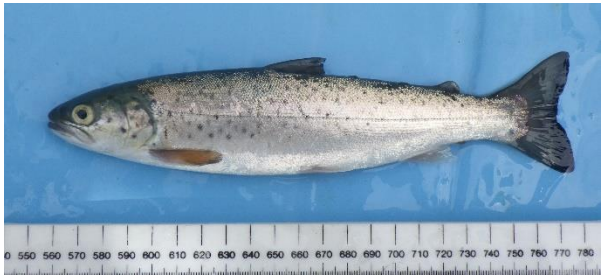
Sea lice monitoring report for Ardmair shore sampling, 15 July 2024

Peter Cunningham, Biologist, WRFT. 23 July 2024 info@wrft.org.uk

Sea trout data

Location:	**Ardmair shore**																		
Date:	15-Jul-24		**Time:**	00:00															
***Counts:**	Peter Cunningham																		
Team:	6 helper plus work boat from Ardmair salmon farm																		
Weather:		light westerly breeeze																	
Other notes:		4 sweeps from boat onto beach																	
										Caligus	***Lepeophtheirus salmonis***								
No.	**Location**	**Date**	**Method**	**Riv/Est/Beach**	**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**
1	Ardmair	15-Jul-24	Sweep Net	beach	Sea trout	228	138	1.16	0	5	4	0	**9**	0.065	2	0	N	Y	y	badly scaled
2	Ardmair	15-Jul-24	Sweep Net	beach	Sea trout	210	80	0.86	0	7	3	0	**10**	0.125	1.5	1	?	Y	y	bird damage?
					Averages	**219.00**	**109.00**	**1.01**	**0.00**	**6.00**	**3.50**	**0.00**	**9.50**	**0.10**	**1.75**	**0.50**				
											total lice		19							
											number of fish		2							
											number infested		2							
											prevalence		100%							
											total lice		19							
											abundance		9.50							
											intensity		9.50							
											fish with >0.3 lice per g		0							
											fish with >0.3 lice per g		0%							



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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)]

≥13 lice/fish?	Lice/g fish weight	Fish no.	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 %
No	0.065	1	>0.3	100%	0	2	0.00	0.00	
No	0.125	2	0.2-0.3	50%	0		0.00	0.00	
			0.1-0.2	20%	1		50.00	10.00	
			<0.1	0%	1		50.00	0.00	**10.00**

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., 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.

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

100% sea lice related mortality or early return to freshwater
>50% to 99% sea lice related mortality or early return to freshwater
>20% to 50% sea lice related mortality or early return to freshwater
<20% sea lice related mortality or early return to freshwater

Acknowledgements

Sampling carried out as part of the Ardmair salmon farm EMP Wild Fish Monitoring Programme

Photos by Chloe Hall

Thank you to Wester Ross Fisheries Ardmair Salmon farm for provision of boat and 3 staff to help with sweep netting

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Other fish in sample; Ckw wrs = corkwing wrasse; Bal wrasse = Ballan wrasse; sea scorp = Seascorpion sp

3	Ardmair	15-Jul-24	Sweep Net	beach	pollack	120
4	Ardmair	15-Jul-24	Sweep Net	beach	pollack	122
5	Ardmair	15-Jul-24	Sweep Net	beach	pollack	55
6	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	156
7	Ardmair	15-Jul-24	Sweep Net	beach	Bal wrs	195
8	Ardmair	15-Jul-24	Sweep Net	beach	Bal wrs	152
9	Ardmair	15-Jul-24	Sweep Net	beach	Bal wrs	154
10	Ardmair	15-Jul-24	Sweep Net	beach	Ckwwrs	138
11	Ardmair	15-Jul-24	Sweep Net	beach	Flounder	195
12	Ardmair	15-Jul-24	Sweep Net	beach	sea scorp	113
13	Ardmair	15-Jul-24	Sweep Net	beach	pollack	128
14	Ardmair	15-Jul-24	Sweep Net	beach	pollack	95
15	Ardmair	15-Jul-24	Sweep Net	beach	pollack	58
16	Ardmair	15-Jul-24	Sweep Net	beach	pollack	130
17	Ardmair	15-Jul-24	Sweep Net	beach	pollack	140
18	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	138
19	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	95
20	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	95
21	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	123
22	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	104
23	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	137
24	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	95
25	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	100
26	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	96
27	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	97
28	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	92
29	Ardmair	15-Jul-24	Sweep Net	beach	Ckw wrs	95