Sea lice monitoring report for Torridon River estuary sampling, 10 Jul 2024.

Peter Cunningham, Biologist, WRFT. 12 Jul 2024 info@wrft.org.uk

Sea trout data

Location:		**Torridon river estuary**						
Date:		10-Jul-24	**Time:**	13:00		High tide	13.09 3.8m (Ullapool)	
***Counts:**		Peter Cunningham						
Team:		7 assistants						
Weather:		light winds, overcast						
River		medium, slightly coloured						
Other notes:		2 sweeps of channel midway down estuary.						
		new net 47m x 3m used, carried by 4 - 6 people on old stretcher						
		success on second sweep						

										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**	**≥13 lice/fish?**	**Lice/g fish weight**
1	Torridon	10-Jul-24	Sweep Net	est	Sea trout	310	354	1.19		0	1	2	0	**3**	0.008	0	5	N	Y	y	silvery nice fish	No	0.008
2	Torridon	10-Jul-24	Sweep Net	est	Sea trout	350	485	1.13		0	0	1	0	**1**	0.002	0.5	1	N	Y	y	male nice fish	No	0.002
3	Torridon	10-Jul-24	Sweep Net	est	Sea trout	385	630	1.10		0	3	9	8	**20**	0.032	2	0	N	Y	y	pic of dorsal fin	Yes	0.032
4	Torridon	10-Jul-24	Sweep Net	est	Sea trout	320	385	1.17		0	0	1	1	**2**	0.005	0.2	1	old	Y	y		No	0.005
5	Torridon	10-Jul-24	Sweep Net	est	Sea trout	353	465	1.06		0	0	3	0	**3**	0.006	0.2	0	N	Y	y		No	0.006
6	Torridon	10-Jul-24	Sweep Net	est	Sea trout	340	485	1.23		0	0	1	0	**1**	0.002	0.2	0	N	Y	y	fat male	No	0.002
7	Torridon	10-Jul-24	Sweep Net	est	Sea trout	320	404	1.23		0	0	0	0	**0**	0.000	0	0	N	Y	y		No	0.000
8	Torridon	10-Jul-24	Sweep Net	est	Sea trout	350	486	1.13		0	2	2	1	**5**	0.010	0.5	1	N	Y	y		No	0.010
9	Torridon	10-Jul-24	Sweep Net	est	Sea trout	240	148	1.07		0	0	1	0	**1**	0.007	0	2	old	Y	y		No	0.007
10	Torridon	10-Jul-24	Sweep Net	est	Sea trout	203	95	1.14		0	1	0	0	**1**	0.011	0	1	N	Y	y	thin	No	0.011
					Averages	**317.10**	**393.70**	**1.15**		**0.00**	**1.00**	**3.25**	**2.25**	**6.50**	**0.01**	**0.68**	**1.75**						

total lice	37
number of fish	10
number infested	9
prevalence	90%
total lice	37
abundance	3.70
intensity	4.11
fish with >0.3 lice / g	0
fish with >0.3 lice / g	0%

Other fish

No.	**Location**	**Date**	**Method**	**Riv/Est/Beach**	**Fish**	**length (mm)**	**weight (g)**
11	Torridon	10-Jul-24	Sweep Net	est	Flounder	265	205
12	Torridon	10-Jul-24	Sweep Net	est	Flounder	107	
10	Torridon	10-Jul-24	Sweep Net	est	3 sp stkbk	88	

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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)]

Fish no.	≥13 lice/fish?	Lice/g fish weight
1	No	0.008
2	No	0.002
3	Yes	0.032
4	No	0.005
5	No	0.006
6	No	0.002
7	No	0.000
8	No	0.010
9	No	0.007
10	No	0.011

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 %
>0.3	100%	0	10	0.00	0.00	
0.2-0.3	50%	0		0.00	0.00	
0.1-0.2	20%	0		0.00	0.00	
<0.1	0%	10		100.00	0.00	**0.00**

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.

