Kyle Fisheries Annual Report 2015

By Dr Keith L Williams, Director & Clerk

Kyle of Sutherland District Salmon Fishery Board
Kyle of Sutherland Fisheries Trust

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Kyle of Sutherland Fisheries Trust

Chairman	Robbie Douglas Miller
Trustees	Michael Brown John Green Tom Inglis Gregor Macleod Steven Mackenzie (River worker's representative) Richard Sankey

Kyle of Sutherland District Salmon Fisheries Board

Chairman	Robbie Douglas Miller, Lower River Shin
Proprietors	John Green, Lower Oykel Nicky Griffiths, Braelangwell Estate Gary Gruber, Skibo Estate Michael Hasson, Glenrossal Estate Alex Hunter, Dounie Estate William Paterson, Netsman Richard Sankey, Upper Oykel
Co-opted Members	George Skinner, Tenant netsman Calvert Stinton, Kyle of Sutherland Angling Association Ashe Windham, Upper Oykel
KSFT Attendees	Tom Inglis Steven Mackenzie
Clerk	Dr Keith L Williams
Staff	Dr Keith L Williams, Director Hugh Mackenzie, Head Bailiff Audrey Denoon, Administrator John Audsley, Bailiff Iain Gollan, Bailiff Philip Blowers, Bailiff

Chairman's Foreword

The 2015 season brought a welcome change for anglers and proprietors alike across much of the Kyle region. After the previous seasons disappointing fishing it was terrific to see so many positive reports of success. This should however be tempered by a lacklustre show of salmon across many of the other regions of Scotland which remains a concern for the bigger picture. All of our salmon gravitate to and from the same ocean feeding grounds and a lack of success for some areas should concern us all as the problems are likely to be shared rather than be specific to each river. New and interesting work is being started in 2016 in the Dee and Spey regions using acoustic tagging to determine predation levels and smolt ocean migration success levels and we will be watching the results with interest.

Kyle Fisheries continues to be fully involved with the Wild Fisheries Review process and have held several meetings with the Chair of both ADSFB & RAFTs and members of the WFR Steering Group. Progress seems to be slow at the moment with little chance of any significant change in 2016 apart from enabling legislation. In addition to this there have been a number of other consultations, notably on the killing of salmon, for the team to respond to.

In our catchment we have been making progress on a number of fronts. After many years of work it now seems likely that the long term issues with smolt migration from the Upper Shin are going to be included in the 2nd phase of the River Basin Management plan. This will involve working with SEPA and SSE to find and implement a solution before 2021. Work is also in the pipeline to open up the Diebidale dam on the Carron and create better access to upstream areas. Further Peatland restoration works are planned in our catchment in 2016 to continue to restore natural hydrology to our rivers.

The Board, Trust and Joint Management Group continue to meet on a regular basis and the KF office acts as a strong focus for our work and increased presence in the community. I would like to thank Keith and his team for all the hard work and energy that is involved in ensuring this continued success.

Robbie Douglas Miller (Chairman)
Kyle of Sutherland District Salmon Fishery Board
Kyle of Sutherland Fishery Trust

Director's Foreword

The primary focus of activity for the Kyle of Sutherland Fishery Board staff during 2015 was a thorough review of operations, equipment needs and staffing requirements. As a result there have been a number of changes to work procedures and methods of operation. Staff numbers have been increased particularly in respect of enforcement personnel. Emphasis has been placed on increasing training provision for both new and existing members of staff and I am particularly pleased that members of the team have embraced the need for continuing professional development and the other changes with such enthusiasm.

During the year a draft management plan was produced which will focus the activity of both the Board and Trust for the next few years. Future planning and retaining focus on core aims has never been more important given the uncertainties resulting from the Wild Fisheries Reform process. There is a risk that uncertainty can lead to inertia but we are determined not to let this happen within the Kyle district.

Improved communication has been identified as a key requirement of both the Board and Trust. To this end regular electronic newsletters have been produced throughout the year. These have generally been well received. It is intended that this first step will be built upon further going forward with the full annual report representing another building block in the process. It is anticipated that the website and other forms of media will receive attention in the near future.

A particularly pleasing aspect of 2015 has been the development of more partnership working and developing closer relationships with other organisations. For a considerable amount of time there have been regular interactions with other fishery boards and trusts in this area but this type of working practice is now being increasingly extended beyond the fisheries sphere. In particular, the relationship with Forestry Enterprise Scotland which was established largely as a result of the Pearls in Peril Project is increasingly bearing fruit. More recently, communication with Police Scotland has also increased and it is hoped that this key relationship can be developed further in 2016. We also retain a good working relationship with SEPA and SNH who themselves have key enforcement responsibilities. I would like to place on record my thanks to those individuals within those organisations mentioned who have greatly helped the development of the Board and Trust in the last year.

Keith Williams (Director)
Kyle of Sutherland District Salmon Fishery Board
Kyle of Sutherland Fishery Trust

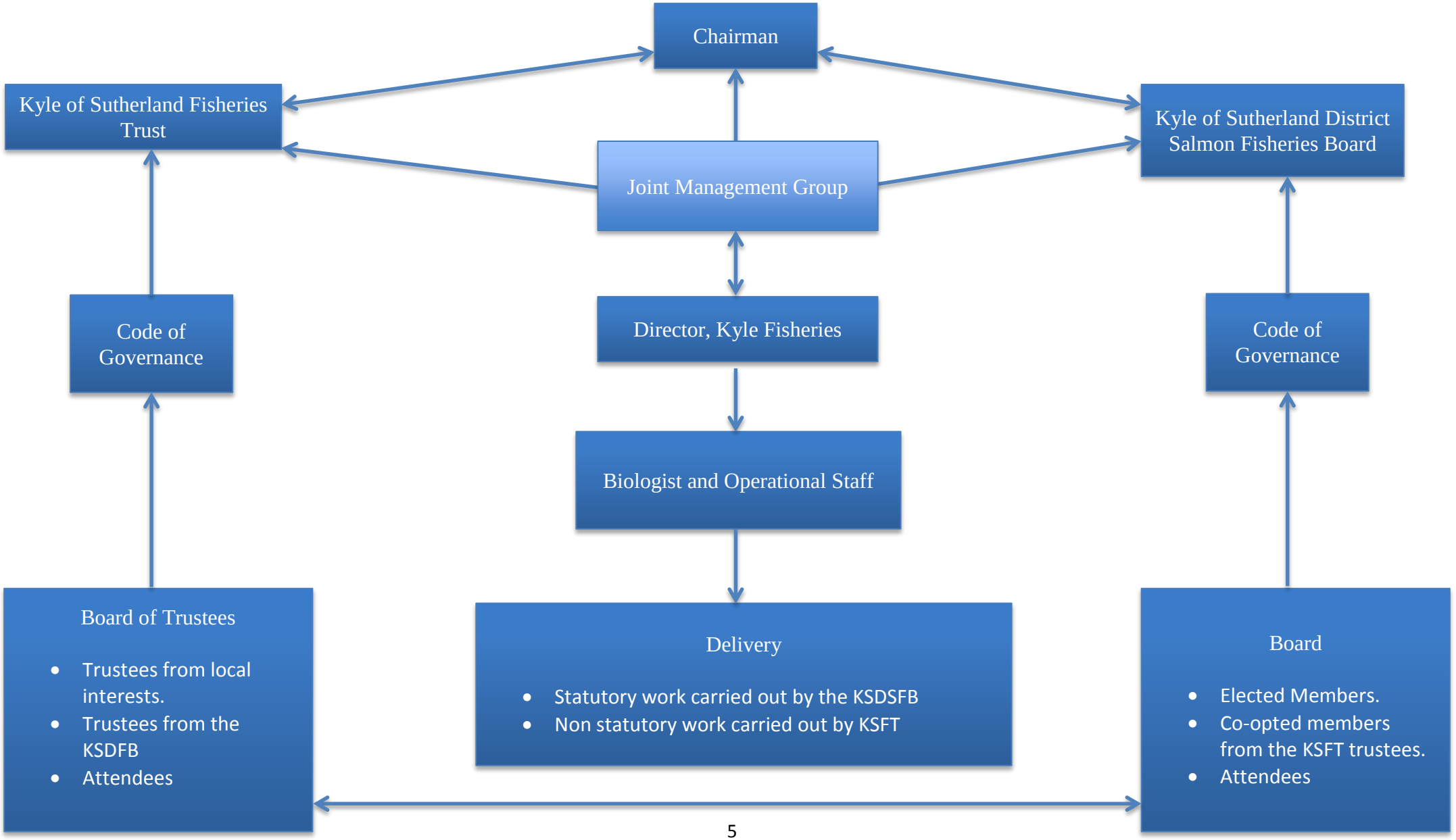
Kyle of Sutherland Fisheries Structure

Kyle of Sutherland Fisheries represents two organisations that work closely together.

The Kyle of Sutherland District Salmon Fishery Board was initially established in the 1860's and has a remit defined by statute. The remit extends to salmon and sea trout only. The original legislation has been amended on various occasions culminating in the Aquaculture and Fisheries (Scotland) Act 2013.

The Kyle of Sutherland Fisheries Trust is a registered charity and a company limited by guarantee with incorporation commencing in 2000. The Trust has a much broader remit than the Board with its sphere of operation encompassing all species of fish and the aquatic environment in general.

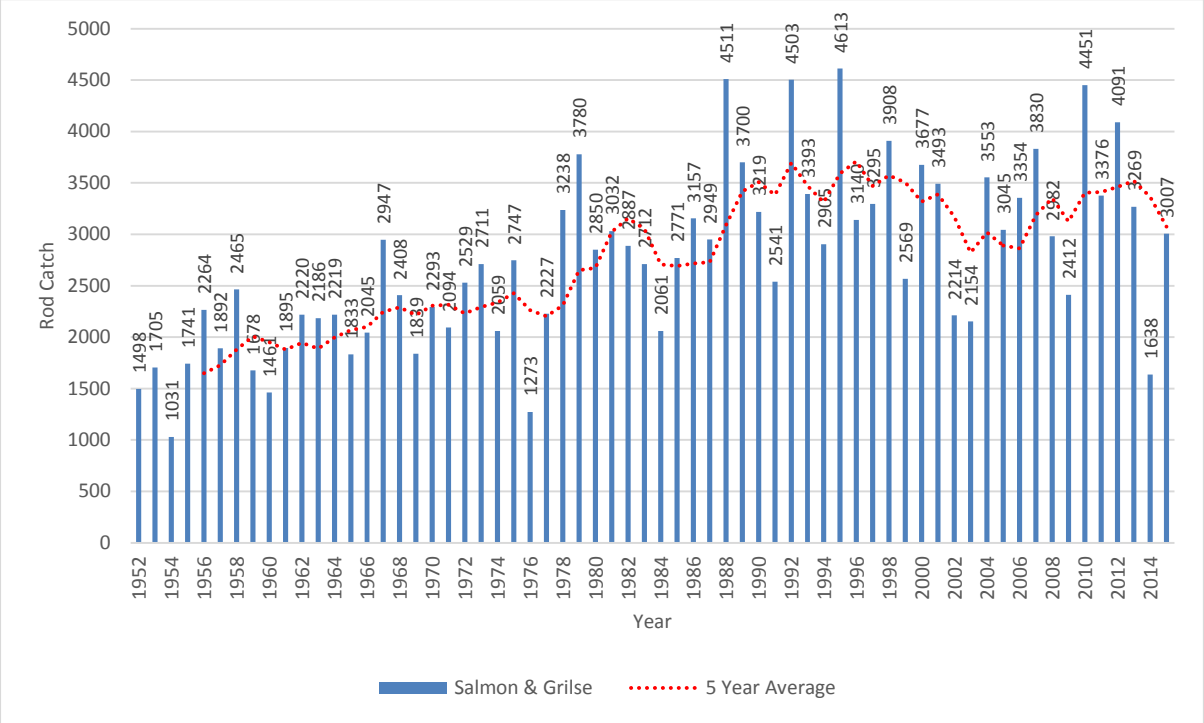
The structure of the operation of Kyle Fisheries is explained in the following diagram.

