AFT Biologist's Report – 2020-2021

Summary

Argyll Fisheries Trust undertook a range of activities in 2020-21, but the planned work programme was significantly affected by lockdown(s) due to the Covid-19 pandemic. The cancelled, postponed and delayed projects include:

- *West Coast Salmon Smolt Tracking Project (AST & FMS)*
- *Monitoring sea lice burdens of Sea trout (MSS & FMS)*
- *National Electrofishing Programme for Scotland (NEPS)*
- *Nutrient and Juvenile Productivity Project (Fisheries)*
- *River Ruel Habitat Improvement Works (Fisheries)*

It is our understanding that these projects will be restarted as and when working restrictions are eased. The biologist was furloughed in April and returned to work in July 2020. The remaining work program that was possible under the Covid-19 guidelines was conducted by utilising a small team of contractors to minimise the number of person-to-person contacts.

The work undertaken included both fisheries monitoring, habitat improvement works and commercial contracts that further the aims and objectives of the Trust. In Summary, the works undertaken in 2020-21 are outlined below:

<u>Summer</u>

- 43 electrofishing surveys of juvenile fish populations in six rivers in Loch Fyne
- 42 electrofishing surveys of juvenile fish populations in the Awe catchment
- 7 electrofishing surveys of juvenile fish populations in the Etive catchment
- 10 electrofishing surveys of juvenile fish populations in the Creran catchment
- 27 electrofishing surveys of juvenile fish populations in mid-Argyll catchments (EMP contract)
- Help manage & construct a 100 m length of green bank revetment on the River Goil

<u>Autumn</u>

- Kintarbet hydro (contract) sea trout migration and spawning study
- River Goil tree management (Contract)
- Cour Hydro Habitat Survey (Contract)
- Carradale Escapes Project - 43 electrofishing surveys across Argyll to collect over 1,000 genetic samples from salmon fry

<u>Winter</u>

- River Nant Habitat Survey (Contract)
- Reporting survey findings to fisheries – Loch Fyne RIA, ADRIA & Creran RIA
- Contract reports
- AFT Admin
- EMP Development
- Project Development

Fisheries Projects

Juvenile Fish Monitoring

This work programme utilises a network of juvenile fish monitoring sites to inform management at a local and regional scale.

Loch Fyne

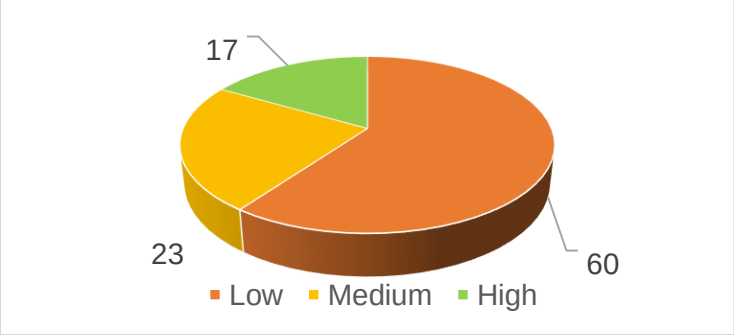
AFT undertook electrofishing surveys at 42 sites in the Array, Shira., Fyne, Kinglas, Leacann and Auchalick catchments. Salmon fry were found at 30 (70% of) sites (Table 1), salmon parr at 22 (51% of) sites, trout fry at 35 (81 % of) sites and trout parr at 30 (70 % of) sites.

Table 1. Loch Fyne Juvenile fish survey summary (no. of sites)

Catchment	No. Sites	Salmon		Trout	
		Fry	parr	Fry	parr
Aray	9	9	6	6	5
Shira	6	5	4	5	5
Fyne	13	11	9	9	8
Kinglas	6	0	0	6	6
Leacann	3	3	2	3	3
Auchalick	6	2	1	6	3
no.	43	30	22	35	30
%		69.8	51.2	81.4	69.8

Where found, densities of salmon fry (Figure 1) were low at 18 sites (60 % of sites), moderate at 7 sites (23 %) and high at 5 sites (17 %).

