



# Cromarty Firth Fishery Board Annual Report

**October 2023**



## **Adult Trap and Broodstock Operations**

A full report of the 2022/23 stocking season can be found in the previous (March) update; however, a summary is included here for the sake of continuity.

With a record low catch at the Blackwater adult trap of just 432 fish, the fishery board were just able to meet the Blackwater mitigation stocking requirement of 750,000 eggs. This did not allow for any further stocking outside of the Blackwater. Low mortality in the hatchery, due in no small part to the care and diligence of board staff, meant that a total of 774,000 eggs were stocked into the river in March 2023. A novel approach of using biodegradable 'eco' egg boxes where habitat is limited was trialled and initial consensus is that they were a great success, further supported by electrofishing stock assessment this summer.

Ongoing discussions with SSE at a local and regional level have resulted in some much-needed repairs to the trap and associated infrastructure. Over the summer of 2023, SSE staff successfully resolved a number of issues highlighted by fishery board staff. These include repairs to rusted sections of screen at the front of the trap, welding of new screens to overcome irregular bar spacing and replacement of original wooden infrastructure on the trap floor. Cromarty Firth Fishery Board staff also replaced the old plastic mesh on the trap floor with high quality anti-fatigue matting, minimising the risk of entanglement and stopping very small grilse from swimming under the floor. Due to the expense of large-scale repairs, further refitting must be budgeted at a higher level in SSE and work must be carried out by their team of civil engineers. A meeting will be held on site in the future to look at this in detail.

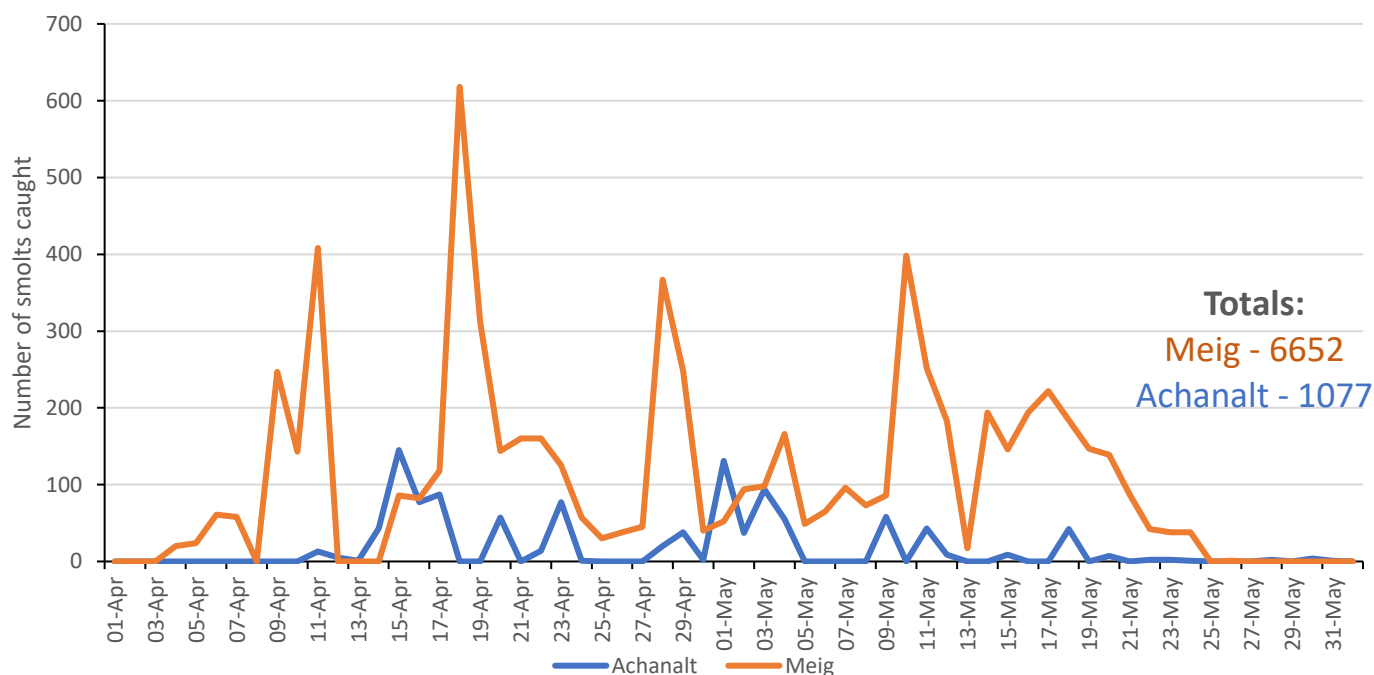


**Figure 1:** The Blackwater trap and holding facility (left) as seen from above.

At present, board staff have been working around high flows to get everything ready for the 2023/24 season. Handover is complete and the tanks are full, awaiting commencement of trapping at the end of the Month.

