

NESS & BEAULY FISHERIES TRUST

River Beauly Catchment Electro-fishing Results 2014

January 2015






A Brace of Trout Caught During a Routine Survey of the Upper Belladrum Burn

A document prepared by the Ness & Beauly Fisheries Trust

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1 INTRODUCTION

In the summer and autumn of 2014, the Ness and Beauly Fisheries Trust (NBFT) completed a total of 22 fully quantitative electro-fishing surveys of the Beauly catchment. The prolonged drought during the summer months enabled Trust staff to survey the mainstem of the River Beauly. Two of the four mainstem surveys were made up of sites previously identified by the Trust between 2007 and 2009. The remaining sites were new areas that were deemed 'fishable' due to the River running at compensation level for such a prolonged period. With the exception of the upper Bruiach Burn site, each of the eighteen routine monitoring sites was revisited.

2 ELECTRO-FISHING METHODOLOGY

2.1 FULLY QUANTITATIVE SURVEYS

Both back-pack and bank-side electro-fishing equipment was utilised during the 2014 season. Fully quantitative surveys were carried out and recorded in accordance with the protocols established by the Scottish Fisheries Co-ordination Centre (SFCC). Where practicable, survey areas were isolated by placing stop nets at the upstream and downstream extent of the length to be fished in order to prevent fish from evading capture and escaping from the area.

The survey area was fished through in a methodical and thorough manner with fish being retained in water filled buckets. Captured fish were lightly anaesthetised in order to facilitate species identification and accurate fork length measurements (mm). In most cases, the area was fished through a second and third time in an attempt to remove the majority of fish from the area and to provide a depletion curve for each species. By applying stream dimensions such as wetted width along with numbers of fish captured in successive fishing runs to a statistical formula, an estimate in to fish density (number of fish/100m², the Zippin value) was calculated.

3 DATA ANALYSIS

In their treatment of fully quantitative survey data, NBFT have historically ranked fish densities under the classification scheme described by the SFCC. NBFT now have a sizeable data set in terms of fish densities within the Beauly catchment. Analysis of these data has enabled NBFT to produce their own classification scheme based purely on data gathered from past fish surveys in the Beauly

district. Fish densities were classified by splitting the results of all fully quantitative surveys since 2006 in to quartiles. The quartiles of a set of values are the three points that enable data sets to be divided in to four groups, in this case: poor, moderate, good and excellent. Fish densities with a value of zero were omitted from analysis and were simply classed as absent. **Table one** below shows the classification scheme for the Beauly catchment.

Table 1 – Ness and Beauly Fisheries Trust Juvenile Salmon and Trout Density Classification Scheme

Salmon Fry (No/100m ²)	Classification	Salmon Parr (No/100m ²)	Trout Fry (No/100m ²)	Classification	Trout Parr (No/100m ²)
0	Absent	0	0	Absent	0
0.1 – 15	Poor	0.1 - 10	0.1 - 2	Poor	0.1 - 1
15.1 – 52	Moderate	10.1 - 21	2.1 - 8	Moderate	1.1 - 4
52.1 – 88	Good	21.1 - 37	8.1 - 24	Good	4.1 – 11
88.1 – 398	Excellent	37.1 - 58	24.1 - 219	Excellent	11.1 - 60

4 RESULTS

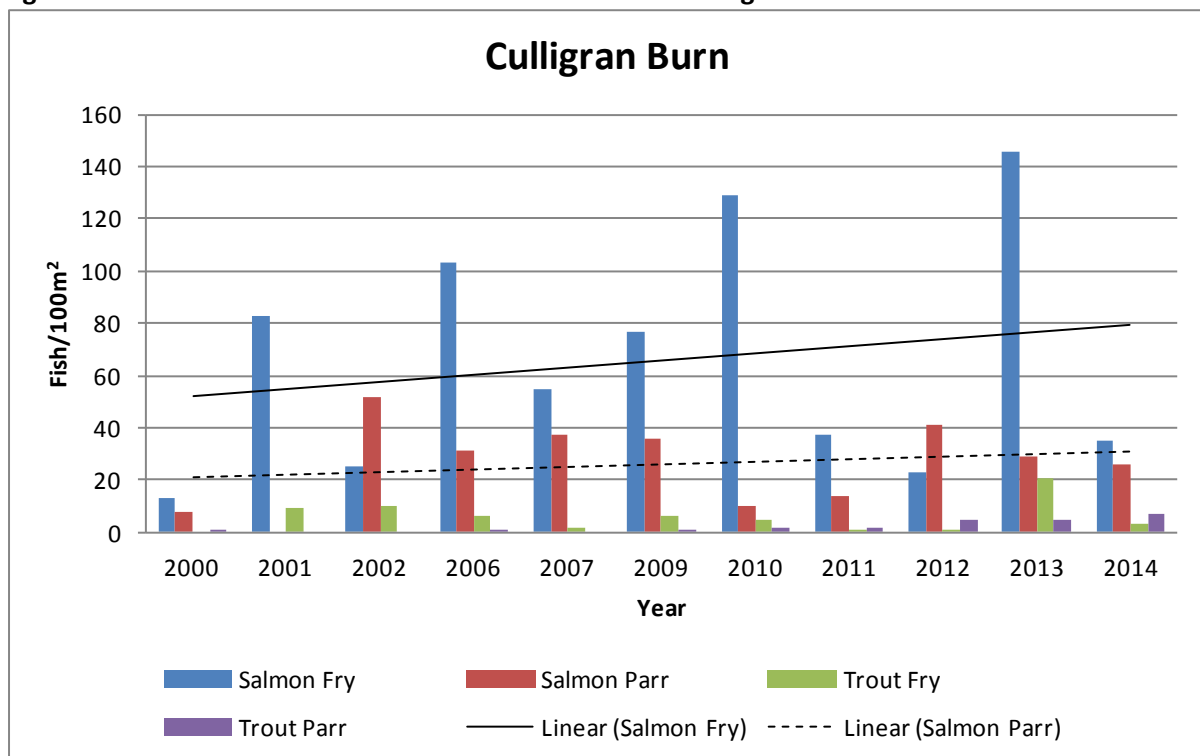
A summary table outlining the 2014 electro-fishing results are presented in **Appendix 1** and a visual representation of site locations is presented in **Appendix 2**

4.1 STRATHFARRAR

4.1.1 Culligran Burn (CUL1)

Salmon fry density in 2014 was the second lowest since NBFT began surveys in 2006. Prior to 2006, surveys were carried out by the Spey Research Trust and Galloway Fisheries Trust. The result of 35/100m² indicates less spawning activity in the vicinity of the site compared to previous years; particularly 2013 and 2010 (see **Figure 1**). Although low when compared to previous years, salmon fry density would still be classed as ‘moderate’ and within its historical range (13/100m² – 129/100m²) but below the average density of 66/100m². With the exception of 2010 and 2011, salmon parr density has remained more stable and appears to be on an upward trend. The 2014 parr density of 26/100m² would be classed as ‘good’ and is well within the historic range for the site (0/100m² – 52/100m²) and an average density for the site (mean = 26/100m²). Juvenile trout remain stable at low densities.

Figure 1 – Juvenile Salmon and Trout Densities from the Culligran Burn



4.1.2 Uisge Misgeach (UM5 & UM6)

Two sites were the subject of fully quantitative surveys in 2014; hereby referred to as upper and lower. As previously reported, the available habitat at the upper site is more suited to older year classes of salmon parr with flow types tending towards the higher velocity categories of riffle/run and large substrate. With the exception of 2009, density of salmon fry at the upper site has been typically low achieving classifications of ‘poor’ (see **Figure 2**). 2014 was no exception with only a single fry captured. Conversely, salmon parr were captured in good numbers achieving a density classification of ‘good’ though there was a perceived drop in numbers from 2013. The lower site, with shallower water depth and finer substrate is excellent salmon fry habitat. The 2014 fry density of 46/100m² is the second lowest result since 2006 and would be classed as ‘moderate’ (see **Figure 3**). It would appear that there was less spawning activity in this section of the Uisge Misgeach despite reasonable numbers of adult salmon ascending Beannacharan Dam in 2013.

Figure 2 – Juvenile Salmon and Trout Densities from the Upper Site of Uisge Misgeach

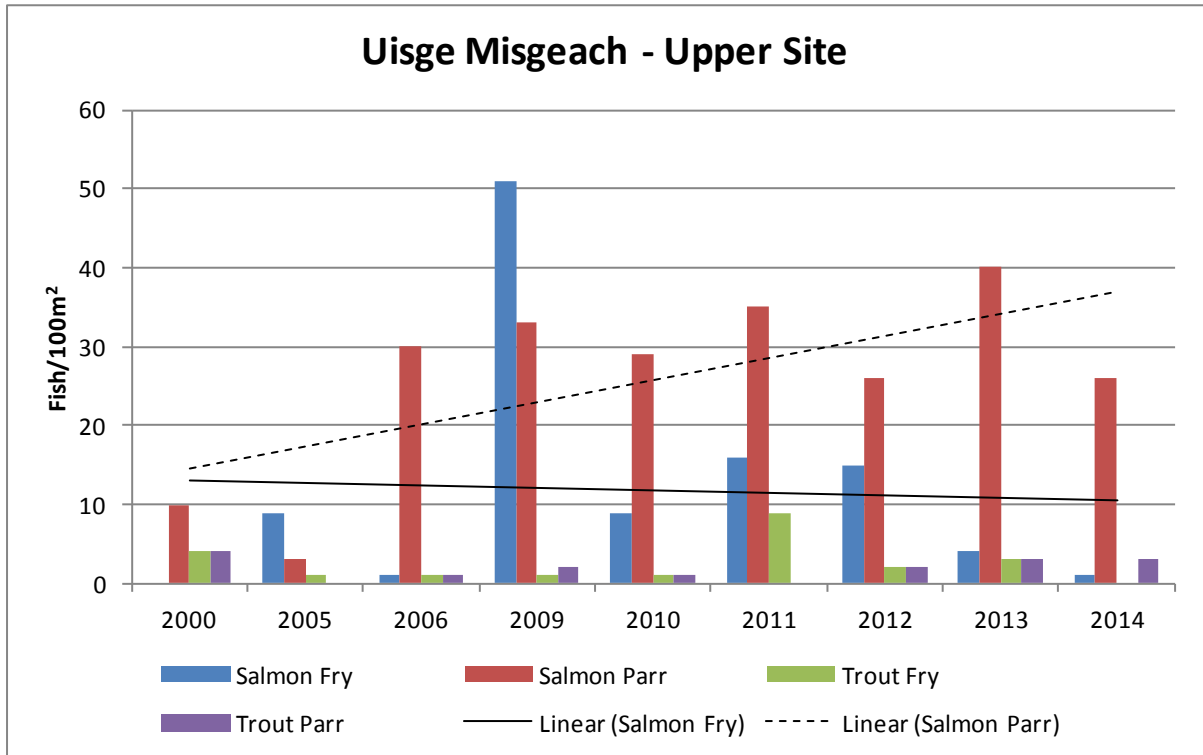
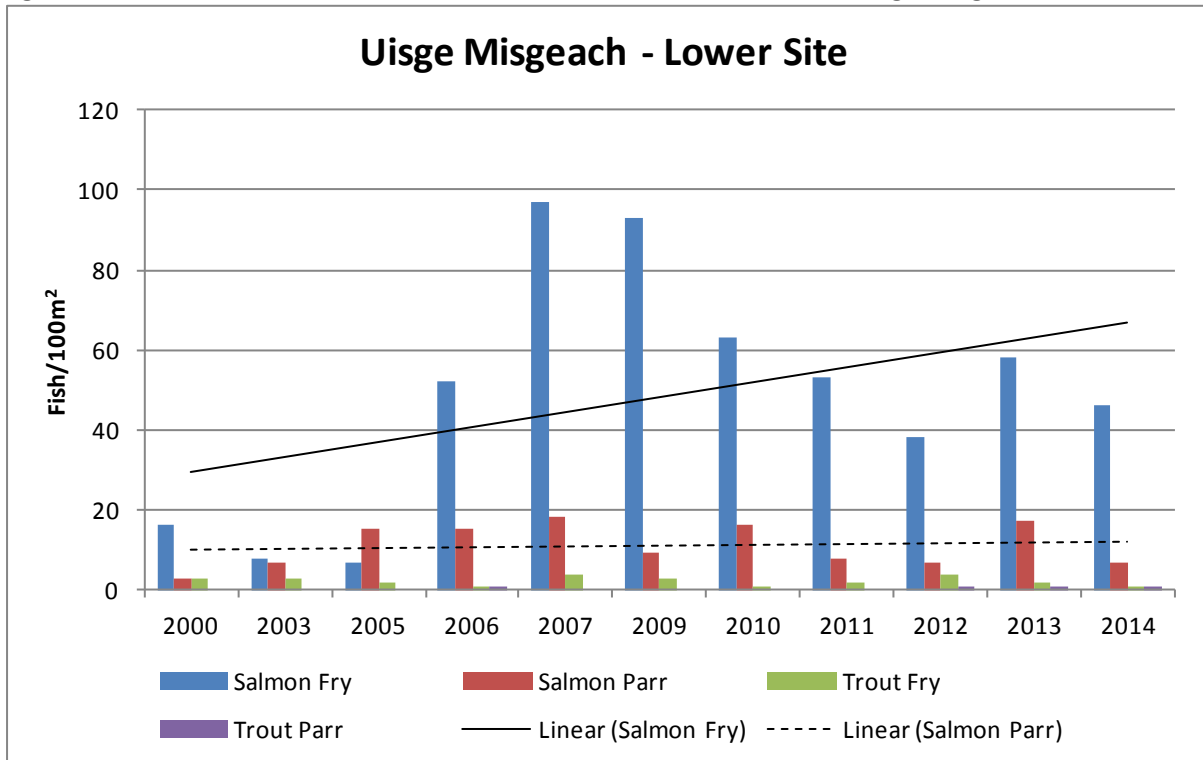


