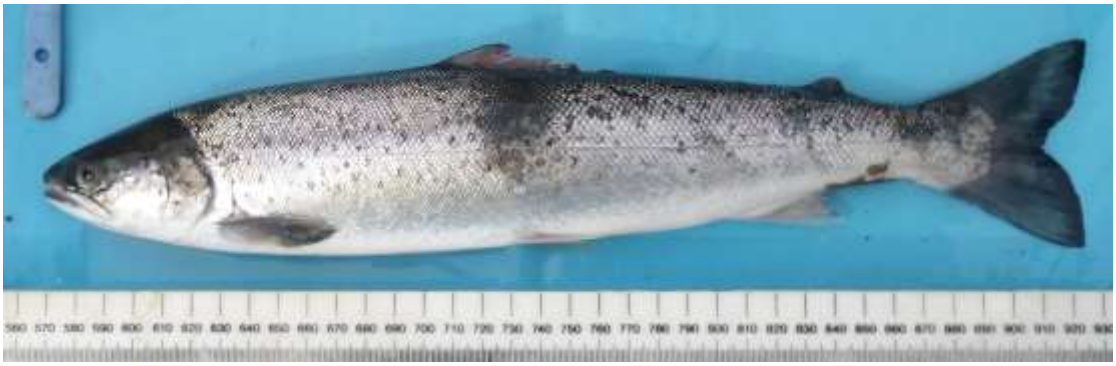
Loch Torridon Sea trout and salmon monitoring report 2025

to inform the Loch Torridon Environment Management Plan

for MOWI Scotland Ltd, Bakkafrost Scotland Ltd, Wester Ross Area District Salmon Fisheries Board, The Scottish Government and The Highland Council



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Loch Torridon sea trout and wild salmon monitoring report 2025

Peter Cunningham, 21st Nov 2025

Summary

This document presents the results of wild fish monitoring activities around Loch Torridon during the spring and summer of 2025 to inform the Loch Torridon Environment Management Plan [EMP].

Seine netting teams were assembled to sample sea trout in the mouth of the Torridon River and the Flowerdale Burn (Gairloch) estuary, five times at each location between April and October 2025.

Netting was successful at Flowerdale with 82 sea trout examined for sea lice. Only 14 trout were sampled in the Torridon estuary in 2025, a smaller number than in 2024.

Lice counts were high on sea trout sampled at Flowerdale in April and June 2025. A third of the sea trout in samples on both occasions had over 0.3 lice per gram of fish, putting them in the 'red' category regarding projected mortality or early return to freshwater (r. Tarranger et al, 2015). Many of the sea trout had raw and eroded dorsal fins, damage associated with high numbers of small sea lice. Lice numbers were lower on sea trout in subsequent samples at Flowerdale in July, August and October.

The sample of sea trout taken in August at Flowerdale comprised of mostly maturing adult sea trout. Most of these fish had damaged but healing dorsal fins, demonstrating an ability to shed lice and recover when able to move into freshwater.

One of the 14 sea trout recorded at Torridon carried more than 0.3 sea lice per gram of fish; a fish taken in the first seine netting sample in May.

Primarily to learn more about wild salmon populations, juvenile fish were surveyed in the Torridon River and in the River Balgy using electro-fishing equipment. Estimated densities of salmon fry and parr were moderate at the best sites. However, in the River Balgy there were gaps in the distribution of juvenile salmon, with missing year classes (fry, parr or both) at some sites. A large salmon parr taken at the mouth of the Abhainn Dubh near where it flows into Loch Damh had characteristics typical of a fish farm escapee.

Electro-fishing results again concur with the Scottish Government's 'category 3' conservation grading for both the Torridon River and the River Balgy, indicative of inadequate numbers of adult salmon spawning to maintain optimal levels of juvenile salmon production throughout the areas of habitat accessible to wild salmon.

Juvenile salmon were exceptionally large for their age in the River Balgy below Loch Damh; are these fish mostly descended from escaped farm salmon contributing to rapid growth rates? In contrast, does the Abhainn Dearg above Loch Damh retain a wild salmon population with 'native' genetic characteristics?

For purposes of monitoring to inform conservation of salmon populations, it would be useful to understand the genetic make-up of juvenile salmon especially within the River Balgy system.

1. Introduction and background

1.1 Location, some background information and rational

This document presents the results of wild fish monitoring activities around Loch Torridon during the spring, summer and early autumn of 2025 primarily to inform the Loch Torridon Environment Management Plan [EMP].

Loch Torridon has long been recognised as an area of much biodiversity interest. Priority Marine Features [PMFs] present in the loch include seabed habitats e.g. Maerl beds and Seagrass beds, both included in subset of the 11 most vulnerable PMFs in Scotland, as well as marine mammals and fish species including the Herring, the Atlantic salmon and Sea trout. The Torridon River, Balgy River system and several smaller river systems support populations of salmon and sea trout and fisheries formerly of local economic and cultural importance. However, rod catches for wild salmon and sea trout in the Torridon River and River Balgy have steadily fallen. Concern has been expressed particularly for the future of native wild salmon populations in the area (Cunningham, 2022b).

Open cage salmon farming in Loch Torridon started before 1990. As elsewhere, the scale of salmon farming increased in Loch Torridon from a series of smaller farms to, most recently, three large farms all with SEPA approved biomass consents of over 2000 tonnes, operated by Bakkafrost (Aird, Sgeir Dughall) and MOWI (Loch Torridon).

Since 1999, the Scottish Government's Marine Scotland Science, formerly the Fisheries Research Service has investigated relationships between open cage salmon farming, sea lice abundance and dispersal, and wild sea trout and wild salmon within Loch Torridon, based until 2024, at a Field Station by Shieldaig. Long-term monitoring has documented relationships between lice levels in the water column nearby, lice levels on sea trout and rates of return of sea trout to a fish trap. Some earlier results can be found here.

Previous work by Wester Ross Fisheries Trust [WRFT] included a study of wild trout in the Loch Torridon area in response to high levels of sea lice on sea trout recorded nearby in 2015 (Cunningham, 2016).

To provide greater protection for wild fish from impacts associated with salmon farming, particularly from sea lice infestation, an Environment Management Plan [EMP] was developed by The Highland Council, fish farm companies, following discussions with Wester Ross Area Salmon Fishery Board.

EMPs aim to develop locally appropriate 'adaptive management' approaches to sea lice control on salmon farms, informed by the results of wild fish monitoring in nearby waters.

In 2022 and 2023, sea trout and juvenile salmon were monitored to inform the EMP by APEM Ltd, and then in 2024 by the Wester Ross Fisheries Trust [WRFT]. The Loch Torridon wild fish monitoring report for 2024 (Cunningham, 2024) can be found here: https://www.wrft.org.uk/files/Torridon%20Sea%20trout%20monitoring%20report%202024_final.pdf .

This current report provides a summary of the results of wild fish monitoring in and around Loch Torridon in 2025, primarily for the purposes of informing an EMP approach to on-farm sea lice control.

Three salmon farms within the Loch Torridon area were stocked in the late winter and spring of 2025: Aird, Sgeir Dughall (both Bakkafrost farms) and Torridon (MOWI); their locations, together with the sea trout monitoring locations referred to in this report are shown in Figure 1.

Figure 1. Locations of active salmon farms in Loch Torridon (blue, Bakkafrost; red, MOWI), and sea trout sampling sites (orange circles) in 2025. Base map OpenStreetMap. Thank you.

1.2 Monitoring wild salmonids for the Loch Torridon EMP

In 2025, Wester Ross Fisheries Trust [WRFT] was jointly commissioned by MOWI and Bakkafrost to monitor sea trout and juvenile salmon around Loch Torridon to fulfil EMP obligations.

In 2025, sea trout were sampled in the sea at (1) the mouth of the Torridon River and (2) at the mouth of the Flowerdale burn (Loch Gairloch) using a seine net.

The Flowerdale site was included as a second sea trout monitoring site to inform the Loch Torridon EMP instead of the monitoring site at the mouth of the River Balgy because of the difficulty of netting and the lack of success in catching sea trout at the Balgy site in 2024.

Sea trout had previously been monitored by WRFT at the Flowerdale site since 2011 with much success. The nearest salmon farm to the Flowerdale site is the Sgeir Dughall farm, in outer Loch Torridon (approx. 26km away).

In addition to monitoring of sea trout in the sea to learn about sea lice infestation, a juvenile fish survey was carried out of the two largest salmon river systems flowing into Loch Torridon, the Torridon River and the River Balgy system including sites below and above Loch Damh

Part 2 of this report provides a summary of the findings of sea trout monitoring in Loch Torridon in 2024; Part 3, a summary of the results from the juvenile fish survey of the Torridon River and River Balgy in 2024.

Part 2. Monitoring sea lice on sea trout

2.1 Previous wild fish monitoring for the Loch Torridon EMP

WRFT previously netted small numbers of sea trout in the estuary of the Torridon River in 2015 (see Cunningham, 2016). The APEM team netted sea trout at the head of Loch Torridon in 2022 and 2023. In May 2022, twenty-seven sea trout were caught (post-smolt sea trout 153mm to 177mm in length; older sea trout 265mm); none of these fish carried sea lice (APEM Ltd, 2022). In 2023, just one post-smolt sea trout of 200mm was caught, carrying no lice (APEM Ltd, 2024). In 2024, WRFT sweep netting teams caught 33 sea trout at Torridon. Only one sea trout was taken by the mouth of the River Balgy in 2024.

2.2 Monitoring of sea trout in 2025

Sea trout sampling took place on five occasions at Torridon in 2025: in June, July (2 visits), August, and September; and five times at Flowerdale, Loch Gairloch: April, June, July, August and October.

Sea trout were caught using a seine net by experienced netters including snorkellers. On each occasion at both sites, the minimum team size was six people. The net used was approx. 47m x 3m of mesh size 14mm knot to knot was used with floats on top and lead weighted line on bottom.

Sampling days are listed in Tables 2a and 2b.

Table 2a: Sea trout monitoring days at Torridon in 2025

Visit	Date	Methods used	Number of trout processed
#1	16th May 2025	Seine net sea pool of river	4
#2	17th June 2025	Seine net sea pool of river	4
#3	31st July 2025	Seine net sea pool of river	2
#4	27th August 2025	Seine net sea pool of river	2
#5	1st October 2025	Seine net sea pool of river	2

Table 2b: Sea trout monitoring days at Flowerdale in 2025

Visit	Date	Methods used	Number of trout processed
#1	11th April 2025	Seine net from shore	30
#2	17th June 2025	Seine net from shore	8
#3	15th July 2025	Seine net from shore	5
#4	25th August 2025	Seine net from shore	30 (& 1 salmon)
#5	6th October 2025	Seine net from shore	8

All fish caught were transferred to tubs. Fish were lightly sedated using anaesthetic (eugenol). The length (in mm), weight (to nearest 5g) and records of the following were noted: numbers of sea lice (three categories of *Lepeophtheirus salmonis*; check for adult *Caligus elongatus*). Lice counts were conservative; on the last sweep netting session of the year on 6th October at Flowerdale, an observer from SEPA joined the netting team and using magnifying lenses was able to see some very small early stage lice, especially at the base of the dorsal fin on some fish that were too small and too well camouflaged to be seen easily with a naked eye. Therefore, some previous counts of very early-stage lice (copepodid and chalimus 1) on some fish may be slight underestimates.

Dorsal fin damage scores were recorded (as follows: 0 [no damage]; 1 [up to 1/3 of dorsal fin damaged]; 2 [between 1/3 and 2/3 of dorsal fin damaged and eroded away]; 3 [over 2/3 of dorsal fin eroded away (some examples of '3's can be seen in Appendix 1)]); also, predator damage, and 'black spots' (number of Cryptocotyle lingua spots per cm^2 of caudal fin).

Scale samples and photos were taken of all fish. Fish were returned to the water following recovery.

2.4 Sea lice monitoring results

Results are presented in Tables 3a to 3e for Torridon and Tables 4a to 4e for Flowerdale.

Altogether 95 sea trout were included in the combined sample, 14 from Torridon and 81 from Flowerdale.

All except one of the sea trout taken at Torridon carried no lice or less than three lice. The exception was a sea trout of 240mm on which 39 sea lice were counted sampled on 16th May 2025. However, two of the sea trout take in in the May sample and the largest sea trout of 380mm taken at Torridon on 17th June had dorsal fin damage scores of 1+, indicative of previous damage caused by sea lice infestation.

At Flowerdale, many of the sea trout in the April and June samples carried high numbers of lice and had damaged dorsal fins. In both the April and June samples, 1/3 of sea trout in the sample had a sea lice burden in excess of 0.3 lice per gram of fish. Average dorsal fin damage scores were 1.6 for the April sample of 30 sea trout and 1.47 for the August sample of 30 sea trout.

(below) Sea trout 345mm, 355g Flowerdale 11 April 2025. Sea lice estimate: 260 copepodid and chalimus, 35 adult and preadult, 1 ovigerous female. Dorsal fin damage score 2. See Appendix 1 for other fish pictures.

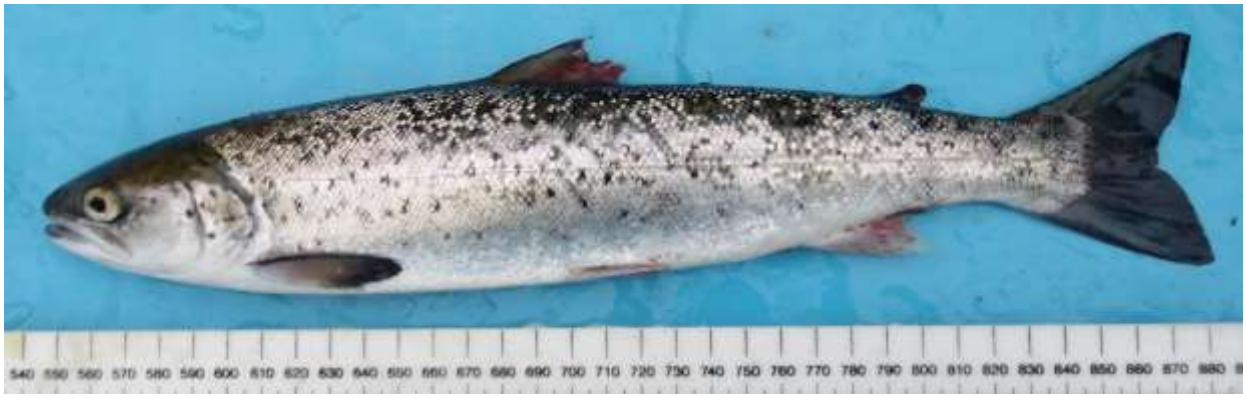


Table 3a ***Data recorded for sea trout sampled at Torridon in 2025****. All fish taken in the Torridon River estuary using a seine net by WRFT team.*

Details of lice stages, dorsal fin damage, predator damage and *Cryptocotyle lingua* spots on caudal fin on sea trout sampled at Torridon in summer 2025. Including calculation for projected mortality based on method described by Taranger *et al* 2014 and adopted by Fisheries Management Scotland for analyses of Scottish Government funded sweep netting within the West of Scotland in 2022. Legend and further explanation of colour scheme can be found below.

