

Salmon Watch Ireland

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What Ireland's 2024 IFI Salmon Monitoring Tells Us

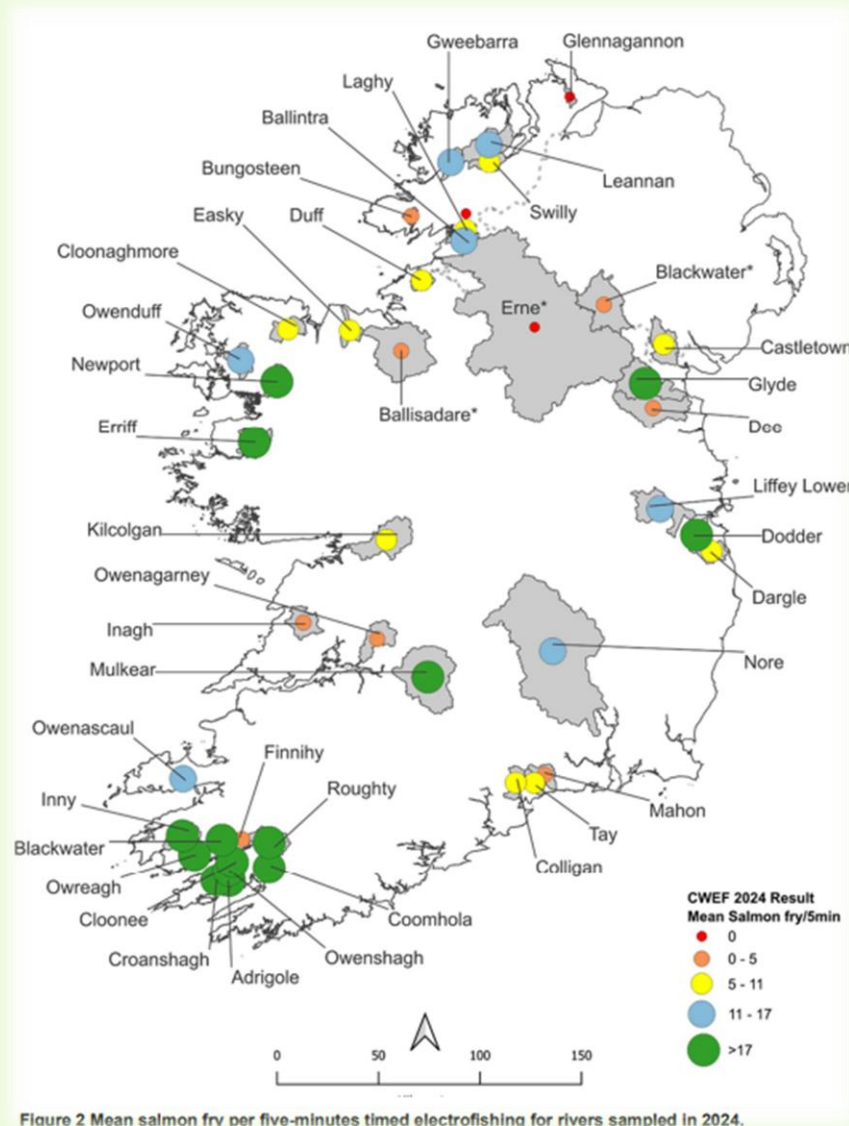


Figure 2 Mean salmon fry per five-minutes timed electrofishing for rivers sampled in 2024.

New IFI report highlights juvenile abundance—and exceptionally poor survival at sea.

Inland Fisheries Ireland has published its report on the Salmon Monitoring Programmes undertaken during 2024, providing an important snapshot of the condition of wild Atlantic salmon populations across Ireland.

Funded through the Salmon and Sea Trout Rehabilitation, Conservation and Protection Fund, the programme examines salmon at different stages of their lifecycle. It combines catchment-wide electrofishing to measure juvenile salmon abundance, PIT tagging to estimate the proportion of smolts subsequently detected returning as adults, and scale analysis to investigate the age and life-history characteristics of returning salmon.

For Salmon Watch Ireland, the report contains encouraging evidence of productive juvenile habitat in some rivers. It also delivers a much more concerning message about the enormous losses occurring between smolt migration and the return of adult salmon.

Measuring the next generation

During 2024, IFI undertook catchment-wide electrofishing in forty-one catchments or sub-catchments, of which thirty-eight were completely surveyed. In total, 969 sites were visited.

The results varied enormously. Average salmon fry abundance ranged from zero fry per five minutes on the Glennagannon in Donegal and the surveyed Erne sub-catchment in Cavan to 47.72 fry per five minutes on the Cloonee in Kerry.

Fourteen catchments recorded averages exceeding seventeen salmon fry per five minutes.

Between 2007 and 2024, IFI completed 671 catchment or sub-catchment surveys across 171 catchments, comprising more than 15,000 individual site surveys.

Electrofishing provides a valuable fisheries-independent indication of juvenile production. The number of salmon fry found should reflect both the adult spawning population that produced them and the productive capacity and environmental condition of the river.

Why seventeen salmon fry matters.

