scale reading there was no clear indication that any of them had been to sea.

Samples of trout were also taken in Loch Maree in August and Loch Dughaill in November using rod and line and sweep & gill nets. These included both sea trout and brown trout which had not been to sea. Scale reading, particularly of scale samples from the Loch Dughaill fish, demonstrated that many sea trout had grown well at sea in 2011.

Sweep netting 'Big Bay' Loch Dughaill for sea trout on 5th November 2011 as part of the Arctic Charr and Trout Discovery Week (see Part 4); (right) a 260mm finnock caught in the sweep with its scale – showing good summer 2011 marine growth.

Summary

WRFT sampled sea trout in both the sea and in freshwater in 2011, gathering new information which has contributed to a clearer understanding of sea trout ecology around Wester Ross and the problems caused by sea lice infection. The Loch Gairloch sea trout population is one of the healthiest that we know about within the WRFT area. Some of the larger Gairloch sea trout were recaptured at different times of year demonstrating that they remain within a relatively small area. Sea lice continued to be the major problem for sea trout in many areas, with heavily infected trout carrying over 100 lice recorded in the Kanaird estuary, Little Loch Broom and Loch Gairloch in 2011. However, the sample of finnock from Loch Dughaill in November 2011 demonstrated that post-smolt sea trout from the River Carron had grown well at sea earlier in 2011.

Further information about trout investigations in 2011 can be found in the Wester Ross Wild Trout Report for 2011 via links on the WRFT website at www.wrft.org.uk .

For a wider assessment of the results of post-smolt sea trout netting in the west of Scotland in 2011, please see the project report by the RAFTS Aquaculture team:
http://www.rafts.org.uk/managing-interactions-aquaculture-project-sea-trout-post-smolt-monitoring-project-regional-report-2011/

3.2 Salmon farm developments

Investigations by WRFT and other scientific studies have demonstrated that high levels of infection of sea trout by the parasitic sea louse, *Lepeophtheirus salmonis*, tend to be associated with proximity to salmon farms towards the end of their production cycle. The number of farmed salmon in some parts of Wester Ross can now be two orders of magnitude (100s x) higher than the projected number of wild salmon and sea trout in nearby waters. Some sea lochs now contain over a million farmed salmon. Even at its most prolific, the River Ewe – Loch Maree system, the largest river system within the WRFT area, is unlikely to have supported a population of more than a few thousand adult salmon, and perhaps up to ~20,000 mature sea trout.

To keep populations of infective larval lice in coastal waters down to near natural levels, it is therefore essential that sea lice on salmon farms are controlled to very much lower levels per farmed fish, than on wild fish. WRFT remains concerned at the on-going high levels of sea lice on wild sea trout in many areas, and the lack of progress in achieving lower levels of sea lice on some, but not all, salmon farms within the WRFT area. The relationship between sea lice levels on wild sea trout and the salmon farming industry continues to be the subject of investigation by Marine Scotland Science in collaboration with RAFTS (see under 3.1).

The aquaculture industry has been developing rapidly over the past year, particularly in the southern half of the Trust's area. Permission was granted for a biomass increase in Loch Duich and a new 2000 tonne site in Loch Torridon. Applications are currently being processed by Highland Council for new 2000 tonne sites in Lochs Carron and Kishorn and another biomass expansion in Loch Hourn. As usual, the primary concern for the Trust is the increase in the number of hosts for sea lice in areas used by both migrating salmon and feeding sea trout.

Despite the concerns relating to sea lice, there have been some encouraging developments in the relationship between the Trust and the aquaculture industry. Each of the area's four farming companies has provisionally agreed to welcome Trust biologists on site for lice counts. Marine Harvest and Scottish Sea Farms are revisiting the use of native wrasse species in the salmon cages to help control lice with promising results. Escape incidents have decreased markedly. In a breakthrough agreement, Marine Harvest have agreed to reduce biomass at a recently expanded site should lice become a problem, and both Marine Harvest and Scottish Sea Farms have shown a very progressive attitude to data sharing.

Despite these encouraging developments, the Trust was disappointed at The Highland Council's decision to grant planning permission for a new site in Outer Loch Torridon despite objections from WRASFB and the local councils. The Trust has also objected to the planning application for a new 2000 tonne farm in Loch Carron which would more than double the consented farm salmon biomass in this relatively confined sea loch.

Recording WRFT sea trout sampling by Inverasdale, in July 2011. In October 2011, BBC Scotland screened an investigation presented by Kenneth MacDonald entitled 'Scotland's Fishy Secrets' which focused on sea lice, wild fish and the salmon farming industries in Scotland and Norway. Interviews with Loch Maree fishery proprietor (& WRFT Chairman), John MacKenzie, and WRFT biologist, Peter Cunningham, were broadcast.

3.3 Herring Rediscovery Project

in collaboration with Two Lochs Radio

supported by The Scottish Government and Wester Ross Environment Network

by Sue Pomeroy

Last October I was lucky enough to gain the wonderful job of interviewing some of our 'ancient (and some not so ancient) mariners' to find out about their lives as skilled fishermen, paying particular attention to their experiences of fishing for herring. I was asked to provide material for a series of radio shows using semi-structured interviews to learn more about the herring populations that were and (possibly still are) in the local vicinity, thereby gathering local ecological knowledge to inform and further guide future investigations.