Sample #1: 16th May 2025

16-May				*Caligus*	*Lepeophtheirus salmonis*																	
Fish	length (mm)	weight (g)	condition factor	total	Copepodid & Chalimus (estimate)	Pre-adult & adult	Ov. female	Total L. salmonis sea lice	*estimated lice/g fish weight	Dorsal fin damage	*Cryptocotyle ligua spots per cm2 of caudal fin*	Predator damage	Photo	scale sample?	Comments	≥13 lice/fish?	Lice/g fish weight	Range	Mortality category	Number of fish in category	Total number of fish in sample	% of sample in category	projected mortality for category %	projected mortality of fish in sample %
1	140	29	1.06	0	0	0	0	**0**	0.000	0	0	N	Y	Y	1st sweep	No	0.000	>0.3	100%	1	4	25.00	25.00	
1	138	30	1.14	0	0	0	0	**0**	0.000	0	0	N	Y	Y	2nd sweep - same fish caught again	No	0.000	0.2-0.3	50%	0		0.00	0.00	
2	284	240	1.05	0	2	0	0	**2**	0.008	2	0	N	Y	Y	3rd sweep; healing dorsal fin	No	0.008	0.1-0.2	20%	0		0.00	0.00	
3	285	226	0.98	0	1	0	0	**1**	0.004	1	1	N	Y	Y	3rd sweep	No	0.004	<0.1	0%	3		75.00	0.00	**25.00**
4	240	120	0.87	0	35	4	0	**39**	0.325	1	5	N	Y	Y	3rd sweep	Yes	0.325							
Averages	**217.40**	**129.00**	**1.02**	**0.00**	**7.60**	**0.80**	**0.00**	**8.40**	**0.07**	**0.80**	**1.20**													

Explanation (for Tables 3a – 3e and Tables 4a - 4e):

Dorsal fin damage score: '1' is for up to 1/3 of fin damaged; '2' is for >1/3 an <2/3 of fin damaged; '3' is for over 2/3 of dorsal fin damaged
Estimation of projected mortality or early return to freshwater from Taranger et al 2014:

Notes:

based on the assumption that small salmonid post-smolts (<150g body weight) will suffer 100% lice-related marine mortality, or return prematurely to freshwater for sea trout in the wild if the are infected with >0.3 lice per g of fish weight.
Furthermore, the lice related marine mortality is estmated to 50%, if the infection is between 0.2 and 0.3 lice per g fish weight, 20% if the infection rate is between 0.1 and 0.2 lice per g fish weight, and finally 0% if the salmon lice infection is <0.1 g fish weight.

0.05 and 0.1 lice per g fish weight, 20% for lice infections between 0.05 and 0.01 lice per g fish weight, and finally 0% if the salmon lice infection is <0.01 lice g fish weight.

	colour code
Taranger, G. L., Karlsen, Ø., Bannister, R. J., Glover, K. A., Husa,V., Karlsbakk, E., Kvamme, B. O., Boxaspen, K. K., Bjørn, P. A., Finstad, B.,	100% sea lice related mortality or early return to freshwater
Madhun, A. S., Morton, H. C., and Sva˚sand, T. (2014) Risk assessment of the environmental impact of Norwegian Atlantic salmon farming.	>50% to 99% sea lice related mortality or early return to freshwater
– ICES Journal of Marine Science, doi: 10.1093/icesjms/fsu132.	>20% to 50% sea lice related mortality or early return to freshwater
	<20% sea lice related mortality or early return to freshwater

https://www.researchgate.net/publication/266672998_Risk_assessment_of_the_environmental_impact_of_Norwegian_Atlantic_salmon_farming

Table 3b ***Data recorded for sea trout sampled at Torridon in 2025****. All fish taken in the Torridon River estuary using a seine net by WRFT team.*

Sample #2: 17th June 2025

17-Jun				*Caligus*	*Lepeophtheirus salmonis*																		
Fish	**length (mm)**	**weight (g)**	**condition factor**	**total**	**Copepodid & Chalimus (estimate)**	**Pre-adult & adult**	**Ov. female**	**Total L. salmonis sea lice**	***estimated lice/g fish weight**	**Dorsal fin damage**	***Cryptocotyle ligua spots per cm2 of caudal fin***	**Predator damage**	**Photo**	**scale sample?**	**Comments**	**≥13 lice/fish?**	**Lice/g fish weight**	**Range**	**Mortality category**	**Number of fish in category**	**Total number of fish in sample**	**% of sample in category**	**projected mortality for category %**	**projected mortality of fish in sample %**
1	380	525	0.96	0	10	0	0	**10**	0.019	2	0	N	Y	Y	male. Has had lot of lice recently	No	0.019	>0.3	100%	0	3	0.00	0.00	
2	272	218	1.08	0	0	0	0	**0**	0.000	0	0	N	Y	Y	Estuarine. Has had lice. Acanthoc.	No	0.000	0.2-0.3	50%	0		0.00	0.00	
3	135	23	0.93	0	0	0	0	**0**	0.000	0	0	N	Y	Y	brown trout parr	No	0.000	0.1-0.2	20%	0		0.00	0.00	
4	105	NR	#VALUE!	0	0	0	0	**0**	#VALUE!	0	0	N	Y	Y		No	########	<0.1	0%	3		100.00	0.00	**0.00**
Averages	**223.00**	**255.33**	**#VALUE!**	**0.00**	**2.50**	**0.00**	**0.00**	**2.50**	**#VALUE!**	**0.50**	**0.00**													

Table 3c ***Data recorded for sea trout sampled at Torridon 2025****. All fish taken in the Torridon River estuary using a seine net by WRFT team.*

Sample #3: 31st July 2025

31-Jul				*Caligus*	*Lepeophtheirus salmonis*																		
Fish	**length (mm)**	**weight (g)**	**condition factor**	**total**	**Copepodid & Chalimus (estimate)**	**Pre-adult & adult**	**Ov. female**	**Total L. salmonis sea lice**	***estimated lice/g fish weight**	**Dorsal fin damage**	***Cryptocotyle ligua spots per cm2 of caudal fin***	**Predator damage**	**Photo**	**scale sample?**	**Comments**	**≥13 lice/fish?**	**Lice/g fish weight**	**Range**	**Mortality category**	**Number of fish in category**	**Total number of fish in sample**	**% of sample in category**	**projected mortality for category %**	**projected mortality of fish in sample %**
1	340	360	0.92	0	0	0	0	**0**	0.000	0.5	0	N	Y	Y	1st sweep	No	0.000	>0.3	100%	0	2	0.00	0.00	
2	145	23	0.75	0	0	0	0	**0**	0.000	0	0	N	Y	Y	3rd sweep	No	0.000	0.2-0.3	50%	0		0.00	0.00	
																		0.1-0.2	20%	0		0.00	0.00	
																		<0.1	0%	2		100.00	0.00	**0.00**
Averages	**242.50**	**191.50**	**0.84**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.25**	**0.00**													

Table 3d ***Data recorded for sea trout sampled at Torridon in 2025****. All fish taken in the Torridon River estuary using a seine net by WRFT team.*

Sample #4: 27th August 2025

27-Aug				*Caligus*	*Lepeophtheirus salmonis*																		
Fish	length (mm)	weight (g)	condition factor	total	Copepodid & Chalimus (estimate)	Pre-adult & adult	Ov. female	Total L. salmonis sea lice	*estimated lice/g fish weight	Dorsal fin damage	*Cryptocotyle ligua spots per cm2 of caudal fin*	Predator damage	Photo	scale sample?	Comments	≥13 lice/fish?	Lice/g fish weight	Range	Mortality category	Number of fish in category	Total number of fish in sample	% of sample in category	projected mortality for category %	projected mortality of fish in sample %
1	182	55	0.91	0	3	0	0	**3**	0.055	0	0	N	Y	Y	1st sweep	No	0.055	>0.3	100%	0	2	0.00	0.00	
2	235	128	0.99	0	0	0	0	**0**	0.000	0	1	N	Y	Y	2nd sweep	No	0.000	0.2-0.3	50%	0		0.00	0.00	
																		0.1-0.2	20%	0		0.00	0.00	
																		<0.1	0%	2		100.00	0.00	**0.00**
Averages	208.50	91.50	0.95	0.00	1.50	0.00	0.00	1.50	0.03	0.00	0.50													

Table 3e ***Data recorded for sea trout sampled at Torridon in 2025****. All fish taken in the Torridon River estuary using a seine net by WRFT team.*

Sample #5 1st October 2025

01-Oct				*Caligus*	*Lepeophtheirus salmonis*																		
Fish	length (mm)	weight (g)	condition factor	total	Copepodid & Chalimus (estimate)	Pre-adult & adult	Ov. female	Total L. salmonis sea lice	*estimated lice/g fish weight	Dorsal fin damage	*Cryptocotyle ligua spots per cm2 of caudal fin*	Predator damage	Photo	scale sample?	Comments	≥13 lice/fish?	Lice/g fish weight	Range	Mortality category	Number of fish in category	Total number of fish in sample	% of sample in category	projected mortality for category %	projected mortality of fish in sample %
1	260	NR	NR	0	0	0	0	**0**	0.000	0.5	0	N	Y	Y	silvery finnock, rather thin	No	0.000	>0.3	100%	0	2	0.00	0.00	
2	282	NR	NR	0	0	0	0	**0**	0.000	0.5	1	old	Y	Y	silvery finnock; 2 x parasite sp. *	No	0.000	0.2-0.3	50%	0		0.00	0.00	
																		0.1-0.2	20%	0		0.00	0.00	
																		<0.1	0%	2		100.00	0.00	**0.00**
Averages	271.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50													

Table 4a ***Data recorded for sea trout sampled at Flowerdale in 2025****. All fish taken in the Flowerdale burn estuary using a seine net by WRFT team.*

Details of lice stages, dorsal fin damage, predator damage and *Cryptocotyle lingua* spots on caudal fin on sea trout sampled at Flowerdale in 2025. Including calculation for projected mortality based on method described by Taranger *et al* 2014 and adopted by Fisheries Management Scotland for analyses of Scottish Government funded sweep netting within the West of Scotland in 2022. Legend and further explanation of colour scheme can be found beneath Table 3a.

Sample #1: 11th April 2025

				Caligus	*Lepeophtheirus salmonis*																		
Fish number	length (mm)	weight (g)	body condition factor	total	Copepodid & Chalimus (estimate)	Pre-adult & adult	Ov. female	Total L. salmonis sea lice	*estimated lice/g fish weight	Dorsal fin damage score	*Cryptocotyle lingua* spots per cm² of caudal fin	Predator damage	Photo	scale sample ?	Comments	≥13 lice/fish?	Lice/g fish weight	Range	Mortality category	Number of fish in category	Total number of fish in sample	% of sample in category	projected mortality for category %	Projected mortality %
1	345	355	0.86	0	260	35	1	**296**	0.834	2	10		Y	Y	red raw dorsal fin	Yes	0.834	>0.3	100%	10	30	33.33	33.33	
2	300	245	0.91	0	25	12	0	**37**	0.151	0.5	5		Y	Y	tail split	Yes	0.151	0.2-0.3	50%	5		16.67	8.33	
3	262	170	0.95	0	19	5	0	**24**	0.141	2	1		Y	Y		Yes	0.141	0.1-0.2	20%	11		36.67	7.33	
4	255	160	0.96	0	16	4	0	**20**	0.125	0	0		Y	Y		Yes	0.125	<0.1	0%	4		13.33	0.00	**49**
5	368	440	0.88	0	300	8	1	**309**	0.702	3	3	Y	Y	Y	photo both sides	Yes	0.702							
6	305	245	0.86	0	50	5	0	**55**	0.224	1	1		Y	Y		Yes	0.224							
7	310	300	1.01	0	35	12	1	**48**	0.160	1	20		Y	Y	black spot photos	Yes	0.160							
8	402	512	0.79	0	12	1	0	**13**	0.025	2	0	Y	Y	Y	lots of lice scars. Jaw damage	Yes	0.025							
9	245	135	0.92	0	8	6	0	**14**	0.104	1	0		Y	Y		Yes	0.104							
10	345	400	0.97	0	20	29	1	**50**	0.125	1.5	1		Y	Y		Yes	0.125							
11	298	250	0.94	0	12	22	1	**35**	0.140	2	2		Y	Y		Yes	0.140							
12	325	310	0.90	0	45	22	1	**68**	0.219	2	0		Y	Y		Yes	0.219							
13	320	345	1.05	0	28	24	0	**52**	0.151	2.5	0		Y	Y		Yes	0.151							
14	370	520	1.03	0	150	18	7	**175**	0.337	2.5	0		Y	Y	tail split	Yes	0.337							
15	350	370	0.86	0	240	14	3	**257**	0.695	2	0		Y	Y	red raw dorsal fin	Yes	0.695							
16	401	560	0.87	0	12	16	1	**29**	0.052	1	0		Y	Y	healing dorsal fin	Yes	0.052							
17	315	275	0.88	0	60	35	0	**95**	0.345	1	0		Y	Y		Yes	0.345							
18	270	160	0.81	0	35	13	0	**48**	0.300	1	0		Y	Y		Yes	0.300							
19	330	328	0.91	0	130	15	0	**145**	0.442	2	1		Y	Y		Yes	0.442							
20	310	285	0.96	0	30	12	1	**43**	0.151	2	1		Y	Y	raw	Yes	0.151							
21	473	935	0.88	0	0	13	2	**15**	0.016	2	15		Y	Y	healing dorsal fin	Yes	0.016							
22	325	334	0.97	0	210	40	1	**251**	0.751	2.5	4	Y	Y	Y		Yes	0.751							
23	267	195	1.02	0	14	20	0	**34**	0.174	1.5	0		Y	Y		Yes	0.174							
24	360	440	0.94	0	110	28	7	**145**	0.330	3	5	Y	Y	Y	dorsal fin nearly gone	Yes	0.330							
25	278	198	0.92	0	38	30	0	**68**	0.343	2	5		Y	Y		Yes	0.343							
26	175	50	0.93	0	1	3	0	**4**	0.080	0	3		Y	Y		No	0.080							
27	275	190	0.91	0	50	10	0	**60**	0.316	1	0	Y	Y	Y	bird beak	Yes	0.316							
28	213	70	0.72	0	8	8	0	**16**	0.229	1	0		Y	Y		Yes	0.229							
29	305	200	0.70	0	12	30	0	**42**	0.210	2	4	Y	Y	Y	bird beak	Yes	0.210							
30	282	125	0.56	0	15	7	0	**22**	0.176	1	5	Y	Y	Y	old predator damage	Yes	0.176							
Averages	**312.63**	**303.40**	**0.90**	**0.00**	**64.83**	**16.57**	**0.93**	**82.33**	**0.27**	**1.60**	**2.87**													

