Beauly
Fishery Board

Electrofishing surveys 2022

RW 2/03/23

1. Summary

A total of 39 electro-fishing surveys were completed in summer 2022. 18 **coastal** sites on 6 burns were completed (4 fully quantitative, 13 semi-quantitative, 1 presence/ absence survey). 21 other sites on 14 water courses were completed to fill in **data gaps** and may help to form a 'beaver baseline' in the future (5 fully quantitative, 16 semi-quantitative) 12 Sep- 6 Oct. The second year of **Farrar genetics** sampling also took place (10 sites, 340 salmon fry).

2. Introduction

Without the National Electro-fishing Programme for Scotland occurring as planned in 2022, the opportunity was taken to check up on the coastal burns flowing into the Beauly Firth, and to fill in a few data gaps. The 'data- gap' filling was especially pertinent as possible beaver translocations to the catchment were anticipated to occur autumn 2022- spring 2023. As there was not a dedicated electro-fishing assistant in place, and other organisations were interested in gathering data regarding a beaver baseline, collaboration with Beaver Trust, UHI and Trees for Life enabled these surveys to be carried out. Invertebrate sampling was also carried out which compliments the aims of the Fishery Management Plan (e.g. section 5.2).

Originally it was hoped to complete a set of surveys to support the Fish habitat (Hydro-morphology) walkovers completed in spring 2022 in relation to Cannich and Affric rivers but the sites were deemed a little too hazardous to be completed with volunteers, so was post-phoned to 2023.

It was another dry summer with water scarcity affecting rivers in Scotland. The Beauly catchment faired relatively well compared to other catchments in the Highlands and stayed at 'normal', however several coastal burns had dried out before being surveyed, these included Kirkton and Kinlea burn (south side of the Beauly Firth). Care was taken to ensure that water temperatures were below 18°C before commencing electro-fishing surveys.

3. Method

SFCC electro-fishing methodology was followed for all surveys, with Ruth Watts (Senior Biologist) as Team Leader.

3.1 Coastal surveys

The purpose of this set of surveys was to have a look at the coastal burns in the catchment as these are not included in the National Electro-fishing Programme sample frame.

The largest burns flowing into the firth were selected. Surveys occurred between 11 Aug- 1 September using local volunteers and a couple of days from the Seasonal bailiff. Sites were generally selected to provide a spread along the burns or to investigate particular issues, and if there were sites that had been surveyed previously by Ness and Beauly Fishery Trust (NBFT) these were preferred. Sites were chosen to be representative of the wider stretch and were generally c20m long. All sites contained a pool as well as other flow types and depths to ensure that if a burn was experiencing low flows, fish would be included if present. Surveys were semi or fully quantitative (area based) but were also timed to allow potential comparison (albeit with various caveats) with past surveys. Apart from a general looksy, these surveys also provided the opportunity to look at:

-Lentran burn (not surveyed previously)

-Bridgend burn- to see if there was still a fish barrier associated with 'the well', and diffuse pollution/ siltation caused by farming practice.

-Redcastle burn- to gather baseline data in case the fish barrier at the pond is removed.

-Bunchrew burn- further investigate if the bridge apron is a barrier to sea trout.

-Moniack burn- further characterise this largest of the Beauly coastal burns, and check to see if there was any impact from the Sewage Treatment Work (STW) discharge.

-Tomich burn-assess if cattle access and siltation is impacting fish habitat.

3.2 Data gaps (Beaver baseline) surveys

The purpose of this set of surveys was to help set up sites that could be re-visited in the future in relation to possible future beaver translocations and to plug some data gaps.

Sites were selected based on overlap between the 'Beaver Habitat Index' and 'Beaver Dam Capacity' maps included in the 'Glen Affric, River Glass and Beauly Catchment Beaver Feasibility' study, i.e. areas theoretically likely to be favoured by beavers. The number of sites were what was considered practically achievable given the time available. Surveys occurred between 12 Sep- 6 October with Beaver Trust, UHI, and Trees for Life staff, as well as volunteers. Historic sites were used where possible. As beaver habitat did not seem great at some of these sites when we got to them, focus towards the end of September was more on the small tributaries in the Belladrum sub-catchment, favourable for beavers. Apart from the surveys partially acting as a 'beaver baseline' they also provided the opportunity to have a look at;

- Home and Kennel burns, Tomich (not surveyed previously)

- What the fish populations look like in G. Affric (past surveys had found next to no juvenile trout).

- What the fish populations look like at the top of the A. Deabhag, and to confirm the impassability of the waterfall adjacent to Plodda. This area may not have been surveyed since enhancement stocking ceased up there in 2009.

Invertebrate kick samples were taken (30 second surface sweep-3 minute kick sample-30 second habitat search according to SEPA ES-ECOL-P-010 method) and preserved in ethanol for future analysis (funding pending). eDNA samples were taken by UHI staff.

These surveys also provided a valuable opportunity to gain insight and exchange knowledge about beavers and fish with the various organisations and local landowners involved.

These surveys could not have happened without the assistance of the external organisations involved.

4. Results and Actions

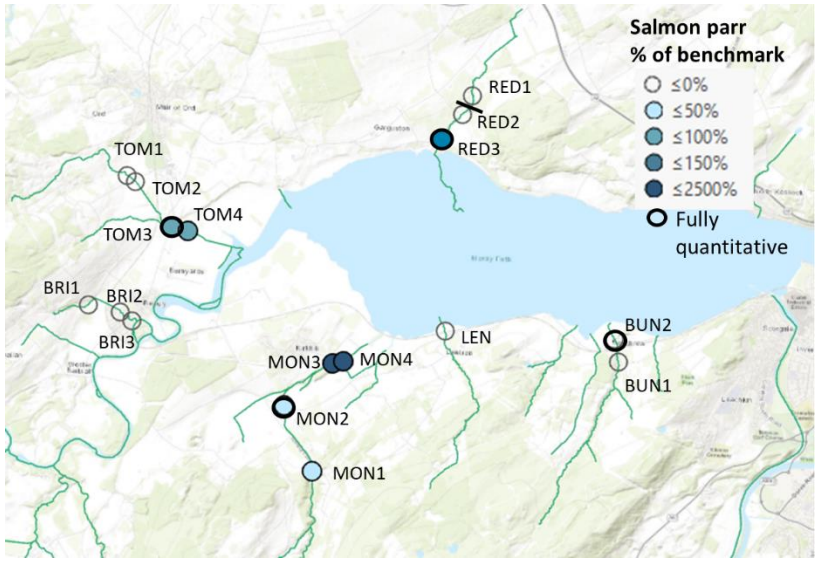
Total density estimates are reported from the output of the NEPs shineyapp tool for both salmon and trout (based on previous years' NEPs data collection). The depletions from the nine fully quantitative sites suggest an average capture efficiency for all 2022 surveys as **71% probability of capture for fry and 70% capture for parr** (based on Carle and Strub estimates). This shows that surveys were efficient. Marine Scotland benchmark figures for each site are available for salmon only, so 'Percentage of benchmark' figures have been used to show the difference between expected (benchmark) and observed salmon densities. i.e. '100%' would mean the densities found are equal to the benchmark (what is expected). Total densities per $100m^2$ are presented for trout (colour class is defined by Standard deviation from the mean). Raw data is included in Appendix 2 at the end of this report.

4.1 Coastal burns

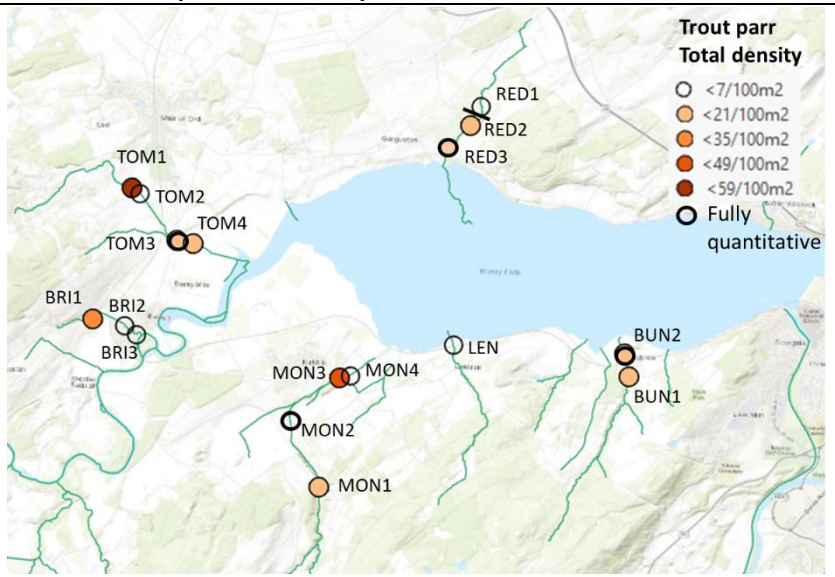
The depletion from the four fully quantitative sites suggest a probability of capture for fry as 67% and probability of capture for parr as 71%.

Maps 1A-1D below show an overview of the salmon and trout distribution found during the coastal burns survey.

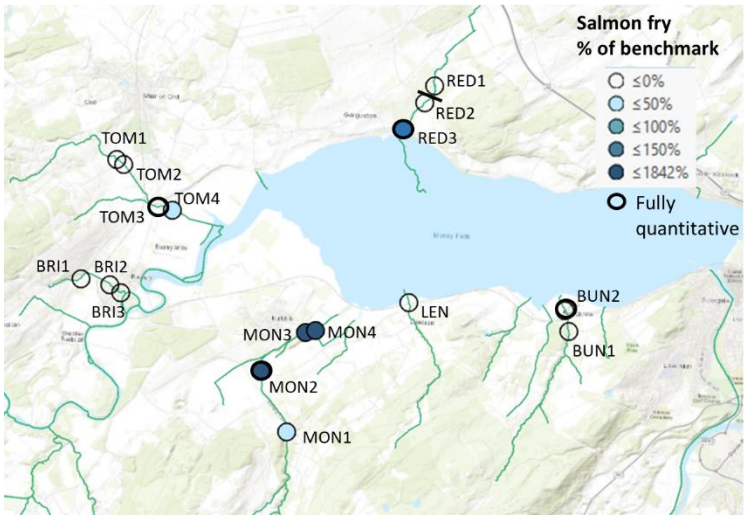
MAP 1A: Coastal, Salmon parr densities presented as % of benchmark (100%= as expected)



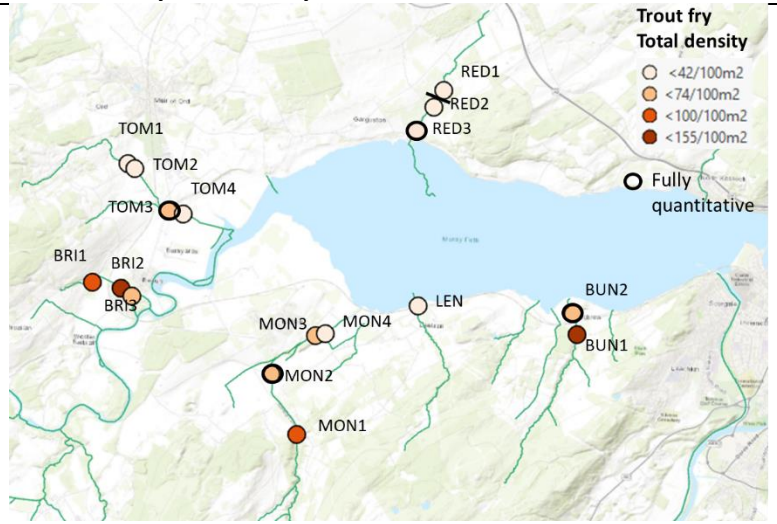
MAP 1B: Coastal, Trout parr total density/ 100m2



MAP 1C: Coastal, Salmon fry densities presented as % of benchmark (100%= as expected)



MAP 1D: Coastal, Trout fry total density/ 100m2



From the coastal burn surveys it is clear that **salmon** are using Redcastle burn, Tomich burn, and Moniack burn for spawning. Despite excellent habitat, an additional presence/ absence survey completed close to the bottom of Bunchrew burn found no salmon fry or parr. These surveys suggest salmon are not using the smaller burns (<2m wide at low flows). Anecdotally, locals have mentioned that in the past salmon did use smaller burns for spawning around the firth, so a decline in salmon distribution may have occurred since the 1970s.

Trout fry densities would suggest that **sea trout** are likely to be using most of these coastal burns although isotope analysis would help to confirm this. A simple analysis in Appendix 1 may suggest that burns with a total trout fry density of somewhere above 31/ 100m^2 (minimum density of 24/100m^2) are possible sea trout burns. These would include, Bunchrew burn, Moniack burn, Bridgend burn and Tomich burn. It is unclear if Redcastle burn is being used, and it is unlikely that Lentran burn is being used.

Although each site included some pool/ thermal refuge habitat, it is likely that the extreme low flow conditions at the time of these surveys will have affected fish distribution in the burns, so site wise comparison has not been attempted.

