

Sea lice monitoring report for Applecross River estuary sampling, 25 June 2024.

Peter Cunningham, Biologist, WRFT. 27 June 2024 info@wrft.org.uk

Sea trout data

Location: Applecross River estuary																					
Date: 25-Jun-24 Time: 10am																					
*Counts: Peter Cunningham																					
Team: 6 helpers																					
Weather: light breeze																					
River: medium																					
Other notes: 2 sweeps of sea pool, one down to tail (usual sweep - no fish) then one of pot of pool at top to far bank - 50+ trout in net 2 snorkellers to mov net over stones on bed of pool sea trout seen by snorkellers swimming upstream in first sweep, so decision made for second sweep at top of pool tide in sea pool when we arrived - about 30cm higher than river levels																					
									<i>Caligus</i> <i>Lepeophtheirus salmonis</i>												
No.	Location	Date	Method	Riv/Est/B each	Fish	length (mm)	weight (g)	condition factor	total	Copepodid & Chalmus (estimate)	Pre-adult & adult	Ov. female	Total L. salmonis sea lice	*estimated lice/g fish weight	Dorsal fin damage	<i>Cryptocotyle lingua goats</i> per cm ² of caudal fin	Predator damage	Photo	scale sample?	Comments	
1	Applecross	25-Jun-24	Sweep Net	est	Sea trout	217	102	1.00	0	5	4	1	10	0.098	0.0	3	N	Y	y		
2	Applecross	25-Jun-24	Sweep Net	est	Sea trout	185	65	1.03	0	2	4	0	6	0.092	0.0	1	N	Y	y		
3	Applecross	25-Jun-24	Sweep Net	est	Sea trout	182	55	0.91	0	1	3	0	4	0.073	0.0	1	N	Y	y	lice spot scars	
4	Applecross	25-Jun-24	Sweep Net	est	Sea trout	201	81	1.00	0	3	5	4	12	0.148	0.0	6	N	Y	y		
5	Applecross	25-Jun-24	Sweep Net	est	Sea trout	217	95	0.93	0	2	4	1	7	0.074	0.5	1	Y	Y	y	bird beak	
6	Applecross	25-Jun-24	Sweep Net	est	Sea trout	250	138	0.88	0	4	5	0	9	0.065	1.0	0	N	Y	y	deformed caudal fin stocked	
7	Applecross	25-Jun-24	Sweep Net	est	Sea trout	223	120	1.08	0	1	4	0	5	0.042	0.0	1	N	Y	y		
8	Applecross	25-Jun-24	Sweep Net	est	Sea trout	225	113	0.99	0	3	6	2	11	0.097	0.5	5	N	Y	y	lice damage	
9	Applecross	25-Jun-24	Sweep Net	est	Sea trout	215	95	0.96	0	3	3	1	7	0.074	1.0	1	N	Y	y	torn dorsal fin	
10	Applecross	25-Jun-24	Sweep Net	est	Sea trout	246	152	1.02	0	0	1	0	1	0.007	1.0	2	Y	Y	y	bird beak	
11	Applecross	25-Jun-24	Sweep Net	est	Sea trout	182	51	0.85	0	0	3	1	4	0.078	0.0	3	N	Y	y	damaged tail	
12	Applecross	25-Jun-24	Sweep Net	est	Bm trout	158	40	1.01	0	0	0	0	0	0.000	0.0	0	N	Y	y		
13	Applecross	25-Jun-24	Sweep Net	est	Sea trout	199	88	1.12	0	4	5	0	9	0.102	0.5	0	N	Y	y		