Table 4b ***Data recorded for sea trout sampled at Flowerdale in 2025****. All fish taken in the Flowerdale burn estuary using a seine net by WRFT team.*

Sample #2: 17th June 2025

				Caligus	*Lepeophtheirus salmonis*																		
Fish number	**length (mm)**	**weight (g)**	**body condition factor**	**total**	**Copepodid & Chalimus (estimate)**	**Pre-adult & adult**	**Ov. female**	**Total L. salmonis sea lice**	***estimated lice/g fish weight**	**Dorsal fin damage score**	***Cryptocotyle ligua spots per cm² of caudal fin***	**Predator damage**	**Photo**	**scale sample?**	**Comments**	**≥13 lice/fish?**	**Lice/g fish weight**	**Range**	**Mortality category**	**Number of fish in category**	**Total number of fish in sample**	**% of sample in category**	**projected mortality for category %**	**Projected mortality %**
1	163	35	0.81	0	25	15	0	**40**	1.143	1	0	Y	Y	Y	old predator damage	Yes	1.143	>0.3	100%	3	8	37.5	37.5	
2	163	39	0.90	0	6	3	0	**9**	0.231	0.5	4	N	Y	Y		No	0.231	0.2-0.3	50%	1		12.5	6.25	
3	194	70	0.96	0	4	6	0	**10**	0.143	0.5	5	N	Y	Y		No	0.143	0.1-0.2	20%	2		25	5	
4	155	30	0.81	0	1	10	0	**11**	0.367	0.5	0.5	Y	Y	Y	bird or maybe net	No	0.367	<0.1	0%	2		25	0	**48.75**
5	145	21	0.69	0	0	3	0	**3**	0.143	0	0	N	Y	Y		No	0.143							
6	142	18	0.63	0	0	0	0	**0**	0.000	0	0	N	Y	Y		No	0.000							
7	135	25	1.02	0	8	4	0	**12**	0.480	0	3	N	Y	Y		No	0.480							
8	130	18	0.82	0	0	1	0	**1**	0.056	0	6	N	Y	Y		No	0.056							
Averages	**153.38**	**32.00**	**0.83**	**0.00**	**5.50**	**5.25**	**0.00**	**10.75**	**0.32**	**0.31**	**2.31**													

Table 4c ***Data recorded for sea trout sampled at Flowerdale in 2025****. All fish taken in the Flowerdale burn estuary using a seine net by WRFT team.*

Sample #3: 15th July 2025

				Caligus	*Lepeophtheirus salmonis*																		
Fish number	**length (mm)**	**weight (g)**	**body condition factor**	**total**	**Copepodid & Chalimus (estimate)**	**Pre-adult & adult**	**Ov. female**	**Total L. salmonis sea lice**	***estimated lice/g fish weight**	**Dorsal fin damage score**	***Cryptocotyle ligua spots per cm² of caudal fin***	**Predator damage**	**Photo**	**scale sample?**	**Comments**	**≥13 lice/fish?**	**Lice/g fish weight**	**Range**	**Mortality category**	**Number of fish in category**	**Total number of fish in sample**	**% of sample in category**	**projected mortality for category %**	**Projected mortality %**
1	220	150	1.41	0	0	0	0	**0**	0.000	0	4	N	Y	Y		No	0.000	>0.3	100%	0	5	0	0	
2	145	31	1.02	0	0	1	0	**1**	0.032	0	0	N	Y	Y	silvery	No	0.032	0.2-0.3	50%	0		0	0	
3	150	35	1.04	0	1	0	0	**1**	0.029	0	10	N	Y	Y		No	0.029	0.1-0.2	20%	0		0	0	
4	175	60	1.12	0	0	3	0	**3**	0.050	0	0	N	Y	Y	silvery	No	0.050	<0.1	0%	5		100	0	0
5	415	825	1.15	0	0	48	2	**50**	0.061	3	0	N	Y	Y	healing dorsal fin in photo	Yes	0.061							
Averages	**221.00**	**220.20**	**1.15**	**0.00**	**0.20**	**10.40**	**0.40**	**11.00**	**0.03**	**0.60**	**2.80**													

Table 4d ***Data recorded for sea trout sampled at Flowerdale in 2025****. All fish taken in the Flowerdale burn estuary using a seine net by WRFT team.*

Sample #4: 25th August 2025

				Caligus	*Lepeophtheirus salmonis*																		
Fish	**length (mm)**	**weight (g)**	**body condition factor**	**total**	**Copepodid & Chalimus (estimate)**	**Pre-adult & adult**	**Ov. female**	**Total L. salmonis sea lice**	***estimated lice/g fish weight**	**Dorsal fin damage score**	***Cryptocotyle ligua spots per cm² of caudal fin***	**Predator damage**	**Photo**	**scale sample?**	**Comments**	**≥13 lice/fish?**	**Lice/g fish weight**	**Range**	**Mortality category**	**Number of fish in category**	**Total number of fish in sample**	**% of sample in category**	**projected mortality for category %**	**Projected mortality %**
Salmon	590	2231	1.09	0	60	25	0	**85**	0.038	0.5	0	Y	Y	Y	predator scar on flank; red vent	Yes	0.038	>0.3	100%	1	32	3.125	3.125	
1	405	730	1.10	0	15	8	0	**23**	0.032	1	3	N	Y	Y		Yes	0.032	0.2-0.3	50%	3		9.375	4.6875	
2	580	1996	1.02	0	6	6	1	**13**	0.007	1	2	Y	Y	Y	healed bashes	Yes	0.007	0.1-0.2	20%	7		21.875	4.375	
3	585	2210	1.10	0	5	40	3	**48**	0.022	0	10	N	Y	Y	biggest sea trout	Yes	0.022	<0.1	0%	21		65.625	0	**12.19**
4	490	1341	1.14	0	5	4	10	**19**	0.014	2	8	N	Y	Y	split tail	Yes	0.014							
5	400	810	1.27	0	3	8	3	**14**	0.017	2	0	N	Y	Y	had lice previously; damage behind vent	Yes	0.017							
6	280	220	1.00	0	50	14	0	**64**	0.291	2	0	N	Y	Y		Yes	0.291							
7	380	550	1.00	1	4	14	1	**19**	0.035	3	0	?	Y	Y	missing dorsal fin, tail damage, lice off	Yes	0.035							
8	375	570	1.08	0	65	25	1	**91**	0.160	3	1	N	Y	Y		Yes	0.160							
9	420	914	1.23	1	40	3	0	**43**	0.047	1	0	N	Y	Y	dead, ?Toby dissected N7799	Yes	0.047							
10	425	813	1.06	0	8	4	1	**13**	0.016	2	1	N	Y	Y		Yes	0.016							
11	250	206	1.32	0	30	3	0	**33**	0.160	2	1	N	Y	Y		Yes	0.160							
12	380	600	1.09	0	4	3	4	**11**	0.018	2	0	N	Y	Y	is split dorsal fin	No	0.018							
13	400	705	1.10	0	5	12	2	**19**	0.027	2	0	N	Y	Y		Yes	0.027							
14	350	380	0.89	0	0	4	0	**4**	0.011	1	0	Y	Y	Y	beak on back dorsal fin healing	No	0.011							
15	400	730	1.14	0	1	6	0	**7**	0.010	2	0	N	Y	Y		No	0.010							
16	328	213	0.60	0	11	7	1	**19**	0.089	0	0	N	Y	Y		Yes	0.089							
17	245	163	1.11	0	4	8	6	**18**	0.110	2	5	N	Y	Y	no scale sample; silver finnock'	Yes	0.110							
18	380	532	0.97	2	2	8	3	**13**	0.024	1	1	N	Y	Y	split dorsal fin	Yes	0.024							
19	230	109	0.90	1	10	6	0	**16**	0.147	0	0	N	Y	Y	died N7796	Yes	0.147							
20	248	156	1.02	0	14	14	6	**34**	0.218	2	1	N	Y	Y	dorsal fin split died N7798	Yes	0.218							
21	250	154	0.99	0	4	10	2	**16**	0.104	1	0	N	Y	Y	N7797	Yes	0.104							
22	142	153	5.34	0	7	4	0	**11**	0.072	1	2	N	Y	Y		No	0.072							
23	262	198	1.10	0	3	4	0	**7**	0.035	0.5	2	N	Y	Y		No	0.035							
24	240	150	1.09	0	20	14	2	**36**	0.240	1	1	N	Y	Y		Yes	0.240							
25	390	620	1.05	0	6	4	3	**13**	0.021	2	0	N	Y	Y		Yes	0.021							
26	242	155	1.09	0	13	3	0	**16**	0.103	2	0	N	Y	Y		Yes	0.103							
27	352	503	1.15	0	12	6	4	**22**	0.044	2	6	N	Y	Y		Yes	0.044							
28	240	143	1.03	0	70	15	2	**87**	0.608	2	1	?	Y	Y	possible predator damage	Yes	0.608							
29	238	130	0.96	0	3	8	6	**17**	0.131	2	0	N	Y	Y		Yes	0.131							
30	213	104	1.08	0	3	2	2	**7**	0.067	0.5	0	N	Y	Y	missing top of tail	No	0.067							
31	255	170	1.03	0	2	0	1	**3**	0.018	0.5	8	N	Y	Y		No	0.018							
Sea trout averages	**334.68**	**529.94**	**1.20**	**0.16**	**13.71**	**8.61**	**2.06**	**24.39**	**0.09**	**1.47**	**1.71**													

Table 4e ***Data recorded for sea trout sampled at Flowerdale in 2025****. All fish taken in the Flowerdale burn estuary using a seine net by WRFT team.*

Sample #5: 6th October 2025

				Caligus	*Lepeophtheirus salmonis*																		
Fish number	**length (mm)**	**weight (g)**	**body condition factor**	**total**	**Copepodid & Chalimus (estimate)**	**Pre-adult & adult**	**Ov. female**	**Total L. salmonis sea lice**	***estimated lice/g fish weight**	**Dorsal fin damage score**	***Cryptocotyle ligua spots per cm² of caudal fin***	**Predator damage**	**Photo**	**scale sample?**	**Comments & genetic sample number**	**≥13 lice/fish?**	**Lice/g fish weight**	**Range**	**Mortality category**	**Number of fish in category**	**Total number of fish in sample**	**% of sample in category**	**projected mortality for category %**	**Projected mortality %**
1	268	198	1.03	0	7	0	0	**7**	0.035	2	0	Y	Y	Y	bird beak N7701	No	0.035	>0.3	100%	0	8	0	0	
2	265	175	0.94	0	3	1	0	**4**	0.023	1.5	3	N	Y	Y	N7702	No	0.023	0.2-0.3	50%	0		0	0	
3	373	500	0.96	0	18	1	0	**19**	0.038	2	6	N	Y	Y	N7703	Yes	0.038	0.1-0.2	20%	0		0	0	
4	412	680	0.97	0	5	2	0	**7**	0.010	3	6	N	Y	Y	N7704	No	0.010	<0.1	0%	8		100	0	0
5	255	170	1.03	0	1	1	0	**2**	0.012	2	0	N	Y	Y	N7705	No	0.012							
6	393	538	0.89	0	1	1	0	**2**	0.004	2	10	N	Y	Y	N7706	No	0.004							
7	388	525	0.90	0	0	7	0	**7**	0.013	3	20	N	Y	Y	N7707	No	0.013							
8	148	31	0.96	0	0	1	0	**1**	0.032	0	12	N	Y	Y	N7708	No	0.032							
Averages	**312.75**	**352.13**	**0.96**	**0.00**	**4.38**	**1.75**	**0.00**	**6.13**	**0.02**	**1.94**	**7.13**													

2.3 Sea lice monitoring discussion

2.3.1 Torridon

The combined sample of sea trout taken at Torridon in 2025 was smaller than in 2024. Small catches were attributed to lack of fish in the area, mostly because of either too much water in the river (and fish were elsewhere around the head of Loch Torridon), or too little – an offshore wind with little freshwater pooling in the sea pools by the head of Loch Torridon. We know from 2024, that given good conditions, higher numbers of sea trout can be taken here, and greater success may be possible in future years after reviewing our approach to netting here – there is one pool we may be able to do better at.

Lice levels on the small sample of sea trout taken at Torridon in 2025 were low, except for one fish in the May sample. However, several fish had damaged dorsal fins indicative of damage by sea lice earlier in the year. The sample was too small to be able to make many further remarks regarding sea lice infestation pressure for wild fish in upper Loch Torridon in 2025.

2.3.2 Flowerdale

Altogether 81 sea trout were processed at Flowerdale site, with larger samples of 30 fish processed in April and again in August. On both of these occasions more fish than this number were caught; the processed fish were a random sample of those caught in the sweep net other than for the two largest sea trout in the August sample.