Bunchrew burn: Salmon fry and parr were not found during the 2022 surveys suggesting that adults did not spawn there in Autumn 2020 or 2021. 2022 found a total trout fry density of 104/100m^2 (minimum 81/100m^2) compared to just 34/ 100m^2 in 2020 (minimum 13/100m^2) at site BUN1. At low flows the bridge apron looked ok for adult sea trout migration but the variable trout fry density is puzzling and may suggest that variable flows in the autumn are affecting fish passage over the apron.

Lentran burn appeared to be suffering from enrichment down-stream of the railway.

Moniack burn: The excellent habitat on Moniack burn (and the larger size) make this preferable for salmon and sea trout spawning. MON 1 and 2 had less salmon parr than expected despite there being parr habitat present and it would appear salmon are not fully utilising the top of the accessible reach for spawning at Reelig Glen.

Overshading by beech as highlighted in the 2020 electro-fishing report is still the case and may be limiting production in the burn at Reelig, however the water temperature was a cool 11°C mid-afternoon on 1 September, and so the tree cover has its benefits.

At MON3, 2022 saw:

- a higher total trout fry density of 41/100m^2 (minimum density 32/100m^2) compared with 27/100m^2 (minimum 17/100m^2) in 2020.

- a higher total trout parr density of 39/100m^2 (min 30/100m^2) compared to total 4/100m^2 (minimum 3/100m^2) in 2020. This is likely to be an artefact of low flows.

-a higher total salmon fry density of 4/100m^2 (minimum 3/100m^2) compared with total 2/100m^2 (minimum 1/ 100m^2) in 2020.

-a higher total salmon parr density of 4/100m2 (minimum 3/100m^2) compared to none in 2020.

Bridgend burn: An old debris blockage at the very bottom of Bridgend burn was removed through the use of a chainsaw (thanks to Simon the aborealist) it will be interesting to see if this improves flow, fish passage and the resultant fish habitat above.

The ‘well’ at Bridgend did not appear to be causing any obstruction to fish passage, the culvert appeared clear with vegetation at the entrance causing a gradual change in light levels into the culvert (ideal).

Ivar (volunteer, Community Council rep, custodian of the burn) mentioned seeing intermittent sewage pollution in the burn. Further investigation occurred to determine the potential sources of pollution on 1 March 2023 (when vegetation had died back). Two outfalls were discovered along the back of the houses. This knowledge should help inform the reporting of pollution incidents to SEPA in the future.

A sea lamprey ammocoete (protected species) was found at BRI2, in silty substrate. The current distribution of sea lamprey in the catchment is unknown, however anecdotally they were thought to spawn as far up as Black bridge (below Kilmorack dam).

Tomich burn: TOM1 contained the highest trout parr total density of the coastal burns at 56/100m^2 (minimum 43/100m^2). TOM1 was shaded and this site may have acted as a thermal refuge when compared to the cattle poached banks and moderate, silted habitat of site TOM2 150m downstream.

Two farmers (sites TOM2 and TOM4) were advised of the value of fencing off the river bank to cattle to reduce siltation with details of a local Agri advisor provided to them.

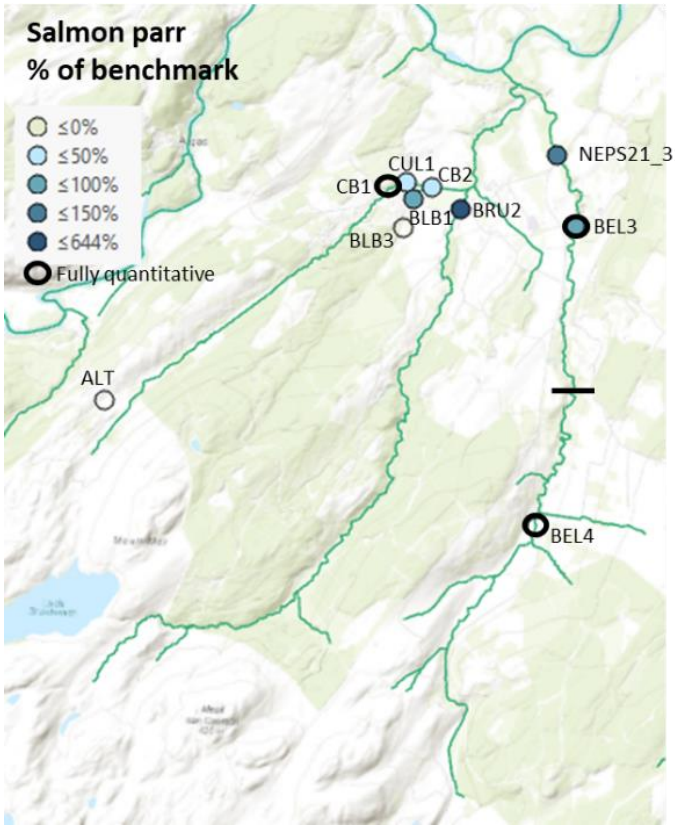
Redcastle burn: Apart from salmon fry and parr being found at RED3, relative to the other coastal burns, moderate to poor trout fry densities were found in the accessible reach to fish (although densities were still well above other areas in the catchment). Fish habitat above the pond with the impassable impoundment was poor due to a predominance of sand from agriculture, and enrichment was evident through algal growth at RED3.

4.2 Data gaps (Beaver baseline)

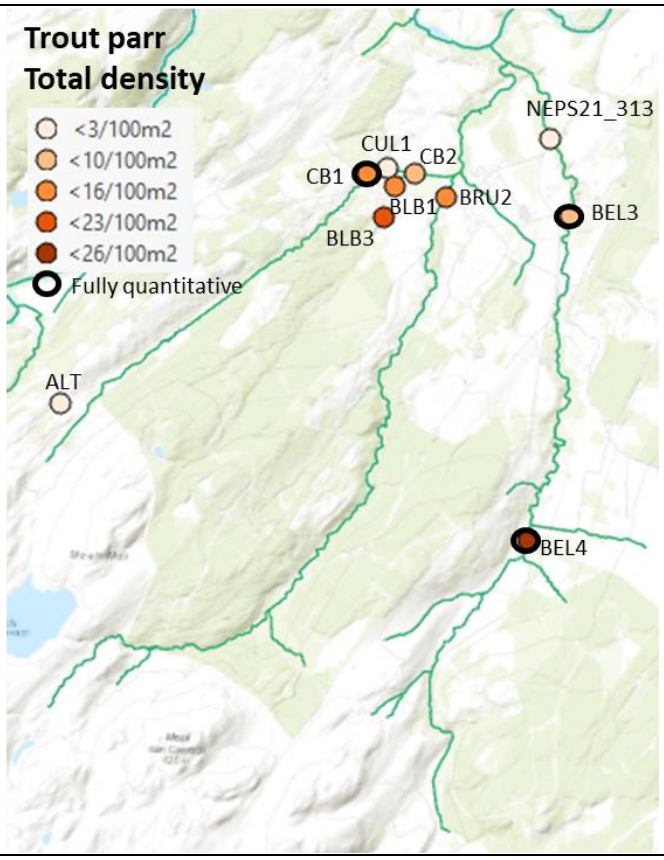
The depletion from the five fully quantitative sites suggests a probability of capture for fry of 73% and probability of capture for parr as 67%.

Maps 2A-D (Belladrum sub-catchment) and 3A-D (Affric and A. Deabhag [top of the R. Glass]) below show an overview of the electro-fishing fry and parr densities from the data gaps (Beaver baseline) surveys 2022.

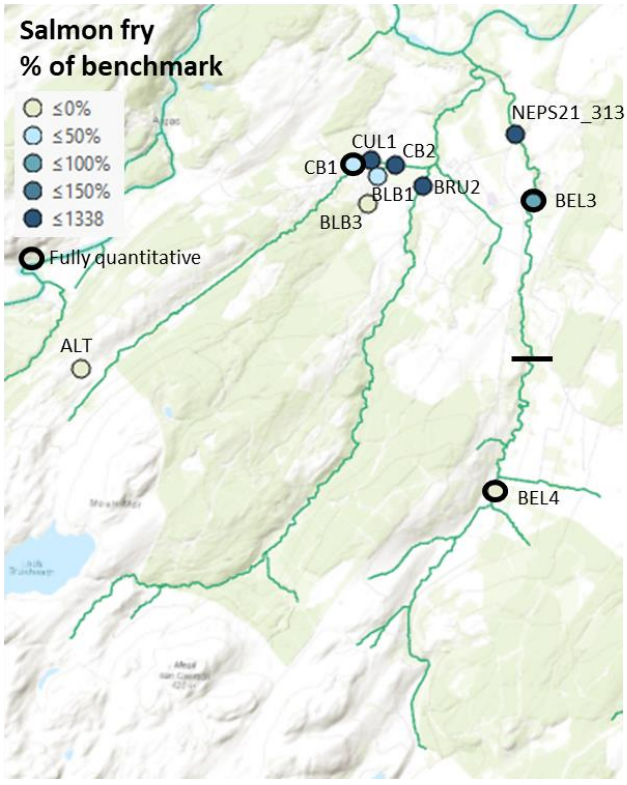
MAP 2A: Belladrum sub-catchment, Salmon parr % of benchmark.



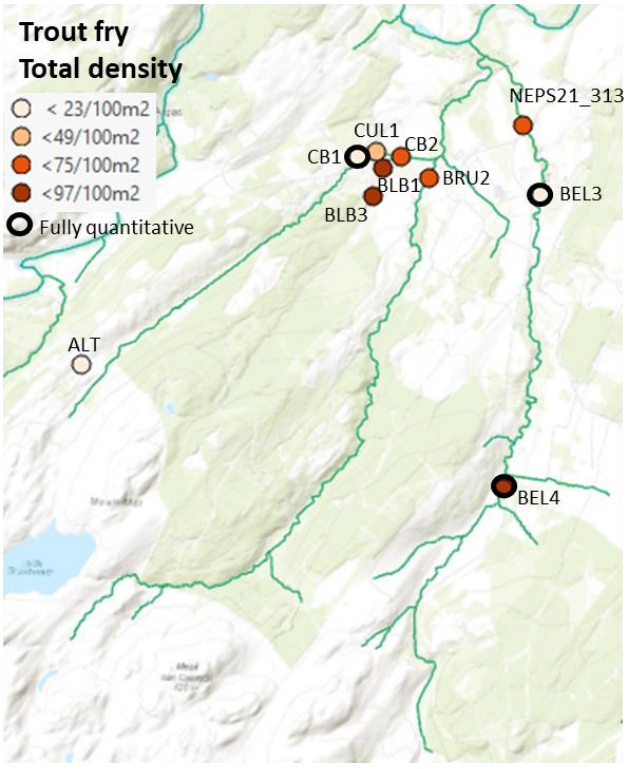
MAP 2B: Belladrum sub-catchment, Trout parr total density/ 100m2



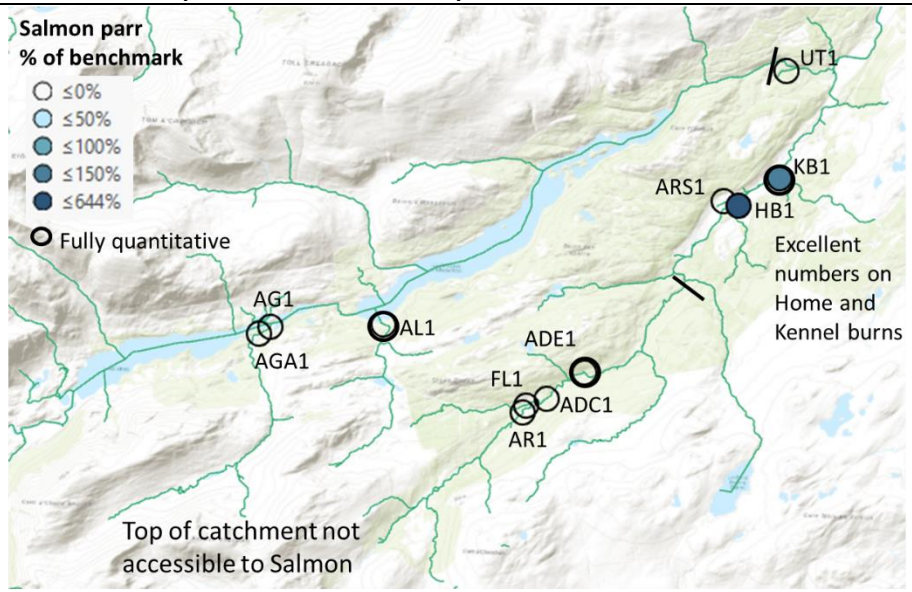
MAP 2C: Belladrum sub catchment, Salmon fry % of benchmark



