Report on Salmon Monitoring Programmes 2021

Funded under the Salmon Conservation Fund

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Iascach Intíre Éireann
Inland Fisheries Ireland

Report on projects to assess attainment of Conservation Limit for Atlantic Salmon in Ireland in 2021.

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Executive Summary.

Funding was provided under the Salmon Conservation Fund to assess the status of salmon in selected catchments. There were three separate elements in the 2021 programme - Catchment-Wide Electro-Fishing (CWEF), estimation of salmon smolt to adult return survival rates and determination of the life history characteristics of adult salmon in selected catchments.

CWEF is undertaken to assess distribution and abundance of salmon fry in selected catchments nationally. The method consists of broad-scale electrofishing at disparate riffled sites in a given catchment. Timed electrofishing (5 min duration) is undertaken at each site to provide a qualitative estimate of fry abundance, and an average catchment value (no. 0+ salmon fry/5min -all sites) is calculated. The immediate objective of the catchment-wide electro-fishing (CWEF) programme is to determine if mean salmon fry abundance exceeds a catchment threshold value of 17 salmon fry/5-min (computed by TEGOS from annual CWEF results). This is deemed a qualifying value for managers to allow rivers to open for angling on a catch and release basis for systems where information on adult returns is otherwise not available or limited. Analysis has shown that the majority of rivers known to be meeting and exceeding their Conservation Limit have a salmon fry index of 17 or higher.

CWEF was undertaken in 31 catchments nationally in 2021 (July – September). A total of 888 sites were visited. 25 catchments were surveyed completely, as were planned surveys of the Glenfarne, Swanlinbar and Blackwater sub-catchments on the upper Erne, a survey of the Owenriff river, a tributary of the CorribCatchment, and a survey of a the Trafrask, a small catchment in west Cork. A further 3 catchment surveys were commenced, and despite not being entirely complete these provide some indication of fry abundance in the areas where surveys were undertaken. The salmon fry abundance for this year alone ranged from an average of zero fry/5min on the Isle Burn, Burnfoot, Mill and Straid to a catchment average of 40.49 fry/5 min on the Erriff river. The Leannan, Garvogue, Owenmore (Kerry), Argideen, Owenglin and Maine recorded an annual catchment wide average of >17 fry in 2021.

In general, rivers where the CWEF threshold value was ≥ 15 over the 2007-2021 period, (based on an average of the most recent five CWEF surveys), are open as catch and release fisheries. Overall good agreement was observed between rod catch or counter data (from index or well monitored catchments) and the results of the catchment-wide electro-fishing surveys.

The long-term objective of the CWEF programme is to develop a robust index of juvenile salmon abundance (0+ salmon fry) to support assessment of attainment of a salmon conservation limit (CL) on an individual river. Fry abundance is assumed to be an appropriate proxy for adult salmon abundance in the previous spawning period. Results to date suggest that the CWEF technique has good potential for initial or ongoing salmon stock assessment. Where sufficient data can be accumulated in catchments with an independent adult stock monitoring system it is intended to analyse the potential of building fry and adult return relationship models. The technique and associated models are likely to provide the best estimate of salmon stock status in closed rivers and in small rivers where rod catch was historically low (<10 salmon annual rod catch) and no other status assessment method is available.

CWEF data are also important in providing managers with detailed information on salmon fry distribution and abundance. The absence or low density of salmon fry may be related to water quality issues, obstructions, or habitat damage and areas of low abundance can be investigated. These data can be used to target any remediation works that may be required.

Qualitative distribution data for all other fish species and some other aquatic biota recorded during CWEF sampling is mapped at catchment level.

In order to enhance smolt to adult marine survival data for wild salmon in Irish rivers, a PIT tag recording system was installed in the River Erriff (National Salmonid Index Catchment) in 2016 to provide a direct count of the numbers of returning tagged adult fish. Up to 3,500 adult salmon run the system annually and its research facilities include a full upstream trap/counter at the head of the tide which allows for full counts of upstream migrating fish. Wild salmon smolts were captured and PIT tagged annually since spring 2016 at two sites on the system. A corresponding programme also commenced in the Corrib system in 2017, with smolts tagged annually at the Galway weir in advance of the installation of a similar PIT tag reader in the Denil fish pass and associated submersible PIT tag antenna.

In 2021, a total of 6 PIT tagged adult salmon returned to the Erriff representing a provisional marine survival of 1.5% for the cohort tagged in 2020. Any multi-sea-winter fish which will return in 2022 will have to be considered when finalising this estimate. For salmon PIT tagged in 2017, 2018 and 2019, marine survival was 2%, 3.8% and 3.2% respectively. Marine survival of PIT tagged fish in the Corrib from the cohort tagged in 2017, 2018, 2019 and 2020 were estimated as 7.4%, 4%, 5.3% and 2.5%, respectively. The Corrib rates are considered to be minimum marine survival estimates as some fish may avoid detection on return when the majority of gates are open in the Galway weir. In addition, any multi-sea-winter fish which will return in 2022 have to be considered. A more comprehensive picture of salmon marine survival trends will become available when a more long-term time series of results from both the Erriff and Corrib are available.

1. Assessment of Attainment of Conservation Limits for Atlantic Salmon in Irish Rivers: Report on Activities.

Introduction

In spring 2009, scientists from the Standing Scientific Committee of the National Salmon Commission identified appropriate methods for assessment of attainment of salmon conservation limits (CL) on an individual river basis nationally. They also proposed a strategy for prioritisation of rivers for assessment of attainment of Conservation limits. This assessment was based on the feasibility of inserting new counters, undertaking redd counts, use of electro-fishing as an index of spawning, obtaining full counts from partial counters by tagging etc. on catchments and was linked to the current status of salmon stocks in each river (Anon 2009). Other data such as salmon rod catch, commercial catch by river, micro-tagging data, marine survival and fishery exploitation data are used annually by the Standing Scientific Committee to assess salmon stock status.

A successful application was made by Inland Fisheries Ireland to the Salmon Conservation Fund (SCF) for funding for 2021/2022 to assess attainment of salmon conservation limits nationally. This report presents the results of assessment activities undertaken between June 2021 and June 2022. The project had three elements, each consistent with the assessment methods identified by SSCS scientists:

1. **Catchment wide Electro-Fishing Programme:**

Catchment-wide electro-fishing in selected catchments to assess abundance and distribution of salmon fry and to further develop an index of juvenile salmon abundance which can be used to assess attainment of salmon conservation limit. Resources and training in the catchment wide electro-fishing technique were also provided to IFI staff nationally.

2. **Use of telemetry (PIT tagging) to develop salmon stock assessment metrics.**

Estimate salmon smolt to adult return survival rates.
The salmon smolt to adult return rate is widely used for scientific assessments of salmon status (e.g. ICES, NASCO etc) to support species management. Reduced survival in this phase is the major pointer towards likely reduced population size and understanding the reason for these losses is driving several marine phase research programmes. In order to enhance these data for wild salmon in Irish rivers a PIT tag recording system was installed in the River Erriff (National Salmonid Index Catchment) to provide a direct count of the numbers of returning tagged adult fish. Up to 3500 adult salmon run the system annually and its research facilities include a full upstream trap/counter at the head of the tide which allows for full counts of upstream migrating fish. Up to 1000 wild smolts per annum will be PIT tagged per annum (depending on smolt output) and the proportion of returning tagged fish will provide a direct estimate of survival. It is envisaged that this installation will subsequently be supported by a medium-term tagging programme (at least 5 years) to develop a meaningful dataset.

3. **Biological Assessment of Salmon Populations**

Knowledge of salmon life history strategies is required to understand and model salmon populations in different systems. Biological data on salmon including sea age, run-timing, sex ratio and fecundity are necessary to understand population dynamics within a river. Changes to any of these inputs can influence the outcome of the production models used to predict the likely returns to a river and potential fishery performance. Life history traits such as smolt age, sea age, growth and frequency of spawning can be determined from scale reading. Combined with data on time of entry into the system, sex ratio and fecundity, which can be collected from any killed fish, the often complex make up of a population can be established and the models can be adjusted accordingly. Scales were collected from a range of commercial and rod fisheries in 2020&21.

2. Catchment wide electrofishing programme 2021.

Sampling Methodology

The sampling methodology was similar to that described in Gargan, P., Roche, W., Keane, S. & Stafford, T. 2009. Report on Salmon Monitoring Programmes 2008 (June 2009), Central & Regional Fisheries Board.

2.1. Results 2021

During 2021, catchment-wide electro-fishing was undertaken in 31 catchments or sub-catchments to assess abundance and distribution of salmon fry. High water levels in September in the west and northwest, prevented the commencement or completion of several surveys. 25 catchments were surveyed completely (Figure 2.1 and Table 2.1), as were planned surveys of the Glenfarne, Swanlinbar and Blackwater sub-catchments on the upper Erne, a survey of the Owenriff river, a tributary of the Corrib River, and a survey of a the Trafrask, as small catchment in west Cork. A further 3 catchment surveys were commenced, and despite not being entirely complete these provide some indication of fry abundance in the areas where surveys were undertaken. A total of 888 sites were visited.

The catchments surveyed in 2021 are presented in map 2.1, the salmon fry abundance for this year alone ranged from an average of zero fry/5min on the Isle Burn, Burnfoot, Mill and Straid to a catchment average of 40.49 fry/5 min on the Erriff river. The Leannan, Garvogue, Owenmore (Kerry), Argideen, Owenglin and Maine recorded an annual catchment wide average of >17 fry in 2021.

Figure 2.1: Summary of CWEF results (for 2021) for the Catchments Surveyed in 2021.

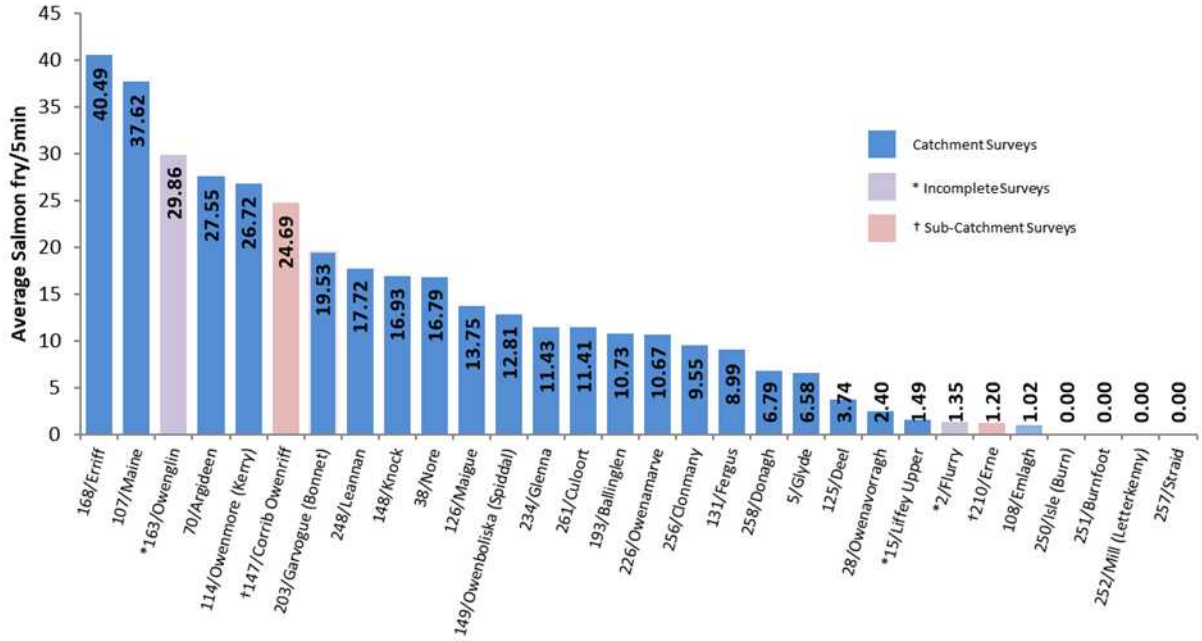
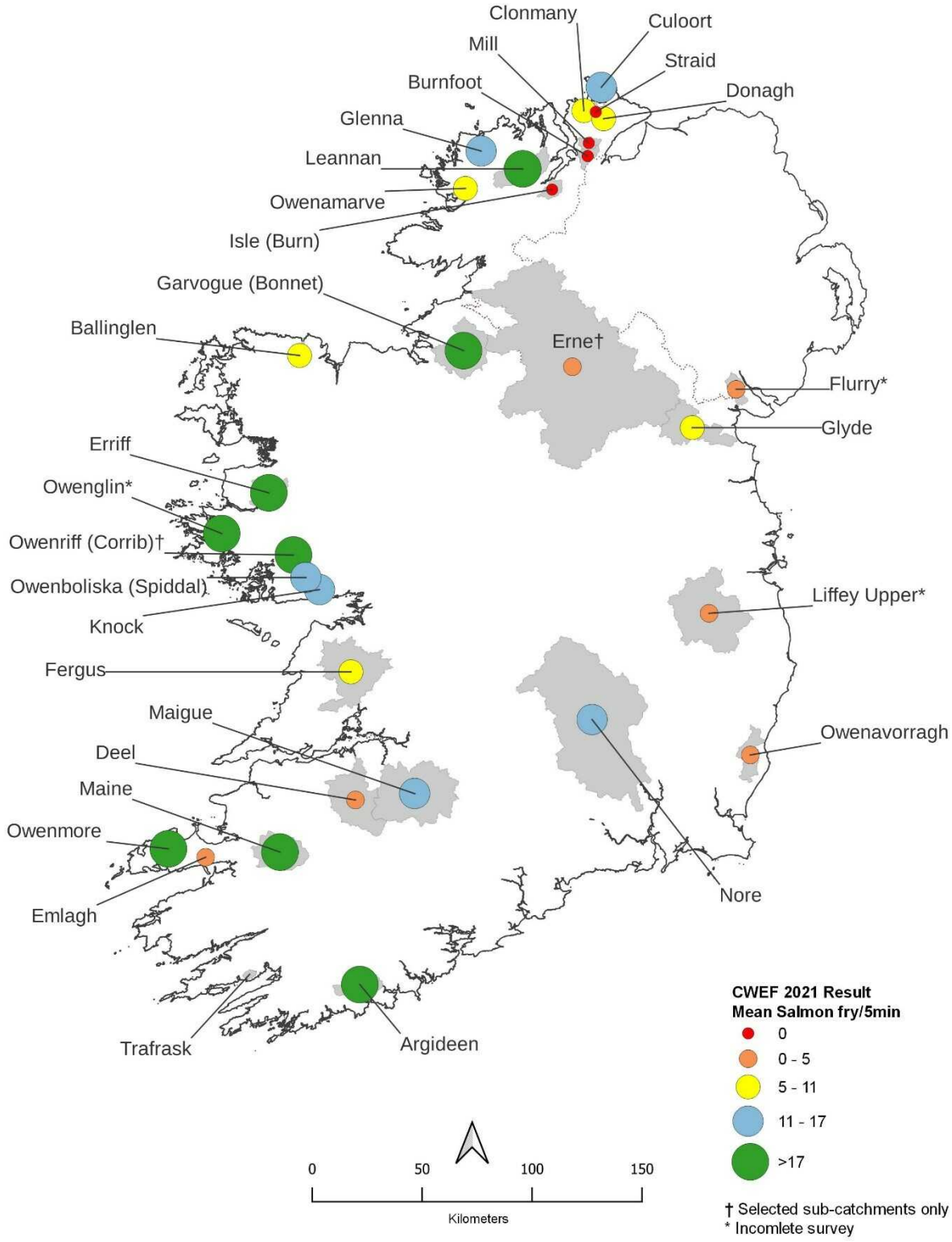


Table 2.1: Summary of annual results (2010-2021) and current CWEF indices for catchments surveyed in 2021

	Fry Year												Most recent 5 surveys		Most recent 5yrs data	
Code/River	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**Index**	**# Surveys Inc.**	**CWEF**	**# Surveys**
002/Flurry	5.24					17.15					37.55*	1.35*	15.32	4		
005/Glyde	31.61					5.19				4.02		6.58	12.90	5	5.30	2
015/Liffey Upper	8.15	16.20	10.13				2.63*		1.00*			1.50*	10.51	5		
028/Owenavorragh	19.76			0.33		4.61			5.75			2.40	6.57	5	4.07	2
038/Nore	18.83						11.77			12.70*		16.79	15.80	3	16.79	1
070/Argideen												27.55	22.35	2	27.55	1
107/Maine								22.05†	19.61†			37.62	34.10	3	37.62	1
108/Emlagh	3.84	2.59					2.10					1.02	4.58	5	1.02	1
114/Owenmore (Kerry)												26.72	25.89	2	26.72	1
125/Deel		0.14			0.21		1.87*	0.04				3.74	1.03	4	1.89	2
126/Maigue	16.05			12.05								13.75	11.17	4	13.75	1
131/Fergus	6.84			5.89		6.66					5.12*	8.99	6.50	5	8.99	1
147/Corrib Owenriff									10.35*†			22.30†	-			
148/Knock		12.53							1.50*			16.93	14.73	2	16.93	1
149/Owenboliska (Spiddal)					4.52				0.60			12.81	5.50	4	6.71	2
163/Owenglin												29.86*	11.57	1		
168/Erriff	20.43	20.86	24.45	27.45	24.90	28.52	21.72	13.69	22.81	22.25	31.95	40.49	26.24	5	26.24	5
193/Ballinglen		15.09		6.37			4.97					10.73	9.56	5	10.73	1
203/Garvogue (Bonnet)	11.31	7.08	18.54									19.53	14.66	5	19.53	1
210/Erne	0.08	0.00	0.00	0.00	1.60	1.16	1.25	0.00	0.49	0.00	0.00	1.20†	0.34	5	0.34	5
226/Owenamarve				2.64	1.00							10.67	4.52	4	10.67	1
234/Glenna		3.77		7.77			4.00					11.43	8.76	5	11.43	1
248/Leannan	17.30	12.82	22.19	19.51	20.87	15.27	15.05*	18.66	20.11	21.33	20.50	17.72	19.66	5	19.66	5
250/Isle (Burn)			2.12									0.00	1.06	2	0.00	1
251/Burnfoot	2.90											0.00	3.56	3	0.00	1
252/Mill (Letterkenny)	0.00					0.00						0.00	0.00	3	0.00	1
256/Clonmany	6.59					4.21						9.55	9.24	4	9.55	1
257/Straid	0.20					0.00						0.00	0.07	3	0.00	1
258/Donagh	4.25					0.68						6.79	3.90	3	6.79	1
261/Culoort	4.03					0.00*						11.41	7.72	2	11.41	1
805/Trafrask+												-	-			

*** - Surveys not completed, † -Sub catchment surveys,+ - Minor catchment.**



Map 2.1: For rivers surveyed in 2021 the mean salmon fry per 5 minutes found in 2021 is indicated.

2.2. Results 2007 to 2021

Update for 2021.
From 2007 to 2021 a total of 159 separate catchments or sub-catchments have been sampled. Repeat surveys have been carried out in multiple catchments to monitor fry levels for management and to fulfil other obligations (e.g. Article 17 reporting under the EU Habitats Directive). Over this period a total of 541 full or partial catchment surveys amounting to 12259 individual site surveys have been conducted nationally. To facilitate assessment of status based on fry abundance mean annual abundance values for the most recent five surveys, where data are available, is calculated. This approach is consistent with the SSCS approach to other datasets and reduces the potential of an extreme result influencing the data disproportionately. The current catchment-specific CWEF indices presented in this document are based on the most recent 5 CWEF surveys CWEF data collated from survey activity since 2007. Annualised CWEF results 2007 to 2021 for all catchment surveyed are presented in Appendix C.

Trends in Salmon Fry Abundance over Time
Data in figure 2.2 presents the CWEF annual mean abundances of salmon fry in 154 catchments where electro-fishing results are available. 47 catchments have only one survey within the period used to calculate the CWEF index.

Highest salmon fry numbers were recorded in rivers in the south and southwest and north and northwest; Shannon and Eastern regions generally recorded low salmon fry abundance; many of the smaller catchments along the west coast also had low numbers of fry.

A catchment-wide salmon fry average for rivers electro-fished from 2007 to 2021 is presented (Map 2.2).

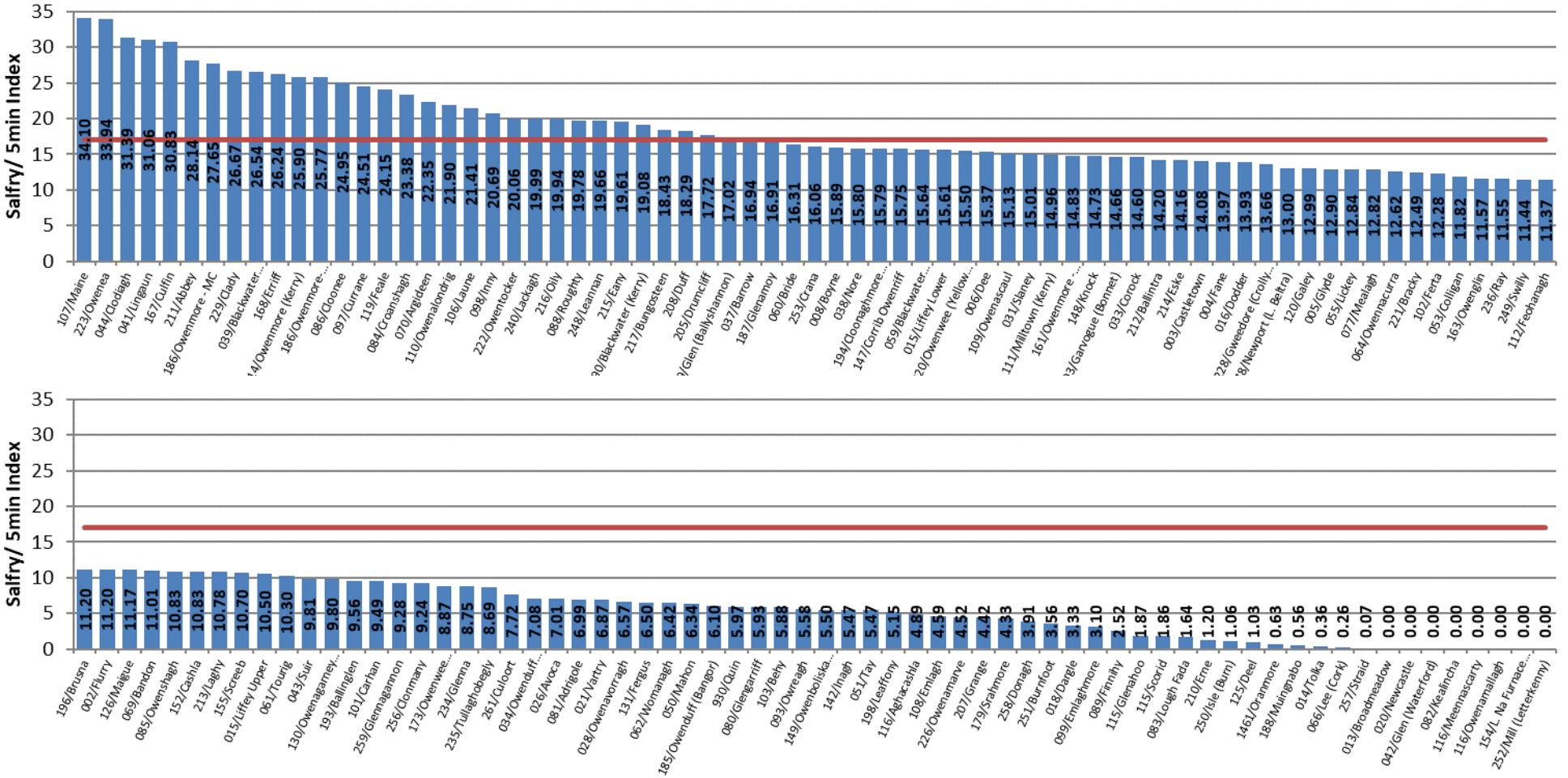
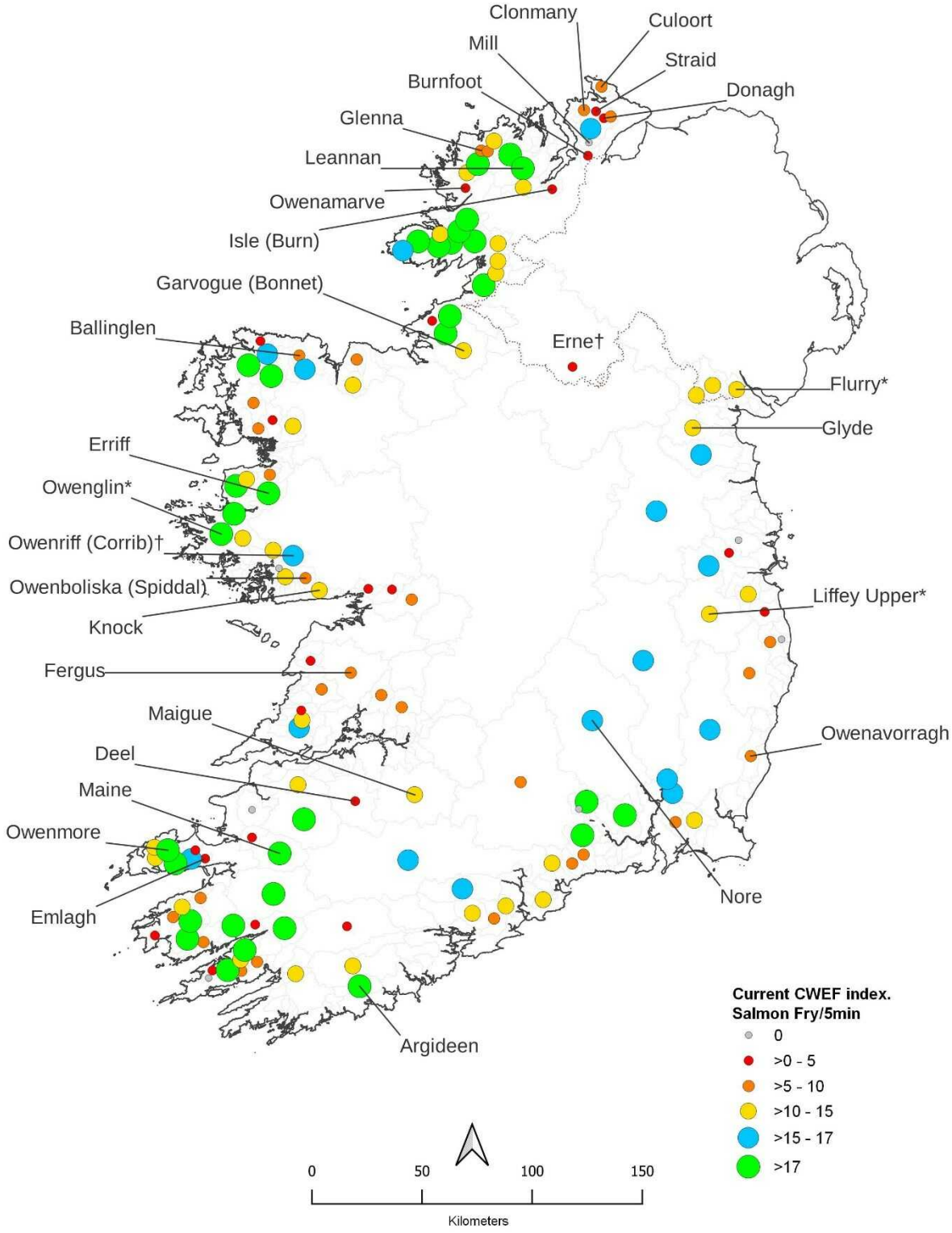


Figure 2.2: Current CWEF index (mean salmon fry per 5 minutes) for all discreet catchments surveyed to date



Map 2.2: Current CWEF index for all discreet catchments surveyed to date.

3. Use of telemetry (PIT tagging) to develop salmon stock assessment metrics

Telemetry is a technology that can be used to track fish in the aquatic environment. Many different options exist to tag fish which is dependent on the species management requirements and the habitat type in which the species occurs. For salmon, the marine phase is often the focus of recent research and management studies given that considerable losses occur at sea resulting in smolt to adult survival rates in recent decades being recorded as single digit percentages. The salmon smolt to adult return rate is widely used for many scientific assessments of salmon (e.g. ICES, NASCO etc) for management. Reduced survival in this phase is the major pointer to reduced population size and understanding the reason for these losses is driving several marine phase research programmes. Existing programmes (coded wire tagging) generate data for wild and reared smolt survival from systems like Burrishoole and Corrib. These survival figures rely on retrieving tags from rod caught or a limited number of commercially caught fish and also recovery of tags from any broodstock captured in traps. Given that adult returns are low, reliance on retrieving tags from returning fish, where capture rates are also low (10-20% of the population for rod caught fish), may compromise data quality particularly in years where rod catch is low.

Salmon typically spend one to two years at sea. Tags which require a battery to power its function tend to be large due to the battery life required to operate such a tag for this length of time. PIT (Passive Integrated Transponder) tags, which are miniature encased microchips, offer an ideal solution to the technological limitation imposed by large battery size in other electronic tags. Providing a lifetime barcode for the tagged animal, a PIT tag can be easily inserted into the body cavity of a small fish (or mounted in an external floy tag to affix to a larger fish).

A PIT tag is a uniquely coded microchip (typically about 10 mm in length and 2 mm in diameter). This tag type is available in different sizes and can be used to tag fish of all sizes. For fish studies a PIT tag scanner (antenna) is permanently positioned in or close to a bottleneck in a river system (often a fish counter location) and the scanner will read the tag code of any tagged fish passing within its range. A decoder linked to the antenna stores the tag number and the date and time of this event.

In order to enhance smolt to adult survival data for wild salmon in Irish rivers a PIT tag recording system was installed in the River Erriff (National Salmonid Index Catchment) to provide a direct count of the numbers of returning tagged adult fish. Up to 3500 adult salmon run the system annually and its research facilities include a full upstream trap/counter at the head of the tide which allows for full counts of upstream migrating fish.

In its simplest application, by determining the number of PIT-tagged adult salmon passing upstream through the counter relative to the total number of smolt PIT tagged initially, a smolt to adult survival index can be calculated. The basis for these types of studies is a variation of a mark-recapture application. IFI has developed a salmon smolt tagging programme based on this principle and funding from the SCF was used to install the infrastructure in February

2016. Results will inform understanding of salmon life history and complement ongoing short-term research work in the system based on acoustic tagging of outgoing salmon smolts. Ultimately these data will contribute to refining adult salmon modelling at TEGOS and ICES because it is based on wild salmon which are returning to a research station with high quality trapping and monitoring infrastructure. Further understanding of potential pressures/threats/losses from various factors (e.g. sea lice emanating from an aquaculture facility in Killary Harbour, predators etc) will be further elucidated from this work. It is envisaged that this study will necessitate a long-term tagging programme to build up a meaningful marine survival index.

PIT tagging projects to monitor marine survival

Following installation of the Biomark customised thin-walled shielded antenna and associated data logger in February 2016 (Fig 3.1) at the upstream fish trap in the River Erriff, a salmon smolt tagging project was initiated. Wild salmon smolts were captured and PIT tagged (Biomark HPT/APT 12 Pre-loaded) annually in spring since 2016 at two main sites on the system: 1) at Tawnyard trap located on the Black River tributary; and 2) on the main channel of the Erriff using a screw trap. A corresponding programme also commenced in the Corrib system in 2017, with smolts tagged at the Galway weir in advance of the installation of a similar PIT tag reader there in the Denil fish pass and associated submersible PIT tag antennae. The number of salmon smolts tagged in both systems and associated lengths data are presented in Table 3.1.

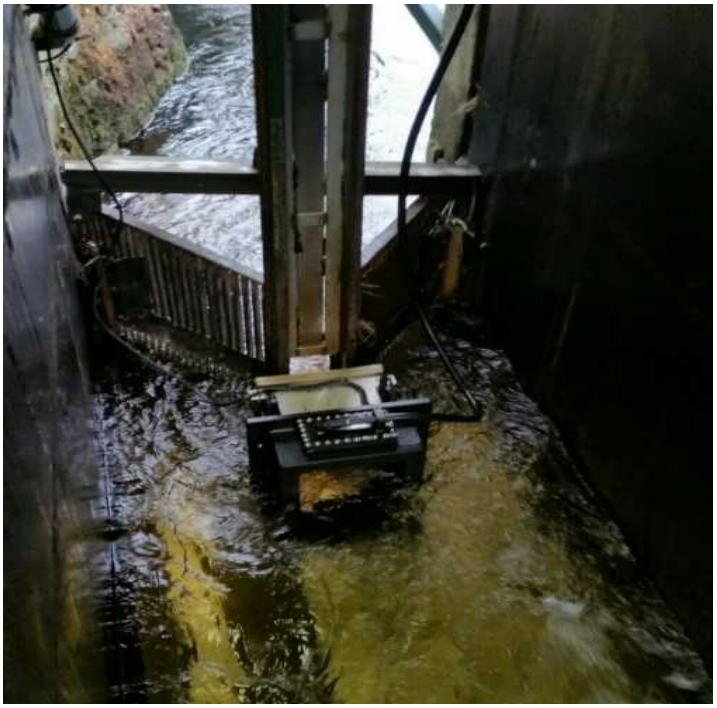


Fig 3.1. Erriff upstream trap with VAKI Riverwatcher counter and Biomark antenna (dark rectangular unit).

Smolt to adult salmon returns to the Erriff and Corrib systems

In 2021, a total of 6 PIT tagged adult salmon returned to the Erriff representing a provisional marine survival of 1.5% for the cohort tagged in 2020. Any multi-sea-winter fish which will return in 2022 will have to be considered when finalising this estimate. For salmon PIT tagged in 2017, 2018 and 2019, marine survival was 2%, 3.8% and 3.2% respectively. Marine survival of PIT tagged fish in the Corrib from the cohort tagged in 2017, 2018, 2019 and 2020 were estimated as 7.4%, 4%, 5.3% and 2.5%, respectively. The Corrib rates are considered to be minimum marine survival estimates as some fish may avoid detection on return when the majority of gates are open in the Galway weir. In addition, any multi-sea-winter fish which will return in 2022 have to be considered. A more comprehensive picture of salmon marine

survival trends will become available when a more long-term time series of results from both the Erriff and Corrib are available.

Table 3.1. Number and lengths of salmon smolts PIT tagged in the Erriff and Corrib systems since 2016.