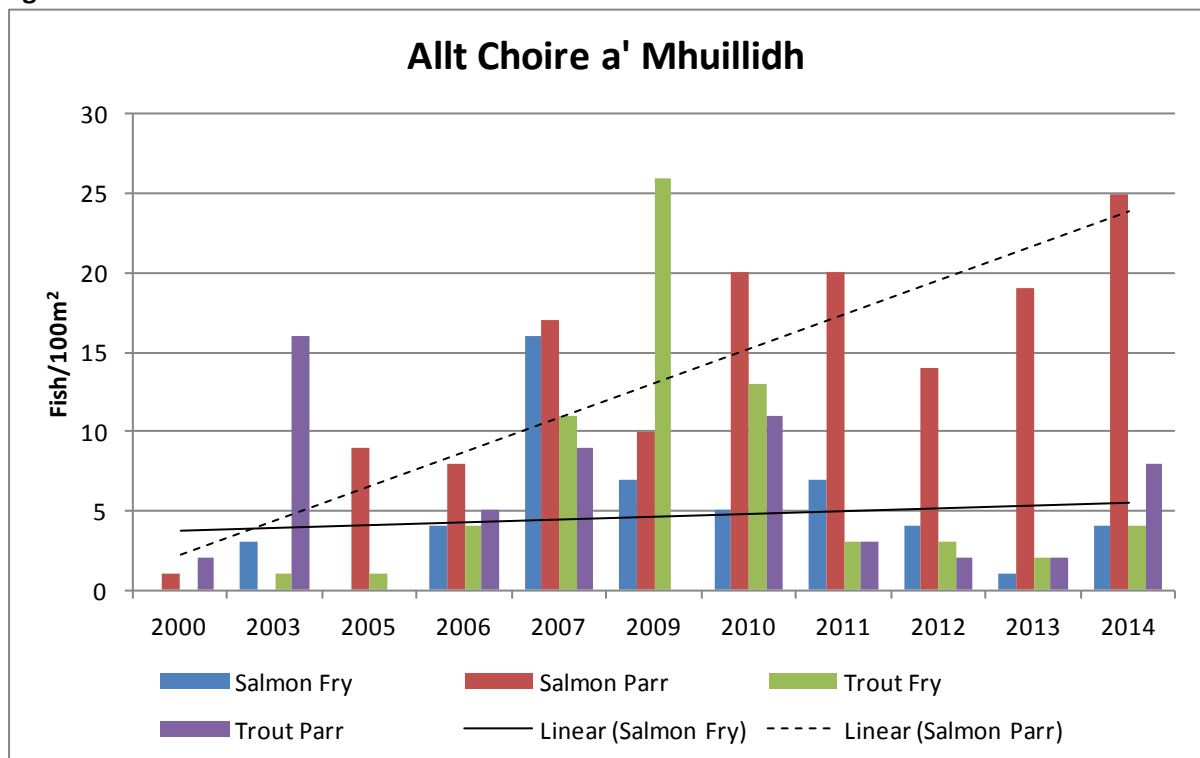
Figure 3 – Juvenile Salmon and Trout Densities from the Lower Site of Uisge Misgeach



4.1.3 Allt Choire a’ Mhuillidh (ACM2)

The available habitat at the Allt Choire a’ Mhuillidh site presents excellent habitat for older year classes of juvenile salmon and trout with excellent instream and bankside fish cover. Having been re-watered following a joint agreement between SSE and Braulen Estate, salmon parr densities have gone from strength to strength, with the 2014 result (25/100m²) being the highest since surveys began (see **Figure 4** below). Spawning habitat is restricted to the lower 200m of the burn and this reflected in the consistently low salmon fry densities. Fry (4/100m²) and parr (25/100m²) densities would be classed as ‘poor’ and ‘good’ respectively. Although trout were less well represented in 2014 in comparison to previous years, fry and parr would still achieve density classifications of ‘moderate’ and ‘good’ respectively.

Figure 4 – Juvenile Salmon and Trout Densities from Allt Choire a’ Mhuillidh

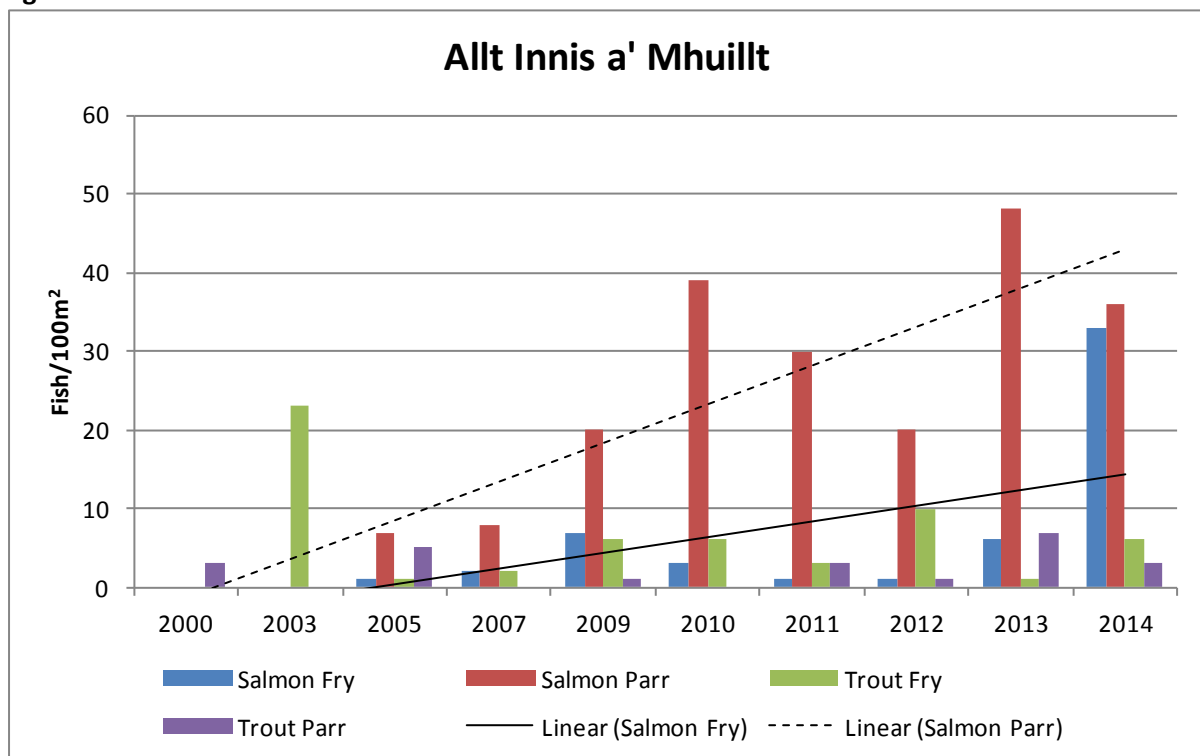


4.1.4 Allt Innis a’ Mhuillt (AIM2)

Allt Innis a’ Mhuillt is similar in nature to Allt Choire a’ Mhuillidh in that spawning areas are more or less restricted to the lower third of the accessible habitat. The Allt Innis a’ Mhuillt site is situated approximately 200m downstream of an impassable falls that negates the passage of migratory

salmonids. The substrate matrix in this area is typically composed of large cobbles and boulder though small pockets of smaller cobbles and gravel are also present. Previous results have highlighted a lack of spawning activity in the vicinity of the site (see **Figure 5**). However, the limited spawning habitat available at the site was reasonably well utilised in the winter of 2013 with a recorded salmon fry density of 33/100m². In terms of salmon parr, there appears to be a strong upward trend in densities. The 2014 result of 36/100m² is the third highest since surveys began. Salmon fry and parr would be classed as moderate and good respectively.