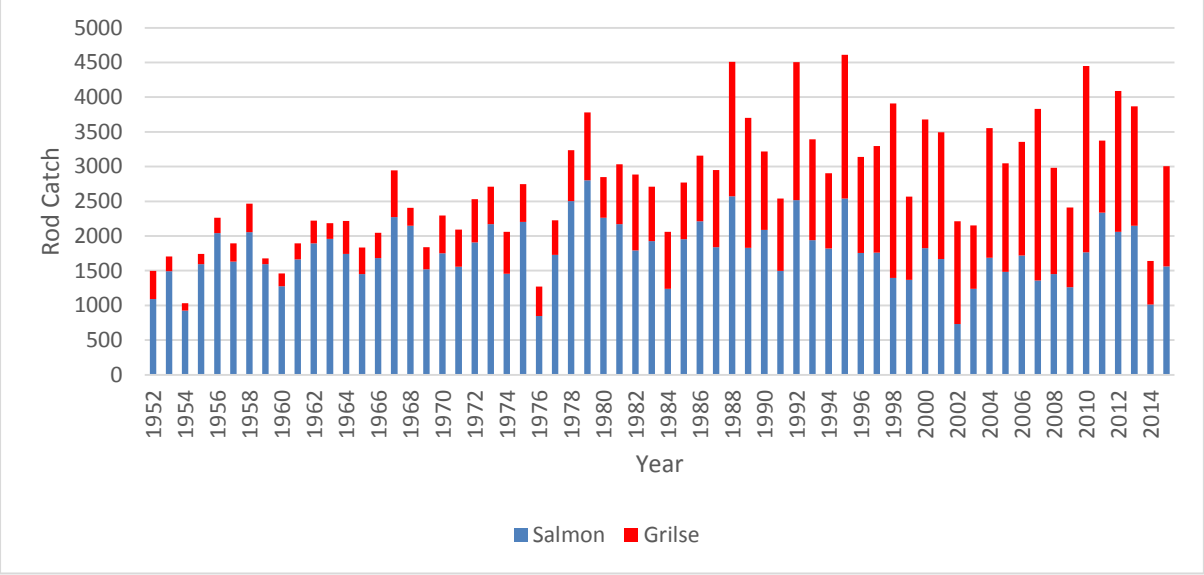

Chairman
Kyle of Sutherland Fisheries Trust
Kyle of Sutherland District Salmon Fisheries Board
Joint Management Group
Code of Governance
Director, Kyle Fisheries
Code of Governance
Biologist and Operational Staff
Board of Trustees
Trustees from local interests.
Trustees from the KSDFB
Attendees
Delivery
Statutory work carried out by the KSDSFB
Non statutory work carried out by KSFT
Board
Elected Members.
Co-opted members from the KSFT trustees.
Attendees

Kyle of Sutherland Fisheries District Salmon Fisheries Board

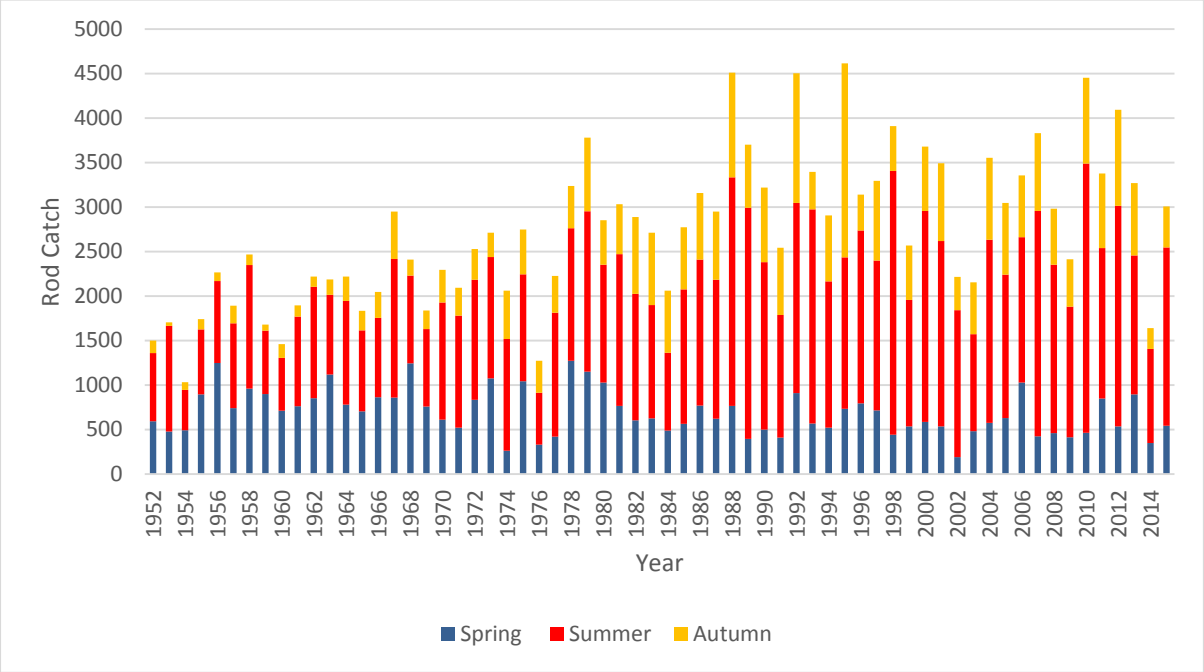
2015 Fishery Performance

Information received from proprietors suggests that the rod catch for the Kyle of Sutherland District totalled 3007 salmon and grilse plus 380 sea trout and 431 finnock. Overall catches were a considerable improvement on the very poor total of 1638 in 2014 and more in line with expectation. The graphs below place the provisional 2015 data collected by the Board within the historical context of the Marine Scotland Science dataset of catches from 1952-2014. Netting data from 2015 was not available at the time of the production of this report.



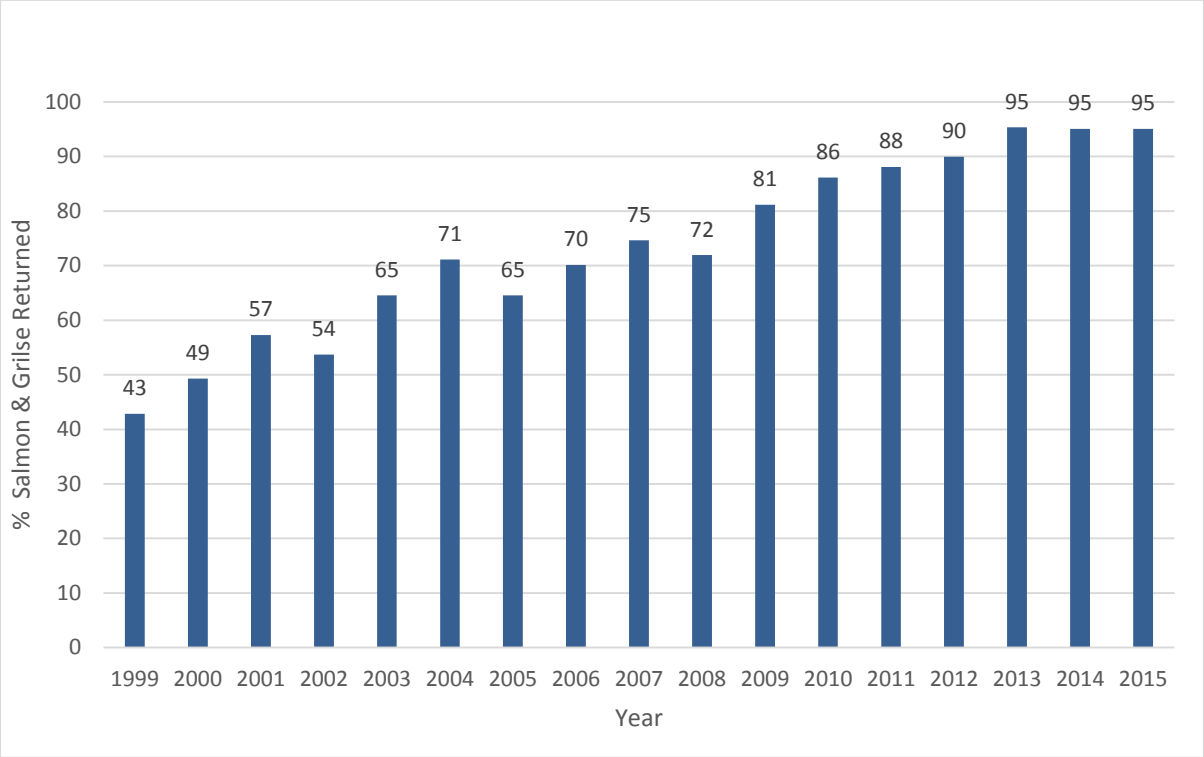


In order to assess the trend in catches the North Atlantic Salmon Conservation Organisation rod catch tool is utilised as per the recommendation of the Association of District Salmon Fishery Boards. This tool looks at the spring summer and autumn components of the catch over a twenty year period. In 2014 the summer and autumn components of the catches failed the assessment which triggered a discussion by the Board as to whether extra conservation measures were required. The Board considered that the primary driver behind the low 2014 catches was the exceptionally dry weather conditions for the bulk of the fishing season. The limited fish counter data available from SSE also did not indicate significant variance from the five year average therefore the decision was made not to request further restrictions on rod or net fisheries over and above the present voluntary restraint (the rod fishery catch and release rate is in excess of 95% and the net fishery operates over a limited time period). In 2015 no stock component failed the NASCO rod catch agreement.