Year	Location	No. of fish tagged	Mean (cm)	SD (cm)	Min (cm)	Max (cm)
2016	Erriff	1022	12.5	1.5	8.7	18
2017	Erriff	553	12.8	1.6	10	21.6
2017	Corrib	1600	16.5	2.3	11.2	24.8
2018	Erriff	893	12.8	1.3	10	18.2
2018	Corrib	1988	14.6	2	11.1	26.5
2019	Erriff	912	12.3	1.1	10	19.2
2019	Corrib	2057	14.9	1.8	9.6	21.6
2020	Erriff	395	14	1.2	11.2	18.7
2020	Corrib	1992	14.1	1.2	11	21.2
2021	Erriff	1302	12.4	1.2	10	17.6
2021	Corrib	1999	15	1.5	12	22

Table 3.2. PIT tag detections from returning adult salmon tagged since 2016.

Tagging year	Location	No. of smolts tagged	No. of returning adults detected	% Marine survival
2016	Erriff	1022	36	3.5
2017	Erriff	553	11	2
2017	Corrib	1600	119	7.4
2018	Erriff	893	34	3.8
2018	Corrib	1988	78	4
2019	Erriff	912	29	3.2
2019	Corrib	2057	110	5.3
2020	Erriff	395	6	1.5
2020	Corrib	1992	50	2.5

Figures may be revised based on additional adult returns in following years.

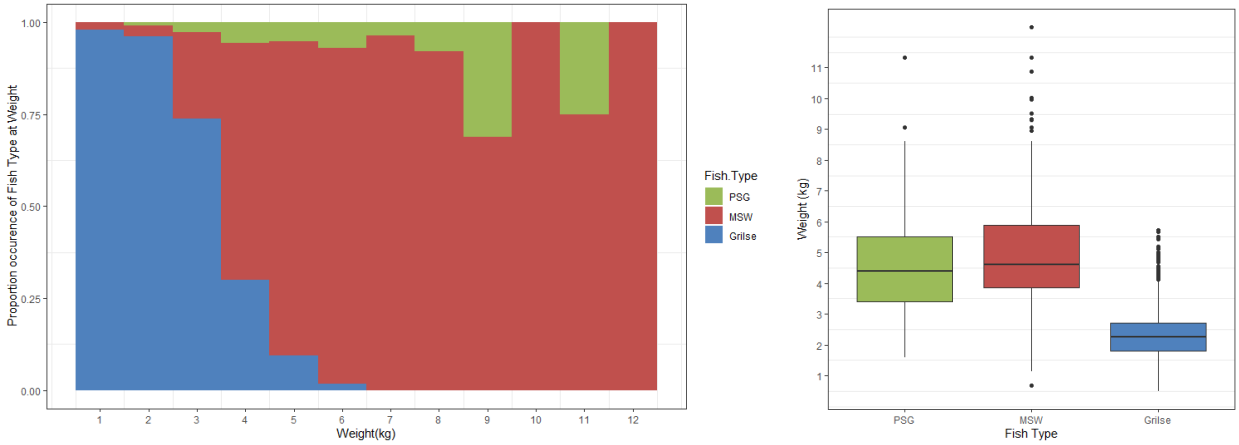
4. Biological Assessment of Salmon Populations

Knowledge of salmon life history strategies is required to understand and model salmon populations in different systems. Biological data on salmon populations including sea age, run-timing, sex ratio and fecundity are necessary to understand population dynamics within a river. Changes to any of these inputs can influence the outcome of the production models used to predict the likely returns to a river and potential fishery performance. Life history traits such as smolt age, sea age, growth and frequency of spawning can be determined from scale readings. Combined with data on time of entry into the system, sex ratio and fecundity, which can be collected from any killed fish, the often complex make up of a population can be established and the models can be adjusted accordingly. For example, if the proportion of Multi-Sea-Winter (MSW) salmon entering a system is greater than previously known this would have the effect of reducing the CL as these fish are likely to have a higher female:male ratio and would transport a greater number of eggs into a catchment because of their greater size compared to grilse.

In order to enhance the quality of the existing models and to improve the quality of the scientific advice, particularly for rivers where the stock structure is complicated (e.g. river has significant spring salmon and a grilse component or other stock components) or has changed, it is important to obtain data on the stock. Run-timing of the different components may influence harvesting options. Sex ratio and fecundity may change in response to the composition of the total population. These data are required for the on-going scientific assessment of salmon fisheries in which IFI is intimately involved through the machinations of the Standing Scientific Committee.

Since 2019 IFI has undertaken a citizen science project whereby anglers are encouraged to collect scales of Salmon captured and return them for analysis, including details of length, weight, sex, capture location and details of predation and net marks and lice presence.

Figure 4.1: Left: Occurrence of fish life history by weight (kg) to end 2021. Right: Boxplots of weights (kg) of individual fish of different types. (n: Grilse-1762, MSW-1008, PSG- 89)



4.1. Salmon Life History.

Salmon scales have been collected from the commercial draft net fisheries, anglers and from research projects building up a scale collection for analysis. To date the collection consists of scales of 21334 fish from 68 fisheries around the country. A sample of scales of these fish has been read.

Of the 3392 fish for which age has been determined, 1110 of fish were Multi-sea winter fish (MSW), 2164 were grilse; the remaining 118 fish were previously spawned grilse (PSG). Of these fish types the MSW were on average the largest, with a mean weight of 4.86 kg, PSG had an average weight of 4.66kg and grilse an average weight of 2.35 kg. It can be seen on figure 4.1 that most of the grilse were below 4kg and all MSW and PSG were 4kg or above. MSW fish numbers peak earlier in the year than Grilse and PSG.

Table 4.1: Summary of Weights (kg) of fish for which age has been determined by scale reading 1982-2021.

Fish Type	Mean	SD	n
Grilse	2.35	0.81	1763
MSW	4.86	1.52	1019
PSG	4.66	1.90	89
Total			2871

Figure 4.1: Occurrence of fish life history in samples received from different catchments 1982-2021.(only rivers with >10 fish read are displayed) (Number of scales read/number of scales in database)

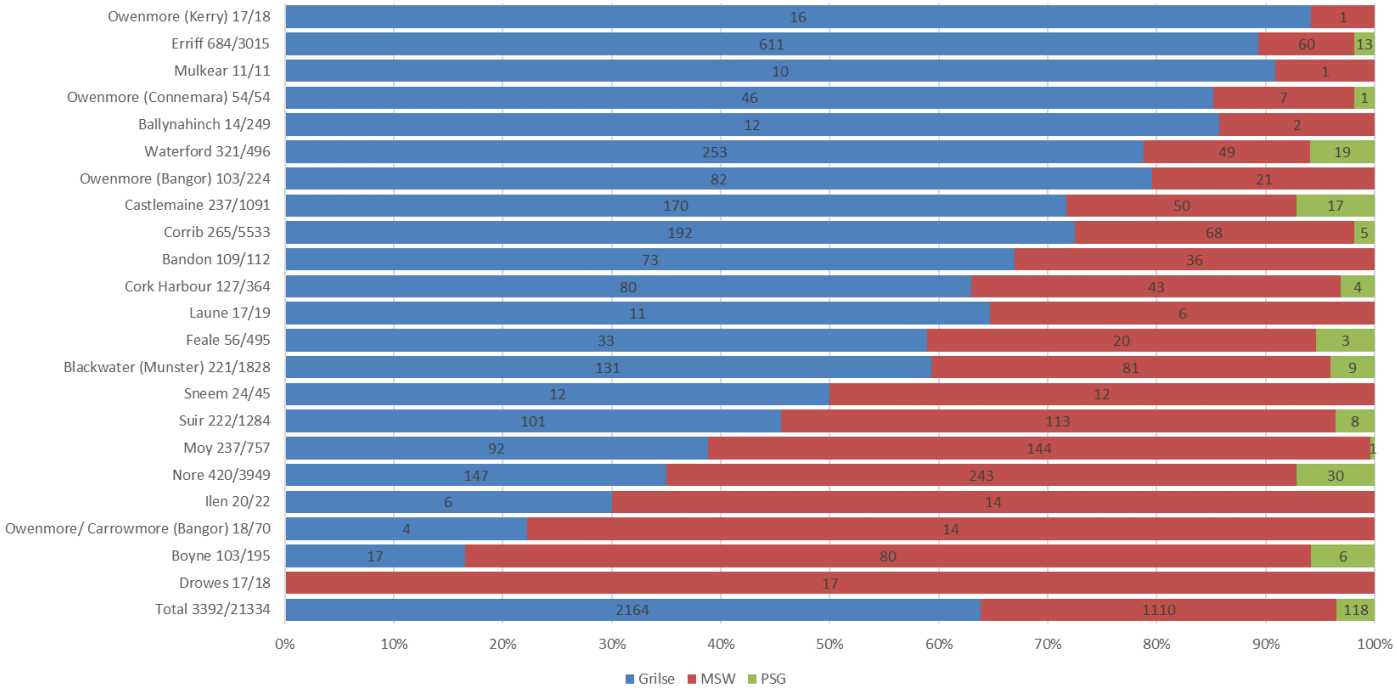
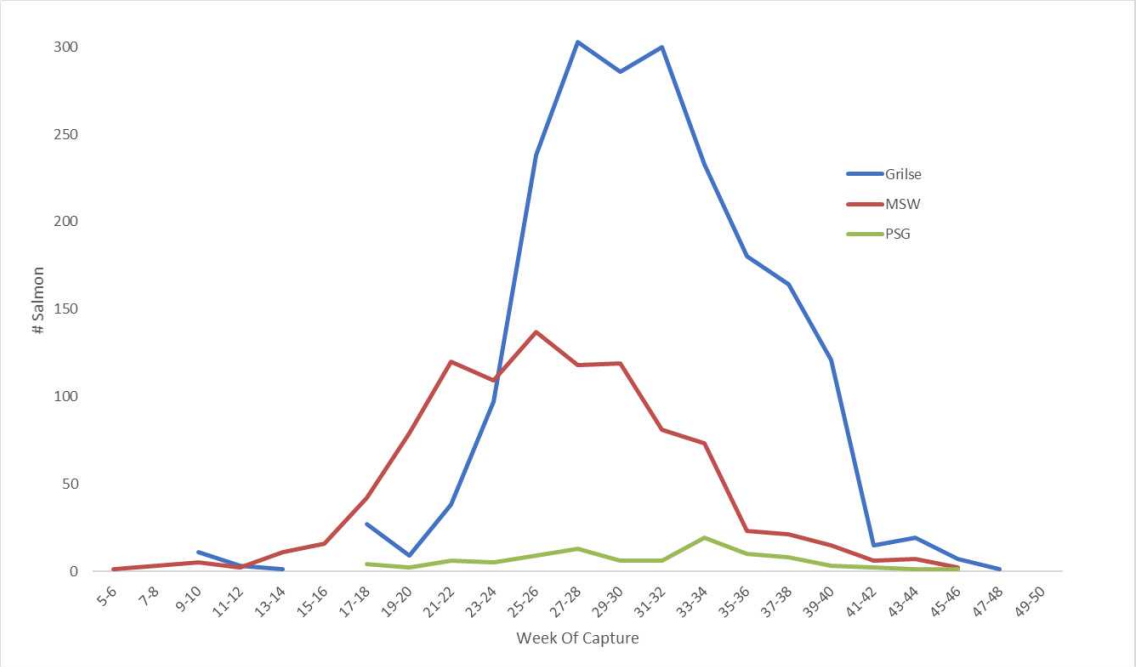


Figure 4.2: Life history of Fish by week of capture. MSW fish are more abundant earlier in the year, Grilse and PSG are more abundant later in the year. (all years, all rivers, grouped into 2 week periods).



Size and Age profile of 2020 and 2021 sample.

Scale samples received in 2020 and 2021 came from different catchments. Overall, 785 samples were received. Large numbers were received from the Corrib, fewer fish were received from a range of other catchments around the country. A sample of 117 scales were read to determine life history. Of those read 80 (68%) were grilse, 37 (32%) MSW and 0 PSG. The size of fish represented in 2020 ranged from a 600g grilse from the Corrib to a 9.9 kg (22lbs) multi-sea winter fish from the Laune in 2021 fish ranged from a 1kg grilse from the Corrib to a11.3kg 25 lb MSW fish caught on the Drowes.

Plate 1: 11kg (25lb) Multi Sea-winter salmon from the Drowes caught 22/2/21.

Plate 2: 9.9 kg (22lb) Multi Sea-winter salmon caught on the Laune 13/3/20.

Figure 4.3: Left: Occurrence of fish life history by weight (kg) from 2020 & 2021. Right: Boxplots of weights (kg) of individual fish of different types from 2020 & 2021. (n: Grilse-37, MSW- 80)

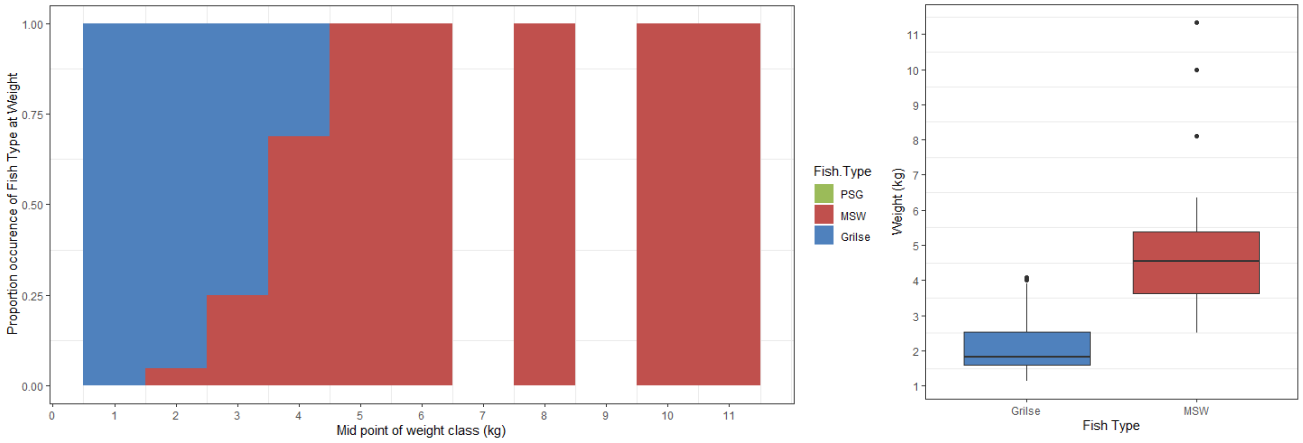


Table 4.2: Summary of Scales received 2020 and 2021 from Citizen science, research projects and commercial fisheries.

Locale	Grilse	MSW	Not Read/ Unknown	Grand Total
Ballysadare	1			1
Clady	4	1	1	6
Coomhola	2			2
Corrib	9	17	675	701
Currane	1			1
Drowes		6		6
Easky	1			1
Erriff			1	1
Glen (Ballyshannon)	3			3
Glenamoy			2	2
Gweebarra	1	1		2
Gweedore (Crolly R.)	1			1
Ilen	2	1	1	4
Laune	3	1		4
Moy (Ballina)	7	3		10
Owenduff (Bangor)	1	1		2
Owenea	2			2
Owenmore - Ballinahinch	1			1
Owenmore - MC	26	5	8	39
Owenmore- Carrowmore (Muinhin)	1			1
Owenwee (Yellow R)	5			5
Owvane	1			1
Roughty	5			5
Slaney		1		1
Suir	2			2
Tullaghobegly	1			1
Grand Total	**80**	**37**	**688**	**805**

Comparison of Size and Age profile of Owenmore/ Carrowmore Salmon over time.

Anglers on the Owenmore returned scales from 40 fish in 2020: 1 from the Carrowmore Lake and 39 from the Owenmore River. 37 fish had weight information. The age of 32 salmon was determined by scale reading, this found that the fish returned from the Carrowmore was a 2kg grilse; and that of the fish from the Owenmore 27 were grilse (avg. wt =2.2kg, sd=0.7kg) and 5 MSW (avg. wt =3.2kg, sd=0.7kg) All the scale samples returned in 2020 were caught from 20th July - 26th September.

Figure 4.4: Weight profile of Salmon sample returned in 2020 (n=37), compared with weight profile of all previous samples in the scale database (n=215).

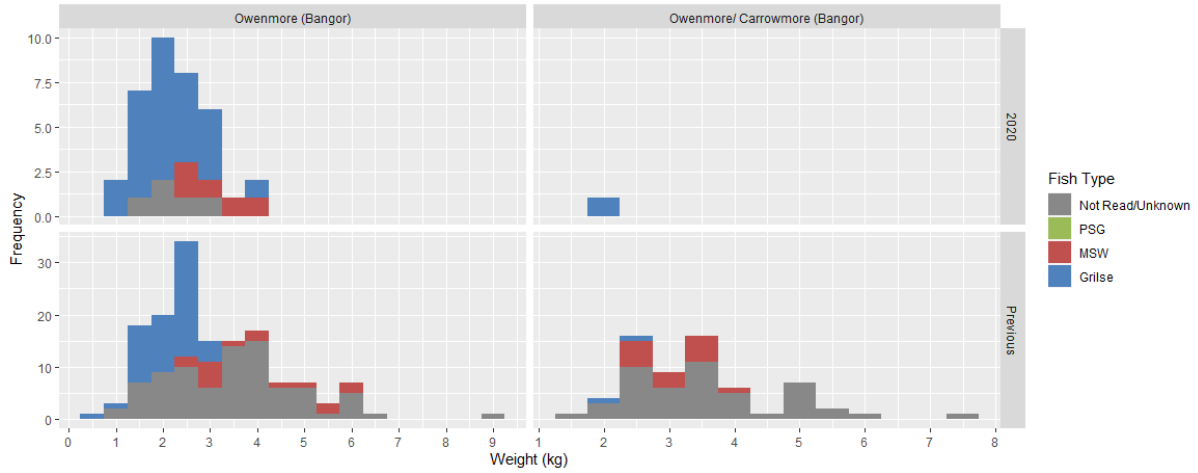
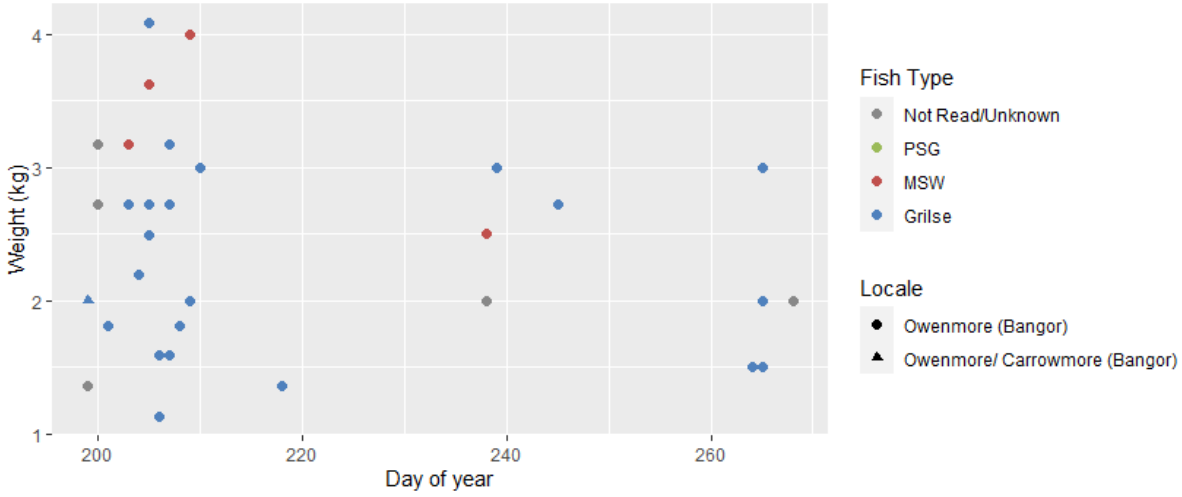


Figure 4.5: Weight and fish types of Salmon sample returned in 2020 from the Owenmore and Carrowmore rivers (n=40), by day number.



Comparison of Size and Age profile of Corrib Salmon over time.

Anglers on the Corrib returned scales from 701 fish in 2020 & 21. Of these 681 had both length and weight information, these showed a strong length weight relationship. The weight distribution and length weight relationship of salmon 2020 & 21 was similar to that found in previous years. Age was determined by scale reading for 26 salmon. Previous years samples (particularly 2014 and 2015) have been read and show that Corrib grilse have a mean weight of 2.12kg (S= 0.53, n=180), MSW salmon 3.95kg (SD=1.18kg, n=42) and Previously spawned grilse 3.82kg (Sd 1.0, n=4).The proportion of MSW and PSG represented in the scale samples in the collection post 2012 is much lower than seen in the years 2005, 2006, 2011& 2012.

Figure 4.6: Weight Salmon sample returned from the Corrib various years by day number.

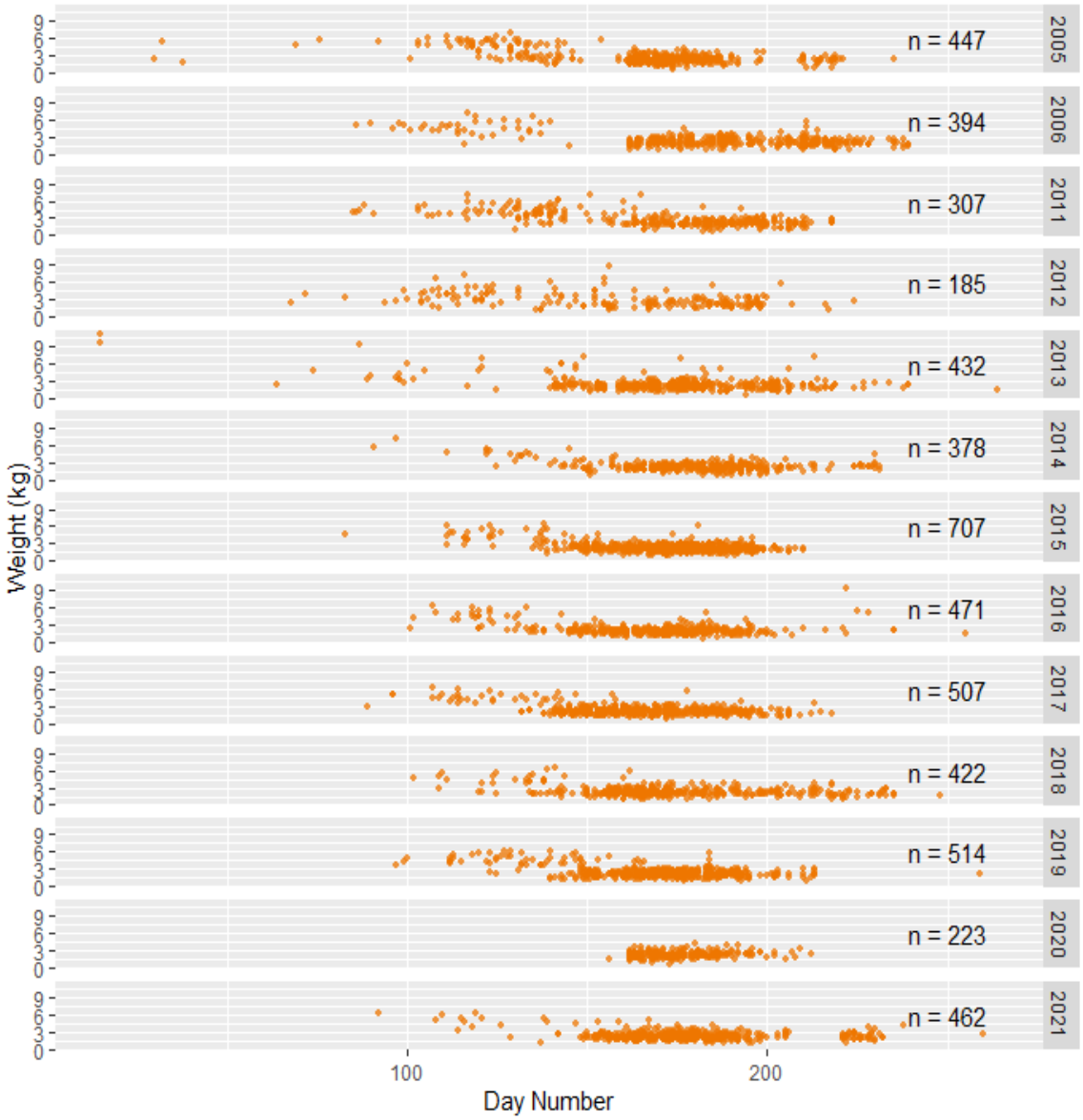
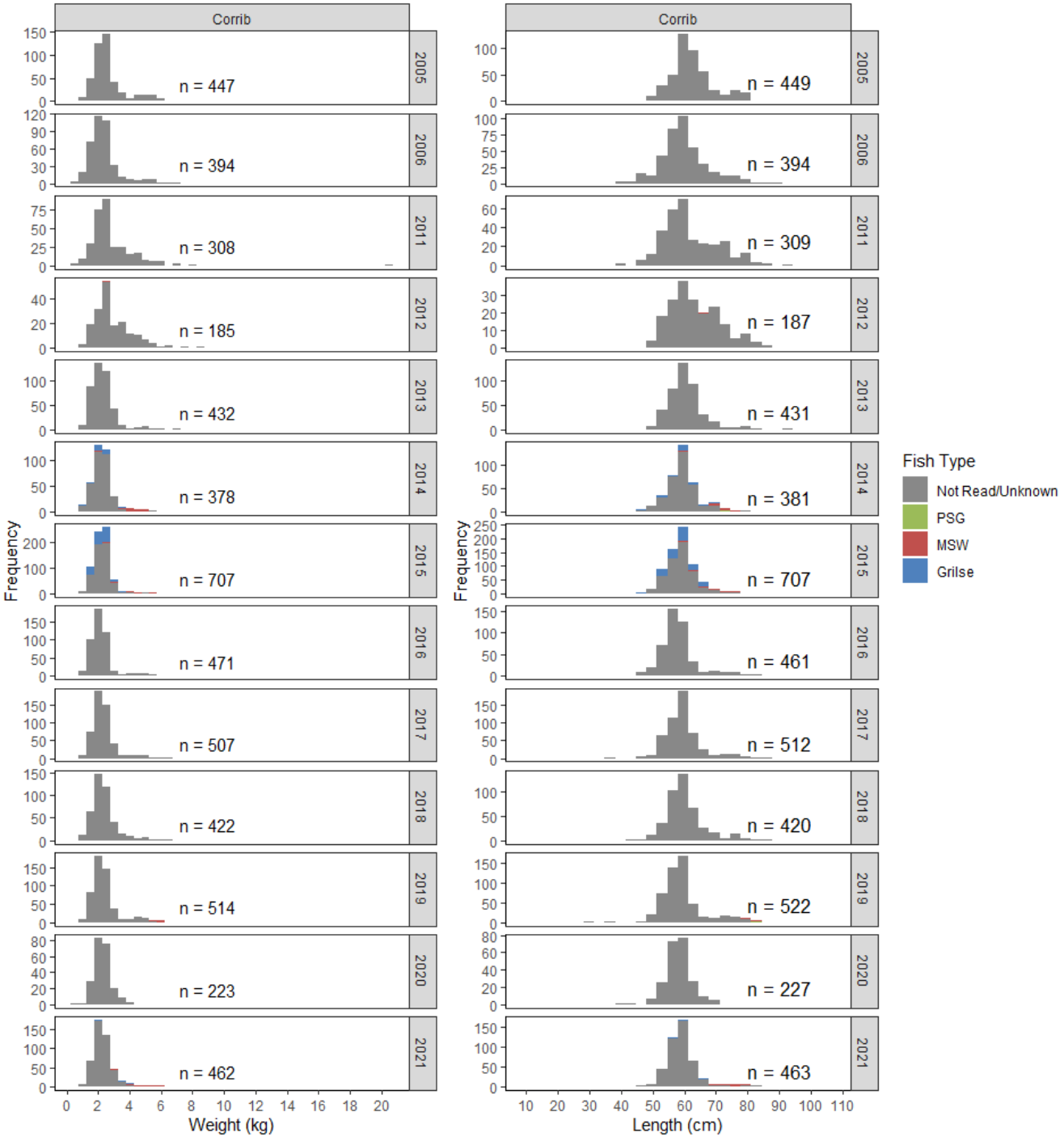


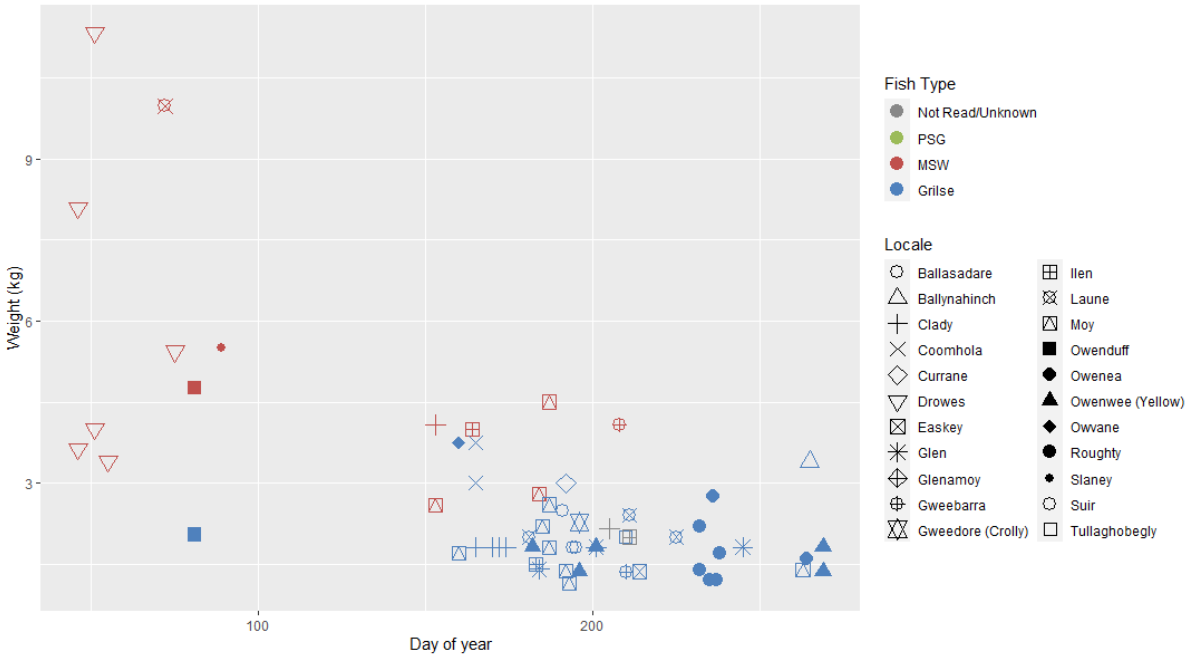
Figure 4.7: Weight and length profiles of Salmon samples returned from the Corrib.



Other rivers.

In addition to the rivers described in previous sections salmon were also returned from various other catchments in 2020 and 2021. Numbers were very small, ranging from 10 from the Moy, to 1 each from the Ballasadare, Ballynahinch, Currrane, Easkey, Crolly, Owvane, Slaney and Tullaghobegly. It is expected that over time more salmon will be returned from these and other systems; this will contribute greatly to the understanding of salmon habits within the systems and nationally. In 2020 & 2021 63 scale samples were returned from a range of other rivers, 59 of these were read 44 (75%) were Grilse, 15 (25%) were MSW and 0 were PSG.

Figure 4.8: Weight and fish types of Salmon samples (n=63) returned in 2020 & 21 from 18 rivers, by day number.



References.

Amiro, P.G. Habitat measurement and population estimation of juvenile Atlantic salmon (Salmon salar), P.81-97. In R.J. Gibson & R.E. Cutting (ed.) Production of juvenile Atlantic salmon (Salmon salar) in natural waters. Can. Spec.Publ.Fish.Aquat.Sci.118

Anon (2009) Report of the Standing Scientific Committee of the National Salmon Commission; The status of Irish Salmon Stocks in 2008 and Precautionary Catch advice for 2009.

Anon (2007) Report of the Standing Scientific Committee of the National Salmon Commission; The Status of Irish Salmon stocks in 2007 and Precautionary Catch advice for 2008.

Cowx IG & Fraser D (2003). Monitoring the Atlantic salmon. Conserving Natura 2000 Rivers Monitoring Series No.7 &, English nature, Peterborough.

Crozier, W.W. & Kennedy, G.J.A. (1994) Application of semi-quantitative electrofishing to juvenile salmonid stock surveys. Journal of Fish Biology (1994) 45, 159-164

Gargan, P., Roche, W., Keane, S. & Stafford, T. 2009. Report on Salmon Monitoring Programmes 2008 (June 2009), Central & Regional Fisheries Board.

McGinnity, P. Gargan, P. Roche, W., Mills, P. & McGarrigle, M. (2003) Quantification of the freshwater salmon habitat asset in Ireland using data interpreted in a G.I.S. platform. Irish Freshwater Ecology & Management Series: No.3, Central fisheries board.

McGinnity P., DeEyto, E., Gilbey, J., Gargan, P., Roche, W., Stafford, T., McGarrigle, M., O'Maoileidigh, N., & Mills, P. (2012). A predictive model for estimating river habitat area using GIS-derived catchment and river variables. Fisheries Management and Ecology, 19 (1) 67-77.

R Core Team (2013). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL http://www.R-project.org/.

Wickham, H. (2009) ggplot2: elegant graphics for data analysis. Springer New York, 2009.

A. Catchment Wide Electrofishing

Data are presented for rivers electro-fished in each River Basin District in 2021. Results of any previous catchment wide electro-fishing surveys undertaken over the 2013-2021 period are also shown (Data from 2007-2021 is presented in Appendix B). Data is presented on the Current CWEF index and the number of surveys considered in the index calculation.

A.1. Neagh Bann International River Basin District.