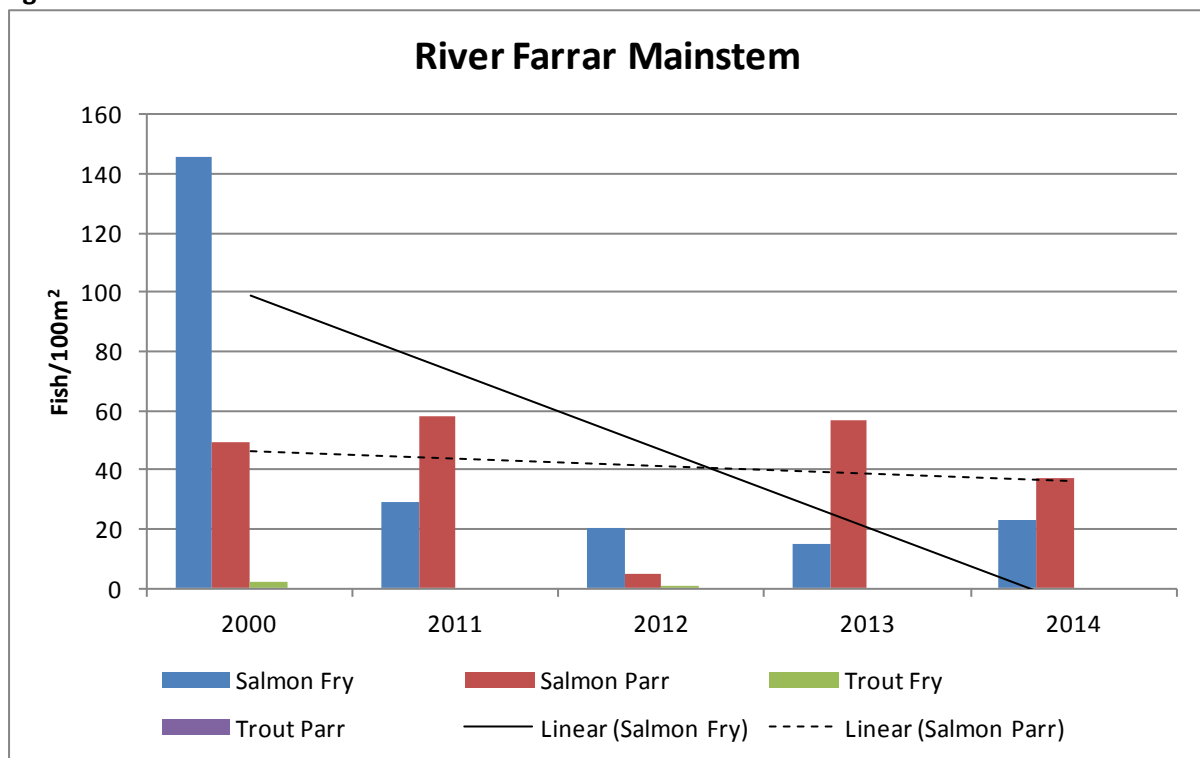
Figure 5 – Juvenile Salmon and Trout Densities from Allt Innis a' Mhuillt



4.1.5 River Farrar Mainstem (FAR1)

With the exception of 2000, salmon fry density has remained extremely stable at a mean density of 21.8/100m². The 2014 result (23/100m²) is greater than those generated from the 2012/2013 surveys and would be classified as moderate. The very high density of salmon fry from the 2000 has never been repeated in successive surveys and raises questions over the utilisation of mainstem spawning habitat. To this end, NBFT intend to increase coverage of the main river through a combination of area and time based surveys. Salmon parr were less well represented in 2014, though numbers are still very encouraging with the density of 37/100m² being classed as ‘excellent’.

Figure 6 – Juvenile Salmon and Trout Densities from the River Farrar Mainstem Site



4.1.6 Deanie Burn (DEA1)

Despite containing ostensibly good juvenile salmon habitat, salmon fry have not been captured in the last four surveys whilst parr were observed at a low density (2/100m²) in 2011. In their report to the Beauly District Salmon Fishery Board in 1990, AURIS Environmental recorded a Ph value that would negatively impact on the development of salmon ova. This led to NBFT carrying out sampling to investigate the presence/absence of acid intolerant invertebrate groups. Results of these surveys revealed the most common taxonomic groups of invertebrates, including acid intolerant species.

A recommendation by Aquaterra Ecology suggested water quality testing of the burn before, during and after high water events. This was carried out periodically during 2012, with Ph levels were found to be extremely close to neutral on each occasion. To rule out the possibility that the burn is suffering from periodic acidic ‘flushes’, it is recommended that the Ph of the water is monitored over the course of a year. Instruments to monitor water quality parameters are readily available, though the price of purchase, installation and upkeep of such a system is likely to be prohibitive. Furthermore, it is possible that the cause of the problems is that flows in to Loch Beanacharan are insufficient to attract adult spawners to the burn.

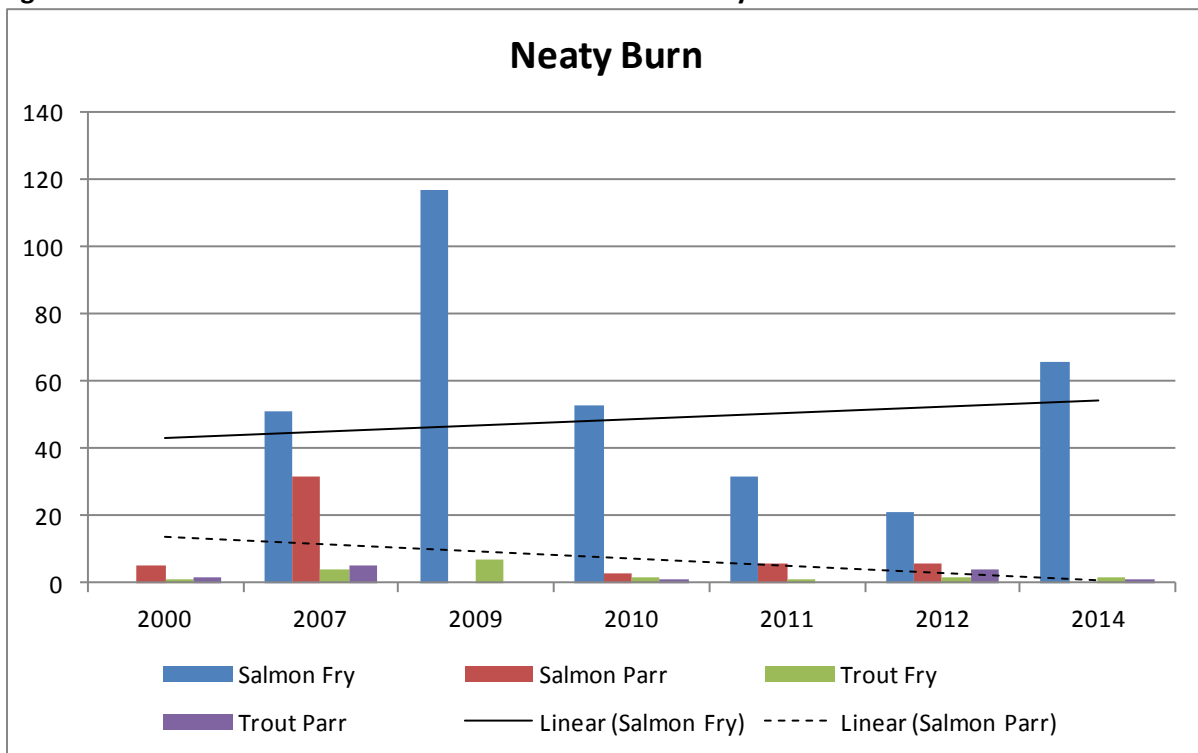
There is a need for further investigation and to this end, NBFT intend to produce a project brief to investigate these issues and attempt to restore a self sustaining population of salmon to the Deanie

Burn.

4.1.7 Neaty Burn (NEA1)

As previously reported, the Neaty Burn is heavily abstracted in its headwaters. With the exception of 2007, salmon parr densities are often very low. It is possible that during low flows, salmon parr leave the Neaty Burn for the relative sanctuary of the mainstem. 2014 was a very dry summer and this could go some way in explaining the absence of salmon parr from the most recent survey. In terms of salmon fry, there appears to be a degree of annual fluctuation in densities. The 2014 survey generated a fry density of 66/100m² and would be classed as ‘good’. Densities of juvenile trout remain stable in very low numbers.

Figure 7 – Juvenile salmon and trout densities from the Neaty Burn



4.2 LOWER BEAULY

4.2.1 Bruiach Burn (BRU2)

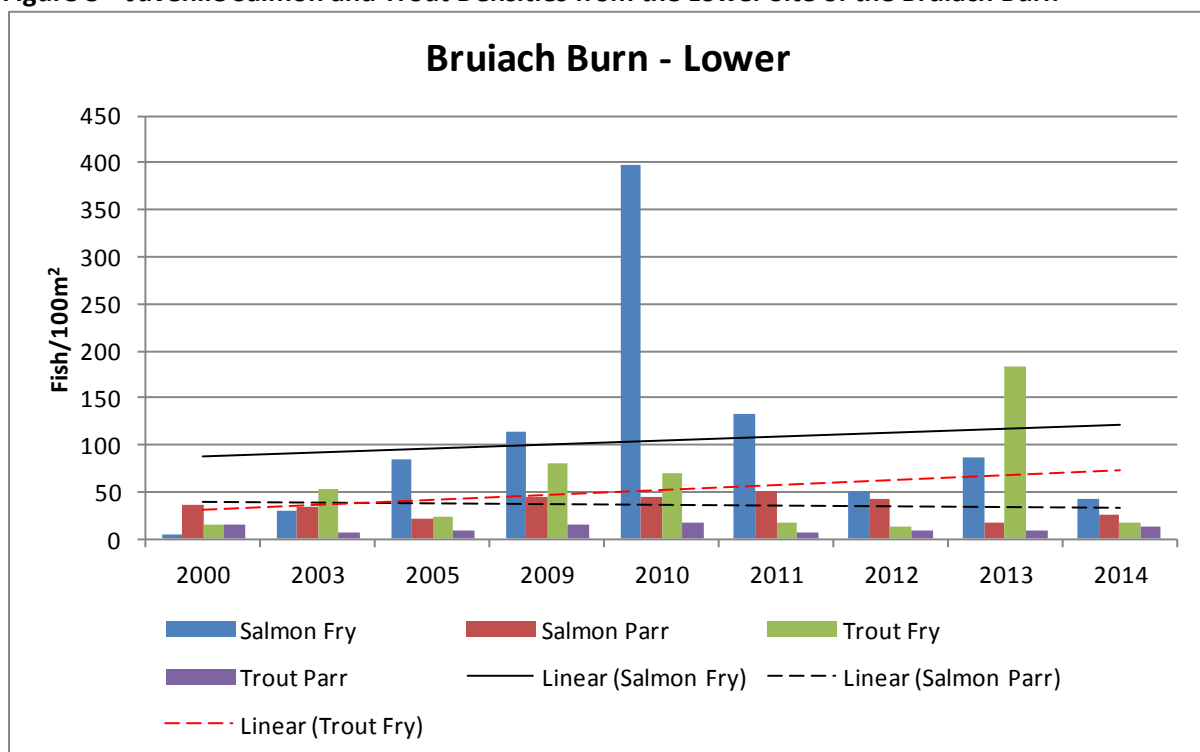
Salmon fry density in 2014 (42/100m²) was the third lowest since 2005 indicating an under-

utilisation of spawning habitat within the vicinity of the site. Despite this, **Figure 1** would indicate an overall increase in fry density since 2000.

In terms of salmon parr, a similar result came from the 2014 survey with the result being the third lowest since 2000. Salmon fry and parr would be classed as moderate and good respectively. In terms of juvenile trout, there was 91% reduction in fry density. The very high fry result seen in 2013 is likely to be attributed to an increase in sea trout spawning in the vicinity of the site in the winter of 2012. It would appear less sea trout spawned in this area of the burn in 2013. Conversely, trout parr density has remained remarkably stable since 2000 (range = 6/100m²-18/100m²). Fry and parr would be classed as good and excellent respectively.

NBFT were unable to gain access to the upper site in 2014, so inferences on the extent to which the available habitat was utilised along its length cannot be ascertained. NBFT hope to gain access in 2015 and repeat timed surveys to investigate the natural distribution of juvenile salmonids.

