CROMARTY FIRTH FISHERY BOARD WINTER & SPRING REPORT

2019 Season | Research Update | Management

Junior Angling Days

The number of junior Angling days was limited in 2019 due to adverse weather conditions, a number of days were cancelled for safety reasons.

In total 4 junior angling days were held with around 10 junior fishers turning up for each session.

The Board received donations for the junior angling in memory of Simon Mckelvey, these funds have been drawn down to pay for the hiring of the fisheries for the junior angling days.

School visits

Three schools were visited over the course of the year with a total of 58 pupils taking part in class room and site visits. School visits will continued in 2021.

COVID 19

Due to the global pandemic and the subsequent country wide lockdown from March, much of the planned research due in 2020 has been postponed. However, we will report on the proposed projects that were planned in this newsletter and hope they can be completed in 2021.

The Board has still continued to operate essential tasks during lockdown, notably the hatchery and the smolt transportation which will be expanded on below.

Anti poaching patrols have also been continuing but on a more restricted basis and with greater liaison with the police.

Throughout, staff safety has been of paramount importance and our C-19 policies have reflect this.

Fishery Management Scotland has been lobby government on behalf of fishery boards and anglers, to try and allow fishing to be a permitted form of exercise when the lockdown is eased.

New Positions

Interviews were held in February 2020 for the positions of Fisheries Manager and Fisheries Biologist.

We are delighted that we found two very good candidates and both accepted the positions.

Fisheries Manager

Ross Glover has been appointed as Fisheries Manager, Ross is joining the Board from Marine Scotland Science and he has a wealth of experience in research, habitat management, health & safety and he was the trap manager for the Girnock and Baddoch traps which are two long-term study traps on the upper Aberdeenshire Dee.

Catch Records

CONON

The total catch for the Conon was in the region of 931* salmon/grilse for 2020, this being up on last year with a comparison of 819.

ALNESS

The total catch for the Alness was 327 salmon/grilse for the season, also up on last year from 217.

*based on partial data and forecast figures.

Contin Hatchery

635 fish were caught at Loch na Croic with a total of 1,020,000 eggs being laid down in the hatchery.

Heaviest Fish

The heaviest fish for 2019 was a 32lb Salmon caught on the Fairburn Estate beat.

Fisheries Biologist

Ben Seaman has been appointed as Fisheries Biologist, a new position which is been supported by SSE.

Ben joins the Board from MOWI (formerly Marine Harvest), where he was a manager in their new hatchery at Inchmore.

Ben started in April and has been managing the smolt run.

River Meig Smolt Capture 2019

Meig Smolt Trap Project

Following on from the success of the 2019 smolt capture project on the River Meig, with 5,500 smolts trapped and trucked to below Torr Achilty dam. The project has continue in 2020 with Strathconon Estate taking a lead on the trapping and trucking, due to C-19 there is no cross over between Estate staff and the Board staff. Originally a team from Glasgow University were going to undertake the tagging work and Strathconon Estate and the Board assisting with logistics. However, that has not been possible with the restrictions and no smolts are being tagged this year.

In 2019 an acoustic barrier was trialed with two rotary screw traps placed on separate channels downstream of the barrier. For 2020 2 rotary screw traps are being used, without the acoustic barrier.

As mentioned Glasgow University were going to PIT tag the smolts and the aim was for 2,000 smolts to be tagged, with 1,000 smolts being released during the day and 1,000 smolts

Vehicles

12 months ago the Board owned a fleet of 9 vehicles, this has been reduced to 5 with the aim of replacing one vehicle every year and replacing them with new, or almost new vehicles.

The insurance premium has already reduced and we hope to see the repair bill decrease likewise. The present makeup of vehicles are; 3 vans for the enforcement team and 2 Land Rovers. One Land Rover will be sold with a modern pickup purchased that can seat 5 people and do most tasks required of the Board. The second Land Rover will be kept for 6 months to determine its usefulness.