Summary

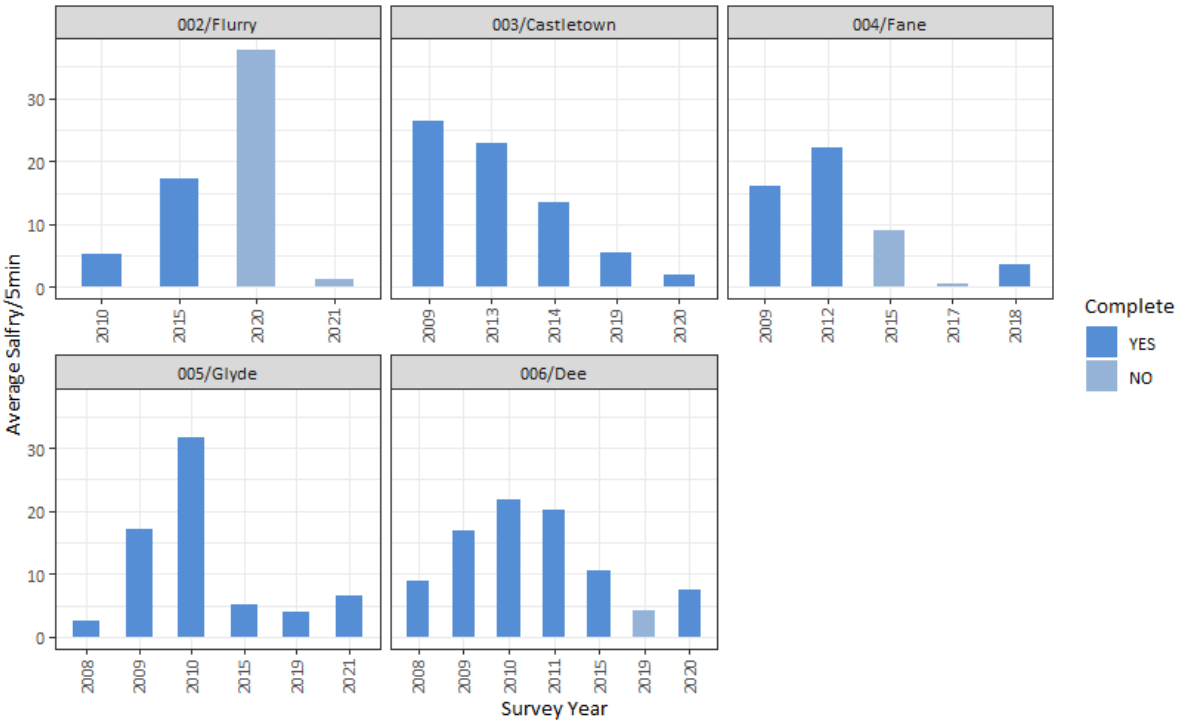
Since 2007 five salmon rivers have been surveyed in the Neagh Bann International River Basin District (NBIRBD) as part of the on-going catchment-wide electrofishing surveys. These are presented in Table A.1.1. At present no rivers are meeting the threshold index of 17 salmon fry/5min. A survey on the Glyde was completed in 2021.

Table A.1.1: Catchment-wide Electrofishing data for the Neagh Bann International River Basin District 2013-2021 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate, surveys prior to 2013 are included in appendix C.

	Survey Year									Current Index	# Annual Surveys Considered
Code/River	2013	2014	2015	2016	2017	2018	2019	2020	2021		
002/Flurry			**17.15**					37.5*	1.35*	11.19	2
003/Castletown	**22.96**	**13.59**					**5.58**	**1.87**		14.08	5
004/Fane			8.94*		0.5*	**3.65**				13.97	3
005/Glyde			**5.19**				**4.02**		6.58	12.90	5
006/Dee			**10.51**				4.18*	**7.59**		15.37	5

Bold annual figures indicate years included in calculation of current CWEF index.
Underlined index figures indicate those exceeding the 17 salmon fry threshold.
* Incomplete surveys not included in calculation of current index.
† Sub-catchment surveys.

Figure A.1: Summary of CWEF results in Neagh Bann international River basin district 2007-2021.



A.1.1. Flurry River

IFI Salmon Catchment #: 2
2021 survey dates: 20/9/2021
CWEF Index: 11.19 fry/5min.

Sampling carried out by:
Ronan McCormack
Maurice Carolan
Seamus Kelledy

Fish Species Present:
Brown Trout
European Eel
Salmon

Figure A.1.1.1: Length distribution of salmon captured in 2021 CWEF survey on the Flurry.

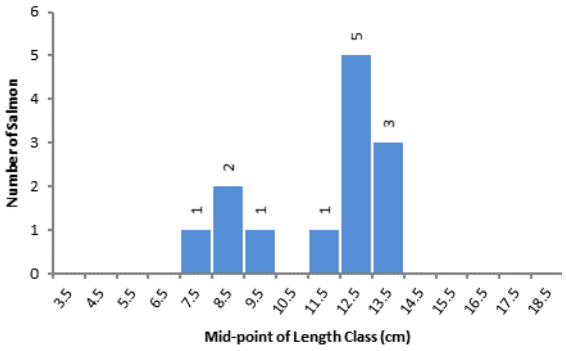
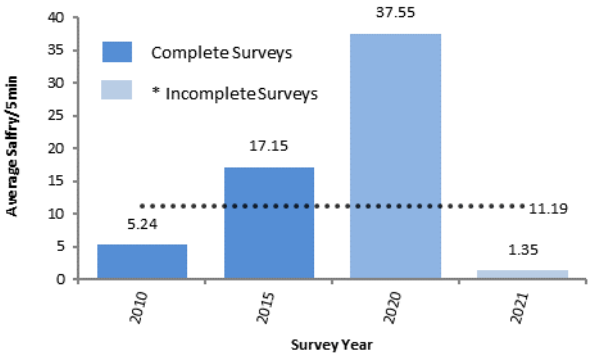


Figure A.1.1.2: Comparison of mean salmon fry/5min for all surveys on the Flurry to 2021.



The survey this year consisted of just 3 sites fished on the 20th September; A sustained increase in water levels prevented the completion of the survey. Low numbers of Salmon were found at all 3 sites.

Conclusion

Salmon fry abundances at these sites fished in 2021 were low compared with previous surveys (Table A.1.1.1).

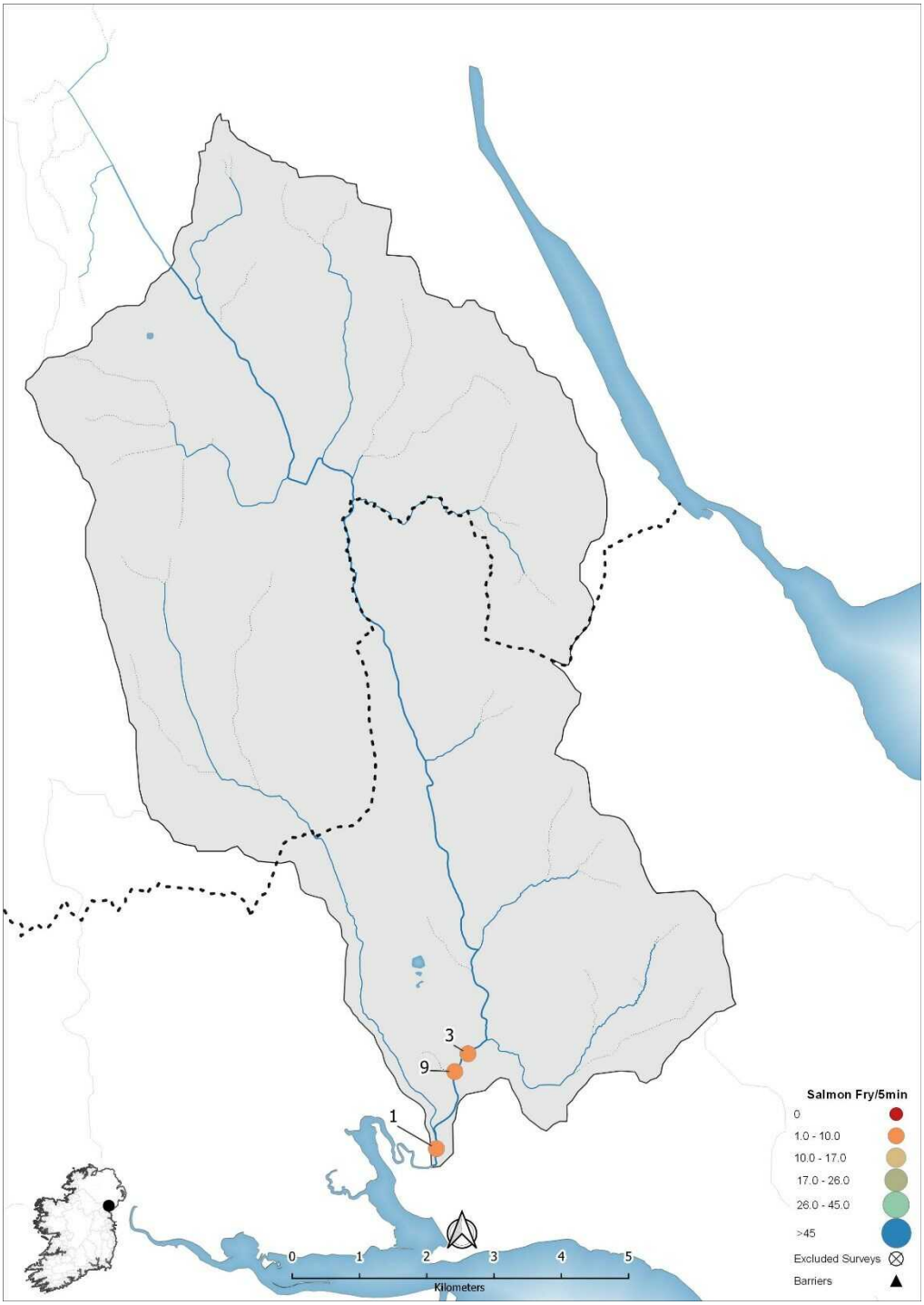
Table A.1.1.1: Current and previous site-specific results (Salmon fry/5min) on the Flurry Catchment.

Site #	Grid Ref.	Survey Year			
		2010	2015	2020	2021
001	J 08150 09867	15.00	22.67		1.25
002	J 08449 10548	15.55			
003	J 08619 11277	1.75			1.5
004	J 08699 12448	10.83			
005	J 08197 14360	2.00	33.93	27.60	
006	J 08038 15411	3.00		47.50	
007	J 07805 16020	1.20	2.67		
008	J 07496 17002	5.00		31.00	
009	J 08423 11014		9.33		1.3

Table A.1.1.2: Site specific results of CWEF on the Flurry catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	J 08150 09867	3	1	3	1	Include	3.75	1.25
003	J 08619 11277	3	3	3	1	Include	4.50	1.50
009	J 08423 11014	3	3	9	1	Include	11.70	1.30

Map A.1.1.1: Showing locations of 2021 survey sites on Flurry River.



A.1.2. Glyde River

IFI Salmon Catchment #: 5
Survey dates: 15/82021-05/09/2021
Mean Salmon Fry/5 min (2021): 6.58 fry/5min.
CWEF Index: 12.90 fry/5min.

Sampling carried out by:
Ronan McCormick
Dermot Wynne
Gerry Wynne
Maurice Carolan
Seamus Kelledy

Fish Species Present:

Brown Trout	Salmon
European Eel	Stone Loach
Minnow	3-Spined Stickleback
Pike	

Figure A.1.2.1: Length distribution of salmon captured in 2021 CWEF survey on the Glyde.

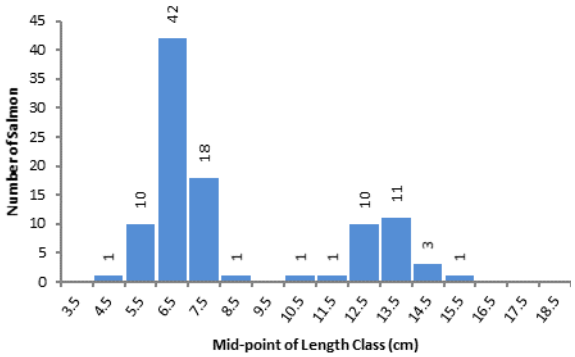
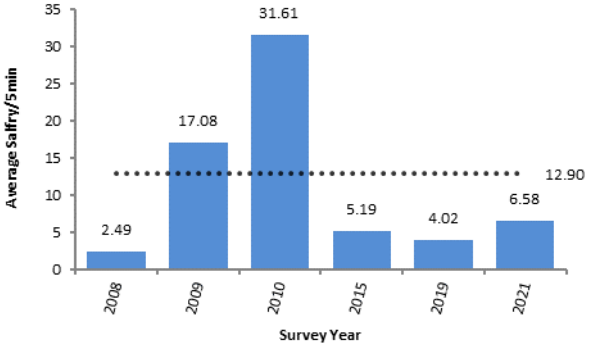


Figure A.1.2.2: Comparison of mean salmon fry/5min for all surveys on the Glyde to 2021.



The survey this year consisted of 13 sites fished from the 15th August to 5th September, Salmon fry (0+) were found at 10 sites, the highest numbers were at site 21 where 26 fry were observed. The modal length of 0+ salmon was 6.5 cm. All 13 sites were included in the analysis; the mean catch at these sites was 6.58 salmon fry/5min.

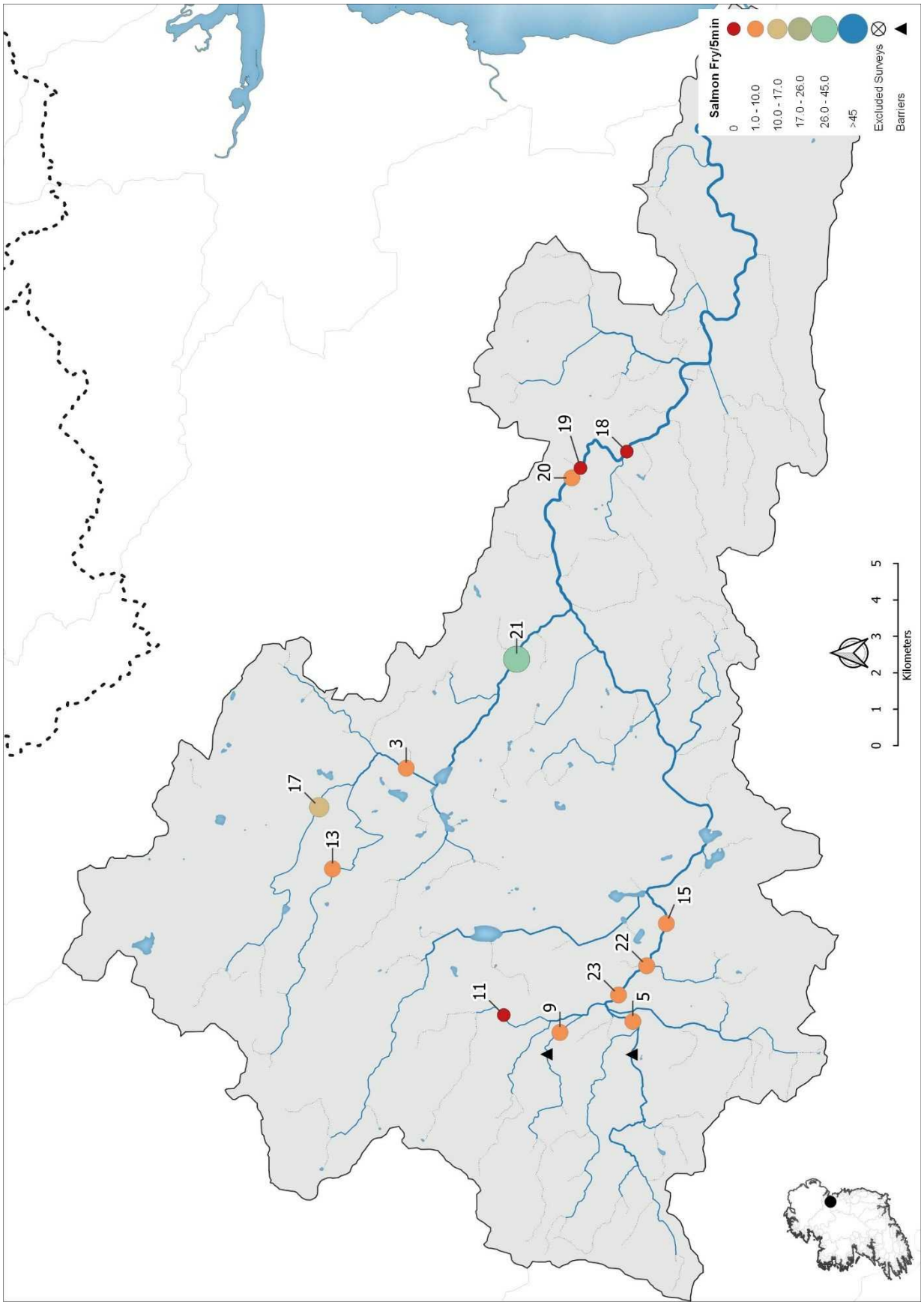
Conclusion

The Glyde had a salmon abundance of 12.90salfry/5min in 2021. Taking the five most recent complete surveys into account this results in a cumulative average of 12.92 salmon fry/5min which is below the 17 salmon fry threshold.

Table A.1.2.1: Site specific results of CWEF on the Glyde catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
003	H 86832 03758	3	1	4	3	Include	4.57	3.43
005	N 79877 97535	3	1	4	8	Include	4.67	9.33
009	N 79575 99538	2	2	7	4	Include	10.82	6.18
011	H 80054 01081	2	2	4	0	Include	5.00	0.00
013	H 84067 05783	2	2	2	1	Include	2.00	1.00
015	N 82565 96616	4	2	2	8	Include	2.40	9.60
017	H 85761 06148	2	1	3	9	Include	3.75	11.25
018	N 95526 97702	5	3	0	0	Include	0.00	0.00
019	N 95075 98973	5	3	0	0	Include	0.00	0.00
020	N 94803 99212	5	3	0	2	Include	0.00	2.00
021	H 89825 00728	4	1	0	26	Include	0.00	31.00
022	N 81407 97156	4	2	1	2	Include	1.00	2.00
023	N 80604 97928	4	2	1	8	Include	1.22	9.78

Map A.1.2.1: Showing locations of 2021 survey sites on Glyde River.



A.2. Eastern River Basin District.

Summary

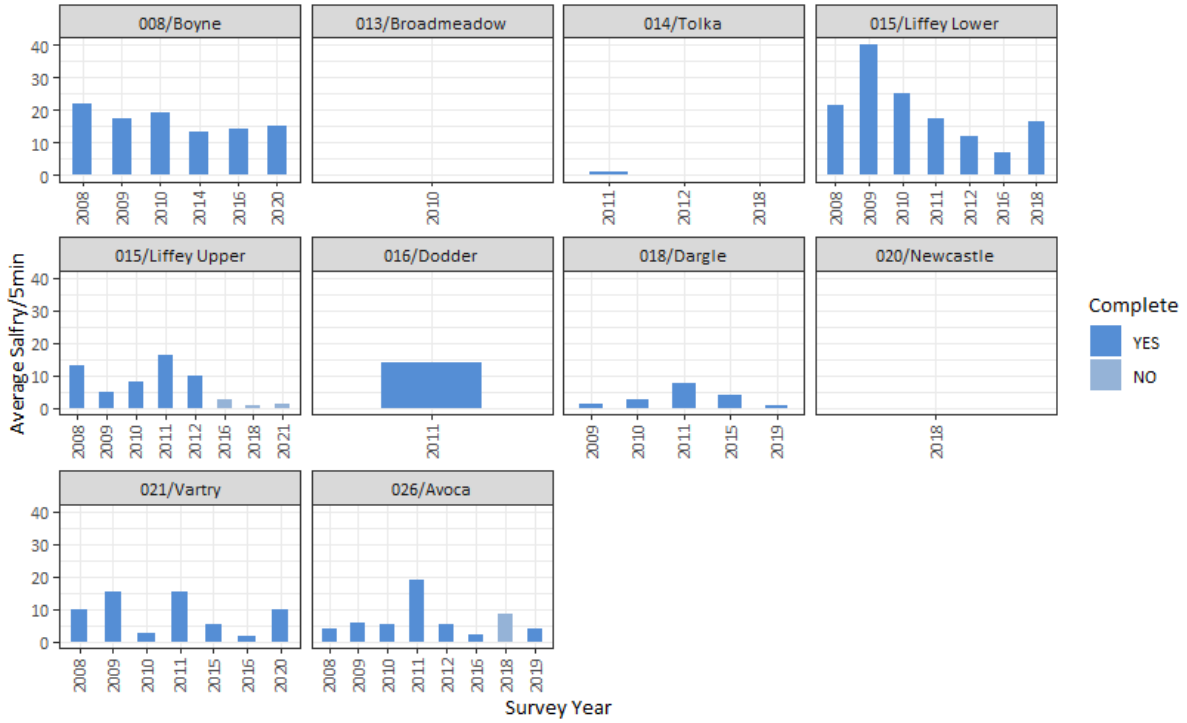
Since 2007, ten salmon rivers have been surveyed in the Eastern River Basin District (ERBD) as part of the on-going catchment-wide electrofishing surveys. These are presented in Table A.2.1. At present no rivers are meeting the threshold index of 17 salmon fry per 5min. No complete survey was undertaken in 2021.

Table A.2.1: Catchment-wide Electrofishing data for the Eastern River Basin District 2013-2021 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate, surveys prior to 2013 are included in appendix C.

	Survey Year									Current Index	# Annual Surveys Considered
Code/River	2013	2014	2015	2016	2017	2018	2019	2020	2021		
008/Boyne		**13.21**		**14.37**				**14.94**		15.89	5
013/Brdmeadw.										0.00	1
014/Tolka						**0.00**				0.36	3
015/Liffey Lwr.				**6.75**		**16.69**				15.64	5
015/Liffey Uppr.				2.63*		5.33*			1.50*	10.51	5
016/Dodder										13.93	1
018/Dargle			**4.19**				**1.03**			3.33	5
020/Newcastle						0.00				0.00	1
021/Vartry			**5.34**	**1.75**				**9.63**		6.86	5
026/Avoca				**1.89**		8.37*	**3.95**			7.01	5

Bold annual figures indicate years included in calculation of current CWEF index.
Underlined index figures indicate those exceeding the 17 salmon fry threshold.
* Incomplete surveys not included in calculation of current index.
† Sub-catchment surveys.

Figure A.2: Summary of CWEF results in Eastern River Basin District River basin district 2007-2021.



A.3. South-Eastern River Basin District.

Summary

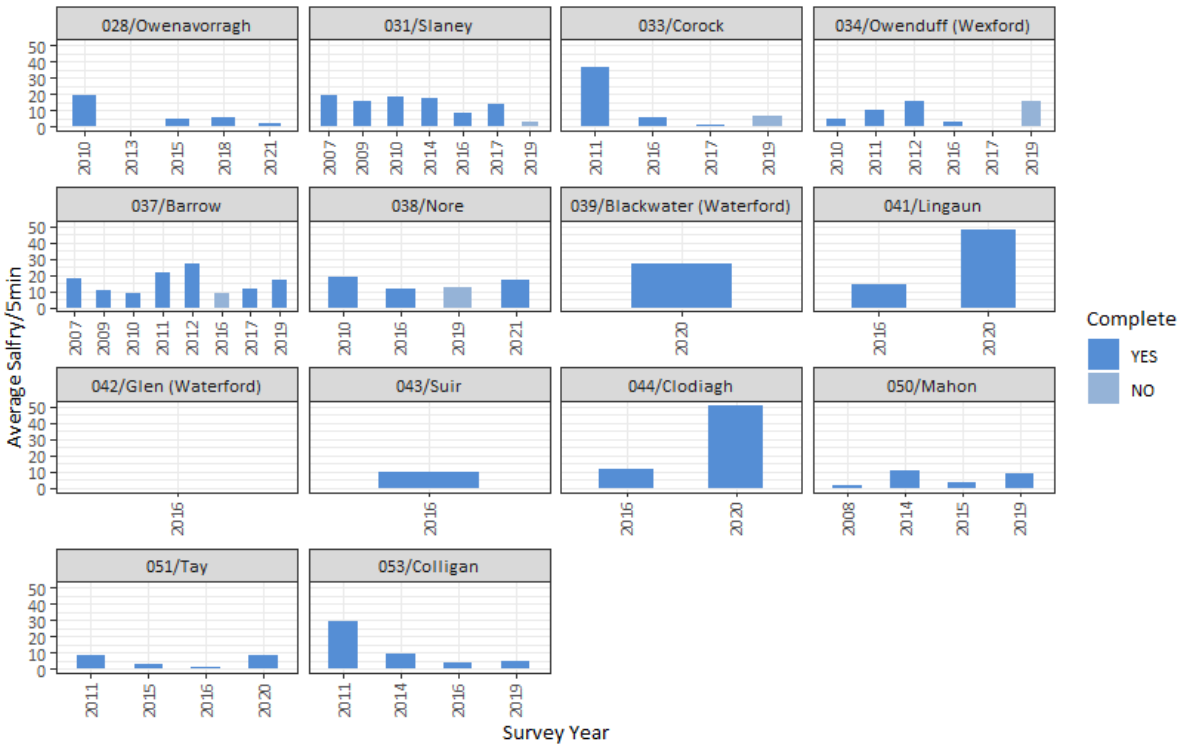
Since 2007 fourteen salmon rivers have been surveyed in the South-Eastern River Basin District (SERBD) as part of the on-going catchment-wide electrofishing surveys. These are presented in Table A.3.1. At present the Blackwater, Lingaun and Clodiagh rivers are meeting the threshold of 17 salmon fry/5min. Surveys of the Nore and Owenavorragh were undertaken in 2021.

Table A.3.1: Catchment-wide Electrofishing data for the South Eastern River Basin District 2013-2021 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate, surveys prior to 2013 are included in appendix C.

	Survey Year									Current Index	# Annual Surveys Considered
Code/River	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**		
028/Owenavorragh	**0.33**		**4.61**			**5.75**			**2.40**	6.57	5
031/Slaney		**17.68**		**8.70**	**14.30**		3.45*			15.01	5
033/Corock				**5.47**	**1.23**		6.47†			14.60	3
034/Owenduff (Wx.)				**3.47**	**0.40**		16.0*			7.08	5
037/Barrow				8.93*	**11.54**		**16.50**			16.94	5
038/Nore				**11.77**			12.7*		**16.79**	15.80	2
039/Blackwater (Wd.)								**26.54**		26.54	1
041/Lingaun				**14.52**				**47.60**		31.06	2
042/Glen (Wd.)				**0.00**						0.00	1
043/Suir				**9.81**						9.81	1
044/Clodiagh				**11.77**				**51.00**		31.39	2
050/Mahon		**10.72**	**3.92**				**8.60**			6.34	4
051/Tay			**3.07**	**1.40**				**8.67**		5.47	4
053/Colligan		**9.50**		**3.62**			**4.84**			11.82	4

Bold annual figures indicate years included in calculation of current CWEF index.
Underlined index figures indicate those exceeding the 17 salmon fry threshold.
* Incomplete surveys not included in calculation of current index.
† Sub-catchment surveys.

Figure A.3: Summary of CWEF results in the South-Eastern River Basin District River basin district 2007 2021.



A.3.1. Owenavorragh River.

IFI Salmon Catchment #: 28
2021 survey dates: 3-4/8/2021
Mean Salmon Fry/5 min (2021): 2.40 fry/5min.
CWEF Index: 6.57 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Lamprey sp.
Minnow

Figure A.3.1.1: Length distribution of salmon captured in 2021 CWEF survey on the Owenavorragh.

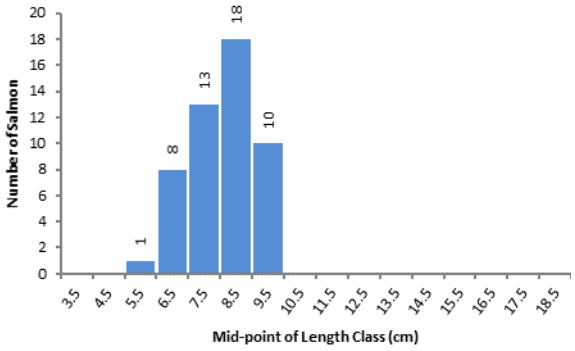
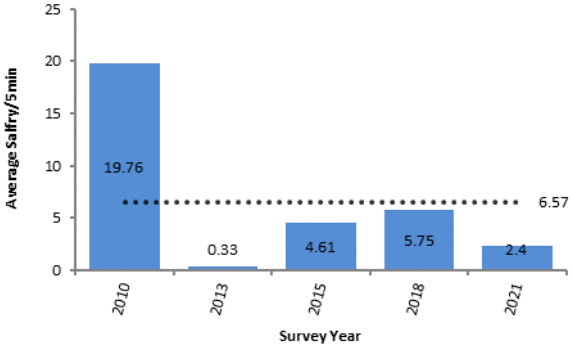


Figure A.3.1.2: Comparison of mean salmon fry/5min for all surveys on the Owenavorragh catchment to 2021.



This is the fourth CWEF survey of this catchment it took place on The 3rd and 4th of August. The survey this year consisted of 18 sites. Salmon were found at all 9 site; the highest numbers were at site 1 where 12 fry were observed. The modal length of 0+ salmon was 8.5 cm. Eighteen sites were included in the analysis; the mean catch at these sites was 2.40 salmon fry/5min.

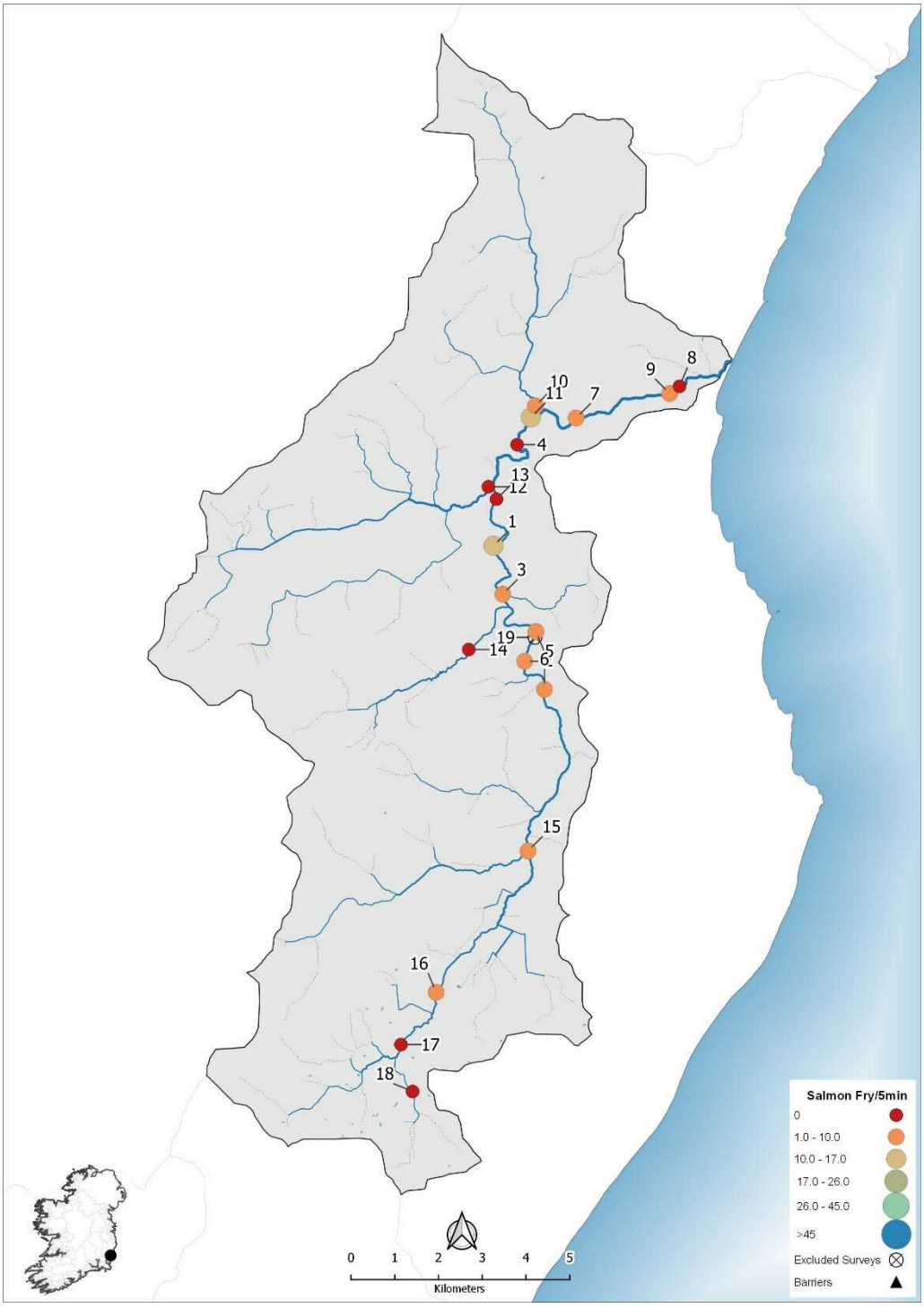
Table A.3.1.1: Site specific results of CWEF on the Owenavorragh catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	T 14998 53140	4	2	3	12	Include	3.40	13.60
002	T 15971 51178	4	2	3	1	Include	4.50	1.50
003	T 15211 52032	4	1	9	3	Include	11.25	3.75
004	T 15538 55451	5	3	2	0	Include	2.00	0.00
005	T 15709 50498	4	2	6	3	Include	6.00	3.00
006	T 16164 49854	4	3	0	1	Include	0.00	1.00
007	T 16887 56062	5	0	0	2	Include	0.00	2.00
008	T 19253 56784	5	2	0	0	Include	0.00	0.00
009	T 19026 56622	5	1	3	1	Include	3.00	1.00
010	T 15956 56339	3	2	5	2	Include	5.71	2.29
011	T 15853 56076	5	2	0	9	Include	0.00	11.00
012	T 14883 54489	4	2	8	0	Include	8.00	0.00
013	T 15066 54204	4	2	2	0	Include	2.00	0.00
014	T 14433 50766	3	1	21	0	Include	21.00	0.00
015	T 15787 46159	4	2	3	2	Include	4.20	2.80
016	T 13686 42928	3	2	19	1	Include	22.80	1.20
017	T 12884 41733	3	3	0	0	Include	0.00	0.00
018	T 13150 40658	2	2	3	0	Include	3.00	0.00
001	T 14998 53140	4	2	3	12	Include	3.40	13.60
002	T 15971 51178	4	2	3	1	Include	4.50	1.50

Conclusion

The Owenavorragh had a salmon abundance of 2.40 salfry/5min in 2021. Taking the five previous surveys into account this results in a cumulative average of 6.57 salmon fry/5min which is below the 17 salmon fry threshold.

Map A.3.1.1: Showing locations of 2021 survey sites on Owenavorragh River.



A.3.2. Nore River.

IFI Salmon Catchment #: 38
2021 survey dates: 8/7/2021 -17/9/21
Mean Salmon Fry/5 min (2021): 16.79 fry/5min.
CWEF Index: 15.80 fry/5min.