Figure 8 – Juvenile Salmon and Trout Densities from the Lower Site of the Bruiach Burn



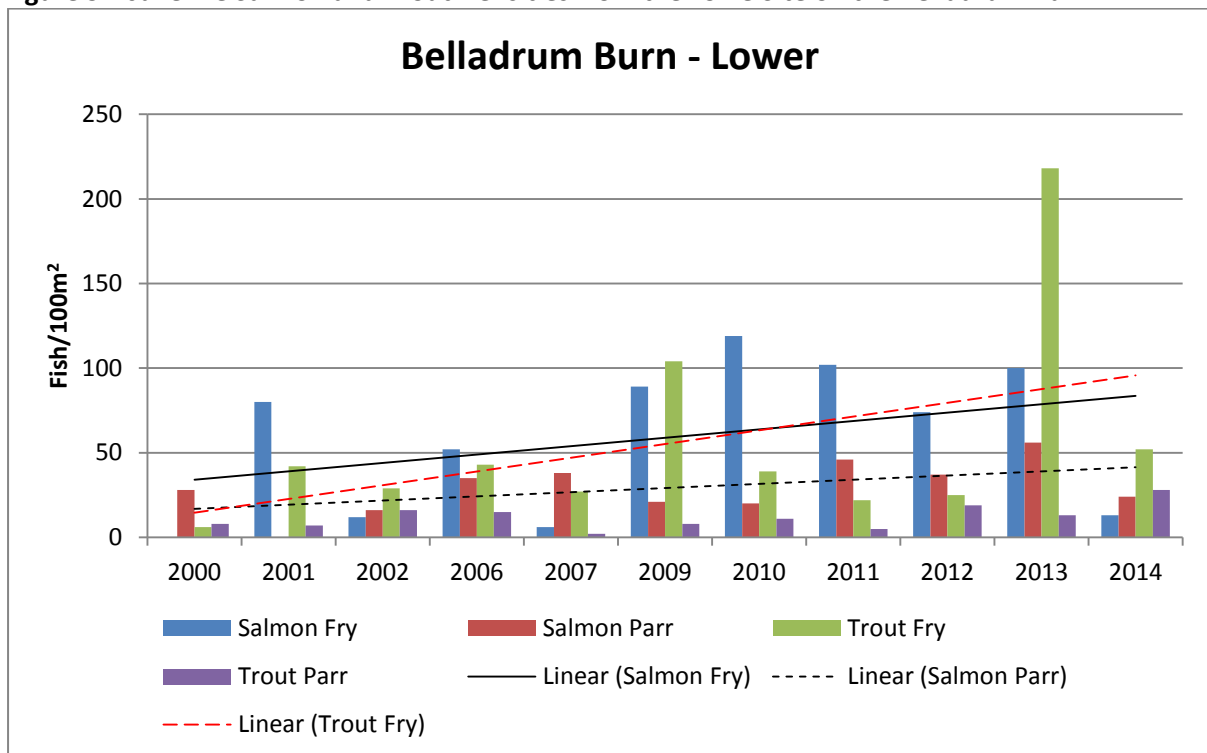
4.2.2 Belladrum Burn (BEL3)

Since 2009, the lower site on the Belladrum Burn has consistently provided ‘good’ or ‘excellent’ salmon fry densities. It was therefore disappointing to see a decline of 87% between 2013 and 2014.

The lower site is located approximately 800m downstream of a waterfall (known locally as the ‘Pot and Kettle’ and represents the upper limits in which returning adults can naturally access. Spawning media is present along much of the burn’s length, however it would appear that it was under utilised in the winter of 2014. Salmon parr density (24/100m²) was below the mean for the site (29/100m²) but well within its historical range of 0/100m² to 56/100m². Fry and parr would be classed as ‘poor’ and ‘good’ respectively.

Like the Bruiach Burn site, the lower Belladrum site also saw reduction in trout fry density between 2013 and 2014. Although not as pronounced, the 76% reduction in fry density could be largely attributed to a reduction in sea trout spawning in that section of the burn. Conversely, trout parr were very well represented in the 2014 survey (28/100m²) with the result being the highest since surveys began. Fry and parr would both be classed as excellent under the NBFT classification scheme.

Figure 9 – Juvenile Salmon and Trout Densities from the Lowe Site on the Belladrum Burn

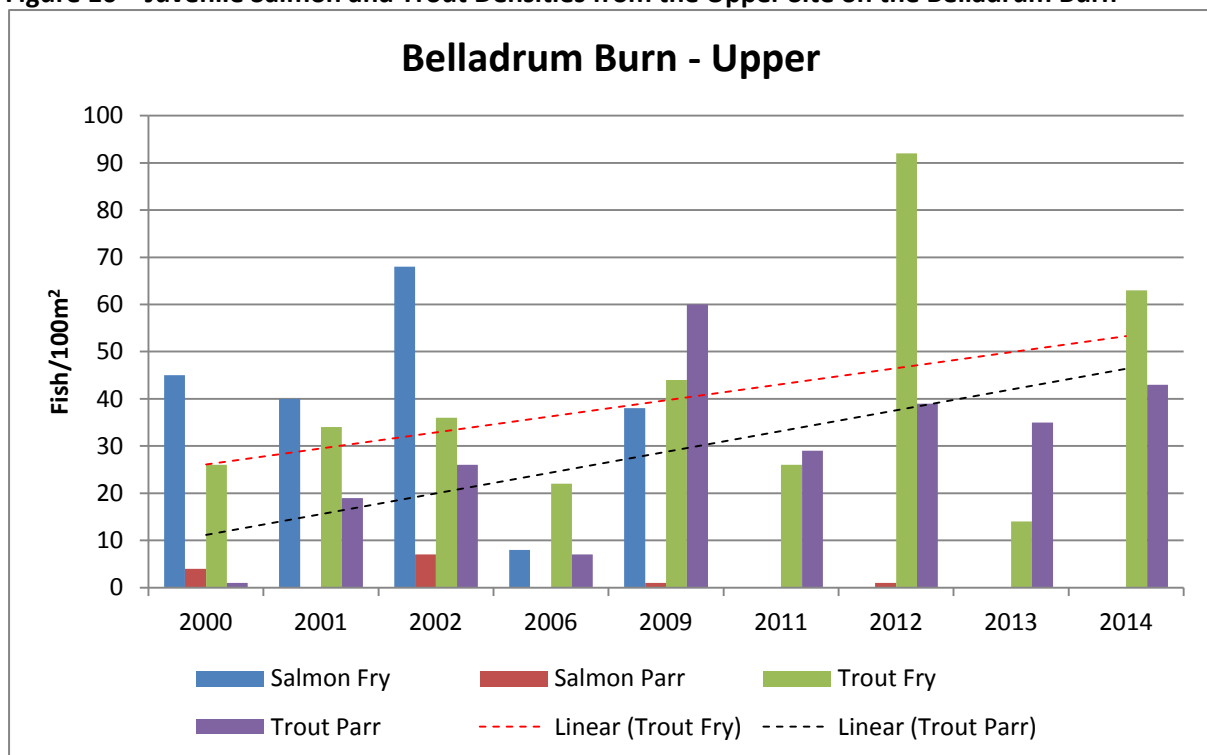


4.2.3 Belladrum Burn (BEL4)

Time delineated surveys carried out between 2010 and 2012 showed that a waterfall, known as the ‘pot and kettle’, acted as a partial barrier to salmon migration. Before 2012, the falls were thought

to be a total barrier to salmon migration. No naturally spawned juveniles (the upper Belladrum was stocked until 2009) had been caught in surveys executed upstream of the aforementioned falls. The capture of a single salmon parr in 2012 indicated that under certain flow conditions, salmon may be able to ascend the aforementioned waterfall. However, since then no salmon have been captured in the upper reaches of the Belladrum Burn (see **Figure 9**). Interestingly, adult sea trout were captured upstream of the falls in 2010, indicating that they may ascend the falls more readily than adult salmon. The available habitat at the site is highly conducive to trout production, with its excellent bankside fish cover and small gravel substrate. It would appear that the habitat is well utilised at the upper site as shown by the results in **Figure 9**. Both trout fry and parr densities would be classed as excellent.

Figure 10 – Juvenile Salmon and Trout Densities from the Upper Site on the Belladrum Burn

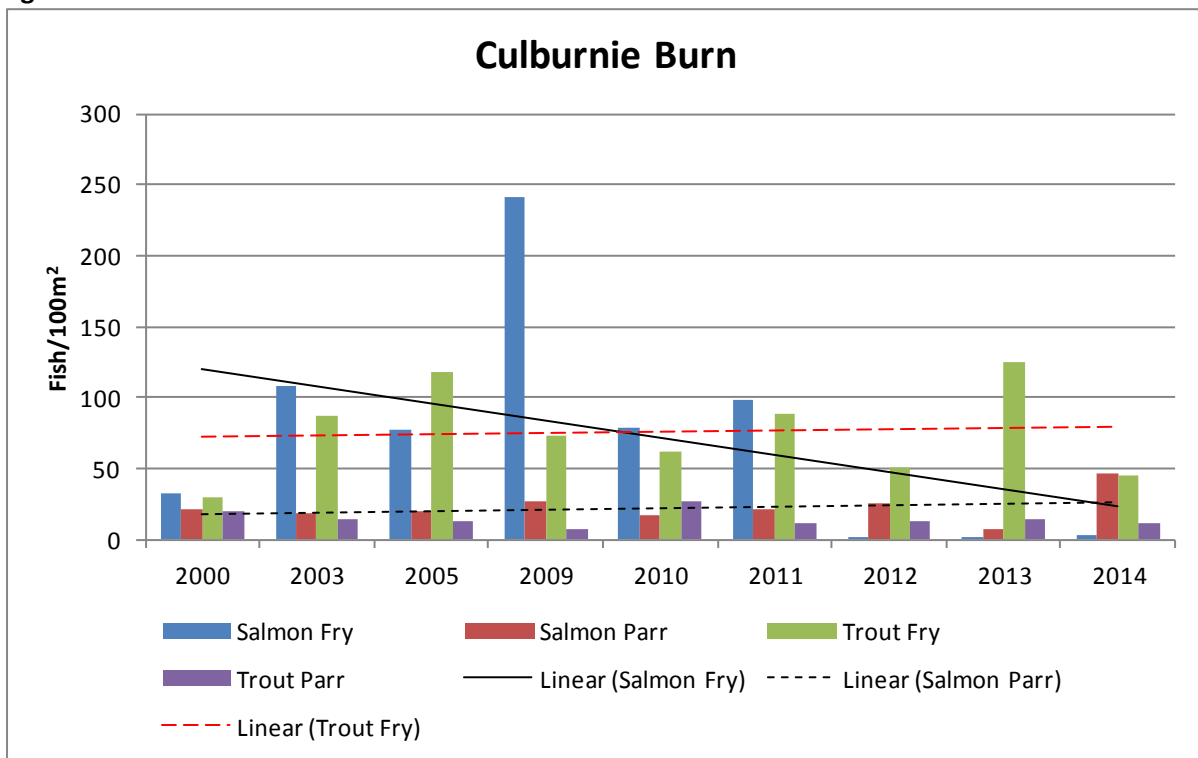


4.2.4 Culburnie Burn (CULB1)

The Culburnie Burn was stocked annually until 2009 by the Lower Beauly Fishing Syndicate. Up until that point, salmon fry and parr densities were typically classed as ‘good’ or ‘excellent’. Since 2012, salmon fry density has declined significantly, whilst trout fry numbers appear to be increasing (see **Figure 10**). The precise reason for this is unknown, but it is possible that the Culburnie Burn was an important sea trout spawning burn prior to stocking and the trout population is increasing after being ‘displaced’ by hatchery reared salmon. It is recommended that a number of time delineated

surveys are carried out along the burn’s accessible length on an annual basis to gauge levels of spawning success by salmon. It is interesting to note that the 2014 salmon parr density was the highest ever recorded on the Culburnie Burn and that this followed two years of very low fry counts. Salmon parr are known to travel great distances within catchments; particularly during the autumn. The high parr density is possibly an artefact of a number of Bruiach Burn parr occupying the available habitat in the Culburnie Burn. Salmon fry and parr would be classed as ‘poor’ (3/100m²) and ‘excellent’ (46/100m²) respectively, whilst both age classes of trout would be classed as ‘excellent’.