Figure 1. Classification of Loch Fyne Juvenile fish density (% of sites)



Awe catchment

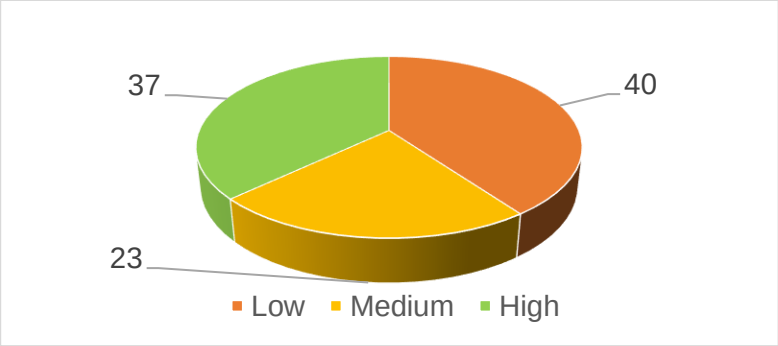
AFT undertook electrofishing surveys at 42 sites in the Awe catchment (Table 2). Salmon fry were found at 34 (81 % of) sites (Table 2), salmon parr at 36 (86 % of) sites, trout fry at 35 (55 % of) sites and trout parr at 16 (38 % of) sites.

Table 2. Awe catchment Juvenile fish survey summary (no. of sites)

Catchment	No. Sites	Salmon		Trout	
		Fry	parr	Fry	parr
R. Awe	5	5	4	4	0
L. Awe Tribs.	10	7	8	9	8
R. Orchy	12	12	11	1	0
Orchy Tribs.	7	5	7	5	4
L. Tulla Tribs.	8	5	6	4	4
no.	42	34	36	23	16
%		81.0	85.7	54.8	38.1

Where found, densities of salmon fry were low at 14 sites (40 % of sites), moderate at 8 sites (23 %) and high at 13 sites (37 %).

Figure 2. Classification of Awe catchment Juvenile fish density (% of sites)



River Etive & River Creran

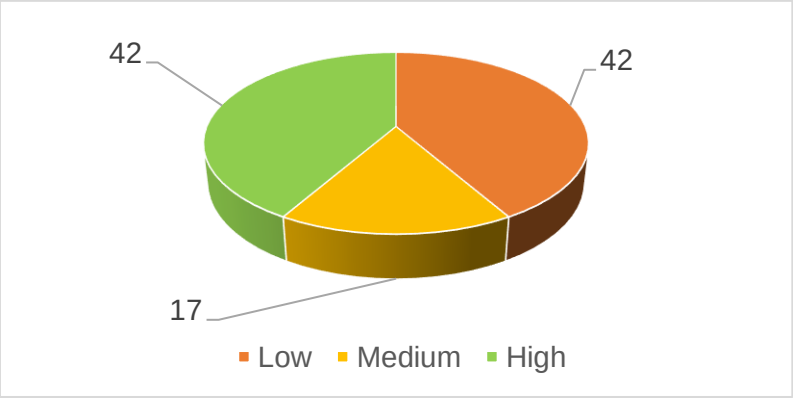
In the north of Argyll, AFT undertook electrofishing surveys at 7 sites in the Etive catchment and 10 sites on the River Creran (Table 3). Salmon fry and parr were found at all 7 sites (100 % of sites) in the River Etive. Salmon fry were found at and 5 of the 10 sites surveyed in the River Creran (50 % of sites) and salmon parr at all 10 sites. Trout fry were found at fewer sites than salmon (47 % of sites) as were trout parr (41 % of) sites, although trout were found at more sites in the River Creran compared to the River Etive.