Sampling carried out by:
Noel C. Power
Declan Cullagh
Glen Mcrea
Greg Roche
Louis O'Sullivan
S. McKenna

Fish Species Present:

Brown Trout	Perch
White Clawed Crayfish	Salmon
European Eel	Stone Loach
Lamprey	3-Spined Stickleback
Minnow	

Figure A.3.2.1: Length distribution of salmon captured in 2021 CWEF survey on the Nore.

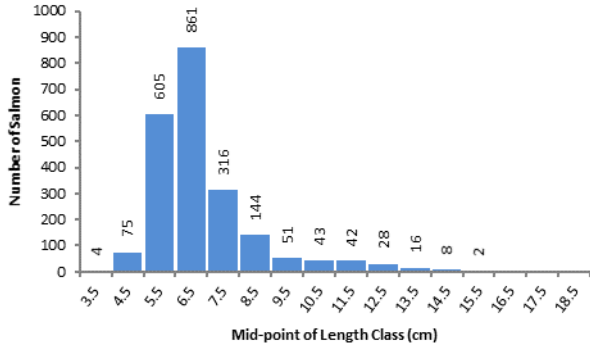
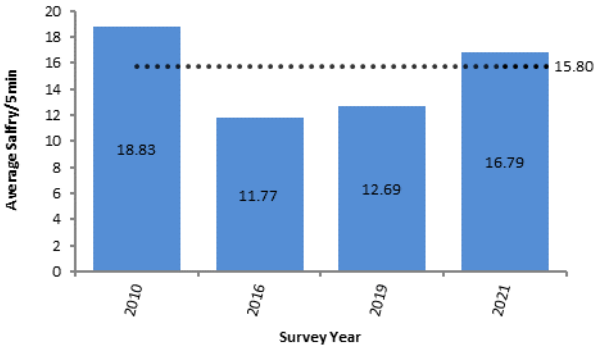


Figure A.3.2.2: Comparison of mean salmon fry/5min for all surveys on the Nore catchment to 2021.



This is the third CWEF survey of this catchment it took place from 8th July to 17th of September, the survey this year consisted of 159 sites. Salmon were found at 135 sites; the highest numbers were at site 28 where 86 fry were observed. The modal length of 0+ salmon was 6.5 cm. 143 sites were included in the analysis; the mean catch at these sites was 16.79 salmon fry/5min.

Table A.3.2.1: Site specific results of CWEF on the Nore catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	S 23388 94893	3	1	9	17	Include	10.73	20.27
002	S 26029 94580	3	1	11	22	Include	11.00	22.00
003	S 26446 93160	3	1	7	36	Include	8.95	46.05
004	S 29178 92252	3	1	11	24	Include	11.00	24.00
005	S 27173 97932	3	1	5	36	Include	6.22	44.78
006	S 28292 96259	3	1	11	19	Include	13.57	23.43
007	N 29402 02062	3	1	7	0	Include	9.00	0.00
008	N 30418 00971	3	1	4	13	Include	4.94	16.06
009	S 29129 98001	4	1	0	24	Include	0.00	32.00
010	S 28975 95564	4	1	1	11	Include	1.42	15.58
011	S 28010 94657	2	1	0	50	Include	0.00	50.00
012	S 29109 93504	4	1	0	14	Include	0.00	19.00
013	S 29488 92501	4	1	2	49	Include	2.47	60.53
014	S 39323 45360	4	1	1	5	Include	1.00	5.00
015	S 37115 47902	4	1	5	4	Include	6.11	4.89
016	S 36113 48546	4	3	5	4	Include	6.11	4.89
017	S 35601 51393	4	1	13	10	Include	17.52	13.48
018	S 35075 52461	4	2	34	7	Include	44.78	9.22
019	S 10793 80517	3	2	9	5	Include	12.86	7.14
020	S 11503 80470	3	1	11	10	Include	13.62	12.38

Table A.3.2.1: Site specific results of CWEF on the Nore catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
021	S 12825 81366	3	2	11	12	Include	14.35	15.65
022	S 13952 81788	3	3	19	6	Include	22.80	7.20
023	S 14207 82901	3	1	9	19	Include	10.61	22.39
024	S 15787 84506	3	3	3	1	Include	3.00	1.00
025	S 17270 85708	3				Not Sampled		
026	S 23987 88056	4	1	0	16	Include	0.00	21.00
027	S 31617 93008	5	1	2	18	Include	2.70	24.30
028	S 34094 92126	5	1	0	86	Include	0.00	126.00
029	S 36227 89951	5	1	1	31	Include	1.06	32.94
030	S 37428 88000	5	1	0	12	Include	0.00	17.00
031	S 40737 85973	5	2	1	15	Include	1.50	22.50
032	S 41145 84086	5	2	0	12	Include	0.00	18.00
033	S 42555 80292	5	2	0	19	Include	0.00	26.00
034	S 41520 78604	5	1	0	18	Include	0.00	28.00
035	S 44066 72329	6				Not Sampled		
036	S 44539 70804	6	1	0	24	Include	0.00	32.00
037	S 44369 67029	6	1	2	17	Include	3.16	26.84
038	S 44291 65053	6	1	2	21	Include	3.04	31.96
039	S 47377 61790	6	1	1	19	Include	1.40	26.60
040	S 51065 55813	6	3	0	2	Include	0.00	2.00
041	S 55207 51633	6	1	0	25	Include	0.00	32.00
042	S 55130 46045	6	1	2	5	Include	2.86	7.14
043	S 55123 42461	6	1	2	5	Include	2.86	7.14
044	S 51123 66331	2	2	2	20	Include	2.64	26.36
045	S 53327 66255	2	1	1	12	Include	1.23	14.77
047	S 53040 54795	4	1	2	8	Include	2.80	11.20
048	S 52390 57252	4	2	1	2	Include	1.00	2.00
049	S 47896 62840	5	1	1	16	Include	1.29	20.71
050	S 49585 64620	5	1	0	46	Include	0.00	61.00
051	S 50776 67312	3	3	5	17	Include	5.91	20.09
052	S 53041 69850	4	1	2	3	Eff <60%		
053	S 55831 69102	4	1	2	15	Include	3.06	22.94
054	S 59465 70240	3	1	1	27	Include	1.50	40.50
055	S 62027 69106	2	1	12	19	Include	16.65	26.35
056	S 61782 70079	3	3	1	7	Include	1.50	10.50
057	S 63580 71754	2	3	3	13	Include	3.94	17.06
058	S 44219 75761	4	3	1	13	Include	1.36	17.64
059	S 45114 77986	4	1	5	31	Include	6.94	43.06
060	S 46061 78335	4	1	6	59	Include	8.03	78.97
061	S 47129 79089	4	1	8	32	Include	8.20	32.80
062	S 47989 81024	3	1	5	9	Include	6.79	12.21
063	S 49028 81395	3	2	6	2	Include	8.25	2.75
064	S 50698 84787	2	2	0	4	Include	0.00	5.00
065	S 51872 83757	2	2	1	3	Include	1.00	3.00
066	S 41330 78923	3	2	2	7	Include	3.33	11.67
067	S 34650 86601	3	1	15	10	Include	17.40	11.60
068	S 33013 73942	4	2	2	14	Include	2.88	20.13
069	S 34428 74819	4	2	3	14	Include	4.41	20.59
070	S 36285 77346	4	2	4	4	Include	5.50	5.50
071	S 31573 73539	4	2	4	11	Include	5.33	14.67
072	S 31565 77918	4	1	4	16	Include	5.60	22.40
073	S 34157 77754	4	2	1	4	Include	1.00	4.00
074	S 30306 77742	4	1	2	7	Include	2.89	10.11
075	S 26675 78752	3	2	9	2	Include	11.45	2.55
076	S 25700 78257	3	2	0	4	Include	0.00	5.00
077	S 52328 43776	5	3	17	0	Include	20.00	0.00
078	S 49650 43474	5	3	1	4	Eff <60%		
080	S 44250 43108	5	0	4	8	Include	5.00	10.00
081	S 41501 43902	5	2	1	11	Include	1.42	15.58
082	S 36840 43001	5				Not Sampled		
083	S 33183 44148	5				Not Sampled		
084	S 31791 44566	5	1	6	13	Include	7.26	15.74
085	S 30052 45293	5	2	5	5	Include	6.00	6.00
086	S 48510 39858	3	1	6	14	Include	7.20	16.80
087	S 47840 39061	3	1	7	6	Include	8.62	7.38
088	S 55532 38844	3	1	7	8	Include	9.33	10.67
089	S 56749 39856	3	1	6	8	Include	7.29	9.71
090	S 62570 29043	2	1	20	5	Include	24.80	6.20

Table A.3.2.1: Site specific results of CWEF on the Nore catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
091	S 62174 30084	2	2	18	1	Include	20.84	1.16
092	S 60699 32210	2	1	11	5	Include	15.13	6.88
093	S 62143 77789	2	2	0	0	Include	0.00	0.00
094	S 56238 78031	3	1	0	1	Include	0.00	1.00
095	S 56569 79019	3	2	0	3	Include	0.00	3.00
096	S 56476 80699	3	2	1	0	Include	1.00	0.00
097	S 59768 77380	3	1	0	0	Include	0.00	0.00
098	S 58787 77497	3	3	1	5	Include	1.67	8.33
099	S 57195 77837	3	3	0	1	Eff <60%		
100	S 55683 77326	4	1	0	6	Include	0.00	7.00
101	S 53376 74711	4	2	5	8	Include	6.15	9.85
102	S 53433 71824	4	2	4	11	Include	6.13	16.87
103	S 53067 70008	4	1	1	5	Include	1.33	6.67
104	S 32354 97622	2	1	22	25	Include	26.21	29.79
105	S 32583 97337	3	1	9	33	Include	9.00	33.00
106	S 33918 96764	3	0	8	12	Include	9.60	14.40
107	S 35196 94934	4	1	8	60	Include	9.65	72.35
108	S 35390 91815	4	1	0	16	Include	0.00	22.00
109	S 27963 94656	2	1	4	19	Include	4.87	23.13
110	N 30213 00442	3	1	0	7	Include	0.00	10.00
111	S 49013 82684	3	2	2	15	Include	2.59	19.41
112	S 45774 78070	4	1	4	33	Include	5.62	46.38
113	S 30625 70312	4				Not Sampled		
115	S 23237 75569	2	1	4	0	Include	5.00	0.00
116	S 29075 78368	4	3	0	0	Include	0.00	0.00
117	S 40861 77474	5	1	4	25	Include	6.07	37.93
118	S 23734 87855	4				Not Sampled		
119	S 23089 88178	2	1	1	7	Include	1.00	7.00
120	S 21075 86967	4				Not Sampled		
121	S 25238 89951	3	1	13	5	Include	16.61	6.39
122	S 29319 90562	4				Not Sampled		
123	S 48982 63544	5	1	10	49	Include	12.54	61.46
124	S 53655 73011	4	1	1	7	Eff <60%		
125	S 53296 73188	3	1	3	6	Include	4.67	9.33
126	S 57440 69406	4	2	2	5	Eff <60%		
128	S 52969 55416	4	1	0	2	Include	0.00	2.00
129	S 54859 60372	3	2	7	2	Include	7.78	2.22
130	S 50295 54259	3	3	1	3	Include	1.00	3.00
131	S 42444 64047	3	2	1	7	Include	1.25	8.75
132	S 40600 64806	3	2	16	14	Include	19.73	17.27
133	S 40974 64781	3	2	10	17	Include	13.33	22.67
134	S 36228 63698	2	2	16	2	Include	19.56	2.44
135	S 31222 49892	3	2	11	4	Include	13.93	5.07
136	S 29789 49960	3	2	0	0	Include	0.00	0.00
137	S 29340 51575	3	3	1	0	Include	1.00	0.00
138	S 29724 50316	3	2	5	0	Include	6.00	0.00
139	S 29608 49020	4	1	16	12	Include	17.71	13.29
140	S 29711 45514	4	3	8	2	Include	8.80	2.20
141	S 31140 44756	5	1	6	7	Include	6.92	8.08
142	S 35016 43117	5				Not Sampled		
143	S 37123 43829	5				Not Sampled		
144	S 39395 52268	3	1	1	15	Include	1.25	18.75
145	S 38823 54684	3				Not Sampled		
146	S 39731 47683	3	1	1	16	Include	1.24	19.76
147	S 46477 43538	5	2	4	32	Include	4.00	32.00
148	S 48388 43134	3	0	8	13	Include	11.43	18.57
149	S 48275 40523	3	3	12	4	Include	15.75	5.25
150	S 46910 37233	3	2	16	0	Include	17.00	0.00
151	S 52502 44017	3	0	12	2	Include	12.00	2.00
152	S 54456 37279	2	0	21	8	Include	21.00	8.00
153	S 55663 39204	3	2	5	5	Include	5.00	5.00
156	S 53379 37272	2	1	13	15	Include	16.25	18.75
157	S 54098 37534	2	1	11	7	Include	13.44	8.56
158	S 53004 34746	2	1	15	0	Include	15.00	0.00
159	S 39025 82530	3	2	0	0	Include	0.00	0.00
160	S 59540 45224	3	1	4	16	Include	4.80	19.20
162	S 59565 44852	3	2	9	4	Include	10.38	4.62
165	S 60438 35049	2	1	1	11	Include	1.33	14.67

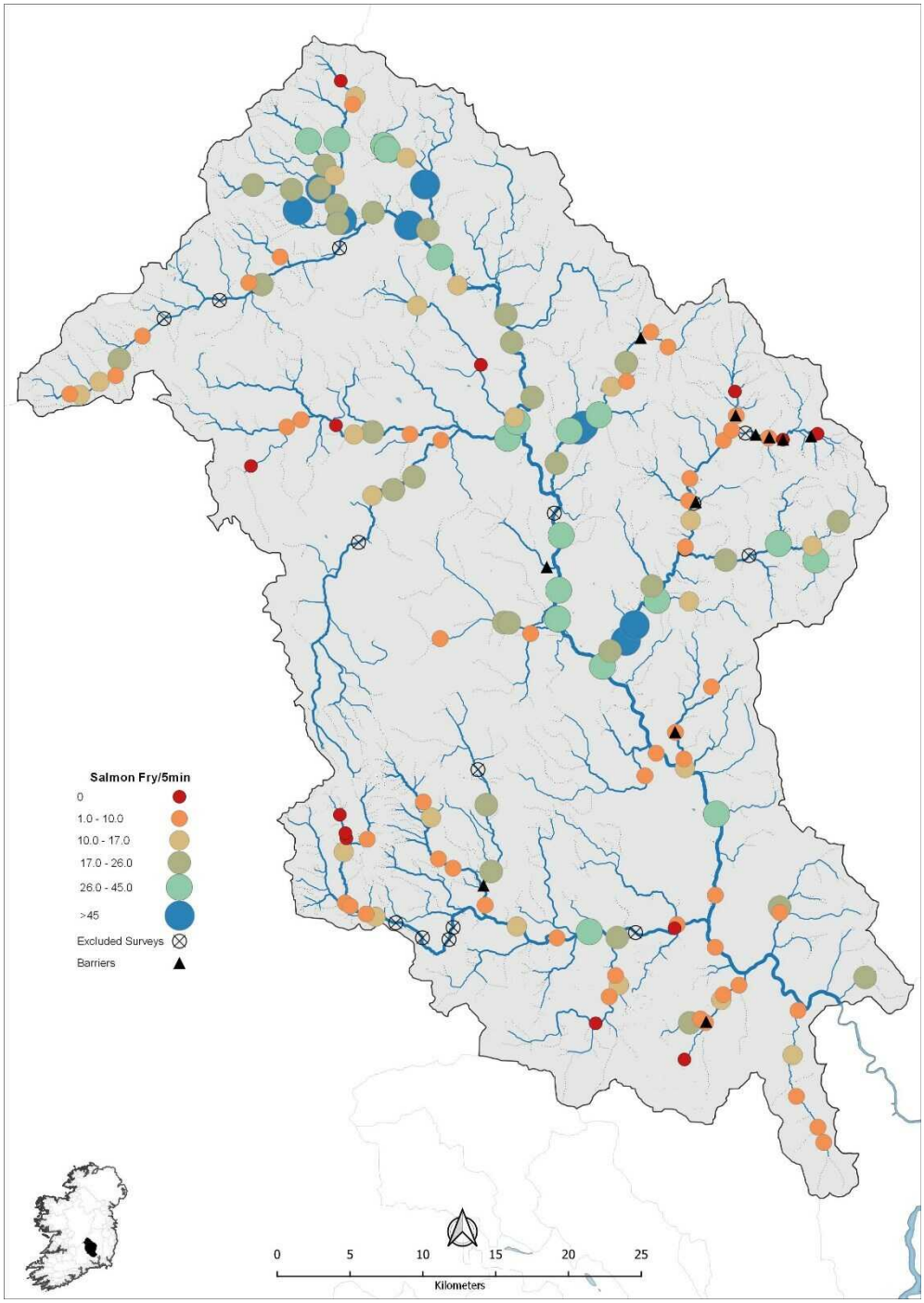
Table A.3.2.1: Site specific results of CWEF on the Nore catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
166	S 60809 38117	2	2	1	3	Include	1.50	4.50
167	S 65417 40394	2	1	8	17	Include	10.88	23.12
170		0	1	8	3	Include	12.36	4.64

Conclusion

The Nore had a salmon abundance of 16.79 salfry/5min in 2021. Taking the three pervious surveys into account this results in a cumulative average of 15.80 salmon fry/5min which is below the 17 salmon fry threshold.

Map A.3.2.1: Showing locations of 2021 survey sites on Nore River.



A.4. South-Western River Basin District.

Summary

Since 2007 forty-two salmon rivers have been surveyed in the South-Western River Basin District (SWRBD) as part of the on-going catchment-wide electrofishing surveys. These are presented in Table A.4.1. At present twelve rivers are meeting the threshold index of 17 salmon fry/5min. Surveys of the Argideen, Maine, Emlagh and Owenmore rivers were undertaken in 2021.

Table A.4.1: Catchment-wide Electrofishing data for the South-Western River Basin District 2013-2021 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate, surveys prior to 2013 are included in appendix C.

	Survey Year									Current Index	# Annual Surveys Considered
Code/River	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**		
055/Lickey			**14.14**					**12.00**		12.84	3
059/Blackwater				**13.53**		22.76*				15.64	3
060/Bride		**19.85**			**7.65**		**18.93**			16.31	5
061/Tourig					0.73*			**11.19**		10.29	2
062/Womanagh		**2.39**			**1.43**					6.42	3
064/Owennacurra					1.77*			**9.47**		12.62	2
066/Lee (Cork)										0.26	1
066/Lower Lee						**18.34**				18.34	1
069/Bandon				**11.01**						11.01	1
070/Argideen									**27.55**	22.35	2
077/Mealagh										12.82	1
080/Glengarriff										5.93	1
081/Adrigole	**4.01**	**1.33**				**15.64**				6.99	3
082/Kealincha			**0.00**					**0.00**		0.00	3
083/Lough Fada			**1.68**					**0.00**		1.63	3
084/Croanshagh				**23.38**						23.38	1
085/Owenshagh	**4.32**		**6.73**			**19.27**		**13.00**		10.83	4
086/Cloonee	**33.06**				**24.09**		**26.48**			24.95	4
088/Roughty										19.78	1
089/Finnihy	**0.00**				**0.58**		**0.89**			2.52	4
090/Blackwater (Ky)		**18.01**								19.08	4
093/Owreagh	**2.07**	**2.81**					**8.51**			5.58	4
097/Currane		**24.51**								24.51	1
098/Inny						**17.67**				20.69	3
099/Emlaghmore			**1.45**					**5.78**		3.10	3
101/Carhan	**6.05**	**8.61**					**7.55**			9.49	4
102/Ferta		**10.74**			**6.88**		**12.06**			12.27	4
103/Behy				**2.89**			**6.60**			5.88	5
106/Laune					**21.41**					21.41	1
107/Maine					22.05†	19.61†			**37.62**	34.20	3
108/Emlagh				**2.10**					**1.02**	4.58	5
109/Owenascaul	**16.08**	**16.28**				**9.51**		**11.52**		15.13	5
110/Owenalondrig										21.90	1
111/Milltown (Ky)	**13.02**		**8.76**				**11.25**			14.96	5
112/Feohanagh	**3.20**	**11.93**					**13.75**			11.37	4
114/Owenmore (Ky)									**26.72**	25.89	2
115/Scorid				**1.86**						1.86	1
115/Glenahoo				**1.87**						1.87	1
116/Aghacashla				**4.89**						4.89	1
116/Owenamallagh				**0.00**						0.00	1
116/Meennascarty				**0.00**						0.00	1
117/Lee (Ky)		**0.68**			**0.69**					0.68	3

Bold annual figures indicate years included in calculation of current CWEF index.
Underlined index figures indicate those exceeding the 17 salmon fry threshold.
* Incomplete surveys not included in calculation of current index.
† Sub-catchment surveys.

Figure A.4: Summary of CWEF results in South Western River basin district 2007-2021 .

A.4.1. Argideen River.

IFI Salmon Catchment #: 70
2021 survey dates: 15-16/7/2021
Mean Salmon Fry/5 min (2021): 27.55 fry/5min.
CWEF Index: 22.35 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Minnow
Salmon
Stoneloach

Figure A.4.1.1: Length distribution of salmon captured in 2021 CWEF survey on the Argideen.

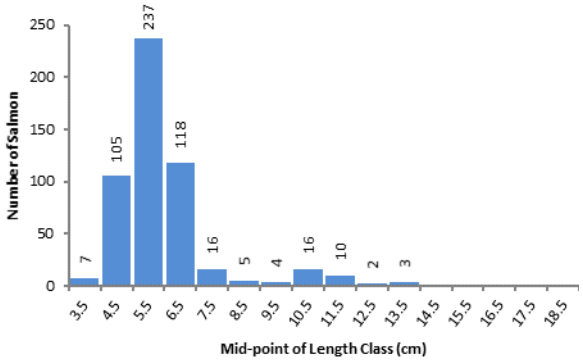
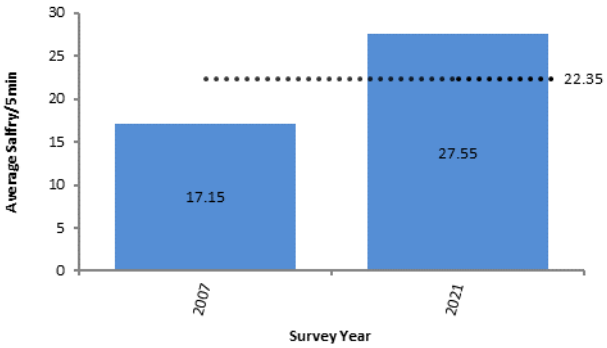


Figure A.4.1.2: Comparison of mean salmon fry/5min for all surveys on the Argideen catchment to 2021.



The survey this year consisted of 22 sites fished on the 15th and 16th of July, Salmon fry (0+) were found at sixteen sites, the highest numbers were at site 7 where 90 fry were observed. The modal length of 0+ salmon was 5.5 cm. Seven sites were included in the analysis; the mean catch at these sites was 27.55 salmon fry/5min.

Conclusion

The Argideen had a salmon abundance of 27.55 salfry/5min in 2021. Taking the two complete surveys into account this results in a cumulative average of 22.35 salmon fry/5min which is above the 17 salmon fry threshold.

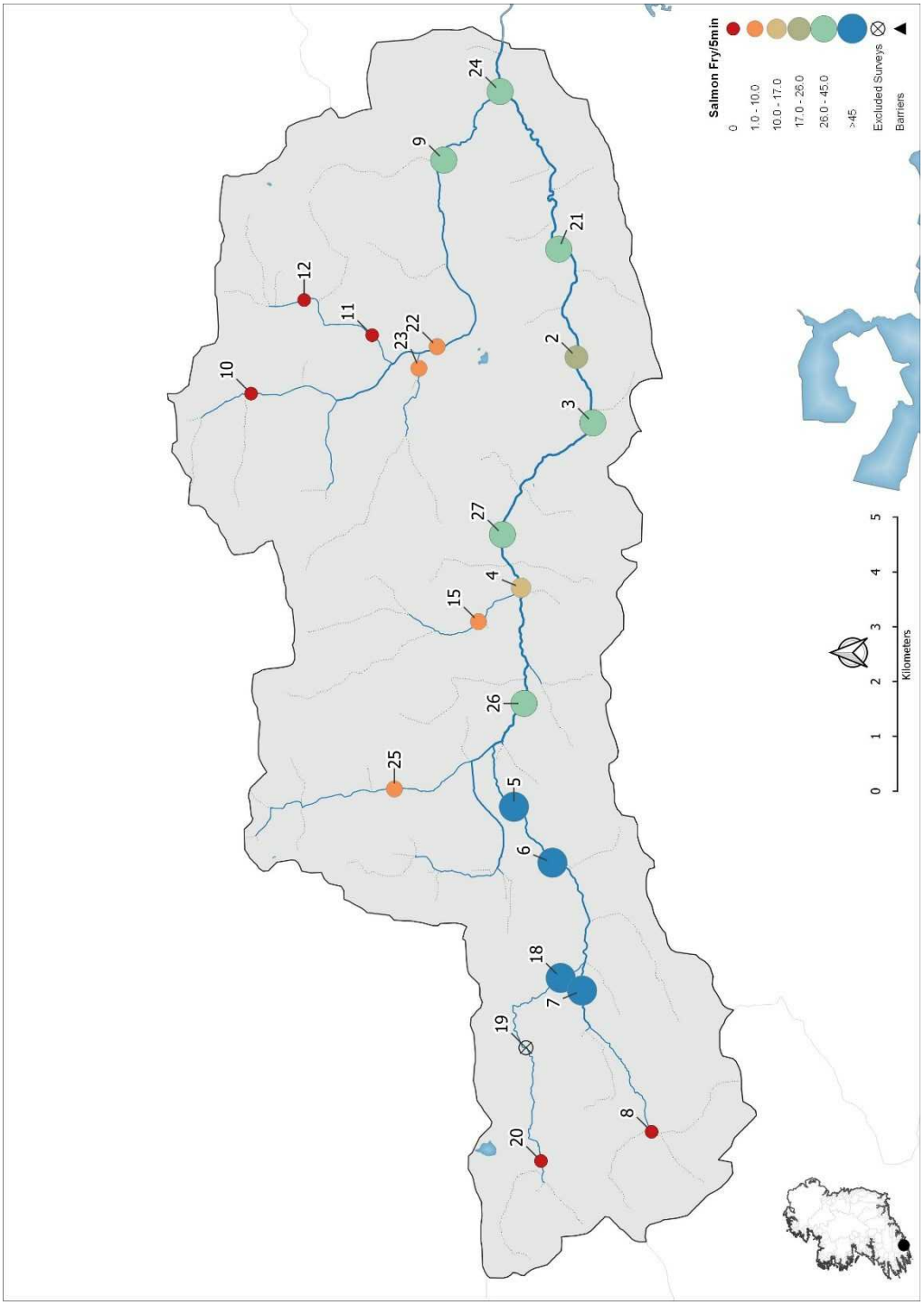
Table A.4.1.2: Site specific results of CWEF on the Argideen catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
002	W 40498 44425	4	1	0	16	Include	0.00	22.00
003	W 39300 44125	4	1	6	37	Include	6.84	42.16
004	W 36292 45436	4	1	1	12	Include	1.31	15.69
005	W 32292 45564	3	1	3	44	Include	3.77	55.23
006	W 31271 44863	3	1	4	80	Include	4.95	99.05
007	W 28938 44321	3	1	8	90	Include	8.82	99.18
008	W 26359 43053	2	3	19	0	Include	22.00	0.00
009	W 44096 46845	3	1	1	29	Include	1.13	32.87
010	W 39834 50362	2	2	6	0	Include	6.00	0.00
011	W 40900 48154	2	2	5	0	Include	5.00	0.00
012	W 41543 49394	2	3	1	0	Include	6.00	0.00
015	W 35672 46212	2	1	5	7	Include	6.25	8.75
018	W 29167 44711	2	1	21	68	Include	24.54	79.46
019	W 27894 45346	2				Not Sampled		
020	W 25826 45071	2	2	4	0	Include	4.00	0.00
021	W 42469 44748	4	1	2	27	Include	2.48	33.52

Table A.4.1.2: Site specific results of CWEF on the Argideen catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
022	W 40691 46968	3	1	4	2	Include	6.00	3.00
023	W 40295 47299	2	2	8	1	Include	9.78	1.22
024	W 45349 45818	4	1	0	22	Include	0.00	27.00
025	W 32616 47747	2	2	41	1	Include	45.88	1.12
026	W 34178 45382	4	1	3	23	Include	3.81	29.19
027	W 37259 45775	4	1	0	24	Include	0.00	29.00

Map A.4.1.1: Showing locations of 2021 survey sites on Argideen River.



A.4.2. Maine River.

IFI Salmon Catchment #: 107
2021 survey dates: 1-13/7/2021
Mean Salmon Fry/5 min (2021): 37.62 fry/5min.
CWEF Index: 34.10 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:

Brown Trout	Salmon
European Eel	Stoneloach
Lamprey	3-Spined Stickleback
Margaritifera	

Figure A.4.2.1: Length distribution of salmon captured in 2021 CWEF survey on the Maine.

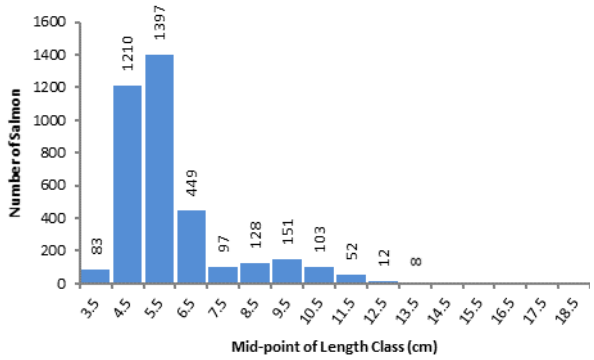
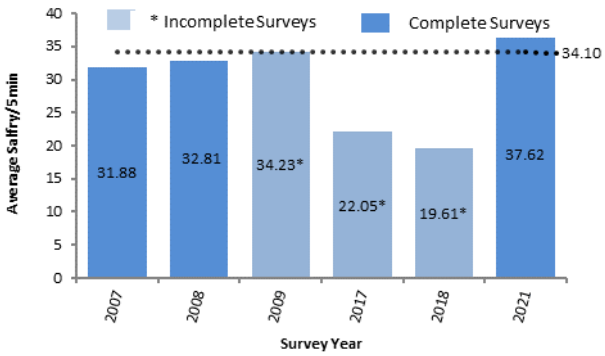


Figure A.4.2.2: Comparison of mean salmon fry/5min for all surveys on the Maine catchment to 2021.



The survey this year consisted of 54 sites fished from the 1st to the 13th July, Salmon fry (0+) were found at 50 sites, the highest numbers were at site 13 where 114 fry were observed. The modal length of 0+ salmon was 5.5 cm. 53 sites were included in the analysis; the mean catch at these sites was 37.62 salmon fry/5min.

Conclusion

The Maine had a salmon abundance of 37.62 salfry/5min in 2021. Taking the three previous complete surveys into account this results in a cumulative average of 34.10 salmon fry/5min which is above the 17 salmon fry threshold.