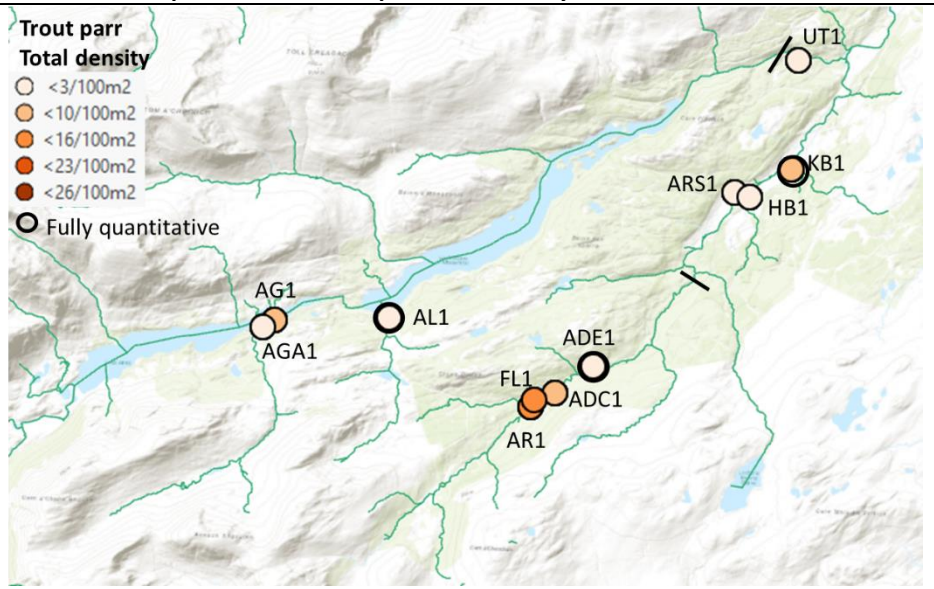
MAP 2D: Belladrum sub-catchment, Trout fry total density/ 100m2



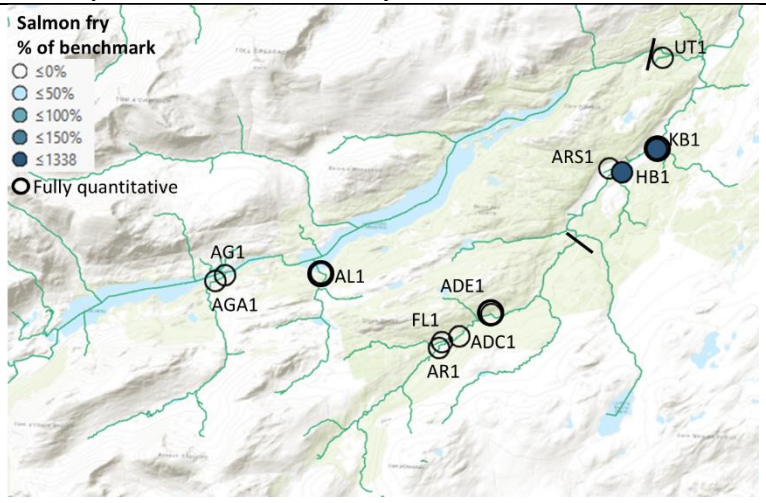
MAP 3A: Affric and top of the R. Glass Salmon parr % of benchmark



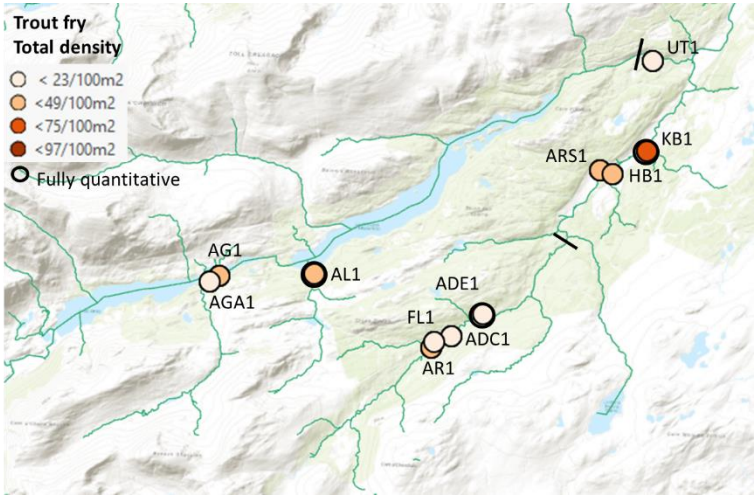
MAP 3B: Affric and top of R. Glass Trout parr total density/ 100m2



MAP 3C: Affric and top of the R. Glass Salmon fry % of benchmark



MAP 3D: Affric and top of R. Glass Trout fry total density/ 100m2



Belladrum sub-catchment: At Culburnie layby, CB1 saw an absence of salmon parr and just one salmon fry present (well below the benchmark) despite the presence of excellent habitat. The width of the burn here (c3m) may explain it, but it would be good to keep an eye on this site as just 300m downstream excellent salmon fry numbers are present at CUL1 (width c2.5m).

A recovery in salmon fry was observed at the BRU2 site. In 2021 a minimum density of just 3/100m^2 was found compared to a long-term average of 67/100m^2 which suggested a pollution incident may have occurred. On 18 September 2022 excellent fry and parr numbers were found (both well above the benchmark). The minimum density of salmon fry was 92/100m^2, and parr 20/100m^2.

The Allt an Loin was found to have excellent sea trout spawning substrate at Kinerras (where the burn meanders) however the site selected for this set of surveys was on a tributary of the Allt an Loin and was found to be heavily silted due to cattle poaching and yielded just a single trout fry and an eel. Further surveys are recommended to characterise the Allt an Loin, and to check up on the recovery since the bridge apron passability was improved around 2016.

Sites (<6m wide) capable of hosting seasonal beaver dams were highlighted as CB1, ALT, CUL1, BLB1, and BLB3. With ALT, BLB1 and BLB3, and upstream of BEL4 being most favourable. Any flooding on Black burn (BLB1+3) may conflict with the local arable land-use.

A high-level analysis looking at beaver preferable areas for damming, suggested that >30% of known sea trout habitat (small burns in the Belladrum sub-catchment e.g. Black burn (Allt Caoiche), Allt an Loin, Allt Dearg (top of Belladrum), and Lonbuie burn could be affected.

Glen Affric: Low densities of brown trout fry and parr were found in G. Affric except where there was an influence of loch trout spawning in inflowing burns (e.g AG1). Two pale/ white *Perlidae* stonefly nymphs were found in the invertebrate kick sample at AGA1 which was highly unusual. A pH reading was taken to check that pH may not play a contributing factor but was found to be pH6.6 on 14 September on Allt Garbh (within the tolerable threshold for trout and invertebrates).

Although Affric sites were not repeated from 2012 due to the different survey purpose (2012 surveys were done to gather data as part of a hydro application), more trout were found in the Allt Garbh during these 2022 surveys which may suggest a more effective survey. For the low conductivity conditions a twin tailed-cathode was used.

Sites (<6m wide) capable of hosting seasonal beaver dams were highlighted as UT1 and AL1.

River Glass: Home and Kennel burns (not previously surveyed before) were found to be important spawning burns for both salmon and trout, and provided good habitat. The high productivity may be associated with the higher than expected conductivity (70µs on Home burn, 100 µs on Kennel burn) compared with around 50µs at mainstem sites surveyed in 2021 (e.g. NEPS_0675, AD3).

Flows in Home burn were low but appeared to be consistent with the other burns when surveyed 19 September. This is important in the context of the new run-of-the-river Guisachan 50kw hydro scheme which got planning permission in 2019.

Sites (<6m wide) capable of hosting seasonal beaver dams were highlighted as HB1, KB1, and ARS1. ARS1 was most favourable (<1m wide, barely perceptible flow, alder).

Cougie (Abhainn Deabhag, Abahinn Riabhach, top of the R. Glass): Generally poor densities of trout fry were found on the A. Deabhag above the natural waterfall at Plodda. AR1 (Allt Riabhach) held the best trout fry density total 25/100m^2 (minimum density 19/100m^2) this was due to the presence of good spawning substrate and the presence of grassy bank lumps which had been eroded from the river banks and acted as islands (valuable cover) in the river at this site.

The lack of salmon and high densities of trout fry confirm that the natural waterfall adjacent to Plodda is indeed an impassable barrier to salmon and sea trout.

In general there were a lack of riparian trees present along the river bank and it is recommended that riparian tree planting to buffer against forecast increases in water temperature is done here to benefit the catchment as a whole. This has been highlighted in Beauly Fishery Board's 'Priority Tree Areas (Oct 2022) document.

Site FL1 was identified as capable of hosting beaver dams (abundance of willow, culvert pinchpoint).

5. Main Findings and Recommendations

Coastal burns

-The sites surveyed in 2022 serve as a good set of sites to compare future fish densities to.

- Low flows were seen in all coastal burns. Kinlea and Kirkton burns ran dry.

-Juvenile salmon were found in Moniack burn up to Reelig Glen, at the bottom of Redcastle burn and Tomich burn up to the road. Juvenile salmon were absent in Bunchrew, Bridgend and Lentran burns.

- A simple analysis in Appendix 1 may suggest that burns with a total trout fry density of somewhere above 31/ 100m^2 are possible sea trout burns. These would include, Bunchrew burn, Moniack burn, Bridgend burn and Tomich burn. It is unclear if Redcastle burn is being used, and it is unlikely that Lentran burn is being used.

-Pollution was found in: Lentran burn (enrichment below the railway bridge), Tomich burn (siltation from cattle accessing the burn), and Redcastle burn. Despite the low flows, Moniack burn sewage treatment works did not appear to be impacting fish densities or habitat, with just a hint of sewage fungus present downstream of the discharge. **Further investigation and contact with home owners is required to remediate possible enrichment issues on Lentran and Redcastle burns, and to keep encouraging Tomich and Bridgend burn farmers to fence off river banks, to reduce siltation from cattle poaching.**

-Bridgend burn appeared to be suffering from a range of problems from reported periodic grey water entering the burn from the houses, siltation from poor farming practice, and a culvert at Yellowbrook blocked by debris. The culvert adjacent to 'the well' appeared clear on inspection and the removed log jam at the bottom of the burn may improve fish passage and habitat up to the road.

Data gaps (Beaver baseline):

-Home and Kennel burns were found to be important spawning burns for both salmon and trout, with good habitat.

-Low densities of brown trout fry and parr were found above the impassable waterfall on the A. Deabhag and in G. Affric (above impassable falls and dam) except where there was an influence of loch trout spawning in inflowing burns (e.g AG1). These low densities appear to be natural.

-Natural waterfall adjacent to Plodda confirmed as an impassable barrier to salmon and sea trout.

-Trout fry isotope sampling (to determine if juvenile trout are the progeny of Brown or sea trout should be conducted as early as fry emerge out of the gravel (May). Rob Briers (Edinburgh Napier University) has been contacted to see if a student could be dispatched to carry out a long-term study.

-All invertebrate samples gathered should be analysed to support the beaver baseline study and start to look at food availability to fish in the catchment.

-Further surveys are recommended on the Allt an Loin to characterise this burn and check on the improved passability of the bridge apron.

-A further three sites are recommended to further help build a beaver baseline, these are Longbuie burn, Allt Dearg and Allt an Loin and a repeat visit of all sites may be done in the future if beavers have been translocated.

-**Riparian tree planting should be encouraged at the top of the Glass/ Cougie area to improve climate change resilience in the catchment (as well as the other areas highlighted in the Priority Tree areas Oct 2022 doc).**

For 2023 it is anticipated that the Beauly Fishery Board will participate in the National Electro-fishing Programme. Ideally sites should include: 15 sites on the Farrar, 15 sites on the Glass (to enable a Farrar Vs Glass comparison in relation to hydro Vs non-hydro), and sites on the Rivers Cannich and Affric to support the fish habitat walkover results. More sites are required on the Lower Beauly to help characterise salmon densities as currently this is not included in the NEPS sample frame. **A full data analysis should be done to run all data through the NEPs benchmark tool in 2023-2024**.

A big thank you to Seasonal Bailiff Bob Smart and staff from other organisations; Rob Needham, Elliot McCandless (Beaver Trust), Matt Curran, Bernd Haenfling, Nathan Griffiths (UHI), Paul Greaves (Trees for Life) and also our much valued volunteers Ivar, Mairi, Nicola, Steve, Tim, Johnny, Iain, Dan, Victoria, Cat.

6. References

Glen Affric, River Glass and Beauly Catchment Beaver Feasibility, Dr Roisin Campbell-Palmer, Rob Needham & Dr Alan Puttock June 2022

SEPA Invertebrate sampling protocol (ES-ECOL-P-010).

