

Cromarty Firth Fishery Board Annual Report



October 2022



Adult trap and Broodstock Operations

The winter of 2021 saw 861 fish caught and stripped at the adult trap at Loch na Croic, 58 more than the five-year running average (**Figure 1**). In line with a steadily declining trend in the ratio of male : female fish, the 2021 run consisted of approximately 30% of hen salmon. Just 16% of these were multi sea winter (MSW) fish. Nevertheless, the broodstock operations for the year ran smoothly, with less than 2% mortality and good fish health across the season.

Staff responded to eight alarms at the hatchery over the course of the winter which highlights the importance of the low water alarm system and on call rota which is implemented through the duration of stripping season. Staff are on call 24/7 during November and December and in all instances responded quickly and effectively to ensure water flows were not interrupted despite power outages and pump failure. In the summer of 2022, SSE staff installed two new pumps and in preparation for the 2022 adult trapping season. board staff are working closely with SSE explore options to minimise pump failure in the future.

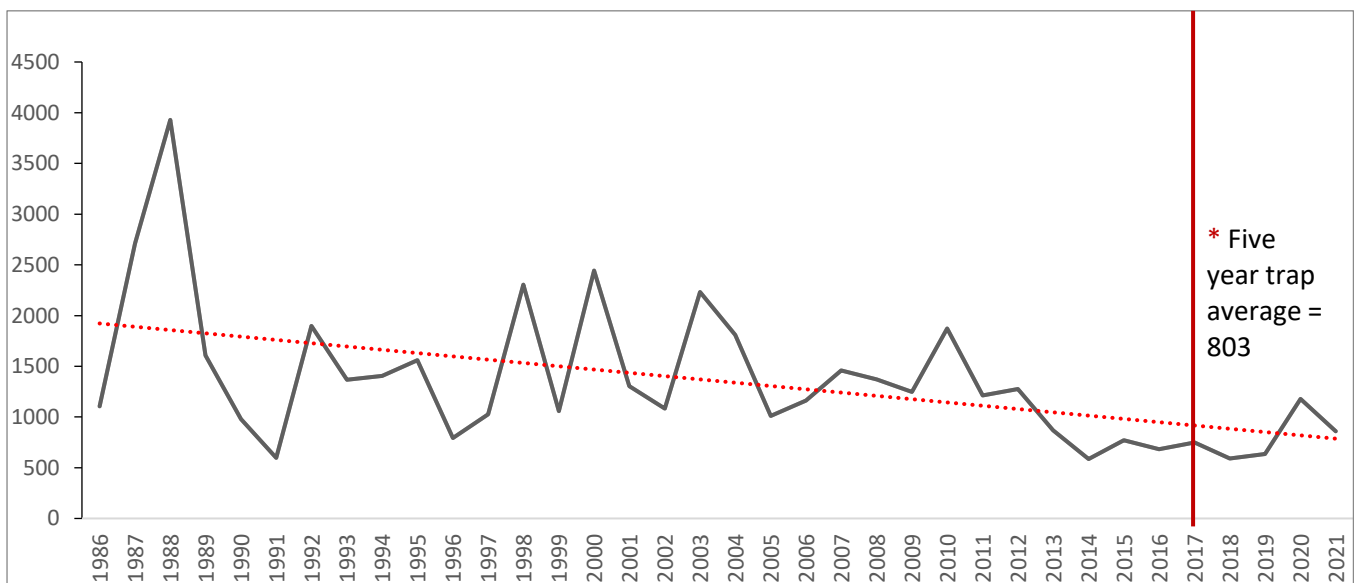


Figure 1: Number of fish caught at the adult trap at Loch na Croic 1986 – 2021 vertical red line indicates the current five-year average.

Egg stocking

A total of 963,838 salmon eggs were collected during the adult fish trapping operation in Winter. These were incubated in our flow-through hatchery in Contin with Fishery Officers carrying out daily check and removing any mortalities. At around 250-degree days, eggs were “shocked”, a process where the eggs are given a mild physical shock, which allows for removal of any “blind” (unfertilised) eggs prior to stocking. The first batch of eggs stocked out had low incubation mortalities of 2.7%.

Stocking of the Blackwater started in February, with eyed ova being placed into artificial redds constructed in the riverbed. After the successful stocking efforts in 2021, board staff decided to continue stocking at the eyed-egg stage as opposed to fry. This allows alevins to hatch into a natural river environment where they are immediately exposed to natural processes which should maximise population fitness through natural selection.

Fish counts at SSE dams

Unfortunately, dam counts for the season are not available due to technical issues with the counters installed in Meig and Tor Achilty. SSE have assured the Board that new counters are being installed this year, and with luck, AI technology will allow increasingly accurate counts moving forward.

Bran and Meig Smolt Counts

Very high flows through much of the smolt migration limited the capture efficiency of both the rotary screw traps (RST) on the Meig and wolf trap on the Bran. Nevertheless, Board staff measured, and PIT tagged in excess of 3750 fish. Overall counts for fish transported downstream and released at Tor Achilty were approximately 4000 for the Meig and 2000 for the Bran.

50% of the fish from both tributaries were placed into a delayed night-release cage, continuing the study devised in 2021 to test whether releasing fish at night increases survival as they migrate out of the lower reaches into the sea. 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 results of this experiment depend on the PIT decoders in the dams at Meig and Tor Achilty being operational during the adult run to scan fish returning from their feeding migrations in ta North Atlantic.

Electrofishing and Habitat Surveys

Electrofishing surveys were designed and carried out for 47 sites across the Cromarty Firth district. This included sites on the River Bran, Meig, Peffrey, Sgitheach, Allt Graad Alness and Balnagowan. The data are currently being entered into the SFCC database and a full analysis will take place over the coming winter. Results will be available on the Board's website early next year.