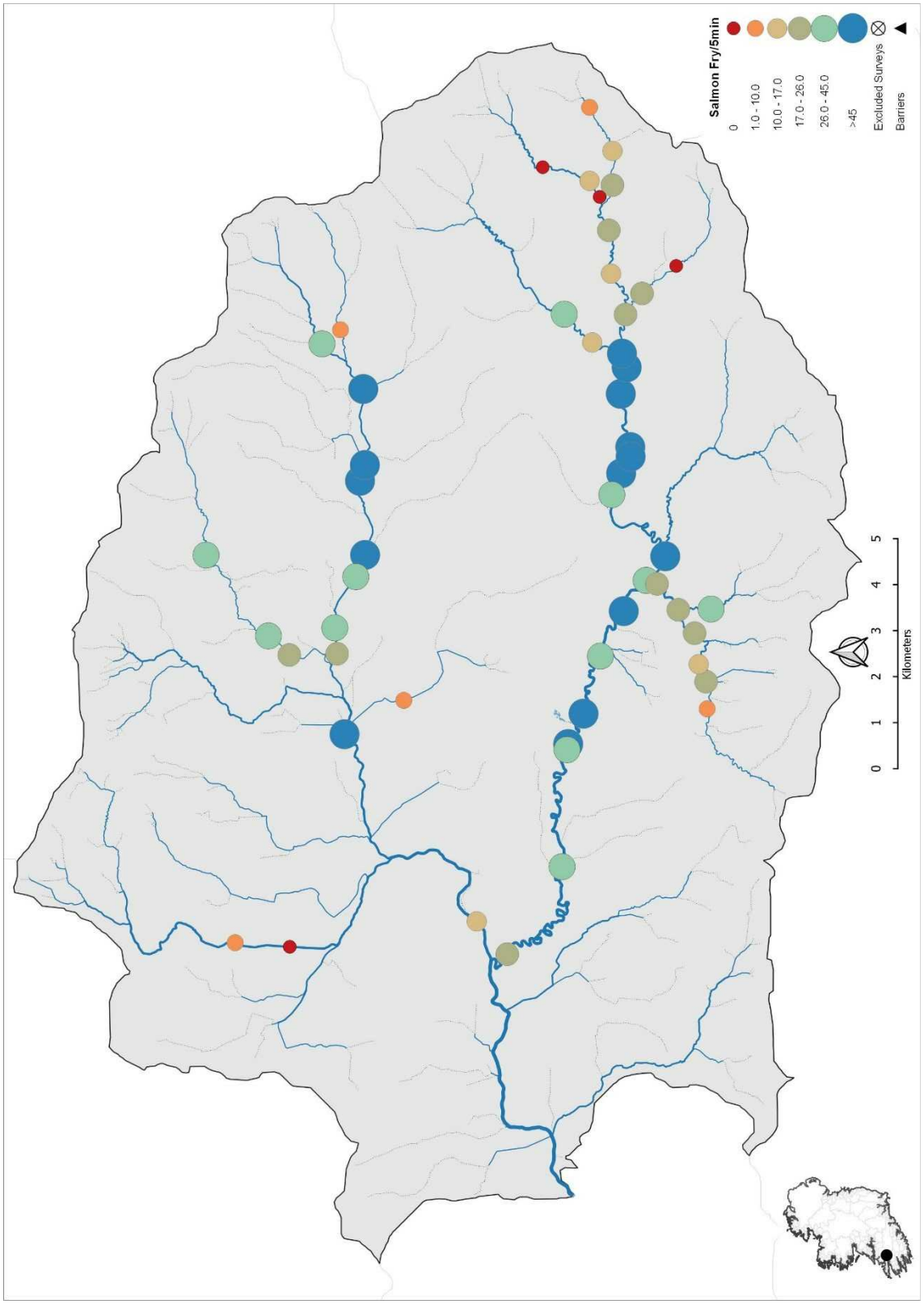
Table A.4.2.1: Site specific results of CWEF on the Maine catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	Q 93806 06461	5	1	0	10	Include	0.00	15.00
002	Q 97876 09336	4	2	0	47	Include	0.00	51.00
003	Q 99626 09497	3	2	0	21	Include	0.00	24.00
004	R 00189 09547	3	1	0	31	Include	0.00	31.00
005	Q 93253 10527	4	2	20	0	Include	20.00	0.00
006	Q 93342 11714	4	1	13	5	Include	15.89	6.11
007	Q 98611 08046	2	3	1	1	Include	1.00	1.00
009	R 00015 10989	2	2	14	32	Include	16.74	38.26
010	R 01772 12346	2	1	26	23	Include	30.24	26.76
011	R 01304 09090	3	2	2	27	Include	2.41	32.59
012	R 01776 08887	3	1	1	73	Include	1.14	82.86
013	R 03388 08998	3	1	4	114	Include	4.85	138.15
014	R 03733 08893	3	2	3	68	Include	3.30	74.70

Table A.4.2.1: Site specific results of CWEF on the Maine catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
016	R 05384 08928	3	1	16	58	Include	18.16	65.84
017	R 06367 09824	3	1	14	33	Include	15.79	37.21
018	R 06672 09424	2	2	40	3	Include	47.44	3.56
019	Q 93093 05796	5	1	0	24	Include	0.00	24.00
020	Q 94995 04605	5	1	0	31	Include	0.00	39.00
022	Q 97663 04471	5	0	0	56	Include	0.00	63.00
024	Q 99575 03770	5	1	0	38	Include	0.00	44.00
025	R 00554 03263	5	1	1	45	Include	1.22	54.78
026	R 01222 02777	5	2	0	26	Include	0.00	30.00
027	R 01748 02360	4	1	1	62	Include	1.19	73.81
029	R 03087 03523	4	2	2	18	Include	3.00	27.00
030	R 03550 03320	4	1	1	52	Include	1.15	59.85
031	R 04122 03121	4	1	3	83	Include	3.87	107.13
032	R 05279 03328	4	1	2	104	Include	2.72	141.28
033	R 05856 03201	4	1	2	71	Include	2.00	71.00
034	R 07005 03225	3	1	0	24	Include	0.00	24.00
035	R 07894 03539	3	2	9	11	Include	12.60	15.40
036	R 08837 03588	3	1	11	21	Include	12.38	23.63
037	R 09562 03788	3	1	43	0	Include	48.00	0.00
038	R 09912 04007	3	1	6	8	Include	7.71	10.29
039	R 10210 05026	3	2	0	0	Include	0.00	0.00
040	R 01145 02539	4	1	0	23	Include	0.00	26.00
041	R 00549 02084	3	1	1	4	Eff <60%		
042	R 00074 01723	3	3	1	14	Include	1.33	18.67
043	Q 99399 01633	3	1	3	11	Include	3.86	14.14
044	Q 99019 01473	3	1	20	21	Include	21.95	23.05
045	Q 98429 01451	2	1	13	4	Include	16.82	5.18
046	R 00582 02076	3	1	3	17	Include	3.45	19.55
047	R 00599 01364	3	1	7	39	Include	8.07	44.93
049	R 06396 03950	3	1	3	8	Include	4.36	11.64
050	R 07012 04557	3	1	4	29	Include	4.97	36.03
052	R 07464 02865	2	1	5	17	Include	6.36	21.64
053	R 08062 02122	2	1	37	0	Include	43.00	0.00
054	R 09819 03509	2	1	27	18	Include	31.20	20.80
055	R 10564 03509	2	1	15	14	Include	18.10	16.90
056	R 11511 04006	2	2	1	6	Include	1.43	8.57
057	Q 97539 04497	5	1	1	32	Include	1.24	39.76
058	R 03916 03114	4	1	0	75	Include	0.00	105.00
062	Q 98324 04139	5	1	1	70	Include	1.14	79.86
068	Q 99600 10537	2	2	2	15	Include	2.59	19.41
069	R 06156 03303	3	1	2	35	Include	2.65	46.35

Map A.4.2.1: Showing locations of 2021 survey sites on Maine River.



A.4.1. Emlagh River.

IFI Salmon Catchment #: 108
2021 survey dates: 26/7/2021
Mean Salmon Fry/5 min (2021): 1.02 fry/5min.
CWEF Index: 4.58 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout Salmon
European Eel

Figure A.4.3.1: Length distribution of salmon captured in 2021 CWEF survey on the Emlagh.

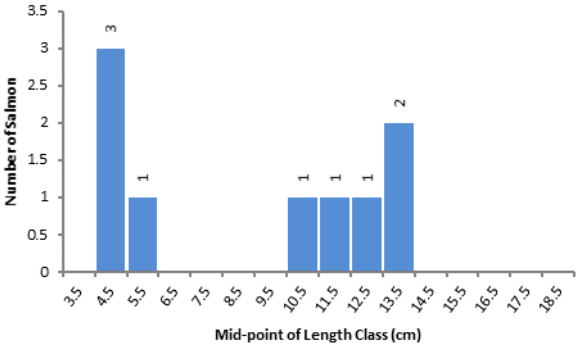
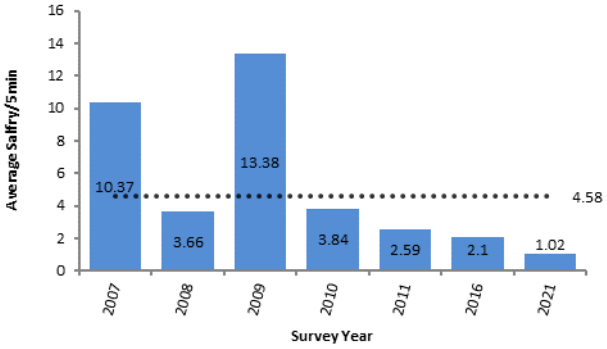


Figure A.4.3.2: Comparison of mean salmon fry/5min for all surveys on the Emlagh catchment to 2021.



The survey this year consisted of 5 sites fished on the 26th of July, Salmon fry (0+) were found at just one 1 site, site 3 where 4 fry were observed. The modal length of 0+ salmon was 4.5 cm. All 5 sites were included in the analysis; the mean catch at these sites was 1.02 salmon fry/5min.

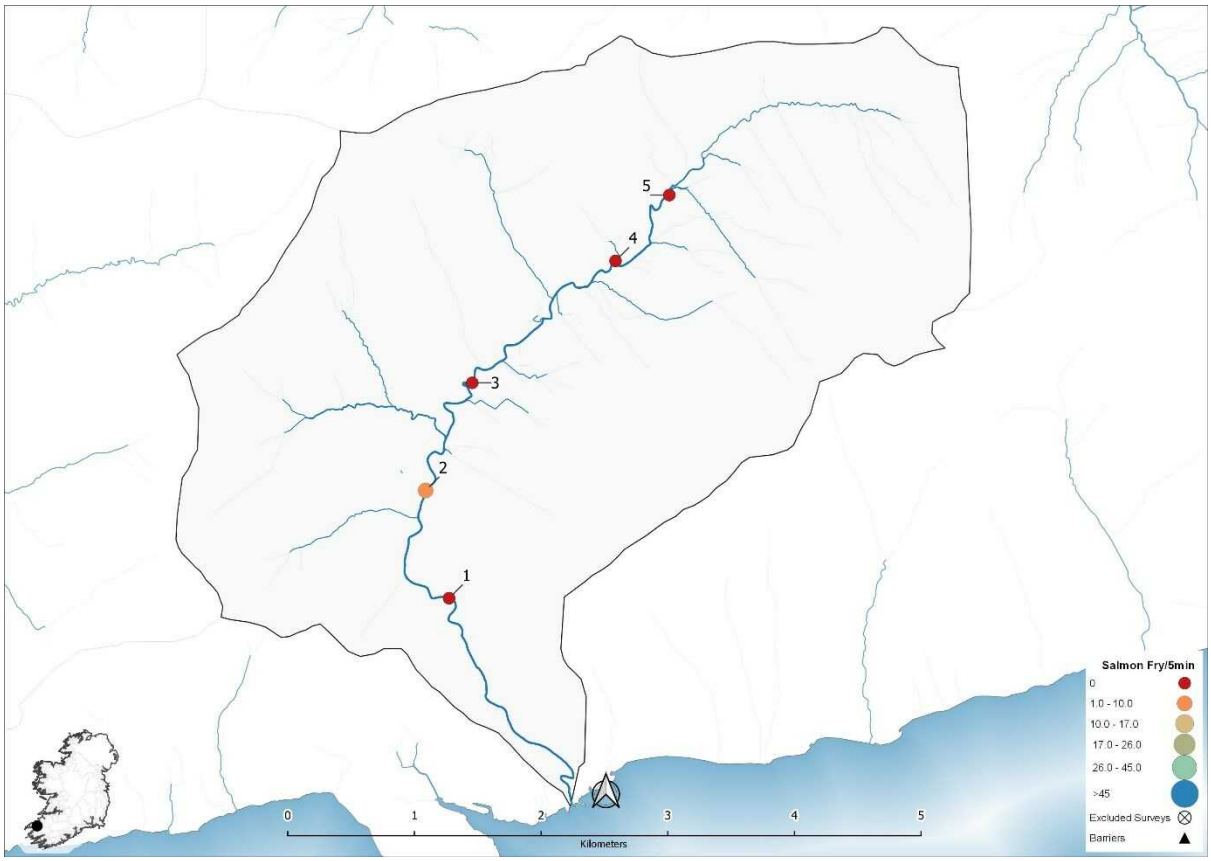
Conclusion

The Emlagh had a very low salmon abundance of 1.02 salfry/5min in 2021, Trout fry abundance was good. Taking the five most recent complete surveys into account this results in a cumulative average of 4.58 salmon fry/5min which is below the 17 salmon fry threshold.

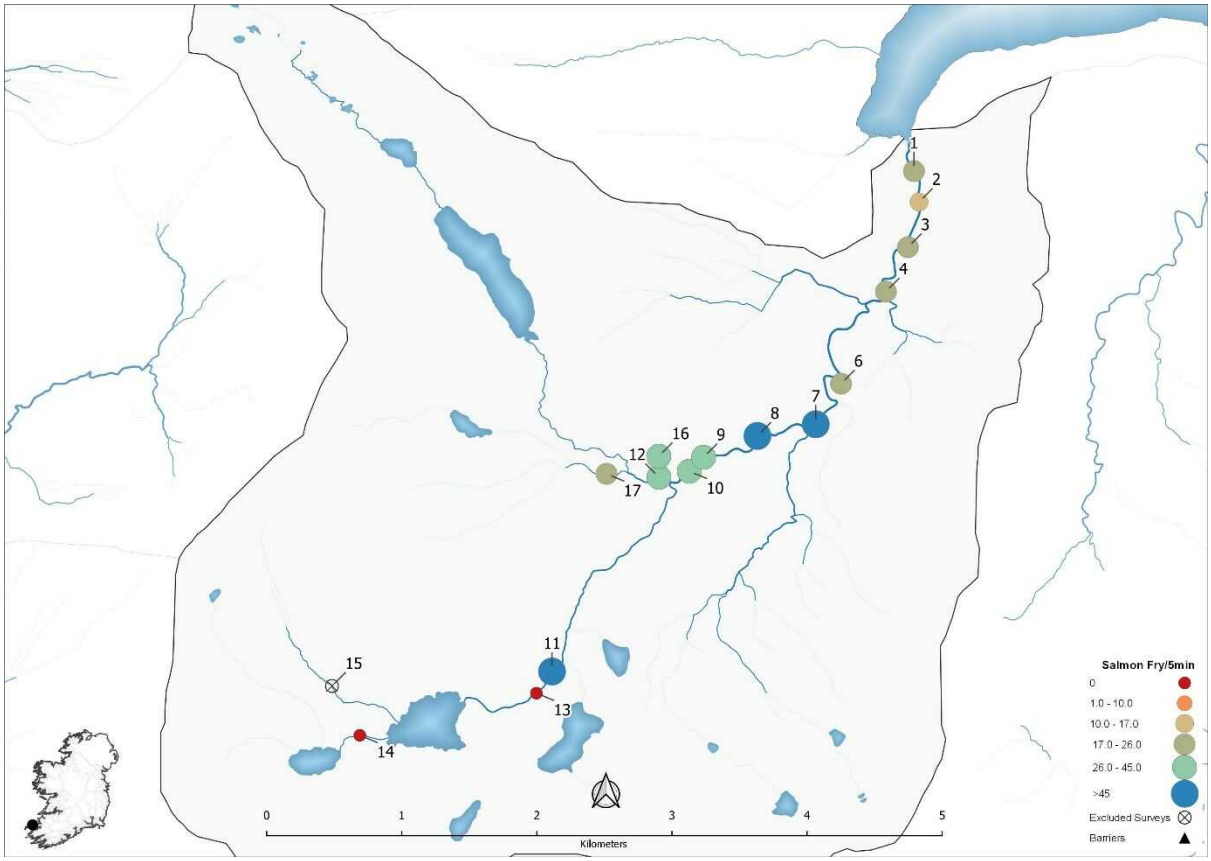
Table A.4.3.1: Site specific results of CWEF on the Emlagh catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	Q 64986 02419	4	1	14	0	Include	18.00	0.00
002	Q 64801 03268	4	1	14	4	Include	17.89	5.11
003	Q 65169 04117	4	1	32	0	Include	38.00	0.00
004	Q 66300 05079	4	1	47	0	Include	53.00	0.00
005	Q 66725 05598	4	1	25	0	Include	29.00	0.00

Map A.4.3.1: Showing locations of 2021 survey sites on Emlagh River.



Map A.4.4.1: Showing locations of 2021 survey sites on Owenmore River.



A.4.2. Owenmore River.

IFI Salmon Catchment #: 114
2021 survey dates: 14/7/2021
Mean Salmon Fry/5 min (2021): 26.72 fry/5min.
CWEF Index: 25.89 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout Salmon
European Eel

Figure A.4.3.1: Length distribution of salmon captured in 2021 CWEF survey on the Owenmore.

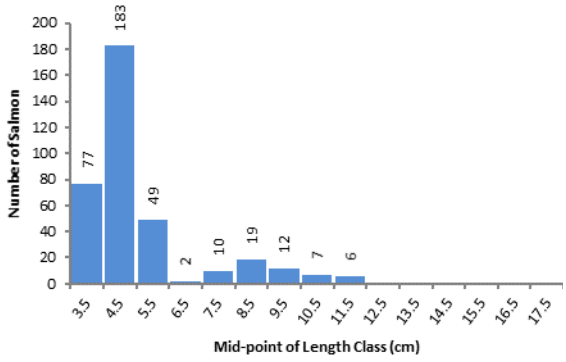
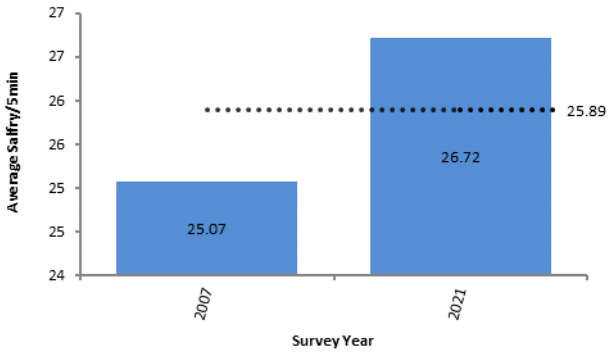


Figure A.4.3.2: Comparison of mean salmon fry/5min for all surveys on the Owenmore catchment to 2021.



The survey this year consisted of 5 sites fished on the 14th of July, Salmon fry (0+) were found at 13 sites, the highest numbers were at site 11 where 54 fry were observed. The modal length of 0+ salmon was 4.5 cm. All 13sites were included in the analysis; the mean catch at these sites was 26.72 salmon fry/5min.

Conclusion

The Owenmore had a salmon abundance of 26.72 salfry/5min in 2021. Taking the two complete surveys into account this results in a cumulative average of 25.89 salmon fry/5min which is above the 17 salmon fry threshold.

Table A.4.3.1: Site specific results of CWEF on the Owenmore catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	Q 51335 10655	4	2	0	14	Include	0.00	19.00
002	Q 51372 10426	4	2	0	8	Include	0.00	13.00
003	Q 51289 10092	4	2	1	12	Include	1.46	17.54
004	Q 51126 09765	4	2	0	21	Include	0.00	25.00
006	Q 50794 09084	4	1	0	15	Include	0.00	21.00
007	Q 50607 08785	4	2	1	37	Include	1.26	46.74
008	Q 50175 08698	4	1	0	38	Include	0.00	50.00
009	Q 49776 08540	4	2	0	22	Include	0.00	32.00
010	Q 49672 08437	4	2	0	28	Include	0.00	36.00
011	Q 48655 06958	3	1	1	54	Include	1.11	59.89
012	Q 49447 08393	3	1	2	19	Include	2.76	26.24
013	Q 48539 06798	3	3	2	0	Include	4.00	0.00
014	Q 47233 06488	2	3	8	0	Include	8.00	0.00
015	Q 47026 06851	2	3	2	0	Above Steep Incline- Not Sal Hab.		
016	Q 49446 08548	2	2	0	28	Include	0.00	36.00
017	Q 49058 08418	2	3	3	15	Include	3.67	18.33

A.5. Shannon River Basin District.

Summary

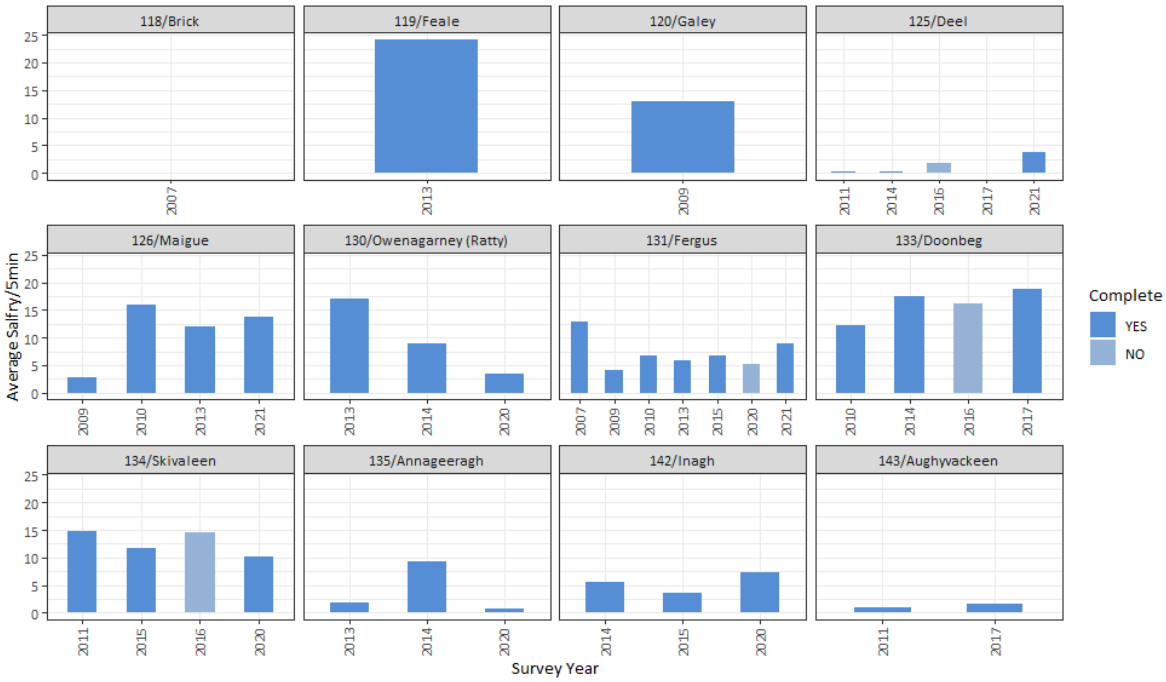
Since 2007 nineteen salmon rivers have been surveyed in the Shannon River Basin District (SHRBD) as part of the on-going catchment-wide electrofishing surveys. These are presented in Table A.5.1. At present three rivers - the Feale, Kilmastula and Old Shannon main channel are meeting the threshold of 17 salmon fry/5min. Surveys of the Deel, Maigue and Fergus were undertaken in 2021.

Table A.5.1: Catchment-wide Electrofishing data for the Shannon River Basin District 2013-2021 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate, surveys prior to 2013 are included in appendix C.

	Survey Year								Current Index	# Annual Surveys Considered
Code/River	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**		
118/Brick									0.00	1
119/Feale									24.15	1
120/Galey									12.99	1
125/Deel	**0.21**		1.87*	**0.04**				**3.74**	1.03	4
126/Maigue								**13.75**	11.17	4
128/Shannon Kilcrow									0.69	1
128/Sh. Graney									0.19	1
128/Sh. Woodford									0.00	1
128/Sh. Mulkear					**8.00***					
128/Sh. Blackwater				10.74†	10.74†				10.74	2
128/Sh. Groody				0.00†	7.45†				3.73	2
128/Sh. Kilmastula				10.35†	24.45†				17.40	2
128/Sh. Old Main Ch.				5.50*†	18.2*†	**35.68**			35.68	1
130/Owenagarney	**8.87**						**3.55**		9.80	3
131/Fergus		**6.66**					5.12*	**8.99**	6.50	5
133/Doonbeg	**17.39**		16.14*	**18.77**					16.15	3
134/Skivaleen		**11.70**	14.54*				**10.30**		12.27	3
135/Annageeragh	**9.24**						**0.72**		3.93	3
142/Inagh	**5.60**	**3.59**					**7.23**		5.47	3
143/Aughyvackeen				**1.70**					1.35	2

Bold annual figures indicate years included in calculation of current CWEF index. Underlined index figures indicate those exceeding the 17 salmon fry threshold. * =Incomplete surveys not included in calculation of current index.
† =Sub-catchment surveys.

Figure A.5: Summary of CWEF results in Shannon River basin district 2007-2021.



A.5.1. Deel River

IFI Salmon Catchment #: 125
2021 survey dates: 7 -12/7/2021
Mean Salmon Fry/5 min (2021): 3.74 fry/5min.
CWEF Index: 1.03 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:

Brown Trout	Minnow
Crayfish	Salmon
European Eel	Stonelaoch
Gudgeon	3-Spined Stickleback

Figure A.5.1.1: Length distribution of salmon captured 2021 on the Deel.

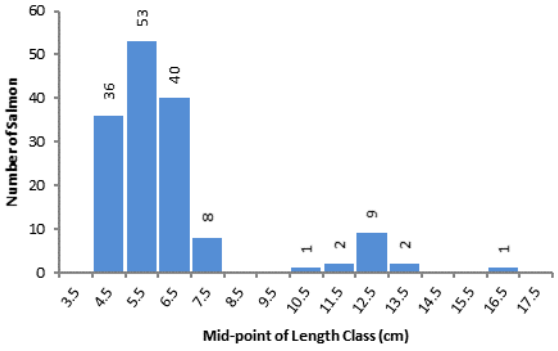
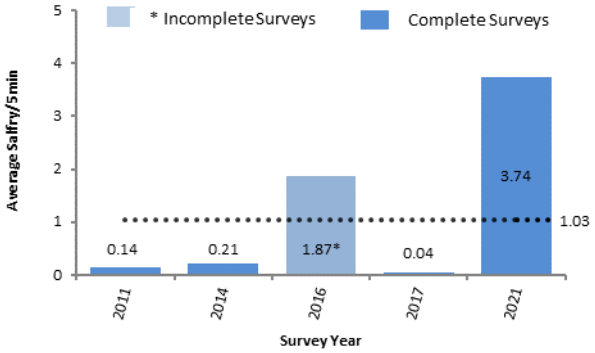


Figure A.5.1.2: Comparison of mean salmon fry/5min for all surveys on the Deel to 2021.



The survey this year consisted of 41 sites fished on the 22nd and 23rd of September, Salmon fry (0+) were found at 10 sites, the highest numbers were at site 19 where 44 fry were observed. The modal length of 0+ salmon was 5.5 cm. All 41 sites were included in the analysis; the mean catch at these sites was 3.74 salmon fry/5min.

Conclusion

The Deel had a salmon abundance of 3.74 salfry/5min in 2021. Taking the four most recent complete surveys into account this results in a cumulative average of 1.03 salmon fry/5min which is below the 17 salmon fry threshold. Overall this is a poor result overall, but good numbers were observed at a few sites and compered to previous surveys salmon were present relatively high on the main channel.

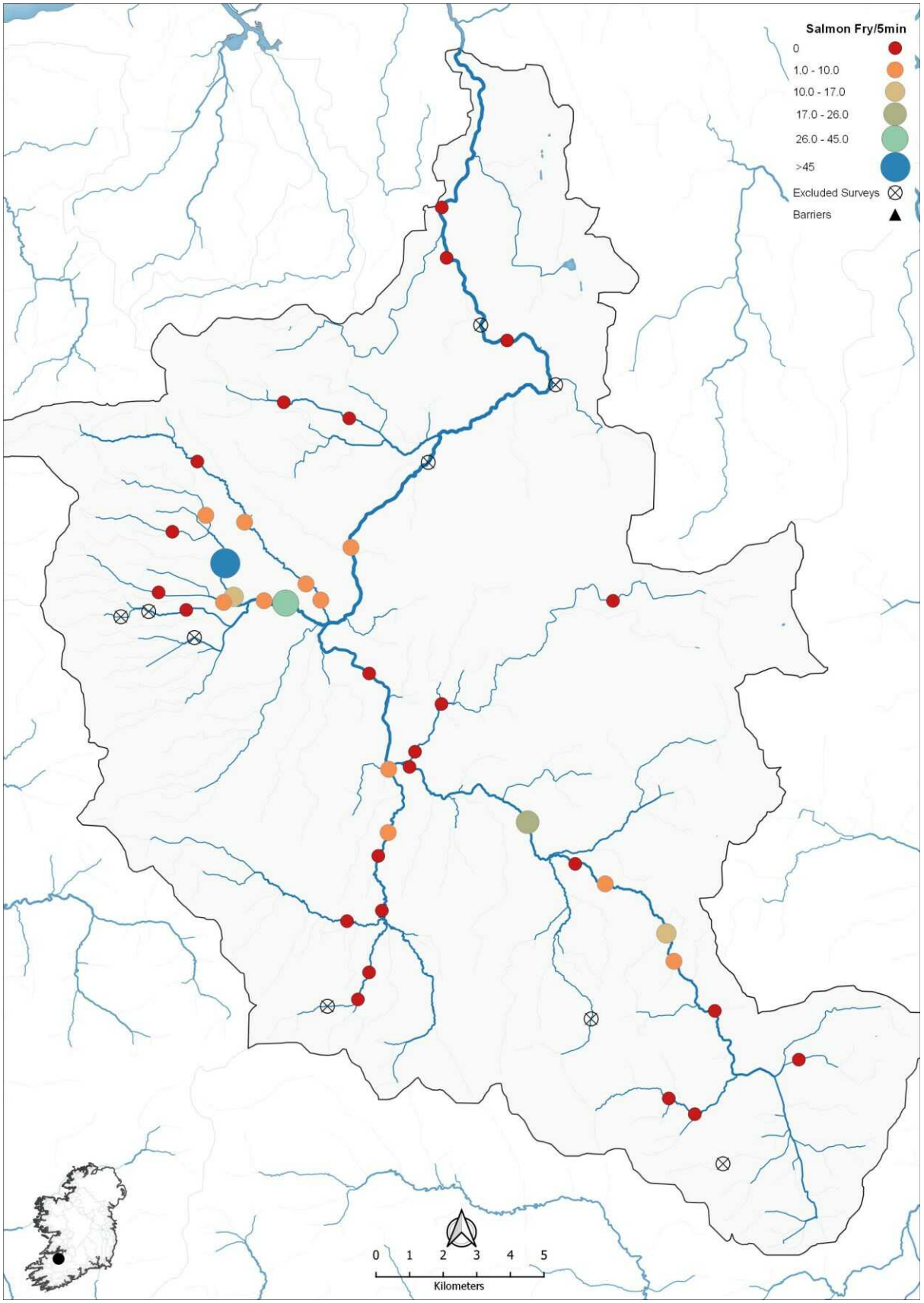
Table A.5.1.2: Site specific results of CWEF on the Deel catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
002	R 33450 45277	6	3	0	0	Include	0.00	0.00
003	R 33593 43776	6	3	0	0	Include	0.00	0.00
004	R 35396 41314	6	3	0	0	Include	0.00	0.00
009	R 33047 37687	6				Not Sampled		
011	R 30746 35153	6	1	0	3	Include	0.00	3.00
014	R 31289 31399	5	3	0	0	Include	0.00	0.00
015	R 32489 28617	4	2	0	0	Include	0.00	0.00
017	R 36005 26972	4	2	0	16	Include	0.00	18.00
018	R 37422 25730	4	2	0	0	Include	0.00	0.00
019	R 38315 25134	4	2	0	1	Include	0.00	1.00
020	R 40134 23659	4	2	0	12	Include	0.00	14.00
021	R 40362 22831	4	2	2	1	Include	2.67	1.33

Table A.5.1.2: Site specific results of CWEF on the Deel catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
022	R 41578 21353	4	3	5	0	Include	5.00	0.00
030	R 44080 19900	2	2	0	0	Include	0.00	0.00
032	R 40981 18276	3	3	2	0	Include	2.00	0.00
033	R 40209 18745	2	3	1	0	Include	1.00	0.00
036	R 37898 21114	2				Not Sampled		
044	R 31869 28545	4	1	0	1	Include	0.00	1.00
045	R 31853 26663	4	1	3	3	Include	4.00	4.00
046	R 31666 24339	4	2	3	0	Include	5.00	0.00
052	R 31286 22500	3	2	13	0	Include	14.00	0.00
053	R 30953 21693	3	1	38	0	Include	50.00	0.00
054	R 30046 21490	2				Not Sampled		
055	R 30629 24024	3	3	8	0	Include	9.00	0.00
070	R 32652 29068	3	3	0	0	Include	0.00	0.00
077	R 38547 33562	2	3	0	0	Include	0.00	0.00
079	R 23898 33087	2				Not Sampled		
080	R 26086 32469	3				Not Sampled		
083	R 26954 33516	3	2	4	3	Include	4.00	3.00
084	R 25019 33814	2	2	3	0	Include	3.00	0.00
086	R 25843 33292	3	3	7	0	Include	8.00	0.00
087	R 29848 33584	3	2	5	1	Include	5.00	1.00
088	R 29408 34067	3	2	19	3	Include	19.00	3.00
090	R 27579 35906	3	2	2	4	Include	2.67	5.33
091	R 26174 37711	3	2	18	0	Include	21.00	0.00
093	R 27004 34681	3	2	14	44	Include	14.97	47.03
094	R 26425 36108	2	0	4	5	Include	4.00	5.00
095	R 25429 35619	2	2	33	0	Include	33.00	0.00
102	R 30694 38997	3	2	18	0	Include	18.00	0.00
103	R 28746 39476	3	2	23	0	Include	25.00	0.00
1045	R 31559 25967	4	2	2	0	Include	2.00	0.00
1071	R 33440 30491	3	3	0	0	Include	0.00	0.00
1079	R 24725 33247	3				Not Sampled		
108	R 34608 41776	6				Not Sampled		
1083	R 27256 33683	3	2	8	10	Include	9.33	11.67
109	R 36840 39998	2				Not Sampled		
110	R 41822 16800	1	2	1	0	Stream Order<2		
111	R 28161 33567	5	2	0	5	Include	0.00	7.00
112	R 28804 33497	5	2	0	25	Include	0.00	28.00

Map A.5.1.1: Showing locations of 2021 survey sites on Deel River.



A.5.2. Maigue River

IFI Salmon Catchment #: 126
2021 survey dates: 14/9/21 – 30/9/2021
Mean Salmon Fry/5 min (2021): 13.75 fry/5min.
CWEF Index: 11.17 fry/5min.

Sampling carried out by:
Colum Walsh
Rachel O' Malley
Tom Hilgers
Zak O'Connor

Fish Species Present:
Brown Trout
Crayfish
European Eel
Minnow
Salmon
Stone Loach
3-Spined Stickleback

Figure A.5.2.1: Length distribution of salmon captured in 2021 CWEF survey on the Maigue.

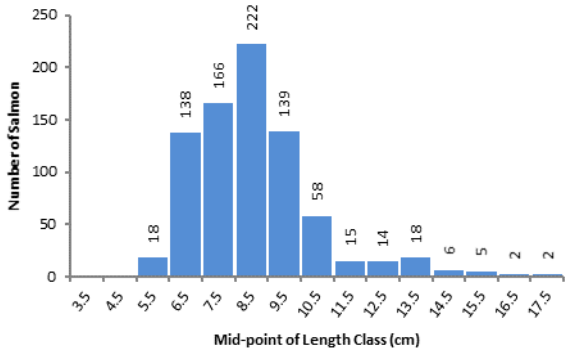
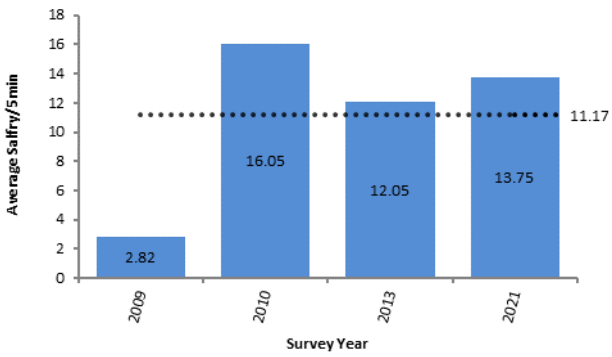


Figure A.5.2.2: Comparison of mean salmon fry/5min for all surveys on the Maigue catchment to 2021.



The survey this year consisted of 60 sites fished from the 14th of August to 17th September, Salmon fry (0+) were found at 52 sites, the highest numbers were at site 79 where 41 fry were observed. The modal length of 0+ salmon was 8.5 cm. 59 sites were included in the analysis; the mean catch at these sites was 13.75 salmon fry/5min.

Conclusion

The Maigue had a salmon abundance of 13.75 salfry/5min in 2021. Taking the four previous complete surveys into account this results in a cumulative average of 11.17 salmon fry/5min which is below the 17 salmon fry threshold.