After long discussions with the team only one 4x4 is required but there could easily be a 4 week window each year where two 4x4 would be needed - when egg planting and smolt trapping are going on simultaneously.

We will keep the running cost of the Land Rover under constant review and may opt to sell it and hire in a pickup for 4 weeks of the year. This would ultimately reduce the fleet to 4.

being released at night. The PIT decoders in the fish passes at Torr Achilty and Meig dams will be able to pick up the returning fish/tags in the years to come, which will allow the interrogation of data to determine whether day or night release has an impact on survival.

Looking ahead to 2021 and 2022 SSE are in the early stages of designing a wolf trap that will be demountable, so it would only be placed in the river prior to the smolt run and then removed. The wolf trap would remove the need for the rotary screw traps and it would be more efficient at capturing smolts.

Missing Salmon Project - Atlantic Salmon Trust

The Atlantic Salmon Trust (AST) have now finalise their 2019 reports for individual rivers on the missing salmon project and this will be published on the Boards website shortly. The preliminary results are interesting. The average results for all rivers suggest that only 49% of smolts are making it out to sea, with the Conon falling below this level, possibly as a result of the study releasing small numbers of fish which were unable to create a shoaling effect when released below Torr Achilty dam, in 2020 we proposed that any smolts tagged should be released with the other smolts caught at Achanalt, which may improve survival. However, more work needs to be done on the cause of the high mortality rate and this may be a trend that has been going on for thousands of years, but certainly we need to look at undertaking further analysis.

The AST were due to undertake their second year of work on the Conon from mid March, the number of acoustic receivers in the river was to be doubled, in an effort to track any losses in the river better. To further understand if there is a

Marine Scotland Science

The Board, SSE and Marine Science Scotland (MSS) met at the end of February to discuss future and ongoing research work but also to look at the use of the SSE facilities.

It was a very constructive meeting that was useful for all parties and we hope to build on this existing relationship.

Bothy - Loch na Croic

The Board owns the bothy at Loch na Croic but it is not habitable due to a poor water supply. We are in the process of investigating another source of clean potable water, but in the meantime some minor electrical work is required to ensure the building is compliant to be used as either accommodation for students in the future or as a welfare facility during the operation of the salmon trap, the latter being an annual requirement.

Invasive Species

In total 21.5km of invasive species work was done as part of the SISI project.

This included spraying of Giant Hogweed and Japanese knotweed along the Balnagown. Himalayan Balsam pulling along the Alness, Skiach, Peffery and Dunglass Island.

predation issue on the Conon there were to be around 50 brown trout caught and analysed to look at their stomach content but also to test the flesh - a way of determining whether the trout being caught always feed on smolts or not.

To compliment the above project, which includes 7 east coast rivers. The AST were also looking to undertaking the same project on the west coast of Scotland in 2020.

Sunny Bradbury PhD Smolt Tracking Project

Sunny Bradbury is a PhD student studying at the University of the Highlands & Island in their Rivers and Lochs Institute.

Sunny's project was looking at the time it takes for smolts to migrate from different tributaries within the same river. The River Alness was chosen because of the unique placement of Loch Morie. Sunny was studying the difference between smolts above Loch Morie vs smolts up Strath Rusdale, which has no loch, but the distances required to travel to the mouth of the Rover remain the same for the smolts.

The smolts were to be caught by electro fishing for pre-smolt parr, which would have then been tagged and released. Genetic samples would have been taken from each smolt to determine if there is a correlation between sub-sets of smolts within a river system.

A small number of smolts were to be transplanted from each tributary into the other, to look for any difference in migration and whether the loch has any impact.

Sunny looked at place receivers along the river to capture the data from the tags as the smolts migrate past.

Unfortunately, due to the poor weather in February Sunny had to cancel the project, the second year in a row. Regrettably as his PhD is due next year he will not be able to try again.