During the interview process I had a remit of suggested questions such as:

- When were you most active as a fisherman in the area?
- What kinds of fish/shell fish were you fishing for?
- Describe a typical year?
- What were your most memorable catches?
- Did you ever catch or see herring?
- Do you think that herring still spawn in local waters?

With these in mind I set off on what has turned out to be a fabulous journey delving into the past years of consummate skill, often hair raising adventures, very sad stories of loss: gathering a great depth of information. In turn, this will contribute to raising awareness regarding the recent history of fishing and wild fish populations in the local area and generate interest for their management.

Alan Bush with Sue Pomeroy in conversation about herring; Scoraig, June 2012

Traditional Herring Fishing

The period of time I have been finding out about dates from the 1920`s to the present day. Many of the gentlemen I interviewed began fishing aged 15 when they left school. They often fished in small boats with their fathers or crewed for other fishermen. The fishing was seasonal and varied, from lines for haddock, drift nets for herring and pots for prawns. Fishing continued throughout the war and it was noticed that during the war years the fish populations increased due to the absence of trawlers due to the warships being present.

In the 1950`s Gairloch saw the introduction of ring nets, brought in by the 'Avoch boys' on the east coast. This method of fishing then demanded larger boats to cope with the increase of catch. Before echo sounders were used the herring were detected in some almost mythical ways. The piano wire was used: a lead weight on the end of a piano wire lowered over the side of the boat to a certain depth; a fisherman could tell by the by the kind of hit the wire took from the fish weather it was a soft bodied herring or a hard bodied mackerel! Another method was the wooden hammer: a method of sending the shoal into the nets using a hammer that is pounded on the bow of the boat. Some fishermen say that they can smell the oil of the herring on the water so know they are near! Seabird activity is also a good indicator, gannets were said to dive straight down for herring but skim along for the faster mackerel. Storm petrels also skim the surface of the sea 'collecting herring oil', which is 'a dead give-away' for the fisherman to source the herring.

'The burning' is a term used to describe the phosphorescence in the water in the summer. This indicates plankton, the herring food. Schools of herring are very dependent upon the plankton that they consume and seem to follow it avidly. However, herring schools are very erratic and in some years disappeared altogether (as in 1950).

A map of herring spawning grounds?

I have been able to correlate independent observations of herring around Wester Ross from interviews. The main picture is a comprehensive map of where most of the herring were caught, and the size variations of the fish. For example, herring caught on the other (west) side of the Hebrides were said to be considerably bigger than those found along other areas of the West Coast.

Spawning grounds have also been corroborated by many fishermen in the area. Due to the older methods of fishing, spawning grounds were regularly noted and known about as part of their way of life. This is not so nowadays as the modern computers do not demand such keen observation for what is actually over the side of a boat. The kind of spawning ground herring favour were said to be gravelly or 'coral' [maerl] beds at at most 15 fathoms deep. Herring were said to favour warm calm seas for spawning, the eggs are sticky and sink into the gravel or maerl for protection from predators.

Most herring were said to spawn in September – October. This time can be correlated for the Greenstone Point spawning grounds and the Stoer spawning grounds. This is also when the fishermen stopped fishing for herring. However, at Melvaig the herring were said to spawn in March, a fact well known as many fishermen were fishing for herring at this time and caught many with 'runny roe' in this area. Some fishermen believe that herring are still present at Melvaig. Several fishermen also observed that the herring within the Minch seem to be different to other herring and have considered that they could be a sub-species that just stay within the Minch area.

Other possible spawning grounds were in Loch Ewe near Boor Rocks. There used to be one in Sheildaig (Loch Gairloch) but it became silted over when a new 'sewerage plant' was put in. It is interesting to note that spawning grounds were not reported in areas northwards from Greenstone Point, apart from the possibility of one near the Old Man of Stoer. The sea bed is said to be too silty. Nearly all the spawning grounds that I have marked on the map are facing a south-westerly position. Fishermen said that sea conditions and temperatures

and perhaps food later for hatchinglings had to be perfect; not to mention the wind! One fisherman said that to fish for herring it has to be a westerly, so perhaps that's the same for egg laying.

Several fishermen reported catching herring in spawning condition in March between Melvaig and Rhu Reidh lighthouse (below). Herring are said to spawn on 'coral' [maerl beds] in the area. There is much local interest in finding out whether the sea bed is still in good enough condition to support herring spawn. (inset) herring in pre-spawning condition taken in Loch Ewe on26th January 2010.

Where to next?

I still have a few more interviews to conduct, which I am looking forward to very much. The interviews all need to be fully transcribed and a map drawn up of the herring and where it was caught and of the spawning grounds. It would be beneficial to further investigate the spawning grounds by diving and possibly setting up an underwater camera.

Additionally a link with the school curriculums to take the herring project into schools and raise awareness of the culture and histories would be a worthy project; this would show children what a herring looks and tastes like and would demonstrate the importance of the food chain-linking herring with salmon and sea trout. There are still questions to be answered: where do herring go after spawning (if not into a net!), what happens to the young herring? How far do they drift in the sea? And the biggest questions: is herring fishing sustainable and can it be brought back locally on a small scale with new licences for small quotas issued to local people? There is definitely a demand for this delicious fish! And wouldn't it be nice to be able to buy locally caught herring - here at home?

Many of the older generation of fishermen's sons have taken up the family fishing tradition. However, clinker built boats and drift nets are no longer used; instead multi-million pound state-of-the-arts computerised metal boats with miles of nylon trawling nets.