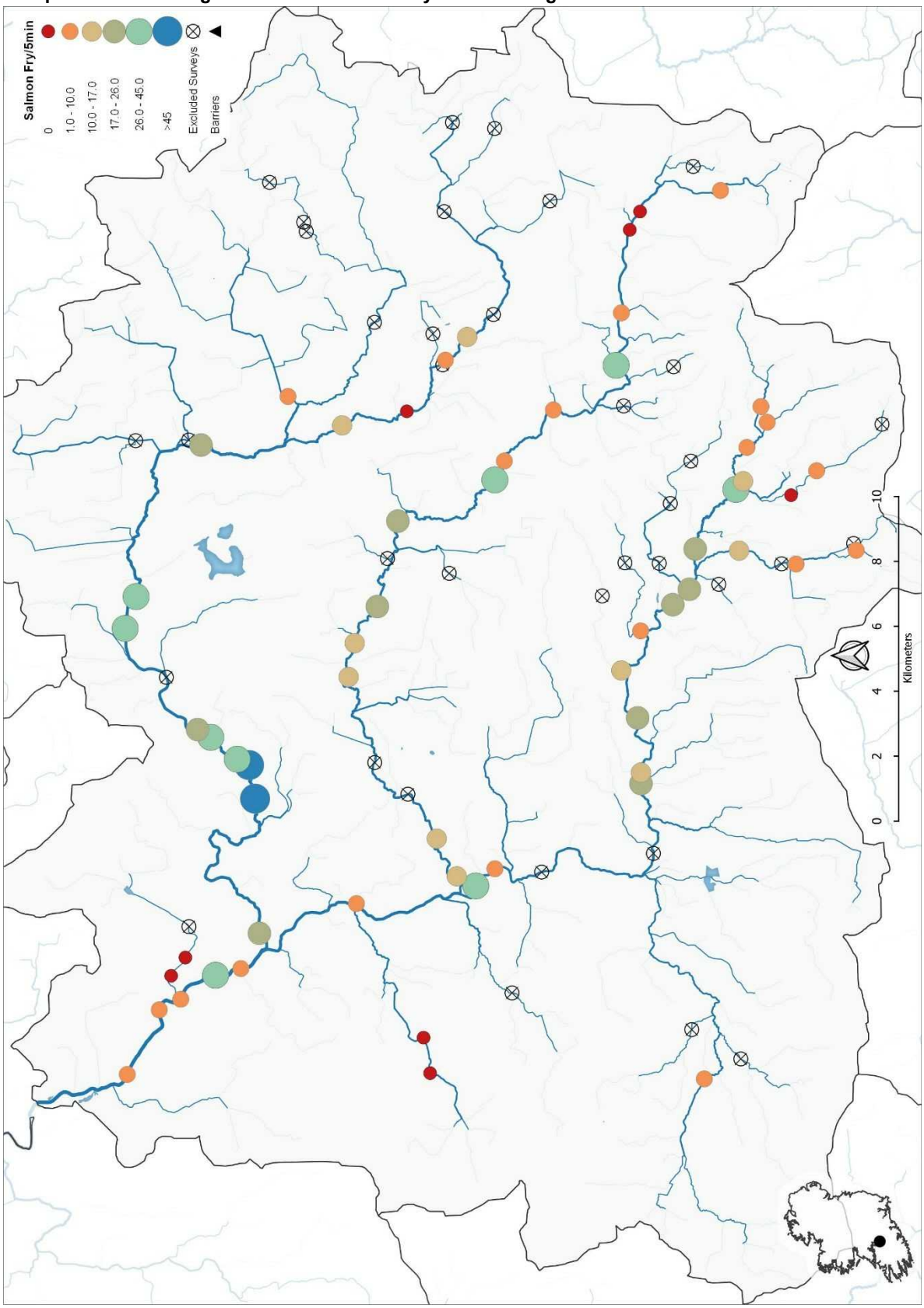
Table A.5.2.2: Site specific results of CWEF on the Maigue catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
002	R 68216 37046	4	2	2	11	Include	2.62	14.38
009	R 71633 32385	4	2	1	3	Eff <60%		
010	R 70939 33193	4	2	1	8	Include	1.33	10.67
011	R 70226 33864	4	2	6	3	Include	6.00	3.00
013	R 68648 35051	4	3	2	0	Include	4.00	0.00
018	R 69107 38713	3	1	1	1	Include	1.00	1.00
019	R 61959 43728	5	2	1	28	Include	1.00	28.00
020	R 58841 41497	5	1	2	18	Include	2.50	22.50
021	R 57931 40275	5	2	3	29	Include	4.22	40.78
022	R 52564 39592	5	1	0	22	Include	0.00	22.00
023	R 57518 27841	4	2	0	8	Include	0.00	11.00
024	R 59203 27942	4	1	4	13	Include	5.65	18.35
025	R 60664 28447	4	1	1	12	Include	1.15	13.85
026	R 62689 26860	4	2	14	15	Include	16.41	17.59

Table A.5.2.2: Site specific results of CWEF on the Maigue catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
027	R 63166 26350	4	2	7	17	Include	8.17	19.83
028	R 64409 26170	4	1	3	16	Include	3.47	18.53
029	R 66243 24916	4	1	7	27	Include	8.24	31.76
030	R 67536 24576	3	1	12	5	Include	15.53	6.47
031	R 68312 23954	2	2	13	2	Include	18.20	2.80
032	R 68795 24146	3	2	18	5	Include	19.57	5.43
035	R 64356 24818	3	2	7	10	Include	8.65	12.35
037	R 64367 21212	2	2	20	5	Include	21.60	5.40
038	R 66064 23218	2	1	19	0	Include	23.00	0.00
041	R 48078 25889	3	2	2	2	Include	2.50	2.50
046	R 49349 34537	3	3	0	0	Include	0.00	0.00
047	R 48255 34333	3	3	6	0	Include	10.00	0.00
049	R 75455 25390	3	1	0	1	Include	0.00	1.00
050	R 74805 27869	4	2	5	0	Include	5.00	0.00
052	R 74242 28185	4	1	34	0	Include	38.00	0.00
053	R 71683 28443	4	1	14	3	Include	17.29	3.71
054	R 70065 28606	4	1	6	31	Include	7.14	36.86
055	R 68692 30538	4	2	12	3	Include	14.40	3.60
056	R 67119 32049	4	2	0	1	Include	0.00	1.00
057	R 66535 32340	4	1	0	25	Include	0.00	30.00
058	R 65267 35327	4	1	2	14	Include	2.63	18.38
059	R 62634 35961	4	2	0	18	Include	0.00	25.00
060	R 60462 36846	4	1	5	10	Include	7.33	14.67
061	R 54321 33515	4	1	1	10	Include	1.36	13.64
069	R 54551 32340	4	2	0	1	Include	0.00	1.00
070	R 54025 32929	4	1	0	25	Include	0.00	32.00
071	R 53479 36604	5	2	0	7	Include	0.00	7.00
073	R 48214 43664	6	1	0	5	Include	0.00	5.00
074	R 50205 42679	6	1	2	1	Include	2.67	1.33
075	R 50533 42015	6	1	0	5	Include	0.00	6.00
076	R 51272 40943	6	1	0	35	Include	0.00	35.00
077	R 51476 40164	6	1	0	5	Include	0.00	5.00
079	R 57748 39911	5	1	4	41	Include	5.07	51.93
081	R 66495 24694	3	1	16	13	Include	19.31	15.69
082	R 63943 23063	3	1	14	1	Include	14.00	1.00
083	R 66818 22431	2	2	32	6	Include	37.89	7.11
084	R 57177 27840	4	1	0	13	Include	0.00	18.00
085	R 61505 36658	4	1	0	11	Include	0.00	14.00
087	R 55480 34130	4	1	3	10	Include	3.92	13.08
089	R 67608 41392	5	2	4	16	Include	4.60	18.40
092	R 62940 43391	5	1	1	29	Include	1.27	36.73
116	R 58605 41090	5	1	1	33	Include	1.18	38.82
117	R 56712 39726	5	2	5	37	Include	6.31	46.69
123	R 61884 27849	2	1	2	1	Include	2.67	1.33
136	R 51255 42311	2	3	6	0	Include	6.00	0.00
137	R 51817 41874	2	2	7	0	Include	8.00	0.00

Map A.5.2.1: Showing locations of 2021 survey sites on Maigue River.



A.5.3. Fergus River.

IFI Salmon Catchment #: 131
2021 survey dates: 23/8 – 14/9/2021
Mean Salmon Fry/5 min (2021): 9.04 fry/5min.
CWEF Index: 6.51 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:

Brown Trout	Pike
Crayfish	Salmon
Minnow	Stone Loach
Perch	3-Spined Stickleback

Figure A.5.3.1: Length distribution of salmon captured in 2021 CWEF survey on the Fergus.

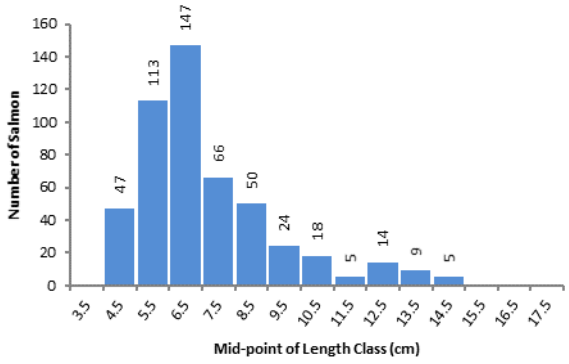
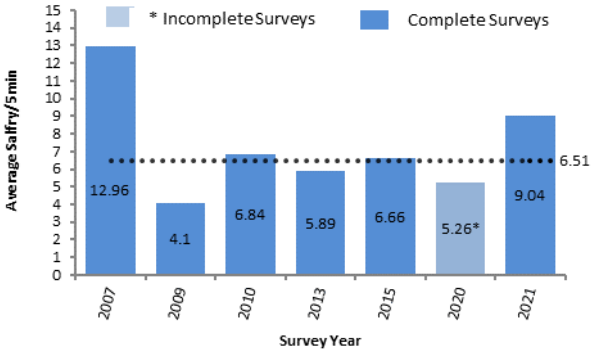


Figure A.5.3.2: Comparison of mean salmon fry/5min for all surveys on the Fergus catchment to 2021.



The survey this year consisted of 46 sites fished between the 23rd of August to 14th September. Salmon fry (0+) were found at 30 sites, the highest numbers were at site 10 where 40 fry were observed. The modal length of 0+ salmon was 6.5 cm. 45 sites were included in the analysis; the mean catch at these sites was 9.04 salmon fry/5min. Some sites below Corofin dried up during the summer.

Conclusion

The Fergus had a salmon abundance of 9.04 salfry/5min in 2021. Taking the five most recent complete surveys into account this results in a cumulative average of 6.51 salmon fry/5min which is below the 17 salmon fry threshold.

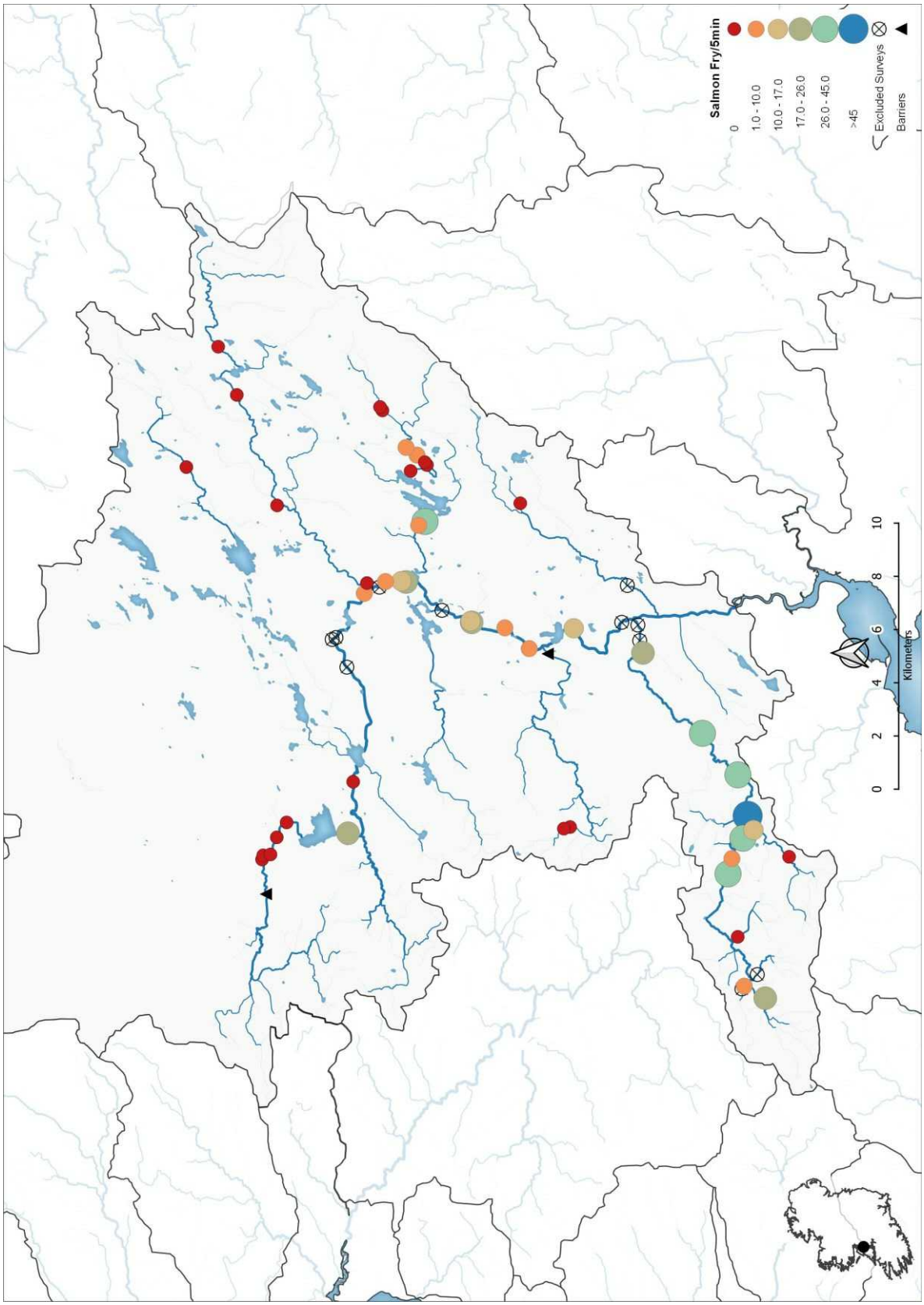
Table A.5.3.1: Site specific results of CWEF on the Fergus catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	R 36168 86601	5	3	1	18	Include	1.00	18.00
002	R 28656 88588	5	3	0	0	Include	0.00	0.00
003	R 26721 88781	4	0	3	0	Include	6.86	25.14
004	R 27127 91087	4	3	2	0	Include	5.00	0.00
006	R 34549 77893	4				Not Sampled		
007	R 33961 77824	4	2	0	1	Eff <60%		
008	R 33501 77702	4	0	0	17	Include	0.00	20.00
009	R 30478 75469	4	1	0	25	Include	0.00	28.00
010	R 27375 73770	4	0	4	44	Include	4.42	48.58
011	R 26840 73551	3	3	2	10	Include	2.17	10.83
012	R 25834 72213	3	2	11	0	Include	12.00	0.00
013	R 25195 74508	4	2	17	33	Include	19.04	36.96
014	R 22826 74144	3	2	17	0	Include	19.00	0.00

Table A.5.3.1: Site specific results of CWEF on the Fergus catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
015	R 38295 86127	3	2	10	6	Include	11.25	6.75
016	R 38443 85887	3	1	16	26	Include	19.81	32.19
017	R 40566 85815	3	2	16	0	Include	20.00	0.00
018	R 42618 87490	2	2	9	0	Include	9.00	0.00
019	R 36126 88069	3	2	5	0	Include	9.00	0.00
020	R 34650 78500	5				Not Sampled		
023	R 28916 74137	4	1	0	34	Include	0.00	39.00
024	R 26535 73949	4	2	0	26	Include	0.00	28.00
025	R 20521 73109	3	2	13	18	Include	14.26	19.74
026	R 21409 73408	3	3	5	1	Too Small		
031	R 26954 80440	2	3	0	0	Include	0.00	0.00
034	R 40342 86430	3	3	0	0	Include	0.00	0.00
036	R 42745 87577	2	1	19	0	Include	19.00	0.00
039	R 43199 92958	3	2	22	0	Include	29.00	0.00
040	R 45012 93658	3	2	8	0	Include	9.00	0.00
047	R 26893 80673	2	2	0	0	Include	0.00	0.00
048	R 39046 91445	3	2	8	0	Include	11.00	0.00
049	R 41225 86601	3	2	13	1	Include	15.79	1.21
050	R 35102 85253	5				Not Sampled		
051	R 34442 82890	5	3	0	7	Include	0.00	10.00
052	R 39127 82312	2	2	17	0	Include	18.00	0.00
063	R 20868 73986	2				Not Sampled		
069	R 36035 78288	3				Not Sampled		
072	R 25734 92011	4	1	0	0	Include	0.00	0.00
073	R 25889 91967	4	3	21	0	Include	24.00	0.00
074	R 26566 91456	4	3	2	0	Include	2.00	0.00
077	R 32966 88825	5				Not Sampled		
078	R 35972 87600	5	3	4	3	Poor Flow Conditions		
079	R 36185 87374	5	3	0	4	Include	0.00	4.00
080	R 36197 86778	5	2	3	9	Include	4.00	12.00
081	R 34692 84179	5	3	0	11	Include	0.00	14.00
082	R 34648 84136	5	2	0	17	Include	0.00	19.00
083	R 34007 89375	5				Not Sampled		
084	R 34077 89233	5				Not Sampled		
085	R 35739 88169	5	2	0	3	Include	0.00	3.00
086	R 34426 80304	5	3	0	12	Include	0.00	14.00
087	R 25923 91694	4	2	11	0	Include	13.00	0.00
097	R 40671 85898	3	3	9	0	Include	9.00	0.00
103	R 40486 94851	3	3	0	0	Include	0.00	0.00
106	R 25770 74362	4	2	13	8	Include	14.86	9.14
107	R 33662 81975	5	2	1	3	Include	1.00	3.00
108	R 40938 86189	3	2	7	3	Include	7.00	3.00
110	R 20971 73897	2	2	36	1	Include	37.95	1.05

Map A.5.3.1: Showing locations of 2021 survey sites on Fergus River.



A.6. Western River Basin District.

Summary

Since 2007 thirty salmon rivers have been surveyed in the Western River Basin District (WRBD) as part of the on-going catchment-wide electrofishing surveys. These are presented in Table A.6.1. At present six rivers are meeting the threshold of 17 salmon fry/5min. Surveys of the Knock, Owenboliska, Erriff, Ballinglen and Garvogue were undertaken in 2021.

Table A.6.1: Catchment-wide Electrofishing data for the Western River Basin District 2013-2021 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate, surveys prior to 2013 are included in appendix C.

	Survey Year									Current Index	# Annual Surveys Considered
Code/River	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**		
145/Kilcolgan					0.10*	0.79*		**11.95**		7.23	2
146/Clarinbridge								**1.77**		4.51	2
147/Corrib Owenriff						10.3*†			22.30		
148/Knock						1.50*			**16.93**	14.73	2
149/Owenboliska		**4.52**				**0.60**			**12.81**	5.50	4
152/Cashla	**10.83**									10.83	1
154/L.Na Furnace			**0.00**							0.00	1
155/Screeb					**10.70**					10.70	1
161/Ballinahinch								**14.83**		14.83	1
163/Owenglin										11.57	1
167/Culfin										<u>30.83</u>	1
168/Erriff	27.45	24.90	28.52	**21.72**	**13.69**	**22.81**	**22.25**	**31.95**	**40.49**	<u>26.24</u>	5
171/Carrownisky	**18.22**				4.25*		**15.24**			<u>18.08</u>	4
172/Bunowen										13.62	1
173/Owenwee							**4.49**			8.87	4
178/Newport (Beltra)		**17.40**								13.00	3
179/Srahmore										4.33	1
181/Owengarve		**6.19**	**0.72**					**13.01**		6.36	4
185/Owenduff		**6.20**								6.10	2
186/Owenmore-MC	**27.65**									<u>27.65</u>	1
186 Carrowmore	**25.77**									<u>25.77</u>	1
187/Glenamoy										16.91	2
188/Muingnabo			**1.87***					**0.33**		0.55	2
193/Ballinglen	**6.37**			**4.97**					**10.73**	9.56	5
194/Cloonaghmore	**15.02**				5.07*	**14.63**				15.79	5
196/Brusna	**14.16**	**14.74**						6.73*		11.20	3
198/Leaffony			**1.73**					0.67*		5.15	3
203/Garvogue									**19.53**	14.66	5
205/Drumcliff										<u>17.72</u>	1

Bold annual figures indicate years included in calculation of current CWEF index.
Underlined index figures indicate those exceeding the 17 salmon fry threshold.
* Incomplete surveys not included in calculation of current index.
† Sub-catchment surveys.

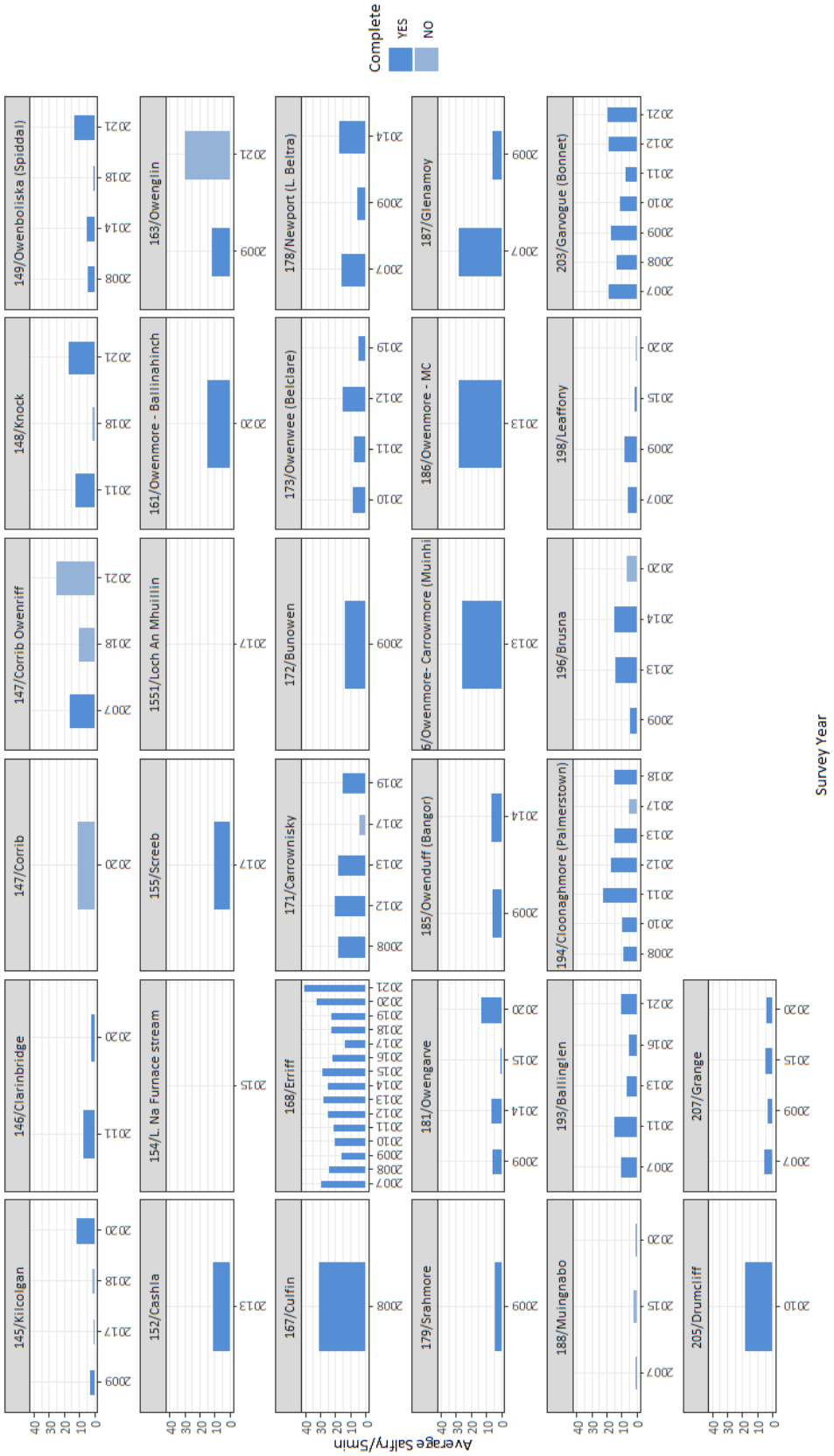


Figure A.6: Summary of CWEF results in Western River basin district 2007-2021

A.6.1. Owenriff River

IFI Salmon Catchment #: 147
2021 survey dates: 24-31/8/2021
Mean Salmon Fry/5 min (2021): 22.30 fry/5min.

Sampling carried out by:
John Kelly
Paddy Gargan

Fish Species Present:

Brown Trout	Minnow
European Eel	Pike
Margaritifera	Salmon

Figure A.6.1.1: Length distribution of salmon captured in 2021 CWEF survey on the Owenriff.

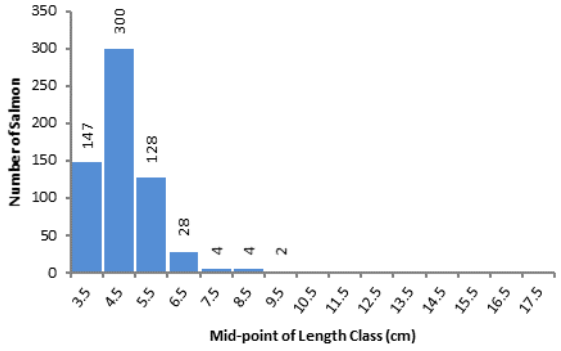
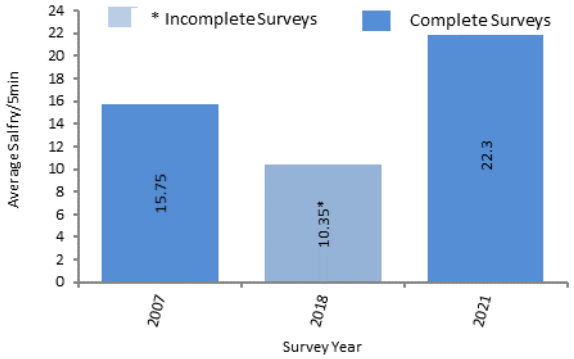


Figure A.6.1.2: Comparison of mean salmon fry/5min for all surveys on the Owenriff catchment to 2021.



A survey was undertaken on the Owenriff, a tributary river to the west of Lough Corrib. The purpose was to investigate the abundance and distribution of salmon in the river. The survey this year consisted of 31 sites fished from the 24th to the 31st of September, Salmon fry (0+) were found at 24 sites, the highest numbers were at site 6 where 69 fry were observed. The modal length of 0+ salmon was 4.5 cm. For the calculation of an indicative CWEF average all sites were included in the analysis; the mean catch at these sites was 22.30 salmon fry/5min.

Conclusion

Salmon fry were present in high abundances and were widely distributed in the Owenriff in 2021.

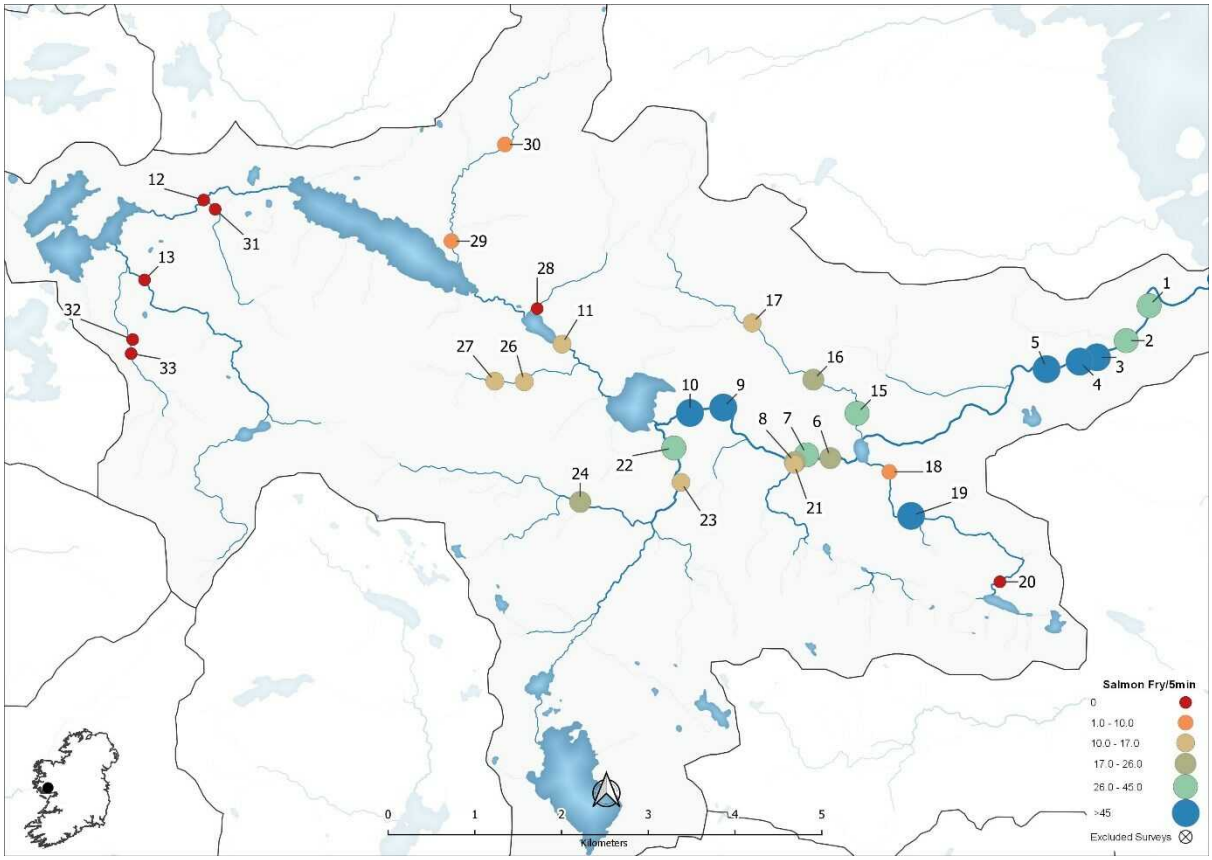
Table A.6.1.1: Site specific results of CWEF on the Owenriff catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	M 12236 43225	4	1	0	25	Include	0.00	30.00
002	M 11973 42821	4	1	1	25	Include	1.23	30.77
003	M 11635 42630	4	1	1	69	Include	1.13	77.87
004	M 11435 42580	4	1	0	55	Include	0.00	62.00
005	M 11053 42493	4	1	0	41	Include	0.00	48.00
006	M 08560 41467	4	2	1	14	Include	1.27	17.73
007	M 08287 41505	4	2	0	26	Include	0.00	32.00
008	M 08151 41424	3	1	0	16	Include	0.00	19.00
009	M 07326 42051	4	1	1	46	Include	1.11	50.89
010	M 06942 41988	4	1	0	51	Include	0.00	56.00
011	M 05467 42782	3	0	6	14	Include	7.20	16.80
012	M 01336 44442	3	3	0	0	Include	0.00	0.00
013	M 00653 43522	3	3	0	0	Include	0.00	0.00
015	M 08868 41984	2	2	3	26	Include	3.52	30.48
016	M 08364 42372	2	2	7	19	Include	7.81	21.19

Table A.6.1.1: Site specific results of CWEF on the Owenriff catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
017	M 07659 43026	2	2	24	12	Include	26.67	13.33
018	M 09240 41308	3	0	7	9	Include	7.00	9.00
019	M 09491 40802	3	1	6	51	Include	6.53	55.47
020	M 10516 40041	3	3	2	0	Include	3.00	0.00
021	M 08143 41397	3	2	0	15	Include	0.00	17.00
022	M 06757 41584	4	2	2	41	Include	2.19	44.81
023	M 06839 41188	4	2	3	10	Include	3.69	12.31
024	M 05676 40963	3	3	7	19	Include	8.35	22.65
026	M 05031 42347	2	3	3	10	Include	3.46	11.54
027	M 04692 42354	2	0	24	9	Include	26.91	10.09
028	M 05180 43190	2	3	0	0	Include	0.00	0.00
029	M 04191 43970	2	3	6	1	Include	6.86	1.14
030	M 04809 45083	2	2	19	1	Include	20.90	1.10
031	M 01468 44337	2	3	0	0	Include	0.00	0.00
032	M 00516 42835	2	3	4	0	Include	4.00	0.00
033	M 00499 42672	2	3	0	0	Include	0.00	0.00

Map A.6.1.1: Showing locations of 2021 survey sites on Owenriff River.



A.6.2. Knock River

IFI Salmon Catchment #: 148
2021 survey dates: 30/8/2021
Mean Salmon Fry/5 min (2021): 16.93 fry/5min.
CWEF Index: 14.73 fry/5min.

Sampling carried out by:
Robbie McCardle
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Flounder
Salmon

Figure A.6.2.1: Length distribution of salmon captured in 2021 CWEF survey on the Knock.

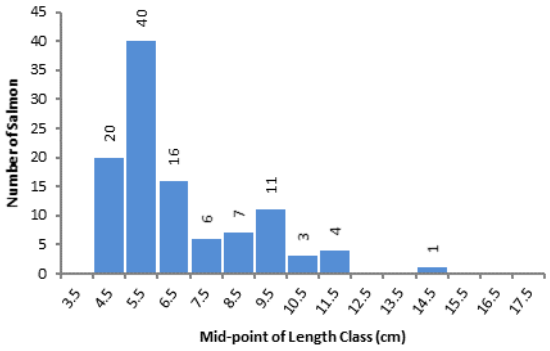
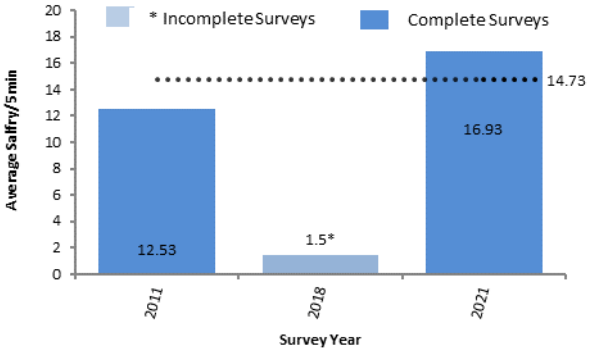


Figure A.6.2.2: Comparison of mean salmon fry/5min for all surveys on the Knock catchment to 2021.