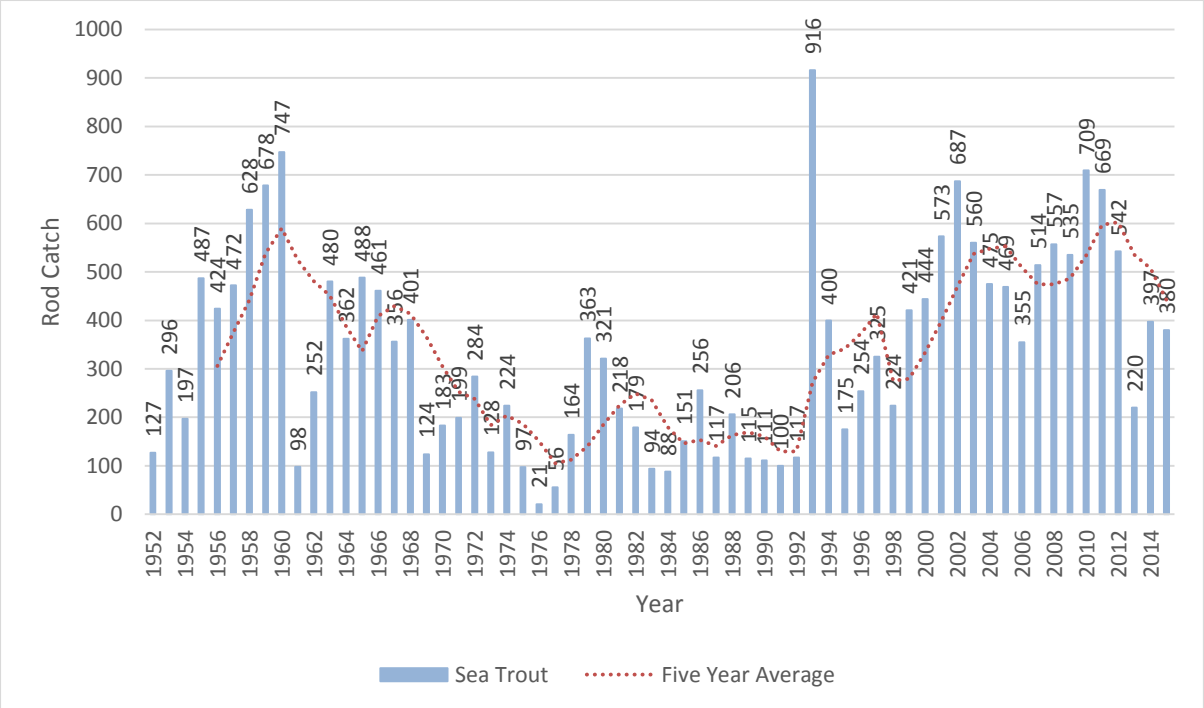


March Salmon about to be released on the River Carron

The percentage of salmon and grilse released by anglers during the 2015 season remained high at over 95%. During the year the Scottish Government introduced measures legally prohibiting the killing of salmon prior to 1st April. However, the voluntary code endorsed by the Board and local proprietors goes further with a recommendation that all fish are returned until 15th June. The Scottish Government also proposes to implement a scheme of categorisation of fisheries for 2016 based on the concept of attainment of conservation limits. Up to date details of conservation measures can be found on the Kyle Fisheries website.



Overall sea trout catches were disappointing, particularly in respect of the Kyle of Sutherland tidal waters fished by the Kyle of Sutherland Angling Association. Finnock numbers were more encouraging especially as a number of large catches were made at the end of the season suggesting that run timing rather than abundance may have influenced catches.



Enforcement

Considerable resources were utilised in increasing the training of the bailiff team during 2015 and funds were also made available for the purchase of new equipment. Congratulations go to staff member John Audsley who successfully obtained his Institute of Fishery Management Certificate in Bailiffing and Keepering Duties and Scottish Fishery Law in late 2015. A key feature of the year was the increased use of the boat which was upgraded in 2014 to ensure compliance. Boat patrols are vital given the large coastal and tidal area of the Kyle district. One net was seized during the course of the year. No prosecutions were pursued during 2015 but four formal warnings were issued for rod and line related offences.

In addition to anti-poaching activities the Board has a remit to enforce various branches of fishery law, including the obstruction of access for migrating salmon and sea trout and possible damage to spawning areas. During the smolt migration period an incident took place on a construction site which was potentially in breach of legislation covering fish access. Intervention by Board staff and cooperation by the contractor quickly remedied the situation with fish access being restored. In addition to laws enforceable by the Board there is considerable overlap with other agencies such as Police Scotland and SEPA. As an example, Board staff provided written confirmation to SEPA of the potential damaging effects on spawning fish of a river crossing being used by vehicles extracting trees in the autumn of 2015. Liaison with Police Scotland is also improving, particularly as a result of the recent appointment of a dedicated Wildlife and Environmental Crime Officer based in Dingwall.

Hatchery & Stocking - 2014/2015

2015 Stocking Plan

Following consultation it was decided that only the Upper Tirry and Crask on the Upper Shin would be stocked in the spring of 2015.

2014 Broodstock Netting

Applications were submitted to Marine Scotland Science for consent to catch salmon during the close season, proprietor consents obtained and SEPA and SSE consulted regarding lowering compensation flows for the agreed netting dates. For the first time in over 10 years staffing levels allowed the netting to be carried out by KSDSFB staff and River Shin ghillies with no additional help.

Board staff Keith, Hugh, Phil, John, Iain and Audrey and ghillies Robbie Eliot (Lower Shin) and Alick Murray (Lairg Estate) started by netting the Wood Pool but caught a very disappointing number of fish. Following discussion with Alick the Aquarium pool was netted next. This resulted in the capture of the target number of 25 hens and 40 cock fish, all in excellent condition. Fish were also, on average, larger than in the past.

2014 Stripping

Again this was the first time that KSDSFB had sufficient staff to carry out this work without having to call upon outside help. Stripping started on 18th November with the first 6 hens yielding 32,500 eggs fertilised by 10 cock fish. On the 24th November, 10 hens were stripped and 55,000 eggs fertilised by 15 cocks. Finally on the 29th November 9 hens yielded 55,000 eggs which were fertilised by 14 cock fish. The hatchery was now stocked

with 142,500 eggs, the average yield per hen being in the region of 5,700 eggs. All stripped fish were returned to the river as soon as practicable after stripping.

Egg collection

2014 Hatchery

New equipment was designed and made by staff which appeared to improve the survival of eggs during transport from the Grudie broodstock facility to the hatchery. Egg size was fairly uniform, tending to be larger due to the number of larger hens. As at the 1st of January 2015 egg deaths were calculated at 0.28%

2015 Stocking

The first stocking out of unfed-fry took place at Crask on 27th April, with the last fry leaving the hatchery on 11th May. Hatchery survival was exceptional with 97% of eggs surviving through to stocking.

2015 Electrofishing surveys within stocked areas

Electrofishing was carried out on one site on the Lower Crask and one site on the Upper Tirry (see electrofishing report). Analysing Zippin values (juvenile fish density over 100 square metres) over the last 5 years it would appear that, although numbers stocked have steadily decreased, juvenile numbers have not followed suit.

All aspects of broodstock management, hatchery management, egg and fry care have been carefully considered and improved over the last 5 years. This has dramatically improved hatchery survival rates and it is hoped that the production of stronger, healthier fry has increased survival in the wild. Additionally, better hatchery survival means that fewer eggs are required to meet stocking targets, and therefore fewer adults removed from the river.

Hugh Mackenzie, Head Bailiff

Hatchery & Stocking - 2015/2016

2016 Stocking Plan

Following a visit in early 2015 from Board member Richard Sankey during which we discussed genetic diversity, we invited John Webb B.Sc., M.Sc, MIFM, Fisheries Consultant, to look at our broodstock procedures and suggest possible changes. Following a very interesting day with Mr Webb and extensive discussion thereafter, it was decided to modify some existing procedures in order to widen genetic diversity in the fertilised eggs.

As only the Upper Tirry and Crask were to be stocked, a target of 20-25 hens and 50-60 cock fish was set for collection of adult broodstock from the Upper River Shin in order to achieve 130K – 150K eggs.

2015 Broodstock Netting

Following application to Marine Scotland Science and discussions with SEPA and SSE, compensation flow levels were reduced to allow netting to take place on the 3rd November. Two other dates were also arranged but were not required.

Kyle staff, tractor driver Robert Sawyer and ghillies Robbie Eliot (Lower Shin) and Alick Murray (Lairg Estate) met at 10am for netting of adult broodstock. It was a beautiful sunny morning, dry and unseasonably mild. Starting at the Wall pool (also known as Lily's) a total of 13 hens and 37 cock fish were netted - the highest ever number from that pool. Whilst Robert and Phil transported the fish to the Grudie broodstock facility, remaining staff netted the Aquarium pool, catching a further 14 hens and 25 cocks. Fish were very mixed in size, with a lot more grilse sized fish than in the previous year. Twenty fish had visible signs of fungus, some being very badly affected. These were isolated in a separate holding tank.

Netting at the Wall Pool (Lily's)

After handling, healthy fish were salt treated weekly and fungussed fish treated twice weekly. All fungussed fish were in significantly better condition by the time they were released back to the river.

Grudie Broodstock Facility

2015 Broodstock Stripping

On the 12th November all staff travelled to Grudie broodstock facility to inspect fish in preparation for stripping. In the past one hen was usually crossed with 6 cock fish – modified procedures this year meant that eggs from each hen were typically crossed with 12 cock fish, hopefully resulting in much wider genetic diversity. Instead of returning used cock fish to the river as in the past, these were floy tagged and retained in a separate holding tank just in case their services were required again! Stripped hen fish were immediately returned to the river so that they could deposit any retained eggs as nature intended.

The first hen yielded approx. 14,800 eggs and by the 7th December the target of 130,000 eggs was exceeded with approx. 145,800 safely laid out in the Kincardine hatchery.

Although alterations to procedures required more staff to be involved, excellent organisation meant that everything went smoothly. All broodstock fish were successfully returned to the river.

On the 19th November, following high water, a walk up inspection of Grudie Burn found 3 stranded hen salmon and one dead cock fish. This section of the burn, below the SSE diversion, is normally completely dry so the hen fish were rescued and taken to the Grudie broodstock facility. On the 24th November the area was electrofished again to check for stray fish and a further 2 hens and 2 cocks were rescued and transported to Grudie. These fish were subsequently stripped and their eggs laid out separately at Kincardine hatchery.

Egg size this year was varied, with a greater number of smaller eggs from smaller hens. As at the 1st of January 2015 egg deaths were calculated at 2.44%. This increase on last year's percentage was caused by losses from two of the larger hens.

Hugh Mackenzie, Head Bailiff

Consultations

Responses were made to a total of 18 consultations during 2015. Consultations ranged from those national in nature, for example a series of proposed measures on the control of salmon exploitation, or the second iteration of Scotland's River Basin Plan from the Scottish Government, to those of a more local nature such as proposed hydroelectric schemes and windfarm developments. Consultations can be extremely time consuming but ensuring that salmon and sea trout stocks are protected remains an integral part of the operations of the Board.