Figure 11 – Juvenile Salmon and Trout Densities from the Culburnie Burn



4.2.5 River Beaully Mainstem

Drought conditions during the summer months gave the Trust an opportunity to carry out quantitative surveys on the mainstem of the River Beaully. In total, four surveys were carried out on the lower River and an attempt was made to survey areas of fry, parr and mixed juvenile habitat.

4.2.5.1 Downie Beat (BE1 & BE2)

Starting in the lower reaches of the river, two surveys took place on the Downie Beat. This area

(downstream of the Minister's Pool) would be regarded as good mixed juvenile habitat. It was therefore disappointing to see a 'poor' density of salmon parr (6/100m²). Precise reasons for this result are unknown and it recommended that this site be surveyed annually (river levels permitting) to reveal any long term trends. Salmon fry were also recorded during the survey at a density of 22/100m² and would be classed as 'moderate'. The second Downie Beat site was situated upstream of the Fly Pool; an area that represents excellent spawning and fry habitat with a substrate dominated by pebbles/small cobbles and flow types that tended towards the higher velocity category of run/riffle. Salmon fry were in abundance at this site (132/100m²). It is clear that the spawning media in this area was well utilised in the winter of 2013. Low numbers of parr (7/100m²) were present at the site, though this was to be expected given the paucity of habitat suitable to sustain older year classes of salmon.

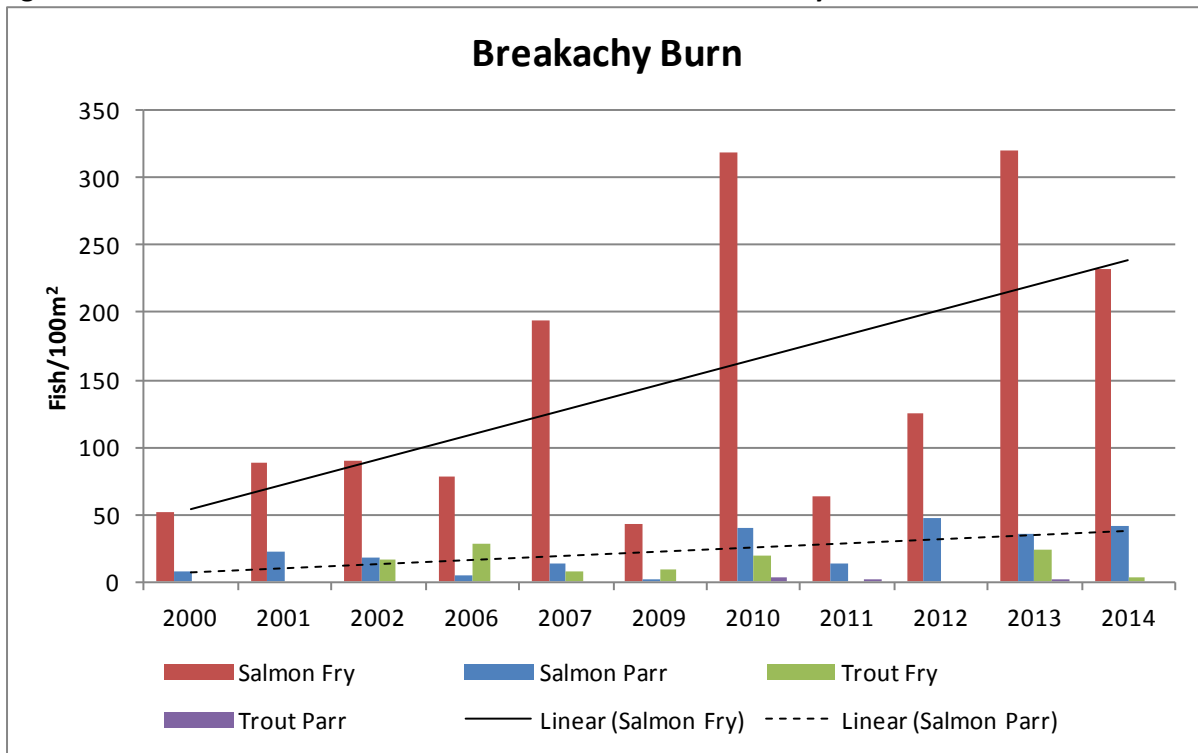
4.2.5.2 Falls Beat (BE3 & BE4)

The two surveys undertaken on the falls beat focussed primarily on parr habitat. The lower site; downstream of the Cruives revealed 'good' numbers of salmon parr (24/100m²), whilst fry were found in low numbers (12/100m²) and would be classed as 'poor'. The upper site; situated upstream of the New Pool contained an 'excellent' density of parr (45/100m²), whilst fry were found in numbers (59/100m²) that would achieve a density classification of 'good'. It would appear that the limited spawning media present in this section of the river was well utilised in the winter of 2013.

4.3 BREAKACHY BURN (BRE2)

Much of the middle River Beauly is characterised by deep, sluggish water. As such, surveys have concentrated on the main tributary: the Breakachy Burn. Although the 2014 salmon fry density was lower than 2013 (see **Figure 11**), NBFT would still class the density of 232/100m² as 'excellent'. Parr density was similarly encouraging (41/100m²) and would also be classed as 'excellent'. The Breakachy Burn is the only sizeable middle river tributary and its importance cannot be understated.

Figure 12 – Juvenile Salmon and Trout Densities from the Breakachy Burn

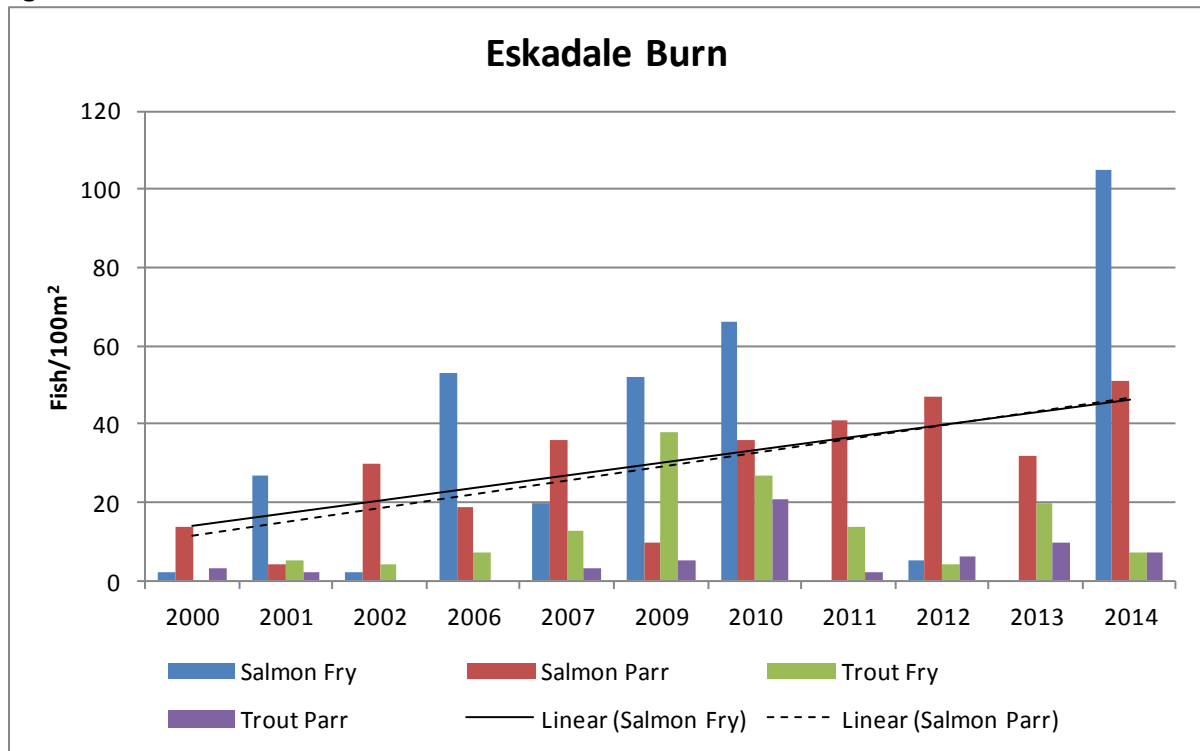


4.4 UPPER RIVER BEAULY

4.4.1 Eskadale Burn (ESK1)

Following three years of low/absent fry densities (see **Figure 12**) it was heartening to see a vast increase in fry numbers. The 2014 density of 105/100m² would be classed as ‘excellent’. Although fry counts were very low between 2011 and 2013, parr density has remained quite stable. The most recent survey generated a parr density of 51/100m²; the highest ever recorded at the site and would be classed as ‘excellent’.

Figure 13 – Juvenile Salmon and Trout Densities from the Eskadale Burn

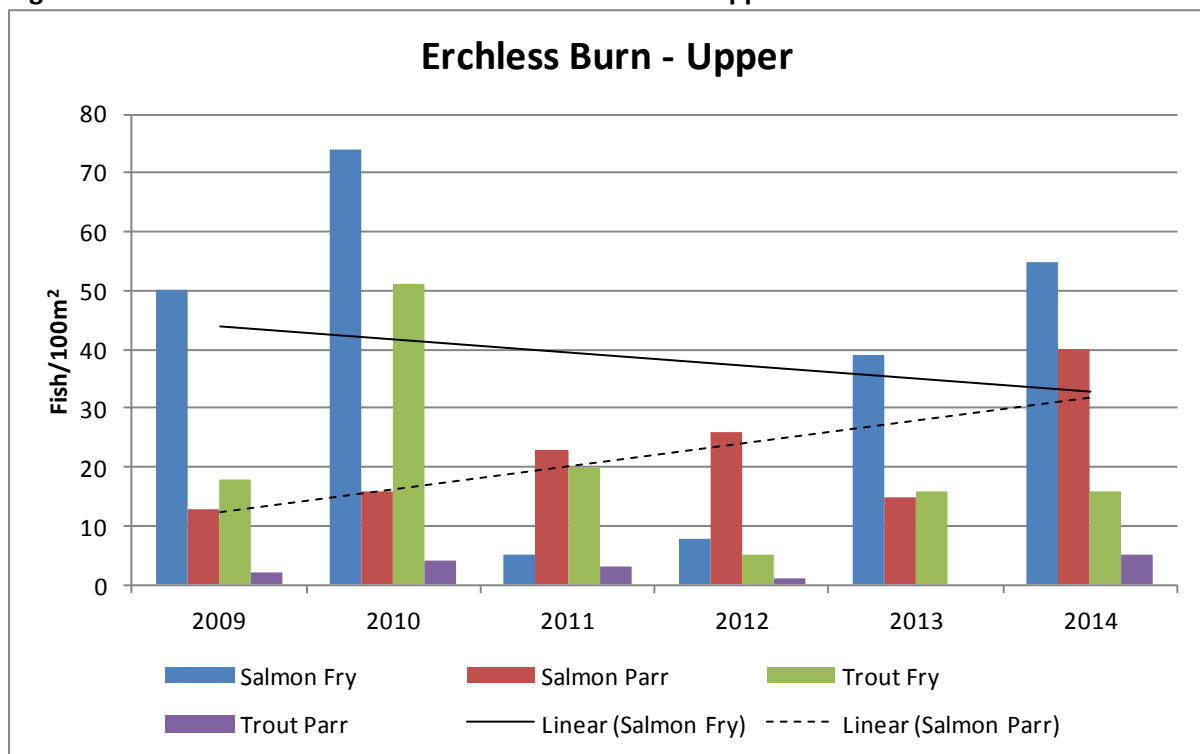


4.4.2 Erchless Burn (ERC2)

The upper site on the Erchless Burn has been surveyed every year since 2009. Following encouraging salmon fry densities in 2009 and 2010 (see **Figure 13**), numbers appeared to drop away in 2012 and 2013. The 2014 fry density is the second highest recorded for the site; a good result given that spawning media is not bountiful in the vicinity of the site. Salmon parr numbers have remained more stable with densities ranging from 13/100m² to 24/100m² between 2009 and 2013. The 2014 result of 40/100m² is the highest ever recorded for the upper site. Salmon fry and parr densities would be classed as ‘good’ and ‘excellent’ respectively.