## **Bran and Meig Smolt Counts**

Smolt catch on the Meig was up from last year and the second highest catch since 2019 with a total of 6652 fish being caught from the two rotary screw traps on the river at Strathconon. Staff worked tirelessly to keep the traps turning in the low flows which seemed to span the entire smolt run. By the end of the season over 2000 smolts were PIT tagged as part of the day versus night release trial. The board hope that the delayed release of fish, allowing them to travel under the cover of darkness, will minimise predation and maximise the numbers of returning salmon. The study is fully funded by SSE who provide PIT tags and all equipment. Current estimates (Glover et al., 2023<sup>1</sup>) indicate that night survival is similar to that of the pilot acoustic study – i.e., 40% higher survival for delayed release fish.



**Figure 2:** Daily catches for the Meig and Bran smolt traps 2023. Including total fish transported for the season.

## **National Electrofishing Program for Scotland and Stock Assessment**

In light of governmental support and awareness of the ‘Atlantic salmon crisis’, significant Scottish funding was secured this year to allow delivery of the National Electrofishing Program for Scotland. This project is essentially a statistically robust model of survey design and fish capture allowing fishery boards to obtain unbiased estimates of juvenile salmon populations across rivers, including information on water quality and genetic introgression. A total of 30 quantitative sites, selected randomly, but with high spatial representation, were fished across the wider district this summer. Results were mixed, as a number of sites landed us on sub-optimal habitat, but in general, where there are suitable flows and substrate, juvenile numbers appear to be healthy.

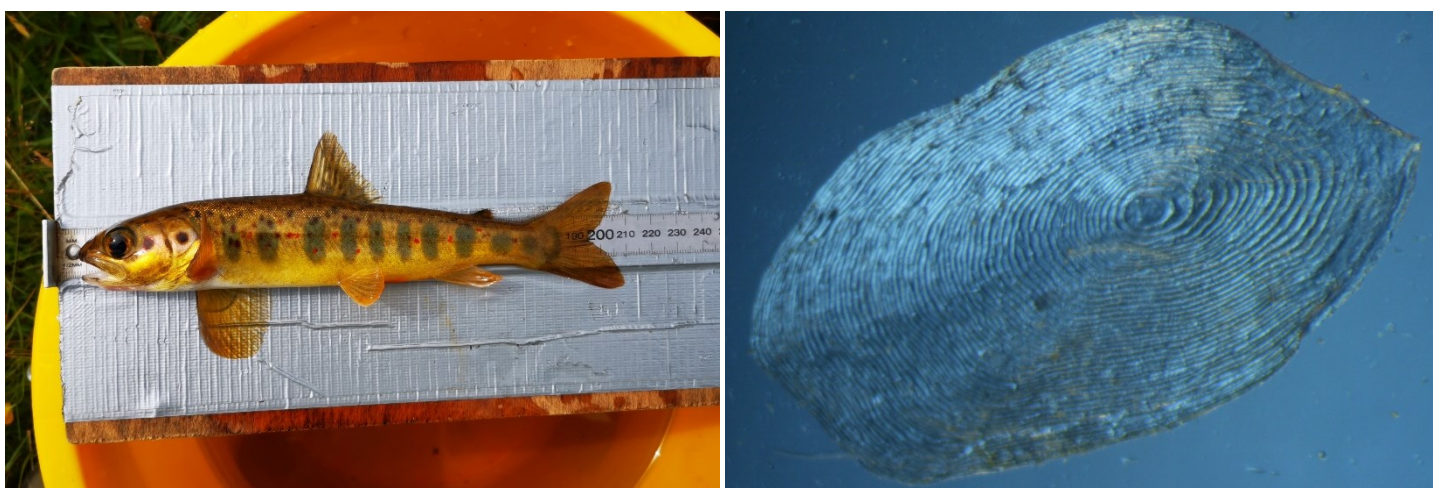
Internal electrofishing surveys were also designed and carried out for 45 sites across the Cromarty Firth district. This included sites on the River Alness, Bran, Meig, Allt Graad, Big Burn, and Balnagown. The data for all sites has been entered into the SFCC database and formal analysis is ongoing.

