



NESS DISTRICT SALMON FISHERY BOARD

2024 Annual Report

Including Accounts to Year Ending March 2024



www.ndsfb.org

Foreword

CHAIRMANS REPORT

As you can see from our comprehensive annual report, it has been another very busy and demanding year.

We generated a healthy surplus in our annual accounts this has increased our cash reserves to circa nine months of operating costs. Our profitability can vary substantially from year to year dependent largely on project costs, but also on one off expenditure such as the costs we are having to carry in our fight against pump storage developments on Loch Ness.

The scramble by developers to extract water from Loch Ness is very concerning and we formed a subcommittee to coordinate our pumped storage strategy and media responses to the spin being generated by these multinational developers. Our campaign began at the start of 2024 with the release of an excellent video prepared with the assistance of Mackenzie Fly Fishing and that really got the ball rolling, and we have received excellent media coverage at local and national level on both press and television. A big concern is that the multinationals are looking to speed up the planning process by bypassing local government with the result there will be less scrutiny on environmental and ecological issues, these being issues they are finding difficult to combat.

There is good news, our catches are up, albeit not yet to previous levels, but hopefully the bottom of the cycle has been reached and we are now in for a period of improved catches. Most fisheries within the catchment are now 100% catch and release and this can only further aid our catch statistics.

More good news. The new counters are now operational on the Morriston and Garry Dams, with the Garry total this year being one hundred fish passing through the counter and it is a very long time since the count has been in three figures. Hopefully we are now seeing benefits from the Garry project.

Another significant development was the formation of a hatchery subcommittee which looked at how we could enhance the salmon population within the river Ness. The conclusion was that we adopt a policy of releasing autumn parr into the river, in the expectation of increasing the number of smolts going to sea. We have agreed a five-year plan with the Drimsallie hatchery in Lochaber and the first of our brood-stock are now being held there. The costs are substantial and we will look at ways of enhancing income through ring fenced donations for this project.

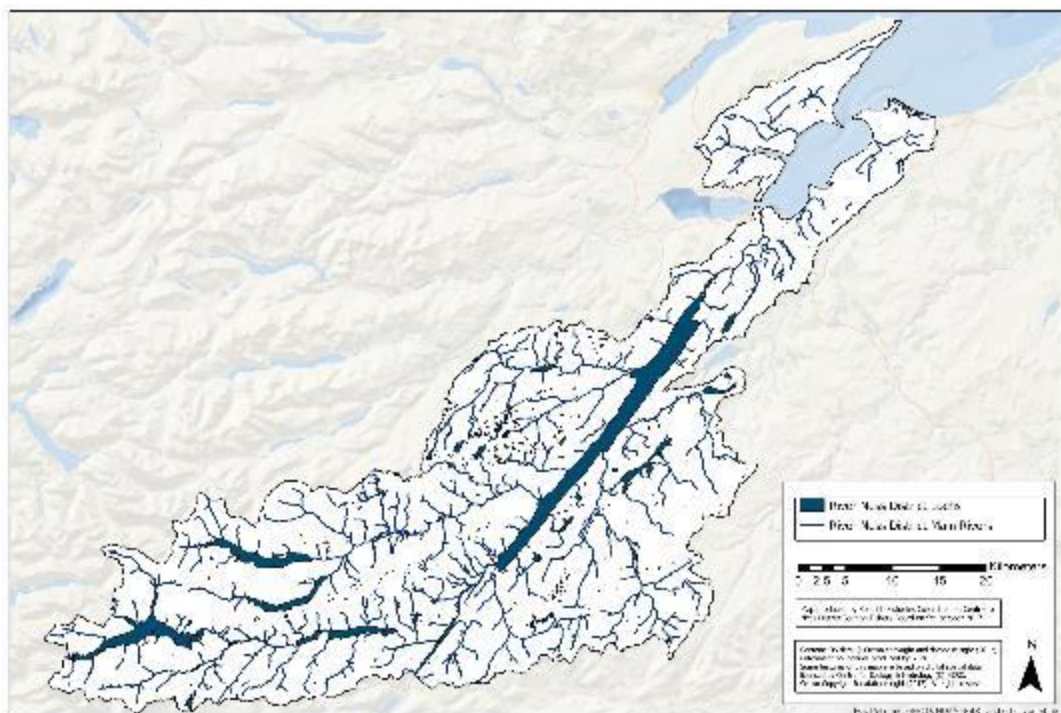
I have highlighted a little of what is going on within the catchment and you can see from the Annual Report the issues that we are dealing with are substantial and I thank my fellow board members, subcommittees and not least the team on the ground for their enthusiastic efforts in the management, protection and enhancement of our catchment.

Neil Cameron, Ness DSFB Chairman

About Us

The Ness District Salmon Fishery Board (Ness DSFB) is a statutory body responsible for the protection and enhancement of salmon and sea trout fisheries in the Ness district. It was constituted under the 1862 and 1868 salmon fisheries legislation, subsequently amended in the Salmon Act 1986 and the Salmon Conservation (Scotland) Act 2001 and more recently amalgamated under the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003.

Map showing the extent of the Ness District and the main rivers and lochs therein



Salmon fishing rights in Scotland are private heritable titles that are registered separately from land and can be bought and sold like any other property. The district boards finance their work by levying a rate on the salmon fishery owners in the district. The 2003 Act states that a district board shall have the power to impose an assessment, to be known as the fishery assessment, on each salmon fishery in their district. The fishery assessment is assessed at such uniform rate as is determined for all fisheries in the district by the board and shall be levied according to the valuation of a fishery as entered onto the valuation roll.

Elected representatives of those salmon fishery owners provide the core of the membership of the board. Since 1986, the boards are required also to include representatives of salmon anglers and salmon nets men in the district. A further revision to the constitution of the boards was made in 1999 to allow for even wider representation on the boards by other parties who may have an interest in salmon stocks or fisheries. A district salmon fishery board may do such acts, execute such works and incur such expenses as may appear expedient for:

- The protection or improvement of the fisheries within their district;
- The increase of salmon (and sea trout); or
- The stocking of the waters of the district with salmon (and sea trout).

Our Team

BOARD MEMBERS

Board members are elected triennially with the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 specifying who may stand for election, how many may be elected and how many may represent the lower and upper proprietors. The latest elections took place in September 2022. Board members are all volunteers and are non-remunerated for their time and effort. The elected board members subsequently elect one of the members to be their chairman. The current board members are as follows:

<i>Representatives of Upper Proprietors</i>	Neil Cameron, Chairman (Mandate, Ness Castle, River Ness) Steven Gray (Mandate, Glen Moriston Estate, River Moriston) Tim Kirkwood (Mandate, Dochfour & Laggan, River Ness) Angus MacGruer (Proprietor, River Oich) Paul Ryder (Mandate, Ness-Side, River Ness) Peter Thomas (Mandate, River Garry)
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<i>Representatives of Lower Proprietors</i>	Cllr Ryan MacKintosh (Mandate Highland Council, River Ness)
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<i>Co-optees of salmon Anglers</i>	Graham Mackenzie (Ness District Anglers) Steve Watt (Inverness Angling Club)
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The Ness DSFB invites further representation onto the board in a non-voting capacity.

<i>Non-voting Attendees</i>	Dr. Victoria Pritchard (UHI Inverness College) Andrew Steel (Scottish Environment Protection Agency)
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BOARD STAFF

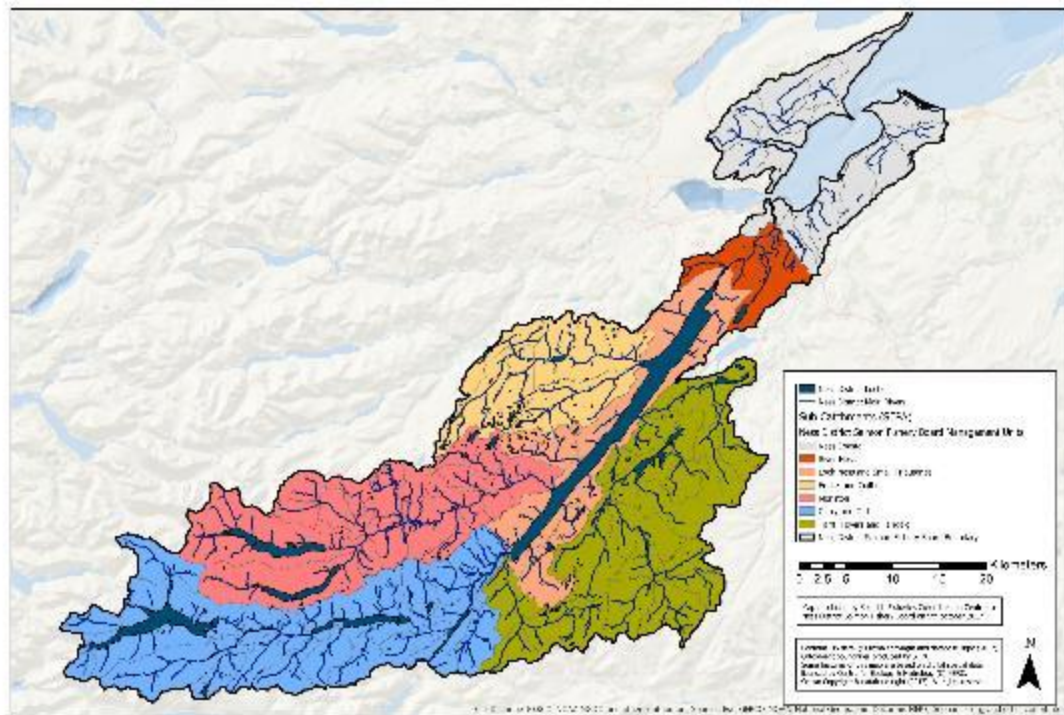
The board employs a number of full and part time staff responsible for the day-to-day management and delivery of its core duties and responsibilities:

<i>River Director</i>	Brian Shaw
<i>Clerk to the Board</i>	Alistair Campbell
<i>Head Water Bailiff</i>	John MacColl
<i>Fisheries Officer</i>	Chris Daphne
<i>Part Time Assistant</i>	Lynne Daphne

The Ness System

The Ness catchment is the largest in the North Highlands and drains 2,103 square kilometres of land. The upper reaches extend almost to the west coast, close to Loch Hourn and Loch Nevis. The land drains east and north through the Great Glen before entering the sea in the Moray Firth at Inverness. For management purposes the district can be sub-divided into seven key management units.

Ness System Fishery Management Units



Each of these management units is described in further detail below:

- **Ness Coastal** - Inverness Firth and smaller coastal burns, particularly important for sea trout but also salmon;
- **River Ness** – The temperature of the main River Ness is buffered by Loch Ness. Key tributaries of the main river, include the Holm Burn and Allt na Skiach Burn;
- **Loch Ness and Small Tributaries** – The famous loch extends to 37km with many smaller tributaries, the mouths of which can be important spawning areas for salmon, trout and arctic charr;
- **Rivers Enrick and Coiltie** – Flowing into Urquhart Bay through one of the few alluvial woods remaining in the United Kingdom which is designated as a Site of Special Scientific Interest (SSSI). An important salmon and trout spawning tributary.
- **River Moriston** – Designated as a Special Area of Conservation (SAC) for freshwater pearl mussel and Atlantic salmon. It supports an important ‘spring’ salmon fishery and is heavily impacted by large scale hydro-electric schemes;
- **Rivers Garry and Oich** – The River Oich runs parallel to the Caledonian Canal, with extensive modifications

being made to its course during the construction of the canal. The two rivers are separated by Loch Oich. Both the Garry and Oich support important 'spring' salmon fisheries and are heavily impacted by large scale hydro-electric schemes;

- **Rivers Tarff, Foyers and Farigaig** – All support salmon populations to a greater or lesser degree and form important juvenile and nursery areas. The Tarff and Foyers are impacted by hydro-electric schemes.



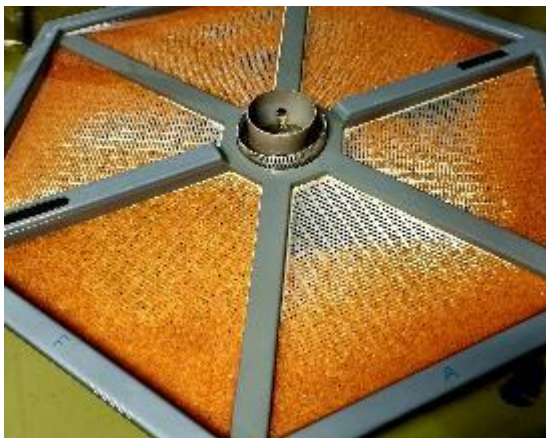
The River Klingie

In addition to the above, the Caledonian Canal intersects the Ness system at various points. The canal runs some 60 miles (97 km) from north-east to south-west. Only one third of the entire length is man-made, the rest being formed by Loch Dochfour, Loch Ness, Loch Oich and Loch Lochy (in the neighbouring catchment).

What We Do

FISHERIES MONITORING

The Ness DSFB works in close partnership with others to gain a detailed and up to date understanding of the status of salmon and sea trout populations within the district. This allows us to make an informed assessment of the potential impacts of development proposals, assess applications for scientific and other exemptions to the 2003 Act and to inform our fisheries management activities.