SFCC Team Leader electro-fishing protocol

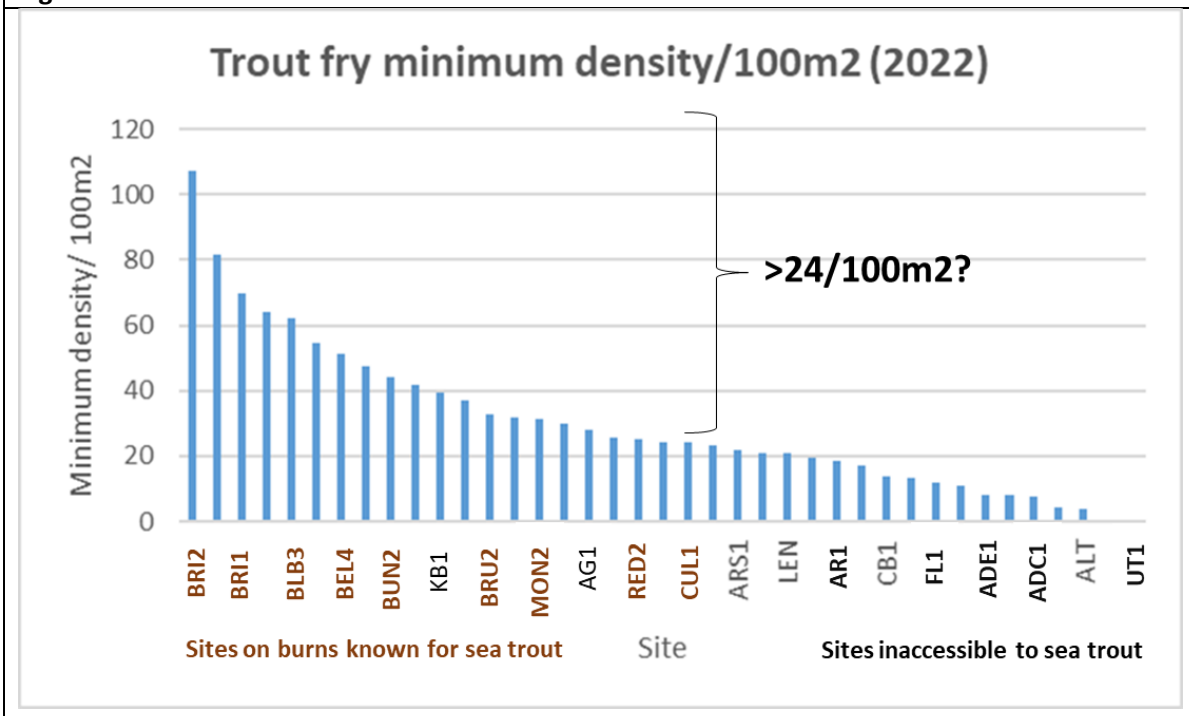
Watts. R (2022) Beauly Fishery Board: Briefing note: Beavers, Atlantic salmon and sea trout V2

Watts. R (2022) Beauly Fishery Board: Priority Tree areas Oct 2022. Pdf.

Appendix 1- Fry density analysis for sea trout progeny

There are various ways of determining if fry are the progeny of sea trout or brown trout. One such method is marine isotope analysis, where eggs (or fry as soon as they emerge from the gravel) are sampled. Less reliably, high densities of trout fry may also indicate that sea trout spawning has occurred, although there are other factors that may influence trout fry densities (e.g. site size, burn width, habitat, competition, geology). As the 2022 surveys included sites known for sea trout spawning but also sites inaccessible to sea trout i.e. showing natural densities of brown trout-only populations, a brief comparison is made here to see if a particular threshold (of minimum density of trout fry per 100m^2) indicating the presence of a sea trout effect is obvious from the recent data gathered. Most of the sites surveyed were on smallish burns so are generally comparable with each other. The densities found at all 2022 sites are included in the graph below.

Figure 1:



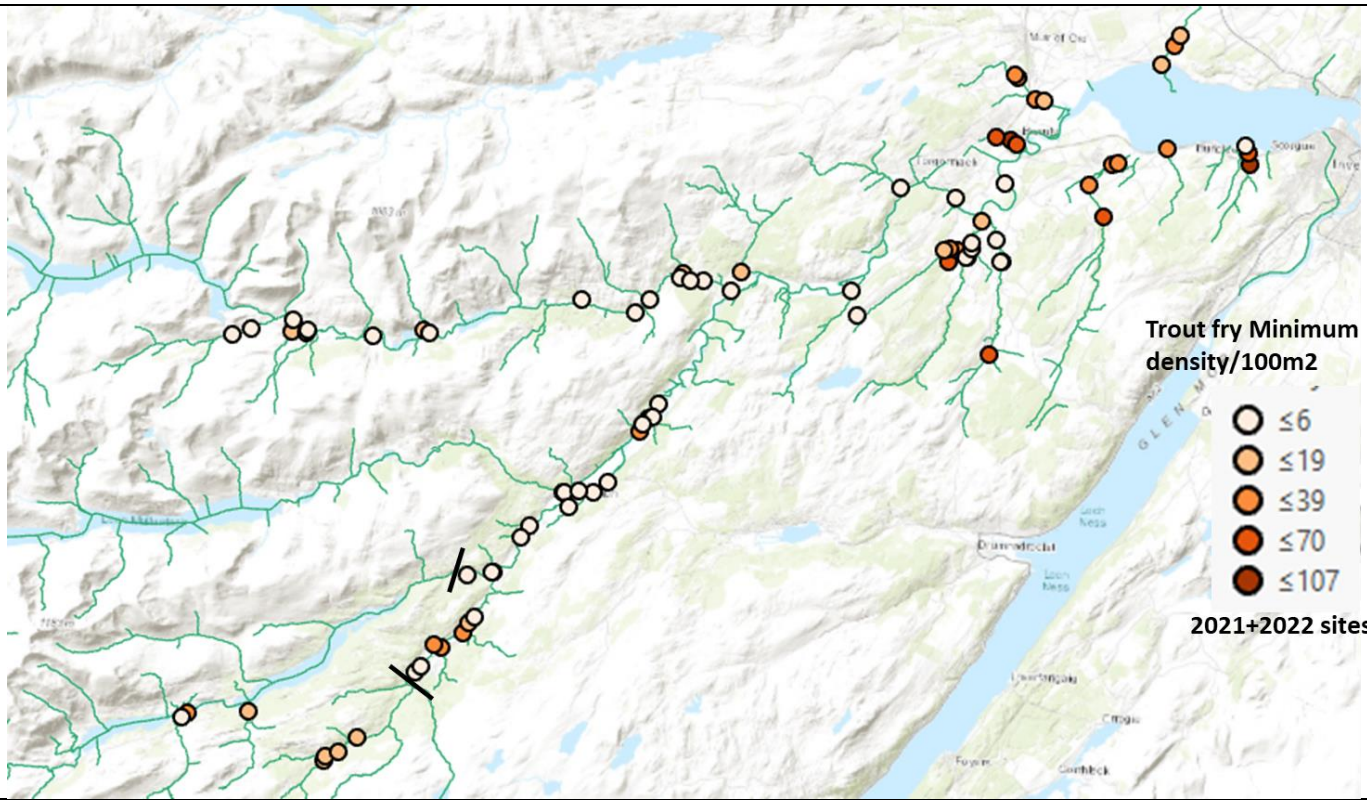
The brief analysis above may suggest that **a minimum density of >24 trout fry/ 100m^2** (or total density of 31/100m^2 with 71% capture efficiency) **could be indicative of a sea trout influence**. This compares with suggested densities of >17-41/100m^2 found previously in 2020-21 from a very small number of sites.

KB1 (Kennel burn) appears to have a density of trout fry equivalent with burns known to host spawning adult sea trout. It is unclear if this is due to a natural geological richness of this burn or the potential presence of sea trout.

AG1 (Allt Garbh, Affric) also has a higher density compared to its neighbouring inaccessible burns, however this is likely due to this river being used by spawning loch trout.

Map 4 below summarises 2021 and 2022 trout fry data. High densities of trout may help indicate areas of sea trout influence.

Map 4: 2021 and 2022 Trout fry minimum densities/ 100m2



From Map 4 it is clear that the highest densities of trout fry in 2021 and 2022 were found in the Belladrum sub-catchment and the coastal burns where sea trout spawning is known to occur. Isotope analysis of trout fry would be required to confirm if these (and fry from other burns out-with these areas) were actually the progeny of sea-trout or not.

APPENDIX 2- ELECTRO-FISHING DATA

COASTAL SITE DETAILS

Purpose	Site	Date	Species	Lifestage	Pass	Count	Area (m2)	Length (m)	Width (m)	Density/ 100m2	Cover	Description
Coastal	MON2	11/08/2022	salmon	fry	1	17	70.21	19.3	3.64	24.21	Excellent	Moniack burn, 25m d/s A862
Coastal	MON2	11/08/2022	salmon	parr	1	1	70.21	19.3	3.64	1.42	Excellent	Moniack burn, 25m d/s A863
Coastal	MON2	11/08/2022	trout	fry	1	22	70.21	19.3	3.64	31.33	Excellent	Moniack burn, 25m d/s A864
Coastal	MON2	11/08/2022	trout	parr	1	3	70.21	19.3	3.64	4.27	Excellent	Moniack burn, 25m d/s A865
Coastal	MON2	11/08/2022	salmon	fry	2	6	70.21	19.3	3.64	8.55	Excellent	Moniack burn, 25m d/s A866
Coastal	MON2	11/08/2022	salmon	parr	2	0	70.21	19.3	3.64	0	Excellent	Moniack burn, 25m d/s A867
Coastal	MON2	11/08/2022	trout	fry	2	7	70.21	19.3	3.64	9.97	Excellent	Moniack burn, 25m d/s A868
Coastal	MON2	11/08/2022	trout	parr	2	0	70.21	19.3	3.64	0	Excellent	Moniack burn, 25m d/s A869
Coastal	MON2	11/08/2022	salmon	fry	3	1	70.21	19.3	3.64	1.42	Excellent	Moniack burn, 25m d/s A870
Coastal	MON2	11/08/2022	salmon	parr	3	0	70.21	19.3	3.64	0	Excellent	Moniack burn, 25m d/s A871
Coastal	MON2	11/08/2022	trout	fry	3	3	70.21	19.3	3.64	4.27	Excellent	Moniack burn, 25m d/s A872
Coastal	MON2	11/08/2022	trout	parr	3	1	70.21	19.3	3.64	1.42	Excellent	Moniack burn, 25m d/s A873
Coastal	TOM3	17/08/2022	salmon	fry	1	0	53.68	22	2.44	0	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	salmon	parr	1	2	53.68	22	2.44	3.73	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	trout	fry	1	16	53.68	22	2.44	29.81	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	trout	parr	1	5	53.68	22	2.44	9.31	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	salmon	fry	2	0	53.68	22	2.44	0	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	salmon	parr	2	0	53.68	22	2.44	0	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	trout	fry	2	4	53.68	22	2.44	7.45	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	trout	parr	2	3	53.68	22	2.44	5.59	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	salmon	fry	3	0	53.68	22	2.44	0	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	salmon	parr	3	0	53.68	22	2.44	0	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	trout	fry	3	4	53.68	22	2.44	7.45	Good	Tomich burn, 23m d/s road bridge
Coastal	TOM3	17/08/2022	trout	parr	3	0	53.68	22	2.44	0	Good	Tomich burn, 23m d/s road bridge
Coastal	RED2	18/08/2022	salmon	fry	1	0	39.9	21	1.9	0	Moderate	Redcastle burn, Immediately above track bridge
Coastal	RED2	18/08/2022	salmon	parr	1	0	39.9	21	1.9	0	Moderate	Redcastle burn, Immediately above track bridge
Coastal	RED2	18/08/2022	trout	fry	1	10	39.9	21	1.9	25.06	Moderate	Redcastle burn, Immediately above track bridge
Coastal	RED2	18/08/2022	trout	parr	1	3	39.9	21	1.9	7.52	Moderate	Redcastle burn, Immediately above track bridge