Predator Control

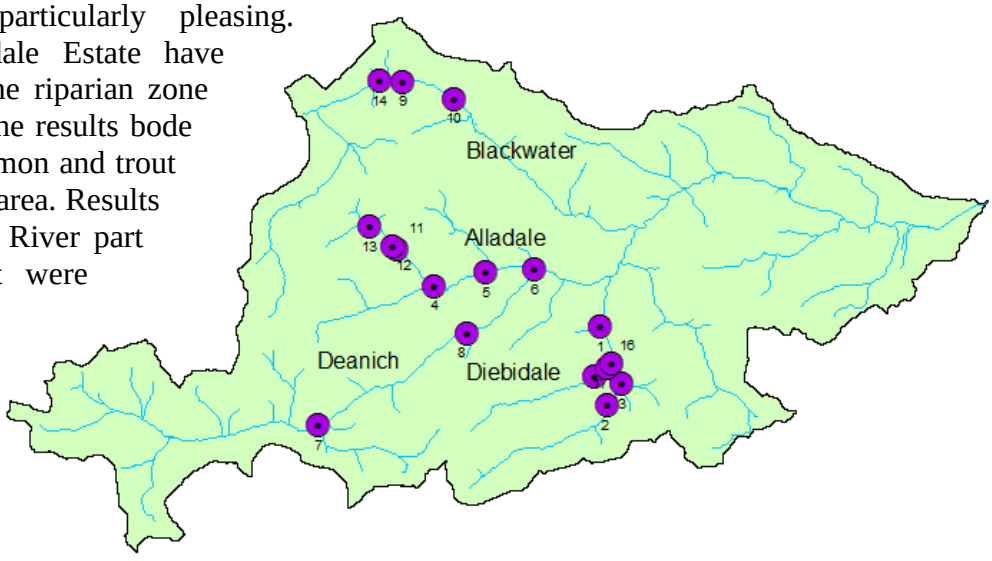
The Board remains an active participant in the Moray Firth Seal Management Plan and also is part of a coalition of Moray Firth fishery boards that collectively applies for a licence to shoot a limited quantity of piscivorous birds as an aid to scaring. Efforts in terms of the latter typically concentrate on the key smolt run period.

Juvenile Surveys

Electro-fishing surveys were undertaken in all of the major watercourses during 2015. Surveys are undertaken for a variety of reasons. Typically, routine monitoring is the primary reason for undertaking surveys although effort is often focussed on areas were previous surveys have identified potential issues or under performance. On occasions surveys are undertaken to inform proposed development projects or as part of other projects such as the Pearls in Peril Project or Diebidale barrier work. Methodology utilised within the Kyle of Sutherland District is usually a combination of timed fishings (typically used for investigative purposes) or fully quantitative surveys were more detailed surveys are required.

<u>Carron</u>

Focus on the Carron catchment centred on several key issues. Firstly, routine monitoring sites were revisited in order to establish that salmon continue to successfully negotiate Glencalvie Falls. Results indicate that the expected year classes of fish were present. Parr density at site C/GM/02 was particularly pleasing. Given that Alladale Estate have planted trees in the riparian zone close to this site the results bode well for future salmon and trout production in this area. Results from the Alladale River part of the catchment were less encouraging but were in line with expectations based on previous surveys. Secondly,



electro-fishing was required to support ongoing efforts to ease the obstacle to migration at Diebidale (see later section of this report). Ironically, salmon fry were captured upstream of the obstacle in 2015 indicating that adult salmon had successfully migrated past the dam structure. Although speculation, it is possible to hypothesise that the extreme high water conditions experienced in August 2014 may have allowed salmon access to the upper reaches of the Diebidale for the first time in a number of years. Results from the Blackwater were mixed and further fishing effort will be directed to this area in the future. Timed fishings were largely speculative in nature and were directed at areas for which data was hitherto lacking.

In the Juvenile survey tables that follow, the first of each pair lists fully quantitative surveys and the second timed surveys. Figures with * denote minimum density estimates.

				2015		2014		2013	
	Code	Location	Area (m2)	Fry	Parr	Fry	Parr	Fry	Parr
1	CN/D02	Diebidale	94.73	10.75	19.55	-	-	49.13	9.23
2	CN/D01	Diebidale	129.00	17.98	0.00	0.00	0.00	0.00	0.00
3	CN/D03	Diebidale	98.63	0.00	0.00	0.00	0.00	0.00	0.00
4	CN/A02	Alladale	118.07	0.00	11.46	-	-	0.00	10.98*
5	CN/A04	Alladale	105.20	0.00	7.22	-	-	-	-
6	CN/A05	Alladale	89.60	12.71	13.08	-	-	-	-
7	C/GM/01	Glen Mohr	113.25	65.79	11.55	77.35	15.96	43.68	14.27
8	C/GM/02	Glen Mohr	98.80	35.58	56.92	87.11	17.32	-	-
9	C/BW/01	Blackwater	107.33	0.00	10.58	-	-	16.57	28.67
10	CN/B01	Blackwater	99.20	86.03	8.43	-	-	-	-

	Code	Location	CPUE Fry	CPUE Parr
11	CN/AaC/1T	Allt a Chlaiginn	0	0
12	CN/AaC/2T	Allt a Chlaiginn	0	0
13	CN/AaC/3T	Allt a Chlaiginn	0	0
14	C/BW/04T	Blackwater	0.4	0.4
15	CN/ACM/01T	Abhainn Coire a Mhalagain	0	0
16	CN/ACM/02T	Abhainn Coire a Mhalagain	0	0
17	CN/ACM/03T	Abhainn Coire a Mhalagain	0	0.2

Cassley

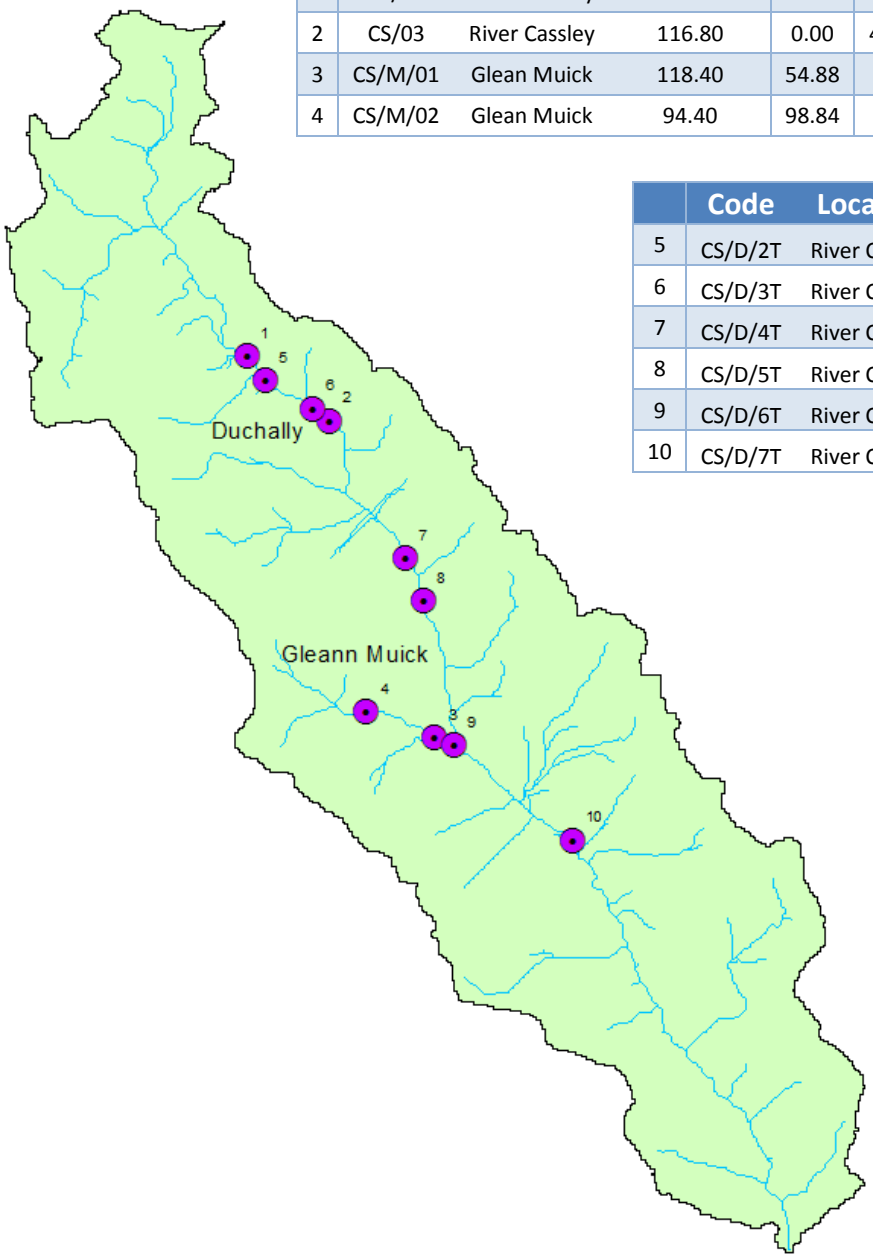
Survey effort on the Cassley was directed at the Gleann Muick part of the catchment and the areas immediately upstream and downstream of SSEs diversion dam at Duchally. Upstream of Duchally parr numbers were encouraging compared to recent surveys although fry numbers were less positive. However, survey effort was restricted to a relatively narrow area.

Timed fishings between the main survey sites were more positive in respect of fry capture. The importance of the Gleann Muick tributary was highlighted by strong fry numbers although the opposite was the case when parr were considered. Timed fishings were also

undertaken downstream of the Duchally diversion in order to obtain a better understanding of the distribution of salmon fry and parr on the main stem of the River Cassley. It is hoped to extend the timed fishing surveys to areas further downstream in 2016.

	Code	Location	Area (m2)	2015		2014		2013	
				Fry	Parr	Fry	Parr	Fry	Parr
1	CS/02	River Cassley	91.47	8.30	20.26	-	-	62.45	2.08*
2	CS/03	River Cassley	116.80	0.00	47.34	-	-	0.00	24.74
3	CS/M/01	Glean Muick	118.40	54.88	5.19	-	-	37.66	29.83
4	CS/M/02	Glean Muick	94.40	98.84	0.00	-	-	22.37	14.47