Lice levels were high on sea trout taken in April and in June. The initial sampling session in April was carried out prior to the main period when salmon and sea trout post-smolts might be passing nearby, because sea trout were seen jumping in the Flowerdale estuary from the WRFT office from late March and were suspected to be carrying high numbers of lice.

The sea trout in the June sample were mostly small post-smolt sea trout unlikely to have been in the sea for more than about two months; lice levels were again high on these fish, indicating high sea lice infestation pressure in preceding weeks in nearby waters.

Just five sea trout were taken in the July sample at Flowerdale. Lice levels were lower on these fish; all were small post-smolt sea trout except one larger sea trout with an eroded but healing dorsal fin.

The August sweep produced many sea trout, mostly larger maturing sea trout with damaged but healing dorsal fins and mostly (but not all) relatively low numbers of sea lice. This sample demonstrated that many of the larger sea trout had survived the sea lice infestation earlier in the year, and had managed to shed lice and grow on to maturity.

Of interest, however, was that many of the smaller sea trout carried relatively higher burdens of sea lice for their size than the larger fish, with smaller sea trout (less than 250mm long) mostly in the yellow, orange and red categories for mortality estimates.

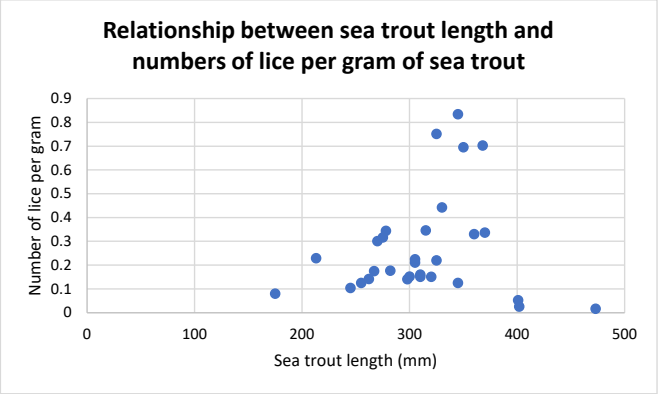
Figure 2 is a plot of sea lice numbers counted per gram of sea trout vs fish length for (a) the April sample, and (b) the August sample. In April numbers of lice per gram of fish were higher on some of the larger fish. In August, the smaller silvery, non-maturing sea trout carried relatively higher burdens of sea lice.

This may be related to differences in the movements of sea trout in sea lochs in relation to locations of freshwater; and differences between the behaviour of the larger maturing and the smaller non-maturing sea trout in the area. The larger maturing sea trout may have stopped feeding earlier in the

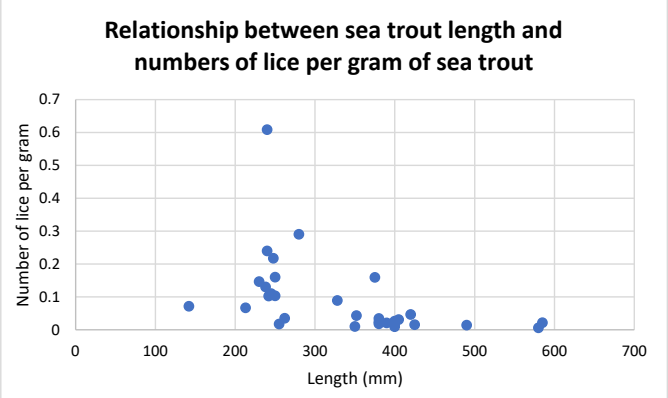
summer, and sought freshwater in river estuaries, whereas the smaller immature sea trout may have remained in fully marine sea trout for longer, with more recent exposure to high sea lice infestation pressure prior to sampling.

Figure 2 Relationship between sea trout length and the number of lice per gram of sea trout for Flowerdale seine netting samples taken on 11th April and on 25th August 2025.

a. 11th April 2025



b. 25th August 2025



2.3.3 Possible sources of sea lice

Previous monitoring of sea lice on sea trout at Flowerdale has indicated a correlation between years with higher numbers for sea lice reported from farms in Loch Torridon and lice numbers on sea trout sampled (Cunningham, 2018; 2020). The correlation is similar to that reported by the Scottish Government Marine Scotland Shieldaig Field Station for several measures including larval sealice in water column, in Loch Torridon and data for sea trout returning to the Shieldaig River.

Sea lice dispersal models for waters between Loch Torridon and Loch Gairloch are still subject to verification. It is therefore not possible to say what proportion of the sea lice on the sea trout sampled at Flowerdale in loch Gairloch are of Loch Torridon origin. Other farms operating further away than the Sgeir Dughall farm, but within 40km of the Flowerdale site until April 2025 were the two Organic Sea Harvest farms on the east coast of Skye.

For wild fish, what is important is that lice counts on the Flowerdale sea trout sample may be an indicator of cumulative sea lice infestation pressure in nearby coastal waters through which post-smolt salmon from rivers in Loch Gairloch and south to Kyle of Lochalsh (and maybe beyond) must pass during spring months.

Unlike sea trout, post-smolt salmon are not known to return to freshwater to delouse if they become infested with many sea lice. High burdens of sea lice on small post-smolt salmon are likely to cause high mortality.

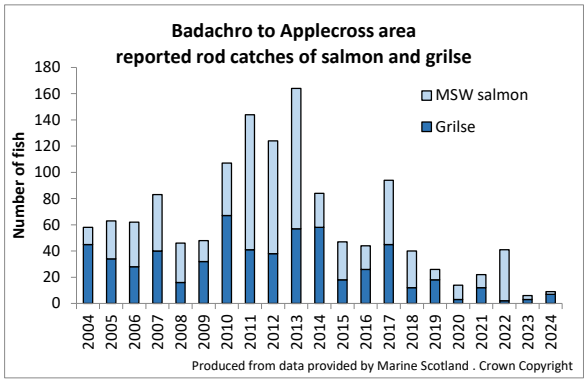
Research in Norway[1] (Vollset *et al*, 2017) has clarified relationships between lice levels on sea trout and on post-smolt salmon migrating nearby. With information from the Scottish Government's Marine Directorate and SEPA, and by following Vollset et al (2017), it may be possible to develop the most appropriate adaptive management strategies for Loch Torridon to protect wild salmon.

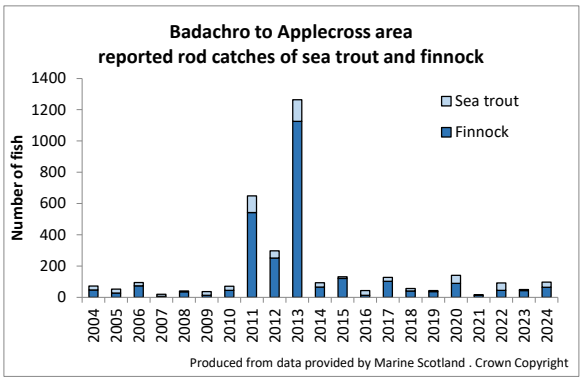
Note that rod catches of wild salmon have been very low on nearby rivers in recent years up to 2024 (Figure 3).

Since 2018, low grilse catch years have alternated with low MSW salmon catch years in nearby rivers (Figure 3), a pattern also observed for the River Carron reported catches in earlier years and discussed in the SWRFT Review 2018 and Applecross sea trout monitoring report 2023.

One possible explanation for is that in odd years, emigrating salmon smolts have experienced higher mortality than in even years, correlating with high lice counts on sea trout recorded by WRFT at Flowerdale, and reported from nearby salmon farms including the Sgeir Dughall salmon farm and some of the east of Skye farms.

Figure 3. Reported rod catch graphs for the Rivers in the Badachro – Applecross are to 2024.





[1] Vollset et al (2017) Salmon lice infestation on sea trout predicts infestation on migrating salmon post-smolts https://academic.oup.com/icesjms/article/74/9/2354/3860036

2.4 Conclusions and recommendations from sea lice monitoring in 2025

Samples of sea trout taken at Flowerdale, Loch Gairloch in April and June 2025 were indicative of high sea louse infestation pressures in nearby coastal waters during the spring months when post-smolt salmon would also have been passing through these waters.

Given continuing uncertainty regarding sea lice models (e.g. Gillibrand, 2023) it remains reasonable to regard the Sgeir Dughall salmon farm and other farms in Loch Torridon as potentially a source of larval sea lice contributing to high sea lice infection pressure for wild fish in coastal waters within the Loch Gairloch area.

Therefore, adult female sea lice levels per farmed fish may need to be lower during later winter and spring months in future years (below CoGP values) than they were in late winter and early spring 2025 to protect post-smolt salmon passing through coastal waters in the Loch Torridon and Loch Gairloch areas.

Further information from the Scottish Governments Marine Directorate, following sea trout tracking studies in Loch Torridon, could be particularly helpful in being able to better identify the best options for obtaining larger samples of trout for sea lice monitoring purposes within Loch Torridon.

Part 3. Juvenile fish survey of the Torridon River and River Balgy

3.1 Introduction to juvenile fish survey

This part of the report presents the results of an electro-fishing survey of sites in the Torridon River and the River Balgy in 2025.

The survey focussed primarily on finding out about the distribution and abundance of juvenile salmon (*Salmo salar*) within the Torridon River system and the River Balgy system; trout (*Salmo trutta*), eel (*Anguilla anguilla*) and minnow (*Phoxinus phoxinus*) were also recorded. For both rivers, the distribution of sites in 2025 was the same as that of 2024; the only difference was of swapping a site in the Torridon River with one on a tributary, the River Thrail.

For the River Balgy, sites above Loch Damh were again included for EMP wild fish monitoring purposes and to be able to understand the overall distribution of year classes in the main tributaries above Loch Damh. This was for two reasons. Firstly, genetic studies have indicated that juvenile salmon in the River Balgy can have high levels of likely genetic introgression with escaped farm fish (Gilbey et al, 2021). However, this study also suggested that there were still some wild salmon with 'native' genetic characteristic in the River Balgy system; these fish are considered most likely to inhabit the Abhainn Dearg above Loch Damh, hence the rational for surveying two sites there. Secondly, WRFT has surveyed juvenile salmon within the catchment over many years, and again, by revisiting sites surveyed by WRFT e-fishing teams in previous years, some comparisons can be made. This is further discussed in part 3.4

3.2 Locations and methods

Six sites were surveyed in the Torridon River system on 20th August 2025; four sites along the main Torridon River and two in the River Thrail (a tributary of the Torridon River), see Figure 4a and 4b.

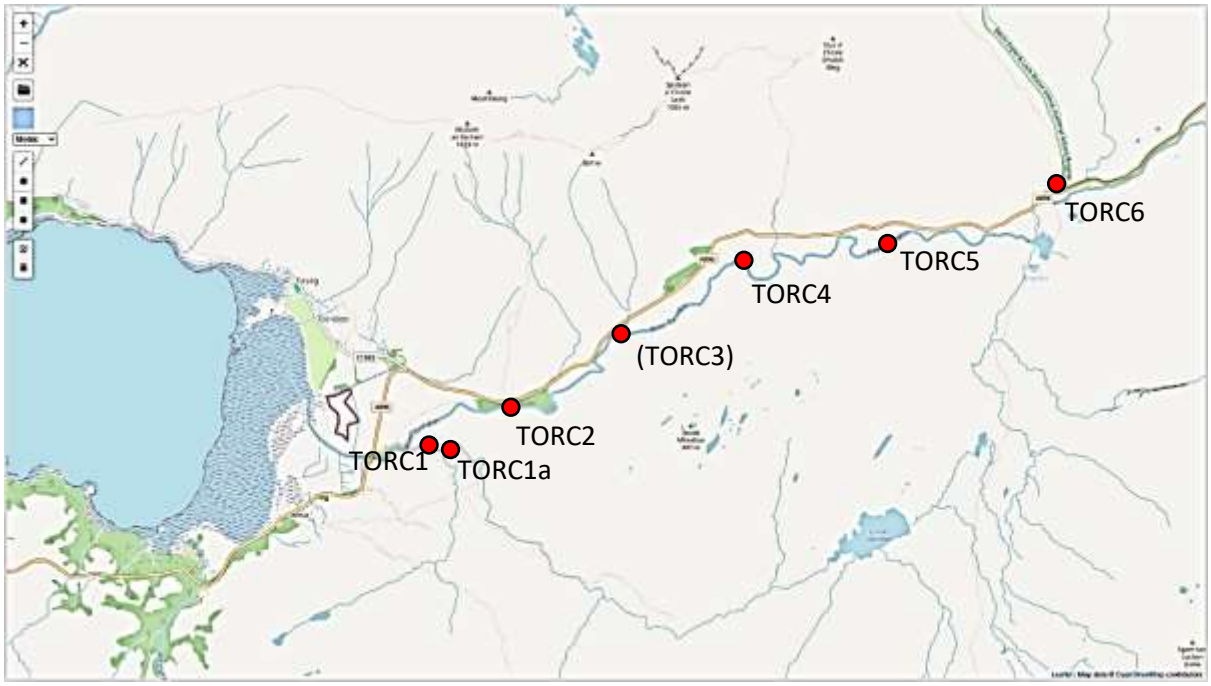
In the River Balgy five sites were surveyed on 9th of September 2025; just one site was fished in the main river below Loch Damh near the road bridge and four sites in tributary streams above Loch Damh.

At each site, the survey team fished for typically 10 minutes in a standardised way, usually covering a wetted area of 100m^2 or more (one site was subsequently estimated at just 80m^2). A one-run, semi-quantitative methodology, following Scottish Fisheries Coordination Centre [SFCC] protocol and NEPS Single Run protocol, was used to produce Catch Per Unit Effort [CPUE] data and minimum density estimates for juvenile salmon and trout.

Surveys were led by WRFT Biologist Peter Cunningham with assistance from Nic Butler, both with SFCC electrofishing qualifications. A Smith-Root backpack discharging 350-400 volts was used.