Purpose	Site	Date	Species	Lifestage	Pass	Count	Area (m2)	Length (m)	Width (m)	Density/ 100m2	Cover	Description
Coastal	RED3	18/08/2022	salmon	fry	1	2	50.94	22.7	2.24	3.93	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	salmon	parr	1	1	50.94	22.7	2.24	1.96	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	trout	fry	1	4	50.94	22.7	2.24	7.85	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	trout	parr	1	4	50.94	22.7	2.24	7.85	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	salmon	fry	2	0	50.94	22.7	2.24	0	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	salmon	parr	2	1	50.94	22.7	2.24	1.96	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	trout	fry	2	0	50.94	22.7	2.24	0	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	trout	parr	2	2	50.94	22.7	2.24	3.93	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	salmon	fry	3	0	50.94	22.7	2.24	0	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	salmon	parr	3	0	50.94	22.7	2.24	0	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	trout	fry	3	0	50.94	22.7	2.24	0	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	RED3	18/08/2022	trout	parr	3	0	50.94	22.7	2.24	0	Good	Redcastle burn, Immediately u/s roadbridge
Coastal	LEN	23/08/2022	salmon	fry	1	0	38.21	20.7	1.85	0	Good	Lentran burn, 30m d/s railway line
Coastal	LEN	23/08/2022	salmon	parr	1	0	38.21	20.7	1.85	0	Good	Lentran burn, 30m d/s railway line
Coastal	LEN	23/08/2022	trout	fry	1	8	38.21	20.7	1.85	20.94	Good	Lentran burn, 30m d/s railway line
Coastal	LEN	23/08/2022	trout	parr	1	1	38.21	20.7	1.85	2.62	Good	Lentran burn, 30m d/s railway line
Coastal	MON4	23/08/2022	salmon	fry	1	1	71.27	14.3	4.98	1.4	Good	Moniack burn, 30m d/s sewage outlfow pipe
Coastal	MON4	23/08/2022	salmon	parr	1	1	71.27	14.3	4.98	1.4	Good	Moniack burn, 30m d/s sewage outlfow pipe
Coastal	MON4	23/08/2022	trout	fry	1	15	71.27	14.3	4.98	21.05	Good	Moniack burn, 30m d/s sewage outlfow pipe
Coastal	MON4	23/08/2022	trout	parr	1	0	71.27	14.3	4.98	0	Good	Moniack burn, 30m d/s sewage outlfow pipe
Coastal	MON3	23/08/2022	salmon	fry	1	3	107.6	28.8	3.74	2.79	Moderate	Moniack burn, 130m u/s bridge
Coastal	MON3	23/08/2022	salmon	parr	1	3	107.6	28.8	3.74	2.79	Moderate	Moniack burn, 130m u/s bridge
Coastal	MON3	23/08/2022	trout	fry	1	34	107.6	28.8	3.74	31.6	Moderate	Moniack burn, 130m u/s bridge
Coastal	MON3	23/08/2022	trout	parr	1	32	107.6	28.8	3.74	29.74	Moderate	Moniack burn, 130m u/s bridge
Coastal	TOM4	24/08/2022	salmon	fry	1	1	46.41	21	2.21	2.15	Moderate	Tomich burn, 40m d/s track bridge
Coastal	TOM4	24/08/2022	salmon	parr	1	2	46.41	21	2.21	4.31	Moderate	Tomich burn, 40m d/s track bridge
Coastal	TOM4	24/08/2022	trout	fry	1	5	46.41	21	2.21	10.77	Moderate	Tomich burn, 40m d/s track bridge
Coastal	TOM4	24/08/2022	trout	parr	1	6	46.41	21	2.21	12.93	Moderate	Tomich burn, 40m d/s track bridge
Coastal	TOM2	24/08/2022	salmon	fry	1	0	38.87	23	1.69	0	Moderate	Tomich burn, 45m d/s Swallowfield road bridge
Coastal	TOM2	24/08/2022	salmon	parr	1	0	38.87	23	1.69	0	Moderate	Tomich burn, 45m d/s Swallowfield road bridge
Coastal	TOM2	24/08/2022	trout	fry	1	10	38.87	23	1.69	25.73	Moderate	Tomich burn, 45m d/s Swallowfield road bridge
Coastal	TOM2	24/08/2022	trout	parr	1	1	38.87	23	1.69	2.57	Moderate	Tomich burn, 45m d/s Swallowfield road bridge

2022 Beauly Catchment Electrofishing Report

Purpose	Site	Date	Species	Lifestage	Pass	Count	Area (m2)	Length (m)	Width (m)	Density/ 100m2	Cover	Description
Coastal	BUN1	25/08/2022	salmon	fry	1	0	42.95	22.3	1.93	0	Good	Bunchrew burn, 200m u/s railway
Coastal	BUN1	25/08/2022	salmon	parr	1	0	42.95	22.3	1.93	0	Good	Bunchrew burn, 200m u/s railway
Coastal	BUN1	25/08/2022	trout	fry	1	35	42.95	22.3	1.93	81.49	Good	Bunchrew burn, 200m u/s railway
Coastal	BUN1	25/08/2022	trout	parr	1	4	42.95	22.3	1.93	9.31	Good	Bunchrew burn, 200m u/s railway
Coastal	BUN2	25/08/2022	salmon	fry	1	0	31.72	17	1.87	0	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	salmon	parr	1	0	31.72	17	1.87	0	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	trout	fry	1	14	31.72	17	1.87	44.14	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	trout	parr	1	5	31.72	17	1.87	15.76	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	salmon	fry	2	0	31.72	17	1.87	0	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	salmon	parr	2	0	31.72	17	1.87	0	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	trout	fry	2	4	31.72	17	1.87	12.61	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	trout	parr	2	0	31.72	17	1.87	0	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	salmon	fry	3	0	31.72	17	1.87	0	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	salmon	parr	3	0	31.72	17	1.87	0	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	trout	fry	3	2	31.72	17	1.87	6.31	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BUN2	25/08/2022	trout	parr	3	1	31.72	17	1.87	3.15	Excellent	Bunchrew burn, 40m d/s bend in caravan park driveway
Coastal	BRI3	30/08/2022	salmon	fry	1	0	16.84	12.2	1.38	0	Poor	Bridgend burn, Netherdale garden, SW corner of garden
Coastal	BRI3	30/08/2022	salmon	parr	1	0	16.84	12.2	1.38	0	Poor	Bridgend burn, Netherdale garden, SW corner of garden
Coastal	BRI3	30/08/2022	trout	fry	1	8	16.84	12.2	1.38	47.51	Poor	Bridgend burn, Netherdale garden, SW corner of garden
Coastal	BRI3	30/08/2022	trout	parr	1	0	16.84	12.2	1.38	0	Poor	Bridgend burn, Netherdale garden, SW corner of garden
Coastal	BRI2	30/08/2022	salmon	fry	1	0	19.58	20.4	0.96	0	Poor	Bridgend burn, 20m d/s small footbridge
Coastal	BRI2	30/08/2022	salmon	parr	1	0	19.58	20.4	0.96	0	Poor	Bridgend burn, 20m d/s small footbridge
Coastal	BRI2	30/08/2022	trout	fry	1	21	19.58	20.4	0.96	107.25	Poor	Bridgend burn, 20m d/s small footbridge
Coastal	BRI2	30/08/2022	trout	parr	1	0	19.58	20.4	0.96	0	Poor	Bridgend burn, 20m d/s small footbridge
Coastal	BRI1	30/08/2022	salmon	fry	1	0	27.3	21.3	1.28	0	Good	Bridgend burn, immed above road, Yellowbrook
Coastal	BRI1	30/08/2022	salmon	parr	1	0	27.3	21.3	1.28	0	Good	Bridgend burn, immed above road, Yellowbrook
Coastal	BRI1	30/08/2022	trout	fry	1	19	27.3	21.3	1.28	69.6	Good	Bridgend burn, immed above road, Yellowbrook
Coastal	BRI1	30/08/2022	trout	parr	1	5	27.3	21.3	1.28	18.32	Good	Bridgend burn, immed above road, Yellowbrook
Coastal	TOM1	31/08/2022	salmon	fry	1	0	25.56	16.6	1.54	0	Excellent	Tomich burn, Swallowfield, 35m u/s outbuilding
Coastal	TOM1	31/08/2022	salmon	parr	1	0	25.56	16.6	1.54	0	Excellent	Tomich burn, Swallowfield, 35m u/s outbuilding
Coastal	TOM1	31/08/2022	trout	fry	1	6	25.56	16.6	1.54	23.47	Excellent	Tomich burn, Swallowfield, 35m u/s outbuilding
Coastal	TOM1	31/08/2022	trout	parr	1	11	25.56	16.6	1.54	43.04	Excellent	Tomich burn, Swallowfield, 35m u/s outbuilding
Coastal	RED1	01/09/2022	salmon	fry	1	0	41.28	24	1.72	0	Poor	Redcastle burn, 60m u/s pond
Coastal	RED1	01/09/2022	salmon	parr	1	0	41.28	24	1.72	0	Poor	Redcastle burn, 60m u/s pond
Coastal	RED1	01/09/2022	trout	fry	1	8	41.28	24	1.72	19.38	Poor	Redcastle burn, 60m u/s pond
Coastal	RED1	01/09/2022	trout	parr	1	1	41.28	24	1.72	2.42	Poor	Redcastle burn, 60m u/s pond
Coastal	MON1	01/09/2022	salmon	fry	1	2	44.07	11.3	3.9	4.54	Excellent	Moniack burn, 45m u/s Reelig Glen roadbridge
Coastal	MON1	01/09/2022	salmon	parr	1	1	44.07	11.3	3.9	2.27	Excellent	Moniack burn, 45m u/s Reelig Glen roadbridge
Coastal	MON1	01/09/2022	trout	fry	1	24	44.07	11.3	3.9	54.46	Excellent	Moniack burn, 45m u/s Reelig Glen roadbridge
Coastal	MON1	01/09/2022	trout	parr	1	5	44.07	11.3	3.9	11.35	Excellent	Moniack burn, 45m u/s Reelig Glen roadbridge

BEAVER/ DATA GAP FILLING SITE DETAILS

Purpose	Site	Date	Species	Lifestage	Pass	Count	Area (m2)	Length (m)	Width (m)	Density/ 100m2	Cover	Description
Beaver	NEPS21_3	12/09/2022	salmon	fry	1	81	127.6	18.6	6.86	63.48	Excellent	Belladrum burn, 45m d/s of road bridge
Beaver	NEPS21_3	12/09/2022	salmon	parr	1	11	127.6	18.6	6.86	8.62	Excellent	Belladrum burn, 45m d/s of road bridge
Beaver	NEPS21_3	12/09/2022	trout	fry	1	53	127.6	18.6	6.86	41.54	Excellent	Belladrum burn, 45m d/s of road bridge
Beaver	NEPS21_3	12/09/2022	trout	parr	1	0	127.6	18.6	6.86	0	Excellent	Belladrum burn, 45m d/s of road bridge
Beaver	BRU2	13/09/2022	salmon	fry	1	65	70.7	16	4.02	91.94	Excellent	Bruiach, 35m d/s bridge
Beaver	BRU2	13/09/2022	salmon	parr	1	14	70.7	16	4.02	19.8	Excellent	Bruiach, 35m d/s bridge
Beaver	BRU2	13/09/2022	trout	fry	1	23	70.7	16	4.02	32.53	Excellent	Bruiach, 35m d/s bridge
Beaver	BRU2	13/09/2022	trout	parr	1	6	70.7	16	4.02	8.49	Excellent	Bruiach, 35m d/s bridge
Beaver	BEL4	13/09/2022	salmon	fry	1	0	162.5	50	3.25	0	Moderate	Belladrum, 5m u/s Glen Convinth cemetary track bridge
Beaver	BEL4	13/09/2022	salmon	parr	1	0	162.5	50	3.25	0	Moderate	Belladrum, 5m u/s Glen Convinth cemetary track bridge
Beaver	BEL4	13/09/2022	trout	fry	1	83	162.5	50	3.25	51.08	Moderate	Belladrum, 5m u/s Glen Convinth cemetary track bridge
Beaver	BEL4	13/09/2022	trout	parr	1	29	162.5	50	3.25	17.85	Moderate	Belladrum, 5m u/s Glen Convinth cemetary track bridge
Beaver	CUL1	13/09/2022	salmon	fry	1	13	79.2	32.2	2.46	16.41	Good	Culburnie, 40m below road bridge
Beaver	CUL1	13/09/2022	salmon	parr	1	1	79.2	32.2	2.46	1.26	Good	Culburnie, 40m below road bridge
Beaver	CUL1	13/09/2022	trout	fry	1	19	79.2	32.2	2.46	23.99	Good	Culburnie, 40m below road bridge
Beaver	CUL1	13/09/2022	trout	parr	1	1	79.2	32.2	2.46	1.26	Good	Culburnie, 40m below road bridge
Beaver	AGA1	14/09/2022	salmon	fry	1	0	136.66	18.7	7.31	0	Excellent	Allt Garbh Affric. 190m d/s footbridge
Beaver	AGA1	14/09/2022	salmon	parr	1	0	136.66	18.7	7.31	0	Excellent	Allt Garbh Affric. 190m d/s footbridge
Beaver	AGA1	14/09/2022	trout	fry	1	6	136.66	18.7	7.31	4.39	Excellent	Allt Garbh Affric. 190m d/s footbridge
Beaver	AGA1	14/09/2022	trout	parr	1	1	136.66	18.7	7.31	0.73	Excellent	Allt Garbh Affric. 190m d/s footbridge
Beaver	AL1	14/09/2022	salmon	fry	1	0	112.14	26.7	4.2	0	Moderate	Allt an Laghair Affric, 60m u/s loch Beinn a' Mheadhoin
Beaver	AL1	14/09/2022	salmon	parr	1	0	112.14	26.7	4.2	0	Moderate	Allt an Laghair Affric, 60m u/s loch Beinn a' Mheadhoin
Beaver	AL1	14/09/2022	trout	fry	1	19	112.14	26.7	4.2	16.94	Moderate	Allt an Laghair Affric, 60m u/s loch Beinn a' Mheadhoin
Beaver	AL1	14/09/2022	trout	parr	1	0	112.14	26.7	4.2	0	Moderate	Allt an Laghair Affric, 60m u/s loch Beinn a' Mheadhoin
Beaver	AL1	14/09/2022	salmon	fry	2	0	112.14	26.7	4.2	0	Moderate	Allt an Laghair Affric, 60m u/s loch Beinn a' Mheadhoin
Beaver	AL1	14/09/2022	salmon	parr	2	0	112.14	26.7	4.2	0	Moderate	Allt an Laghair Affric, 60m u/s loch Beinn a' Mheadhoin
Beaver	AL1	14/09/2022	trout	fry	2	3	112.14	26.7	4.2	2.68	Moderate	Allt an Laghair Affric, 60m u/s loch Beinn a' Mheadhoin
Beaver	AL1	14/09/2022	trout	parr	2	1	112.14	26.7	4.2	0.89	Moderate	Allt an Laghair Affric, 60m u/s loch Beinn a' Mheadhoin
Beaver	ADC1	15/09/2022	salmon	fry	1	0	90.72	13.5	6.72	0	Excellent	Abhainn Deabhag, Cougie, 60m d/s fenceline
Beaver	ADC1	15/09/2022	salmon	parr	1	0	90.72	13.5	6.72	0	Excellent	Abhainn Deabhag, Cougie, 60m d/s fenceline
Beaver	ADC1	15/09/2022	trout	fry	1	7	90.72	13.5	6.72	7.72	Excellent	Abhainn Deabhag, Cougie, 60m d/s fenceline
Beaver	ADC1	15/09/2022	trout	parr	1	3	90.72	13.5	6.72	3.31	Excellent	Abhainn Deabhag, Cougie, 60m d/s fenceline
Beaver	FL1	15/09/2022	salmon	fry	1	0	60.06	21	2.86	0	Good	Feith na Leitreach, Cougie, 10m u/s track
Beaver	FL1	15/09/2022	salmon	parr	1	0	60.06	21	2.86	0	Good	Feith na Leitreach, Cougie, 10m u/s track
Beaver	FL1	15/09/2022	trout	fry	1	7	60.06	21	2.86	11.66	Good	Feith na Leitreach, Cougie, 10m u/s track
Beaver	FL1	15/09/2022	trout	parr	1	6	60.06	21	2.86	9.99	Good	Feith na Leitreach, Cougie, 10m u/s track