Juvenile stock assessments make up an important part of the Board's season, with fry recruitment estimates feeding directly into the stocking program for the Blackwater and the rest of the catchment. Overall, we report moderate juvenile densities where eggs were stocked in 2021/22. On the Orrin, we see very high juvenile densities downstream of Orrin falls but low numbers downstream of the dam. The blackwater is more complex but multiple age classes of fish were present at all sites, and densities ranged from reasonable to good. Stocking on both Strathvaich and Strathannoch appear to be recruiting juveniles at a satisfactory level. 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.

Sites throughout the wider catchment reflect a generally happy picture of natural spawning and recruitment with excellent juvenile densities in some of the small productive coastal burns such as the Ussie and Balnagowan. Surveys carried out as part of impact monitoring and new development planning schemes give an insight into more remote areas of the catchment and allowed board staff to build up a picture of the freshwater communities which occupy smaller tributaries and upland burns. In general, we report healthy brown trout populations and identified some important salmon spawning burns. As ever, the board work closely with large scale renewable energy developers to ensure that best practice mitigation and monitoring practices are adhered to.

Peffery fish rescue

In August a large-scale re-meandering project on the River Peffery at Fodderty was undertaken. Heavy plant rerouted a 1km stretch of river through existing farmland that was threatened by annual flooding and included a number of small lakes and wetlands in the hope of creating some complex natural freshwater habitat. The Peffery

is an important burn and has high densities of river lamprey, eels, salmon and trout and the board were contracted to undertake a fish rescue to transplant fish from the old channel into the restoration reach. With help from the Ness District Salmon Fishery board, staff worked together to capture and relocate over 1500 fish.

Riverwoods

The board are continually seeking areas where riparian native woodlands could be planted and have opened formal discussion with local landowners on the potential for upper catchment planting. With the momentum gained from the Riverwoods film and initiative, native woodland projects are beginning to emerge in earnest. In August of this year board staff met with Alastair Stephen (formerly SSE), Melanie Smith (UHI) and others to discuss the feasibility of moving forward with the Conon Connect project. Staff continue to monitor and carry out routine maintenance on several small riverside tree plantations throughout the catchment. Progress moves slowly but the potential beneficial impacts that riparian woodlands have on fish communities is significant.

Salmon Disease

The two previous summers have brought with them reports of diseased fish on the Alness and Conon. Unfortunately, these reports reflect the wider picture across Scotland and Europe. The disease, which can lead to early mortality as secondary fungal infections take over, has been termed red skin disease (RSD). In previous years, the Alness has been the only river in the district to be affected. However, while overall reports were lower than the previous year, the outbreak appears to have infected fish in the Conon mainstem and Blackwater.

In June this year the board's biologist attended a two-day international conference led by the Atlantic Salmon Trust. Experts from across Europe came together to share their experiences and research into new threats which are coming to the forefront of Atlantic salmon management. Unfortunately, little is known about the origin or even the biological structure of whatever is causing RSD but researchers, fisheries managers and aquaculture staff have agreed to share their results in an effort to combat this emerging threat.

Bailiffing

During patrols across the rivers within the district, a total of 54 people had been removed for fishing without permission by the end of September. During two separate incidents a total of 3 persons were reported to Police Scotland for offences under the 2003 Act. Following a review of one of the incidents by the police, a local male received a written police warning, and his equipment was seized along with that belonging to a juvenile who was also present.

In August, a multi strand gill net was recovered from the lower reaches of the River Conon, a finding which highlights the importance of regular patrols across the entire catchment. Board staff continue to maintain an excellent working relationship with Police Scotland and have conducted joint patrols with officers targeting illegal fishing several times this season. It is hoped these will continue into October on the River Alness.

Meetings

Meeting	Purpose
AST Emerging Threats Workshop	Meeting of fisheries managers and researchers from across Europe to discuss red skin disease and pink salmon.
Riverwoods Workshop	Meeting of landowners and fishery managers to discuss riparian planting of native woodlands across Scotland
Scottish Game and Wildlife Conservation Trust Using lasers to deter otters	Discussion on expanding SGWCT research into the effectiveness of using lasers to deter otters from causing conflict at dams.
Fisheries Management Scotland	Regional members meeting.
Scottish Invasive Species Initiative (SISI)	Discussions around CFFB involvement in the SISI project to tackle invasive non-native species and secure NRF funding
Scottish Water	Discussion on Ussie Burn enforcement undertaking
Kyles of Sutherland Riverwoods meeting	Discuss planting opportunities and issues in the central highlands
Alness Weir: Angling club and SEPA	Visit to proposed site on the River Meig to discuss the logistics of installing and operating a Wolf trap.
SSE Gravel reintroduction on the lower Orrin	Discuss feasibility of creating spawning habitat in the lower Orrin below the dam.
Conon Connect – University of the Highlands and Islands	Discussion to look at the interest/feasibility of regaining funding and project partners for the Conon Connect project

Proposed programme of works for 2022 / 23

School visits, education and outreach

SISI Project

SSE Mitigation stocking on the Orrin and Blackwater

Nutrient enrichment trials (SCENE Glasgow University)

Orrin Gravel reintroduction

Day vs night smolt release trial

Allt Graad monitoring (RWE N-power)

Fish eating bird counts and licence application

River Peffery post-construction monitoring

Riparian tree planting development (Conon Connect)

Strathrory wind farm post-construction monitoring

National Electrofishing Programme for Scotland (prov.)

Logie (Glen Ord distillery) Burn monitoring