It would appear that the Erchless Burn also supports a good population of trout, though it remains to be seen whether the juveniles caught during surveys are the offspring of sea trout or non-migratory brown trout. Fry and parr results from 2014 would both be classed as ‘good’.

Figure 14 – Juvenile Salmon and Trout Densities from the Upper Site on the Erchless Burn

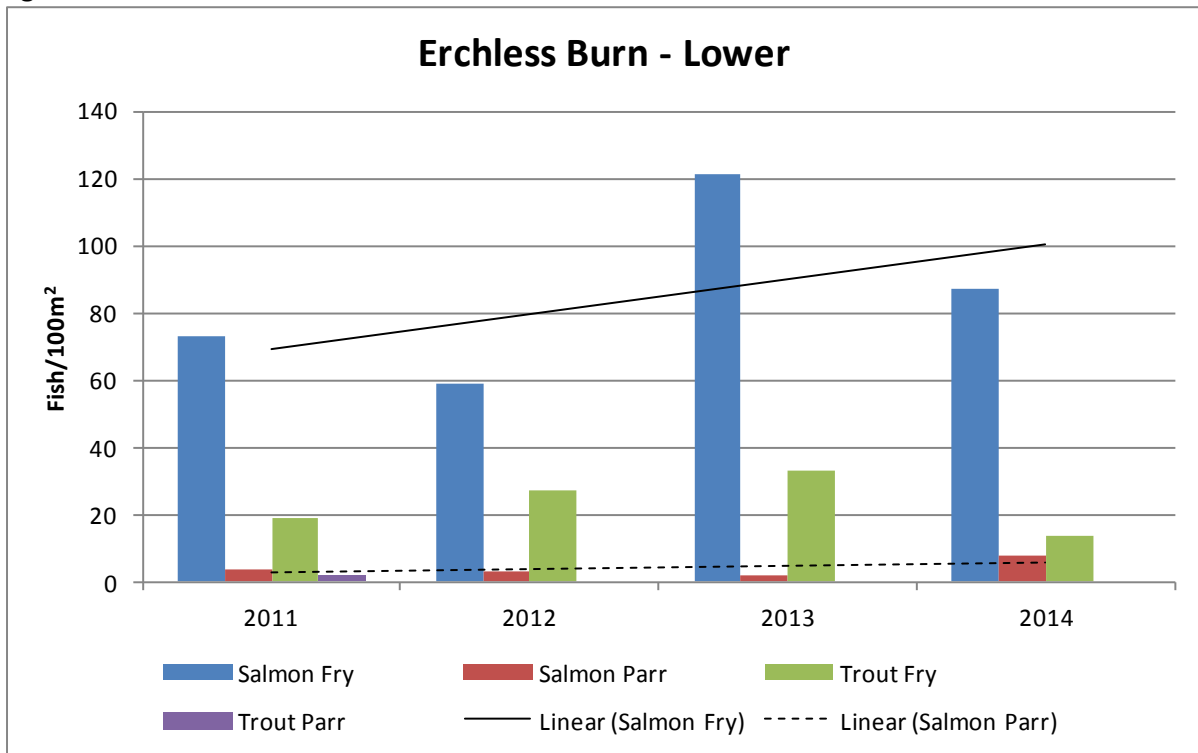


4.4.3 Erchless Burn (ERC1)

The lower site was added to the suite of routine monitoring sites in 2011 to monitor the efficacy of the removal of large timber blockages that were acting as partial barriers to fish migration. Removal of the blockages uncovered large areas of excellent spawning media. It would appear that high water events have drastically changed the characteristics of the lower site, with an increase in water depth and overall size of substrate. The perceived mobility of the substrate may mean that the burn is susceptible to redd ‘wash out’. Extreme caution should therefore be employed when interpreting results and when comparing results between years.

Although salmon fry density dropped from 121/100m² in 2013 to 87/100m², the result would still be classed as ‘good’. Prior to 2014, parr habitat was lacking at the lower site and this was reflected in the consistently low parr densities (see **Figure 14**). There was a small increase in parr numbers in 2014 (from 2/100m² in 2013 to 8/100m² in 2014), this could possibly be attributed to the influx of larger substrate increasing instream fish cover. However, the density would still be classed as ‘poor’.

Figure 15 – Juvenile Salmon and Trout Densities from the Lower Site on the Erchless Burn

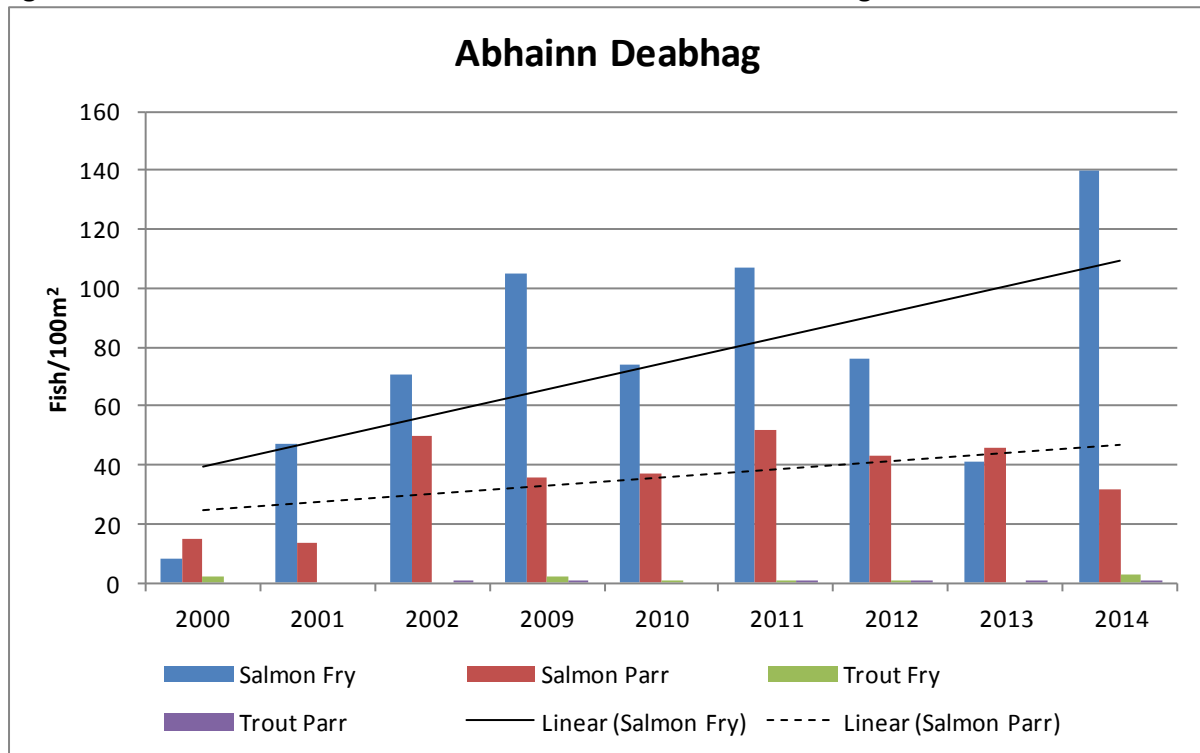


4.5 RIVER GLASS AREA

4.5.1 Abhainn Deabhag (AD3)

Extensive time delineated surveys carried out between 2010 and 2012 showed that Abhainn Deabhag (upper River Glass) is very well populated with juvenile salmon. The main Abhainn Deabhag site is situated near to the village of Tomich and consistently produces ‘good’ or ‘excellent’ densities of salmon fry. The 2014 survey was no exception, with the fry result (140/100m²) being the highest ever recorded (see **Figure 15**). Salmon parr density has remained quite stable between 2002 and 2014 (32/100m² to 50/100m²). Although the 2014 density (32/100m²) is the lowest since 2002, it would still be classed as ‘good’.

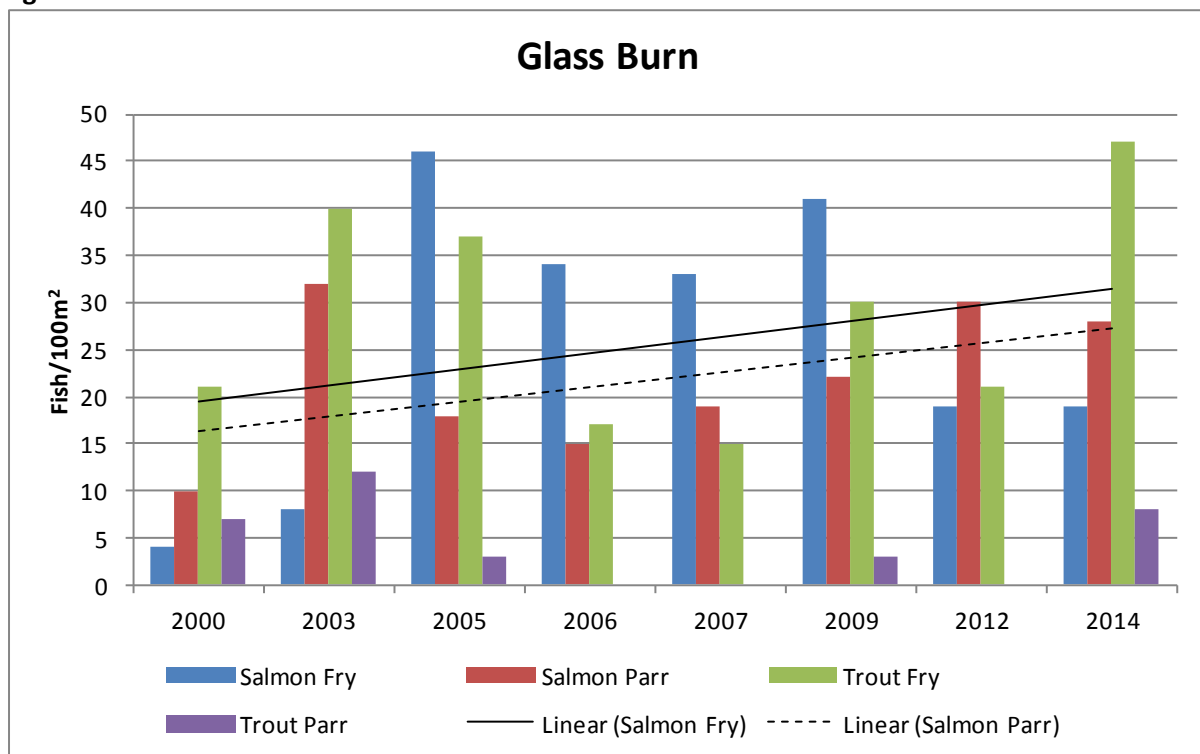
Figure 16 – Juvenile Salmon and Trout Densities from Abhainn Deabhag



4.5.2 Glass Burn (GLB1)

The Glass Burn is one of very few notable spawning tributaries of the River Glass. **Figure 16** clearly shows the variation in salmon fry density between years. The most recent survey generated a salmon fry density of 19/100m²; towards the lower end of the historical range for the site and would be classed as ‘moderate’. With the exception of the 2000 survey, salmon parr density has typically been classed ‘moderate’ or ‘good’. The 2014 parr result is towards the upper range for the site and is amongst the highest ever recorded on the Glass Burn. The density of 28/100m² would be classed as ‘good’. Results from surveys have also shown the Glass Burn to be an important spawning tributary for trout. Both fry and parr well represented from the most recent survey and would achieve density classifications of ‘excellent’ and ‘good’ respectively.