Nutrient Enhancement Project

Glasgow University are undertaking further research into nutrient enhancement in rivers, this follows on from work they have previously carried out on the Conon. This project

Joint police patrols

Enforcement

Over the coarse of the year several meetings and patrols have been organised with Police Scotland and regular liaison is ongoing.

During the 2019 season there were 11 people cautioned and 1 conviction.

Bailifing patrols continue year round and there is still an enforcement presence during C-19.

IT system

The way in which the Board gathers and stores data is under review and we are exploring cloud based storage. Data collection is an important part of the Boards work and it is vital that we have a system that ensure that we can get the best from the data but also allowing ready access to index data and historic data for analysis.

will look at the effects on nutrient enhancement on eggs and young fry, with a further sample group having no nutrient enhancement. The project will be conducted on the Blackwater as eggs from the hatchery are required for the project. This ensures that the Blackwater remains fully stocked.

In their previous studies they found that there was a fivefold increase in invertebrate biomass and a doubling of fry biomass and a doubling of parr biomass the following year.

The first stage of this projects was completed in February with eggs from the hatchery being planted out in the Blackwater in test areas. These areas will then be electro fished later in the year to look at any differences between the groups of fry.

Kyle of Sutherland and Cromarty Firth Board staff during the Loch na Croic induction, November 2019.

Loch na Croic & Hatchery

Loch na Croic

As reported at the October Board meeting a full health and safety review of Loch na Croic was being undertaken. For the 2019 season a number of changes were made to the working of the trap and facilities at Loch na Croic. Notably night fishing of the trap was stopped, new risk assessments and method statements were produced for each procedure. New

University of the Highland & Islands (UHI)

UHI have been working on a riparian tree planting project for the region, which includes the Cromarty and south east Sutherland area. A funding application has now been submitted to the SSE sustainable development fund.

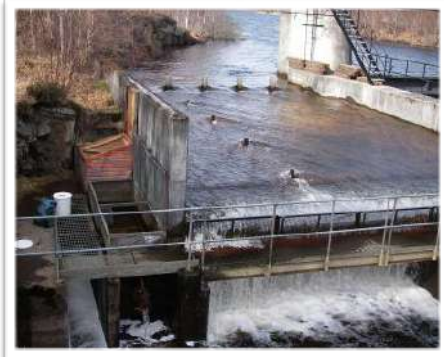
If successful a project officer position would be created to develop the project further and explore longer term funding options.

Looking ahead

The fishery officer team are now three quarters of the way through the smolt run and this is expected to run until the end of May, should numbers remain steady.

This will be followed by increased Bailiffing on the river systems and electrofishing survey working commencing from July.

Ross Glover, the new Fisheries Manager will be starting on the 1st of June.



Achanalt Wolf Trap

ladders and PPE equipment were bought and new procedures for visitors and inductions for volunteers/staff were implemented. Ross-shire engineering provided training on a number of aspects over a two day course for staff prior to the opening of the trap.

A remote alarm system was installed for the water supply to warn of any failures and a remote camera for monitoring the water levels was also fitted. This arrangement has worked well and negates the need to have a person permanently staying at Loch na Croic.

Due to the Board not having the required staffing levels to undertake all the operations safely the Kyle of Sutherland District Salmon Fishery Board contracted 2 members of staff for 4 days of the week from mid November to mid December. This ensured that there were sufficient staff to undertake tasks safely but it also meant that the Boards staff wouldn't work more than 5 days a week.

The number of fish caught at Loch na Croic was up on last year from 592 to 635. The grilse were smaller in 2019 but were in good condition. As a breakdown 348 cocks and 286 hens were caught in 2019 with the 5 year average being 405 and 280 respectively.

Contin Hatchery

From the 635 fish caught 1,020,000 eggs were laid down in the hatchery. In February the eggs were 'shocked' a process carried out once the eggs have started to 'eye' which identifies the unviable eggs, which are then removed.

All the eggs and fry have now been planted out into the river, with the last fry being released near the end of April.