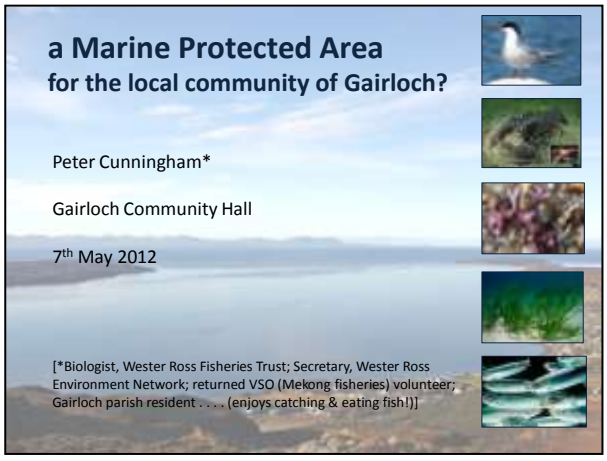
For me, this has been a huge learning curve. To conclude I would like to thank all of you who have been so kind to give me your time and such informed interviews. It has been a real honour to hear your stories of your lives and to get to know you. I feel that you are part of the seas, the history and the very fabric of this beautiful country and it has formed it into what it is today. There is definitely great value in interviewing the older generation as they teach us what to look for in the future.

3.4 Proposed Marine Protected Areas in Wester Ross

Sea trout and salmon enter a marine environment where there are many challenges. Like people, particularly in countries where both food shortages (e.g. caused by drought) and parasitic infection (e.g. malaria) can affect the prospects of a long and healthy life, the health and survival of sea trout and salmon can be affected by the interaction of more than one factor.

WRFT has focussed much of its work within the marine environment on the investigation of problems caused by the parasitic sea louse, *Lepeophtheirus salmonis*, linked to expansion of the salmon farming industry over the past 16 years. The collapse in coastal sea trout populations from the late 1980s also correlates with the removal of the ban on mobile fishing gear from fishing within 3 miles of the shore in 1984 [originally imposed as part of the 1883 Sea Fisheries Act], and since then, many other coastal fish populations have also collapsed. According to local fishermen and divers, there has been much subsequent damage to seabed habitats, including the places where herring, a prey species for sea trout and salmon, are said to have spawned around Wester Ross. We, and our governments (EU, UK and Scotland), have largely failed to protect the natural productive capacity of our inshore waters over the past 25 years, and many fisheries-related jobs have been lost.

In other parts of the world, including elsewhere in Scotland, locally managed marine protected areas are being developed to protect and restore marine wildlife habitats and the fish populations and other animals they support. For example, the Community of Arran Seabed Trust achieved designation of a small MPA (with a no-take zone) in Lamlash Bay in 2008; see www.arrancoast.com. MPAs can bring a range of benefits to local communities. In May 2012, an initial Third Party bid was submitted to SNH on behalf of the local communities of Gairloch and Wester Loch Ewe areas for the designation of a 'nature conservation' marine protected area [MPA] for Loch Gairloch and Wester Loch Ewe. The bid to the Scottish Government is for a MPA which will protect remaining habitats and species of nature conservation concern within the local area, including those that support fish and shellfish fisheries and the wildlife that is of importance to many local tourism businesses.



(right) Title slide from a presentation given at Gairloch Community Hall on 7 May 2012 to consider whether a MPA could benefit the local community, and to consider options for a Third Party Bid.

The bid was prepared following meetings and discussion with local fishermen, tourism interests and many other residents, and covers areas for which there is wide-ranging support within the local area. The bid has been supported by community groups, fishermen, local businesses and other individuals, including both WRFT and the Wester Ross Area Salmon Fishery Board.

Options for preparing a second bid from the local community for a research and demonstration MPA to assess options for restoring the productivity and biodiversity of coastal waters are currently being explored. There is still much to do to regain even a portion of what has been lost since the removal of the 3-mile limit to mobile fishing gear in 1984.

An area comprising Loch Broom, Little Loch Broom and the seas around the Summer Isles is also being assessed by the Scottish Government for possible nature conservation MPA designation. All are encouraged to support MPA designation where able to do so. To follow progress, please visit: www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork .

Part 4 **Other freshwater fishes**

4.1 Arctic Charr (and Wild Trout) Discovery week 2011

In the first week of November 2011 WRFT ran its third Arctic Charr discovery week, this time based around the Carron catchment. The Arctic Charr, *Salvelinus alpinus*, is an intriguing species that seems to have colonised Scotland as the ice sheets retreated at the end of the last ice age. Arctic Charr are found around the northern hemisphere, but are generally anadromous, migrating to sea once they reach maturity like their salmon and sea trout cousins. The Scottish populations are unusual in that they do not make this migration and as far as we know all our populations remain in fresh water throughout their life cycle. The majority of our populations also seemingly restrict themselves to lochs, although stream-spawning populations are known, including at least two within the WRFT area.

The aims of the week were to establish the continued presence of the species in Loch Sgamhain, to try to identify spawning areas of the previously surveyed Loch Dughaill population and to survey for a possible population in the smaller, relatively isolated and previously unexplored Lochan Meallan Mhic Iamhair. Photographs and genetic samples were to be taken from any charr captured in order to document phenotypic differences and assess genetic distinctions between the populations. (See page 25 for trout sampling report.)