	Site	Date	Species	Lifestage	Pass	Count	Area (m2)	Length (m)	Width (m)	Density/ 100m2	Cover	Description
Beaver	ADE1	15/09/2022	salmon	fry	1	0	100.32	22.8	4.4	0	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	salmon	parr	1	0	100.32	22.8	4.4	0	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	trout	fry	1	8	100.32	22.8	4.4	7.97	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	trout	parr	1	1	100.32	22.8	4.4	1	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	salmon	fry	2	0	100.32	22.8	4.4	0	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	salmon	parr	2	0	100.32	22.8	4.4	0	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	trout	fry	2	4	100.32	22.8	4.4	3.99	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	trout	parr	2	0	100.32	22.8	4.4	0	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	salmon	fry	3	0	100.32	22.8	4.4	0	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	salmon	parr	3	0	100.32	22.8	4.4	0	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	trout	fry	3	1	100.32	22.8	4.4	1	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	ADE1	15/09/2022	trout	parr	3	0	100.32	22.8	4.4	0	Good	Abhainn Deabhag, Drochaid na Luib, 80m u/s old bridge
Beaver	HB1	19/09/2022	salmon	fry	1	36	70.24	17.3	4.06	51.25	Good	Home burn, 40m d/s ford
Beaver	HB1	19/09/2022	salmon	parr	1	16	70.24	17.3	4.06	22.78	Good	Home burn, 40m d/s ford
Beaver	HB1	19/09/2022	trout	fry	1	17	70.24	17.3	4.06	24.2	Good	Home burn, 40m d/s ford
Beaver	HB1	19/09/2022	trout	parr	1	1	70.24	17.3	4.06	1.42	Good	Home burn, 40m d/s ford
Beaver	AG1	19/09/2022	salmon	fry	1	0	161.36	22.6	7.14	0	Excellent	Allt Garbh, 50m u/s Loch Affric
Beaver	AG1	19/09/2022	salmon	parr	1	0	161.36	22.6	7.14	0	Excellent	Allt Garbh, 50m u/s Loch Affric
Beaver	AG1	19/09/2022	trout	fry	1	45	161.36	22.6	7.14	27.89	Excellent	Allt Garbh, 50m u/s Loch Affric
Beaver	AG1	19/09/2022	trout	parr	1	7	161.36	22.6	7.14	4.34	Excellent	Allt Garbh, 50m u/s Loch Affric
Beaver	UT1	19/09/2022	salmon	fry	1	0	36	22.5	1.6	0	Excellent	Unnanmed trib, level with end of Coire loch track
Beaver	UT1	19/09/2022	salmon	parr	1	0	36	22.5	1.6	0	Excellent	Unnanmed trib, level with end of Coire loch track
Beaver	UT1	19/09/2022	trout	fry	1	0	36	22.5	1.6	0	Excellent	Unnanmed trib, level with end of Coire loch track
Beaver	UT1	19/09/2022	trout	parr	1	0	36	22.5	1.6	0	Excellent	Unnanmed trib, level with end of Coire loch track
Beaver	KB1	20/09/2022	salmon	fry	1	30	56.01	20.9	2.68	53.56	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	salmon	parr	1	5	56.01	20.9	2.68	8.93	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	trout	fry	1	22	56.01	20.9	2.68	39.28	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	trout	parr	1	3	56.01	20.9	2.68	5.36	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	salmon	fry	2	10	56.01	20.9	2.68	17.85	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	salmon	parr	2	0	56.01	20.9	2.68	0	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	trout	fry	2	8	56.01	20.9	2.68	14.28	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	trout	parr	2	0	56.01	20.9	2.68	0	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	salmon	fry	3	3	56.01	20.9	2.68	5.36	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	salmon	parr	3	0	56.01	20.9	2.68	0	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	trout	fry	3	3	56.01	20.9	2.68	5.36	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	KB1	20/09/2022	trout	parr	3	0	56.01	20.9	2.68	0	Good	Kennel burn, 20m u/s end of fence/ gate, Balcladaich.
Beaver	BLB1	21/09/2022	salmon	fry	1	1	62.32	32.8	1.9	1.6	Good	Black burn, 20m d/s end of fenceline
Beaver	BLB1	21/09/2022	salmon	parr	1	1	62.32	32.8	1.9	1.6	Good	Black burn, 20m d/s end of fenceline
Beaver	BLB1	21/09/2022	trout	fry	1	40	62.32	32.8	1.9	64.18	Good	Black burn, 20m d/s end of fenceline
Beaver	BLB1	21/09/2022	trout	parr	1	5	62.32	32.8	1.9	8.02	Good	Black burn, 20m d/s end of fenceline

	Site	Date	Species	Lifestage	Pass	Count	Area (m2)	Length (m)	Width (m)	Density/ 100m2	Cover	Description
Beaver	CB2	21/09/2022	salmon	fry	1	41	97	25	3.88	42.27	Excellent	Culburnie burn, 70m d/s Black burn confluence (was BRB1)
Beaver	CB2	21/09/2022	salmon	parr	1	2	97	25	3.88	2.06	Excellent	Culburnie burn, 70m d/s Black burn confluence (was BRB1)
Beaver	CB2	21/09/2022	trout	fry	1	36	97	25	3.88	37.11	Excellent	Culburnie burn, 70m d/s Black burn confluence (was BRB1)
Beaver	CB2	21/09/2022	trout	parr	1	3	97	25	3.88	3.09	Excellent	Culburnie burn, 70m d/s Black burn confluence (was BRB1)
Beaver	CB1	21/09/2022	salmon	fry	1	1	58.61	19.8	2.96	1.71	Excellent	Culburnie burn, at layby
Beaver	CB1	21/09/2022	salmon	parr	1	0	58.61	19.8	2.96	0	Excellent	Culburnie burn, at layby
Beaver	CB1	21/09/2022	trout	fry	1	8	58.61	19.8	2.96	13.65	Excellent	Culburnie burn, at layby
Beaver	CB1	21/09/2022	trout	parr	1	8	58.61	19.8	2.96	13.65	Excellent	Culburnie burn, at layby
Beaver	CB1	21/09/2022	salmon	fry	2	0	58.61	19.8	2.96	0	Excellent	Culburnie burn, at layby
Beaver	CB1	21/09/2022	salmon	parr	2	0	58.61	19.8	2.96	0	Excellent	Culburnie burn, at layby
Beaver	CB1	21/09/2022	trout	fry	2	1	58.61	19.8	2.96	1.71	Excellent	Culburnie burn, at layby
Beaver	CB1	21/09/2022	trout	parr	2	0	58.61	19.8	2.96	0	Excellent	Culburnie burn, at layby
Beaver	ARS1	28/09/2022	salmon	fry	1	0	27.23	26.7	1.02	0	Poor	Allt Ruigh na Sine, 35m d/s track (was AD1)
Beaver	ARS1	28/09/2022	salmon	parr	1	0	27.23	26.7	1.02	0	Poor	Allt Ruigh na Sine, 35m d/s track (was AD1)
Beaver	ARS1	28/09/2022	trout	fry	1	6	27.23	26.7	1.02	22.03	Poor	Allt Ruigh na Sine, 35m d/s track (was AD1)
Beaver	ARS1	28/09/2022	trout	parr	1	0	27.23	26.7	1.02	0	Poor	Allt Ruigh na Sine, 35m d/s track (was AD1)
Beaver	AR1	28/09/2022	salmon	fry	1	0	162.4	34.7	4.7	0	Excellent	Allt Riabhach, 150m u/s bridge, pony field, Cougie (was ADP1)
Beaver	AR1	28/09/2022	salmon	parr	1	0	162.4	34.7	4.7	0	Excellent	Allt Riabhach, 150m u/s bridge, pony field, Cougie (was ADP1)
Beaver	AR1	28/09/2022	trout	fry	1	30	162.4	34.7	4.7	18.47	Excellent	Allt Riabhach, 150m u/s bridge, pony field, Cougie (was ADP1)
Beaver	AR1	28/09/2022	trout	parr	1	14	162.4	34.7	4.7	8.62	Excellent	Allt Riabhach, 150m u/s bridge, pony field, Cougie (was ADP1)
Beaver	BLB3	29/09/2022	salmon	fry	1	0	61	30.2	2.02	0	Good	Black burn, 325m u/s road, u/s of ponds (was BB1)
Beaver	BLB3	29/09/2022	salmon	parr	1	0	61	30.2	2.02	0	Good	Black burn, 325m u/s road, u/s of ponds (was BB1)
Beaver	BLB3	29/09/2022	trout	fry	1	38	61	30.2	2.02	62.3	Good	Black burn, 325m u/s road, u/s of ponds (was BB1)
Beaver	BLB3	29/09/2022	trout	parr	1	9	61	30.2	2.02	14.75	Good	Black burn, 325m u/s road, u/s of ponds (was BB1)
Beaver	ALT	04/10/2022	salmon	fry	1	0	27.34	20.1	1.36	0	Poor	Allt an Loin trib, 7m u/s deer fence
Beaver	ALT	04/10/2022	salmon	parr	1	0	27.34	20.1	1.36	0	Poor	Allt an Loin trib, 7m u/s deer fence
Beaver	ALT	04/10/2022	trout	fry	1	1	27.34	20.1	1.36	3.66	Poor	Allt an Loin trib, 7m u/s deer fence
Beaver	ALT	04/10/2022	trout	parr	1	0	27.34	20.1	1.36	0	Poor	Allt an Loin trib, 7m u/s deer fence
Beaver	BEL3	06/10/2022	salmon	fry	1	21	122.47	25.2	4.86	17.15	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	salmon	parr	1	5	122.47	25.2	4.86	4.08	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	trout	fry	1	16	122.47	25.2	4.86	13.06	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	trout	parr	1	5	122.47	25.2	4.86	4.08	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	salmon	fry	2	17	122.47	25.2	4.86	13.88	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	salmon	parr	2	3	122.47	25.2	4.86	2.45	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	trout	fry	2	5	122.47	25.2	4.86	4.08	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	trout	parr	2	1	122.47	25.2	4.86	0.82	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	salmon	fry	3	4	122.47	25.2	4.86	3.27	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	salmon	parr	3	1	122.47	25.2	4.86	0.82	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	trout	fry	3	1	122.47	25.2	4.86	0.82	Excellent	Belladrum burn, 25m d/s Tomnacross bridge
Beaver	BEL3	06/10/2022	trout	parr	3	1	122.47	25.2	4.86	0.82	Excellent	Belladrum burn, 25m d/s Tomnacross bridge