With delivery of NEPS this year, a formal Blackwater stock assessment panel was not carried out. Instead, targeted timed electrofishing surveys were undertaken to maximise spatial coverage and assess which areas of the river appear to be recruiting fry at sustainable levels. Overall, we report moderate juvenile densities where eggs were stocked into the Blackwater in 2023. With some sites, specifically on the Rannoch and Vaich

<sup>1</sup>Glover, R.S. and Stephen, A., 2023. A novel automatic release cage increases survival of Atlantic salmon (*Salmo salar*) smolts released at night. *Journal of Fish Biology*.

tributaries, painting a very happy picture of juvenile recruitment. Some mainstem sites in the upper Blackwater were characterised by relatively low densities which may reflect the lack of suitable nursery habitat in some stretches of the river, this is especially apparent on the Glascarnoch river where low flows and elevated summer temperatures may be limiting the carrying capacity of the stream. 2024 stocking efforts will be adjusted accordingly.

Sites throughout the wider catchment reflect a generally happy picture of natural spawning and recruitment with excellent juvenile densities in some of the smaller burns within the district. Very low early summer water levels allowed staff to survey a number of sites on the Conon mainstem and found reassuring numbers of both fry and parr. It is clear that where the habitat is suitable and accessible, fish spawning and juvenile numbers are healthy.



**Figure 3:** A 4-year-old precocious parr measuring 187mm (left) and scale (right) caught during NEPS survey of the Alness above Kildermorie.

### **Fish Passage**

Earlier this year, board staff took on maintenance of the Corrieфеoul fish pass on the upper Meig. Previous spates have undercut some of the rock armouring, significantly reducing the capacity for fish to hold before ascending the first steps. With the use of a tirfor winch, a number of large boulders were re-positioned allowing for a better attractant flow and a clear run to the first pool and step. With luck, this will increase the number of spawning adults making it up to the upper reaches of the Meig.

After many years of discussion, works are now well underway at the Logie Burn distillery weir. To overcome issues with fish passage over the existing weir, The Board have worked with SEPA, Diageo and Envirocentre to install an Alaskan steep pass as well as a series of baffles in the concrete channel. Works are currently ongoing with a view to be finished by the end of November.

Different funding options are also being explored to finance the removal of disused weirs across the district. The Fishery Board are working with local landowners to remedy a number of small barriers which have been marked as obstacles to fish passage on SEPA's database, including an old fish farm weir on the Balnagown.

## Peffery Catchment Initiative

In light of recent availability of Nature Restoration Fund (NRF) capital, Cromarty Firth Fishery Board put in a partnership bid with Lockett AgriEnvironment to secure up to £1.4mil to undertake restoration of the Ussie Burn. A large part of this project will involve identification of pressures and factors limiting freshwater fish production. The hope is to look at re-meandering a historically channelised section of the burn which could increase the available habitat to salmon and sea trout in the area.



**Figure 4:** Re-meandering of the River Peffery at Fodderty. You can see the channelised burn as it enters the trees (far left). Photo courtesy of Lockett Agrienvironment (2022).

With a view to long-term restoration of river systems, The Board are working closely with local landowners to establish baseline monitoring of fish and invertebrate communities at a number of key index sites. With sufficient support and funding, The Board hope to catalyse large-scale riparian planting schemes and establish smaller-scale habitat improvements through addition of large woody structures, green engineering and gravel reintroduction. At present, there are a small number of projects which we hope to progress over the coming year. All are present in the current 5-year management plan available on the website, but include specific projects on the Meig, Blackwater, Alness, Balnagown, Orrin and Ussie.

## Salmon Disease & Pinks

This year Board staff obtained a licence to permit active management and possession of Pink Salmon (*Oncorhynchus gorbuscha*) within the district. Thankfully, reported numbers were low in 2023 with just 47 sightings across Scotland (none within our district). No active management was undertaken but Board staff were prepared to respond to any sightings to remove fish.

As ever, fish health is a huge concern for the Board and efforts were made to take detailed reports of any fish showing symptoms of Red Skin Disease (RSD). A total of 5 rod caught fish were reported to staff as having RSD like symptoms ranging from mild to severe. The advice is to **return** all fish showing these symptoms but, if possible, to record and/or photograph the fish. All reports are gladly received.