The figure of seventeen salmon fry per five minutes has an important role in Ireland's salmon-management system.

For rivers assessed as being below their Conservation Limit, catchment-wide electrofishing results can contribute to decisions on whether the river should remain completely closed or be permitted to open for catch-and-release angling.

Our policy position notes that catch and release carried out correctly, aligned with environmental factors does not result in significant mortality and thus the advantages of a presence of salmon anglers on a river far outweigh any advantage sought by closing a river to salmon angling.

IFI states that, where the required threshold is achieved, the Technical Expert Group on Salmon may recommend that a river which would otherwise be closed can open for catch-and-release fishing. The assessment is generally based on the average of up to the five most recent surveys.

The figure of seventeen fry per five minutes is, however, an index of juvenile abundance. It is not a direct count of returning adult salmon or proof that a river is meeting its Conservation Limit. It should be considered alongside all available information about adult returns, spawning, habitat condition and environmental pressures.

The Erriff tells another part of the story.

Perhaps the most striking information comes from the River Erriff in Co. Mayo, Ireland's National Salmonid Index Catchment.

Since 2016, IFI has PIT-tagged wild salmon smolts leaving the Erriff. Returning tagged adults can subsequently be detected at IFI's upstream monitoring facility at the head of the tide.

The facility provides near-total counts of upstream-migrating salmon, while IFI estimates that its detection efficiency for returning PIT-tagged adults exceeds 90%.

IFI PIT-tagged 964 Erriff smolts in 2023. Of these, only twelve one-sea-winter salmon were detected returning in 2024, producing a provisional smolt-to-adult survival estimate of 1.2%.

One additional two-sea-winter salmon from the same cohort returned in 2025, bringing the total number of detected adult returns to thirteen and the estimated survival of the 2023 cohort to: 1.3%.

This was the lowest survival estimate in the Erriff time series. Since monitoring began in 2016, estimated survival of PIT-tagged Erriff salmon has ranged from 1.3% to 3.8%.

Put another way, approximately 96.2% to 98.7% of tagged smolts were not subsequently detected returning as adults, depending on the cohort.

The monitoring does not establish precisely where or why each missing fish was lost. Tag-detection efficiency, fisheries interception and other monitoring limitations must also be considered. Nevertheless, even allowing for these qualifications, the results demonstrate an exceptionally low rate of smolt-to-adult return.

The report does not identify a single cause.

The report does not attribute these losses to any particular cause. IFI identifies marine survival as a major factor determining salmon-stock abundance and explains that understanding the reasons for marine mortality is driving wider research.

Salmon can be lost through predation, adverse ocean conditions, food-web changes, disease, fisheries and other pressures operating during freshwater, estuarine and marine migration. Telemetry studies have also identified substantial losses during migration through the Erriff and Killary system.

The figures therefore demonstrate the scale of the survival problem, but do not, by themselves, establish where all the losses occurred or attribute them to one pressure.

That distinction should not become a reason for inaction. When overall survival is extremely low, reducing avoidable human pressures throughout the salmon's lifecycle becomes even more important.

What role could the Killary salmon farm play?

Although the 2024 monitoring report does not examine salmon farming as a cause of the poor return, the location of the Erriff makes the question impossible to ignore.

Erriff smolts leaving freshwater must migrate through Killary Harbour, where an open-net salmon farm operates at Rosroe. Open-net farms are biologically connected to the surrounding marine environment, allowing parasites, pathogens and waste to pass between the farm and wild fish using the same waters.

The 2023 Erriff smolt cohort—the cohort for which estimated return survival subsequently fell to 1.3%—migrated through Killary during spring 2023. At that time, the Rosroe farm contained Atlantic salmon from the 2022 generation and was not harvested out until after the inspection conducted on 17 May.

There was therefore clear geographical and temporal overlap between migrating wild smolts and older farmed salmon.

Sea-lice levels at Rosroe in 2023

Official monitoring recorded the following average levels of the salmon louse, *Lepeophtheirus salmonis*, at Rosroe:

Inspection date	Egg-bearing females per fish	Total salmon lice per fish
20 January	0.31	1.13
16 February	0.27	2.65
7 March	0.11	3.60
21 March	0.35	11.79
4 April	0.27	2.37
28 April	0.13	1.13
3 May	0.23	2.43
17 May	0.22	1.17
After 17 May	Harvested out	—

The most striking result was recorded on 21 March, when the farm held an average of 11.79 salmon lice per fish, including 0.35 egg-bearing females per fish.

The stated treatment-trigger range during the critical spring period is 0.3 to 0.5 egg-bearing females per fish. The March figure therefore reached or exceeded the lower end of that range.

IFI reports that the 2023 salmon-smolt run occurred steadily throughout April and had mostly finished by May. As part of the separate Ocean-Temp study, 84 wild salmon smolts were fitted with data-storage and PIT tags between 14 April and 5 May.

Rosroe remained stocked throughout this period. Farm inspections recorded:

- 2.37 total lice per fish on 4 April.
- 1.13 total lice per fish on 28 April; and
- 2.43 total lice per fish on 3 May.

