



Report on the River Muick fish counter 2025

January 2026



Figure 1: Falls of Muick, October 2025.

In 2025, **31 salmon** and **52 sea trout** were recorded ascending the fish ladder at the Falls of Muick, Ballater.

Acknowledgements

The fish ladder was funded by Balmoral Estate and the Vaki fish counter is owned by Balmoral Estate and operated by The River Dee Trust.

The River Dee Trust has maintained a Vaki fish counter at the top of the fish ladder beside the Falls of Muick (River Muick, Ballater) since 2018. The counter has demonstrated the impact of the fish ladder (constructed 2020) on fish access to the Muick above the falls. In 2025, 31 salmon and 52 sea trout ascended into the upper reaches (**Table 1, Figure 2**).

Table 1: Details of the salmon and sea trout ascending the fish ladder at the Falls of Muick.

Muick	2018	2019	2020	2021	2022	2023	2024	2025
Salmon	4	6	44	24	45	11	66	31
Sea trout	14	58	66	69	37	39	81	52
Total	18	64	110	93	82	50	147	83
Date switched on	10/05	03/06	24/06	10/06	3/07	25/04	23/03	15/01
First salmon	30/07	30/06	24/06	12/07	4/07	19/06	3/07	20/06
First sea trout	28/07	03/06	24/06	10/06	17/07	19/06	24/06	10/06
Last salmon	18/09	27/09	28/10	6/11	11/11	11/10	1/11	11/11
Last sea trout	22/09	30/09	21/10	03/12	11/11	06/11	31/10	07/11
Largest salmon (cm)			86	78	87	66	78	72
Days not operating*	?	9	29	33	7	31	61	63
Recording period (days)	135	119	126	176	131	226	196	324

*Due to technical issues and power failures the fish counter is occasionally offline and not recording. This row details the number of days lost from the recording period.

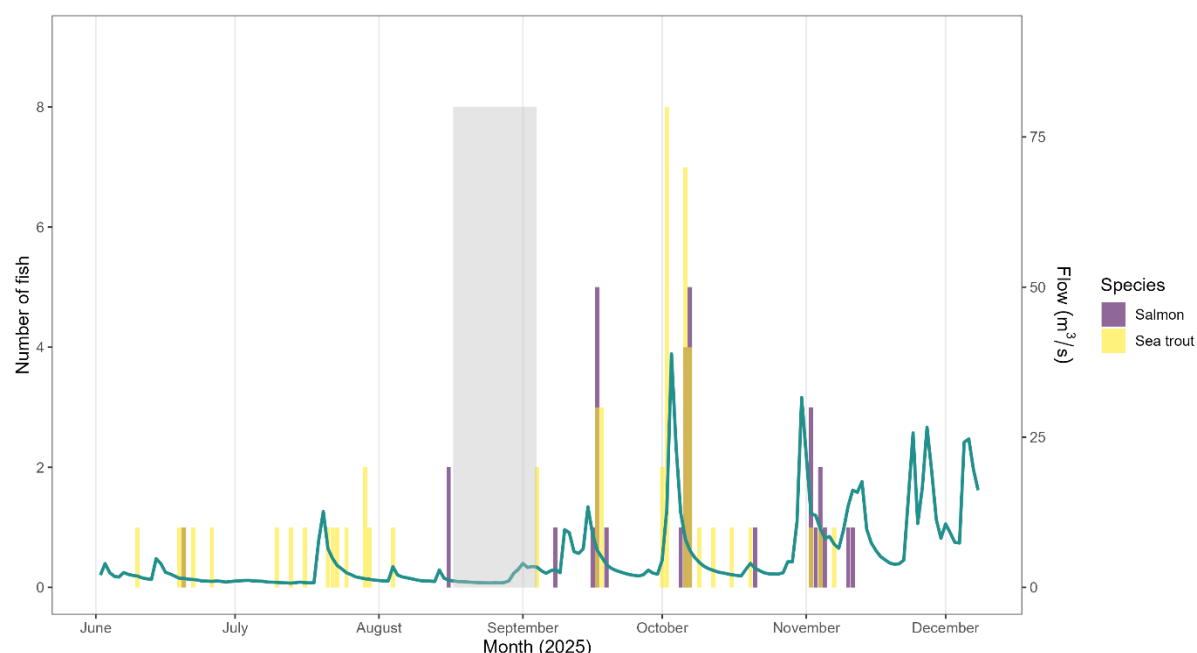


Figure 2: Counts of salmon (purple) and sea trout (yellow) through the fish counter and the flow volume (green) recorded at the SEPA gauging station at Invermuick. Grey rectangle is the time windows when the counter was not operating. Flow data from SEPA (public sector information licensed under the Open Government Licence v3.0.)