Charr show a great deal of genetic plasticity and different sub-populations evolve relatively rapidly. This means that, as with Darwin's finches, the isolated populations in our lochs evolve to suit their unique environmental conditions and each population becomes unique. Furthermore, different populations may evolve within a single loch, as appears to have happened in Loch Dughaill, where two different forms are found, differing in their body shape, and presumably also their diet and spawning habits. Two male Dughaill charr are shown below. Both were in spawning condition yet showing different colouration and morphology.

Although it is known that the West Highland lochs are a stronghold for arctic charr, relatively little is known about their distribution. It is likely that many of our lochs contain as yet undiscovered populations. Given that each of our populations may well be unique and that the status of charr in most of our lochs is completely unknown, any further information we could gather would be very valuable. As Scottish charr populations are now restricted to their individual lochs and the UK represents the southern end of their global distribution they are also likely to be vulnerable to climate change. Warming of their lochs may be a major threat to survival.

The week was a great success, showing that the charr population in Loch Sgamhain was in good health. Large numbers of charr were also found in Loch Dughaill, where it was possible to pick out both pelagic and benthic forms. In both lochs the majority of charr were captured at what we believe were spawning sites close to the southern shores where the bottom drops away into the depths very quickly, and clean spawning gravel in a good mixture of sizes is available to fish coming in from the depths and the open water.

Perhaps most excitingly the previously unexplored Lochan Meallan Mhic Iamhair yielded a good catch of charr, adding one more population to the map and suggesting that other smaller lochans may well hold as yet undiscovered populations. The Meallan Mhic Iamhair sampling also revealed another rarity - a juvenile charr! Young charr are obviously no rarity, but due to the lack of knowledge about spawning and nursery habitats, and the difficulty of catching small fish in big lochs they are very rarely seen.

The Trust biologists were greatly assisted by a number of volunteers and visiting scientists including trustee Richard Wilson, rare fish specialist Alex Lyle, SEPA fish biologist Ruth Watts, Ruth's friend Aly Ainsworth, Christopher MacKenzie, David Mullaney, Garry Bulmer and Roger MacLachlan. Thank you also to Coulin Estate for permissions to survey lochs, and to Prof Peter Maitland for provision of an inflatable boat from which nets in Loch Mealan Mhic Iamhair were set.

4.2 Lampreys in Wester Ross

In May of this year an unusual visitor found its way into the River Carron rotary screw trap. Sea Lamprey *(right)* have appeared occasionally in the trap over the past few years, only ever in small numbers of maybe one or two per year. They are at the northern edge of their recorded range in Wester Ross, although in the case of such a rarely-seen creature and never fished for creature, the recorded range and actual range are likely to be quite different.

(below) the mouth disc of the Sea Lamprey.

There are three species of lamprey in the UK, two of which are known in Wester Ross and one which is not. The sea lamprey is the largest of the three species, frequently reaching lengths of one metre, and is also probably the best known due to its occasional appearances on the sides of sharks and larger fish. As with salmon, sea trout, eels, stickleback and (originally) charr, it is anadromous, using rivers as spawning and nursery habitat before migrating to sea to parasitize larger fish. We are not sure if they return to their river of birth, but they are known to find spawning grounds by "smelling" the young ammocoetes. Interestingly, the individual found in the Carron trap was remarkably similar to one found in the trap in 2009. Sea lamprey spawn in late Spring and early Summer, constructing nests in the gravel. Although we know they spawn in the Carron we have no idea of their numbers.

Their smaller cousin, the river lamprey, has not been recorded in Wester Ross, although as it is less conspicuous than the sea lamprey and spends its adult life at sea it quite possibly lives in our rivers. As with the sea lamprey, it is anadromous and the adults are parasitic. The young ammocoetes are indistinguishable from those of the smaller brook lamprey and occupy the same silty habitat so it can only be identified in the migratory adult stage. Except when mating, adults are generally active at night adding to the difficulty of tracking them down.

The smallest of the three species, the Brook Lamprey *(left)* has been recorded in both the Carron and Glen More as well as the Broadford and Sligachan rivers on Skye, and seems to be the most widespread of the species in our area. It reaches a maximum length of 15 or 20 cm and like the other two species it spawns in gravel nests before the young drop downstream to silt beds to filter feed. Unlike the other two species, adult brook lamprey do not feed at all and therefore the mouthparts, designed to latch on to larger fish, have been made redundant by evolution.

(article and photos by Jonah Tosney)

Part 5 **Fisheries Restoration**

5.1 River Bruachaig Salmon Restoration Programme

Using Genetics to Assess the Outcome of the Stocking programme

The Bruachaig River is a major tributary of the Kinlochewe River, which in turn is the largest and most important spawning and nursery stream for wild salmon within the River Ewe system. Records indicate that wild salmon were formerly present within the Bruachaig River above the waterfall complex 7.5km above Loch Maree as far upstream as the headwaters in Strath Chrombuill. However, since the late 1990s, no salmon of wild origin have been recorded within the 10km stretch of spawning stream above the falls. In an attempt to restore a wild salmon population to this area, a stocking programme was initiated.

Over the past 10 years, particularly since 2006, salmon fry, progeny of adult salmon caught below the falls, have been stocked into the headwaters in an attempt to kick-start the recovery of a self-sustaining salmon populations. In the past 5 years, numbers of fry stocked have varied from 10,000 – 30,000 per year; these have grown well. However, to date there is no evidence that returning wild salmon have ascended the falls to spawn above them.