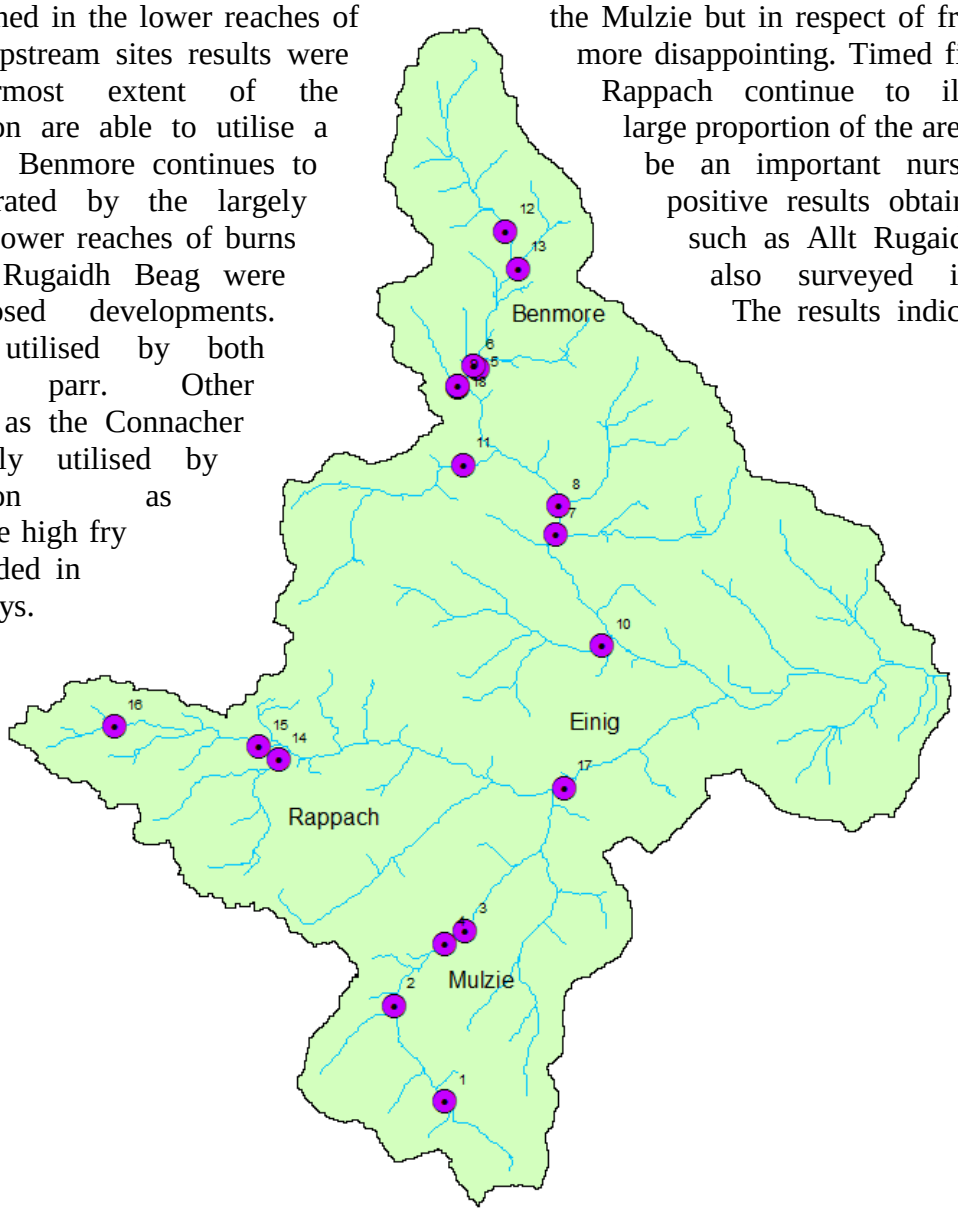
	Code	Location	CPUE Fry	CPUE Parr
5	CS/D/2T	River Cassley	2.6	1
6	CS/D/3T	River Cassley	4.2	0.8
7	CS/D/4T	River Cassley	0.6	1
8	CS/D/5T	River Cassley	2.6	0.4
9	CS/D/6T	River Cassley	3.6	2
10	CS/D/7T	River Cassley	4	0.2



Oykel

The bulk of the surveys undertaken during 2015 concentrated on the extremities of the catchment. During 2014 considerable numbers of surveys were undertaken in areas further downstream as part of the *Pearls in Peril* project. In the Einig system reasonable results were

obtained in the lower reaches of the Mulzie but in respect of fry numbers at the upstream sites results were more disappointing. Timed fishings at the uppermost extent of the Rappach continue to illustrate that salmon are able to utilise a large proportion of the area available to them. Benmore continues to be an important nursery area as illustrated by the largely positive results obtained in 2015. The lower reaches of burns such as Allt Rugaidh Mhor and Allt Rugaidh Beag were also surveyed in light of proposed developments. The results indicate that they are utilised by both salmon fry and parr. Other tributaries such as the Connacher are also heavily utilised by juvenile salmon as indicated by the high fry densities recorded in the 2015 surveys.

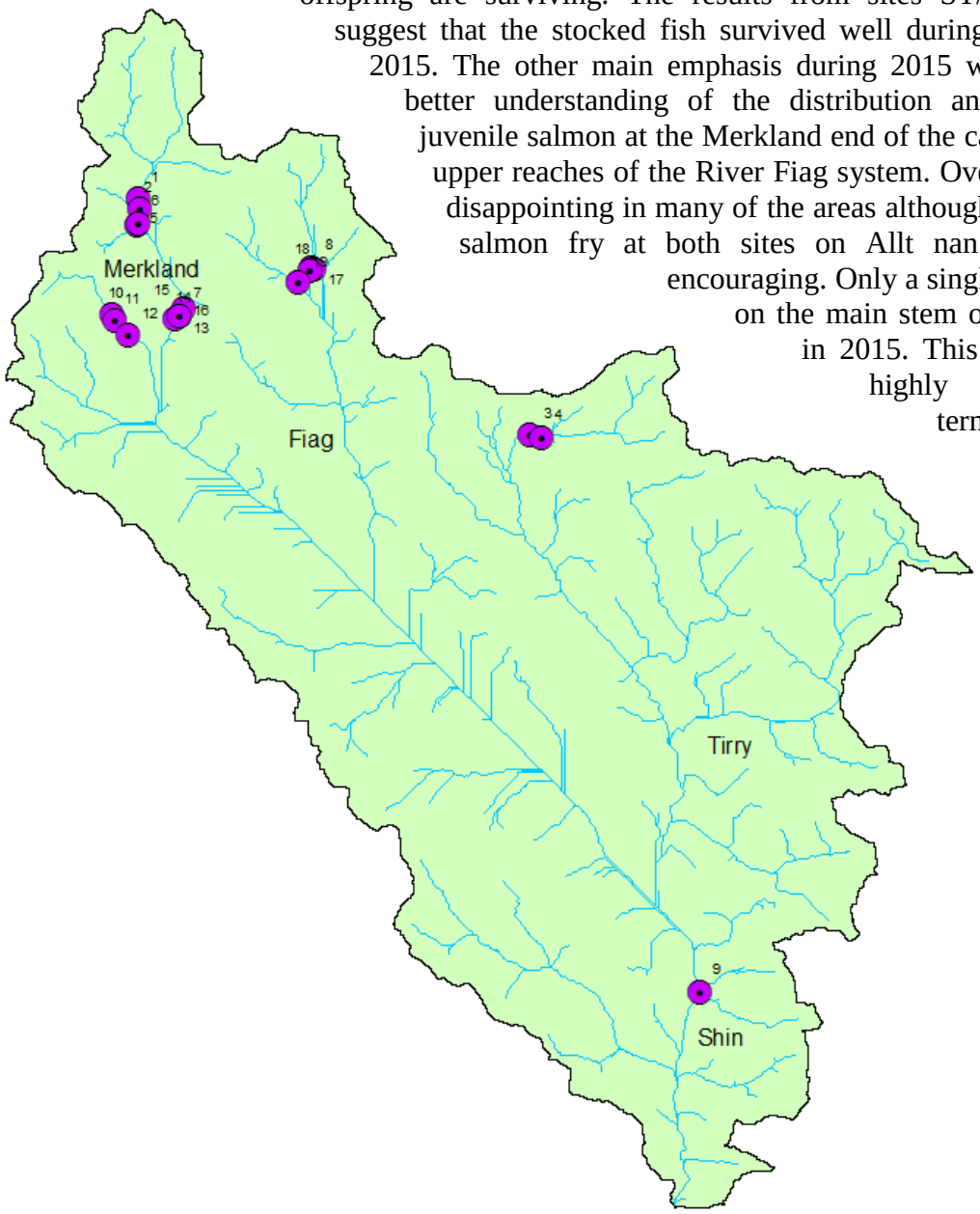


	Code	Location	Area (m2)	2015		2014		2013	
				Fry	Parr	Fry	Parr	Fry	Parr
1	OEM/01	Mulzie	83.53	0.00	12.77	0.00	13.00*	0	12.79*
2	OEM/05	Mulzie	101.33	0.99*	3.99	0.00	18.40*	11.40	4.36*
3	OEM/04	Mulzie	79.67	20.93	11.39*	89.68	21.52	21.89	1.94*
4	OEM/08	Mulzie	107.70	67.37	10.21*	-	-	-	-
5	ACA/02	Allt na Cailliche	85.60	124.48	8.30*	-	-	-	-
6	ACA/01	Allt na Cailliche	80.00	246.65	27.5*	253.01	36.38*	457.09*	10.15
7	RB/01	Allt Rugaidh Bheag	76.80	98.84	26.04*	-	-	60.90	7.61
8	RM/01	Allt Rugaidh Mhor	91.60	17.47*	1.09*	-	-	11.88	11.21
9	AOS/01	Strathseasgaich	99.75	133.49	19.04*	97.60	35.07	-	-
10	O/CaC/02	Conacher	148.80	168.65	8.06*	-	-	49.53*	11.52
11	AE/03	Eileag	112.80	0.00	0.89*	3.47*	4.36	26.98	0.00
12	RO/02	Upper Oykel	92.67	47.16	52.97	-	-	-	-
13	ROS/01	Allt Sail au Ruathair	89.6	29.83	29.75	-	-	-	-

	Code	Location	CPUE Fry	CPUE parr
14	OER/06T	Allt nan Clar-lochan	0.2	1.2
15	OER/05T	Rappach	2.2	1.4
16	OER/04T	Allt Beinn Donuill	1.4	0.2
17	O/EIN/01	Einig	1.6	0.8
18	OYK/BEN/2T	River Oykel	17.8	1.2

Shin

The River Shin catchment is the only part of the Kyle of Sutherland currently stocked artificially. Areas of the Tirry system stocked are surveyed annually to ensure that hatchery offspring are surviving. The results from sites ST/06 and STC/09 suggest that the stocked fish survived well during the summer of 2015. The other main emphasis during 2015 was to develop a better understanding of the distribution and abundance of juvenile salmon at the Merkland end of the catchment and the upper reaches of the River Fiag system. Overall results were disappointing in many of the areas although the presence of salmon fry at both sites on Allt nan Abannach was encouraging. Only a single site was fished on the main stem of the River Shin in 2015. This site is typically highly productive in terms of salmon fry production and 2015 proved to be no exception.