FISHERIES MANAGEMENT

The principle aim of our fisheries management activities is to maximise the natural production of salmon and sea trout in the Ness District through the protection and enhancement of spawning success and juvenile survival. The overall objective is to maximise the number of wild 'healthy' salmon smolts going to sea from our rivers. We work with a wide range of partners to achieve these aims and objectives.

FISHERIES PROTECTION

The Ness DSFB employs a team of highly experienced and Institute of Fisheries Management (IFM) Certified water bailiffs. They are responsible for enforcement of the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. Our water bailiffs carry out regular patrols of the catchment throughout the year. They work closely with Police Scotland and officers from other law enforcement agencies.



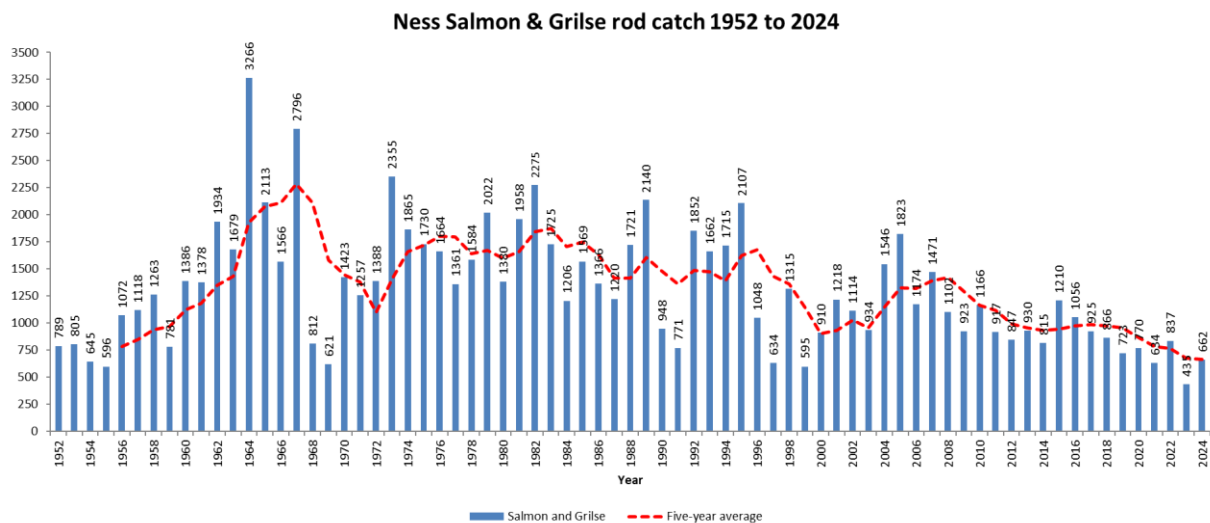
FISHERIES PROMOTION, EDUCATION AND DEVELOPMENT

Fishing effort on the Ness system has been in decline for a number of years. The fewer the rods fishing the lower the annual catch. This has a 'knock on' effect of further discouraging anglers from fishing. For the sustainability of the sector, it is important that measures are taken to break the circle and encourage more rods on the river, both in the short and longer term.

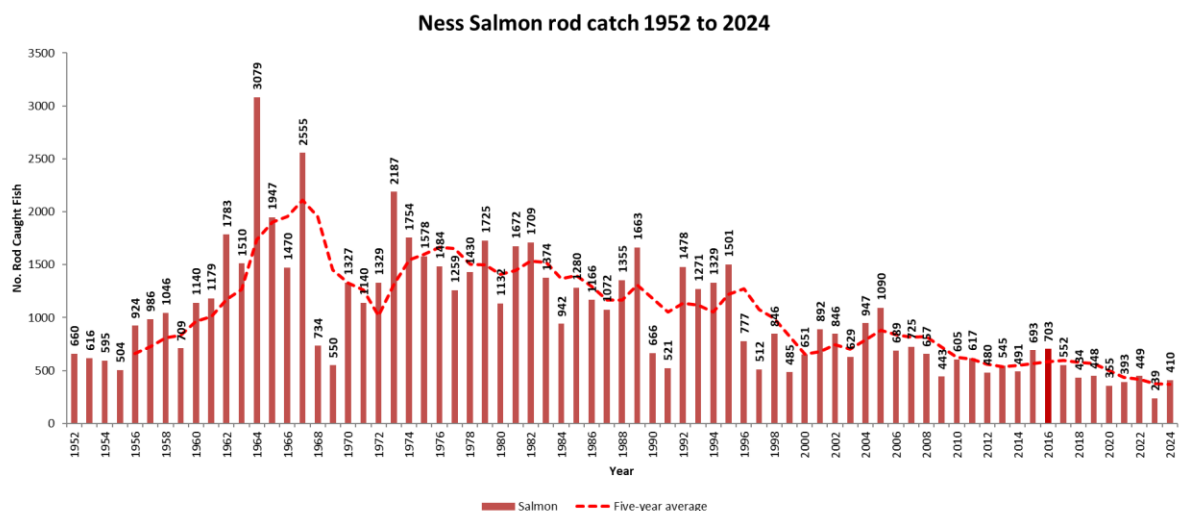
LATEST NESS DISTRICT CATCHES

SALMON

The Ness salmon and grilse catch recovered a little in 2024, although the catch was still in the bottom ten annual returns since 1952. Angling conditions were much better than the previous year with cool, wet and windy weather prevailing, which did hamper angling on Loch Ness. The reported salmon and grilse rod catch on the Ness system was 662 (435 in 2023). Despite a more positive year across many rivers in Scotland the five-year average on the Ness continues to decline. There were some bright spots; the spring fishing in the upper catchment was better, for periods.

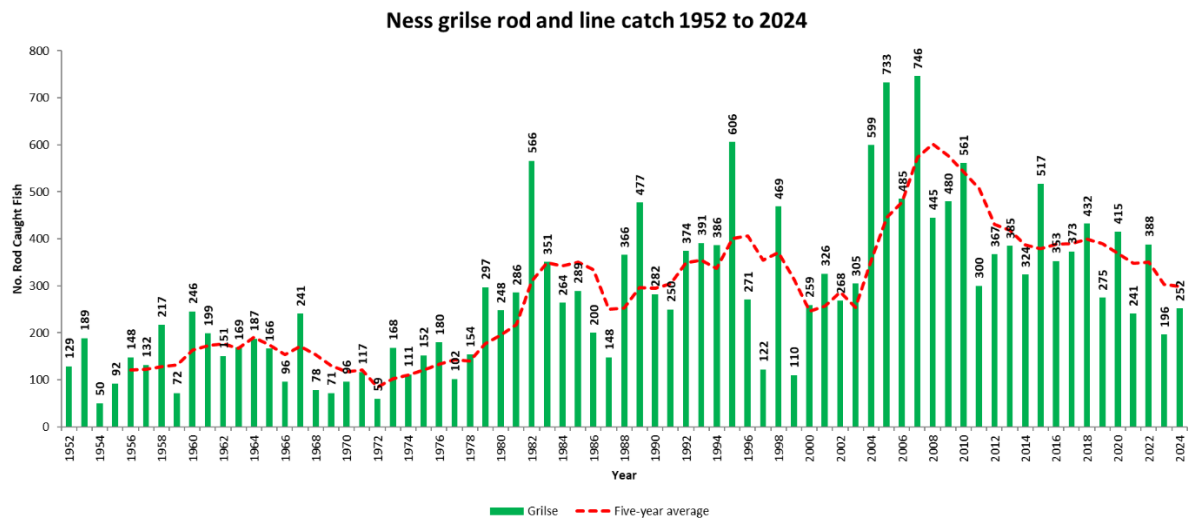


The reported catch of salmon (410) improved somewhat on 2023 (239) but it remains one lowest salmon catches on record. One interesting feature was the run of smaller spring salmon (7-10lb) that ran the river in March and April.

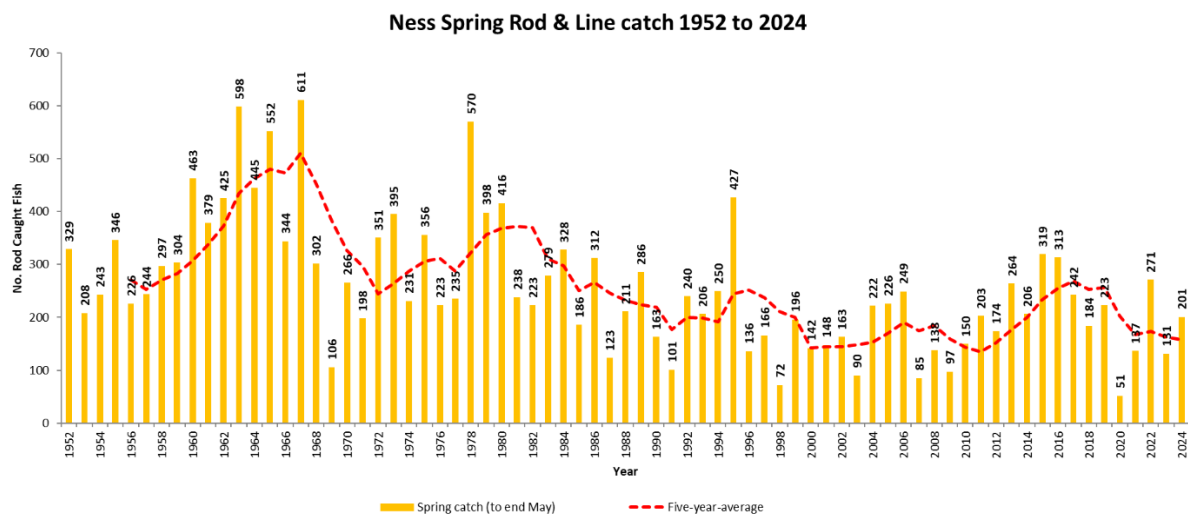


The 2024 grilse catch was 252, below the five-year average of 298. In contrast to the run of small springers, 2024 was notable for the improved average weight of the grilse. Scale readings confirmed

that grilse of up to 9lb featured in the catch, with the majority in the 5-8lb range. It will be interesting to see if the good growth exhibited by the one-sea-winter grilse is replicated in the salmon run of 2025.



As mentioned above the one bright spot was the spring catch which was above the five-year-average. The proportion of the spring catch landed in the upper catchment increased in 2024 with 79% landed in traditional upper catchment spring fisheries, and 21% from the River Ness. In 2023, a low water year, 54% of the spring fish caught were landed in the River Ness. Water levels in 2024, combined with increased angling effort, suited the upper catchment spring fisheries.

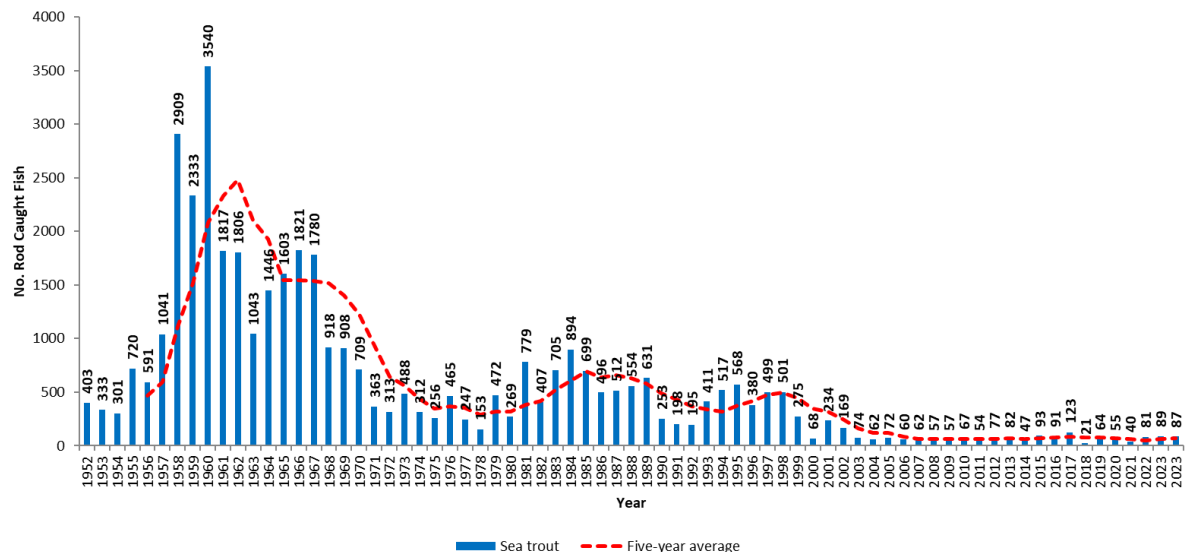


SEA TROUT

The decline in the Ness Sea trout catch, which is replicated elsewhere on the east coast, had been dramatic. The 1960s produced huge catches of sea trout, declining in the 70s, although the average annual catch from 1970 to 1999 was over 450. From 2000 to 2024, the average annual catch declined to 74. The 2024 catch was above the recent average at 87, similar to the 2023 catch (89). The majority of the sea trout caught came from the River Ness (92%), with the Inverness Angling Club waters producing most of these.