### **Predator-Prey Interactions**

Growing concerns over the impact of fish-eating birds in the lower reaches of the river prompted staff to carry out regular bird surveys, both on foot and by boat. Bailiffs were also tasked with routine walks to disturb birds and of course licenced shooting (both lethal and to scare). Detailed bird counts from the Conon and Alness catchments were included in the license application to NatureScot which was consolidated and reviewed by Roger Knight on the Spey. The Licence for 2024 has been granted, allowing lethal control of ten birds across the district.

A number of otter kills have been observed by Board staff and ghillies on the river Conon. The impact to the fishery is potentially serious and discussions have been opened with NatureScot and the Scottish Game and Wildlife Conservation Trust regarding appropriate management. While this kind of predator prey interaction is natural on healthy and functioning river systems, the offending otter is taking advantage of a significant pinch point in the form of a large-scale hydropower dam. A licence application has now been submitted to NatureScot for translocation of the otter to mitigate this conflict.

### **Scottish Invasive Species Initiative**

In partnership with the Scottish Invasive Species Initiative (SISI), the Board have employed a full-time Invasives Species Project Officer to recruit volunteers to aid in the detection and trapping of American mink throughout the district. Board staff continue to work collaboratively to tackle Invasive Non-Native Plant Species which can outcompete native flora, reducing biodiversity to such an extent that, in some cases, only one species exists across extensive areas. Working alongside the SISI Project Officer and local volunteers, The Board are committed to work towards the removal of Invasive Non-Native Plant Species within the district over the next three years.

### **Bailiffing**

Board staff covered all the rivers and coastline across the district at varying times throughout the season with patrols carried out seven days a week whenever possible. During these patrols, a total of 28 persons were found to be fishing by rod and line without permission, of these 6 were reported to Police Scotland for offences under the Salmon and Freshwater Fisheries Consolidation Scotland Act 2003. One of the persons reported was also further charged with a non-fishing related offence. In one other incident two persons were reported to Police Scotland for a fishing offence under the 2003 Act.

Our good working relationship with Police Scotland continued throughout this year with joint day and night patrols carried out with them during the season, and we would like to pass on our thanks to them for the ongoing support we receive in tackling illegal fishing within the district.

## **Meetings**

<b>Meeting</b>	<b>Purpose</b>
Balnagown site visit – Balnagown estate	Assessment of fish passage over ornamental weirs, possible removal
Strathconon hatchery visit	To look at feasibility of reinstating Strathconon Hatchery
Extraordinary management committee meeting	To discuss Lord Nickson's Proposal to stock the upper Meig
SFCC training meeting - Pitlochry	Training for SFCC Staff and external trainers
FMS hydro group meeting	To discuss, with members across Scotland, the impact of Hydropower within river catchments
Atlantic salmon trust Conon Connect meeting	AST staff and Andrew Wallace visit Catchment to look at reinstating original Conon Connect project
SISI steering group meeting	Invasive species control and project officer employment
Atlantic Salmon Trust – Laxford catchment	On site meeting to look at restoration of the Laxford
Ness hatchery working group	Guest attendance to present on genetic risks of hatchery domestication
Green finance meeting – Paul Sizeland	Local meeting to discuss options for Green Finance in River restoration
Fisheries Management Scotland AGM	Looking at catchment restoration at scale – Aviemore
FMS Members meeting - Inverness	Fisheries Management meeting
SSE AI counter open day - Pitlochry	SSE hosted day to discuss Artificial Intelligence based fish counters
Alness nutrient enrichment meeting	Open discussion with Kildemorie estate regarding nutrient work
Lockett Agri Env partnership project meeting	Meeting to discuss joint project with Lockett. Agri to restore Ussie Catchment with NRF funding
SSE liaison meeting	To discuss CFFB/SSE priorities and commitments for coming season
Alt Lorgy River restoration – Speyside	Catchment restoration meeting looking at a site on the Spey

## **Proposed Programme of Works for 2023 / 24**

Orrin Gravel reintroduction/ spawning bed creation  
 Ussie Burn restoration baseline surveys and desk study  
 Meig index site baseline surveys  
 Peffery post restoration surveys  
 Meig rotary screw trap efficiency trials  
 Education and outreach to primary and secondary schools  
 Junior Angling Club  
 Hatchery open day  
 SSE Mitigation stocking on the Blackwater  
 Alness Nutrient enrichment trials  
 Strathroy wind farm post-construction monitoring  
 National Electrofishing Program for Scotland  
 Balnagown weir removal  
 UHI Genetics project – Upper Meig  
 Day versus night release trial (continued.)  
 River Restoration, Meig, Strathrannoch, Blackwater