14	Applecross	25-Jun-24	Sweep Net	est	Sea trout	202	86	1.04	0	2	4	0	6	0.070	1.0	1	N	Y	y		
15	Applecross	25-Jun-24	Sweep Net	est	Sea trout	220	107	1.00	0	0	7	0	7	0.065	1.0	2	N	Y	y		
16	Applecross	25-Jun-24	Sweep Net	est	Sea trout	179	58	1.01	0	6	7	1	14	0.241	1.0	3	N	Y	y		
17	Applecross	25-Jun-24	Sweep Net	est	Bm trout	168	64	1.35	0	0	0	0	0	0.000	0.0	0	N	Y	y	photo with trout and seatrout	
18	Applecross	25-Jun-24	Sweep Net	est	Sea trout	190	70	1.02	0	2	2	1	5	0.071	0.0	1	N	Y	y		
19	Applecross	25-Jun-24	Sweep Net	est	Sea trout	180	58	0.99	0	0	0	0	0	0.000	0.5	0	N	Y	y		
20	Applecross	25-Jun-24	Sweep Net	est	Sea trout	200	82	1.03	0	12	5	0	17	0.207	1.0	1	N	Y	y		
21	Applecross	25-Jun-24	Sweep Net	est	Sea trout	200	76	0.95	0	1	6	0	7	0.092	0.5	1	N	Y	y	slightly torn tail	
22	Applecross	25-Jun-24	Sweep Net	est	Sea trout	191	67	0.96	0	3	5	0	8	0.119	0.0	1	N	Y	y		
23	Applecross	25-Jun-24	Sweep Net	est	Sea trout	161	42	1.01	0	1	2	0	3	0.071	0.0	0	N	Y	y		
24	Applecross	25-Jun-24	Sweep Net	est	Sea trout	163	47	1.09	0	2	2	0	4	0.085	0.0	1	N	Y	y		
25	Applecross	25-Jun-24	Sweep Net	est	Bm trout	169	42	0.87	0	0	4	0	4	0.095	0.5	0	N	Y	y		
26	Applecross	25-Jun-24	Sweep Net	est	Sea trout	201	82	1.01	0	2	7	0	9	0.110	0.5	0	N	Y	y		
27	Applecross	25-Jun-24	Sweep Net	est	Sea trout	335	425	1.13	0	7	1	2	10	0.024	0.5	10	N	Y	y		
28	Applecross	25-Jun-24	Sweep Net	est	Sea trout	318	370	1.15	0	0	2	0	2	0.005	0.0	0	N	Y	y		
29	Applecross	25-Jun-24	Sweep Net	est	Sea trout	390	590	0.99	0	5	4	0	9	0.015	2.0	2	N	Y	y	Acanthacephalus; lice off	
30	Applecross	25-Jun-24	Sweep Net	est	Sea trout	320	370	1.13	0	4	6	0	10	0.027	2.5	2	N	Y	y		
31	Applecross	25-Jun-24	Sweep Net	est	Sea trout	215	93	0.94	0	4	2	0	6	0.065	0.5	2	N	Y	y		
32	Applecross	25-Jun-24	Sweep Net	est	Sea trout	285	220	0.95	0	0	12	0	12	0.055	2.0	2	N	Y	y		
33	Applecross	25-Jun-24	Sweep Net	est	Sea trout	233	117	0.92	0	1	3	1	5	0.043	1.0	2	N	Y	y		
34	Applecross	25-Jun-24	Sweep Net	est	Sea trout	190	60	0.87	0	1	1	0	2	0.033	0.0	2	N	Y	y	thin	
35	Applecross	25-Jun-24	Sweep Net	est	Sea trout	215	100	1.01	0	0	1	0	1	0.010	0.5	3	Y	Y	y	healed damage	
36	Applecross	25-Jun-24	Sweep Net	est	Sea trout	200	85	1.06	0	1	0	0	1	0.012	0.5	1	N	Y	y		
37	Applecross	25-Jun-24	Sweep Net	est	Sea trout	183	69	1.13	0	0	0	0	0	0.000	0.5	0	N	Y	y	scarring on back	
38	Applecross	25-Jun-24	Sweep Net	est	Sea trout	220	110	1.03	0	0	5	0	5	0.045	1.0	3	N	Y	y		
					Averages	196	76	0.98	0	3	4	1	8.00	0.10	0.0	3					