We hold no formal records of brown trout catches in the Ness catchment but the River Ness appears to support a large population, as does Loch Ness. If conditions for marine survival become unfavourable, e.g. due to lack of feeding, or additional parasite load, a switch from a migratory lifecycle to freshwater residence may occur. A population level response like that could explain the rapid decline in the catch of sea trout in the Ness.

Ness Sea Trout Rod & Line catches 1952 to 2024



CATCH SUMMARY

In many catchments the 2024 salmon catch will be regarded as much improved compared to recent years, in particular the summer catches, which in some rivers was the best for a decade. Although catches did improve on the Ness, certainly compared to the previous year, it was still a relatively poor catch. History shows that catches on the Ness do not necessarily follow national trends, most obviously during the years 2004 to 2012, a period when catches nationally were high, culminating in the rod caught record of over 111,000 fish in 2010. During that same period Ness catches were in decline and in 2012, the Ness rod catch was 0.98% of the Scotland total, the only occasion when the rod catch has dropped below 1% of the Scotland total.

The reasons why the Ness catch doesn't follow National trends are not clear although the presence of Loch Ness so close to the mouth may be a factor

The 2024 spring catch is probably the most encouraging feature of the season There are high hopes locally that this will continue to be the case in 2025.

Latest Fish Counter Data

Scottish and Southern Renewables (SSER) installed new generation fish counters in the Dundreggan and Invergarry Dams in April 2023. This type of counter is based on artificial interrogation (AI) of video footage. The roll-out of the AI fish counters followed successful trials at four other hydro dams in 2022 with positive results. The plan was to operate these new counters alongside the existing resistivity counters, which may provide a level of corroboration, and might facilitate an estimation of undercounts during previous years.

SSER provided a verbal update regarding the fish counts in early November. The net upstream count (non-salmon counts and downstream moving fish removed) at Invergarry for 2024 was 100 adult salmon. This figure was generated by the new AI counter, but it is a significant improvement on the average of 33 over the last five years. Although this latest count is positive it still indicates that the salmon population upstream of Garry Dam is well below the historic counts, and probably less than required to ensure that the area above the Dam is fully stocked. For comparison, during the 1970s and 1980s the five-year average count at the dam was generally over 300; that being a period when exploitation from nets and rods was high.

On the Moriston the uncorrected count at Dundreggan was 206, which is above the five-year average of 185. This count was from the MK12 resistivity counter only as issues with glare still need to be resolved to allow proper analysis of the video footage from the AI counter. At other locations the counts generated by the AI counters have been higher than the older resistivity counters.

The ultimate aim of the AI counts is to have the data available almost real-time.

Biologist/Activities Report

2024 was an extremely busy year both on the bank and behind the scenes with pump storage hydro developments on Loch Ness being at the forefront. The Ness DSFB Pump Storage Hydro Steering Group, and it's media advisor worked tirelessly behind the scenes co-ordinating a media campaign, through the press, TV and video campaigns.

In addition, the Board held a series of public meetings at locations across the catchment highlighting our concerns regarding these developments. All were well attended by the local communities. Meetings were held in Drumnadrochit, Invermoriston, Fort Augustus, Dores and Whitebridge. A presentation was delivered that informed the potential issues affecting not only salmon but the wider ecology of the loch. Further information on the current status can be found later in this document.



Whitebridge Public meeting

OPENING DAYS

Brian and Chris attended the opening day on the River Moriston where Ronnie Fraser had the honour of making the first after the river was blessed with a dram of whisky by Mrs Olsen. The capture of the largest salmon last year (24lb) was presented with a quaich, and 'Spud' the piper accompanied the procession to the river.

Opening days on the River Garry and River Ness were also attended. On the Ness, Scott Hay piped the gathering down to the river at the Pringles Woollen Mill. At the river, Neil Souter, Pringles Mill manager, blessed the river with a dram, and Sandy Paterson had the honour of making the first cast of the 2024 season.

Sandy Paterson, who had his eightieth birthday this year, and who has been a member of Inverness Angling Club for 68 years, was delighted to make the first cast. Sandy is now an Honorary member of the Club, and has served in various roles on the committee. It was great to see that his family, including grandchildren, had made it along to witness the occasion.



Opening Day on the Ness

ILLEGAL FLY TIPPING

It was very disappointing, to see that over 300 tyres were dumped on the shores of Loch Ness earlier this year. The location was below a layby, close to Drumnadrochit, and at the bottom of a very steep escarpment, this made retrieval extremely difficult. Removal was co-ordinated by Brian and they were successfully retrieved by MOWI staff in conjunction with SEPA and Highland Council. An investigation by SEPA was carried out.



Tyres dumped illegally on the shores of Loch Ness(above), and recovery by Mowi staff (below).

REDD COUNTS RIVER NESS

The drone was used in February to count redds on the Ness mainstem, in areas that has previously been well utilised. Previous counts have shown up to 40 redds visible. However, this spring 2024 saw lower numbers indicating a decrease in spawning in this area, although salmon fry counts in the Ness were up. Some redds were visible but not in the numbers usually seen here.



Ness Castle redds February 2024

Spawning on the mainstem Ness usually occurs late in December and runs through to late January due to the temperature buffering capacity of Loch Ness. It was therefore interesting to see a number of redds appearing in November 2024 at the tail of Laggan at Ness castle. This is much earlier than normal and may be due to the lower temperatures encountered throughout 2024 and the cold snap in November which saw the temperature in the Ness drop to 7°C.

REDD COUNTS UPPER SYSTEM

A visit to Cluanie dam and Bun Loyne on the River Moriston in November revealed that salmon had begun spawning. A small number of redds were observed with a solitary hen still cutting. It was thought at the time that this was probably just the start of spawning activity. This was confirmed a

week later when over a dozen redds were observed. This bodes well as historical surveys have shown very few (if any) fry in these areas. A few more redds have appeared in the upper reaches of the Moriston in recent years and this has coincided with increased juvenile numbers.



River Moriston November 2024

A visit to Allt Choire Bhalachain in November 2024 resulted in two redds observed along with two large fish in close proximity. It is likely that these were salmon which is encouraging as no redds were observed last year. Electrofishing surveys next year should confirm this.

A visit to the lower River Kingie in December 2024 resulted in a small number of Redds observed. These were difficult to spot, it is likely that high water/spates may have flattened some redds, this is a natural occurrence and it may be that more redds were present than actually observed.



A lower Kingie Redd

UPPER GARRY RESTORATION PROJECT

The final stocking for The Upper Garry Salmon Restoration Project took place this year. The number of eggs scheduled for stocking out in 2024 was limited as there was only one year class of fish to be stripped. The number actually available for stocking was reduced further due to a fungal outbreak in the hatchery which meant that fewer fish survived to stripping.

Given the limited number of eggs, we decided to stock them all in the Gearr Garry, which was stocked for the first-time last year, with some success. The eggs were split over four sites covering the full length of the river. The eggs were in good condition and the weather relented for the duration of the stocking. Approximately 30,000 eggs were stocked.



Lynne digging redds in the middle reaches below Quoich dam

This year no eggs were stocked into the Greenfield burn, Allt Choire Bhalachain or River Kingie. Stock assessment surveys at these sites revealed that fry and parr numbers seem to be holding up on the River Kingie, this is due to a higher proportion of 'wild spawners'. Both Greenfield burn and Allt Choire Bhalachain showed a big reduction in densities. Fry were absent at both sites with a reduction in parr also observed. Sites surveyed on Gearr Garry showed a marked increase in both fry and parr and this is almost certainly due to stocking. The section on fish population surveys explains further.

The updated Upper Garry genetics report was received in early July. A summary is shown below:

- Scale samples, collected mainly from Dochfour, were analysed to determine which part of the catchment these returning adult fish had originated from. Only one of 58 samples was identified as being of stocked origin (2023 sample). These scale samples were from 2022 and 2023. Stocking commenced in 2018, although in low numbers. The first large scale stocking occurred in 2019, which means that two-sea-winter fish from that stocking would not be expected to return until 2023.
 - Three distinct genetic clusters from within the Ness catchment were identified from the adult and juvenile samples: a) lower Ness mainstem, b) Coiltie & Enrick & c) Upper Ness (Moriston & Garry). Juveniles from the Oich or Tarff derived most of their ancestry from the Upper Ness, but had some influence from the other two areas.
 - The origin of the adult fish scales submitted from 2022 & 2023 varied. For the 2022 adult scales, 91% of the adult scale samples submitted were derived from the Upper Ness area, whereas in 2023 only 52% were from the upper Ness, with 11% from the lower Ness, 28% derived from the Coiltie & Enrick, and 9% from the Oich.
 - In the Allt Choire Bhalachain, a stocked upper Garry tributary, there were high proportions of stocked origin juveniles in 2019, 2020 & 2022 (over 95% each year). In 2021, 17.2% were of stocked origin, whereas in 2023 (no stocking as redds observed in 2022) only 3.4% were of stocked origin. From 2019 to 2022, the number of eggs stocked in the Allt Choire Bhalachain was reasonably consistent, ranging from 13,500 to 23,000, including 2021. The low proportion of stocked origin juveniles in 2023 was expected, the lower proportion in 2021 less so. This result suggests that there was significant wild spawning in that tributary that year.
 - In the Kingie significant wild spawning clearly occurs each year, with on average 59% of the juveniles sampled being of wild-origin. The variation in the results probably related to stocking and sampling locations. In 2023, half of the Kingie genetic samples were taken from the lower Kingie, several kms downstream of the lowest stocking location, which would help account for the low percentage of stocked fish in 2023.
 - The most surprising finding was the absence of stocked origin juveniles in the Gearr Garry in 2023. Stocking occurred in the Gearr Garry in 2023 for the first time, with salmon fry subsequently captured at the all three monitoring sites (stocking locations). Salmon fry had rarely been recorded in the Gearr Garry previously, and never in the numbers recorded in 2023 and it seems improbable that there was not a major influence from stocking.
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- 75% of the sampled juveniles from the Gearr Garry shared the same (wild) origin parent.
- More than half of the juveniles (50.9%) sampled from 2019 to 2023 were the offspring of the stocking programme.
- 199 wild salmon, over the five-year period 2019 to 2023, were involved in the parentage of the wild origin juveniles sampled.
- Some wild origin parents were found to have spawned in multiple locations, most of which were contiguous e.g. Kingie or Upper Garry, although there were two fish identified as spawners in both the Allt Choire Bhalachain and the Gearr Garry, which are 5 km apart.
- The smolts that were captured for broodstock in 2016/2017/2018/2019 all contributed to the juveniles subsequently sampled in the Garry and tributaries. Y1, Y2 & Y3 eggs from the broodstock strippings, all contributed to the stocked origin fish, with the Y2 (second stripping) eggs contributing the most. This was as expected as these eggs were larger and more numerous than Y1 eggs, and Y3 eggs were only used from two broodstock year classes. There was no evidence of a contribution of the 2021 smolts (2023 stocking) in the analysis.
- One fish (sample tube ICI386), which was a Garry smolt captured on the 21st April 2017, was subsequently identified as one of the parents of a salmon fry sampled from the Allt Choire Bhalachain, and Greenfield Burn, in 2020, and as the parent of a parr sampled in the Greenfield Burn in 2021. This fish was then detected as a parent of a salmon fry in the Allt Choire Bhalachain in 2023, a year when no stocking was done in that tributary following the observation of multiple redds in autumn 2022. This fish would have been stripped for the first time in 2018, with the first stocking of its offspring occurring in 2019. This raises the possibility that the 2023 detection in the Allt Choire Bhalachain was due to one of its offspring returning and spawning in the Allt Choire Bhalachain in 2023. This would be possible if it had smolted in 2021 and returned as a grilse in 2022.

SMOLT TRAP

In 2024, the Rotary Screw Trap was set in a brand-new location on the River Kingie. The aim was to collect DNA samples to allow the UHI geneticists to work out how many were of stocked origin.

We also wanted to try and establish trap efficiency, collect biometric data such as length and weight along with scale samples for ageing to inform us of the smolting age. From this data it is hoped to gain an insight into the smolt production within the river and also migration timings.

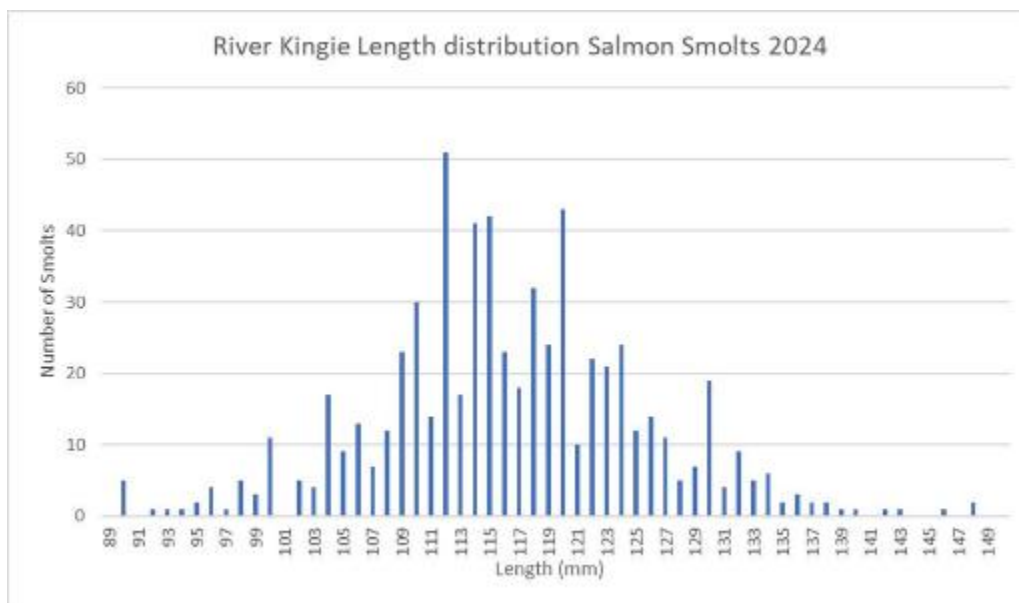
In addition, the feasibility of "trap & truck" was assessed. The majority of smolts caught were transported and released them below Garry Dam, and on the River Oich, thereby bypassing the upper Garry, Loch Garry and Loch Oich. River levels at the site were closely monitored and sand bags were in place to direct flows under low conditions. River levels on the Kingie can fluctuate dramatically, on a few of days the trap was unfishable due to high water.