Rock bottom: water levels in the Bruachaig were at very low levels in June 2012

To stock available habitat above the Bruachaig Falls to nearer carrying capacity would require an estimated 50,000 to 100,000 salmon fry per year. This is difficult to achieve through capture of wild broodstock from the Kinlochewe River in the autumn alone; even if 15 – 20 adult female salmon could be caught for the restocking programme, there could be a risk of leaving the areas from where they were taken understocked.

As a complementary action, a captive broodstock (from progeny of native fish) is currently being reared from which larger number of eggs could be stripped in future years. To ensure adequate genetic variation in progeny produced, fish from the captive broodstock will be crossed with wild fish from the Kinlochewe River, following best-practice guidance developed by Marine Scotland Science.

Frank Kalinowski (Keeper, Kinlochewe Estate), Dr Melanie Smith and Prof Eric Verspoor (UHI Inverness College) and high quality salmon parr habitat above the Bruachaig Falls in June 2012.

To monitor the outcome of the stocking programme, genetic samples have been taken from the adult salmon used as brood fish since 2007. By also sampling any adult fish in rod catches, particularly below the falls, we hope to learn about the contribution of stocked fish to the river; and perhaps, one day, to spawning areas above the falls.

From 2012, the Bruachaig salmon restoration programme is to be supported by University of Highlands and Islands Inverness College, under the guidance of Prof Eric Verspoor, with funding from Marine Harvest and Scottish and Southern Energy.

5.2 River Carron Restoration Project Update

(by Jonah Tosney)

The River Carron Restoration Project has obtained funding this year to continue both the stocking and research program. The funding comes from Scottish Salmon Company, Scottish Sea Farms, the salmon feed companies EWOS, Skretting and BIOMAR, the River Carron Improvement Association and Inverness College UHI.

Inverness College UHI has also recruited Professor Eric Verspoor to help guide a genetics study that will investigate the success of the on-going stocking program. By taking genetic samples (typically an adipose fin clip) from each of the fish used for broodstock it will become possible to identify any fish in the river as a stocked or wild-spawned fish. The River Carron provides a unique setting for this study, as WRFT trustee Bob Kindness has the ability to rear the required number of fish and it is possible to sample fish in the river at all stages from fry and parr (through electro-fishing) to smolts coming through the smolt trap to adults caught on the rod, all of which are retained in keep nets and inspected prior to release. It will be possible to gauge the success of any batch of stocked fish at any given life stage, providing essential information to the managers of other rivers.

In conjunction with the genetics program, Inverness College also aims to investigate the wider impacts of the stocking program, taking a holistic view of the ecology of the catchment. This will include an analysis of the landscape history and how nutrient cycling may affect salmonid productivity. This will be achieved through the analysis of peat cores to ascertain the landscape history of the catchment, as well as using invertebrate and nutrient sampling to assess the productivity of different parts of the catchment.

A great deal of progress has been made already, and genetic samples have already been taken for analysis from the fish used for 2011 broodstock, as well as samples from various batches of fish to be stocked in 2012. In addition, tags are currently being read from various batches of salmon stocked between 2006 and 2009 which have now come back to the river. These tags will give a very clear picture of the contribution of these batches of fish to the rod catch on the river. In 2011 28 tagged and clipped salmon came back to the rod, along with 4 grilse.

The rotary screw trap has had another effective season, and has been in operation throughout the majority of the smolting season due to the dry weather. At the time of writing it is still in operation and has caught 5,600 salmon smolts. Interestingly, in contrast to previous years, the salmon smolts have come down at a steady rate each night, rather than in peaks and troughs. This is possibly a reflection of the stable flow and cloud cover conditions this spring. The trout smolts appear to have behaved slightly differently, with the numbers jumping as the waters rose prior to the large spate in mid-May, possibly an indication that the trout wait for higher flows. 765 sea trout smolts have come through the trap this year, more than double the number seen in any previous year. As smolts pass through the trap each fish is checked for scale loss and predator damage. The proportion of fish with scale loss has been high in 2012, with some fish showing clear beak-strike marks.

Rod catches on the Carron remained high in 2011, with a total of 190 multi sea winter salmon, 133 grilse, 191 sea trout and 260 finnock landed. The slight fall in grilse catches and exceptional year for multi sea winter fish mirrors the patterns seen around the country, suggesting that 2009 was a very good year to head to sea (see Part 2.2). The five year average catch for salmon and grilse now stands at 280, with sea trout at 191. Uniquely on the Carron, adult salmon that are captured are held in a keep net, inspected by Bob Kindness, and then panjet marked prior to release. This allows an assessment of the numbers of fish being caught more than once, and hence a calculation of the actual number of different fish being caught. This gives a more realistic picture of returns to the river, as recaptured fish can confuse the picture on rivers where a catch and release policy is operated. In 2011 82 fish were panjet marked, of which 16 were re-captured a second time.

Part 6 **Mink activity in Wester Ross**

by Gunnar Scholtz

Scottish Mink Initiative
Working with Communities to Protect Native Wildlife

The invasive American mink has made a few appearances in the Wester Ross area over the last year.

While the Scottish Mink Initiative has been working in the northern parts of the Shire, gamekeepers and dedicated volunteers have been trapping mink around the Gruinard Bay area, Loch Ewe and down towards Lochalsh. All in all 20 animals were caught last year and 3 have been trapped so far in this year's spring season.