Table 3. R. Etive & R. Creran catchments Juvenile fish survey summary (no. of sites)

Catchment	Sites	Salmon		Trout	
		Fry	parr	Fry	parr
R. Etive	7	7	7	2	1
R. Creran	10	5	10	6	6
no.	17	12	17	8	7
%		70.6	100.0	47.1	41.2

Where found, densities of salmon fry (Figure 3) were low at 5 sites (42 % of sites), moderate at 2 sites (17 %) and high at 5 sites (42 %).

Figure 3. Classification of Etive & Creran catchment Juvenile fish density (% of sites)



In summary, the electrofishing surveys are finding fewer salmon fry in recent years when compared to the numbers found prior to 2015 which reflects the decline in the number of adult salmon returning to our rivers. The patchy distribution and lower densities of fry are partly compensated for by the higher proportion surviving for a second year to the parr life-stage. However, these results suggest that the number of smolts leaving our rivers is now lower than we have seen before, which in combination with the reduced survival of salmon at sea give us cause for concern.

River Goil fish habitat improvement

Utilising funds from the Loch Lomond National Park Authority, AFT staff joined volunteers from the Lochgoilhead Community Trust to direct and assist with habitat improvement works in the upper River Goil. The work stabilised a 100 m length of eroding bank (Figure 4) using a green revetment technique (Figure 5).

Fig. 4 Eroded bank before works

Fig. 5 Protected bank after works

Since installation, some maintenance has been required following autumn floods, but much of the finer sediment present in the stream bed in the riverbed prior to the work has been scoured out leaving a larger average size of substrate better suited as cover for young trout and salmon. The woody brash used to protect the bank, stock fencing and planted trees also provide bankside cover for fish. Similar works on a further 100 m of bank is planned for 2021-22.

Aquaculture Projects

Sound of Shuna EMP Monitoring

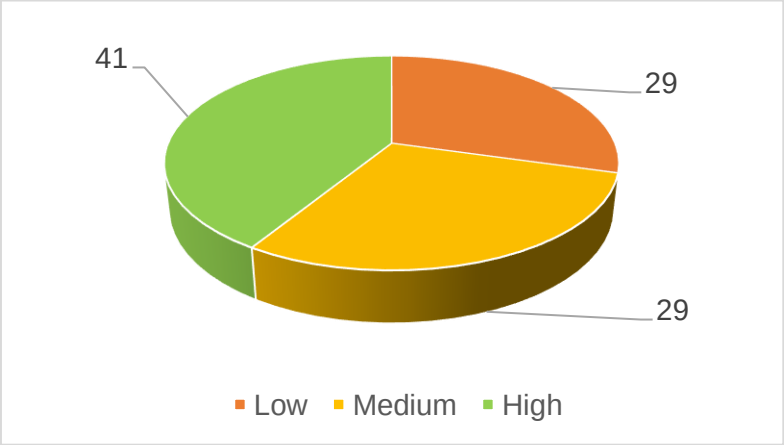
In mid Argyll, AFT undertook electrofishing surveys at 27 sites in the Add, Barbreck and two other smaller coastal streams (Table 3) to provide background information to the Environment Management Plan (EMP) for the Sound of Shuna. Salmon fry were found at 17 sites (61 % of sites) and salmon parr at 20 sites (71 %). Trout fry and parr were found at 18 sites (64 % of sites).

Table 4. Sound of Shuna Juvenile fish survey summary (no. of sites)

Catchment	No. Sites	Salmon		Trout	
		Fry	parr	Fry	parr
R. Add	17	13	16	10	11
R. Barbreck	4	4	4	1	0
Allt na Cille	4	0	0	4	4
Eas Mich Aoidh	3	0	0	3	3
no.	28	17	20	18	18
%		60.7	71.4	64.3	64.3