Smolt Run

The smolt run at Achanalt started on the 1st of April and it will run for around 6 to 8 weeks, the trap at Achanalt had caught around 2,300 smolts at the time of writing, already better than the 2019 catch of 1,800. It is hoped the number will continue to improve, although it is expected that the numbers of fish will tail off for the last part of May.

A new smolt tank was purchased last year, which is more compact and suitable for the back of a modern 4x4. The new tank is working well, the Board has also stopped using oxygen canisters for the fish and instead are using air pumps with a diffuser, this reduces the chance of over oxygenating the water and means no oxygen canisters have to be stored, which require special storage arrangements.

As mention earlier Strathconon Estate have operated the Meig traps in 2020 and at last count they had captured 4,500 smolts.

Scottish & Southern Energy - Facilities

The facilities at Loch na Croic and the Contin Hatchery are owned by Scottish & Southern Energy (SSE) and the Board operates them as a contractor. While undertaking our own health and safety review we identified a number of improvements that could be made:

Loch na Croic

The 'heck' at Loch na Croic was built with two fish traps, a high water and a low water trap. However, for the last 40 plus year it has only been the low water trap that has been operated. This isn't for lack of fish wanting to get into the high water trap but the reasons for why it hasn't been operated are lost to history. The main theory being that the low water trap is in the middle of the heck and closer to the on shore facility, plus when there were an abundance of fish returning it didn't matter as much as it does now if the trap had to close for a few days because of high water, as there were so many fish returning.

SSE are look at the feasibility of reconditioning the high water trap for the 2020 season, which will allow at least one trap to be fished at all times and even two at once during certain flows. At present if fish can't get into the trap some have taken to falling back into the loch and going up the Loch na Croic burn, where they have to be caught and transported to the on shore facility, with the operation of two traps this might be limited.

Further consideration are the redesign of the drains for the main broodstock tanks, so that they can be drained from the outside, rather than having to get into them. An intake screen to be fitted for the water abstraction to prevent any fowling of the pumps and a set of steps to make access from the trap to the onshore facility easier.

The access track down to the facility is also due to be repaired in 2021.

Contin Hatchery

SSE have reviewed the water supply at the hatchery and there are a number of issues, but the supply has not failed this year because they have calculated that any water consumption in the hatchery that

is below 500 to 700 litres per minute will not cause the system to fail and airlock. With all the decks in the hatchery in operation the consumption sits just below 500 litres.

There were plans to rectify the issues this year but this may have to wait until 2021 due to C-19 restrictions.

Orrin Dam shortly after construction- the large middle section contains the Borland lifts.

Orrin Project

A number of stakeholder meeting were held in the early part of 2020, regarding the Orrin and proposals to restore the run of fish.

The project will be carried out in two phases, with the first phase being the introduction of gravel below the dam to create spawning habitat. SSE have surveyed the stretch of river and have identified a number of sites that gravel can be introduced and where it won't wash away quickly. Due to the dam there is no gravel naturally moving downstream and it has become staved of spawning gravel.

Prior to the gravel being added SEPA are being consulted and a quantitive electrofishing survey needs to be carried out to determine what density of juvenile fish are in the area, it is believed there are a small number of fish that return to just below the dam.

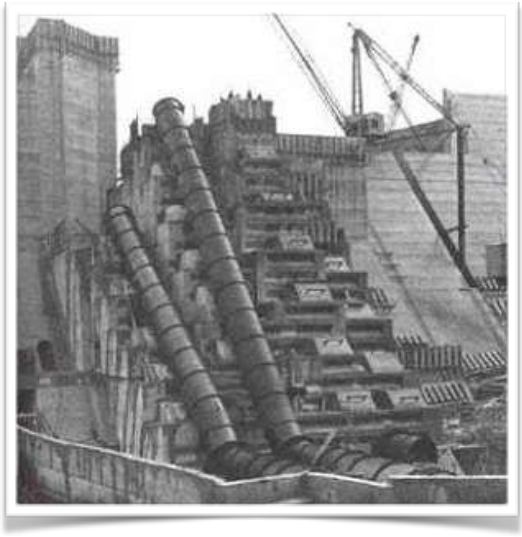
Electrofishing will be carried out in July with work likely to start from August/September with the gravel being sourced locally from the river, at points where there are large buildups. This had been planned for 2020 but it is likely that this will be delayed until 2021.