COASTAL SITE SHINEY APP OUTPUT

Purpose	Site	Date	Species	Lifestage	Observed_Density/m2	Benchmark_Fry_Density	Benchmark_Parr_Density	Density_difference	Density_percentage_difference
Coastal	MON2	11/08/2022	Salmon	fry	0.366364079	0.146926235	0.066037213	0.219437844	249.3523904
Coastal	MON2	11/08/2022	Salmon	fry	0.366364079	0.146926235	0.066037213	0.219437844	249.3523904
Coastal	MON2	11/08/2022	Salmon	fry	0.366364079	0.146926235	0.066037213	0.219437844	249.3523904
Coastal	MON2	11/08/2022	Salmon	parr	0.01490748	0.146926235	0.066037213	-0.051129732	22.57436332
Coastal	MON2	11/08/2022	Salmon	parr	0.01490748	0.146926235	0.066037213	-0.051129732	22.57436332
Coastal	MON2	11/08/2022	Salmon	parr	0.01490748	0.146926235	0.066037213	-0.051129732	22.57436332
Coastal	MON2	11/08/2022	Trout	fry	0.475633171	NA	NA	0.328706936	NA
Coastal	MON2	11/08/2022	Trout	fry	0.475633171	NA	NA	0.328706936	NA
Coastal	MON2	11/08/2022	Trout	fry	0.475633171	NA	NA	0.328706936	NA
Coastal	MON2	11/08/2022	Trout	parr	0.058539177	NA	NA	-0.007498036	NA
Coastal	MON2	11/08/2022	Trout	parr	0.058539177	NA	NA	-0.007498036	NA
Coastal	MON2	11/08/2022	Trout	parr	0.058539177	NA	NA	-0.007498036	NA
Coastal	TOM3	17/08/2022	Salmon	fry	0	0.159013027	0.063523961	-0.159013027	0
Coastal	TOM3	17/08/2022	Salmon	fry	0	0.159013027	0.063523961	-0.159013027	0
Coastal	TOM3	17/08/2022	Salmon	fry	0	0.159013027	0.063523961	-0.159013027	0
Coastal	TOM3	17/08/2022	Salmon	parr	0.039030997	0.159013027	0.063523961	-0.024492964	61.44295159
Coastal	TOM3	17/08/2022	Salmon	parr	0.039030997	0.159013027	0.063523961	-0.024492964	61.44295159
Coastal	TOM3	17/08/2022	Salmon	parr	0.039030997	0.159013027	0.063523961	-0.024492964	61.44295159
Coastal	TOM3	17/08/2022	Trout	fry	0.466312768	NA	NA	0.307299741	NA
Coastal	TOM3	17/08/2022	Trout	fry	0.466312768	NA	NA	0.307299741	NA
Coastal	TOM3	17/08/2022	Trout	fry	0.466312768	NA	NA	0.307299741	NA
Coastal	TOM3	17/08/2022	Trout	parr	0.153186245	NA	NA	0.089662283	NA
Coastal	TOM3	17/08/2022	Trout	parr	0.153186245	NA	NA	0.089662283	NA
Coastal	TOM3	17/08/2022	Trout	parr	0.153186245	NA	NA	0.089662283	NA
Coastal	RED2	18/08/2022	Salmon	fry	0	0.048484098	0.02150175	-0.048484098	0
Coastal	RED2	18/08/2022	Salmon	parr	0	0.048484098	0.02150175	-0.02150175	0
Coastal	RED2	18/08/2022	Trout	fry	0.359214379	NA	NA	0.310730281	NA
Coastal	RED2	18/08/2022	Trout	parr	0.100482596	NA	NA	0.078980846	NA

Purpose	Site	Date	Species	Lifestage	Observed_Density/m2	Benchmark_Fry_Density	Benchmark_Parr_Density	Density_difference	Density_percentage_difference
Coastal	RED3	18/08/2022	Salmon	fry	NA	0.048484098	0.02150175	NA	NA
Coastal	RED3	18/08/2022	Salmon	fry	NA	0.048484098	0.02150175	NA	NA
Coastal	RED3	18/08/2022	Salmon	fry	NA	0.048484098	0.02150175	NA	NA
Coastal	RED3	18/08/2022	Salmon	parr	NA	0.048484098	0.02150175	NA	NA
Coastal	RED3	18/08/2022	Salmon	parr	NA	0.048484098	0.02150175	NA	NA
Coastal	RED3	18/08/2022	Salmon	parr	NA	0.048484098	0.02150175	NA	NA
Coastal	RED3	18/08/2022	Trout	fry	NA	NA	NA	NA	NA
Coastal	RED3	18/08/2022	Trout	fry	NA	NA	NA	NA	NA
Coastal	RED3	18/08/2022	Trout	fry	NA	NA	NA	NA	NA
Coastal	RED3	18/08/2022	Trout	parr	NA	NA	NA	NA	NA
Coastal	RED3	18/08/2022	Trout	parr	NA	NA	NA	NA	NA
Coastal	RED3	18/08/2022	Trout	parr	NA	NA	NA	NA	NA
Coastal	LEN	23/08/2022	Salmon	fry	0	0.029273255	0.014126209	-0.029273255	0
Coastal	LEN	23/08/2022	Salmon	parr	0	0.029273255	0.014126209	-0.014126209	0
Coastal	LEN	23/08/2022	Trout	fry	0.305355937	NA	NA	0.276082682	NA
Coastal	LEN	23/08/2022	Trout	parr	0.035553141	NA	NA	0.021426933	NA
Coastal	MON3	23/08/2022	Salmon	fry	0.046320662	0.002514667	0.001691386	0.043805995	1842.020025
Coastal	MON3	23/08/2022	Salmon	parr	0.042299727	0.002514667	0.001691386	0.040608341	2500.891621
Coastal	MON3	23/08/2022	Trout	fry	0.477044892	NA	NA	0.474530226	NA
Coastal	MON3	23/08/2022	Trout	parr	0.415928731	NA	NA	0.414237346	NA
Coastal	MON4	23/08/2022	Salmon	fry	0.023170236	0.002514667	0.001691386	0.020655569	921.4038933
Coastal	MON4	23/08/2022	Salmon	parr	0.021177371	0.002514667	0.001691386	0.019485985	1252.072134
Coastal	MON4	23/08/2022	Trout	fry	0.316005177	NA	NA	0.31349051	NA
Coastal	MON4	23/08/2022	Trout	parr	0	NA	NA	-0.001691386	NA
Coastal	TOM2	24/08/2022	Salmon	fry	0	0.089405908	0.045700026	-0.089405908	0
Coastal	TOM2	24/08/2022	Salmon	parr	0	0.089405908	0.045700026	-0.045700026	0
Coastal	TOM2	24/08/2022	Trout	fry	0.381316929	NA	NA	0.291911021	NA
Coastal	TOM2	24/08/2022	Trout	parr	0.035437001	NA	NA	-0.010263025	NA

Purpose	Site	Date	Species	Lifestage	Observed_Density/m2	Benchmark_Fry_Density	Benchmark_Parr_Density	Density_difference	Density_percentage_difference
Coastal	TOM4	24/08/2022	Salmon	fry	0.034779646	0.246478068	0.084042837	-0.211698422	14.11064549
Coastal	TOM4	24/08/2022	Salmon	parr	0.063810329	0.246478068	0.084042837	-0.020232508	75.92595797
Coastal	TOM4	24/08/2022	Trout	fry	0.158670301	NA	NA	-0.087807767	NA
Coastal	TOM4	24/08/2022	Trout	parr	0.177126987	NA	NA	0.09308415	NA
Coastal	BUN1	25/08/2022	Salmon	fry	0	0.043506953	0.02373208	-0.043506953	0
Coastal	BUN1	25/08/2022	Salmon	parr	0	0.043506953	0.02373208	-0.02373208	0
Coastal	BUN1	25/08/2022	Trout	fry	1.211208127	NA	NA	1.167701174	NA
Coastal	BUN1	25/08/2022	Trout	parr	0.128618724	NA	NA	0.104886644	NA
Coastal	BUN2	25/08/2022	Salmon	fry	0	0.040006406	0.019186321	-0.040006406	0
Coastal	BUN2	25/08/2022	Salmon	fry	0	0.040006406	0.019186321	-0.040006406	0
Coastal	BUN2	25/08/2022	Salmon	fry	0	0.040006406	0.019186321	-0.040006406	0
Coastal	BUN2	25/08/2022	Salmon	parr	0	0.040006406	0.019186321	-0.019186321	0
Coastal	BUN2	25/08/2022	Salmon	parr	0	0.040006406	0.019186321	-0.019186321	0
Coastal	BUN2	25/08/2022	Salmon	parr	0	0.040006406	0.019186321	-0.019186321	0
Coastal	BUN2	25/08/2022	Trout	fry	0.655913778	NA	NA	0.615907373	NA
Coastal	BUN2	25/08/2022	Trout	fry	0.655913778	NA	NA	0.615907373	NA
Coastal	BUN2	25/08/2022	Trout	fry	0.655913778	NA	NA	0.615907373	NA
Coastal	BUN2	25/08/2022	Trout	parr	0.194196224	NA	NA	0.175009902	NA
Coastal	BUN2	25/08/2022	Trout	parr	0.194196224	NA	NA	0.175009902	NA
Coastal	BUN2	25/08/2022	Trout	parr	0.194196224	NA	NA	0.175009902	NA
Coastal	BRI1	30/08/2022	Salmon	fry	0	0.023771621	0.014505955	-0.023771621	0
Coastal	BRI1	30/08/2022	Salmon	parr	0	0.023771621	0.014505955	-0.014505955	0
Coastal	BRI1	30/08/2022	Trout	fry	1.021302288	NA	NA	0.997530666	NA
Coastal	BRI1	30/08/2022	Trout	parr	0.250434239	NA	NA	0.235928284	NA
Coastal	BRI2	30/08/2022	Salmon	fry	0	0.02454767	0.012008787	-0.02454767	0
Coastal	BRI2	30/08/2022	Salmon	parr	0	0.02454767	0.012008787	-0.012008787	0
Coastal	BRI2	30/08/2022	Trout	fry	1.545758156	NA	NA	1.521210486	NA
Coastal	BRI2	30/08/2022	Trout	parr	0	NA	NA	-0.012008787	NA
Coastal	BRI3	30/08/2022	Salmon	fry	0	0.02454767	0.012008787	-0.02454767	0
Coastal	BRI3	30/08/2022	Salmon	parr	0	0.02454767	0.012008787	-0.012008787	0
Coastal	BRI3	30/08/2022	Trout	fry	0.680851096	NA	NA	0.656303426	NA
Coastal	BRI3	30/08/2022	Trout	parr	0	NA	NA	-0.012008787	NA
Coastal	TOM1	31/08/2022	Salmon	fry	0	0.089405908	0.045700026	-0.089405908	0
Coastal	TOM1	31/08/2022	Salmon	parr	0	0.089405908	0.045700026	-0.045700026	0
Coastal	TOM1	31/08/2022	Trout	fry	0.346674123	NA	NA	0.257268215	NA
Coastal	TOM1	31/08/2022	Trout	parr	0.591678196	NA	NA	0.54597817	NA
Coastal	MON1	01/09/2022	Salmon	fry	0.076686122	0.351881647	0.100461863	-0.275195525	21.7931576
Coastal	MON1	01/09/2022	Salmon	parr	0.0349973	0.351881647	0.100461863	-0.065464564	34.83640309
Coastal	MON1	01/09/2022	Trout	fry	0.847651513	NA	NA	0.495769866	NA
Coastal	MON1	01/09/2022	Trout	parr	0.163097588	NA	NA	0.062635725	NA
Coastal	RED1	01/09/2022	Salmon	fry	0	0.053453546	0.030234711	-0.053453546	0
Coastal	RED1	01/09/2022	Salmon	parr	0	0.053453546	0.030234711	-0.030234711	0
Coastal	RED1	01/09/2022	Trout	fry	0.276487746	NA	NA	0.223034201	NA
Coastal	RED1	01/09/2022	Trout	parr	0.032351501	NA	NA	0.00211679	NA