The salmon (and sea trout) count in 2023 was the lowest recorded since the new fish pass was installed and mirrored the poor rod catch in the River Dee. 2024 was a much better year for rod catches and this was reflected with the highest number of salmon and sea trout passing through the fish counter since it has been operating. 2025 fell back below this 2024 peak but was still much greater than 2023. The low rainfall and subsequent river flow may have been a factor contributing to the decrease in number of fish ascending the fish ladder – and generally moving upstream around the catchment.

In 2025, the counter was operating from January to investigate whether emigrating smolts used the fish ladder the bypass the Falls of Muick. No smolts were recorded using the ladder although it did ensure that the fish counter was on and operational to record the first mature fish to ascend the falls. As in previous years, sea trout moved upstream earlier than the salmon with the first sea trout ascending the ladder on June 10th. There was one salmon recorded ascending the ladder in the early summer but most of the salmon movement took place in later summer and autumn. Movement up the ladder is associated with increased in flow and often coincide with the river height dropping after a rise, this pattern can be seen in **Figure 2** and **5**.

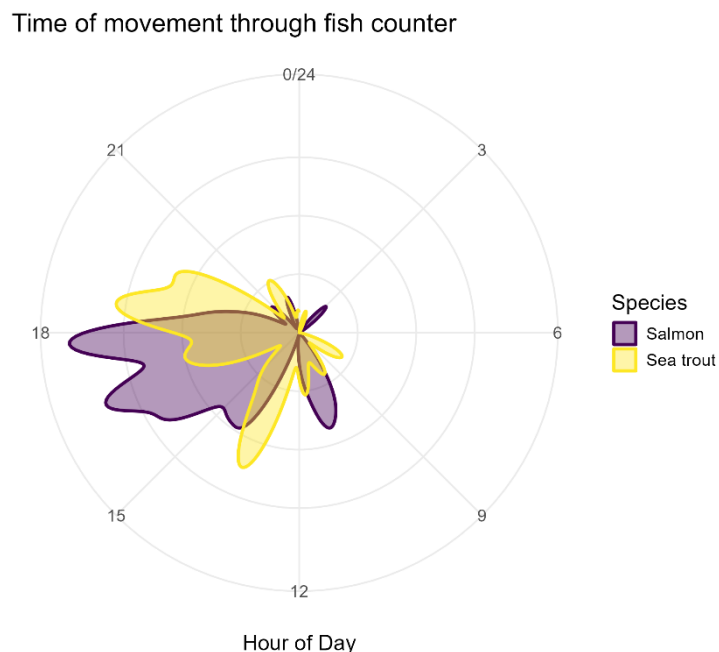


Figure 3: Density plot of time of day when salmon (purple) and sea trout (yellow) moved through the fish counter.

The most common time for salmon to move through the counter was between 2-6pm although fish did move at a range of times from 3am to 11pm. Sea trout were similar with a broader window but still centred around mid-afternoon to early evening. Again, movement took place across a wide time window from 1am to nearly midnight (**figure 3**).

The Vaki system provides us with a silhouette and length of the fish (or other object – see **figure 4**) that passes through the counter. Based on fish sizes caught on the Dee we categorise fish greater than 50cm as salmon, and those between 30-50cm as sea trout. This has the impact of potentially categorising small salmon or large sea trout incorrectly but is a similar approach to other rivers and hopefully doesn't distort the figures too much. The average size and length of the largest salmon and sea trout are recorded in **Table 2**.

Table 2: Average length and largest fish recorded each year by the fish counter

Year	Species	Average size (cm)	Max size (cm)	Number
2020	Salmon	58.8	86	44
2021	Salmon	57.9	78	24
2022	Salmon	59.3	87	45
2023	Salmon	59.4	66	11
2024	Salmon	57.9	78	66
2025	Salmon	58.5	72	31
2020	Sea trout	42.6	49	66
2021	Sea trout	43.1	50	69
2022	Sea trout	38.4	44	37
2023	Sea trout	42.8	50	39
2024	Sea trout	43.7	50	81
2025	Sea trout	41.2	50	52

Reliability of the counter was high this year although there was one period during late August when the counter was not operating for 18 days (**Figure 2**). River height remained low during this time and so fish movement was likely to be limited however the counts recorded are an minimum estimate of the total number of fish passing through the counter and the actual count could be higher.