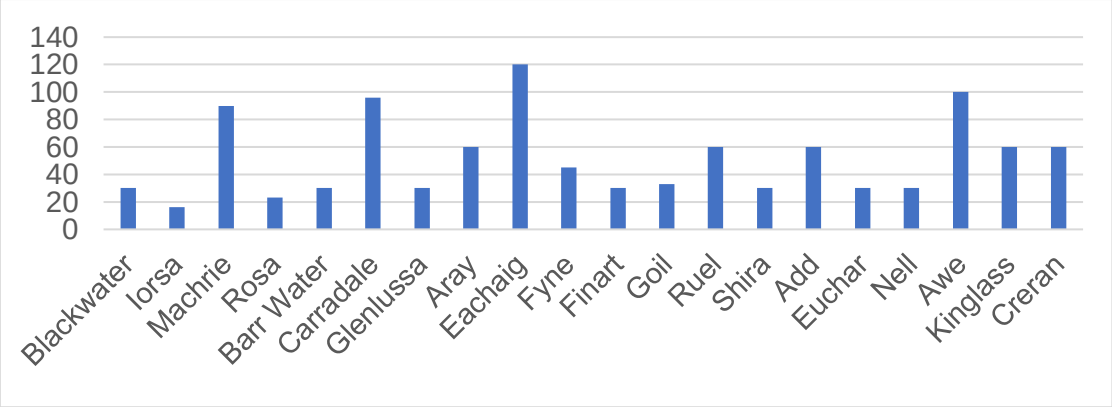
Where found, densities of salmon fry (Figure 6) were low at 5 sites (29 % of sites), moderate at 5 sites (29 %) and high at 7 sites (41 %).

Figure 6. Classification of Add & Barbreck catchment Juvenile fish density (% of sites)



Carradale Escapes Project

Following the escape of over 48,000 farm site at Carradale in August 2020, AFT worked with FMS and other Trusts around the Firth of Clyde to provide scale samples of rod caught salmon and take genetic samples of salmon fry for the first year of an investigation into the potential introgression of farm salmon into wild salmon populations. During the autumn of 2020, AFT undertook sampling in accordance with a MSS protocol, visiting 92 sites where a total of 1,063 samples were taken from 38 sites across Arran and the Argyll mainland (Figure 7).



Commercial Contracts

AFT has completed several commercial contracts in 2020-21;

Kintarbet Hydro (Abhainn na Cuil) Sea trout spawning survey

To inform applications for changes to the flow regime of an existing run-of-river hydro scheme, AFT undertook three surveys of upstream of the hydro to ascertain the presence and timing of migrating sea trout. The study found a small number of sea trout which will be monitored over the next two years to better attain the timing of migration.

Bein Glas Hydro (Loch Lomond)

To inform applications for changes to abstraction of an existing run-of-river hydro scheme, AFT undertook a fish habitat survey of a small number of minor tributaries to the hydro scheme.

Cour Hydro (Kintyre)

To inform applications for changes to abstraction of an existing run-of-river hydro scheme, AFT undertook a fish habitat survey of two coastal streams.

R. Goil Tree management (Cowal)

AFT provided advice to volunteers who removed a fallen tree from the lower River Goil on behalf of the landowner.

Fish habitat Survey (R. Nant)

AFT have been commissioned to undertake a habitat survey of the River Nant on behalf of Nature Scot (formerly SNH) which will be progressed and reported before year-end 2021.

Consultations – Argyll District Salmon Fishery Board

AFT continue to undertake consultation responses to aquaculture planning and other consultations on behalf of the Argyll DSFB.

Project Development

Environment Monitoring Plans (EMPs)

AFT continue to provide support to Argyll DSFB to establish EMPs as part of the local authority aquaculture planning process. EMPs have been signed with Mowi at South of Shuna and Carradale and continue to negotiate EMPs with Scottish Sea Farms, Dawnfresh and Scottish Salmon Company. AFT & Argyll DSFB are working alongside FMS to ensure that EMPs are of a high 'common' standard across the west coast and employed where changes to farm infrastructure or production are being made. The EMP work is on-going alongside efforts to bring about legislation that bring about effective regulation of sea lice emissions from farms and escapes of farm fish by regulators.

Freshwater Habitat Improvement

AFT Biologist is supporting Lochgoilhead Community Trust and River Ruel Improvement Association to develop and implement plans for habitat improvement works.