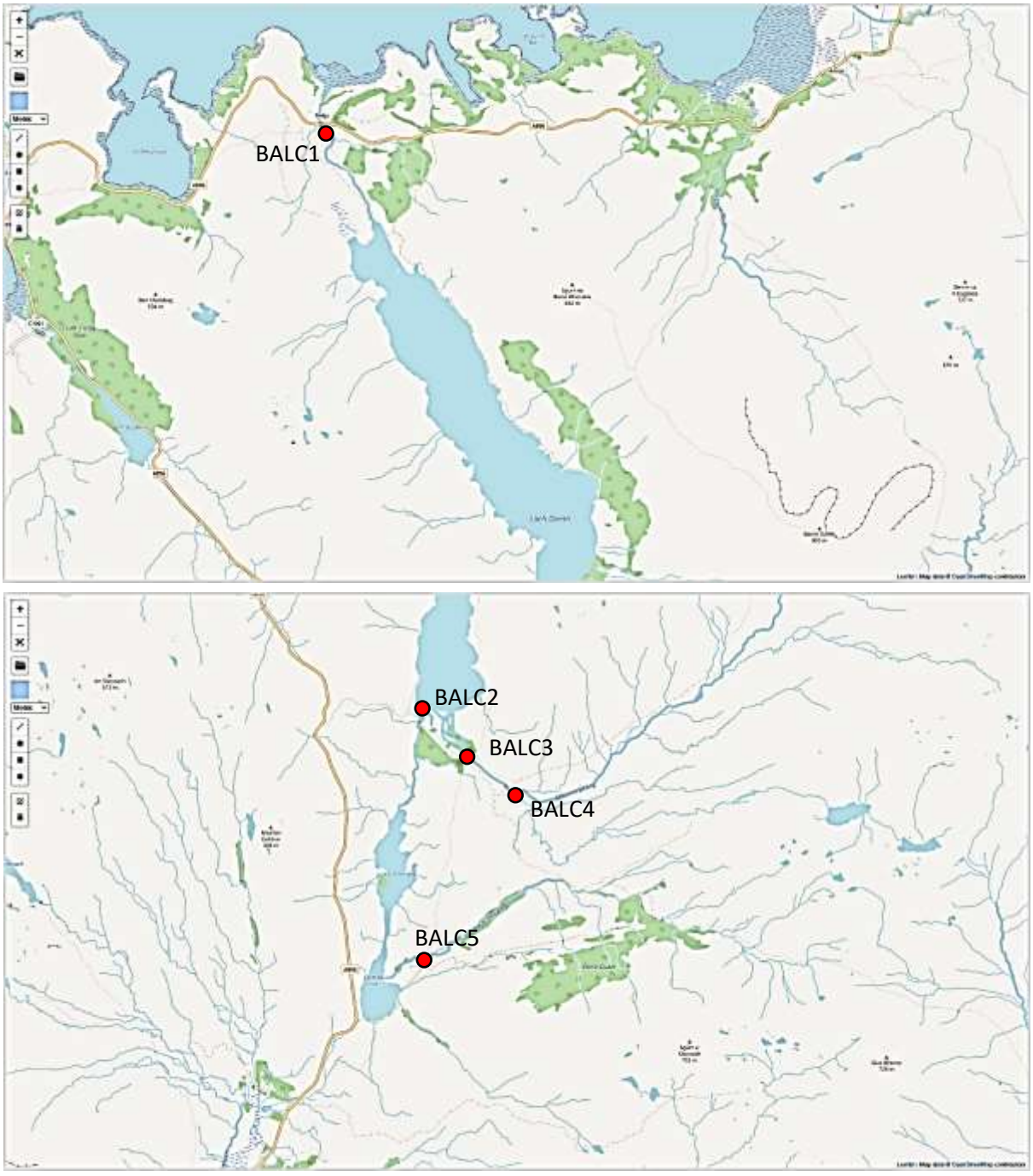
All fish were lightly sedated (in eugenol, c. clove oil) and measured to the nearest mm (fork length) and returned to the water following recovery.

Figure 4a. Locations of electrofishing sites in the Torridon River surveyed on 20th August 2025. Base map OpenStreetMap thank you.



Nic Butler and Nicky Middleton-Jones e-fishing siter TorC5 on 20th August 2025

Figure 4b. Locations of electrofishing sites in the River Balgy surveyed on 10th September 2024. Base map OpenStreetMap thank you.



3.3 Results

A summary of results can be found in Table 5, together with some data from previous recent surveys. Results are presented as numbers of fish caught per minute and minimum fish density estimates (in numbers of fish per m^2).

3.3.1 Torridon River (Table 5a)

The river level was low on 20th August 2025, and fishing was very effective in so far as most of the juvenile trout and juvenile salmon that were seen were caught.

Salmon

Salmon fry were recorded at all sites. Numbers (Catch Per Unit Effort [CPUE] and estimated minimum densities) were highest at a site in the River Thrail (TorC1a) and at sites towards the upper part of the Torridon River (TorC4 and TorC5). Few, salmon fry were recorded at the main river site by the pine wood further downstream (TorC2) as in 2024. At the best sites, estimated minimum densities were around 10 fish per $100m^2$, less than in some of the previous years.

Salmon fry were 40mm to 56mm in length at TorC4 and TorC5 where they were relatively numerous; larger at 51mm-64mm at the Thrail site (TorC1); and largest (over 65mm) at TorC2 where very few juvenile salmon were recorded, again hinting at density-dependent growth at these sites.

Salmon parr (assumed to be mostly 1 year old fish) were recorded at all sites. However, only one parr was recorded in 10 minutes fishing at TorC2 between the pinewoods in the lower part of the Torridon River. Numbers for parr (Catch Per Unit Effort [CPUE] and estimated minimum densities) were highest at the top site TorC6 above the road near the Beinn Eighe NNR car park.

Trout

Small numbers of brown trout were recorded at all sites except Tor1a. Numbers for juvenile trout were very low

Eels

Small numbers of eels were caught or seen at several sites, and were most numerous at site TorC1, the furthest downstream site.

(below) Juvenile salmon and trout from TorC6 on 20th August 2025 (lightly sedated)

Table 5a. Juvenile fish survey results for Torridon River. Sites surveyed on 20th August 2025 for EMP monitoring purposes are circled with a dashed red line and shown together with the results for surveys in previous recent years.

Colour coding relates to Wester Ross scales of relative abundance or minimum density estimates for fish: green is for over 2 fish per minute or over 0.200 fish per m²; yellow, for 1.00 to 1.99 fish per minute or 0.100 to 0.199 fish per m²; orange for 0.50 to 0.99 fish per minute or 0.050 to 0.099 fish per m²; and red for 0.01 to 0.49 fish per minute or 0.001 to 0.049 fish per m². Further explanation of this colour scheme can be found in Cunningham (2022b) https://www.wrft.org.uk/files/Status%20of%20Wild%20Salmon%20in%20Wester%20Ross%20Report%20for%202021v1Feb22.pdf .

Date	Code	Site	Easting	Northing	conductivity µS	temp °C	time (mins.)	wet area (approx) m2	sal fry number	sal par number	trt fry number	older trout number	sal fry per minute	sal par per minute	trt fry per minute	old trt per minute	sal fry per m²	sal par per m²	trt fry per m²	older trout per m²	eels	Comments
02/09/2021	TDNT19	Allt Coire an Anmoich from roadbridge	195873	856845	34	17	10	125	16	16	1	3	1.60	1.60	0.10	0.30	0.13	0.13	0.01	0.02	2	
02/09/2021	TDNT24	main river ~100m above burn mouth	194621	856542	40	18.6	11	120	12	22	2	0	1.09	2.00	0.18	0.00	0.10	0.18	0.02	0.00	2	
02/09/2021	TDNT13	roadside burn, around corner	194572	856671	39	17.4	10	90	0	6	9	4	0.00	0.60	0.90	0.40	0.00	0.07	0.10	0.04	3	
02/09/2021	TDN11	main river above Glen Cottage	193417	856428	42	16.5	9	100	25	7	5	0	2.78	0.78	0.56	0.00	0.25	0.07	0.05	0.00		
02/09/2021	TDNT7	main river by pine tree island burn mouth	191460	855370	34	14.3	16	180	0	4	13	1	0.00	0.25	0.81	0.06	0.00	0.02	0.07	0.01	4	
02/09/2021	TDN5	Thrail by house site	190695	855090	36	14.7	10	75	21	7	0	0	2.10	0.70	0.00	0.00	0.28	0.09	0.00	0.00	6	
23/08/2022	APEM_M	Torridon River	195074	856612			6		0	3	0	1	0.00	0.50	0.00	0.17					0	
23/08/2022	APEM_L	Torridon River	194189	856601			6		1	2	0	0	0.17	0.33	0.00	0.00					2	
23/08/2022	APEM_K	Torridon River	192317	855892			6		0	6	0	0	0.00	1.00	0.00	0.00					2	
23/08/2022	APEM_J	Torridon River	191377	855372			6		0	2	0	1	0.00	0.33	0.00	0.17					0	
23/08/2022	APEM_F	Torridon River	190421	855041			6		2	1	0	1	0.33	0.17	0.00	0.17					1	
31/08/2023	APEM_M	Torridon River	195074	856612			6		6	3	1	3	1.00	0.50	0.17	0.50						
31/08/2023	APEM_L	Torridon River	194189	856601			6		4	8	1	0	0.67	1.33	0.17	0.00						
31/08/2023	APEM_K	Torridon River	192317	855892			6		0	1	1	1	0.00	0.17	0.17	0.17						
31/08/2023	APEM_J	Torridon River	191377	855372			6		0	0	7	0	0.00	0.00	1.17	0.00						
31/08/2023	APEM_F	Torridon River	190421	855041			6		0	1	2	0	0.00	0.17	0.33	0.00						
02/09/2024	**TORC6** [TDNT19]	just above roadbridge	195874	856848	26	12.4	10	150	5	21	1	4	0.50	2.10	0.10	0.40	0.03	0.14	0.01	0.03	seen	sal fry 41mm-56mm; sal par 67mm-103
02/09/2024	**TORC5** [TDNT24]	100m upstream from burn mouth	194652	856565			12	150	29	1	0	2	2.42	0.08	0.00	0.17	0.19	0.01	0.00	0.01		sal fry 42mm-55mm
02/09/2024	**TORC4** [TDN11]	above Glen Cottage	193413	856433	27	12.8	11.5	120	29	4	1	1	2.52	0.35	0.09	0.09	0.24	0.03	0.01	0.01	1	sal fry 47mm-64mm
02/09/2024	**TORC3**	between pine woods and Glen Cottage	192176	855746	31	13	10	120	1	3	3	2	0.10	0.30	0.30	0.20	0.01	0.03	0.03	0.02	1	sal fry 71mm; sal par 138m -141mm
02/09/2024	**TORC2** [TDNT7]	Between pine woods	191461	855362	33	14	10	85	2	0	8	0	0.20	0.00	0.80	0.00	0.02	0.00	0.09	0.00		sal fry 67mm, 69mm
02/09/2024	**TORC1** [TDN5]	Thrail below house pool	190701	855093	22	14	10	125	16	6	0	1	1.60	0.60	0.00	0.10	0.13	0.05	0.00	0.01	2	sal fry 53mm-67mm
20/08/2025	**TORC6a** [TDNT19a	Allt Coire a Ammoich upstream from corner pool above	195935	856903	14	12.2	12	120	6	13	3	1	0.50	1.08	0.25	0.08	0.05	0.11	0.03	0.01		sal fry 50-55mm
20/08/2025	**TORC5** [TDNT24]	main river us of conf of Allt a Gharaidh Dhuibh	194646	856560	18	15.2	10	200	15	9	0	0	1.50	0.90	0.00	0.00	0.08	0.05	0.00	0.00	2	sal fry 45-56mm
20/08/2025	**TORC4** [TDN11]	main river above Glen Cottage. Usual site	193416	856428	23	16.6	10	125	12	5	1	0	1.20	0.50	0.10	0.00	0.10	0.04	0.01	0.00		sal fry 40-48mm
20/08/2025	**TORC2** [TDNT7]	main river by pine trees	191468	855380	26	17.6	10	160	3	1	4	1	0.30	0.10	0.40	0.10	0.02	0.01	0.03	0.01		sal fry 68 to 73mm
20/08/2025	**TORC1a** [TDN5a]	Thrail upstream from house	190784	855045	17	18	5	80	13	2	0	0	2.60	0.40	0.00	0.00	0.16	0.03	0.00	0.00		fry smaller here than at site 1a
20/08/2025	**TORC1** [TDN5]	Thrail below corner below house	190679	855082	17	18	10	140	9	5	0	1	0.90	0.50	0.00	0.10	0.06	0.04	0.00	0.01	5	sal fry 51-64mm

Colour scheme for WRFT e-fish results for Wester Ross area relating to fish abundance	
	over 2 fish per minute or over 0.200 fish per m²
	1.00 to 1.99 fish per minute or 0.100 to 0.199 fish per m²
	0.50 to 0.99 fish per minute or 0.050 to 0.099 fish per m²
	0.01 to 0.49 fish per minute or 0.001 to 0.049 fish per m².

3.3.2 River Balgy system (Table 5b)

In contrast to 2024, water levels were low on 9th September 2025 providing good conditions for the survey.

Salmon fry were recorded at only two of the five sites, at BalC1 in the River Balgy by the road bridge and at BalC3 in the Abhainn Dearg just above Loch Damh. No salmon fry were recorded at BalC4 in the Allt Eisg, a tributary of Abhainn Dearg; at BalC2 in the Abhainn Dubh (or Loch Coultrie River) (BalC2) or at BalC5 in the Allt a' Ghuibhais above Loch an Loin.

As in 2024, salmon fry were exceptionally large at the lowest site (BalC1) from 66mm to 99mm in length; but much smaller in the Abhainn Dearg (BalC3) at 42mm to 58mm in length.

Small numbers of salmon parr were recorded at four of the five sites. At the lowest site (BalC1), two very large parr were caught (141mm and 144mm in length); in the Abhain Dearg and Allt Eisg (BalC3 and BalC4), the six parr caught were from 68mm to 102mm in length; and at the mouth of the Loch Coultrie River or Abhainn Dubh (BalC2), the three parr caught were 101mm to 145mm; the largest of these had eroded dorsal and caudal fins and was thought to be a fish-farm escapee.

Trout

Brown trout were recorded at all sites. The highest numbers of fry were found in the Loch Coultrie Burn (BalC2) and Allt a' Ghuibhais (BalC5).

Small numbers of eels and minnows were caught (see Table 5b).