River Kingie smolt trap.

The results are as follows:

- Number smolts caught – 989
- Number salmon parr caught – 74
- Number trout caught – 52
- Average length of salmon smolts - 116mm (range 90 to 148mm) - 9.2% of the smolts were >130mm (size suitable for standard Acoustic Tagging)
- 145 smolts were marked and released upstream
- 52 marked smolts were recaptured (35.8% recapture rate)
- 86% of the smolts were recaptured in days 1 & 2 after release
- Smolt run estimate 2,724 +/- 595.
- 842 of the smolts captured were released below Invergarry Dam, either into the upper reaches of the River Garry, or River Oich.



Overall, this was a successful first year at trapping and managing smolts from the River Kingie, the largest and most important of the Upper Garry tributaries accessible to salmon.

A habitat survey of the River Kingie (2004) had concluded that the area of accessible, and suitable, habitat upstream of the smolt trap was 95,000m². Using the standard figure of 5 smolts per 100m², the smolt productivity of the Kingie should be in the order of 4,752 smolts. Our estimate of the run this year was around 57% of the theoretical smolt productivity, but that is considered okay for a recovering river.

DNA samples were taken from 50 smolts for screening to establish which were of stocked origin. Trap and truck proved to be very straightforward, and is probably one of the most beneficial things that could be done to help conserve the upper Garry salmon population. We will look at opportunities for expanding this in future years, with the ultimate aim of trapping and trucking the entire run. This would need to be combined with PIT tagging, or similar, in order to establish its effectiveness.

SCOTTISH INVASIVE SPECIES INITIATIVE

- **Skunk Cabbage:** Our routine treatments were carried out at Dochgarroch/Scaniport where a much-reduced number of plants were observed, the lower reach of the ditch contained a limited number of small plants, these were removed by digging. Upstream of the track, a big reduction in plant numbers was seen and these plants were treated with glyphosate. It is encouraging to see numbers dwindling although these areas will require further treatments year on year.
 - **Giant Hogweed:** Routine treatments were carried out on the Littlemill Burn at Munloch (approximately 4km of both banks were walked) and individual plants treated with Glyphosate. Again, a reduction in plant numbers was observed although it is vital that treatments continue due to a large seed bank within the soil. The area around the derelict house and garage in Munloch was also treated this year.
 - **Mink** – We have a number of volunteers managing rafts and traps, under the co-ordination of Trudi the SISI project officer. A total of eight Mink were captured this year.
 - **Japanese Knotweed** – Once again, Glen Urquhart Bay woods was visited. This area has been treated every year since the start of the project. It is now becoming increasingly difficult to locate large stands of the plant as in previous years. The remnants tend to be small, thin individuals. This suggests the treatments have worked and that it has penetrated deep within the root systems resulting in distressed plants. Further monitoring and treatment will continue.
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Giant Hogweed treatment at Munloch

EDUCATION/OUTREACH

Life in The Loch - Chris developed an education project titled 'Life in The Loch' and was carried out at three schools; Invergarry Primary, Kilchuimen Primary and Glen Urquhart Academy. Funding was applied for and obtained from local community groups through the various windfarm projects to the sum of £4000. These groups are as follows: Soirbheas, Glengarry Trust and Fort Augustus/Glenmoriston Trust.

The aim of this project was to educate school pupils about the loch and its tributaries, the wildlife found there and the issues they face. Through the use of PowerPoint presentations, activities and field trips it enabled pupils to achieve a variety of outcomes incorporating a number of subjects including, maths, science, art and communication along with developing skills in research and fact finding. Each school was taught four topics:

- Introduction to Loch Ness and its uses
- The Water Cycle
- Animals of The Ness
- The Atlantic Salmon

These projects have been really well received by all schools involved. Pupils were really engaged with some pupils intending to set up petitions/write to ministers expressing their worries over the loch and fish species.

A total of 40 primary school pupils, from P1 to P7, and 46 academy students in year S2, participated. Feedback has been really positive and it is hoped to continue these projects next year.



Life in The Loch at Invergarry Primary School

Hydro Nation Scholars - Chris led a group of scholars from The James Hutton Institute on a tour of the Ness Catchment. Starting at the canal at Dochgarroch and through to Invermoriston and Loch Garry. The aim was to give an insight into the current and historical issues the catchment faces. The students were from a variety of backgrounds and nationalities within the water/engineering industry. It is hoped that this will be repeated next year.

In addition, Chris delivered talks to Invermoriston Heritage group and Dalchreichart Community Hub on the work of NDSFB, Pearl Mussels and The European Eel.

FISH POPULATION SURVEYS

This year was an extremely busy year for surveys despite the postponement of the National Electrofishing Programme. This allowed staff to visit a number of quantitative sites where we hold historical data. It is anticipated that most of these sites will act as core index sites going forward and visited annually or bi-annually.

A network number of timed survey sites covering all the mainstem salmon habitat has been established. We now have three years of data including that collected in 1994.

A total of 42 timed sites were surveyed along with 32 quantitative sites throughout the catchment. All data has been entered into the SFCC database and a full report in the form of an interactive story map will be available in the near future.

In addition, Lynne has made a start on streamlining and re-organising all the records in the electrofishing database which will make accessibility and reporting much easier in the future.

A brief summary of the Ness mainstem surveys is shown below

Code	Location	Salmon fry/min			Salmon parr/min		
		2022	2023	2024	2022	2023	2024
N04	IAC, Tail of Little Isle	48.5	12.6	15.7	0.3	0.2	0.2
N05	IAC, channel at end of island	26.6	8.3	6.7	7.3	2.6	3.3
N06	IAC, u/s footbridge in islands	3.3	1.7	3.0	6.6	3.3	2.3
N06	IAC, point of islands	4.1	3.3	3.7	12.6	11.6	9.7
N07	IAC, LHB, upper hut.	9.8	4.7	10.3	0.0	3.5	3.3
N08	IAC, LHB, d/s Archimedes Screw		23.8	34.7		2.8	3.7
N11	Ness-side, tip of croy	47.3	23.6	28.7	2.3	2.8	1.3
N12	Ness-side, Shallow glide LHB, d/s croy	10.0	5.8	15.0	0.0	0.9	0.7
N14	Ness Castle, d/s Blackstream	20.8	8.1	18.0	2.7	6.8	4.3
N14	Ness Castle, LHB, tail of Laggan	38.6	32.3	24.3	2.3	2.0	1.3
N16	Dochfour, Lizzie's Cast	52.3	25.9	49.0	5.4	1.2	2.7
N16	Dochfour, Tail of Culbuie	91.7		37.7	2.6		0.2
N17a	Dochfour, 200m d/s lower hut.	12.7	13.2	20.0	0.6	0.7	0.3
N17b	Dochfour, tail of island	35.8	35.3	74.7	2.2	4.7	5.3
N18	Dochfour, riffle u/s Minors	36.3	28.7	87.0	2.7	2.0	2.7
N20	Dochfour, d/s Dochfour Weir	18.3	19.1	14.0	0.0	0.0	0.0
	Mean	30.4	16.4	27.7	3.2	3.0	2.6

Ness mainstem results and comparison

The 2024 average salmon fry counts were higher than 2023, and closer to the 2022 counts, although the distribution was different. The upper Ness survey sites have consistently produced higher salmon fry counts, including the 1993 Aberdeen University survey, than the lower river sites. The counts in the lower two sites in 2022 were in the good to excellent category, but that has not been repeated since.

The average salmon parr counts declined slightly, especially in the lower reaches, where the good parr counts observed in two of the sites within Ness Islands not repeated. Some of the Ness sites consistently support high parr counts (N06, N14 & N17b) whilst others support few (N04, N12 & N17a). This is due to habitat suitability, which for salmon parr is mainly determined by flows and substrate.

It is encouraging to see a recovery in the salmon fry counts this year, in particular, as this follows the very poor catches on the river in 2023 and this looks to be mirrored throughout the catchment (see tables below) although further data analysis will confirm this. The 2023 salmon fry counts may have been affected by the very low water that occurred in spring/early summer of that year. River levels were particularly low in March, and in again late May/early June, with many redds exposed.

River	Easting	Northing	Code	Location	Salmon fry/min			Salmon parr/min		
					2022	2023	2024	2022	2023	2024
Moriston	241857	816796	NM03	Chalet park	14.9	55.4	11.0	5.4	10.7	16.0
Moriston	241381	816983	NM04	Opposite football pitch		30.0	11.7		9.3	15.3
Moriston	240770	817565	NM06	Levishie, opposite road sign	23.2	58.6	19.7	5.3	4.2	7.3
Moriston	239345	817093	NM11	midway between wind farm gate and layby		6.9	1.0		2.8	2.7
Moriston	237032	815982	NM15	upstream layby above Pool 20	2.8	12.0	1.0	1.5	2.0	2.0
Moriston	236515	815524	NM17	Downstream Glenmoriston PS entrance		14.0	4.3		1.0	5.7
Moriston	230936	813146	NM31	d/s Torgyle Bridge	13.6	14.2		2.9	3.3	
Moriston	223750	811361	NM47	Mackenzie's Grave	25.3	59.7	37.7	3.2	1.3	4.3
Moriston	222816	810814	NM51	d/s Ceannacroc Heck	2.2	9.6		8.1	8.4	
Moriston	222249	810349	NM53	d/s island below Loyne	0.3	8.4	0.7	0.0	1.6	3.3
Moriston	220802	809931	NM56	u/s A87	2.2	2.4	3.7	2.6	2.2	3.7
Moriston	218921	809940	NM62	3 rd riffle d/s dam	14.3	23.5	10.0	0.3	1.6	2.7
				Mean	11.0	24.6	10.1	3.3	4.0	6.3

River Moriston Timed results and comparison

River		Code	Location	Salmon fry			Salmon parr		
				2022	2023	2024	2022	2023	2024
Garry	Lower	NG01	u/s estuary	2.7	17.2	11.3	10.4	3.4	5.3
Garry	Lower	NG03	150m d/s road bridge	4.5	24.1	6.0	10.3	3.3	3.0
Garry	Lower	NG04	u/s housing scheme	18.5	50.3	38.0	11.6	5.4	2.0
Garry	Lower	NG05	u/s hatchery burn	11.8	9.2	10.7	7.4	3.3	1.3
Garry	Lower	NG08a	Tail of Dog Pool	6.8	15.3	10.3	12.6	6.0	6.0
Garry	Lower	NG10	u/s White Bridge	2.4	9.6	7.7	2.1	0.7	1.3
Garry	Lower	NG12a	d/s Garry Dam	1.9	3.4	0.3	0.0	0.0	0.0
Garry	Upper	NG46	Tail of island d/s Loch Pouлары	14.0	15.2		3.9	0.0	
Kingie	Tributary	NGK02	250m d/s track bridge		21.3			2.3	
Kingie	Tributary	NGK03	Run u/s end of track	10.9	33.0		1.9	1.3	
Kingie	Tributary	NGK03a	U/s bend, above two big boulders	2.9	20.8		2.9	4.9	
Kingie	Tributary	NGK08	Left channel at island	6.5	4.8		1.4	1.6	
Garr Garry	Tributary	NGG02	Left channel riffle at big island	0.0	24.4	5.3	0.6	0.0	10.3
Garr Garry	Tributary	NGG05	Tail of Long pool	0.0	19.6	6.3	0.0	0.0	2.7
Garr Garry	Tributary	NGG07	d/s Quoich Dam	0.0	8.3		0.0	0.0	
Mean			Mean	5.9	18.2	6.9	4.7	2.1	2.3