Despite sightings around Coigach and one animal being caught on the Summer Isles, an intense 3 week trapping program involving local estate owners, the Achiltibuie Angling Club, volunteers and Fish Farm staff produced no mink. More than 50 traps were dug in and monitored at key locations which resulted in over 800 trap nights. This suggests that there might be some individual animals roaming the area, but it seems unlikely that a breeding population has settled in yet.

The Little Gruinard catchment seems to produce a regular number of mink over the last few years, with half a dozen being caught annually over the last 2 years and two animals this year already. Traps have also been set on Gruinard Island, where mink have been caught in the past, but nothing this year at this point in time.

(left) Mink with a frozen fish [Greg Schneider]

(below) Mink monitoring raft and volunteers [SMI].

WREN kindly provided mink traps last year for volunteers to use, and WRFT with SNH, NTS and Estate Keepers have embarked on a coordinated trapping effort in the spring and autumn seasons, to assess the extent of infestation between Loch Maree and Dundonnel. This fortnightly trapping program twice a year during the mating and dispersal season sees traps being checked at various stream junctions for a two week period, which mink should pass if they are active in the area. There needs to be some refinements to streamline the timing of all the traps being opened, but it is a great way to cover a big area with the least amount of effort for all involved. Many thanks to everyone!

The traps are usually taken out after the two weeks are over and stored at the WRFT or SNH office. They can be borrowed and deployed at any time by dedicated volunteers if they happen to spot a mink and want to trap the animal in order to protect their local wildlife. Traps will legally have to be checked once a day and an experienced dispatcher would need to be found. Training will be given on hand out and the traps need to be returned after trapping has finished.

If you are interested in helping with this program or to report a possibly mink sighting please contact Peter at the WRFT office or get in touch with Gunnar at gunnar@rafts.org.uk, T: 07825 184 080.

Part 7 **Education Projects**

7.1 Salmon in the Classroom

by Jonah Tosney

In 2012 the Salmon in the Classroom project has visited primary schools in Plockton, Kyle of Lochalsh, Auchtertyre, Loch Duich and Glenelg. As in previous years, each school received a batch of salmon eggs in the winter and watched as they hatched and grew into alevin. Each class gets a talk on salmon [although it seems some children may prefer sharks!] and life in the local river, and the chance to completely flummox a biologist with questions like "would a salmon win a fight with a piranha?" [depends how many piranhas] and "do you think an otter ate my duck?" [best not to answer].

Once the alevin are getting towards the end of the yolk sack they are released into the river, at which point the children get to do some kick sampling and bug-admiring. Later in the year we will return for electro-fishing demonstrations to see how the fish are faring.

(right) Children from Plockton Primary School, with Jonah Tosney, releasing their salmon fry into the Duirinish Burn.

Overall, the response from the primary schools has been fantastic. Most schools named their alevin, and every school did some kind of river or salmon based project, producing a variety of posters, displays and reports. Auchtertyre School even went as far as to write a song about salmon returning to River Ling, '*where the stags roam free and the cares of tomorrow fade from the mind*'!

7.2 Living Lochs

by Dr Lorna Brown

Over the last year our "Living Lochs" Project has developed further thanks to funding from the Nineveh Trust. This meant we were able to involve Ullapool High School in the autumn and Gairloch High School in spring.

The aim of the project is to get the pupils thinking about their local freshwater ecosystems – what lives there and how the species interact. We set the pupils a task - to work out for themselves how they are going to monitor the local loch ecosystem. After a "brainstorming session" in the classroom we spend a whole day on field work – a morning at the loch, then an afternoon identifying our finds back in the lab. This year we were relatively lucky with the weather, having three beautiful sunny days out of four. Only one of the Gairloch second year groups had a chilly day at the loch, with the passing hail showers proving to be a bit too much for some of the pupils!

With the help of the Highland Council countryside rangers and RSPB staff we were able to record a large number of species of fish, birds, amphibians, mammals and invertebrates for both Linne a' Mhuilinn at the top of Mihol Road in Gairloch and Loch Achall at Ullapool. At Gairloch the main excitement came from the large slimy leeches discovered in a pool by the river.

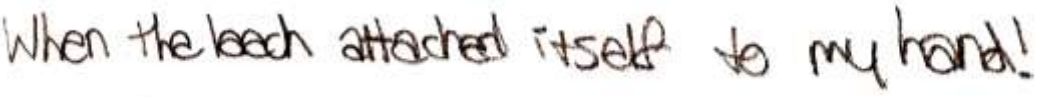
Gairloch High School pupils get to grips with some pretty big and slimy leaches.

Each year we ask the pupils to pick out key things they think they have learned…and the answers are always interesting. Most commonly they seem to revel in the rather disgusting fact that otters peel the skin from toads in order to eat them! This was my favourite answer this year:

What did you learn that you didn't know before?

As in previous years, the main way that pupils thought the project could be improved was by increasing the amount of time spent at the loch. A number of pupils also suggested that they think it would be better if they could try to fish for some larger trout in the lochs….so watch out, I am now on the hunt for some willing volunteer anglers to join us in the project in the future !

What did you like best and why?



Many thanks to everyone involved – the teachers and pupils of Ullapool and Gairloch high schools; Lindsey Duncan and Melanie Gaff from Highland Council; Judith Bullivant of RSPB; Dave Mullaney and Gary Bulmer for electrofishing; Strath & Lonemore Common Grazings committee and Jenny Scobie of Rhiddoroch Estate for access. Thanks also to the Nineveh Trust for funding the project.