Appendix

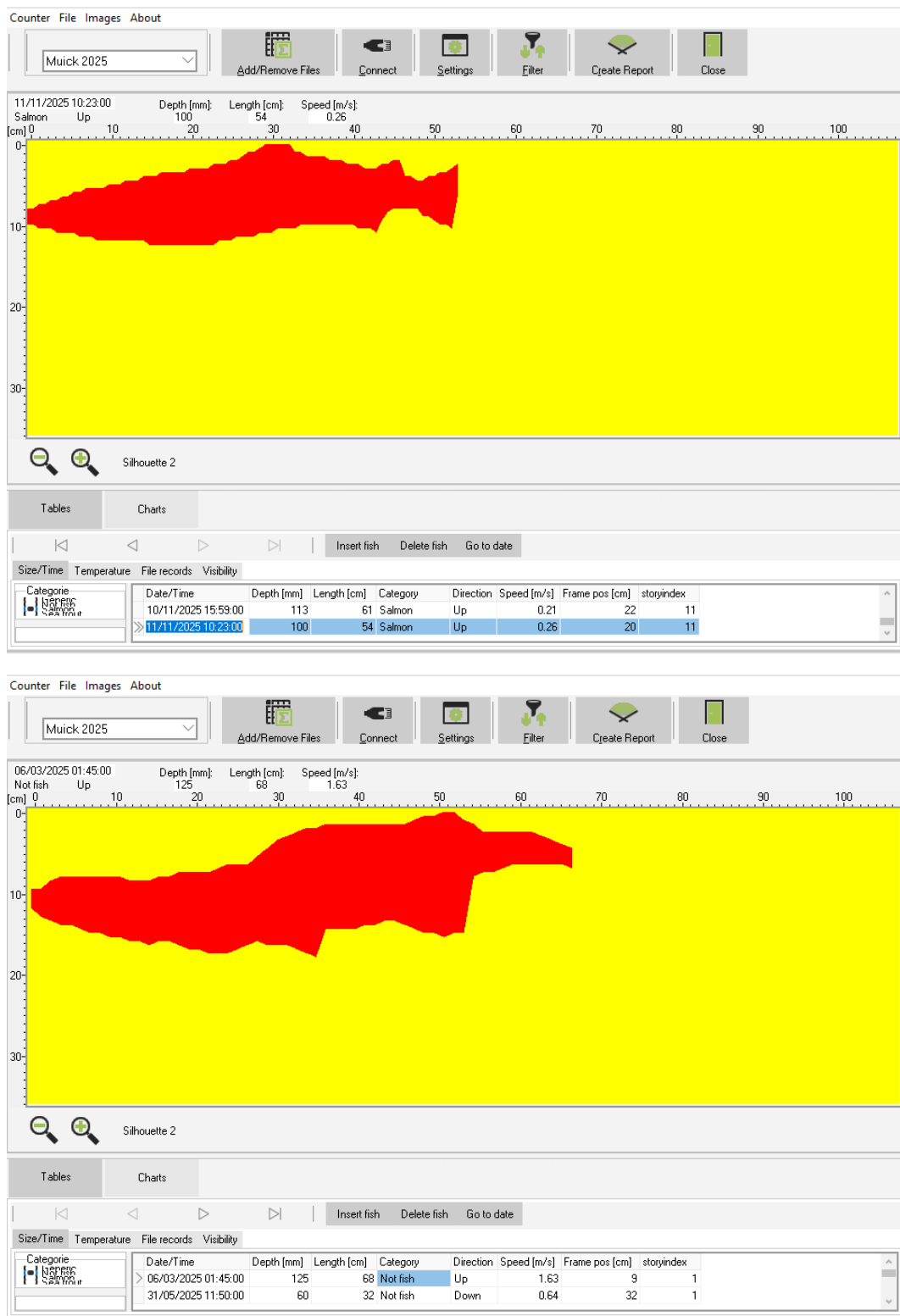


Figure 4: Examples of the silhouettes generated by the fish counter, a) a salmon and b) an otter