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

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

Acknowledgements

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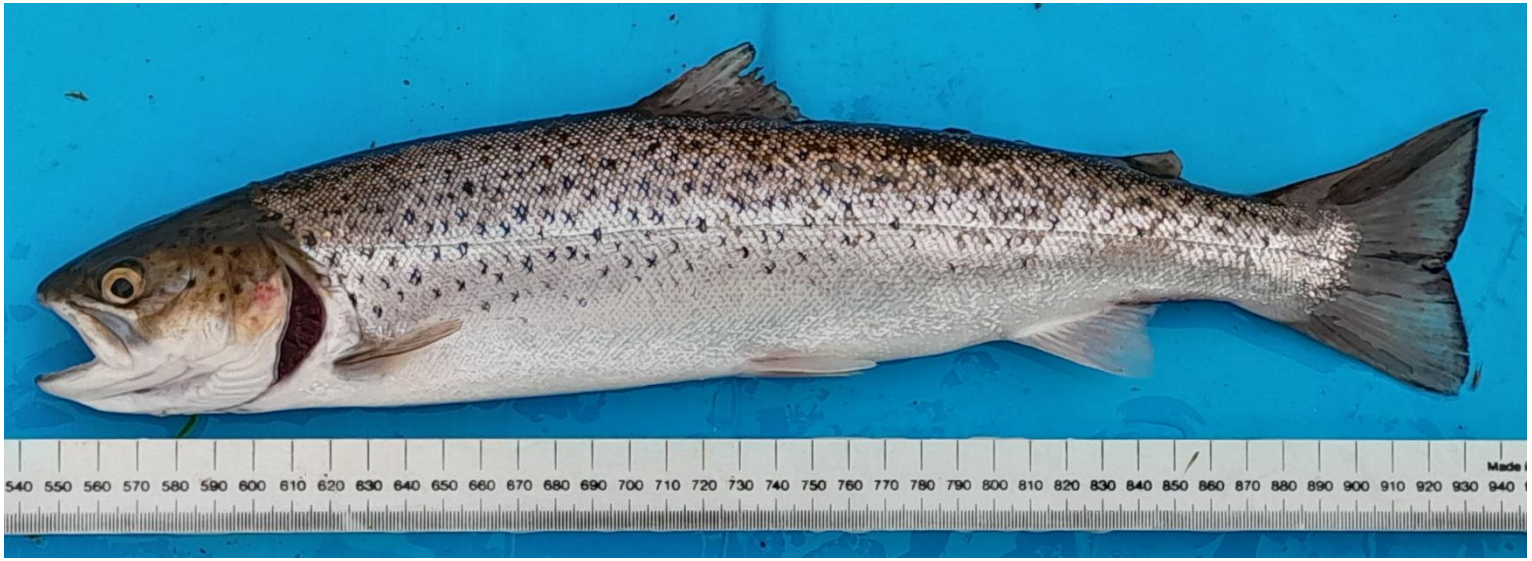
Photos: Sea trout 385mm, 630g, Torridon 10th July 2024



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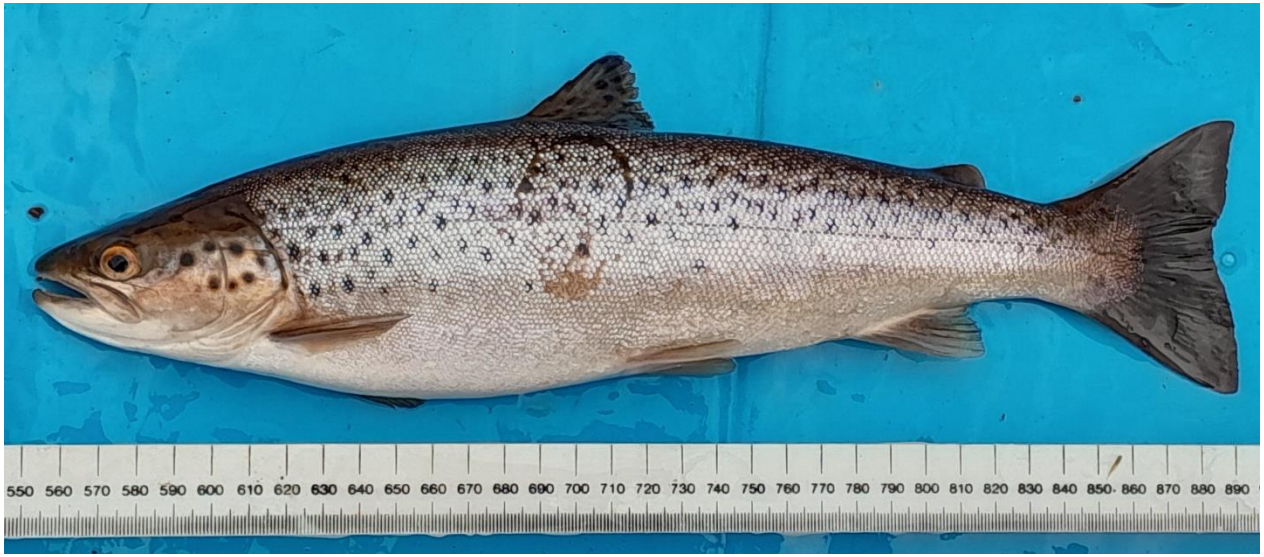
Sea trout 340mm, 485g, Torridon 10th July 2024



Sea trout 350mm, 486g, Torridon 10th July 2024