River Garry Timed results and comparison

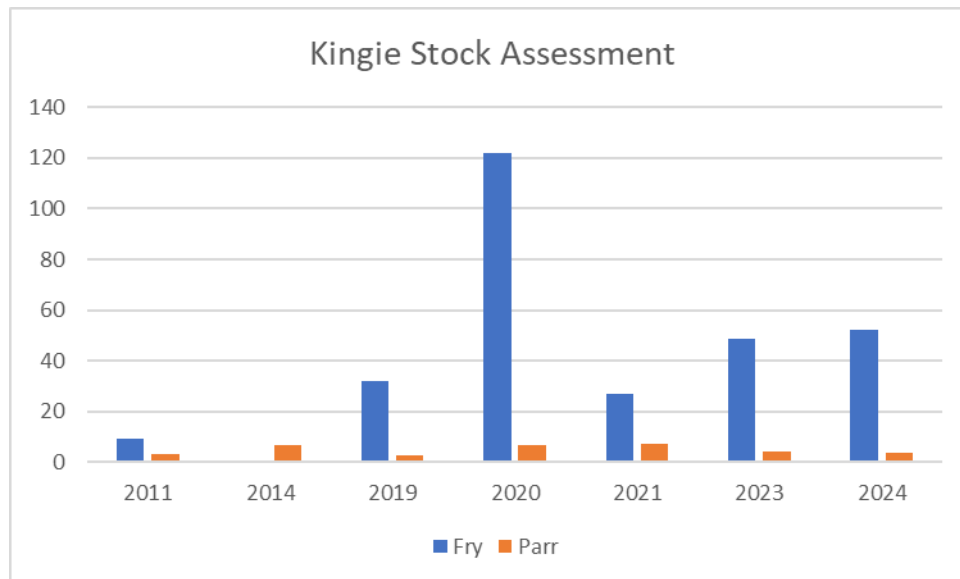
River	Code	Location	Salmon fry			Salmon parr		
			2022	2023	2024	2022	2023	2024
Oich	NO02	Old railway bridge	2.9		1.7	1.4		0.7
Oich	NO05	Upstream Auchteraw Burn	3.5		6.7	1.1		1.7
Oich	NO09	Downstream Rock Pool	5.3		4.0	7.7		3.0
Oich	NO17a	Downstream Waste Weir	53.2		35.3	2.6		0.0
Oich	NO17b	First riffle below Suspension Bridge	10.2		26.7	0.2		0.7
		Mean	15.0		14.9	2.6		1.2

River Oich Timed results and comparison

GARRY RESTORATION PROJECT STOCK ASSESSMENTS

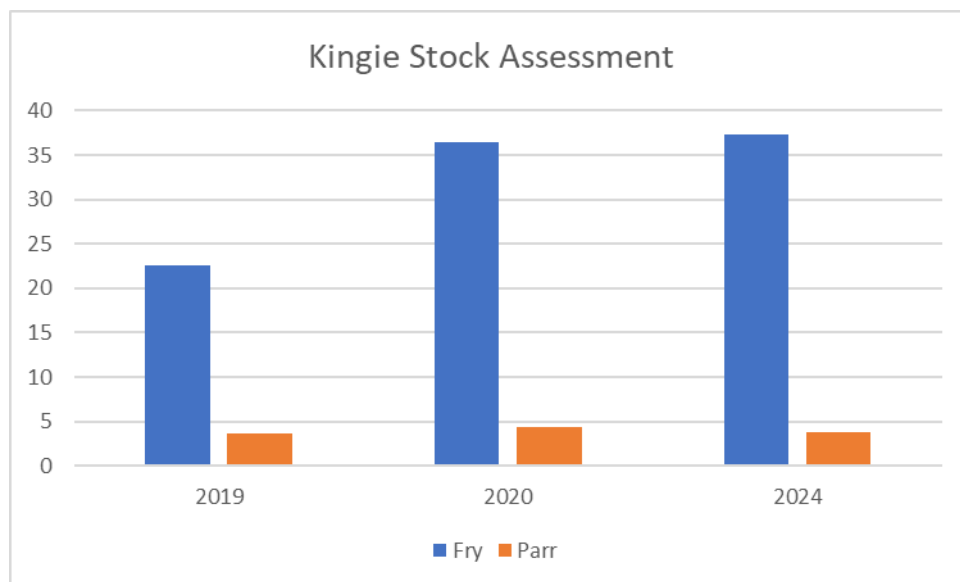
A total of five of our usual stock assessments sites were surveyed on the Upper River Kingie, Greenfield Burn and Allt Choire Bhalachain. None of these sites were stocked this year. Greenfield was last stocked in 2023 and Allt Choire Bhalachain stocked in 2022. In addition, sites on the Garry Garry were surveyed. The Garry Garry was stocked in both 2023 and 2024.

On the River Kingie two sites were surveyed, the chart below shows all the results with regard to Site NGK27aQ at Kinbreac, a site that is primarily fry habitat. It shows that since stocking began fry numbers initially increased with a large spike in 2020 before stabilising. Parr numbers are fairly consistent and is a reflection on habitat.



Results for Site NGK27aQ

The second site (NGK27Q) was in primarily parr habitat. Surveys began after the initial stocking began therefore less data is available, however both fry and parr densities remain fairly consistent throughout. The 2024 results at both sites are encouraging as no stocking took place in that location, which means that these fry originated from natural spawning. There is also the possibility that some these spawners were of stocked origin.



Results for Site NG27Q

As anticipated sites at Greenfield and Allt Choire a'Bhalachain did not support any salmon fry in 2024. At Greenfield, fry were absent with a total of 26 parr captured. It is almost certain that these parr were as a result of last year's stocking with no natural recruitment occurring at this site. There is a significant lack of spawning material in this area and genetics show that the majority of fish previously recorded were of stocked origin.

At Allt Choire a'Bhalachain fry were also absent with only two parr recorded at the lower site. At the top site only one parr was recorded. This was as expected with no redds observed last year and no stocking. The parr are likely to be remnants from previous stockings. Genetics have shown that 100% of the stock have come from stocked origin. It is important to note that redds were observed in November 2024, surveys next year should confirm as to whether these were salmon.

A full report on all surveys will be available shortly.

CONTRACT SURVEYS

NDSFB were commissioned to carry out a number of contract surveys throughout the catchment with the majority in relation to a number of windfarm extensions. These surveys are listed below.

- Beinneuin Windfarm plus four habitat surveys and Two Freshwater Pearl Mussel Surveys
- Beinn Bheag windfarm
- Millenium Windfarm plus Two Freshwater Pearl Mussel surveys
- Fearna Pump Storage four Freshwater Pearl Mussel Surveys

A total of 42 sites were surveyed in, at times, challenging conditions with access difficult due to various road closures. Five of these sites were index sites already listed with most being in very remote upland areas. Some areas were devoid of fish with trout being the only species present in others. Salmon were captured at a number of sites. All data has been entered into the data base and full reports have been produced.

In summary, a total of 111 surveys have been completed across all catchments and despite what at times were, less than favourable conditions, the survey season has been busy.

SAPROLEGNIA

Since February we have been collecting fortnightly samples from the River Ness for a project researching the impact of Saprolegnia, or more commonly known as fungus. This disease will be well-known to salmon anglers as infected fish can become covered in large white, fluffy growths. Although maybe not to Ness anglers as fungus infections are not common here, as they are on some other rivers.

Samples are being collected from a range of rivers and for the reason given above the Ness was categorised in the Good category due to the current low risk from fungus. Other rivers with a longer history of fungal outbreaks were categorised in Bad or Ugly categories.

Every fortnight water samples are taken and added to a tube containing a single hemp seed. This seed acts as a host for the fungus and allows growth to start. Once a month that sampling is supplemented by an eDNA sample (e for environmental). This involves filtering water under vacuum pressure. The filter is then frozen and retaining for analysis at the end of the year.



Collecting EDNA sample

PINK SALMON

Water samples were collected from two sites on the river Ness and filtered using a peristaltic pump. The resulting filters were sent for analysis. No pink salmon eDNA was detected in the Ness in 2024.

FRESHWATER PEARL MUSSELS

Funding from Trees for life enabled our work with the artificial encystment of Freshwater Pearl Mussels on the river Moriston to continue. This funding also allowed us to procure a new digital microscope, and two new bathyscopes. In addition, surveys were carried out at Cluanie and Bun Loyne, in the upper Moriston, in the hope of finding juvenile mussels from previous encystment. Unfortunately, none were found, but further surveys will continue.



Lynne searching for juvenile mussels during a quadrat survey

Glochidia development monitoring began in August, weekly checks suggested that mussels would spat at the end of August. This was confirmed on the 29th August. On this day spat was collected from two sites on the river and transported upstream in buckets. It was hoped to encyst at two sites, Cluanie Dam and Mackenzies Grave; however, this was limited to Cluanie due to high discharges from Ceannacroc meaning Mackenzies grave was inaccessible.

A total of 376 salmon fry were captured and artificially encysted with glochidia, and released along with the remaining glochidia. This site will be monitored in the Spring to ascertain success.



Releasing encysted fish at Cluanie

SFCC TRAINING

Chris has delivered three electrofishing training courses this year, two introductory level and one Team leader course. All candidates passed successfully. In addition, he delivered two Freshwater Pearl Mussel Survey training courses on behalf of SFCC. Candidates came from the trust/board network, along with consultants and members from Nature Scot attended.

TRAINING/WORKSHOPS

Brian, John and Chris completed an emergency first aid at work course incorporating catastrophic bleeds.

Brian and Chris also attended a workshop with regard to the upcoming River Restoration Development Fund. This was led by FMS in the hope that the multitude of potential projects throughout Scotland will generate interest and funding from private finance. A number of potential projects have been put forward by Brian and Chris for habitat restoration, including the rewatering of old existing channels, along with educational projects.

Brian, Chris and John attended a workshop at UHI on Fish health, this was extremely interesting and had a practical element where staff were given the opportunity to carry out a dissection for sampling for disease.

CEANNACROC HECK

The long-standing issue regarding Ceannacroc heck took a step forward this year with SSE commissioning a survey of the existing fish pass. This was carried out by Trex Ecology. We are currently awaiting the report.

SSE FRESHETS

Freshets began on the Upper River Moriston this year after proposals we made were accepted by SSE and SEPA, it was hoped that these freshets would assist in fish migrations throughout the upper Moriston at key times along with refreshing gravels to the benefit of Freshwater pearl Mussels. Freshets began in March with monthly freshets thereafter, the majority of these ran for 24 hours with longer releases at key times.

Observations on the effects at the time of an extended 96-hour freshet in June are as follows:

- **Ceannacroc Heck.** The weir was spilling and the fish pass running very hard. Some algae had been dislodged, with strands in the water column, but the water was not discoloured.
 - **250m downstream of the dam.** These riffles are some of the best spawning locations in the upper Moriston and whilst the main spawning sites looked good under a freshet flow of 4m³/s, they could cope with higher flows, and provide even better spawning conditions. The
-

substrate was well covered with trailing algae, which appeared resilient in that flow. Redds that had been used last autumn were still relatively clear of algae, over 6 months after the salmon spawned, which indicates that algal growth occurs more quickly on undisturbed substrate with an established periphyton base.

- **Bun Loyne.** We were interested in this spot as there are really good spawning gravels but under compensation flows there are barely adequate flows for spawning. There are a few redds here but there is space for many more. Whilst the freshet flow was an improvement, doubling the freshet flow would provide even better conditions.

This 96-hour freshet was longer duration, but lower flow than originally planned ($9.8\text{m}^3/\text{s}$), due to the limitations of the valve arrangements at Cluanie. Whilst this freshet did improve flows, the volume was inadequate to clear algae, thereby failing to serve the function of refreshing the gravel for freshwater pearl mussel recruitment. This freshet was also intended to help the dispersal of salmon fry, but whilst $4\text{m}^3/\text{s}$ might help, it was probably too low to fulfil that function well. Overall, this is big step forward for the Upper Moriston although further improvements are required going forward.

We have started a review of compensation and freshet flows in the lower Garry & Moriston. The current compensation flow regime in both rivers is back to front with lower flows in the winter and higher flows in the summer. On the lower Garry, there are 40 freshets, released between March to October, with a fixed overall volume. There is generally a freshet every week, mainly on a Thursday and often with additional weekend freshets. At present freshets are mainly for angling and canoe/kayaking purposes. SSE have intimated that they may be open to discussions regarding modifications to the flow, although with the proviso that the overall volumes did not change.

Delivery of change will require compromise in a very complex situation. For example, if summer compensation flows were reduced this would have an impact on residual flows in the Oich, especially if the canal was busy. This is in its early stages but we have begun consultations with interested parties.



Freshet flows conditions below Cluanie Dam

PROPOSED GRAVEL AUGMENTATION RIVER MORISTON

Kaya Consulting were commissioned to undertake the Moriston sediment augmentation study. The restoration of salmon spawning habitat in the upper reaches of the lower Moriston could be transformational for the lower Moriston salmon population. It is anticipated that the principles from the Moriston report could be applied to the lower Garry, where similar sediment augmentation is required. The report makes interesting reading as it identifies the issues, and the solutions, along with gravel donor sites. The report is now with SSE, SEPA and NatureScot and we await their responses. This follows on from the work carried out by our intern Callum last year and the report is available upon request.

SCALE READING

The number, and variety, of salmon scales collected in 2024 made it one of the best recent years for sampling in the Ness catchment. In return for the donation of scale samples to the Ness DSFB, we undertake to report on the findings, for the benefit of all.