The second phase of the Orrin project will be to restore the run of fish above Loch Orrin. However, the success of this is tied to the Meig project and the design of a wolf trap. If successful a similar design might be utilised above Loch Orrin. Trapping and trucking of smolts above Loch Orrin would be required to have a sufficient success rate to make it viable.

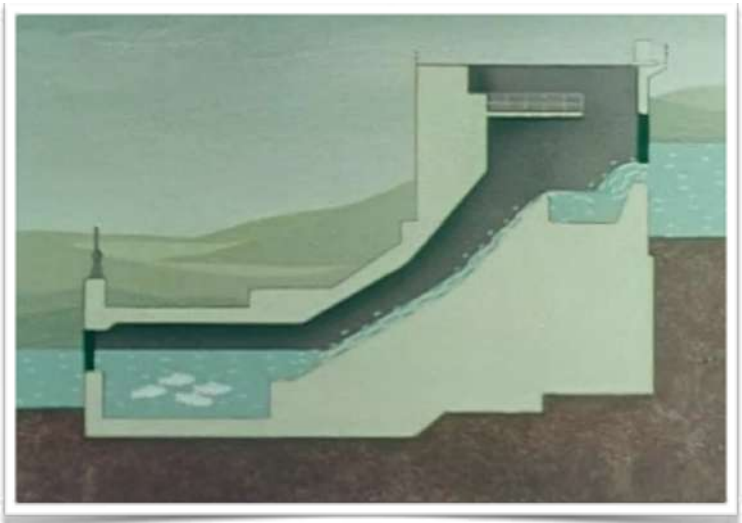
The river Orrin above the Loch has been stocked a number of times with excess eggs from the Contin hatchery but the run has never sustained itself due to the impoundment and the poor smolt survival.

Borland lift

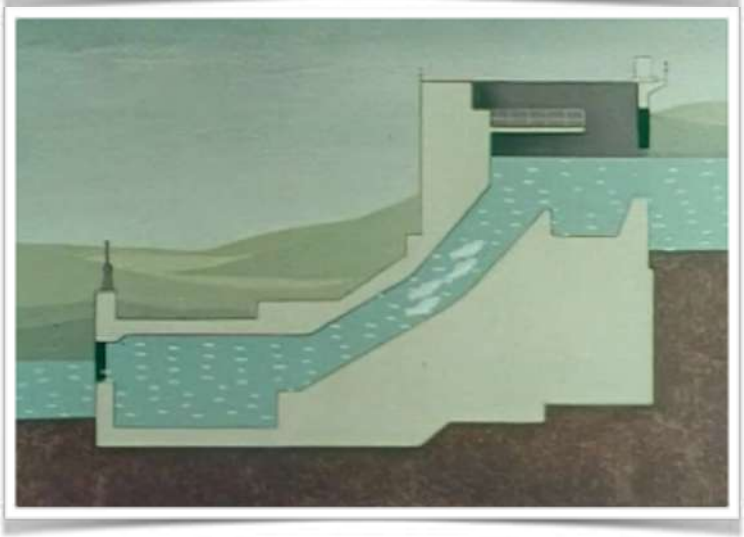
The Conon was one of the first schemes in Britain to use Borland lifts. We have discussed their design and operation at Board meetings in the past but provided below is a diagram from 1957 showing their use.