Figure 17 – Juvenile Salmon and Trout Densities from the Glass Burn



5 CONCLUSIONS AND RECOMMENDATIONS

Results from the Farrar catchment were typically within their historical range for each site. With the exception of Allt Innis a’ Mhuillt, salmon fry densities were towards the lower end of the range. It would appear there was less spawning activity in the vicinity of the sites. Salmon parr densities were largely encouraging. There is a paucity of information on the utilisation of spawning habitat on the mainstem of the River Farrar. It is recommended that area based surveys (where practicable) are increased on the mainstem.

Salmon fry and parr densities on the lower site of the Bruiach Burn were towards the lower end of the historical range though densities would still be classed as moderate and good respectively. Access to the upper site was not possible in 2014. NBFT intend to resolve this issue for 2015 and also repeat a series of timed surveys to investigate the extent of spawning success along the burn’s length. There also appeared to be a reduction in trout recruitment in 2014 though fry and parr densities would still be classed as good and excellent respectively. A similar picture was seen on the lower Belladrum Burn site with vastly reduced numbers of salmon fry though the 2014 result is still within the historical range for the site. The 2014 salmon parr density would be classed as good. The upper Belladrum Burn site continues to produce excellent densities of juvenile trout. It remains to

be seen if these fish are the progeny of sea trout. Salmon were absent from the upper site due to the presence of a natural waterfall downstream of the site.

The precise reason for the apparent decline in salmon spawning activity in the area near the Culburnie Burn site remains unknown. This report has proposed that the Culburnie Burn was primarily a sea trout burn and that the historical stocking of salmon possibly displaced the trout population. To assess this, it is recommended that a series of timed surveys take place along the burn's accessible length to establish levels of spawning success by salmon. Salmon parr appear to utilise the available habitat very well and the 2014 result would be classed as excellent. Juvenile trout were well represented in the 2014 survey and both age classes would be classed as excellent.

Drought conditions throughout much of the summer period allowed the Trust to survey four locations on the mainstem of the lower River Beauly. With the exception of the site on the lower Downie Beat, densities were at an acceptable level for the habitat fished. The most notable result was the excellent density (45/100m²) of salmon parr from the upper Falls Beat site.

The Breakachy Burn continues to produce excellent densities of juvenile salmon. The 2014 fry density is amongst the highest ever recorded in the Beauly catchment.

Salmon fry density on the Eskadale Burn increased greatly following very low counts between 2011 and 2013. Parr density has remained relatively stable and the most recent survey generated a density that would be classed as 'excellent'.

Although not as productive as some lower tributaries, the Erchless Burn is an important upper River spawning area for both salmon and trout. The salmon parr habitat at the upper site is very well utilised. In terms of the lower site, it would appear that the bed in this section is prone to substantial gravel movements under high water conditions. This has changed the nature of the site considerably and caution should be used when comparing results between years. With this said however, salmon and trout densities are encouraging. Given the influx of a larger substrate to the lower section of the burn, it is entirely possible that salmon and trout parr densities may increase over time.

The Abhainn Deabhag site once again revealed encouraging densities of juvenile salmon. The available habitat in this section of the river is obviously well utilised as is the vast majority of the accessible habitat.

The Glass Burn is one of few notable tributaries of the River Glass. Densities of salmon fry and parr have typically been classed as good/moderate. The prevalence of juvenile trout from past and present surveys also shows the burn as an important spawning and nursery area for trout. It remains to be seen whether the trout capture in the Glass Burn are the progeny of resident or migratory trout.

APPENDIX 1 – Summary Table of 2014 Results (Bracketed Values are the Mean Density for each Site)

River/Burn	Site Code	Site Info	Salmon Fry/100m ²	Salmon Parr/100m ²	Trout Fry/100m ²	Trout Parr/100m ²
Culligran burn	CUL1	Site adjacent to gate on LB	35 (66)	26 (26)	3 (6)	7 (2)
Uisge Misgeach	UM6	Site adjacent to bridge ruins	1 (12)	26 (26)	0 (2)	3 (2)
Uisge Misgeach	UM5	Bottom of site at ford US of bridge	46 (48)	7 (11)	1 (2)	1 (0.4)
Allt Choire a' Mhuillidh	ACM2	Bottom of site 5m US of bridge	4 (5)	25 (13)	4 (6)	8 (5)
Allt Innis a' Mhuillt	AIM2	Top of site is dog leg left turn US of tress	33 (5)	36 (21)	6 (6)	3 (2)
River Farrar	FAR1	Large riffle DS of Allt Innse Creagaich	23 (47)	37 (41)	0 (1)	0 (0)
Neaty Burn	NEA1	Bottom of site approx 5m US of Farrar	66 (49)	0 (7)	2 (3)	1 (2)
Bruiach Burn	BRU2	Top of site 8m DS of road bridge in Kiltarlity	42 (105)	26 (36)	17 (53)	13 (11)
Belladrum burn	BEL3	Top of site 10m DS of bridge	13 (59)	24 (29)	52 (55)	28 (12)
Belladrum burn	BEL4	Top of site at root ball on RB	0 (21)	0 (1)	63 (40)	43 (29)
Culburnie Burn	CULB1	Top of site at root ball on RB. DS of road bridge	3 (71)	46 (23)	45 (76)	12 (15)
River Beaully	BE1	Large riffle DS of Minister's Pool	22	6	0	0
River Beaully	BE2	Riffle US of Fly Pool	132	7	0	0
River Beaully	BE3	Left channel of island DS of cruives.	12	24	0	0
River Beaully	BE4	Large riffle US of New Pool	59	45	0	0
Breakachy Burn	BRE2	2nd major riffle upstream of bridge.	232 (163)	41 (24)	3 (12)	0 (1)
Eskadale Burn	ESK1	Top of site at root ball on RB	105 (30)	51 (29)	7 (13)	7 (5)
Erchless Burn	ERC2	Adjacent to castle	55 (39)	40 (22)	16 (21)	5 (3)
Erchless Burn	ERC1	Top of site at collapsed elm on RB	87 (85)	8 (4)	14 (23)	0 (1)
Abhainn Deabhag	AD3	1st major riffle US of Bridge	140 (74)	32 (36)	3 (1)	1 (1)
Glass Burn	GLB1	Top of site at ruined foot bridge	19 (26)	28 (22)	47 (29)	8 (4)