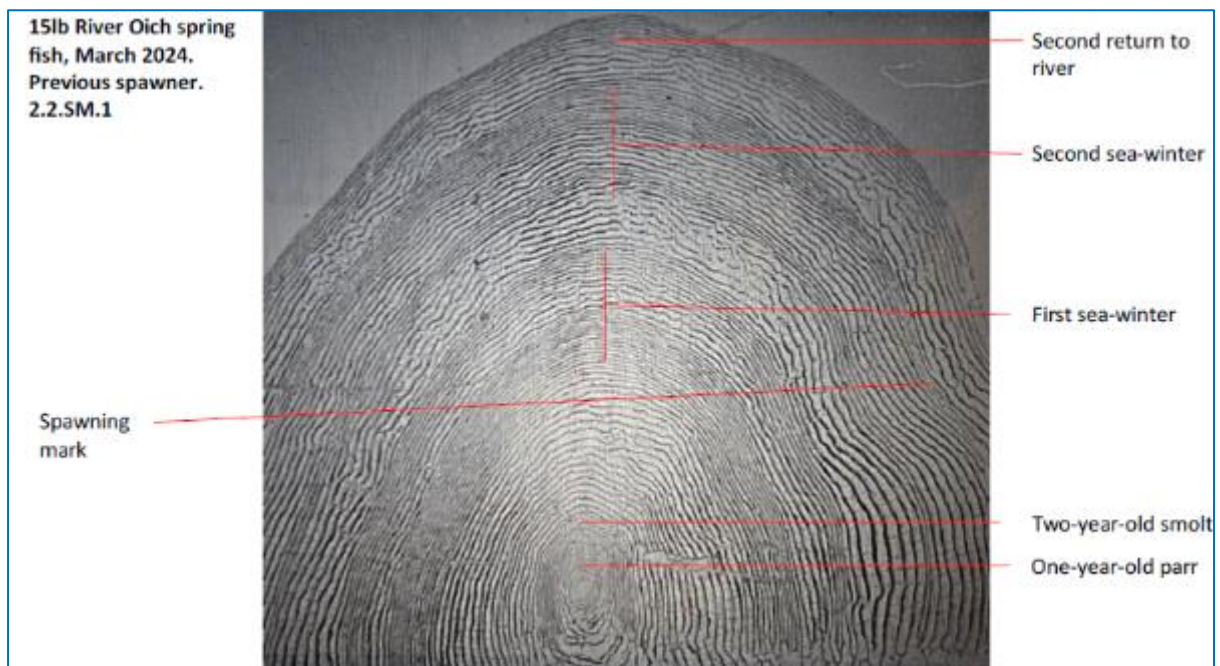
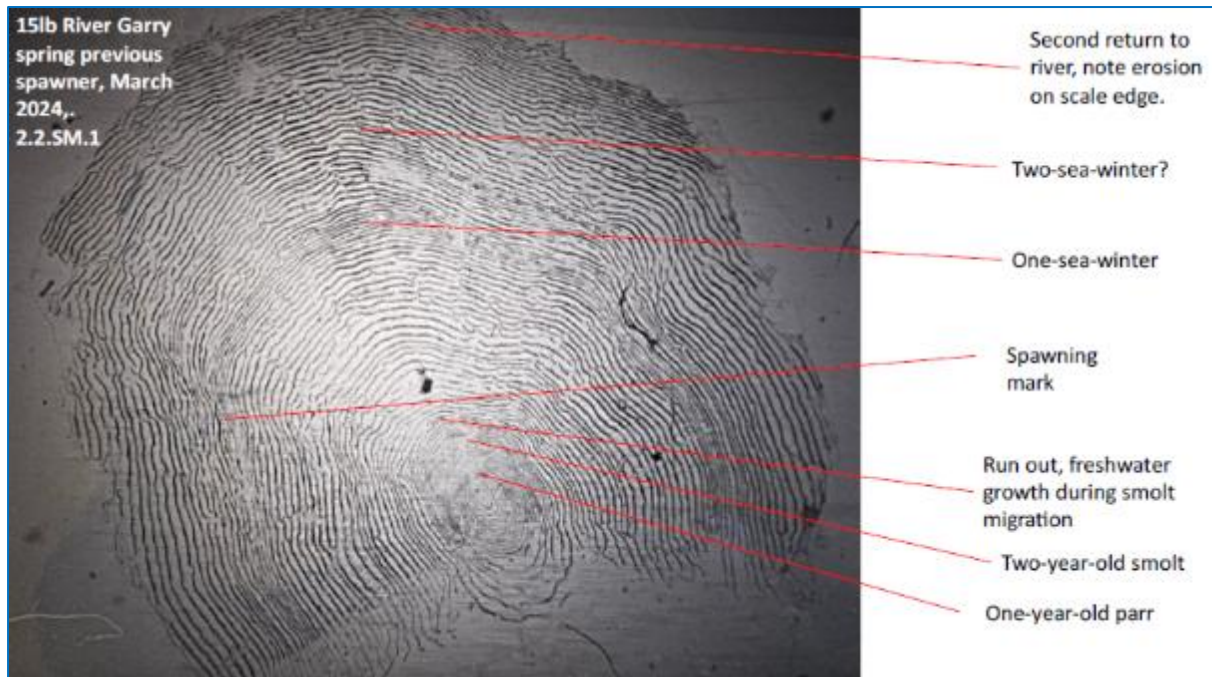
The most common age class of salmon in the Ness is a fish that has spent two years in freshwater and two years at sea. This class of fish formed 50% of all fish sampled. The second most common class were grilse which had spent two years in freshwater, this class of fish formed 40% of those sampled.

The dominance of two-year-old smolts in the Ness catchment may surprise some but there is very little high altitude nursery ground in the Ness. There is very little spawning and nursery habitat above 200m (600ft), but despite this it has one of the most diverse and reliable spring runs in the Highlands. We know from genetic analysis that spring running fish primarily originate from the Garry, Oich and Moriston, but also the Enrick and Coiltie.

One-year-old smolts are becoming quite common further south in Scotland but none were detected amongst the Ness 2024 scale samples. The River Ness would be the most likely place to produce one-year-old smolts but the temperature regime is moderated to a high degree by Loch Ness, which currently prevents the occurrence of high summer temperatures (although that may change in the future).

The presence of a reasonable run of small springers in 2024 was interesting, as the Ness springers are typically larger. Many of these fish were of a similar size to the grilse running in August; fish which had spent a year less at sea. The high average weight of the grilse may be carried forward into the two-sea-winter fish next year, although that will depend on whether the non-maturing fish had encountered the same good feeding, and growth, as the grilse of 2024.

In 2023, no previous spawners were noted in the scale samples but the proportion in 2024 was one of the highest recorded. The large size of the previous spawners was noted, as will be their contribution to egg deposition (most, although not all, previous spawners are female). This highlights the benefit of conservation measures such as catch and release, careful handling of kelts, and indeed the requirement to ensure that kelts can navigate downstream through dams and reservoirs. Below are a few examples.



The scale below was somewhat unusual as most previous spawners are multi-sea-winter fish, which spend an entire year back at sea. The 4lb fish was a short-stay fish, i.e. it went back to sea at the end of 2023 and returned again the following year.



This scale report highlights the remarkable diversity of the Ness salmon population. This genetic diversity should be nurtured. The full report is available here [2024 Scale Report](#)

BROODSTOCK COLLECTION

Broodstock collection for the Ness stocking programme began in October 2024. The aim was to collect 150 large parr from across the Ness mainstem as the basis of a captive broodstock. These parr will be then grown on to maturity at Drimsallie Hatchery where they will be stripped and the resulting offspring will be stocked back into the river as Autumn parr.

As it will take a few years for these fish to reach maturity, a licence was obtained to capture up to 30 adult fish by angling. These fish were also transported to Drimsallie Hatchery, where were held until ready for stripping. These fish, and a similar number in 2026, will be stripped to ensure there were autumn fry ready stocking in 2025 & 2026, whilst the captive broodstock were maturing.

High water initially limited the number of riffles that could be electrofished for parr, however, 150 parr were successfully transferred to Drimsallie. They are reported to feeding with only one mortality to date. A breakdown of numbers and locations is shown in the table below.

Table showing parr captures from Ness Mainstem

Date	River level m	Location	Number parr	Beat
28/10/2024	1.4	Holie	15	IAC
28/10/2024	1.4	Macintyre's	2	IAC
28/10/2024	1.4	Blackstream	33	Ness Castle
30/10/2024	1.37	Holie	9	IAC
30/10/2024	1.37	Minor	2	Dochfour
30/10/2024	1.37	Blackstream	25	Ness Castle
04/11/2024	1.06	Holie	19	IAC
04/11/2024	1.06	Tip of Ness Islands	19	IAC
04/11/2024	1.06	Provan's side channel	26	IAC

Adult capture began in earnest in mid-November, with the later date selected to ensure that adults present would be 'Ness fish'. All four beats on the Ness mainstem were fished on set days. There was good turn out by volunteers despite the somewhat chilly conditions, and in some cases difficult fishing conditions, however, nobody was deterred and great effort was put in. We would like to extend a big thank you to all volunteers and proprietors for making this possible.

A total of eight hen fish, including fish up to 20lb, and seven cock fish, largest approximately 12lbs were captured.

Table showing adult captures and locations

Date	River level m	Location	Number hens	Number cocks	Rods
18/11/2024	1	Ness Castle	0	2	9
19/11/2024	1	Ness Side	3	2	5
22/11/2024	1	Dochfour	0	0	6
25/11/2024	1.3	IAC	0	0	5
28/11/2024	1.4	Ness Castle	2	2	8
29/11/2024	1.2	Dochfour	3	0	8
30/11/2024	1.4	IAC	0	0	7
03/12/2024	1.7	Ness side	0	0	6
06/12/2024	1.43	Ness Castle	0	1	10
13/12/2024	1.5	Ness Side	0	0	5



Preparing the adult transport tank on a cold December day.



Broodstock fishing on a chilly, but beautiful day at Ness Castle



A hen fish awaits transportation, one of three fish captured on the Dochfour beat that day.

SPRINGER GENE STUDY

The Marine Directorate (formerly known as Marine Scotland) were involved, over a number years, in collecting juvenile salmon DNA samples from a range of catchments across Scotland for a "springer gene" study. This study utilised a genetic tool that enabled fish from early running stocks to be identified.

The Ness catchment was one of those involved, with sampling at 18 sites undertaken in 2021. The results were published in May. The results can be found here. [Juvenile Atlantic salmon - mapping the early running component: report](#)

Within the Ness catchment the River Moriston has the highest proportion of early running fish, with the lowest proportion in the River Ness. The high proportion of spring fish in the Moriston will be due in large part to the presence of the waterfall in the lower reaches, which will be impassable for later running fish, which have a lower muscle to weight ratio. There was also a high proportion of early running fish in the Garry with a lower Kingie site being the only Ness site with 100% of the fish with the early running gene.

The Oich, Tarff and Enrick have a mixed population having intermediate levels of the early running gene compared to the Ness and Moriston. This agrees with the findings of the Upper Garry genetic analysis summarised below.