Part 8 **Financial Statement**

For the year ended 31 March 2012

Incoming resources	Unrestricted Funds £	Restricted Funds £	2011-12 Total £	Unrestricted Funds £	Restricted Funds £	2010-11 Total £
Incoming resources from generated funds (voluntary income)						
WRASFB	23000		23000	23000		23000
Membership	540		540	650		650
Sub Total	23540		23540	23650		23650
Activities for generated funds						
Investment Income	560		560	716		716
Gift Aid	1038		1038	1520		1520
Sub Total	1598		1598	2236		2236
Incoming resources from charitable activities (unrestricted)						
Coulin Estate				2000		2000
Fish Farms	5162		5162	5012		5012
Southern Rivers Proprietors	5121		5121	5404		5404
Whitley Animal Protection Trust (via RAFTS)	372		372	744		744
Individual donations	485		485	210		210
Sales	436		436	569		569
Contracts	7027		7027	2085		2085
Sub Total	18603		18603	16024		16024
Total voluntary incoming resources	43741		43741	41910		41910
Restricted incoming resources from charitable activities						
Skye Fisheries Trust (for Skye juv. fish survey)		9135				
Leader+ (for electro-fishing equipment)		4896				
SNH (for Salmon & Trout in the Classroom)					3430	
Robertson Trust (for SS & T in the Classroom)					2000	
Highland Council (for S & T in the Classroom)		3750				
SG via RAFTS (for S & T in the Classroom)		1150				
Crown Estate (for Sweep netting / lice monitoring)		12000			14843	
Marine Harvest (for Tournaig trap project)		2655			2575	
SG via RAFTS (for Carrying Capacity project)					5000	
Nineveh Trust (for Living Lochs)		2747			1496	
SG via RAFTS (for Stocking Workshop)					962	
RAFTS (for Mink Project)					500	
S&SE (for Bruachaig Salmon Restoration Project)		1500				
SG via RAFTS (for Bruachaig Salmon Rest. Proj.)					3639	
SG via RAFTS (for River Carron R. Screw Trap)					1783	
SG via RAFTS (Biosecurity Plan)					1000	
SNH via RAFTS (for Little Gruinard SAC project)		6352				
SG via RAFTS (for FMP update / poster)		7000				
SG via RAFTS (Aquaculture Project support)		2161				
SG via RAFTS (SAC Genetics 2011)		2000				
Sub Total	0	55346	55346	0	37228	37228
Total Income	43741	55346	99087	41910	37228	79138
Figures shown in Book keeping			99087			79138

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 2012 (continued):

Resources expended	Direct Costs £	Support Costs £	20121-12 Total £	Direct Costs £	Support Costs £	2010-11 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	21116			11866		
Insurance	1935			1482		
Telephone	739			707		
Heat & Light	710			802		
Subscriptions	1326			1327		
Training expenses				450		
Printing/Post / Stationery	2281			1626		
Sundry expenses	2796			1816		
Comp equipment				90		
Maintenance				717		
Sub Total	30903	0	30903	20883	0	20883
Charitable activities direct costs						
Motor vehicle travel & subsistance expenses		7881			5073	
Wages, Soc Security, Pension		59150			39209	
Equipment / Hire / repairs		960				
Equipment new		10426			1504	
Governance costs		1794			1703	
Depreciation						
RAFTS / FRS Commission		1000			1000	
Sundry		1331			927	
Sub Total	0	82542	82542	0	49416	49416
Note: increase in the costs is due to having two biologists.						
Charitable activities total costs			113445			70299
Figures as shown in book keeping			113445			70299

IMPORTANT NOTICE

The 2012 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:

Ala MacKenzie
Alan Bush
Alan, Greg & Frank Choonara
Alan McGillivray
Alan Wells (RAFTS)
Alastair Jack
Alasdair Macdonald (Dundonnell Estate)
Alexander MacLeod
Alison Rowe
Alastair Pearson
Andrew Graham-Stewart
Andrew and Roxanne Ramsay
Andrew Slaughter
Dr Andrew Walker
Andrew Wallace (RAFTS)
Angus Bain
Angus Davidson
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 Anderson
Bill Whyte (Gruinard Estate)
Billy Forbes
Bob Kindness (River Carron Restoration
Brian Fraser
Callum Sinclair (RAFTS)
Calum MacKenzie
Catherine Vine
Dr Chris Horrill (RAFTS Invasive species)
Clint Barker
Dr Colin Bean (SNH)
Colin Milne (WRF)
Prof Andrew (Dave) Barclay
David, Dougie and Flora Foreman
David Holland
David and Veronica Mullaney
Derek Roxborough
Donald MacDonald
Donald Macleod
Donald Rice
Donna-Clare Hunter (RDO)
Duncan Donald & family
Duncan MacKenzie (Gairloch)
Dundonnell Estate
Elaine Fraser
Eilean Darach Estate
Eoghain Maclean
Dr Eric Verspoor (MS Science)
Farquhar MacRae
Fergus Mackenzie
Frank Buckley
Frank Kalinowski
Fred Robertson
Garry Bulmer
Gavin Skipper
Gilpin Bradley (WRF)
Graeme Wilson
Greg Jeffries
Gunnar Scholtz (Mink Project Officer)
Hugh Richards (WRF)
Hugh Whittle
Hugo van Vredenburch
Jackie Anderson (MS Science)
Jake Buckthorpe and family
Jamie Bain
Jane MacLay
Jane Murphy
Janet & Derek Ullman
Jenny Scobie
Jim Raffell
Dr John Armstrong (MS Science)
John Ian Grant MacDonald
John Ogle & family and friends
John Mackenzie
John Murdo Mackenzie
Johnie Parry
Julia Haig
Karen Starr
Katie Gillham (SNH)
Kenny Nelson (SNH)
Kenneth Maclean
Kevin Ginty
Letterewe Estate
Les & Sheila Bates
Lindsey Duncan
Lois Canham (Mink Project Officer)
Dr Lorna Brown
Marcus Munro
Marcus Simpson
Mark Coulson and Lucy Webster (RAFTS Genetics)
Mark Williams and family
Mary Gibson (SNH)
Dr Melanie Smith
Neil Campbell
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!
Patrick Ullman Campbell
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
Ross Gardiner (MS Science)
Roxanne Ramsay
Ruth Watts (SEPA)
Sally Clemments
Col Sandy Lindsay
Sandy Patience
Simon MacKelvey (Cromarty Firth Fisheries Trust)
Simon Stewart (Coulin Estate)
Dr Shona Marshall (West Sutherland FT)
Spey DSFB
Steve, Connor & Isle Ewe Fish farm team
Stuart Allison
Dr Steve Kett (Middlesex University)
Tim Fison
Tom Forrest (WREN)
Tom Reid
Tournaig Estate (& their ATV)
Willie Matheson
Will Parry