Egg-bearing female levels during this period ranged from 0.13 to 0.27 per fish.

The March peak occurred shortly before the documented April–May tagging period. Because lice eggs develop into free-swimming larvae capable of dispersing beyond the cages, the timing warrants examination alongside water movements, farm biomass and the full timing and duration of the wild-smolt migration.

What the returning sea trout showed

IFI's examination of returning Erriff sea trout provides further evidence that wild salmonids were encountering sea lice in the Killary marine environment.

Of 107 returning sea trout examined in 2023:

- Fifty-seven percent carried sea lice.
- 10.2% had infestation levels exceeding 0.1 lice per gram of body weight.
- fewer than 1% were placed in the high-risk category.
- 3.7% were in the medium-risk category; and
- 5.6% were in the low-risk category.

IFI concluded that the lice levels affecting the 2023 Erriff sea-trout cohort indicated an intermediate probability of increased population-level mortality risk.

Importantly, IFI cautioned that this represented an absolute minimum estimate. The fish were examined only after they had survived their marine migration and returned to freshwater, where they may already have lost some of their lice. Fish that died at sea were necessarily absent from the sample.

IFI stated that lice-related mortality risk was likely higher in the adjacent coastal habitat used by Erriff sea trout and, by extension, by out-migrating salmon smolts.

The report also notes that more than 60% of historical sea-trout surveys in Killary Harbour and the estuarine areas of its principal rivers indicated high lice-related mortality risk during surveys undertaken across the 1990s, 2000s and 2010s.

What can reasonably be concluded?

The Rosroe figures do not prove that the salmon farm caused the Erriff cohort's 1.3% return rate. The PIT-tag programme records whether fish subsequently return; it does not identify the cause of each loss.

However, the available evidence establishes:

- a compulsory migration route through Killary Harbour.
- an operating open-net salmon farm on that route.

- older farmed salmon present during the smolt-migration period.
- a major farm lice peak shortly before the documented migration.
- continued lice reproduction during the migration window.
- lice infestation among returning wild Erriff sea trout; and
- IFI's warning that observed lice burdens on returning survivors represent a minimum estimate of the risk experienced at sea.

This is sufficient to establish a credible exposure pathway and a legitimate concern requiring detailed investigation.

It would be equally wrong to claim that the Rosroe farm has been proven to cause the Erriff's poor salmon survival and to assume, without the necessary analysis, that it made no contribution.

When estimated smolt-to-adult survival has fallen to 1.3%, even a pressure responsible for only part of the loss becomes biologically significant.

Corrib provides an interesting comparison.

A corresponding PIT-tagging programme began on the Corrib system in 2017.

Table 3 of the IFI report records the following estimated survival rates:

Smolt cohort	Estimated survival
2017	7.4%
2018	4.0%
2019	5.3%
2020	2.5%
2021	2.7%

IFI cautions that the Corrib figures should be treated as minimum estimates because some returning salmon may avoid detection when the gates at Galway Weir are open.

Technical problems affected the Corrib PIT-tag antenna between 2021 and 2024, meaning that estimates are unavailable for the later period. This makes the continuing Erriff series particularly valuable.

What are the returning salmon?

IFI's national salmon-scale collection contains scales from 21,518 salmon from sixty-eight fisheries.

The report states that 3,657 fish have been aged. It then lists:

- 2,368 grilse.
- 1,171 multi-sea-winter salmon.
- 118 previously spawned grilse; and
- one kelt.

For the Erriff's 2024 samples, ninety-five scale samples were received and eighty-six were successfully read. Of those fish:

- Eighty-six percent were grilse; and
- Fourteen percent were multi-sea-winter salmon.

Understanding this composition matters because larger multi-sea-winter salmon can make a disproportionately important contribution to spawning. IFI notes that these fish are likely to have a higher female-to-male ratio and, because of their greater size, can carry more eggs than grilse.

The message from the monitoring

Certain Irish catchments continue to demonstrate strong juvenile production, with the Cloonee in Kerry recording the highest average among those surveyed in 2024.

But the Erriff results reveal the much larger challenge facing Atlantic salmon.

Ireland can successfully produce juvenile salmon in its rivers, yet only a very small proportion of smolts may ultimately be detected returning from the sea as adults.

For Salmon Watch Ireland, this strengthens the case for protecting salmon at every stage of their lifecycle. Where survival has fallen to such low levels, all pressures that we can influence—including poor water quality, habitat degradation, barriers, exploitation, predation imbalances and aquaculture-related disease and parasite risks—require urgent attention.

Scientific uncertainty should not be treated as evidence that an impact does not exist. Where wild salmon survival is already critically low and a plausible exposure pathway has been demonstrated, uncertainty strengthens the case for precaution, independent monitoring and the reduction of avoidable pressures.

When barely one salmon is detected returning for every hundred tagged smolts going to sea, protecting every stage of that journey matters.

Read the full report here:

[Salmon Monitoring Programmes](#)

Salmon Monitoring Programmes 2024 funded under the Salmon and Sea Trout Rehabilitation, Conservation and Protection Fund

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