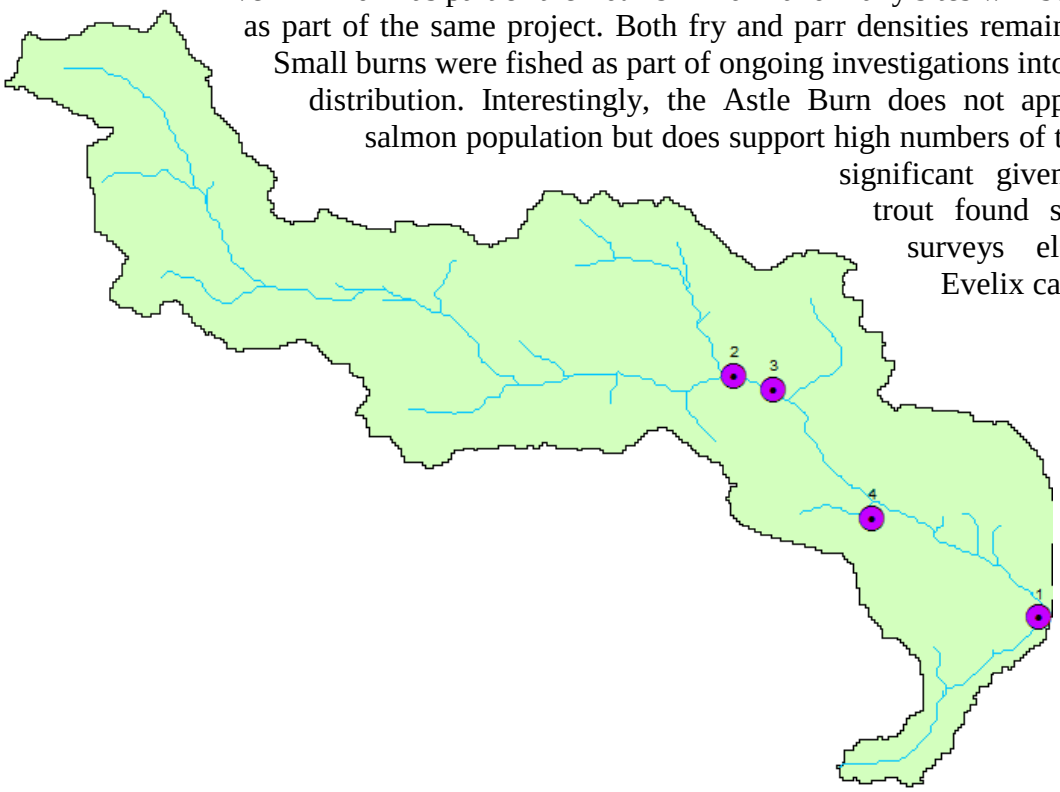


	Code	Location	Area Fished (m2)	2015		2014		2013	
				Fry	Parr	Fry	Parr	Fry	Parr
1	AnA2	Allt nan Albannach	90	27.52	1.11*	0.00	3.00	15.98	15.29*
2	AnA1	Allt nan Albannach	85.2	45.21	0.00	0.00	1.57*	50.39	5.71
3	ST/06	River Tirry	81.6	163.59	0.00	202.01	23.99	54.58	19.34*
4	STC/09	Crask	97.5	124.45	2.24	170.17	24.82	-	-
5	MG/02	Garbh Allt	106	0.00	0.94*	0.00	0.00	0.00	1.70*
6	MG/01	Garbh Allt	104	0.00	0.96*	0.00	0.00	0.00	3.01*
7	S/MR/01	River Merkland	195	0.00	1.56*	-	-	-	-
8	S/F/AT02	Allt an Tireidh	96.8	2.07*	0.00	-	-	-	-
9	RS/01	River Shin	100	204.52	1.00*	254.74	3.08	-	-

	Code	Location	CPUE Fry	CPUE parr
10	S/ASC/1T	Allt Sgialach Coire	0	0
11	S/ASC/2T	Allt Sgialach Coire	0	0
12	S/ASC/3T	Allt Sgialach Coire	0	0.2
13	S/MR/01	River Merkland	0.8	0
14	S/MR/02T	River Merkland	1	0
15	S/MR/03T	River Merkland	0	0.8
16	S/MR/04T	Merkland burn	0.4	0
17	S/F/ACD/01T	Allt nan Creagan Dubh	0	0
18	S/F/AT/01T	Allt an Tireidh	0.6	0
19	S/F/ACM/01T	Allt na Claise Moire	0.2	0

Evelix

A single fully quantitative site was fished in 2015. Considerable effort was expended on the Evelix in 2014 as part of the *Pearls in Peril* and many sites will be revisited in 2016 as part of the same project. Both fry and parr densities remain high at this site. Small burns were fished as part of ongoing investigations into salmon and trout distribution. Interestingly, the Astle Burn does not appear to support a salmon population but does support high numbers of trout. This may be significant given the paucity of trout found so far in routine surveys elsewhere in the Evelix catchment.



Code	Location	Area Fished (m2)	2015		2014		2013	
			Fry	Parr	Fry	Parr	Fry	Parr
REK/06	Evelix	77.2	164.21	59.59*	90.79	28.45	-	-

Code	Location	CPUE Fry	CPUE parr
EAV/01T	Achvaich Burn	6	1.4
E/AC/01T	Achosnich burn	4.4	1.2
E/AB/02T	Astle Burn	0	0

Pearls in Peril

The *Pearls in Peril* project is an EU Life funded project aimed at safeguarding and increasing numbers of pearl mussels in Special Areas of Conservation as well as the species which they rely on to successfully complete their life cycle such as salmon.

There are a number of partners across the UK. Within the Kyle of Sutherland District the key partners are Rivers and Fisheries Trusts of Scotland, SNH and Forest Enterprise Scotland. Key tasks undertaken by Kyle Fisheries staff have included electro-fishing, pearl mussel surveys, delivery of Pearls in the Classroom at local primary schools and more recently drain blocking in support of habitat restoration on the Oykel catchment.

A key action delivered locally has been the felling of poorly performing commercial forestry and subsequent associated peatland restoration on over 40 hectares of land close to Benmore on the Oykel by Forest Enterprise Scotland. Local Environment Manager for Forest Enterprise Scotland, Neil McInnes, recently commented on work being undertaken in this area: 'Forest Enterprise Scotland delivered a programme of mire and riparian woodland restoration in the Shin and Oykel catchments to the tune of £110k. Further projects specifically aimed at reducing the impacts of forestry on catchments are being worked on with partners from across the northern periphery region. In October KoSFT provided advice to FES on the economic role of fisheries in Sutherland before interviews that were broadcast on Radio 4 and Radio Scotland'.

More actions will be delivered in 2016 by Kyle Fisheries staff including riparian tree planting, electro-fishing, pearl mussel surveys and delivery of Pearls in the Classroom. For more information about the project as a whole see: www.pearlsinperil.org.uk

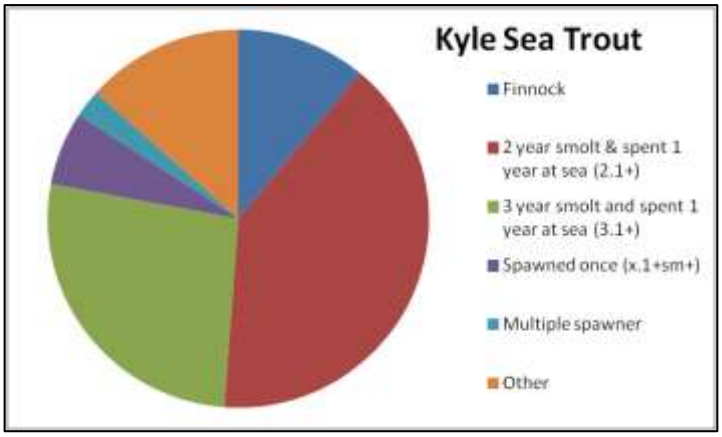
Kyle of Sutherland Fisheries Trust

The Kyle of Sutherland Fisheries Trust is a key partner in the Moray Firth Trout Initiative. Further information on the project can be found at: www.morayfirthtrout.org

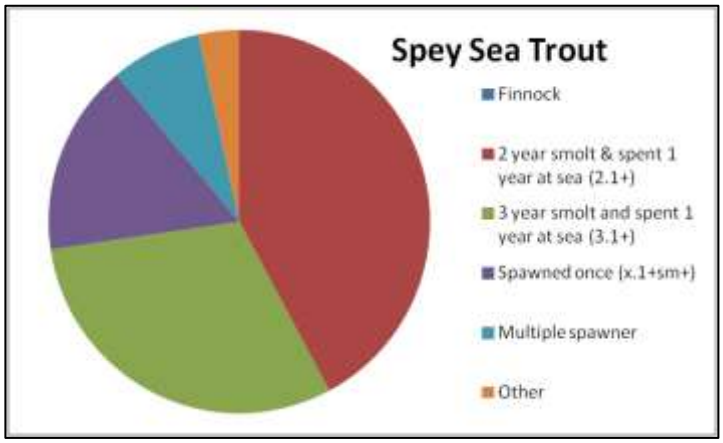
MFTI Trout Scale collection

With fewer commercial netting stations now operating for salmon and sea trout there is less opportunity for researchers to make significant collections of sea trout scales as compared to previous studies which relied on commercial netting stations and research seine netting for samples (Nall. 1930 *The life of the sea trout* 335). The data (growth & age composition) provided by scale collections are highly valuable in providing an insight into the life history patterns of different sea trout populations and can provide a form of monitoring for changes over time (Harris. 2004 *Sea Trout Bio Cons & Man'* 7:88*).* In response to declining rod and line catches in the Moray Firth region in North East Scotland, the Moray Firth Sea Trout Project (now *Moray Firth Trout Initiative [MFTI]*) began a scale collection programme using local volunteer anglers in 2008.

More than 120 volunteer anglers returned scales having sampled more than 1000 sea trout, of which 835 sets of scales met the requirements of this study. The data provides a broad summary of four Moray Firth populations, characterising their respective life histories and overall patterns (see below). The data also demonstrates change over time with the majority now smolting at 2 years compared to 3 years old in the 1930s (Nall. 1930 *The life of the sea trout* 335). This is presumably due to increased growth rate of parr in the river (ØKland 1993 *J Fish Biol* 42: 541–550). The volunteer programme contributes to a long term monitoring effort that is increasingly important in a time of record low sea trout catches, increasing concern over climate change and local marine industrial development, such as marine renewables.



The Kyle collection consists of 127 sets of sea trout scales primarily from the KOSAA beat but with some from the Lower Oykel and other rivers. The collection includes 11% finnock but is dominated by trout that have spent 1 year at sea (67%); 40% smolting at 2 years and 27% at 3 years. There is only a small proportion of repeat spawners with 6% having spawned once previously and 3% multiple times.



The large proportion of "Other" fish includes four 4yr old smolts & 12 trout that had spent two winters at sea before returning to spawn for the first time.