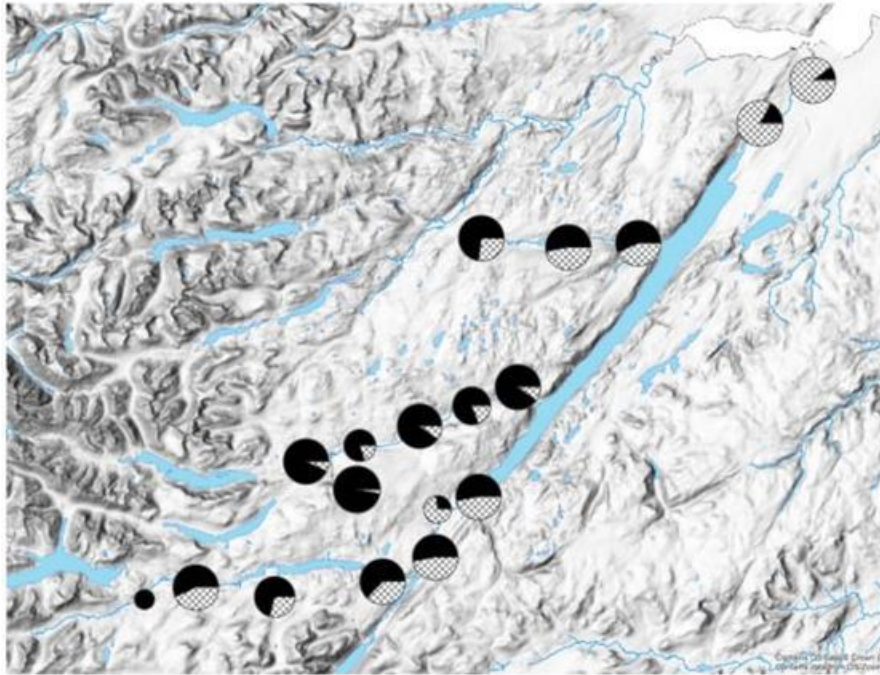


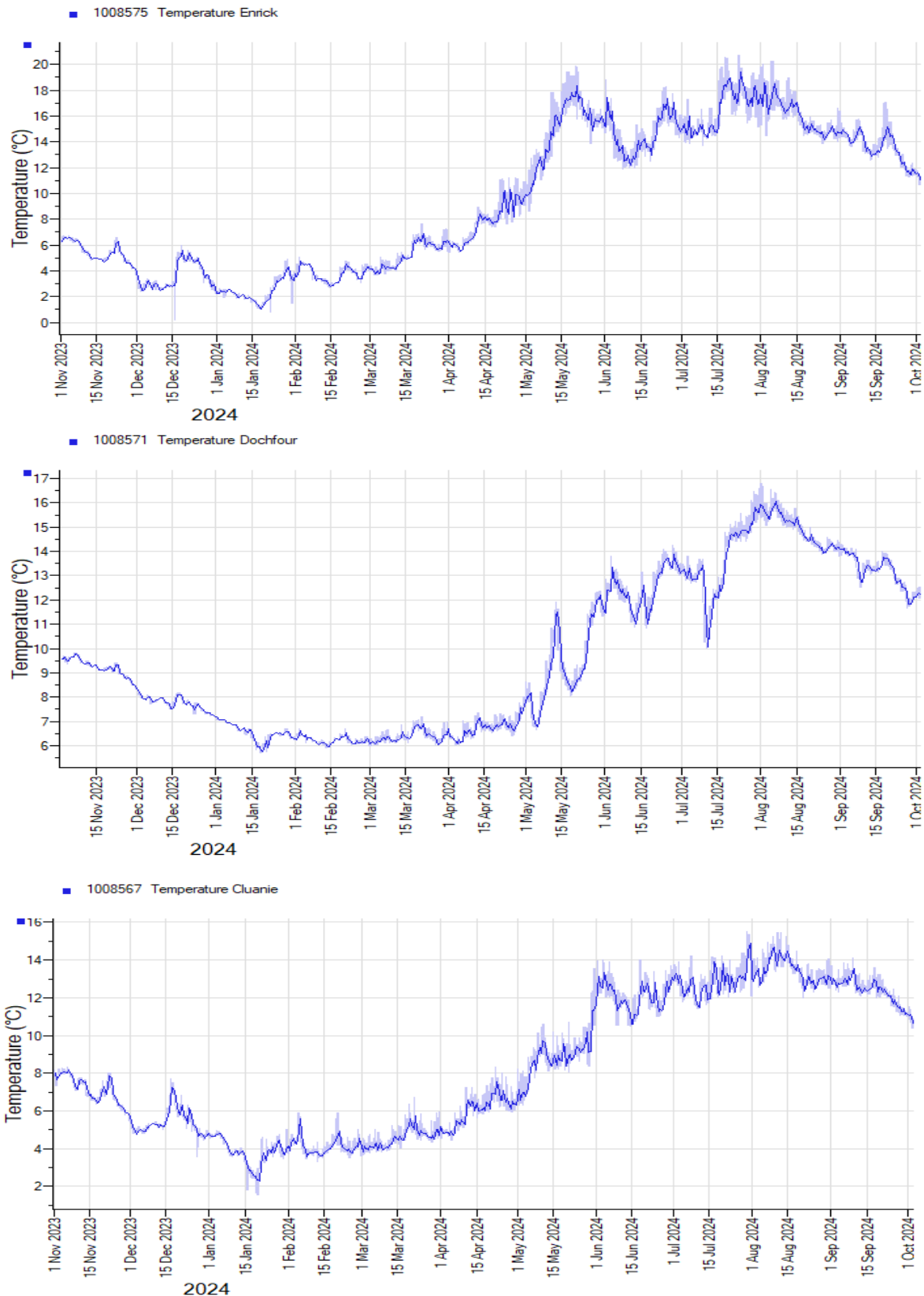
Figure 2. Pie charts showing early (filled portion) and later (dashed portion) run timing proportions for sites from the river Ness (1:250,000). Pie charts are sized according to the number of individuals screened per site.

TEMPERATURE LOGGERS

In 2023, a network of temperature loggers was installed around the catchment. The aim was to gather baseline data and to improve our understanding of the influence of the lochs and reservoirs on river temperature loggers. The temperature profiles from three of these loggers are shown below.

The Enrick temperature logger was situated, approximately one kilometre downstream from Loch Meikle. Loch Meikle is smaller, shallower and relatively natural compared to the upstream hydro reservoirs. The temperature profile in the Enrick is quite variable with a greater diurnal range (temperature difference between day and night) than the River Ness for example. The minimum temperature over the November 2023 to Oct 2024 period was 0.1°C and the maximum was 20.7°C.

The Cluanie logger was located in the upper Moriston, approximately 500m downstream of Loch Cluaine dam. This large reservoir lies at an altitude of approximately 210m (depending on reservoir level) and the compensation flow is supplied via a valve at the bottom of the dam. The logger was located downstream of a wide riffle so it does experience some diurnal fluctuation. Due to the moderating effect of the reservoir feed, temperatures were less extreme than in the Enrick, with the minimum temperature recorded as 1.5°C and the maximum summer temperature at 15.5°C.



The Dochfour logger was located in the River Ness, a few hundred metres downstream of Dochfour Weir. The temperature profile in the Ness is quite different to other rivers in the catchment with a minimum winter temperature of 5.7°C (42.3°F) and a cool 2024 summer maximum of 16.8°C (62.2°F). Despite being the lowest altitude part of the catchment, River Ness summer temperatures are

relatively cool, due to the thermal buffering provided by Loch Ness. That same buffering prevents the winter temperatures from dropping to the same extent as other parts of the catchment.

Despite the buffering capacity of Loch Ness there were two periods when temperature swings of 3 or 4°C were recorded e.g. on the 13th May and the 9th July. In the May example, the temperature dropped by 4°C between the 13th May and the 19th May. There was a similar drop on the 9th July, when the temperature fell by almost 4°C in two days. Historical weather data for the Highlands is available from websites including www.weatherspark.com. On both these occasions the wind direction switched from strong south -west winds to a north or easterly direction. This changes the surface currents in the loch with the warmer surface waters pushed away from the outlet to be replaced by cooler water from deeper in Loch Ness, which then feeds the River Ness.

The late spawning characteristics of the Ness salmon population is a distinct feature of the Ness salmon population. The reason why is evident from the table below. An approximate guide to the time required for fertilised salmon eggs to develop, from spawning to fry emergence, is 880-degree days. Degree days is simply the average daily temperature multiplied by the number of days. For example, at 5°C it would take 176 days for a typical salmon egg to develop through the eyed ova, hatching and alevin stage.

River temperature summary for the period 15th November 2023 to 15th May 2024 (181 days) for the rivers Enrick, Moriston (upper), Ness & Kingie

River	Min °C	Max °C	Average °C	Degree days
Enrick	0.1	17.9	5.2	936
Cluanie (upper Moriston)	1.5	10.6	5.2	936
Dochfour (River Ness)	5.7	11.9	7.1	1278
Kingie	0.1	20.1	5.4	972

The period 15th November to 15th May is the typical spawning and emergence time for salmon in the Highlands. For the Enrick, Morison and Kingie the number of degree days is approximately right. In the case of the Ness, a salmon spawning in mid-November would result in the fry emerging from the gravel in late March, potentially too early to benefit from the spring boost in invertebrate life. Hence the late spawning characteristics of the majority, but not all, of the Ness salmon population.

PUMPED STORAGE HYDRO

The interest in pump storage hydro has intensified over the last year with, what, would be a fourth scheme proposed for Loch Ness. There has been a pump storage hydro (PSH) scheme on Loch Ness since the 1970s, when the Foyers scheme became operational. Foyers is a relatively small scheme, compared to those proposed now, but even it has an impact of water levels with sluices designed and build at Dochfour weir to mitigate flow variations in the River Ness.

The Loch Na Cathrach (formerly Red John) scheme was consented in 2021 and in 2023 Statkraft, a state-owned energy company bought the rights to develop the site. Construction is due to commence in 2026, with completion expected by 2030.

Our real concern is the cumulative impact of multiple PSH on Loch Ness. Loch Kemp applied for planning permission in late 2023, and the proposed Glen Earrach scheme, which would be the largest, and with the greatest impact, due to submit for planning in spring 2025. Cumulatively, the potential drawdown from the four, actual, consented and proposed schemes on Loch Ness is over 1m. This would have a devastating impact on the ecology of Loch Ness, never mind the impact on cruise boat operators, and other users of the loch, who are used to stable water levels.

A known impact of PSH is the rapid and frequent daily drawdowns in the loch level. Without mitigation there would be downstream impacts on flows in the River Ness. These are both known issues. Unknown issues regarding PSH on Loch Ness include impacts on salmon smolt migration (we think they will be attracted to intake during pumping where they would be delayed and subject to enhanced predation) and the effect of large-scale water movements on the natural hydrology of the loch including currents, the formation and stability of the thermocline and water temperatures.

An additional threat came to the fore in late 2024 when Statera (Loch Kemp developers) went public with their plans to modify Dochfour Weir. We were aware of this intention as they said at our first meeting that they would need to store some of the winter water over the summer in order to make their scheme viable. Their consulting engineer at the time displayed weir heights and water levels on the screen. During our response to the Loch Kemp planning application we highlighted that there simply wasn't enough water in Loch Ness to support the operation of multiple schemes during dry periods, which can happen at any time of year. It is self-evident that large PSH schemes such as Loch Kemp would be constrained for much of the time during dry periods, and that having multiple schemes all trying to pump the last available water would lead to inefficiencies and curtailment.

To justify the proposed Dochfour Weir modifications Statera state this is required to protect the loch from low water levels, which they claim are becoming more frequent due to climate change. We think this is a convenient untruth and a thinly disguised attempt to justify water storage, which is required to make these PSH schemes viable. Statera have even commissioned consultants to investigate and produce a socio-economic assessment of the risks to tourism and other loch-based activities in the face of "declining water levels". This claim about declining loch levels appears even more contrived when you consider that Dochfour Weir was built 200 years ago with the sole purpose of maintaining loch levels to protect navigation through the canal. The weir still fulfils that purpose today and will continue to do so as long as it is maintained.

Ironically, the only occasion when loch levels did fall below the navigational limit was in May 2023, when the loch dropped suddenly reaching a record low level. This was due to abstraction by pump storage hydro. We now face the ludicrous situation whereby PSH developers are purporting to save Loch Ness, from a situation that was caused by PSH.

In response to the submission of the Loch Kemp PSH planning application the Ness Board formulated a campaign including press releases, a mailshot to residents around Loch Ness, public meetings, engagement with civil leaders and government agencies. The campaign commenced in early January 2024 with good media coverage including BBC & ITV news. The public meetings were well attended and our petition calling for no more pump storage on Loch Ness attracted over 2,200 signatures.

Originally, we had wanted to include a petition via the Scottish Government Citizen Participation and Public Petitions Committee, but that was not possible due to timings. We did eventually run such a petition, which was heard by the Petitions committee in late November 2024. We were very pleased to see that the Committee kept the petition open and agreed to write to the Scottish Government, major developers of pumped storage schemes, and the UNESCO Centre for Water Law, Policy and Science. We are grateful to the support provided to the Petition by Edward Mountain, MSP, and for the careful consideration by the Committee Members, which included Fergus Ewing the local MSP.

The relentless PSH pressure has involved a lot of staff time, and considerable input from the Board's PSH Working group and media support. This is likely to continue until the threat posed to the Ness catchment by the proliferation of PSH dissipates.

The 2024 entrant into an already overcrowded range of PSH proposals for Loch Ness was the Glen Earrach scheme. This scheme is based on the earlier Balmacaan location on the west side of the loch, between Drumnadrochit and Invermoriston, with Loch nam Breac Dearga being dammed to form the upper reservoir. This scheme would be the largest proposed for Loch Ness and a full pumping cycle by this scheme could result in a drawdown in Loch Ness, of just under 0.5m, although we will have to wait for the planning documents for that detail. That the Glen Earrach developers thought there was spare capacity in Loch Ness for another scheme was surprising as we could see that Loch Kemp would be constrained due to a lack of water during dry periods. The response from the Glen Earrach team to that point was that the other unbuilt schemes on Loch Ness would not receive support from the UK Government, but theirs would as it was the most "water efficient". We are in effect dealing with a race amongst developers to secure planning and abstraction rights to the last available drop of water in Loch Ness, and indeed, beyond that point. This highlights the lack of strategic thinking in the planning and consenting process for these large schemes.

Another PSH is also proposed for within the Ness catchment, this time based on Loch Quoich with Loch Fearna forming the basis of the headpond. This scheme is proposed for upstream of an existing large, and impassable hydro dam, which is possibly a more sensible place for these environmentally damaging schemes, although the Boards preferred option is the development of closed loop schemes.

It is important to say that Ness DSFB is not against energy storage, but the right balance in addressing the twin biodiversity and climate crises needs to be found. Loch Ness is a special place, not only for its biodiversity, but it is also hugely important for the recreational, social and economic services it provides. The energy storage market is fast moving with an exponential rise in battery storage, some of which are providing storage for up to four hours, with longer duration plants likely to be built in the near future.

The PSH Working Group members provided invaluable support and assistance for the Director over the course of the last year and have worked incredibly hard, often at short notice. The Working Group members were: Neil Cameron, Graham Mackenzie, Paul Ryder, Angus MacGruer, Tim Kirkwood and Michael Martin.

Netting Buyout

One of the most direct actions we can take is to ensure that salmon arriving back at our coast, after having survived smolt migration, and ocean life, for one or more years, have as safe a passage into our rivers as possible. To that end an opportunity arose for the purchase of one of the major remaining netting stations in the Moray Firth. Working with the Beaully District Salmon Fishery Board, through the Ness & Beaully Fisheries Trust, we were successful in negotiating the purchase of the Seapark netting station. This netting station has salmon fishing rights in the Longman area, from the vicinity of the football stadium, east to Seafield. The rights to the netting station are now held in perpetuity by the N&BFT.