(below) salmon fry and parr from the Abhainn Dearg, BalC3

Table 5b. Juvenile fish survey results for River Balgy. Sites surveyed on the 9th of September 2025 for EMP monitoring purposes are shown with dashed red line and shown with results for surveys in previous years, including the two lower sites fished by APEM team in 2022 and 2023.See text for further comments.

Colour coding relates to Wester Ross scales of relative abundance or minimum density estimates for fish: green is for over 2 fish per minute or over 0.200 fish per m²; yellow, for 1.00 to 1.99 fish per minute or 0.100 to 0.199 fish per m²; orange for 0.50 to 0.99 fish per minute or 0.050 to 0.099 fish per m²; and red for 0.01 to 0.49 fish per minute or 0.001 to 0.049 fish per m². Further explanation of this colour scheme can be found in Cunningham (2022b) https://www.wrft.org.uk/files/Status%20of%20Wild%20Salmon%20in%20Wester%20Ross%20Report%20for%202021v1Feb22.pdf .

Date	Code	Site	Easting	Northing	conductivity µS	temp °C	time (mins.)	wet area (approx) m2	sal fry number	sal par number	trt fry number	older trout number	sal fry per minute	sal par per minute	trt fry per minute	old trt per minute	sal fry per m²	sal par per m²	trt fry per m²	older trout per m²	eels	minnow	comments
16/08/2018	BGY3	Abhainn Dearg	186295	847314	21	13.9	26		present	21	present	present		0.81									salmon parr sampled for genetic study
16/08/2018	NEPS4694	Loch Coultrie burn	185884	847170	74	15.2	30	500	0	0	11	7	0.00	0.00	0.37	0.23	0.00	0.00	0.02	0.01	7	21	river in spate
16/08/2018	MS FW2	Loch Coltrie Burn by bridges	185947	847538	79	14.9	27		1	4	5	14	0.04	0.15	0.19	0.52					2	7	genetic samples
16/08/2018	MS FW1	River Balgy by road bridge	184663	854357	46	15	22	167	102	30	2	0	4.64	1.36	0.09	0.00	0.61	0.18	0.01	0.00			genetic samples
22/07/2022	BGYT25	Allt a' Ghiubhais, at bridge	185888	845231	133	17.7	6	68	0	0	22	13	0.00	0.00	3.67	2.17	0.00	0.00	0.32	0.19	1		trout of est. 35cm & eeel of est. 50cm seen in pool under bridge
22/07/2022	BGYT22	Alltan Eisg, from 20m from confluence upstream	186814	846791	43	15.3	11	144	18	0	16	15	1.64	0.00	1.45	1.36	0.13	0.00	0.11	0.10			above new power house
22/07/2022	BGY3	Abhainn Dearg	186340	847274	38	16.6	26	386	34	13	33	16	1.31	0.50	1.27	0.62	0.09	0.03	0.09	0.04	2	2	genetic samples from parr for MSS. Parr 100mm to 143mm
22/07/2022	BGY2	Abhainn Dubh, below and above bridge	185968	847537	107	18.4	18	200	1	0	41	7	0.06	0.00	2.28	0.39	0.06	0.00	0.21	0.04	4	36	Deep pools not fished. Polly T played bagpipes!
23/08/2022	APEM_B	River Balgy above bridge	184757	854221			6		23	0	1	0	3.83	0.00	0.17	0.00					1		reinterpreted juvenile salmon ages from APEM - very large fry
23/08/2022	APEM_A	River Balgy below bridge	184657	854370			6		18	0	0	0	3.00	0.00	0.00	0.00							reinterpreted juvenile salmon ages from APEM - very large fry
31/08/2023	APEM_B	River Balgy above bridge	184757	854221			6		31	2	1	1	5.17	0.33	0.17	0.17							reinterpreted juvenile salmon ages from APEM - very large fry
31/08/2023	APEM_A	River Balgy below bridge	184657	854370			6		30	1	3	3	5.00	0.17	0.50	0.50							reinterpreted juvenile salmon ages from APEM - very large fry
10/09/2024	**BALC5 [c. BGYT25]**	Glasnock burn (Allt a' Ghiubhais) below bridge	185863	854225	72	11.4	12	100	0	0	11	2	0.00	0.00	0.92	0.17	0.00	0.00	0.11	0.02			river high - fished shallow areas
10/09/2024	**BALC4 [BGYT22]**	Abhain Dearg, Allt Eisg	186816	846787	21	11	12	100	10	3	2	1	0.83	0.25	0.17	0.08	0.10	0.03	0.02	0.01			high and fast water, difficult fishing
10/09/2024	**BALC3 [BGY3]**	Abhain Dearg by Lodge	186348	847219	21	10.8	10	100	2	2	5	1	0.20	0.20	0.50	0.10	0.02	0.02	0.05	0.01	1	4	river high - fished edges; area fished estimated
10/09/2024	**BALC2 [MSFW2]**	Loch Coultrie burn below road bridge	185954	847353	71	12.7	10	80	0	2	10	0	0.00	0.20	1.00	0.00	0.00	0.03	0.13	0.00		5	river high - fished edges; area fished estimated
10/09/2024	**BALC1 [MSFW1]**	just above road bridge	184690	854293	46	11.6	10	100	15	3	2	0	1.50	0.30	0.20	0.00	0.15	0.03	0.02	0.00	2	1	difficult fishing; sal fry 67mm-98mm; sal par 141mm-151mm

Date	Code	Site	Easting	Northing	conductivity µS	temp °C	time (mins.)	wet area (approx) m2	sal fry number	sal par number	trt fry number	older trout number	sal fry per minute	sal par per minute	trt fry per minute	old trt per minute	sal fry per m²	sal par per m²	trt fry per m²	older trout per m²	eels	minnow	comments
09/09/2025	**BALC5 [c. BGYT25]**	Allt a Ghuithais	185864	845224	120	12.7	9	120	0	0	22	10	0.00	0.00	2.44	1.11	0.00	0.00	0.18	0.08			no salmon
09/09/2025	**BALC4 [BGYT22]**	Allt Eisg from 5m above confluence	186819	846779	37	12.5	14	110	0	7	11	4	0.00	0.50	0.79	0.29	0.00	0.06	0.10	0.04			no salmon fry. Sal par 94-104mm
09/09/2025	**BALC3 [BGY3]**	Abhainn Dearg by lodge	186362	847220	35	13.2	14	188	27	11	15	7	1.93	0.79	1.07	0.50	0.14	0.06	0.08	0.04		6	sal fry 42-58mm; sal par 92-121mm
09/09/2025	**BALC2 [MSFW2]**	Abhainn Dubh below bridge	185952	847537	105	15.5	15	nr	0	3	15	4	0.00	0.20	1.00	0.27	NR	NR	NR	NR			sal par 120-156mm; putative escaped farm salmon parr
09/09/2025	**BALC1 [MSFW1]**	main river just above road bridge	184684	854293	44	14.5	13	132	35	2	0	0	2.69	0.15	0.00	0.00	0.27	0.02	0.00	0.00	1	1	sal fry 66-99mm; sal par 141-144mm

Colour scheme for WRFT e-fish results for Wester Ross area relating to fish abundance	
	over 2 fish per minute or over 0.200 fish per m²
	1.00 to 1.99 fish per minute or 0.100 to 0.199 fish per m²
	0.50 to 0.99 fish per minute or 0.050 to 0.099 fish per m²
	0.01 to 0.49 fish per minute or 0.001 to 0.049 fish per m².

3.4 Discussion of juvenile fish survey

Salmon fry and salmon parr were recorded in both the Torridon River and in the River Balgy.

In the Torridon River, salmon fry were recorded at all sites including TorC2 where no salmon fry were recorded in 2024. Estimated minimum densities of salmon fry were lower at two sites in the middle of the Torridon River in 2025 than in 2024 (TorC4 & TorC5); but sightly higher at one of the sites in the River Thrail (TorC1). CPUE figures for salmon parr at the mid-river sites (TorC4 & TorC5) in 2025 were higher than in 2024, following on from high CPUE for fry at these sites in 2024.

In some previous years (especially 2014 & 2016) parr numbers have been slightly higher in the lower part of the river near TorC3 where habitat appears to be good for salmon parr, but never as high as one might expect based on the quality of habitat during the past 20 years.

Our results again concur with Scottish Government's category 3 grading for the Torridon River. There are some areas of good habitat for juvenile salmon in the Torridon River that have few juvenile salmon. However, some adult salmon have spawned in the Torridon River and tributary, the River Thrail in 2024, enough to a juvenile salmon population in core areas, but not enough to repopulate the whole system. Egg deposition was again inadequate especially in the lower part of the main river Torridon for overall juvenile salmon densities to be close to carrying capacity.

For the River Balgy, the situation is more complex and fragile so far as maintaining a juvenile salmon population of likely native origin. In the River Balgy below Loch Damh, high numbers of fast-growing juvenile salmon were recorded in 2025 as in 2024 and previous years. The relative scarcity of parr may be partly because many of these fish smolt after just one summer and winter in freshwater as S1s. The rapid growth of juvenile salmon in the River Balgy may be partly due to genetic origins of these fish and partly due to the apparently nutrient-enriched and unusually productive riverine habitat. Previous studies (e.g. Gilby et al 2021) indicated high level of genetic introgression of salmon parr here, so it would be very useful to be able to monitor the genetic makeup of the salmon population in this part of the River Balgy system

The lack of salmon fry above Loch Damh is cause for continued concern. Above Loch Damh, salmon fry were recorded only in the Abhainn Dearg near Kinlochdamph lodge in 2025. Salmon fry were recorded in the Allt Eisg (small tributary further upstream) in 2024 but not in 2025. No salmon fry were recorded in the Abhainn Dubh or at site further upstream.

Salmon parr may have included farm salmon escapee(s) at the site at the mouth of the Abhainn Dubh. Loch Damh has two active open cage salmon smolt farms including one just a few hundred metres away from the river mouth.

Photographs of a green algal bloom in Loch Damh in autumn 2025 were shared.

The resident trout population is also likely to have increased as a result of salmon farming within the system and elevated food availability; large predatory trout may take salmon parr and smolts.

4. Conclusions and recommendations (for discussion)

- The WRFT seine netting team gained further experience in sampling sea trout at Torridon in 2025, however fewer fish were sampled here than in 2024.
- In contrast, large samples of sea trout were caught at Flowerdale (Loch Gairloch). Many of these fish carried high numbers of sea lice in April 2025 and June 2025.
- Given continued uncertainty regarding sea lice dispersal models, it is recommended that the Flowerdale site continues to be included within the wild fish monitoring programme for informing the Loch Torridon EMP
- Other opportunities for sea lice data collection include rod and line sampling in the River Balgy sea pool; and early-returned e-fishing sampling at Shieldaig River; the Marine Scotland monitoring programme is a useful one; can data be shared to inform the Torridon EMP?
- Juvenile salmon were recorded in both the Torridon River and River Balgy in 2025. However, salmon fry were found at only one of four sites above Loch Damh.
- The River Balgy 'native' salmon population may be particularly fragile. Genetic analyses of samples would provide further valuable information.

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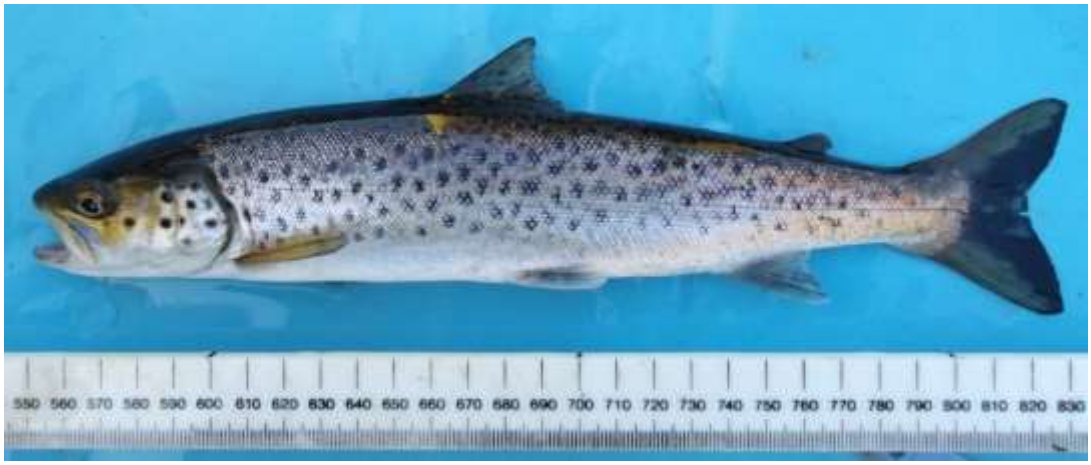
Appendix 1. Pictures from sea trout sampling

Please note that all fish in photos were lightly sedated before being returned after recovering from anaesthetic

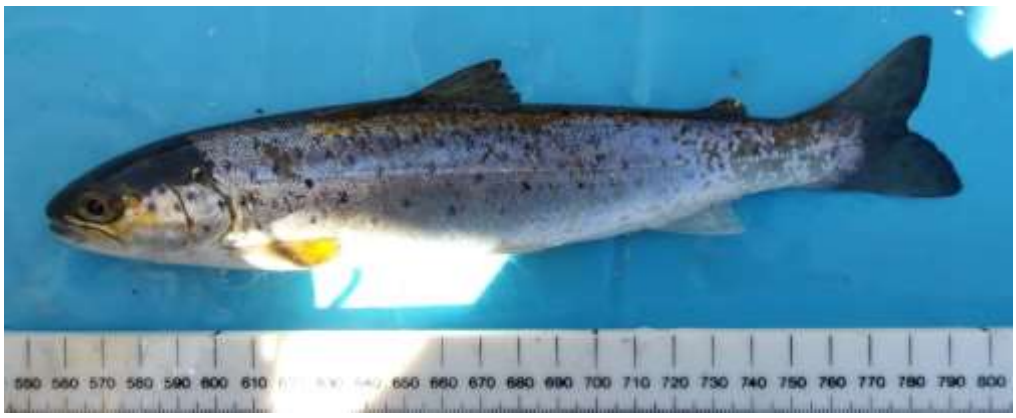
Photos: all ©WRFT unless otherwise indicated. All fish in photos were lightly sedated for inspection then returned to the sea after recovery.