…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 2012 – 2013 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 either of the WRFT Biologists for further details.

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 31/12/2012

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 2007, 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)

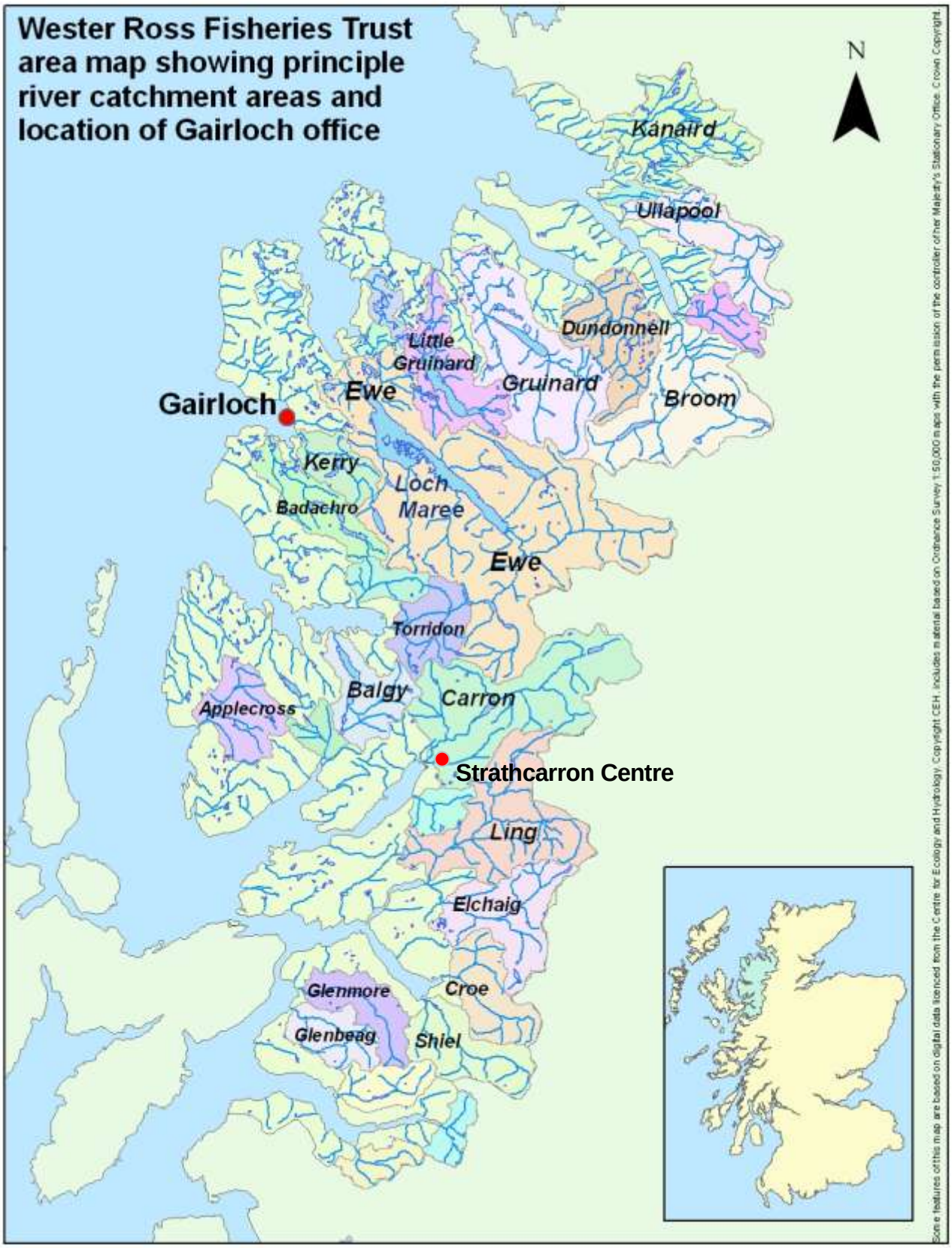
Branch sort code ☐☐-☐☐-☐☐ Bank/ Building Society Account Number ☐☐☐☐☐☐☐☐

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
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