Seapark netting station last operated in 2022, catching and killing, a number of salmon and grilse – fish that would have run into the Ness and Beaully River systems. Discussions were also held with the owners of another netting station within the Firth but they decided not to sell at present, but have agreed not to operate the netting station in the meantime.

There are still a number of minor netting stations with rights to fish in the inner Moray Firth but the estuary has been free of salmon netting for the last two years.

We are grateful to the donations received from supporters, proprietors, anglings clubs and the Inverness Common Good fund. Without their support the buyout would not have been possible.

FISHERIES PROTECTION

WATER BAILIFFS

A DSFB may appoint persons to act as ‘water bailiffs’, responsible for enforcing the provisions of the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 (SAFFA).

We were fortunate to organise five patrols accompanied by Police Scotland wildlife officers around the Ness system, from the inner Firth through to Loch Garry, during the 2024 season. During some of these patrols a number of persons details were recorded for a variety of offences under the Salmon and Freshwater Fisheries Acts Scotland 2003.

A number of people were issued with written warnings whilst fishing in the estuary, including five persons for fishing for sea trout on a Sunday in the inner Firth (Section 13). Five persons were warned about fishing with no permission (Section 6).

An increase in small boats fishing on Loch Ness without written permission was noted in 2024, especially late evenings and Sundays. On Loch Ness, a total of four boats and four rods were warned about angling outside of fishing season (Section 13 and Section 17). Four rods were warned on shores of Loch Ness fishing set lines (Section 3A)

A number of boats, with Loch Ness badges (numbers) were fishing without permission. Police warnings were given to two persons (Section 6). Due to windy weather that persisted for much of the summer, it was too rough for angling on Loch Ness at times, and fishing activity was limited to better calmer days.

Despite the ban on angling for eels a number of people were given written warnings for fishing for eels in Loch Garry: Fresh water fish conservation regulations 2008 (prohibition on fishing for eels).

On the River Oich six persons were issued with warning for fishing without written permission (Section 6). On Loch Oich a number of people were warned about fishing from boats without permission.

A number of persons were warned for fishing out of season (section 17) on the River Garry, and Morison. And on the River Moriston two persons were warned for fishing for salmon with no permission (Section 6). A number of incidents of illegal rod and line fishing were recorded on monitoring cameras, three of which have been logged with the Police.

Two persons were reported to the Procurator for fishing illegally at Dochfour Weir and one other person was reported to the Procurator for fishing at Dochfour without permission, and out of season. Another seventeen people given written warnings for fishing for salmon with no permission (section 6). In the early season two persons were warned for killing sea trout kelts (Section 18).

Many large blockages were cleared from upper catchment burns last Autumn. Three blockages were cleared from the local coastal burns, although a few have re-occurred due to the high winter floods.

Illegal methods encountered included a small meshed net found washed up at Ardersier. This was reported to the police. Two set lines found attached to the shore near Dores were removed.

Financial Summary

CHAIRMAN'S FOREWORD

NESS DISTRICT SALMON FISHERY BOARD
ANNUAL REPORT AND UNAUDITED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 MARCH 2024

A9 Accountancy Limited, Chartered Accountants

Elm House

Cradlehall Business Park

Inverness

United Kingdom

IV2 5GH

NESS DISTRICT SALMON FISHERY BOARD

INFORMATION

Chairman Mr Neil Cameron

Registered office Beauly House
Dochfour Business
Centre
Inverness
IV3 8GY

Accountants A9 Accountancy Limited
Elm House
Cradlehall Business Park
Inverness
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NESS DISTRICT SALMON FISHERY BOARD

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NESS DISTRICT SALMON FISHERY BOARD

REPORT TO THE BOARD ON THE PREPARATION OF THE UNAUDITED STATUTORY ACCOUNTS OF NESS DISTRICT SALMON FISHERY BOARD

I report to the board on my examination of the accounts for the period ended 31 March 2024 which are set out on pages 2 to 6.

Respective responsibilities of river proprietors and examiner

The river proprietors are responsible for the preparation of the accounts in accordance with the requirements of the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 and the Aquaculture and Fisheries (Scotland) Act 2013. The river proprietors consider that an audit of the financial statements is not required. It is my responsibility to examine the accounts and to state whether particular matters have come to my attention.

Basis of independent examiner's statement

My examination includes a review of the accounting records kept by the board and a comparison of the accounts presented with those records. It also includes consideration of any unusual items or disclosures in the accounts, and seeks explanations from the board members concerning any such matters. The procedures undertaken do not provide all the evidence that would be required in an audit, and consequently I do not express an audit opinion on the view given by the accounts.

Independent examiner's statement

In the course of my examination, no matter had come to my attention:

- which gives me reasonable cause to believe that in any material respect the requirements to keep accounting records and prepare accounts in accordance with the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 or the Aquaculture and Fisheries (Scotland) Act 2013 have not been met; or
- to which, in my opinion, attention should be drawn in order to enable a proper understanding of the accounts to be reached.

I have no concerns and have come across no other matters in connection with the examination to which attention should be drawn in this report in order to enable a proper understanding of the accounts to be reached.

Heather E Young CA CTA

A9 Accountancy Limited
Chartered Accountants

.....
Elm House
Cradlehall Business
Park
Inverness
United
Kingdom IV2
5GH

NESS DISTRICT SALMON FISHERY BOARD

PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED 31 MARCH 2024

	2024	2023
	£	£
Turnover	287,173	258,971
Administrative expenses	(262,109)	(266,048)
Other operating income	9,213	11,221
	_____	_____
Operating profit	34,277	2,144
Interest payable and similar expenses	(3,374)	(3,360)
	_____	_____
(Loss)/profit before taxation	(30,903)	(1,216)
Tax on (loss)/profit	-	41
	_____	_____
(Loss)/profit for the financial year	<u>30,903</u>	<u>1,175</u>

The profit and loss account has been prepared on the basis that all operations are continuing operations.

NESS DISTRICT SALMON FISHERY BOARD

BALANCE SHEET AS AT 31 MARCH 2024

	Notes	2024		2023	
		£	£	£	£
Fixed assets					
Tangible assets	2		60,876		75,623
Current assets					
Debtors	3	28,820		42,034	
Cash at bank and in hand		196,014		156,542	
		<u>224,834</u>		<u>198,576</u>	
Creditors: amount falling due within one year	4	(33,550)		(35,816)	
Net current assets			191,284		162,760
Total assets less current liabilities			<u>252,160</u>		<u>238,383</u>
Creditors: amounts falling due after more than one year	5		(13,538)		(30,664)
Net assets			<u>238,622</u>		<u>207,719</u>
Capital and reserves					
Retained earnings			238,622		207,719
Members' funds			<u>238,622</u>		<u>207,719</u>

In accordance with the engagement letter, we approve the financial statements set out on pages 2 to 6. We acknowledge our responsibility for the financial statements, including the appropriateness of the accounting basis as set out in note 1 to the financial statements, and for providing A9 Accountancy Limited with all information and explanations necessary for their compilation.

The financial statements were approved and signed by the director and authorised for issue on 8th June 2024.

.....

Mr N Cameron, Chairman

Chairman

NESS DISTRICT SALMON FISHERY BOARD

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2024

1 Accounting policies

1.1 Accounting convention

The accounts have been prepared under the Historical Cost Convention and are in accordance with the United Kingdom Generally Accepted Accounting Practice.

1.2 Turnover

Turnover represents the amounts assessed for the year along with support from SSE and project income.

1.3 Tangible fixed assets

Tangible assets are stated in the balance sheet at cost, less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

The cost of tangible assets includes directly attributable incremental costs incurred in their acquisition and installation.

Depreciation is charged so as to write off the costs of assets, other than land and properties under construction over their estimated useful lives, as follows:

Plant and machinery	25% reducing balance basis
Equipment	15% reducing balance basis
Motor vehicles	25% reducing balance basis
Boat	20% straight line basis

The gain or loss arising on the disposal of an asset is determined as the difference between the sale proceeds and the carrying value of the asset, and is credited or charged to profit or loss.

1.4 Hire Purchase and Leases

Assets obtained under hire purchase contracts and finance leases are capitalised as tangible assets and depreciated over the shorter of the lease term and their useful lives. Obligations under such agreements are included in the creditors net of the finance charge allocated to future periods. The finance element of the rental payment is charged to the profit and loss account so as to produce a constant periodic rate of change on the net obligation outstanding in each period.

1.5 Pension costs

The Ness District Salmon Fishery Board operates a defined contribution pension scheme for employees. The assets of the scheme are held separately from those of the company. The annual contributions payable are charged to the income and expenditure account.

NESS DISTRICT SALMON FISHERY BOARD

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) FOR THE PERIOD ENDED 31 MARCH 2024

2 Tangible fixed assets

	Plant and machinery £	Equipment £	Motor vehicles £	Total £
Cost				
At 16 May 2023	12,560	3,677	87,150	103,387
Additions	-	1,663	-	1,663
At 31 March 2024	12,560	5,340	87,150	105,050
Depreciation and impairment				
At 16 May 2023	6,892	1,341	19,531	27,764
Depreciation charged in the Period	1,240	378	14,792	16,410
At 31 March 2024	8,132	1,719	34,323	44,174
Carrying amount				
At 31 March 2024	4,428	3,621	52,827	60,876
At 15 May 2023	5,668	2,336	67,619	75,623

3 Debtors

	2024 £	2023 £
Amounts falling due within one year:		
Trade debtors	305	10,896
Assessments	19,652	21,925
Prepayments and accrued income	8,863	9,213
	28,820	42,034

4 Creditors: amounts falling due within one year

	2024 £	2023 £
Obligations under hire purchase	19,027	17,510
Trade creditors	4,392	4,899
Taxation and social security	3,777	5,276
Accruals and deferred income	6,354	8,131
	33,550	35,816

NESS DISTRICT SALMON FISHERY BOARD

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)
FOR THE PERIOD ENDED 31 MARCH 2024

5	Creditors: amounts falling due after more than one year		2024	2023
		Notes	£	£
	Obligations under hire purchase		13,538	30,664

NESS DISTRICT SALMON FISHERY BOARD

DETAILED PROFIT AND LOSS ACCOUNT FOR THE PERIOD ENDED 31 MARCH 2024

	Period ended 31 March		Year ended 15 May	
	2024	2024	2023	2023
	£	£	£	£
Turnover				
Assessments on proprietors		93,300		90,483
Project income		20,840		24,335
Scottish & Southern Energy Plc		163,033		143,642
Fishpal donations		-		511
Contract income		10,000		-
		<u>287,173</u>		<u>258,971</u>
Other operating income				
Grants and subsidies	2,459		11,221	
Other operating income	<u>6,754</u>		<u>-</u>	
		9,213		11,221
Administrative expenses				
Wages and salaries	122,870		131,398	
Social security costs	9,585		8,576	
Bailiff costs	1,996		564	
Staff training	929		1,728	
Staff pension costs defined contribution	6,601		7,385	
Rent, rates and utilities	6,733		6,332	
Insurance	8,169		10,441	
Repairs and renewals	-		977	
Motor running expenses	4,417		7,548	
Travelling expenses	95		164	
Fuel	9,691		14,596	
Professional subscriptions	3,182		2,750	
Legal and professional fees	11,944		6,300	
Bookkeeping fees	5,055		3,825	
Accountancy	1,307		895	
Bank charges	205		206	
Office costs	4,841		4,174	
Project costs	27,969		34,334	
Website costs	513		7,765	
Entertaining	267		310	
Sundry expenses	919		980	
Loch Ness educational project	295		-	
Loch Ness PSH campaign	18,116		-	
Depreciation	16,410		18,391	
Profit or loss on sale of tangible assets (non exceptional)	<u>-</u>		<u>(1,591)</u>	
		(262,109)		(268,048)
Operating profit		34,277		2,144
Interest payable and similar expenses				

NESS DISTRICT SALMON FISHERY BOARD

DETAILED PROFIT AND LOSS ACCOUNT (CONTINUED)
FOR THE PERIOD ENDED 31 MARCH 2024

	Period ended 31 March		Year ended 15 May	
	2024	2024	2023	2023
	£	£	£	£
Hire purchase interest payable		(3,374)		(3,360)
Profit/(loss) before taxation	10.76%	30,903	0.47%	(1,216)

NESS DISTRICT SALMON FISHERY BOARD

Acknowledgements

Ness DSFB would like to thank the following for their support over the course of the year:

Inverness Angling Club, Ness-side, Ness Castle & Wildland Ltd for providing access for broodstock fishing.

Trees for Life for supporting freshwater pearl mussel conservation.

Education Project funders, Glengarry Trust, Soirbheas, and Fort Augustus and Glenmoriston Community Company.

Those anglers who took time to collect and submit adult scale samples, with special mention to Grant Sutherland and Cammy Chapman (both Dochfour gillies), Angus MacGruer, and the Garry Syndicate members.

We are indebted to Glenkingie Estate for providing access for the Kingie smolt trap.

Tomdoun and East Glenquoich Estate for logistic and other help in accessing remote areas of the catchment.