The survey this year consisted of 6 sites fished from the 30th September, Salmon fry (0+) were found at 4 sites, the highest numbers were at site 5 where 35 fry were observed. The modal length of 0+ salmon was 5.5 cm. All 6 sites were included in the analysis; the mean catch at these sites was 12.53 salmon fry/5min.

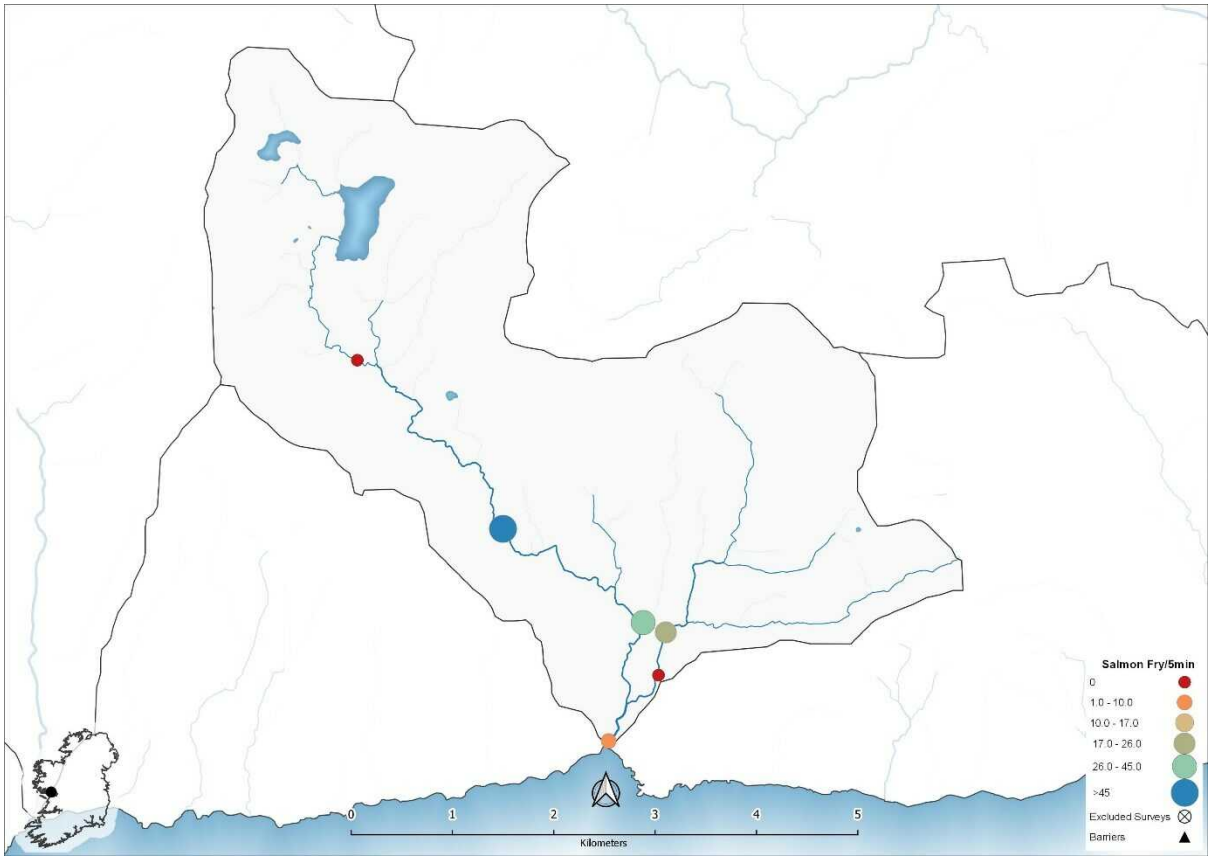
Conclusion

The Knock had a salmon abundance of 12.53 salfry/5min in 2021. Taking the two complete surveys into account this results in a cumulative average of 14.73 salmon fry/5min which is below the 17 salmon fry threshold.

Table A.6.2.1: Site specific results of CWEF on the Knock catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	M 18361 22926	4	2	2	4	Include	2.33	4.67
002	M 18855 23575	3	0	8	0	Include	8.00	0.00
004	M 18702 24094	3	1	1	24	Include	1.24	29.76
005	M 17319 25018	3	1	6	35	Include	8.20	47.80
006	M 15881 26681	2	0	32	0	Include	42.00	0.00
007	M 18927 23997	3	2	7	14	Include	9.67	19.33

Map A.6.2.1: Showing locations of 2021 survey sites on Kilcolgan River.



A.6.3. Owenboliska River.

IFI Salmon Catchment #: 149
2021 survey dates: 26 - 30/8/2021
Mean Salmon Fry/5 min (2021): 12.90 fry/5min.
CWEF Index: 5.48 fry/5min.

Sampling carried out by:
Dave Turner
Robbie McArdle
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Salmon

Figure A.6.3.1: Length distribution of salmon captured in 2021 CWEF survey on the Owenboliska.

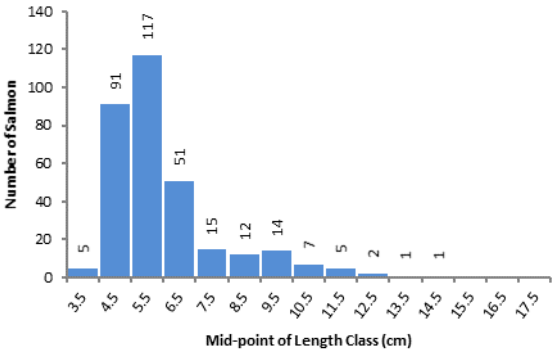
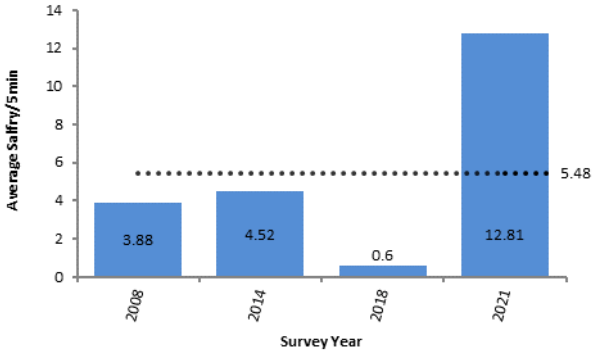


Figure A.6.3.2: Comparison of mean salmon fry/5min for all surveys on the Owenboliska catchment to 2021.



The survey this year consisted of 25 sites fished from the 26th to the 30 of August, Salmon fry (0+) were found at 19 sites, the highest numbers were at site 20 where 45 fry were observed. The modal length of 0+ salmon was 5.5 cm. All sites were included in the analysis; the mean catch at these sites was 12.90 salmon fry/5min

Conclusion

The Owenboliska had a salmon abundance of 12.90 salfry/5min in 2021. Taking the two most complete surveys into account this results in a cumulative average of 5.48 salmon fry/5min which is below the 17 salmon fry threshold.

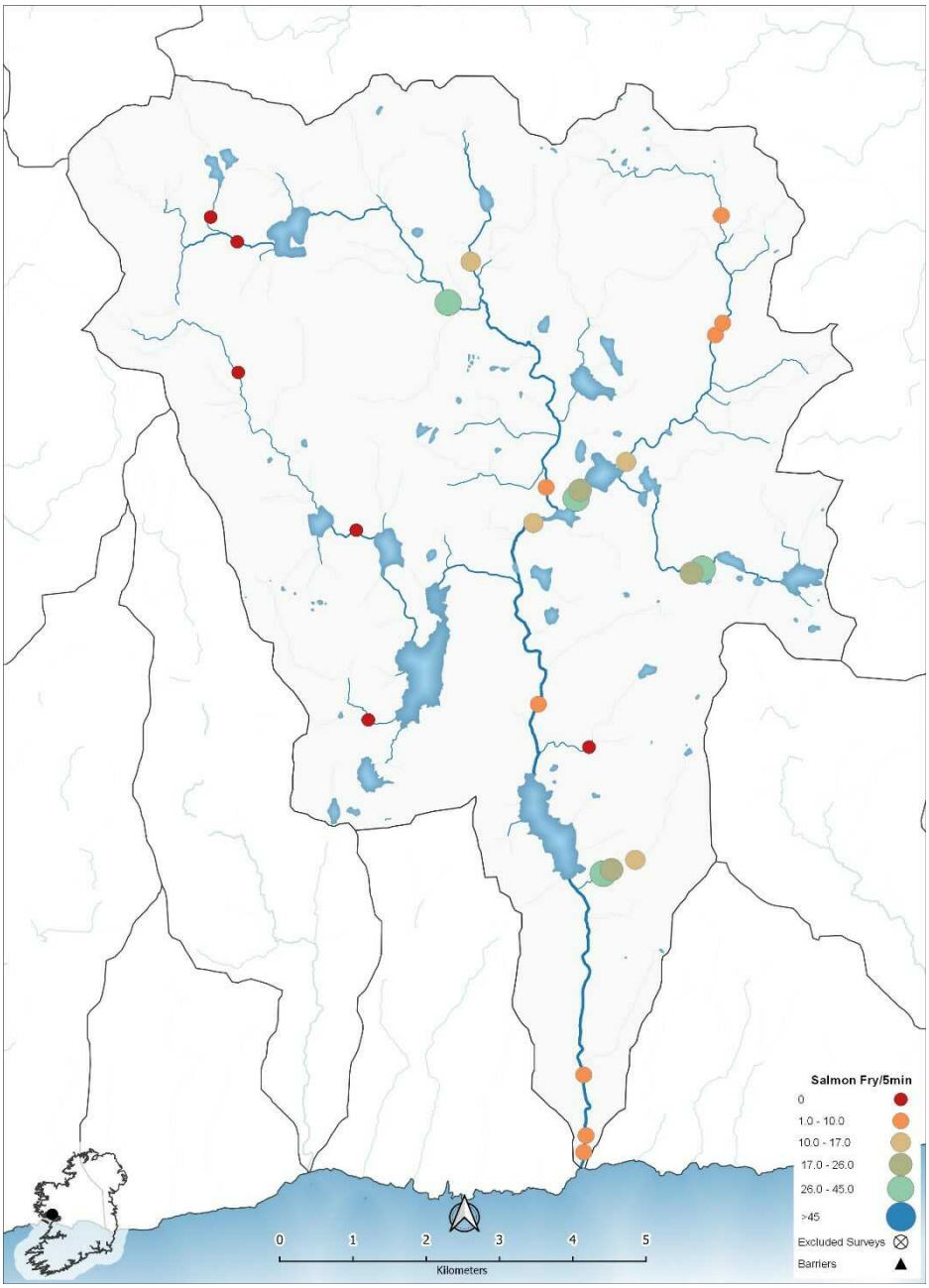
Table A.6.3.1: Site specific results of CWEF on the Owenboliska catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
002	M 10872 34230	3	1	8	34	Include	9.52	40.48
003	M 07994 35078	3	3	5	0	Include	8.00	0.00
004	M 07630 35422	2	2	14	0	Include	19.00	0.00
006	M 12990 26273	2	2	12	27	Include	16.62	37.38
008	M 13428 26465	1	2	22	15	Include	22.00	15.00
010	M 12796 28036	2	2	20	0	Include	20.00	0.00
011	M 13103 26328	2	2	12	17	Include	16.14	22.86
014	M 09783 28416	2	0	29	0	Include	39.00	0.00
015	M 09619 31058	3	3	7	0	Include	10.00	0.00
016	M 08007 33257	2	2	25	0	Include	28.00	0.00
019	M 14195 30461	3	3	8	17	Include	8.64	18.36
020	M 14343 30517	3	2	3	45	Include	3.00	45.00
023	M 14603 35445	2	2	33	2	Include	33.00	2.00
026	M 12621 31501	4	3	4	30	Include	4.71	35.29

Table A.6.3.1: Site specific results of CWEF on the Owenboliska catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
027	M 11181 34801	3	2	10	14	Include	12.08	16.92
028	M 12673 31616	4	2	3	25	Include	3.00	25.00
029	M 13302 32009	3	3	1	11	Include	1.33	14.67
030	M 14521 33780	3	3	13	6	Include	13.00	6.00
031	M 14621 33947	3	3	8	5	Include	11.08	6.92
032	M 12724 22391	5	2	9	2	Include	9.82	2.18
033	M 12756 22622	5	2	0	6	Include	0.00	8.00
034	M 12724 23470	5	3	0	7	Include	0.00	10.00
035	M 12105 28634	5	3	11	1	Include	11.00	1.00
036	M 12211 31656	4	3	31	2	Include	38.52	2.48
037	M 12036 31160	5	0	5	8	Include	8.08	12.92

Map A.6.3.1: Showing locations of 2021 survey sites on OwenboliskaRiver.



A.6.4. Erriff River.

IFI Salmon Catchment #: 168
2021 survey dates: 3/8-3/9/2021
Mean Salmon Fry/5 min (2021): 40.49 fry/5min.
CWEF Index: 26.24 fry/5min.

Sampling carried out by:
Luke Cameron
Mick Millane
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Minnow
Salmon
3-Spined Stickleback

Figure A.6.4.1: Length distribution of salmon captured in 2021 CWEF survey on the Erriff.

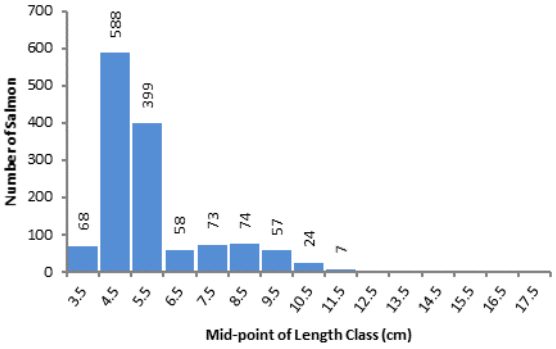
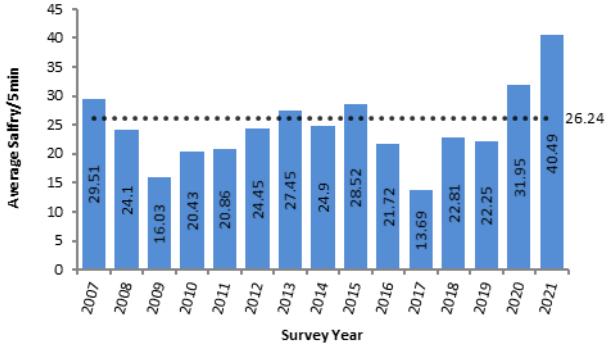


Figure A.6.4.2: Comparison of mean salmon fry/5min for all surveys on the Erriff catchment to 2021.



The survey this year consisted of 35 sites fished from the 3th of August to the 3rd of September. Salmon fry (0+) were found at all sites, the highest numbers were at site 61 where 53 fry were observed. The modal length of 0+ salmon was 4.5 cm. All sites were included in the analysis; the mean catch at these sites was 40.49 salmon fry/5min. Water levels were generally very low during the summer and during the survey.

Conclusion

The Erriff had a salmon abundance of 40.49 salfry/5min in 2021. Taking the five most recent complete surveys into account this results in a cumulative average of 26.24 salmon fry/5min which is above the 17 salmon fry threshold.

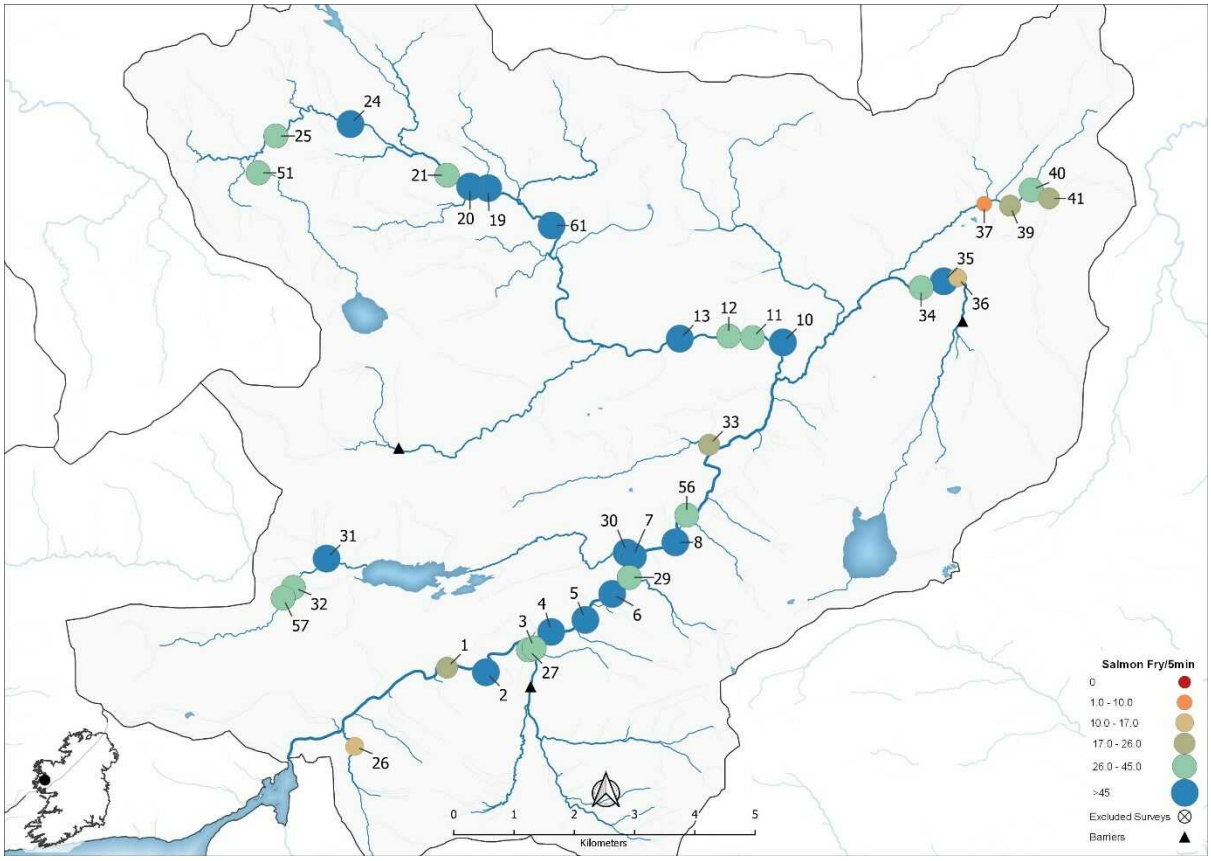
Table A.6.4.1: Site specific results of CWEF on the Erriff catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	L 92056 65797	5	1	0	14	Include	0.00	21.00
002	L 92702 65721	5	1	0	38	Include	0.00	50.00
003	L 93503 66122	5	1	0	29	Include	0.00	39.00
004	L 93784 66390	5	1	0	42	Include	0.00	52.00
005	L 94352 66589	5	1	0	44	Include	0.00	53.00
006	L 94798 67019	5	1	0	38	Include	0.00	58.00
007	L 95142 67641	5	1	0	49	Include	0.00	64.00
008	L 95846 67875	5	1	0	32	Include	0.00	47.00
010	L 97630 71190	4	1	0	51	Include	0.00	65.00
011	L 97125 71269	4	1	0	34	Include	0.00	40.00
012	L 96732 71295	4	1	0	25	Include	0.00	31.00
013	L 95919 71252	4	1	0	42	Include	0.00	47.00
019	L 92739 73748	4	1	1	44	Include	1.22	53.78

Table A.6.4.1: Site specific results of CWEF on the Erriff catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
020	L 92438 73774	4	1	0	46	Include	0.00	52.00
021	L 92057 73962	4	2	1	32	Include	1.21	38.79
024	L 90454 74809	3	1	0	38	Include	0.00	46.00
025	L 89216 74612	3	1	0	30	Include	0.00	38.00
026	L 90525 64492	3	2	10	11	Include	11.90	13.10
027	L 93408 66092	4	2	0	30	Include	0.00	42.00
029	L 95081 67292	3	2	1	31	Include	1.31	40.69
030	L 95039 67705	3	1	0	49	Include	0.00	64.00
031	L 90058 67605	3	1	4	33	Include	5.51	45.49
032	L 89506 67128	2	1	10	28	Include	12.89	36.11
033	L 96407 69493	3	2	0	17	Include	0.00	22.00
034	L 99926 72098	4	1	0	26	Include	0.00	38.00
035	M 00301 72204	4	1	1	38	Include	1.33	50.67
036	M 00529 72263	4	2	0	11	Include	0.00	13.00
037	M 00973 73488	3	2	2	9	Include	2.00	9.00
039	M 01401 73456	3	2	4	18	Include	5.09	22.91
040	M 01753 73717	3	1	1	25	Include	1.15	28.85
041	M 02046 73578	2	2	3	26	Include	3.00	26.00
051	L 88924 74002	2	1	0	37	Include	0.00	42.00
056	L 96034 68324	5	1	0	25	Include	0.00	32.00
057	L 89337 66953	2	2	3	25	Include	4.18	34.82
061	L 93793 73129	4	2	1	53	Include	1.15	60.85

Map A.6.4.1: Showing locations of 2021 survey sites on Erriff River.



A.6.5. Ballinglen River.

IFI Salmon Catchment #: 193
2021 survey dates: 31/8 -1/9/2021
Mean Salmon Fry/5 min (2021): 10.73 fry/5min.
CWEF Index: 9.56 fry/5min.

Sampling carried out by:
Kevin Kielty
Padraic Traynor
Phillip Thornton
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Salmon
3-Spined Stickleback

Figure A.6.5.1: Length distribution of salmon captured in 2021 CWEF survey on the Ballinglen.

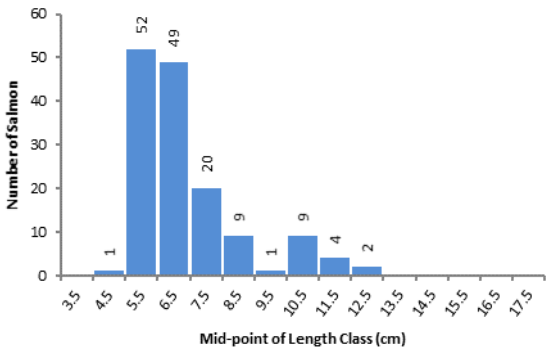
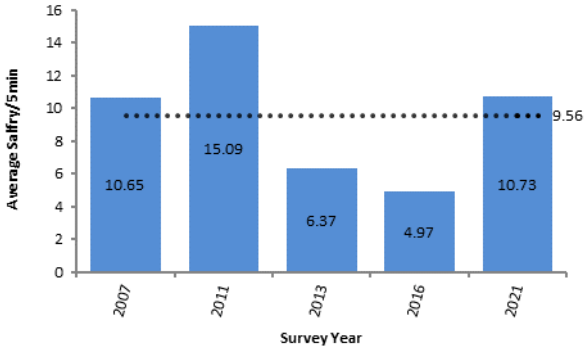


Figure A.6.5.2: Comparison of mean salmon fry/5min for all surveys on the Ballinglen catchment to 2021.



The survey this year consisted of 14 sites fished from the 10th to the 31st of August to 1 September, Salmon fry (0+) were found at 11 sites, the highest numbers were at site 33 where 12 fry were observed. The modal length of 0+ salmon was 5.5 cm. All sites were included in the analysis; the mean catch at these sites was 10.73 salmon fry/5min.

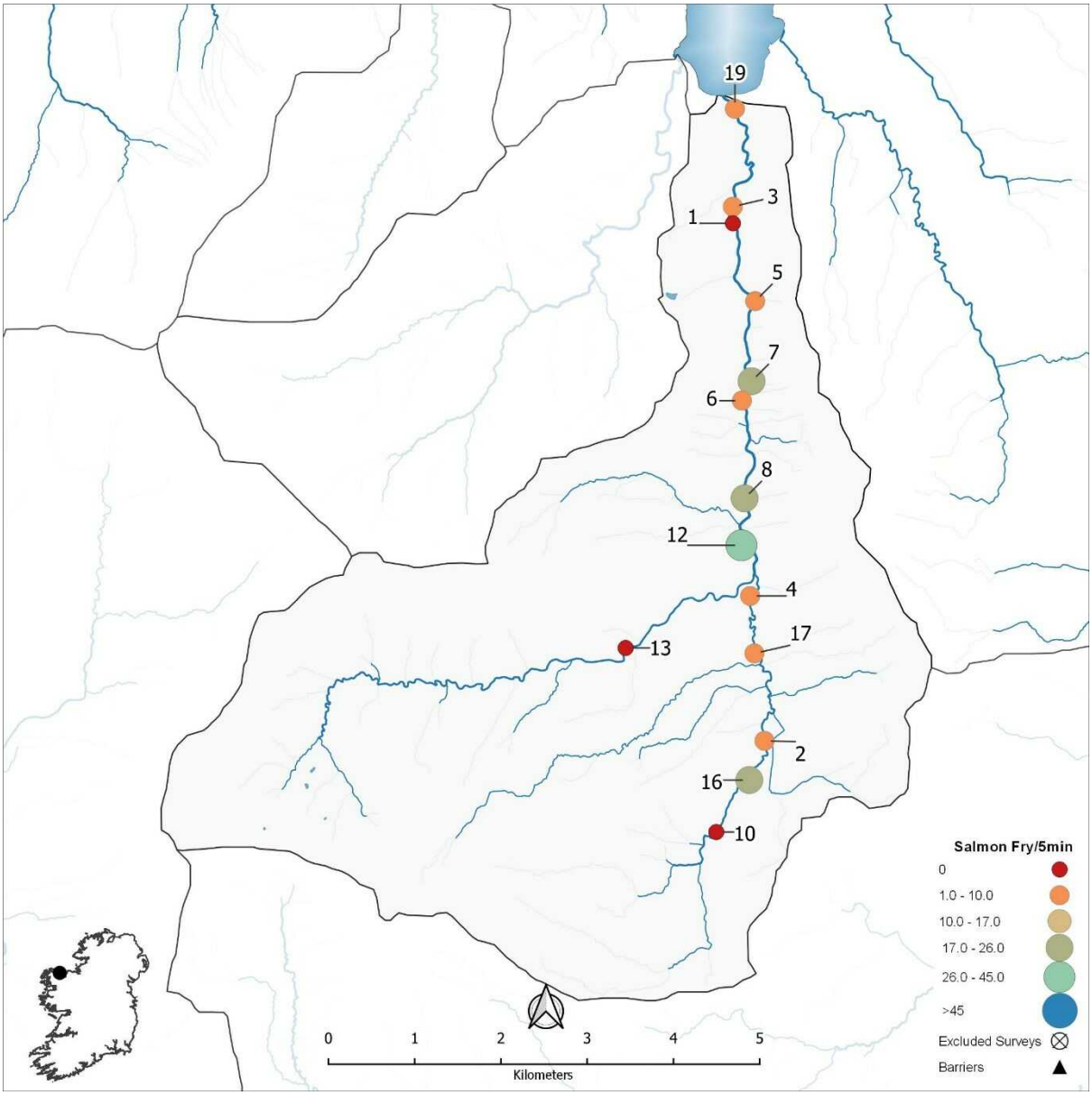
Conclusion

The Ballinglen had a salmon abundance of 10.73 salfry/5min in 2021. Taking the five most recent complete surveys into account this results in a cumulative average of 9.56 salmon fry/5min which is below the 17 salmon fry threshold.

Table A.6.5.1: Site specific results of CWEF on the Ballinglen catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	G 10120 37874	4	2	2	0	Include	2.00	0.00
002	G 10486 31880	3	2	8	4	Include	12.00	6.00
003	G 10119 38066	4	2	2	5	Include	2.57	6.43
004	G 10319 33557	3	1	7	5	Include	8.17	5.83
005	G 10378 36972	4	1	1	7	Include	1.25	8.75
006	G 10223 35820	4	1	3	6	Include	4.00	8.00
007	G 10335 36044	4	1	6	19	Include	6.96	22.04
008	G 10254 34688	4	1	0	18	Include	0.00	21.00
010	G 09927 30824	3	2	16	0	Include	19.00	0.00
012	G 10219 34145	4	1	5	33	Include	5.79	38.21
013	G 08875 32955	3	2	1	0	Include	1.00	0.00
016	G 10310 31426	3	1	5	17	Include	6.82	23.18
017	G 10368 32892	3	2	12	2	Include	12.00	2.00
019	G 10142 39198	4	2	1	7	Include	1.25	8.75

Map A.6.5.1: Showing locations of 2021 survey sites on Ballinglen River.



A.6.6. Garvogue River.

IFI Salmon Catchment #: 203
2021 survey dates: 9-23//9/2021
Mean Salmon Fry/5 min (2021): 19.53 fry/5min.
CWEF Index: 14.66 fry/5min.

Sampling carried out by:
Ciaran Jennings
Jimmy Frazer

Fish Species Present:

Brown Trout	Minnow
Crayfish	Salmon
Minnow	Stoneloach
European Eel	3-Spined Stickleback

Figure A.6.6.1: Length distribution of salmon captured in 2021 CWEF survey on the Garvogue.

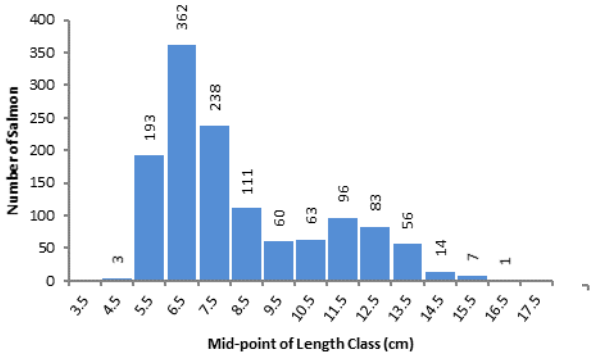
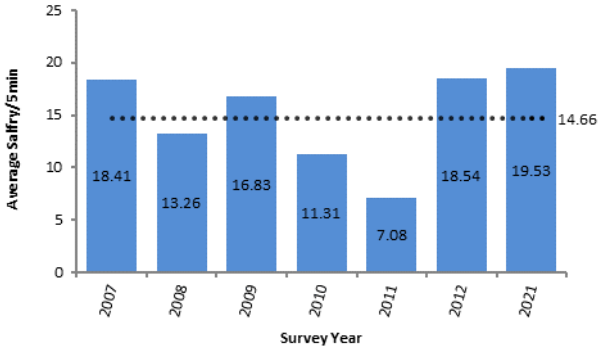


Figure A.6.6.2: Comparison of mean salmon fry/5min for all surveys on the Garvogue catchment to 2021.



The survey this year consisted of 54 sites fished from the 9th to the 23rd of September, Salmon fry (0+) were found at 48 sites, the highest numbers were at site 6 where 54 fry were observed. The modal length of 0+ salmon was 6.5 cm. 53 sites were included in the analysis; the mean catch at these sites was 19.53 salmon fry/5min.

Conclusion

The Garvogue had a salmon abundance of 19.53 salfry/5min in 2021. Taking the five most recent complete surveys into account this results in a cumulative average of 14.66 salmon fry/5min which is below the 17 salmon fry threshold. The result is the highest of any complete CWEF survey.