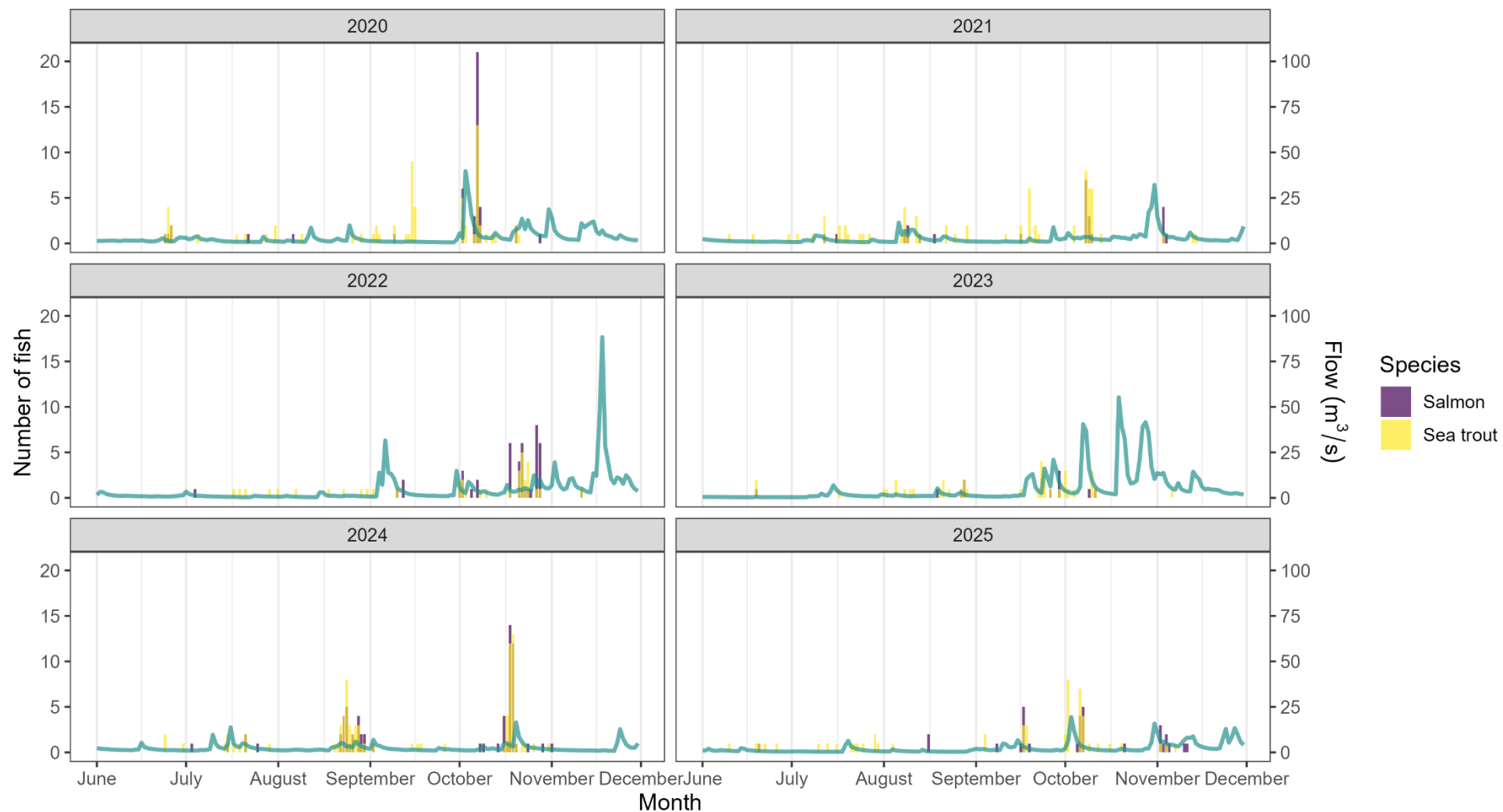


Figure 5: Counts of salmon (purple) and sea trout (yellow) passing through the fish counter at the Falls of Muick during 2020-2025. The water flow is also plotted to allow comparison in flow rates between years, 2024 and 2025 was characterised by low flows throughout the year. Flow data from SEPA (public sector information licensed under the Open Government Licence v3.0.)