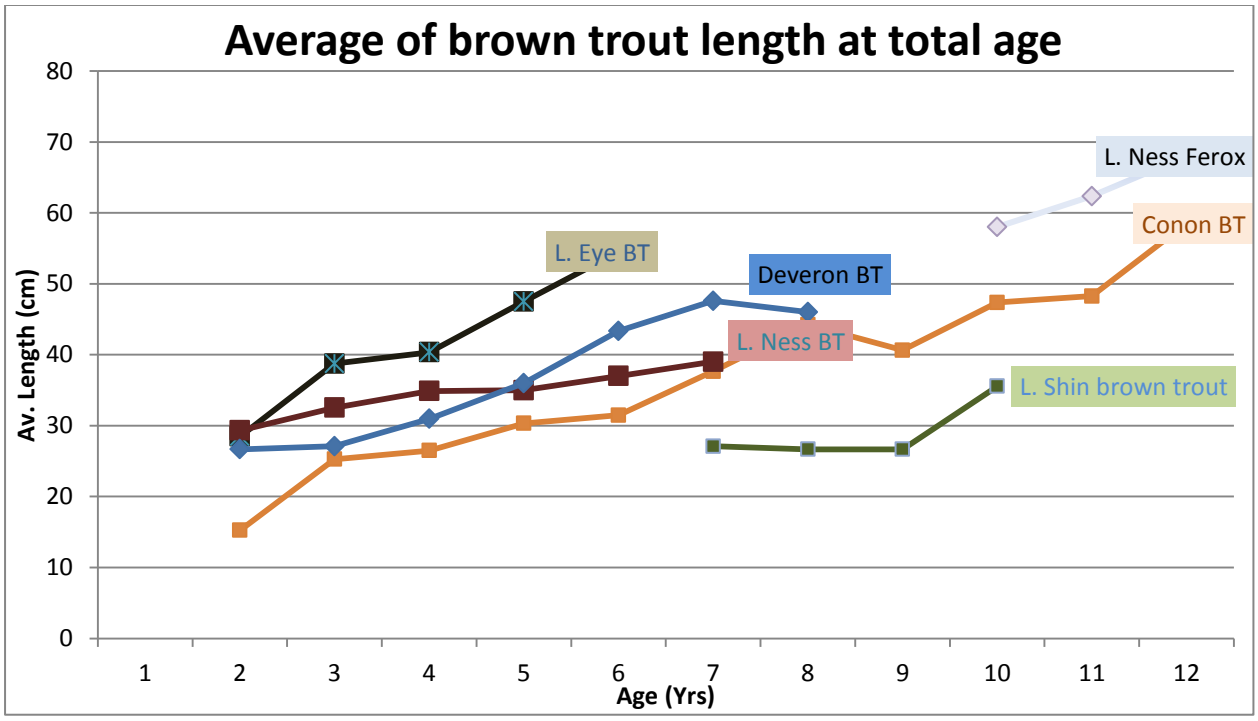
Notable fish in the collection : 54cm (3 ½lb) Oykel sea trout caught by ghillie Steven Mackenzie; smolted at 3 years and had spawned 3 times previously.

The Spey collection of sea trout scales consists of 377 sets of scales. In contrast to the Kyle there are no finnock but as with the Kyle the collection is dominated by trout (42%) that have smolted at 2 years old and then been at sea for 1 winter before being caught and sampled while returning to spawn for the first time. A significant proportion (30%) smolted at 3 years and before spending 1 year at sea. There is a larger component of repeat spawners than on the Kyle with 16% having spawned once and 8% multiple times.

Notable fish in the collection: 75cm (~10.5lb) sea trout, smolted at 2 years, spawned after 1 year at sea then 5 more times & was on route to spawn for the 6th time.

Brown Trout Scales

Over the last 3 years the MFTI has also begun to collect brown trout scales and has the beginnings of collections from Loch Shin and Loch Eye. The Lairg Angling Club have collected 18 sets of scales from Loch Shin trout ranging in size from 0.5lb - 10lb, with ages from 4-13 years. We also have a collection of 12 sets of scales from the popular trout fishery on Loch Eye. The trout sampled range from 0.4lb to 3lbin weight and the ages range from 2-4 years old. The relative size at total age of Loch Shin and Loch Eye trout are summarised alongside some other MFTI brown trout collections in Graph 3.



Graph 3 The average length of brown trout at total age when sampled. This illustrates the relatively fast growth rate and productive environment of Loch Eye compared to the slower growing trout in the less productive Loch Shin. Note: this graph only illustrates a relatively small sample and may not represent the entire population.

Sea trout rod & line catch

The catch return data collected by the Scottish government via Marine Scotland Science (previously Fisheries Research Services) is essential data in monitoring our sea trout catches and stocks. This is the only consistent and long term series set of sea trout data available and is the only measure of sea trout abundance in our rivers. Catch data is not a precise measure of abundance because catch rates can vary greatly according to fishing effort, run timing, environmental conditions and can often be inaccurate due to misreporting of catch figures but likely reflects long term patterns.

Overall patterns in Moray Firth Rod & Line catch have shown worrying declines over the last 15-20 years reaching the lowest combined catch on record in 2013. In contrast the Kyle District has been showing improved catches over the same period until 2012 when catches have begun to fall back. The Kyle has recorded consecutive lower catches over the last 3 years but they have remained above the long term average of 342. What is driving these trends and the contrasting patterns is unclear but it hopefully represents a long term improvement in sea trout abundance for Kyle waters and the recent down turn will be reversed. It seems likely that changes in the inshore marine environment where sea trout feed maybe partly responsible for these changes – see seine netting work below.

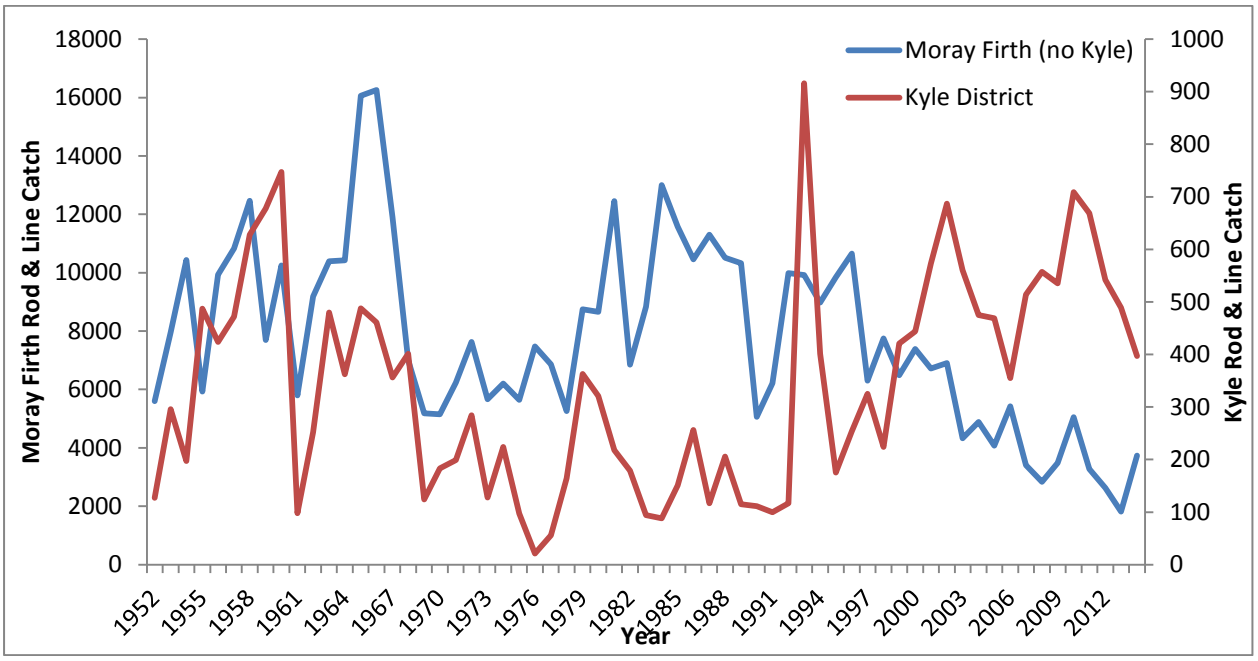


Figure 1 Kyle sea trout Rod & Line catch 1952-2014 compared to the combined Moray Firth Rod & Line catch for the same period. Data courtesey of MSS under Crown Copyright.

Kyle Seine Netting

There are many reports of changes in the marine environment as result of increasing sea temperatures and the effect this is having on the food chain and in particular on seabirds. It is possible that this is having an impact on the sea trout food chain. To try and improve our understanding of the marine environment and sea trout at sea we have begun an inshore seine netting programme to catch and sample sea trout and other marine species. We have conducted many successful pilot trials and are looking to expand into a more routine monitoring programme. MFTI purchased a specifically designed inshore monitoring seine net with a fine mesh designed to catch many inshore and juvenile species. We have now conducted two trials in the tidal waters at Bonar Bridge which is a challenging site due to the strong river and tidal flows. However we have succeeded in catching sea trout, finnock,

salmon parr, eels, flounder and stickleback. We plan to continue netting at Bonar Bridge as well as exploring some sites further out into the Dornoch Firth.

Marcus Walters, Project Officer

Smolt Trapping

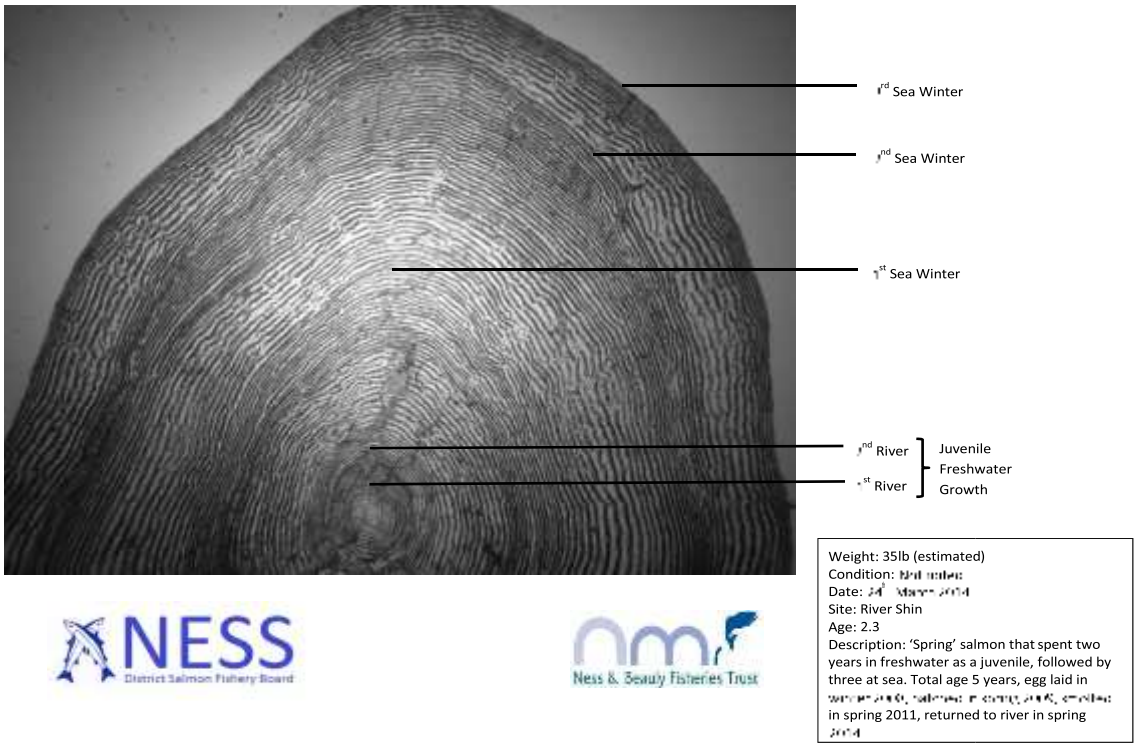
After a hiatus of two years due to the refurbishment of the turbines at Inveran Power Station, tagging of salmon smolts resumed during 2015. A proportion of smolts captured by rotary screw traps on the River Tirry and Fiag tributaries of Loch Shin were tagged and released back into their respective rivers a short distance downstream of the trapping sites. Other smolts were transported and released downstream of the dams on the Shin system. Tagged smolts are automatically detected when they pass through Shin Diversion Dam. The aim of the study is to assess if water management measures initiated by SSE during the smolt run period improves the numbers of smolts successfully managing to exit Loch Shin and subsequently access the marine environment.