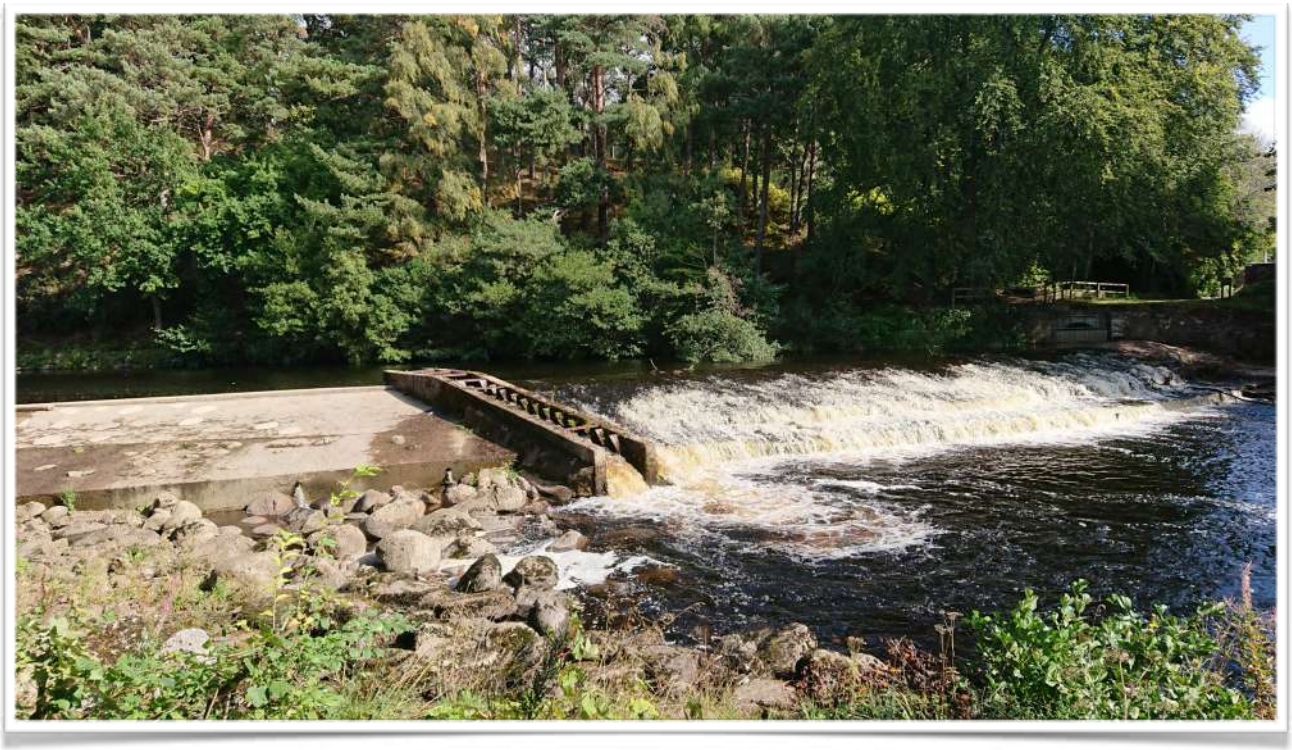
The four Boreland lifts being constructed at Orrin Dam



The fish swim into the lower chamber, which has a constant flow from the reservoir above which encouraged the fish in to the chamber.



At set intervals the gate at the bottom will close allowing the pipe to fill with water, the top gate is then opened to allow fish to swim up and into the reservoir. The top gate will then close and the pipe will drain using valves at the bottom, once the pipe has been drained the bottom gate will open. The whole process then starts again.



Dalmore Weir - River Alness

A second meeting was held with Dalmore distillery at the end of January to discuss proposed works. The weir has been surveyed and proposals for improving the fish passage had been presented to Dalmore distillery by their engineering team. Proposals include extending the fish pass by 3m to 4m so that the end of the pass is always in the water, even at low flows. Secondly the 'steps' will be removed to allow fish to jump onto the weir and swim up it without hitting a barrier which then pushes them back down the weir.

Work was planned for August and September when flows are at their lowest with the hope of minimal disruption to the fishing. A cofferdam will be built to the back of the weir to allow the work to proceed. The timing of the work is still to be confirmed.

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