BEAVER BASELINE/ DATA GAP SHINEY APP OUTPUT

Purpose	Site_Name	Date	Species	lifestage	Observed_Density/m2	Benchmark_Fry_Density	Benchmark_Parr_Density	Density_difference	Density_percentage_difference
Beaver	NEPS21_313	12/09/2022	Salmon	fry	1.055946378	0.482600474	0.128087453	0.573345904	218.8034
Beaver	NEPS21_313	12/09/2022	Salmon	parr	0.130925443	0.482600474	0.128087453	0.00283799	102.2157
Beaver	NEPS21_313	12/09/2022	Trout	fry	0.632434609	NA	NA	0.149834135	NA
Beaver	NEPS21_313	12/09/2022	Trout	parr	0	NA	NA	-0.128087453	NA
Beaver	BEL4	13/09/2022	Salmon	fry	0	0.151941783	0.080018137	-0.151941783	0
Beaver	BEL4	13/09/2022	Salmon	parr	0	0.151941783	0.080018137	-0.080018137	0
Beaver	BEL4	13/09/2022	Trout	fry	0.79890891	NA	NA	0.646967127	NA
Beaver	BEL4	13/09/2022	Trout	parr	0.257087706	NA	NA	0.177069569	NA
Beaver	BRU2	13/09/2022	Salmon	fry	1.552640071	0.293076462	0.107184356	1.25956361	529.773
Beaver	BRU2	13/09/2022	Salmon	parr	0.304542592	0.293076462	0.107184356	0.197358236	284.1297
Beaver	BRU2	13/09/2022	Trout	fry	0.50967741	NA	NA	0.216600949	NA
Beaver	BRU2	13/09/2022	Trout	parr	0.122426209	NA	NA	0.015241853	NA
Beaver	CUL1	13/09/2022	Salmon	fry	0.267478261	0.081245892	0.055129434	0.186232369	329.2207
Beaver	CUL1	13/09/2022	Salmon	parr	0.018834324	0.081245892	0.055129434	-0.03629511	34.16383
Beaver	CUL1	13/09/2022	Trout	fry	0.364603185	NA	NA	0.283357294	NA
Beaver	CUL1	13/09/2022	Trout	parr	0.01775218	NA	NA	-0.037377254	NA
Beaver	AGA1	14/09/2022	Salmon	fry	0	0.261128374	0.1361022	-0.261128374	0
Beaver	AGA1	14/09/2022	Salmon	parr	0	0.261128374	0.1361022	-0.1361022	0
Beaver	AGA1	14/09/2022	Trout	fry	0.071490367	NA	NA	-0.189638008	NA
Beaver	AGA1	14/09/2022	Trout	parr	0.010903628	NA	NA	-0.125198572	NA
Beaver	AL1	14/09/2022	Salmon	fry	0	0.119390234	0.092259702	-0.119390234	0
Beaver	AL1	14/09/2022	Salmon	fry	0	0.119390234	0.092259702	-0.119390234	0
Beaver	AL1	14/09/2022	Salmon	parr	0	0.119390234	0.092259702	-0.092259702	0
Beaver	AL1	14/09/2022	Salmon	parr	0	0.119390234	0.092259702	-0.092259702	0
Beaver	AL1	14/09/2022	Trout	fry	0.230754746	NA	NA	0.111364513	NA
Beaver	AL1	14/09/2022	Trout	fry	0.230754746	NA	NA	0.111364513	NA
Beaver	AL1	14/09/2022	Trout	parr	0.01006816	NA	NA	-0.082191542	NA
Beaver	AL1	14/09/2022	Trout	parr	0.01006816	NA	NA	-0.082191542	NA
Beaver	ADC1	15/09/2022	Salmon	fry	0	0.258939066	0.129726276	-0.258939066	0
Beaver	ADC1	15/09/2022	Salmon	parr	0	0.258939066	0.129726276	-0.129726276	0
Beaver	ADC1	15/09/2022	Trout	fry	0.126134465	NA	NA	-0.132804601	NA
Beaver	ADC1	15/09/2022	Trout	parr	0.049418123	NA	NA	-0.080308153	NA

Purpose	Site_Name	Date	Species	lifestage	Observed_Density/m2	Benchmark_Fry_Density	Benchmark_Parr_Density	Density_difference	Density_percentage_difference
Beaver	ADE1	15/09/2022	Salmon	fry	0	0.303789799	0.138874088	-0.303789799	0
Beaver	ADE1	15/09/2022	Salmon	fry	0	0.303789799	0.138874088	-0.303789799	0
Beaver	ADE1	15/09/2022	Salmon	fry	0	0.303789799	0.138874088	-0.303789799	0
Beaver	ADE1	15/09/2022	Salmon	parr	0	0.303789799	0.138874088	-0.138874088	0
Beaver	ADE1	15/09/2022	Salmon	parr	0	0.303789799	0.138874088	-0.138874088	0
Beaver	ADE1	15/09/2022	Salmon	parr	0	0.303789799	0.138874088	-0.138874088	0
Beaver	ADE1	15/09/2022	Trout	fry	0.13923641	NA	NA	-0.16455339	NA
Beaver	ADE1	15/09/2022	Trout	fry	0.13923641	NA	NA	-0.16455339	NA
Beaver	ADE1	15/09/2022	Trout	fry	0.13923641	NA	NA	-0.16455339	NA
Beaver	ADE1	15/09/2022	Trout	parr	0.010469335	NA	NA	-0.128404754	NA
Beaver	ADE1	15/09/2022	Trout	parr	0.010469335	NA	NA	-0.128404754	NA
Beaver	ADE1	15/09/2022	Trout	parr	0.010469335	NA	NA	-0.128404754	NA
Beaver	FL1	15/09/2022	Salmon	fry	0	0.060617506	0.058745191	-0.060617506	0
Beaver	FL1	15/09/2022	Salmon	parr	0	0.060617506	0.058745191	-0.058745191	0
Beaver	FL1	15/09/2022	Trout	fry	0.183607276	NA	NA	0.12298977	NA
Beaver	FL1	15/09/2022	Trout	parr	0.144672467	NA	NA	0.085927275	NA
Beaver	AG1	19/09/2022	Salmon	fry	0	0.261128374	0.1361022	-0.261128374	0
Beaver	AG1	19/09/2022	Salmon	parr	0	0.261128374	0.1361022	-0.1361022	0
Beaver	AG1	19/09/2022	Trout	fry	0.454437216	NA	NA	0.193308842	NA
Beaver	AG1	19/09/2022	Trout	parr	0.06451746	NA	NA	-0.071584741	NA
Beaver	HB1	19/09/2022	Salmon	fry	0.836621314	0.062570427	0.052675109	0.774050886	1337.087
Beaver	HB1	19/09/2022	Salmon	parr	0.339273382	0.062570427	0.052675109	0.286598272	644.0867
Beaver	HB1	19/09/2022	Trout	fry	0.371504991	NA	NA	0.308934564	NA
Beaver	HB1	19/09/2022	Trout	parr	0.02013168	NA	NA	-0.032543429	NA
Beaver	UT1	19/09/2022	Salmon	fry	0	0.035862408	0.030443919	-0.035862408	0
Beaver	UT1	19/09/2022	Salmon	parr	0	0.035862408	0.030443919	-0.030443919	0
Beaver	UT1	19/09/2022	Trout	fry	0	NA	NA	-0.035862408	NA
Beaver	UT1	19/09/2022	Trout	parr	0	NA	NA	-0.030443919	NA
Beaver	KB1	20/09/2022	Salmon	fry	0.823990211	0.107981662	0.075121223	0.716008549	763.0835
Beaver	KB1	20/09/2022	Salmon	fry	0.823990211	0.107981662	0.075121223	0.716008549	763.0835
Beaver	KB1	20/09/2022	Salmon	fry	0.823990211	0.107981662	0.075121223	0.716008549	763.0835
Beaver	KB1	20/09/2022	Salmon	parr	0.09361057	0.107981662	0.075121223	0.018489347	124.6127
Beaver	KB1	20/09/2022	Salmon	parr	0.09361057	0.107981662	0.075121223	0.018489347	124.6127
Beaver	KB1	20/09/2022	Salmon	parr	0.09361057	0.107981662	0.075121223	0.018489347	124.6127
Beaver	KB1	20/09/2022	Trout	fry	0.618956597	NA	NA	0.510974934	NA
Beaver	KB1	20/09/2022	Trout	fry	0.618956597	NA	NA	0.510974934	NA
Beaver	KB1	20/09/2022	Trout	fry	0.618956597	NA	NA	0.510974934	NA
Beaver	KB1	20/09/2022	Trout	parr	0.055320269	NA	NA	-0.019800954	NA
Beaver	KB1	20/09/2022	Trout	parr	0.055320269	NA	NA	-0.019800954	NA
Beaver	KB1	20/09/2022	Trout	parr	0.055320269	NA	NA	-0.019800954	NA

Purpose	Site_Name	Date	Species	lifestage	Observed_Density/m2	Benchmark_Fry_Density	Benchmark_Parr_Density	Density_difference	Density_percentage_difference
Beaver	BLB1	21/09/2022	Salmon	fry	0.025890916	0.058727264	0.042351606	-0.032836348	44.08671
Beaver	BLB1	21/09/2022	Salmon	parr	0.023636788	0.058727264	0.042351606	-0.018714818	55.81084
Beaver	BLB1	21/09/2022	Trout	fry	0.965792992	NA	NA	0.907065728	NA
Beaver	BLB1	21/09/2022	Trout	parr	0.111452482	NA	NA	0.069100877	NA
Beaver	CB1	21/09/2022	Salmon	fry	0.020377534	0.081245892	0.055129434	-0.060868358	25.08131
Beaver	CB1	21/09/2022	Salmon	fry	0.020377534	0.081245892	0.055129434	-0.060868358	25.08131
Beaver	CB1	21/09/2022	Salmon	parr	0	0.081245892	0.055129434	-0.055129434	0
Beaver	CB1	21/09/2022	Trout	fry	0.176170153	NA	NA	0.094924261	NA
Beaver	CB1	21/09/2022	Trout	fry	0.176170153	NA	NA	0.094924261	NA
Beaver	CB1	21/09/2022	Trout	parr	0.150864708	NA	NA	0.095735274	NA
Beaver	CB1	21/09/2022	Trout	parr	0.150864708	NA	NA	0.095735274	NA
Beaver	CB2	21/09/2022	Salmon	fry	0.681141694	0.14068965	0.072645548	0.540452044	484.1449
Beaver	CB2	21/09/2022	Salmon	parr	0.030339617	0.14068965	0.072645548	-0.04230593	41.7639
Beaver	CB2	21/09/2022	Trout	fry	0.550650468	NA	NA	0.409960818	NA
Beaver	CB2	21/09/2022	Trout	parr	0.042462235	NA	NA	-0.030183312	NA
Beaver	AR1	28/09/2022	Salmon	fry	0	0.183512906	0.111970667	-0.183512906	0
Beaver	AR1	28/09/2022	Salmon	parr	0	0.183512906	0.111970667	-0.111970667	0
Beaver	AR1	28/09/2022	Trout	fry	0.302386088	NA	NA	0.118873183	NA
Beaver	AR1	28/09/2022	Trout	parr	0.127861916	NA	NA	0.015891248	NA
Beaver	ARS1	28/09/2022	Salmon	fry	0	0.04063547	0.031267602	-0.04063547	0
Beaver	ARS1	28/09/2022	Salmon	parr	0	0.04063547	0.031267602	-0.031267602	0
Beaver	ARS1	28/09/2022	Trout	fry	0.324698543	NA	NA	0.284063073	NA
Beaver	ARS1	28/09/2022	Trout	parr	0	NA	NA	-0.031267602	NA
Beaver	BLB3	29/09/2022	Salmon	fry	0	0.058727264	0.042351606	-0.058727264	0
Beaver	BLB3	29/09/2022	Salmon	parr	0	0.058727264	0.042351606	-0.042351606	0
Beaver	BLB3	29/09/2022	Trout	fry	0.9418126	NA	NA	0.883085336	NA
Beaver	BLB3	29/09/2022	Trout	parr	0.204682137	NA	NA	0.162330532	NA
Beaver	ALT	04/10/2022	Salmon	fry	0	0.047897999	0.038370307	-0.047897999	0
Beaver	ALT	04/10/2022	Salmon	parr	0	0.047897999	0.038370307	-0.038370307	0
Beaver	ALT	04/10/2022	Trout	fry	0.05412432	NA	NA	0.006226321	NA
Beaver	ALT	04/10/2022	Trout	parr	0	NA	NA	-0.038370307	NA
Beaver	BEL3	06/10/2022	Salmon	fry	0.372934966	0.39203971	0.119930175	-0.019104743	95.12683
Beaver	BEL3	06/10/2022	Salmon	fry	0.372934966	0.39203971	0.119930175	-0.019104743	95.12683
Beaver	BEL3	06/10/2022	Salmon	fry	0.372934966	0.39203971	0.119930175	-0.019104743	95.12683
Beaver	BEL3	06/10/2022	Salmon	parr	0.077456031	0.39203971	0.119930175	-0.042474144	64.58427
Beaver	BEL3	06/10/2022	Salmon	parr	0.077456031	0.39203971	0.119930175	-0.042474144	64.58427
Beaver	BEL3	06/10/2022	Salmon	parr	0.077456031	0.39203971	0.119930175	-0.042474144	64.58427
Beaver	BEL3	06/10/2022	Trout	fry	0.189867263	NA	NA	-0.202172446	NA
Beaver	BEL3	06/10/2022	Trout	fry	0.189867263	NA	NA	-0.202172446	NA
Beaver	BEL3	06/10/2022	Trout	fry	0.189867263	NA	NA	-0.202172446	NA
Beaver	BEL3	06/10/2022	Trout	parr	0.059108044	NA	NA	-0.06082213	NA
Beaver	BEL3	06/10/2022	Trout	parr	0.059108044	NA	NA	-0.06082213	NA
Beaver	BEL3	06/10/2022	Trout	parr	0.059108044	NA	NA	-0.06082213	NA