Torridon sea trout sampling visit #1. 16th May 2025

Sea trout 284mm, 240g, Torridon River estuary, 16th May 2025 with 2 copepodid & chalimus lice; no other lice seen on this fish. Dorsal fin damage score 2 healed.



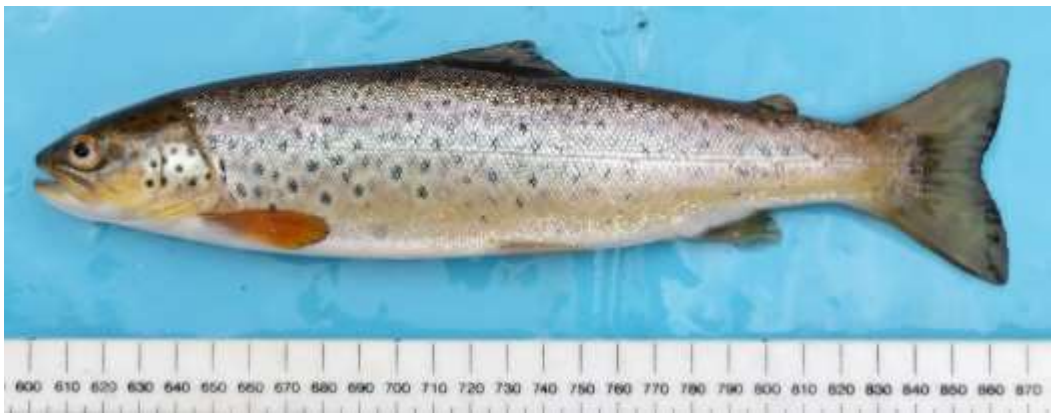
Sea trout 240mm, 120g, Torridon River estuary, 16th May 2025 with 35 copepodid & chalimus lice, 4 adult and preadult lice.



Torridon sea trout sampling visit #2. 17th June 2025

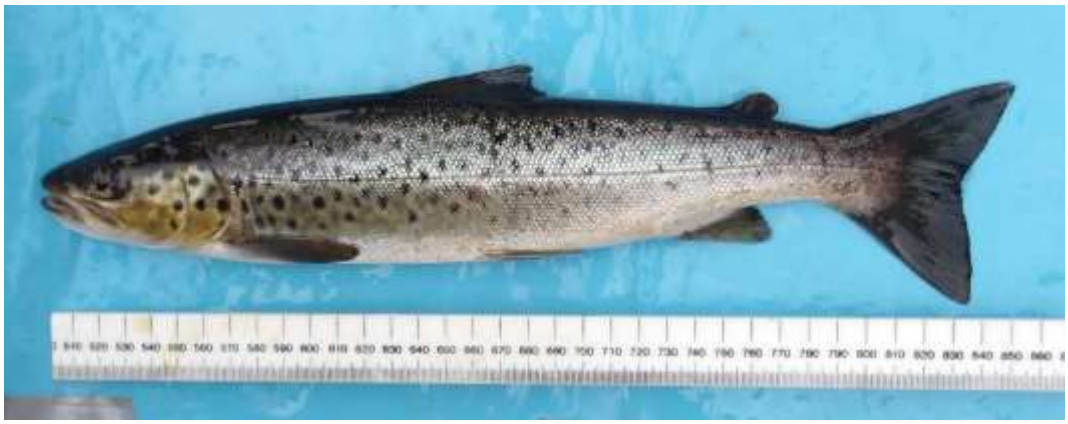
Sea trout 380mm, Torridon river estuary, 17th June 2025. Note dorsal fin damage.

Sea trout 272mm, Torridon river estuary, 17th June 2025. Note estuarine colouration.



Torridon sea trout sampling visit #3. 31st July 2025

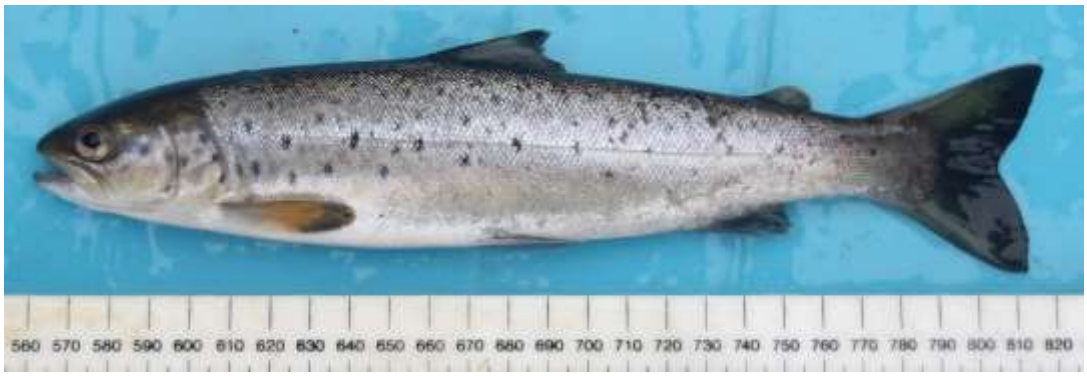
Sea trout 340mm Torridon river estuary 31st July 2025



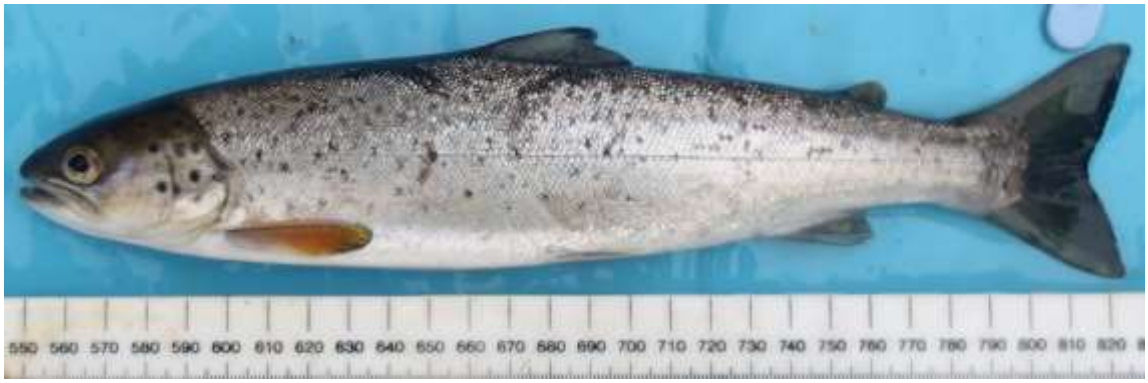
Torridon sea trout sampling visit #4. 27th August 2025 (pics by CH)

Torridon sea trout sampling visit #5. 31st July 2025

Sea trout 260mm Torridon River estuary 1st October 2025. The dorsal fin (shown below) was healing from earlier damage

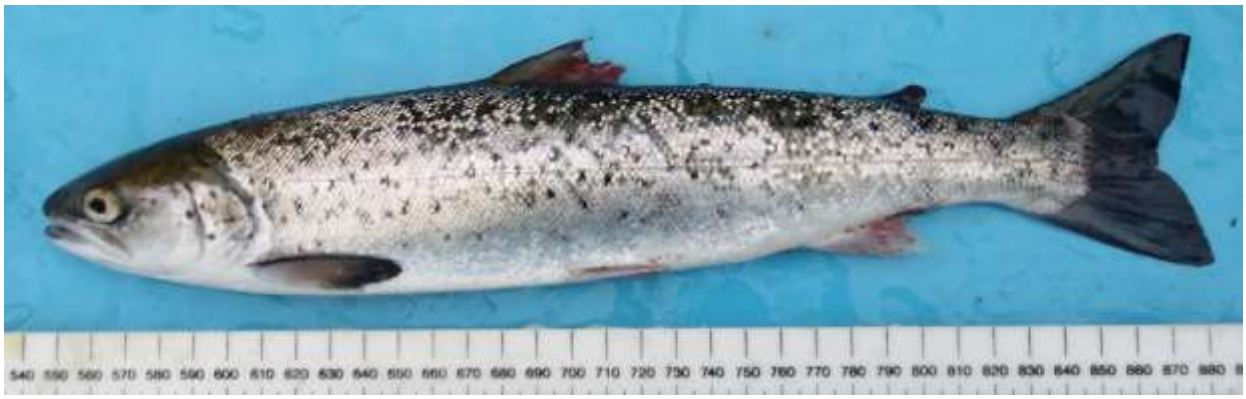


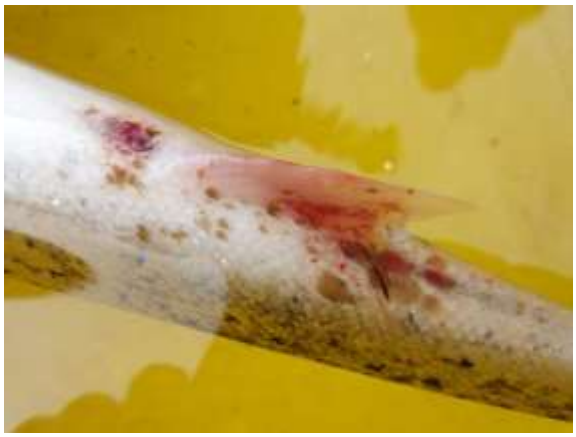
Sea trout 282mm Torridon River estuary 1st October 2025. Slightly eroded but healing dorsal fin. Small parasite identified as ?*Paragnathia formica* near base of ventral fin.



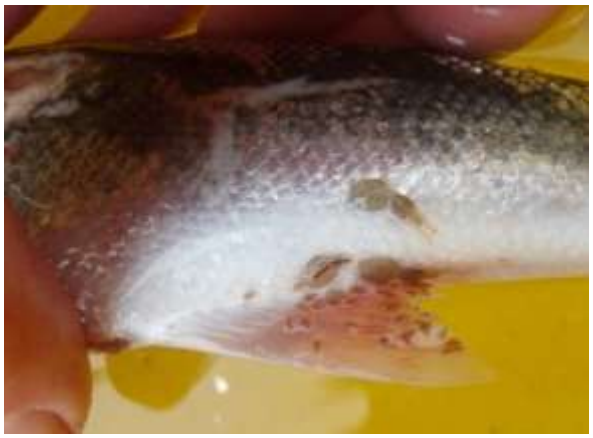
Flowerdale Sea trout sampling visit #1. 11th April 2025

Sea trout 345mm, 355g, Flowerdale 11 Apr 2025. Sea lice estimates: 260 copepodid and chalimus, 35 adult and preadult, 1 ovigerous female



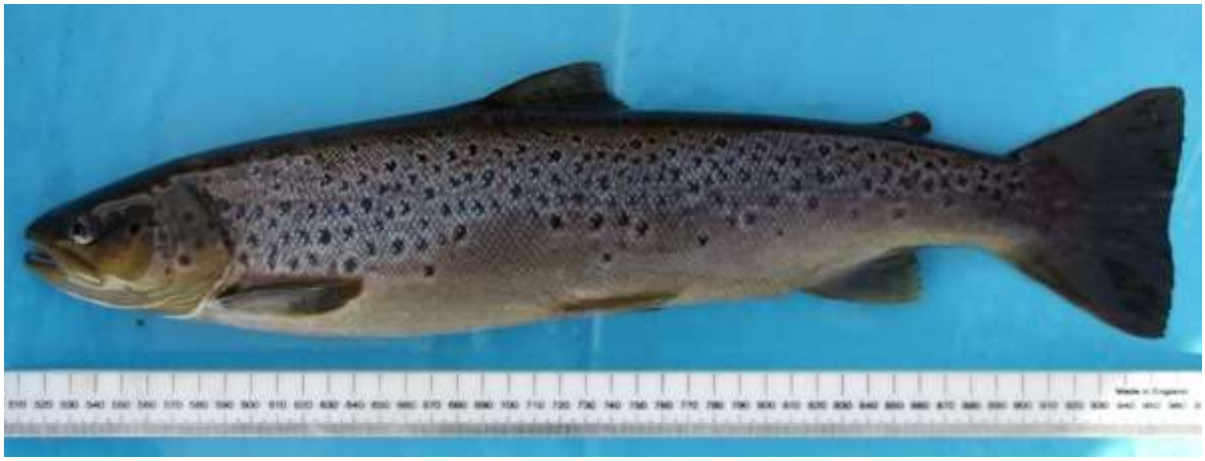


ST368mm, 440g, Flowerdale 11 Apr 2025. Est. 300 copepodid and chalimus lice, 8 preadult and adult lice, 1 ovigerous female

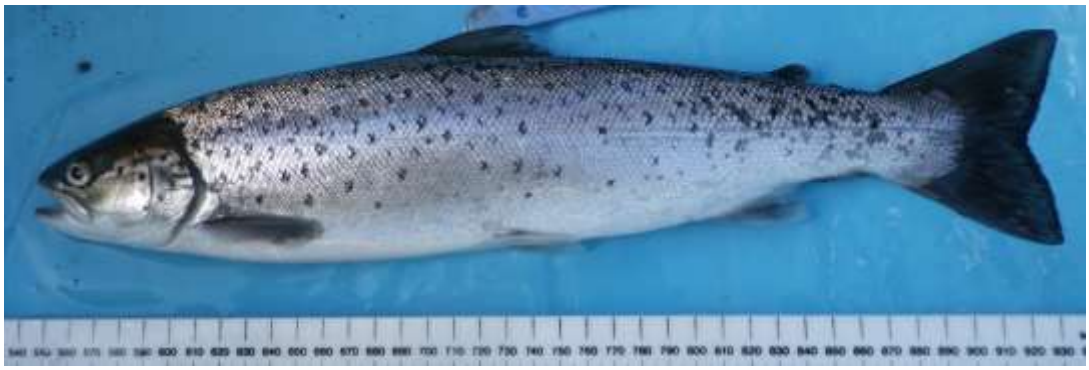


Recaptured sea trout 473mm, 935g, Flowerdale 11 April 2025 with 0 chalimus and copepodid, 13 preadult and adult lice, 2 ovigerous females

Recaptured Sea trout 450mm, 968g, Flowerdale 3 October 2024 (same fish as above)



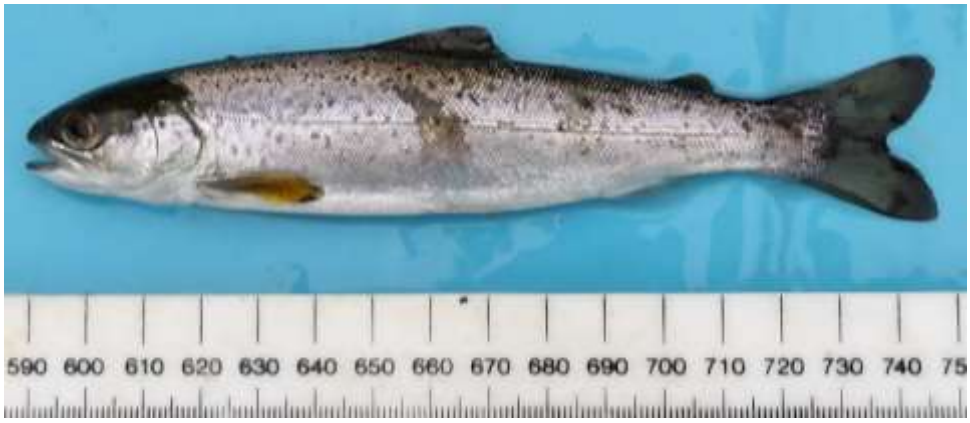
Sea trout 385mm, 675g, Flowerdale 26 April 2024 (same fish as above)



Flowerdale Sea trout sampling visit #2. 16 June 2025

Photos: all ©WRFT unless otherwise indicated. All fish in photos were lightly sedated for inspection then returned to the sea after recovery.