total lice		232
number of sea trout		35
number infested		32
prevalence		91%
total lice		232
abundance		6.63
intensity		7.25
fish with >0.3 lice / g		0
fish with >0.3 lice / g		0%

Sea lice monitoring report for Applecross River estuary sampling, 25 June 2024.

Peter Cunningham, Biologist, WRFT. 27 June 2024 info@wrft.org.uk

Mortality / early returned estimates for sea trout in sample based on method from Taranger et al 2015, Risk assessment for the environmental impact of Norwegian salmon farming ([PDF](#)) [Risk assessment of the environmental impact of Norwegian Atlantic salmon farming \(researchgate.net\)](#)

Fish no.	≥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	No	0.098	>0.3	100%	0	38	0.00	0.00	
2	No	0.092	0.2-0.3	50%	2		5.26	2.63	
3	No	0.073	0.1-0.2	20%	4		10.53	2.11	
4	No	0.148	<0.1	0%	32		84.21	0.00	4.74
5	No	0.074							
6	No	0.065							
7	No	0.042							
8	No	0.097							
9	No	0.074							
10	No	0.007							
11	No	0.078							
12	No	0.000							
13	No	0.102							
14	No	0.070							
15	No	0.065							
16	Yes	0.241							
17	No	0.000							
18	No	0.071							
19	No	0.000							
20	Yes	0.207							
21	No	0.092							
22	No	0.119							
23	No	0.071							
24	No	0.085							
25	No	0.095							
26	No	0.110							
27	No	0.024							
28	No	0.005							
29	No	0.015							
30	No	0.027							
31	No	0.065							
32	No	0.055							
33	No	0.043							
34	No	0.033							
35	No	0.010							
36	No	0.012							
37	No	0.000							
38	No	0.045							

Acknowledgements

Sampling carried out as part of the Caol Mor Salmon Farms EMP wild fish monitoring programme supported by MOWI to inform the WRASFB, The Highland Council and The Scottish Government

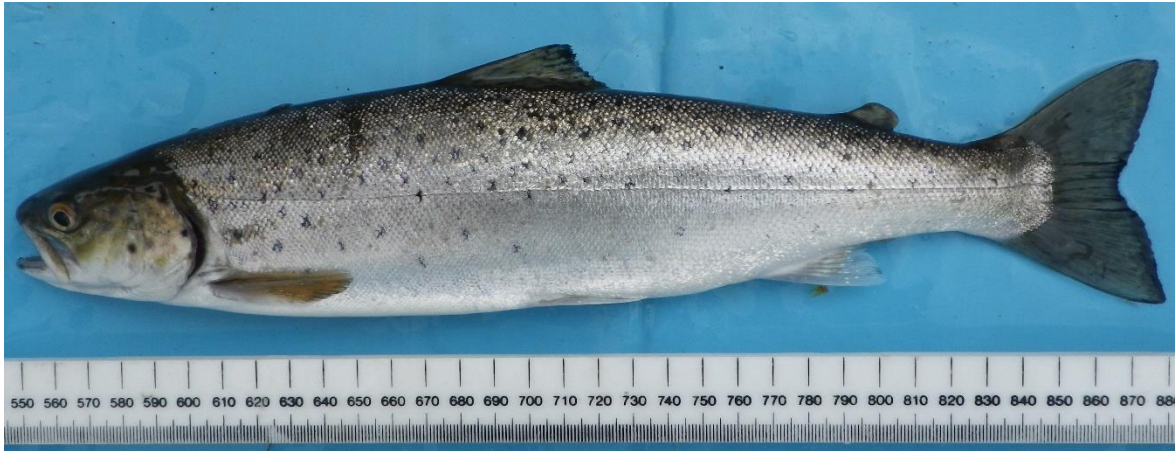
Thank you to the Applecross Trust for permission and assistance

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 estimated 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., Madhun, A. S., Morton, H. C., and Sva'sand, T. (2014) Risk assessment of the environmental impact of Norwegian Atlantic salmon farming. –ICES Journal of Marine Science, doi: 10.1093/icesjms/fsu132.	<div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: red; margin-right: 5px;"></div> 100% sea lice related mortality or early return to freshwater </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: orange; margin-right: 5px;"></div> >50% to 99% sea lice related mortality or early return to freshwater </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: yellow; margin-right: 5px;"></div> >20% to 50% sea lice related mortality or early return to freshwater </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: lightgreen; margin-right: 5px;"></div> <20% sea lice related mortality or early return to freshwater </div>
https://www.researchgate.net/publication/266672998 Risk assessment of the environmental impact of Norwegian Atlantic salmon farming	

Sea lice monitoring report for Applecross River estuary sampling, 25 June 2024.

Peter Cunningham, Biologist, WRFT. 27 June 2024 info@wrft.org.uk

Sea trout 335mm, Applecross, 25 June 2024



Lice on sea trout of 210mm, Applecross, 25 June 2024



Sea lice monitoring report for Applecross River estuary sampling, 25 June 2024.

Peter Cunningham, Biologist, WRFT. 27 June 2024 info@wrft.org.uk

Brown trout 318mm and sea trout 390mm Applecross, 25 June 2024



Sea lice monitoring report for Applecross River estuary sampling, 25 June 2024.

Peter Cunningham, Biologist, WRFT. 27 June 2024 info@wrft.org.uk

Dorsal fin of sea trout 390mm, Applecross, 25 June 2024



Sea lice monitoring report for Applecross River estuary sampling, 25 June 2024.

Peter Cunningham, Biologist, WRFT. 27 June 2024 info@wrft.org.uk

Sea trout 190mm and Brown trout 168mm