APPENDIX 2

Figure 18 – Map Showing Location of Sites on the Farrar Catchment

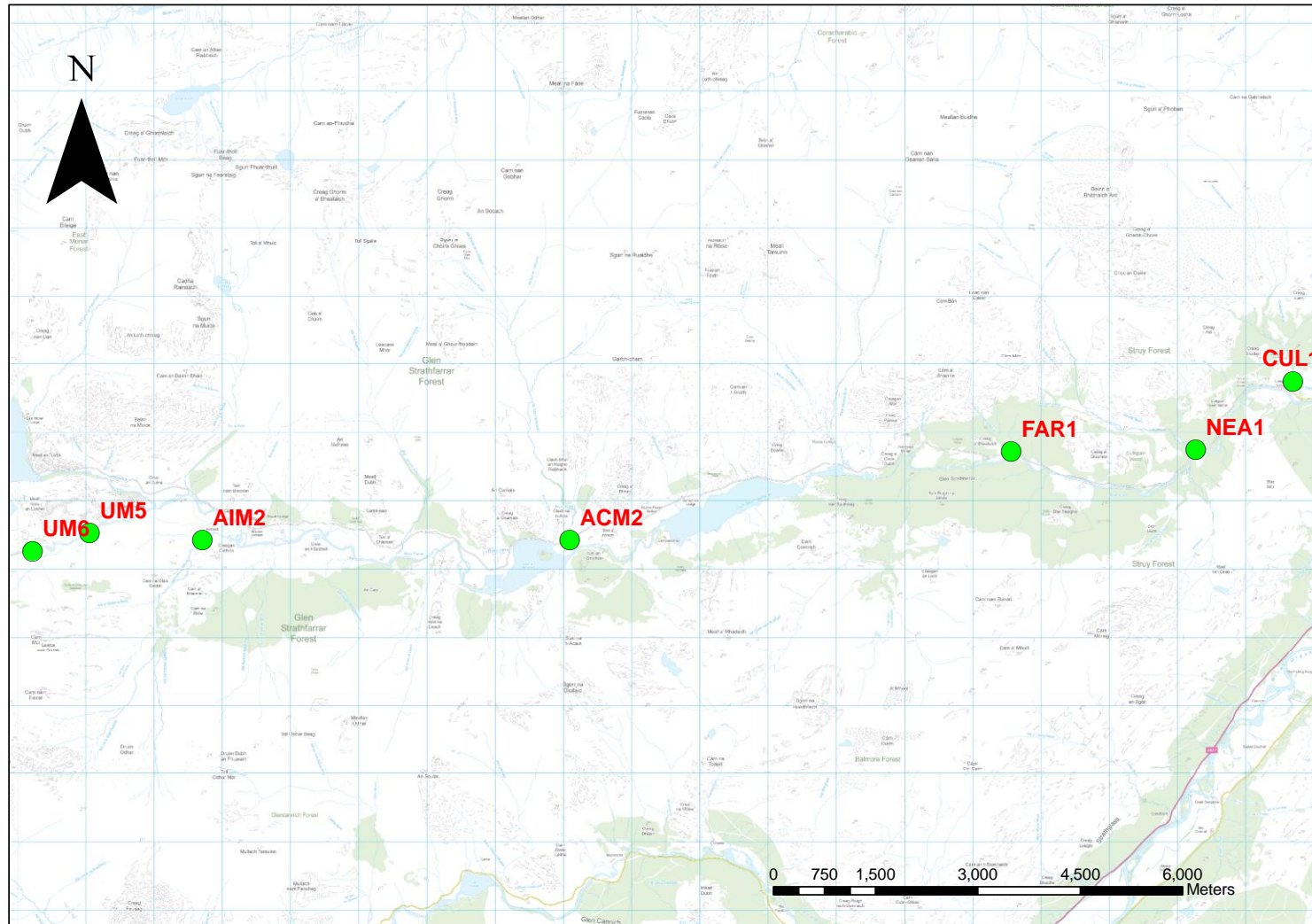


Figure 19 – Map Showing Location of Lower River Beauly Electro-fishing Sites

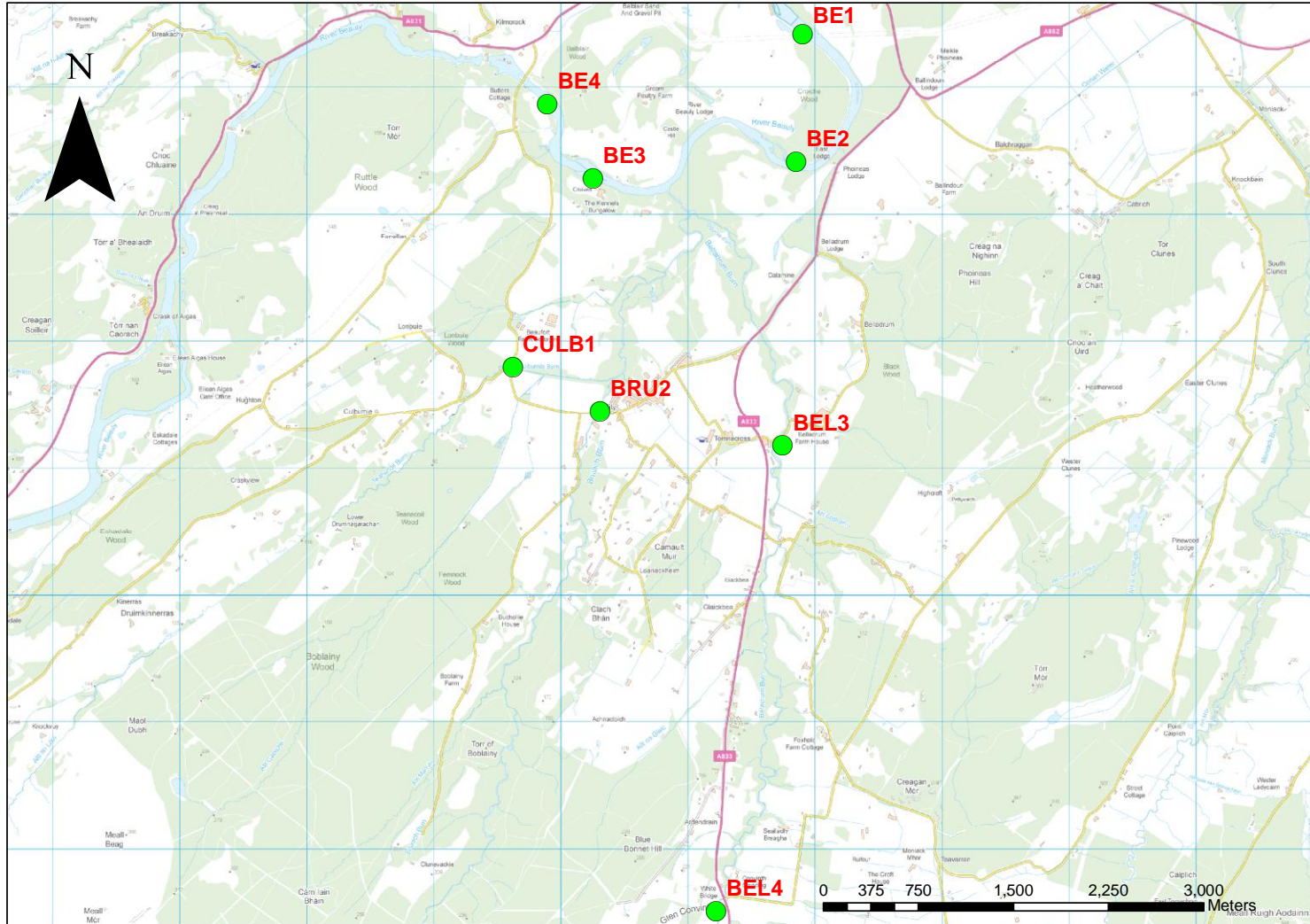


Figure 20 – Map Showing Location of the Lower River Beaully Electro-fishing Sites

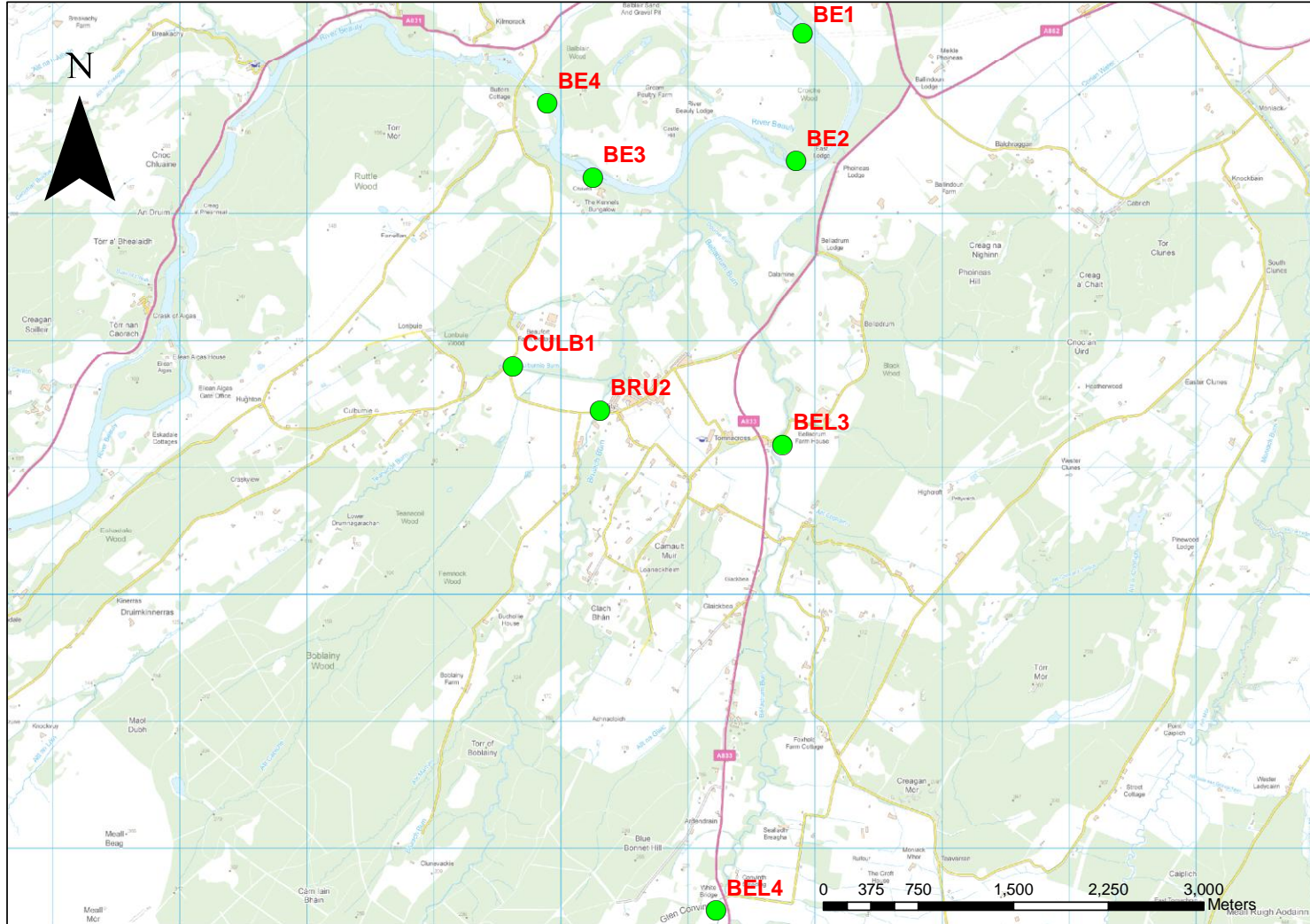


Figure 21 – Map Showing Location of Electro-fishing Sites on the Middle and Upper River Beaully

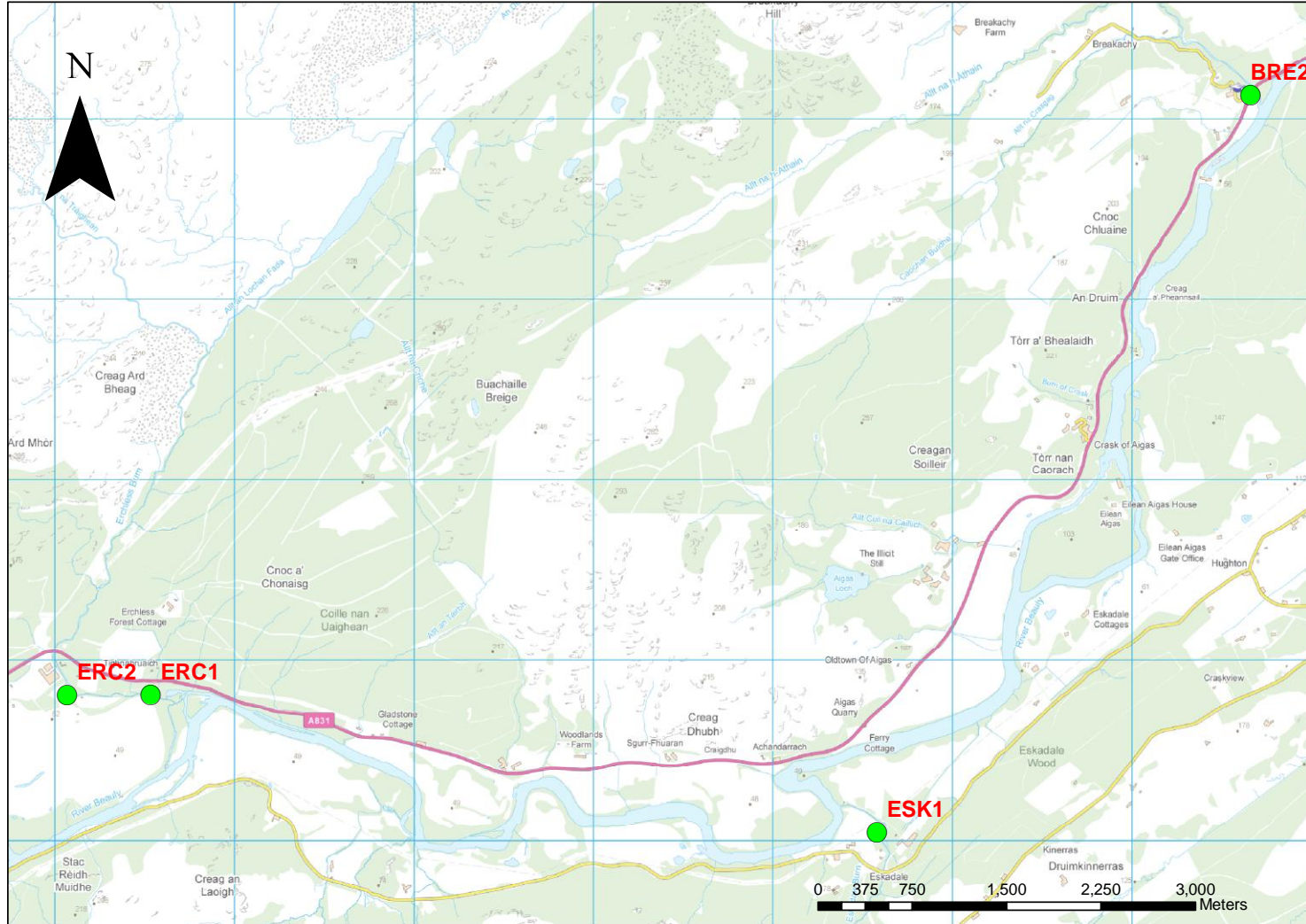


Figure 22 – Map Showing Location of Electro-fishing Sites on the River Glass