Results from the 2015 smolt run were disappointing with less than 10% of tagged smolts being subsequently being detected at Shin Diversion Dam. This result coupled with historical results has led to the downgrading by SEPA of the status of a number of Upper Shin waterbodies and the inclusion of the area in the second iteration of the River Basin

Management Plan for potential remedial action. Discussions are currently ongoing with SEPA and SSE to establish the next steps in the process.

Oykel Scale Sampling

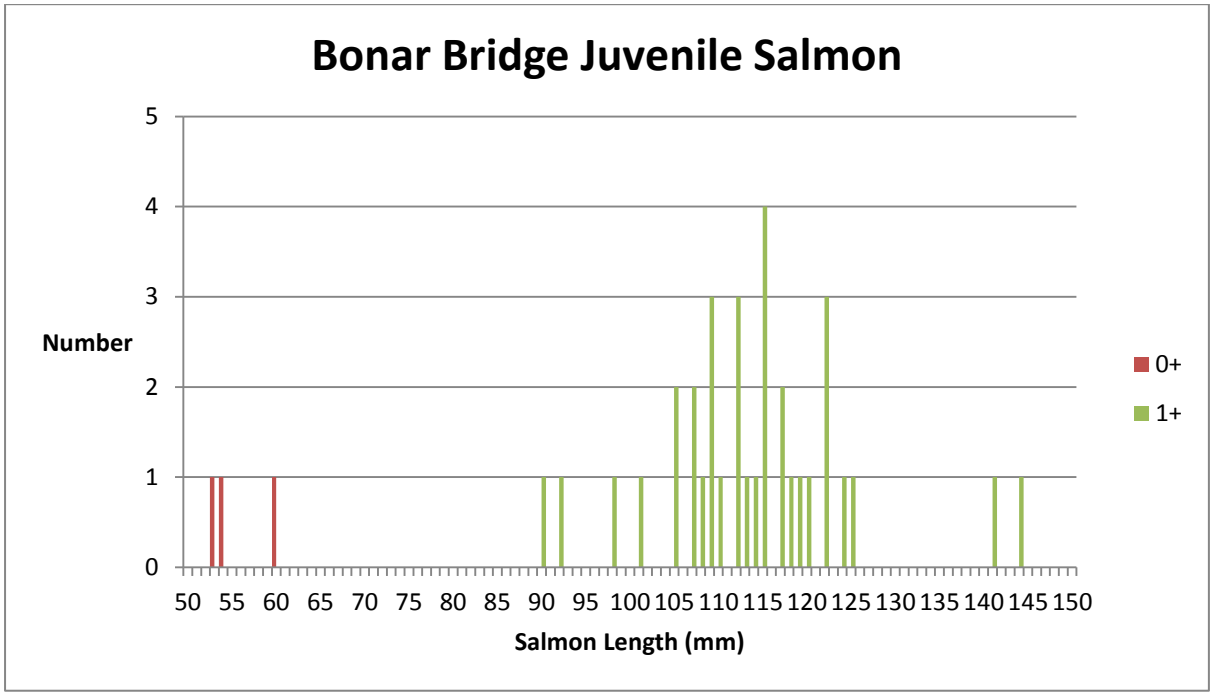
Salmon and sea trout scales can provide a host of important information on both individual fish and the age structure of fish populations of river systems. In recent years scales have been collected by rod and line anglers on the Lower Oykel. Kyle Fisheries staff have also collected scales from juvenile salmon during electrofishing. A report is currently in preparation with the twin aims of better assessing the age profile of the Oykel salmon stocks and better identifying areas of the catchment which have the oldest juvenile salmon present. It may be hypothesised that those areas which contain slow growing fish are most likely to produce early running salmon. This project has been sponsored by Mr Richard Sankey. The scale below is of a Shin fish weighing 35lb and was read by Chris Conroy of the Ness District Salmon Fishery Board. The associated text shows the levels of information that can be gathered from a single scale.



Kyle Scale Sampling

Trial seine nettings at Bonar Bridge have been undertaken in 2014 and 2015. The primary purpose of the nettings was to capture trout and sea trout but juvenile salmon have also featured as bycatch. In 2014 only salmon parr were captured due to the mesh size of the net but in 2015 the use of a new net resulted in a small number of salmon fry being captured. The use of tidal areas by juvenile salmon is well documented in regions such as Canada but is considered less important in Europe. However, the capture of juvenile salmon in the Kyle as

far downstream as Bonar Bridge has important management implications. In order to assess the age distribution of the captured salmon, scale reading was undertaken by Mr Bryce White. Only two age classes have been identified, namely young of the year (0+ salmon fry) and parr that have survived one winter (1+). Growth rate in the parr appears particularly high, one year old parr measuring upwards of 140mm would be considered unusual in this area. As with so many accidental discoveries we are now faced with many questions, such as where do these fry and parr originate from, what do they feed on and how do they cope with potentially changing salinity levels? The graph below illustrates the length distribution of the captured salmon fry and parr. Scale reading was sponsored by Dr Keith Williams.



Pearl Mussel Encystment

Kyle Fisheries staff assisted Elizabeth Clements of the University of Glasgow in catching juvenile salmon and trout within the Kyle of Sutherland catchment in order to assess levels of pearl mussel encystment. Some fish were found to be encysted in a number of the Kyle rivers which bodes well for future pearl mussel populations.

Temperature Network

Marine Scotland has established a temperature monitoring network utilising selected locations in Scotland. The Oykel has been included in the programme.

Kyle Fisheries staff assisted in the deployment of the temperature recorders during the summer and have subsequently downloaded the first few months of data at a number of sites. Many of the sites can be accessed on the way to or from routine monitoring electro-fishing sites. Data will be

Iain Malcom of Marine Scotland Science preparing to deploy a temperature logger.

made available to the Trust in the future. More information on the project can be found at: http://www.gov.scot/Topics/marine/Salmon-Trout-Coarse/Freshwater/Monitoring/temperature

Diebidale

Habitat and electro-fishing surveys undertaken by Kyle Fisheries have demonstrated that the dam at Diebidale Lochan, part of the River Carron system, constitutes a severe obstacle to fish migration. A successful application to SEPAs Water Environment Fund was made for the production of an optioneering and feasibility study into potential remedial action to improve fish passage. This resulted in the commissioning of a firm of consultants, Atkins, to undertake the study.

A report has now been received by the Trust outlining potential options and is now being considered. Special thanks go to Francis Hayes of SEPA and Rob Mitchell of RAFTS for help and guidance during the project.

Data Provision

Several requests were made to the Trust during the year for the use of historical data collected. In previous years requests have related to smolt and electro-fishing information. Very often requests for data are received via the Scottish Fisheries Co-ordination Centre, of which the Trust is a member. The main request in 2015 was for electro-fishing information to be utilised by Marine Scotland Science for an assessment of probability of capture at electro-fishing sites across Scotland.

Kyle of Sutherland District Salmon Fishery Board
Profit and Loss Account - Year Ending 31st May 2015

		2015		2014
Income		**£**		**£**
Fishery assessments		186,166		176,988
Annual mitigation payments		71,839		70,216
Netting buyout appeal		101,078		101,081
Other income				349
		359,083		348,634
Cost of sales		3,001		
Gross Profit		**356,082**		348,634
Overheads				
Personnel Costs	156,497		83,073	
Premises expenses	28,317		11,729	
Vehicles and Equipment	39,710		34,917	
Project & research costs	9,810		3,548	
General overheads	13,044		34,405	
Depreciation and bad debts	116,342		112,004	
Unrecovered VAT	5,736		4,995	
	369,456		284,671	
		(13,374)		63,963
Bank interest receivable		13		1
(Loss) / Profit for year		**(13,361)**		63,964

Kyle of Sutherland District Salmon Fishery Board
Balance Sheet - Year Ending 31st May 2015

		2015	2014
		£	**£**
Fixed Assets		246,116	358,937
Current Assets			
Debtors	1,809		28,131
Bank	53,230		45,919
	55,039		74,050
Creditors	185,749		304,220
Net current liabilities		(130,710)	(230,170)
Total assets less current liabilities		115,406	128,767
Capital & Reserves		115,406	128,767

Kyle of Sutherland Fisheries Trust
Statement of Financial Activities - Year Ended 31 May 2015

Income	Unrestricted	Restricted	Total Funds Year to 31 May 2015	Total Funds Period from 1/4/13 to 31/5/14
Voluntary income	44,388	48,645	93,033	77,476
Fundraising	2500		2,500	
Other	6437		6,437	2316
	53,325	48,645	101,970	79,792
Expenditure				
Costs of generating funds	(7,122)	(47,749)	(54,871)	(52,965)
Governance	(15,401)		(15,401)	(17,818)
Other	(8,292)		(8,292)	(5,493)
	(30,815	(47,749)	(78,564)	(76,276)
Net Incoming resources for the year	22,510	896	23,406	1,200
Total funds brought forward	63,030	70,134	133,164	131,964
Total funds carried forward	85,540	71,030	156,570	133,164

Kyle of Sutherland Fisheries Trust
Balance Sheet - 31 May 2015

		2015 £	2014 £
Fixed Assets		71,287	3,123
Current Assets			
Debtors	1,932		36,655
Bank	84,775		110,566
	86,707		147,221
Creditors	(1,424)		(17,180)
Net current assets		85,283	130,041
Total assets less current libilities		156,570	133,164
Funds			
Restricted Income Funds		71,030	70,134
Unrestricted Income Funds		85,540	63,030
		156,570	133,164

Kyle of Sutherland Development Trust

The Trust is developing four significant projects which will benefit the local community and those visiting the area.

The Trust would welcome **YOUR** support on one or more of the projects.

Falls of Shin Community Project

The new vision for the site, expected to open in 2017, includes;

- a 60 seat cafe
- exhibition and interpretation area
- children's play area
- events plaza
- leaping salmon
- gift shop featuring local produce

Ardgay Regeneration Project

In partnership with Highland Council the Lady Ross site vision will bring about a transformational change to the centre of Ardgay and gateway to Sutherland.

- village square
- barn conversion; office suites and tourist information point
- housing
- self build plots

Community Broadband

The Trust will deliver a project to bring broadband to all areas currently not online or with a minimal connection.

Tulloch Road Housing Development

To meet some of the areas housing need the Trust will build a terrace of three one bedroom houses.

If you would like to support a project or find out further information please contact the Trust.

Development Manager: Helen Houston, 01863 766190 OR development@kyleofsutherland.co.uk

Trust Chairman: Pete Campbell, 07770 831790 OR pete.campbell5@btinternet.com