Sea trout 163mm, Flowerdale, 11 June 2025. 25 copepodid and chalimus lice, 15 adult and preadult lice; *(right)* dorsal fin of same fish

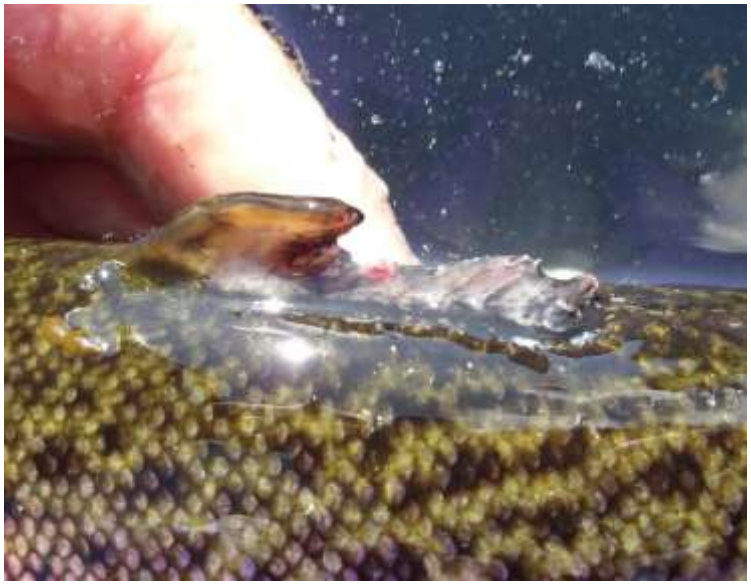


Flowerdale Sea trout sampling visit #3. 15th July 2025

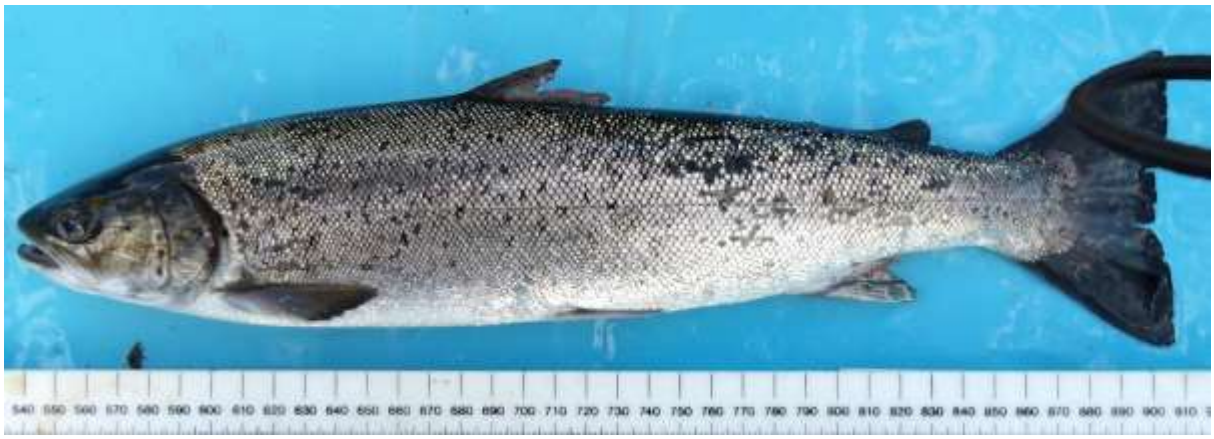
ST415mm, Flowerdale, 15th July 2025. 48 pre-adult and adult sea lice, 2 ovigerous female lice. Note eroded lice damaged dorsal fin (score 3).

Flowerdale sea trout sampling visit #4. 25th August 2025

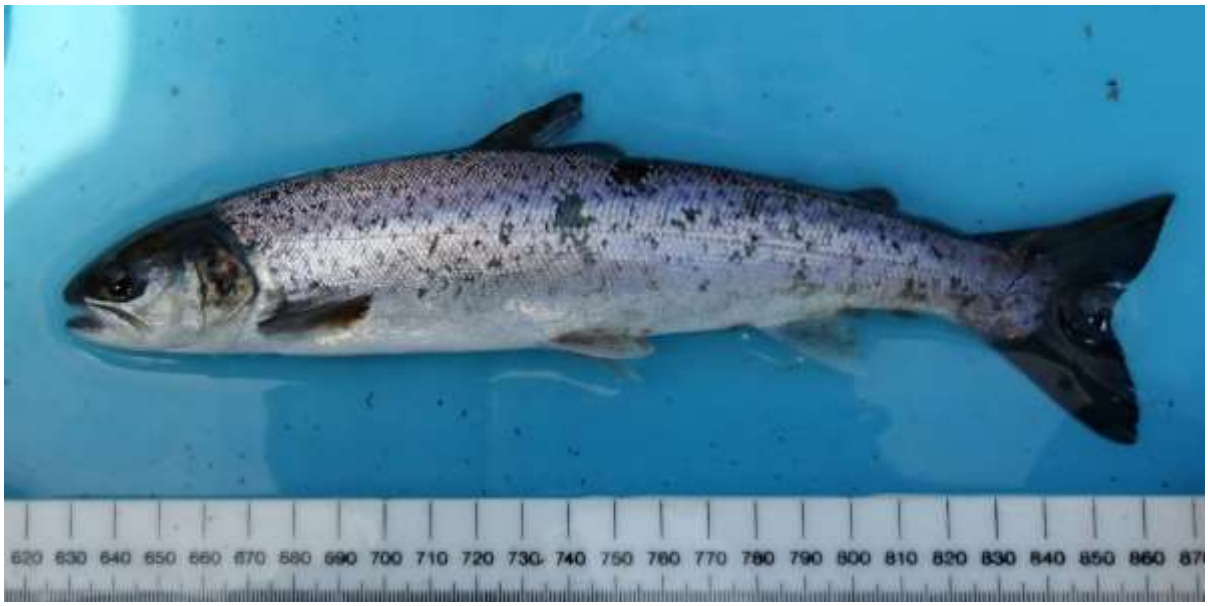
Maturing female sea trout 380mm with healed lice-damaged dorsal fin and caudal fin

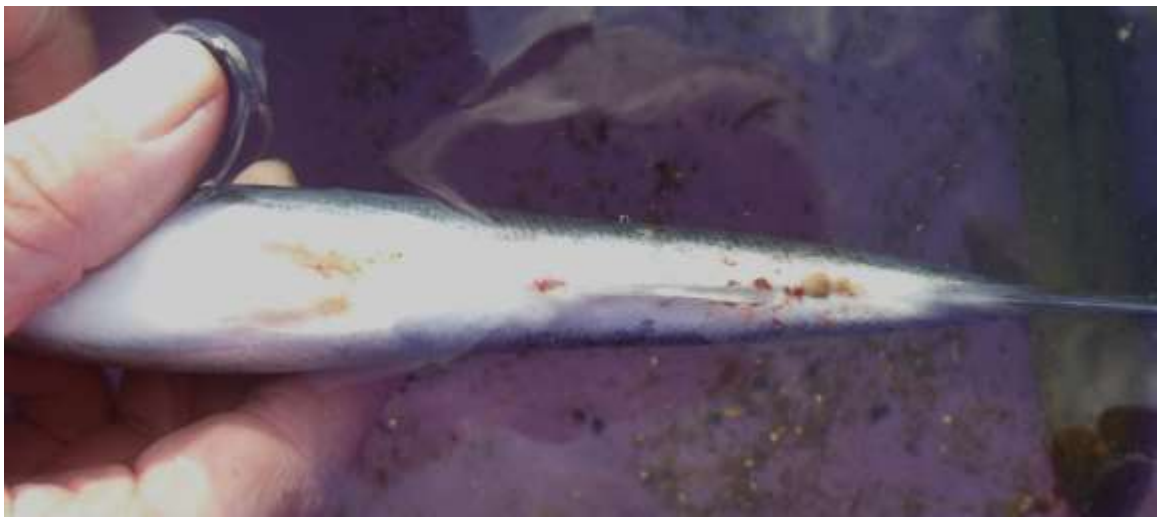


Sea trout of 375mm, Flowerdale 25th August 2025, with 91 sea lice (the lousiest fish in the sample)



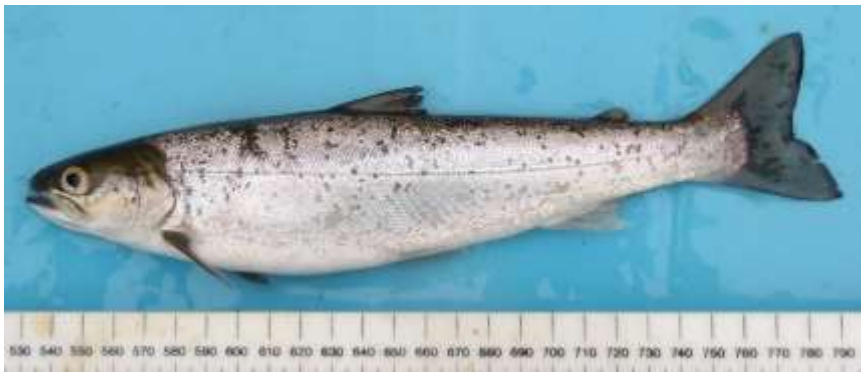
Sea trout 240mm Flowerdale 25th August 2025, 87 sea lice



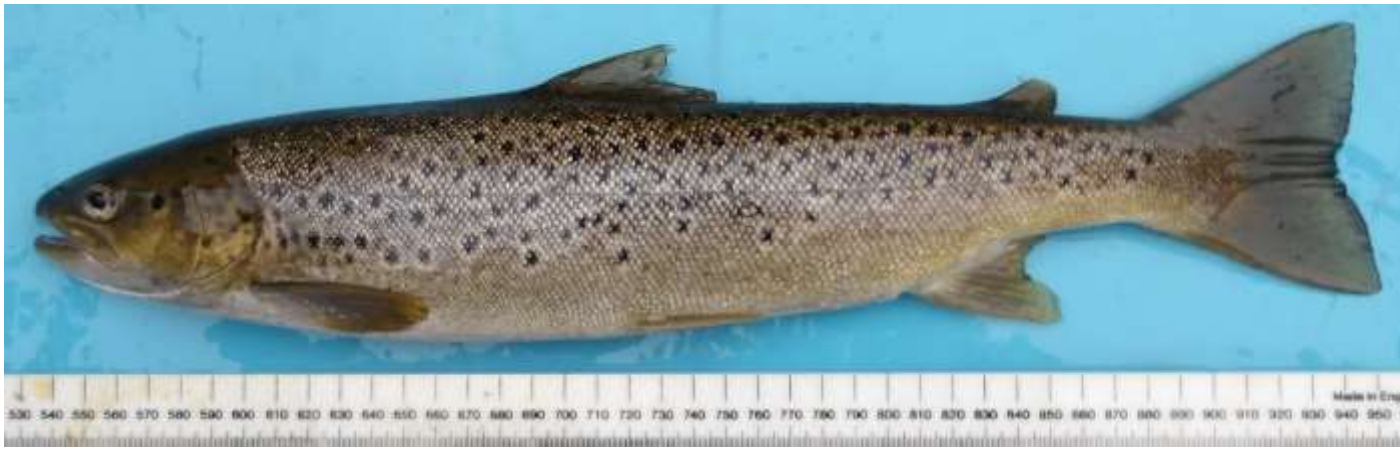


Flowerdale sea trout sampling visit #5. 6th October 2025

Sea trout 255mm. Dorsal fin of this fish shown below.



Sea trout 412mm; dorsal fin of this fish shown below



Appendix 2 Pictures from electro-fishing survey of Torridon River and River Balgy in 2025

Juvenile fish survey Torridon River 20th August 2025

Please note that all fish in photos were lightly sedated before being returned after recovering from anaesthetic

TORC6a

TORC5

TORC4 – small thin fry and lean parr

TORC2 A few big parr and big fry here.

TORC1- River Thrail

TORC1a- River Thrail – fry were slightly smaller here than at TorC1 (just

River Balgy e-fish survey 9th September 2025

Please note that all fish in photos were lightly sedated before being returned after recovering from anaesthetic

BALC1 River Balgy just above road bridge. Exceptionally large salmon fry and salmon parr

BALC2 -Loch Coultrie River (Abhainn Dubh) – below bridge. No salmon fry recorded

BALC3 Abhainn Dearg. The only site above Loch Damh where salmon fry were recorded.

BALC4 Allt Eisg. Salmon par but no salmon fry here on 9th September 2025

BALC5. No juvenile salmon here. Juvenile trout in the bucket, 9 Sep 2025

[end]