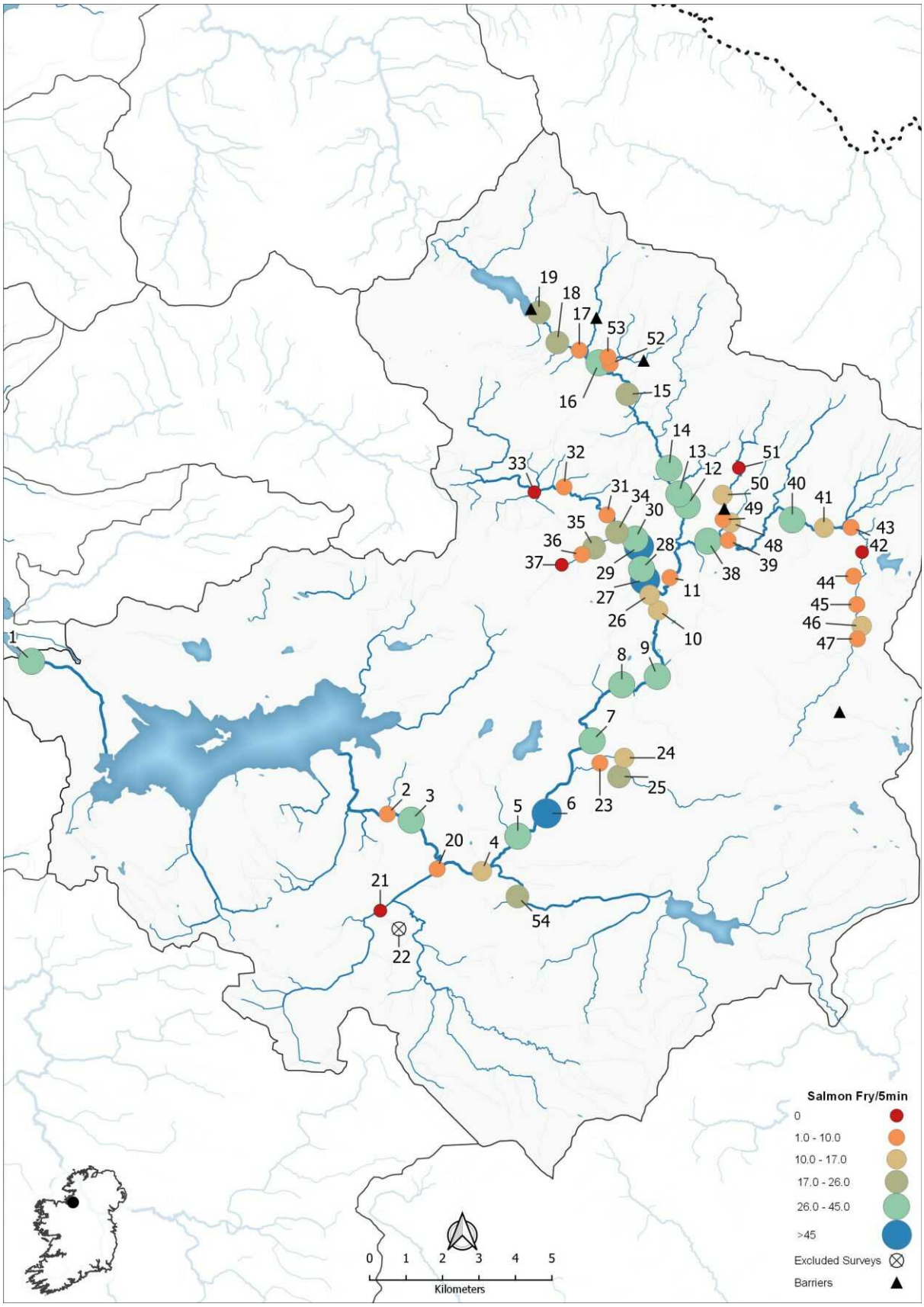
Table A.6.6.1: Site specific results of CWEF on the Garvogue catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	G 69484 35976	5	1	0	32	Include	0.00	40.65
002	G 79243 31785	5	2	0	6	Include	0.00	6.90
003	G 79900 31620	5	2	0	25	Include	0.00	29.86
004	G 81837 30218	5	2	0	13	Include	0.00	15.05
005	G 82822 31179	5	2	0	30	Include	0.00	34.88
006	G 83615 31803	5	1	1	54	Include	1.25	67.32
007	G 84862 33795	5	3	7	28	Include	7.00	28.00
008	G 85675 35335	5	1	0	28	Include	0.00	33.25
009	G 86651 35560	5	1	4	22	Include	4.88	26.81
010	G 86672 37377	5	3	5	9	Include	5.68	10.23
011	G 86996 38273	5	3	2	8	Include	2.35	9.41
012	G 87472 40251	4	1	4	35	Include	5.09	44.55
013	G 87243 40569	4	1	2	36	Include	2.29	41.14

Table A.6.6.1: Site specific results of CWEF on the Garvogue catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
014	G 86972 41273	4	1	7	27	Include	8.75	33.75
015	G 85826 43303	4	2	0	21	Include	0.00	24.28
016	G 85050 44168	4	1	5	33	Include	5.76	38.02
017	G 84508 44513	3	2	7	7	Include	8.52	8.52
018	G 83907 44723	3	1	9	20	Include	10.22	22.70
019	G 83403 45551	3	1	9	17	Include	9.75	18.42
020	G 80611 30279	4	3	3	8	Include	3.47	9.26
021	G 79050 29136	3	2	13	0	Include	14.44	0.00
022	G 79561 28636	1	2	21	0	Stream Order<2		
023	G 85075 33184	2	3	2	8	Include	2.19	8.75
024	G 85741 33329	2	2	7	11	Include	7.85	12.33
025	G 85599 32817	2	1	10	17	Include	11.72	19.93
026	G 86440 37803	4	2	13	14	Include	13.90	14.97
027	G 86317 38212	4	1	16	46	Include	18.29	52.57
028	G 86220 38509	4	1	11	41	Include	11.93	44.46
029	G 86148 39125	4	1	11	46	Include	12.52	52.37
030	G 86044 39329	4	1	11	29	Include	13.69	36.10
031	G 85269 39993	4	2	5	7	Include	5.94	8.31
032	G 84092 40760	4	2	1	4	Include	1.00	4.00
033	G 83276 40618	4	2	14	0	Include	15.50	0.00
034	G 85543 39516	2	2	4	17	Include	4.32	18.36
035	G 84917 39094	2	2	4	22	Include	4.23	23.26
036	G 84577 38906	2	2	7	7	Include	7.70	7.70
037	G 84028 38624	2	3	2	0	Include	2.00	0.00
038	G 88034 39274	4	1	3	24	Include	3.72	29.79
039	G 88593 39296	4	1	2	6	Include	2.40	7.20
040	G 90353 39858	4	1	11	33	Include	11.83	35.49
041	G 91221 39642	4	2	0	9	Include	0.00	10.29
042	G 91965 39652	3	1	3	4	Include	3.30	4.40
043	G 92268 38973	2	3	4	0	Include	4.67	0.00
044	G 92033 38314	2	1	6	8	Include	6.73	8.97
045	G 92123 37533	2	3	3	4	Include	3.24	4.32
046	G 92260 36946	2	2	2	12	Include	2.13	12.75
047	G 92140 36592	2	3	2	6	Include	2.24	6.71
048	G 88660 39783	2	2	7	13	Include	7.00	13.00
049	G 88455 39866	3	2	12	9	Include	12.65	9.49
050	G 88439 40543	3	2	13	15	Include	13.81	15.94
051	G 88889 41280	3	3	19	0	Include	19.00	0.00
052	G 85356 44137	3	2	1	6	Include	1.00	6.00
053	G 85294 44326	2	2	1	2	Include	1.10	2.20
054	G 82811 29525	4	1	2	19	Include	2.39	22.68

Map A.6.6.1: Showing locations of 2021 survey sites on Garvogue River.



A.7. North Western River Basin District

Summary

Since 2007 thirty salmon rivers have been surveyed in the North Western River Basin District (NWRBD) as part of the on-going catchment-wide electrofishing surveys. These are presented in Table A.7.1. At present eleven rivers are meeting the threshold index of 17 salmon fry/5min. Surveys of the Erne, Owenamarve, Glenna, Leannan, Isle Burn, Burnfoot, Mill, Clonmany, Straid, Donagh and Culoort were undertaken in 2021.

Table A.7.1: Catchment-wide Electrofishing data for the North-Western River Basin District 2013-2021 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate, surveys prior to 2013 are included in appendix C.

	Survey Year									Current Index	# Annual Surveys Considered
Code/River	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**		
207/Grange			**4.56**					**4.08**		4.42	4
208/Duff					**18.05**	**20.34**				18.29	5
210/Erne	0.00†	1.60†	1.16†	**1.25†**	**0.00†**	**0.65†**	**0.00†**	**0.00†**	**1.20**	0.37	5
211/Abbey	**7.20**	**28.14**								17.67	2
212/Ballintra	**13.40**	**19.82**					**13.31**			14.19	4
213/Laghy	**14.97**	**11.02**					**8.56**			10.78	4
214/Eske			**13.45**			**10.94**				14.16	5
215/Eany			**12.89**							19.61	3
216/Oily		**16.62**			**21.26**			**18.64**		19.94	5
217/Bungosteen	**19.23**				**13.17**		**13.41**			18.43	4
219/Glen			**18.37**			**18.56**		**11.71**		17.02	4
220/Owenwee/Yelw	**21.05**						**14.20**			15.50	5
221/Bracky		**12.24**						**5.31**		12.49	4
222/Owentocker										20.06	1
223/Owenea						**33.94**				33.94	1
226/Owenamarve	**2.64**	**1.00**							**10.67**	4.52	4
228/Gweedore/Crolly										13.65	2
229/Clady										26.67	2
234/Glenna	**7.77**			**4.00**					**11.43**	8.76	5
235/Tullaghobegly				0.00*						8.69	2
236/Ray		**17.31**		3.71*				**6.65**		11.55	4
240/Lackagh				17.50*	**22.50**					19.99	5
248/Leannan	19.51	20.87	**15.27**	15.05*	**18.66**	**20.11**	**21.33**	**20.50**	**17.72**	19.66	5
249/Swilly	**18.08**	**8.05**						**14.36**		11.44	5
250/Isle (Burn)									**0.00**	1.06	2
251/Burnfoot									**0.00**	3.56	3
252/Mill			**0.00**						**0.00**	0.00	3
253/Crana				6.00*	6.93*	**16.38**				16.06	2
256/Clonmany			**4.21**						**9.55**	9.24	4
257/Straid			**0.00**						**0.00**	0.07	3
258/Donagh			**0.68**						**6.79**	3.90	3
259/Glennagannon	**7.13**									9.28	3
261/Culoort			0.00*						11.41	7.72	2

Bold annual figures indicate years included in calculation of current CWEF index.
Underlined index figures indicate those exceeding the 17 salmon fry threshold.
* Incomplete surveys not included in calculation of current index.
† Sub-catchment surveys.

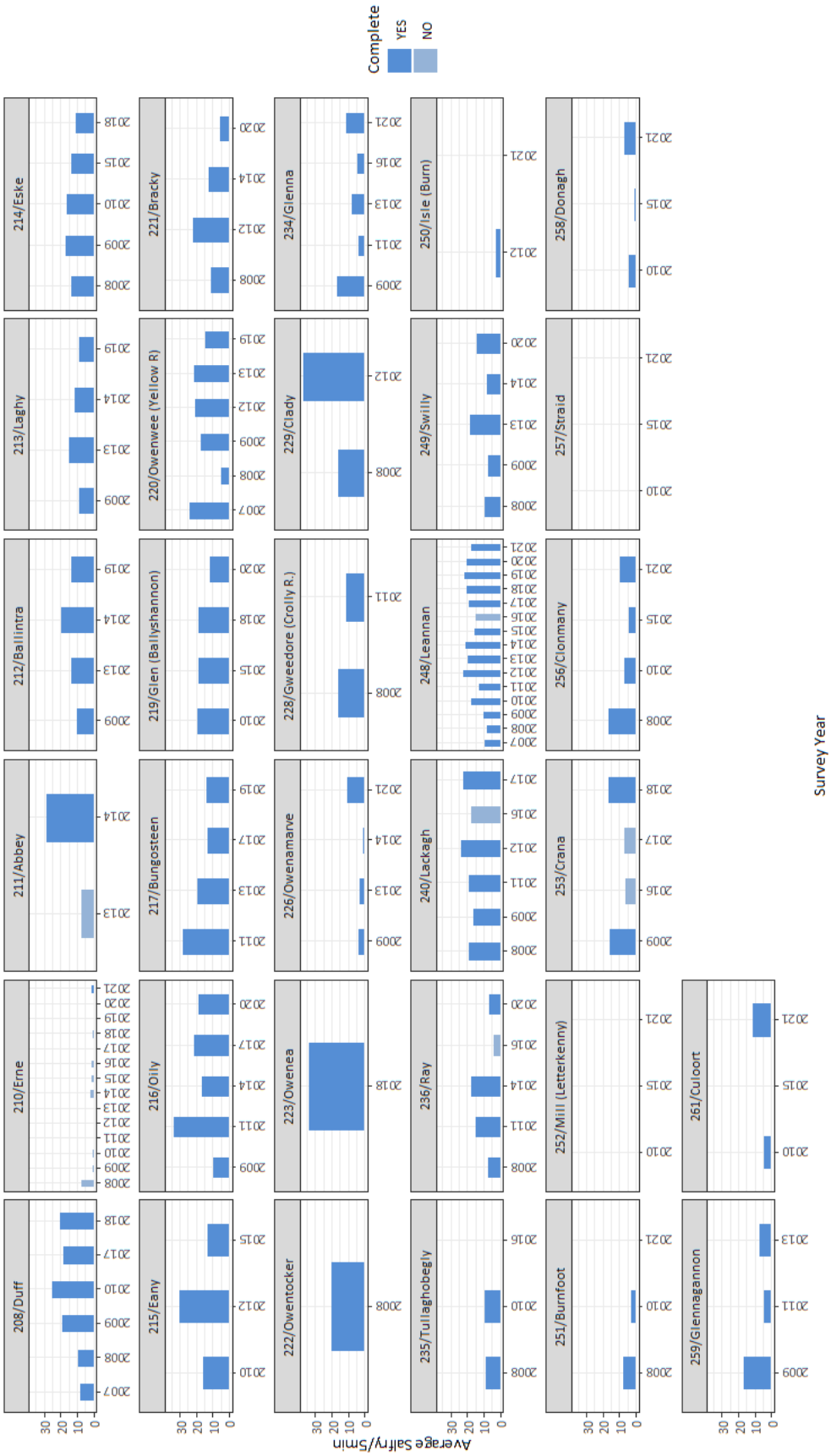


Figure A.7: Summary of CWEF results in North Western River basin district 2007-2021.

A.7.1. Erne River.

IFI Salmon Catchment #: 210
2021 survey dates: 24/8 – 3/9/2021
Mean Salmon Fry/5 min (2021): 1.20 fry/5min.
CWEF Index: 0.37 fry/5min.

Sampling carried out by:

Aaron McManus	Shane McVeety
John Halton	Tom Bannon
Melvyn Clarke	Tom Corr

Fish Species Present:

Brown Trout	Salmon
Crayfish	Stone Loach
Lamprey sp.	3-Spined Stickleback
Minnow	

Figure A.7.1.1: Length distribution of Salmon captured in 2021 CWEF survey on the Erne.

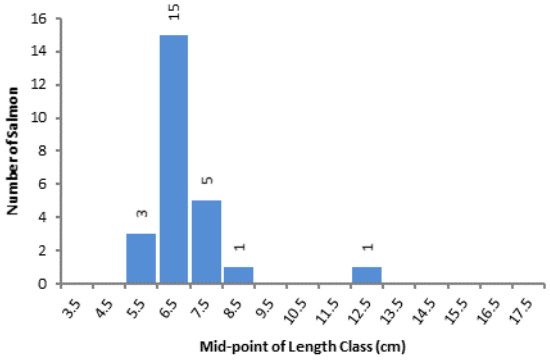
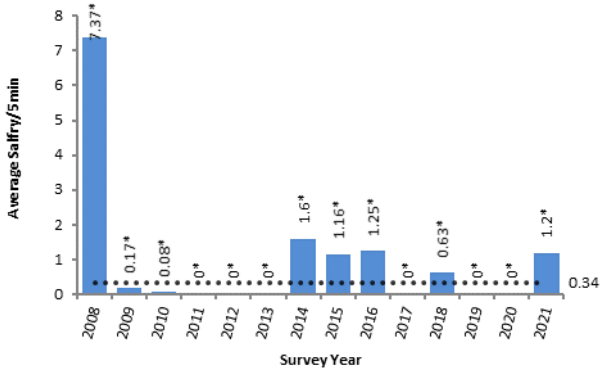


Figure A.7.1.2: Comparison of mean salmon fry/5min for all surveys on the Erne catchment to 2021.



This CWEF survey of this catchment was focused on the Blackwater, Glenfarne and Swanlinbar river sub-catchments. The survey was carried out during August and September 2021 and comprised 23 sites, 21 of which were included in the analysis. Salmon fry were present at sites on both the Glenfarne and the Swanlinbar rivers.

Conclusion

The very low presence of salmon on the Glenfarne and Swanlinbar rivers and the absence of salmon fry and parr observed in the Blackwater in 2021 indicates a very level od salmon spawning in these areas over the 2019/2020 winter.

Map A.7.1.1: Showing locations of 2021 survey sites on Erne Catchment.

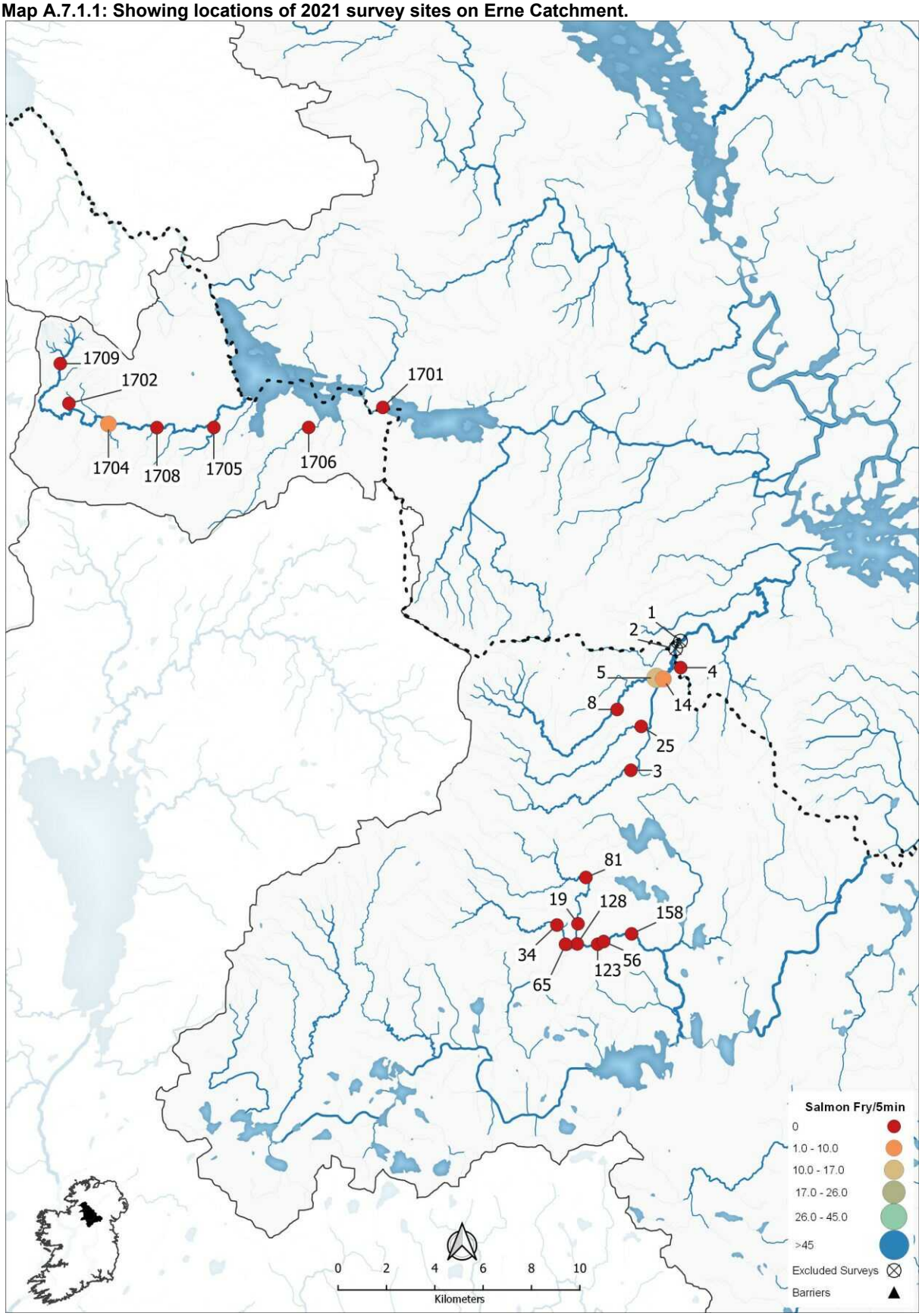


Table A.7.1.1: Site specific results of CWEF on the Erne catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
Blackwater								
019	H 16376 17022	3	1	6	0	Include	6.00	0.00
034	H 15505 16971	3	1	1	0	Include	1.00	0.00
056	H 17440 16289	4	1	7	0	Include	7.00	0.00
065	H 15860 16173	3	2	3	0	Include	3.00	0.00
081	H 16704 18939	3	3	1	0	Include	3.00	0.00
123	H 17191 16177	4	1	2	0	Include	2.00	0.00
128	H 16348 16190	3	1	3	0	Include	3.00	0.00
158	H 18367 16621	0	1	2	0	Include	2.00	0.00
Glenfarne								
1701	H 08302 38386	3	0	0	0	Include	0.00	0.00
1702	G 95312 38550	0	3	0	0	Include	0.00	0.00
1704	G 96947 37701	4	2	5	7	Include	5.00	7.00
1705	H 01307 37556	3	1	4	0	Include	4.00	0.00
1706	H 05232 37557	2	3	0	0	Include	0.00	0.00
1708	G 98953 37549	4	3	5	0	Include	9.00	0.00
1709	G 94956 40199	4	3	10	0	Include	10.00	0.00
Swanlinbar								
001	H 20617 28715	5	1	1	2	Eff <60%		
002	H 20414 28394	5	1	3	1	Eff <60%		
003	H 18565 23374	3	1	1	0	Include	1.00	0.00
004	H 20627 27619	2	3	5	0	Include	9.00	0.00
005	H 19626 27196	4	2	3	8	Include	3.82	10.18
008	H 17998 25888	4	3	4	0	Include	10.00	0.00
014	H 19906 27154	5	2	6	6	Include	8.00	8.00
025	H 18992 25188	3	2	1	0	Include	5.00	0.00

A.7.2. Owenamarve River.

IFI Salmon Catchment #: 226
2021 survey dates: 4-8/09/2021
Mean Salmon Fry/5 min (2021): 10.67 fry/5min.
CWEF Index: 4.52 fry/5min.

Sampling carried out by:
Dara Timpson
Hugh Gillespie
Kevin McCloskey
Michael Kane

Fish Species Present:
Brown Trout
European Eel
Salmon
Three-spined stickleback

Figure A.7.2.1: Length distribution of salmon captured in 2021 CWEF survey on the Owenamarve.

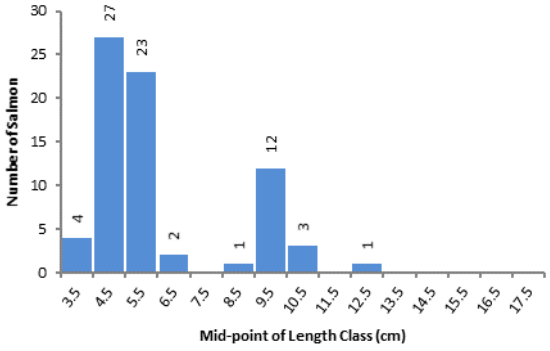
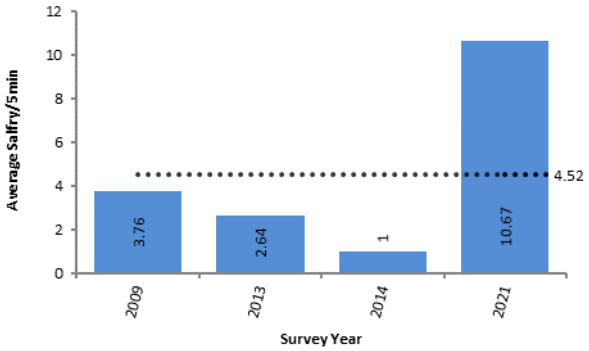


Figure A.7.2.2: Comparison of mean salmon fry/5min for all surveys on the Owenamarve catchment.



The survey this year consisted of 6 sites fished from the 4th to 8th September, Salmon fry (0+) were found at 5 sites, the highest numbers were at site 6 where 15 fry were observed. The modal length of 0+ salmon was 4.5 cm. All sites were included in the analysis; the mean catch at these sites was 10.67 salmon fry/5min.

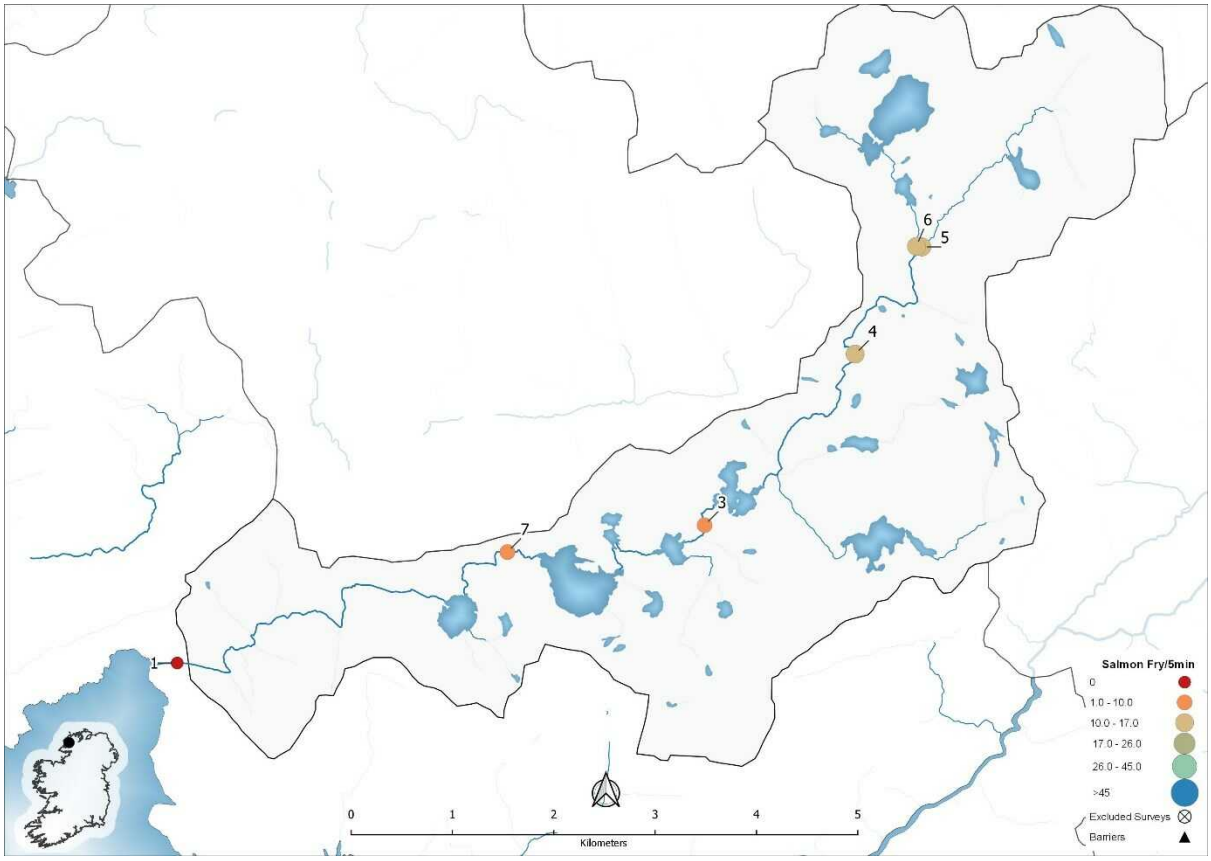
Conclusion

The Owenamarve had a salmon abundance of 10.67 salfry/5min in 2021. Taking the four complete surveys into account this results in a cumulative average of 4.52 salmon fry/5min which is below the 17 salmon fry threshold.

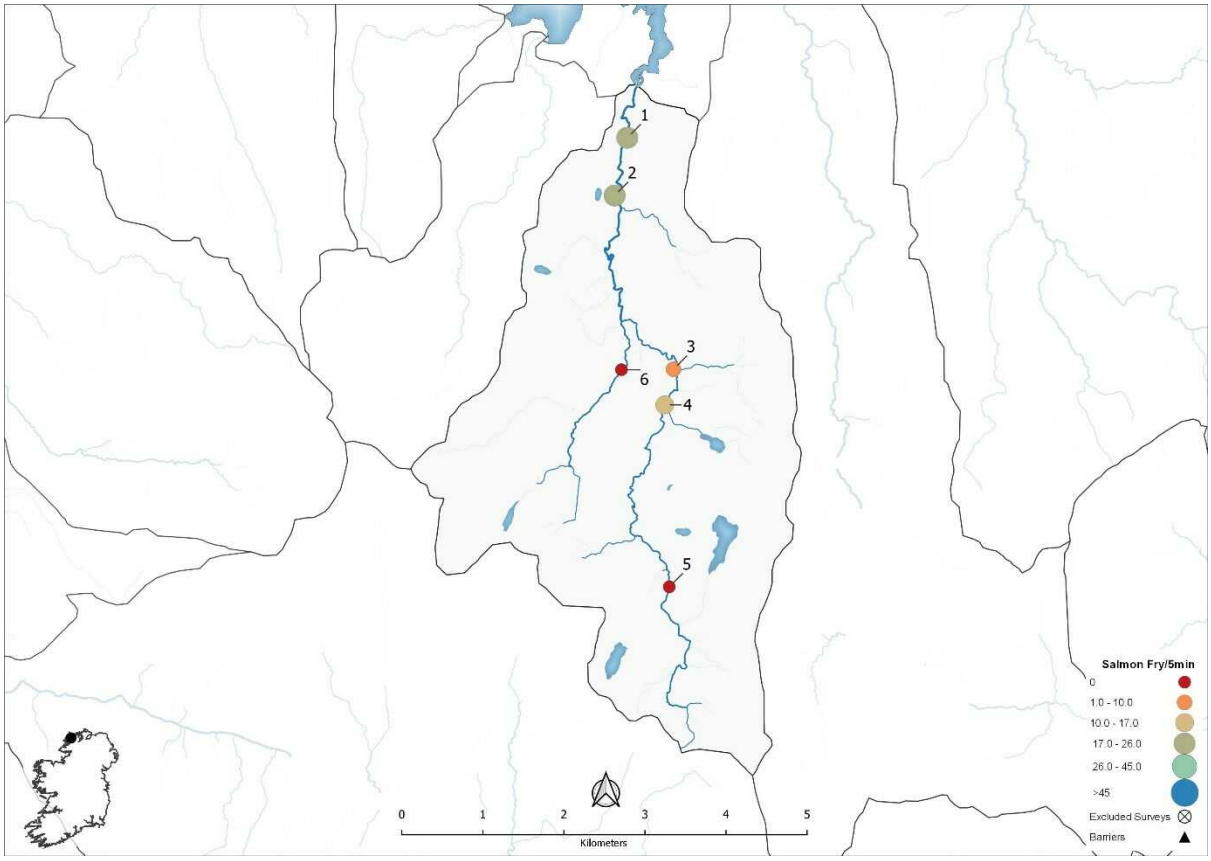
Table A.7.2.1: Site specific results of CWEF on the Owenamarve catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	B 78363 06596	3	2	3	0	Include	3.00	0.00
003	B 83568 07954	3	2	2	9	Include	2.18	9.82
004	B 85055 09641	3	2	1	14	Include	1.20	16.80
005	B 85714 10699	2	2	2	14	Include	2.38	16.63
006	B 85659 10704	2	2	2	15	Include	2.24	16.76
007	B 81622 07690	3	2	1	4	Include	1.00	4.00

Map A.7.2.1: Showing locations of 2021 survey sites on Owenamarve River.



Map A.7.3.1: Showing locations of 2021 survey sites on Glenna River.



A.7.3. Glenna River.

IFI Salmon Catchment #: 234
2021 survey dates: 23/8/21
Mean Salmon Fry/5 min (2021): 11.43 fry/5min.
CWEF Index: 8.76 fry/5min.

Sampling carried out by:
Dara Timpson
Michael Patton

Fish Species Present:
Brown Trout
European Eel
Salmon

Figure A.7.3.1: Length distribution of salmon captured in 2021 CWEF survey on the Glenna.

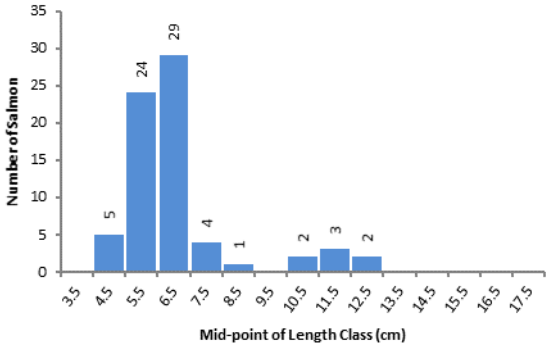
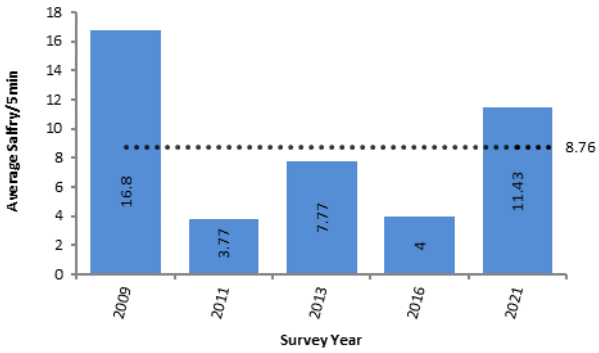


Figure A.7.3.2: Comparison of mean salmon fry/5min for all surveys on the Glenna catchment to 2021.



The survey this year consisted of 6 sites fished from the 23th to 25th September, Salmon fry (0+) were found at 4 sites, the highest numbers were at site 2 where 23 fry were observed. The modal length of 0+ salmon was 6.5 cm. All sites were included in the analysis; the mean catch at these sites was 11.43 salmon fry/5min.

Conclusion

The Glenna had a salmon abundance of 11.43 salfry/5min in 2021. Taking the five complete surveys into account this results in a cumulative average of 8.76 salmon fry/5min which is below the 17 salmon fry threshold.

Table A.7.3.1: Site specific results of CWEF on the Glenna catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	B 91061 29628	4	1	2	21	Include	2.17	22.83
002	B 90905 28916	4	1	3	23	Include	3.23	24.77
003	B 91631 26775	3	2	0	4	Include	0.00	5.00
004	B 91523 26335	3	2	0	14	Include	0.00	16.00
005	B 91580 24093	3	2	11	0	Include	13.00	0.00
006	B 90990 26768	3	2	5	0	Include	5.00	0.00

A.7.4. Leannan River.

IFI Salmon Catchment #: 248
2021 survey dates: 26-28/7/2021
Mean Salmon Fry/5 min (2021): 17.72 fry/5min.
CWEF Index: 19.66 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Flounder
Salmon

Figure A.7.4.1: Length distribution of salmon captured in 2021 CWEF survey on the Leannan.

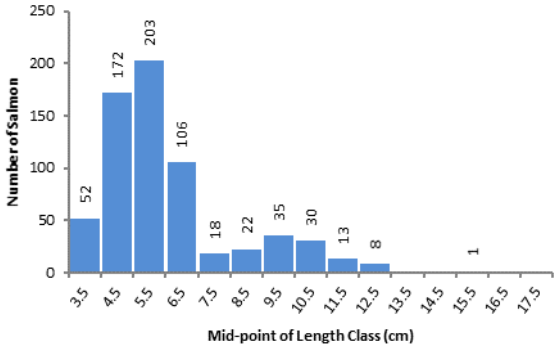
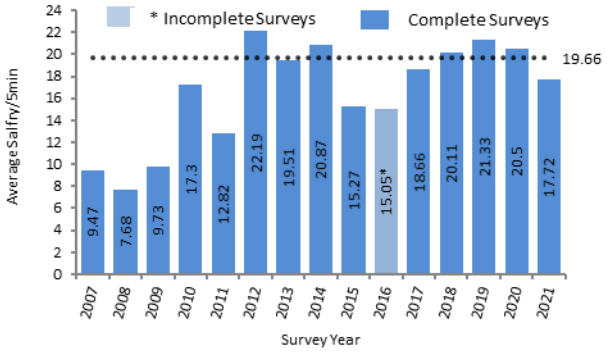


Figure A.7.4.2: Comparison of mean salmon fry/5min for all surveys on the Leannan catchment to 2021.



The survey this year consisted of 36 sites fished from the 26th to the 28th of July, Salmon fry (0+) were found at 30 sites, the highest numbers were at site 12 where 44 fry were observed. The modal length of 0+ salmon was 5.5 cm. All sites were included in the analysis; the mean catch at these sites was 17.72 salmon fry/5min

Conclusion

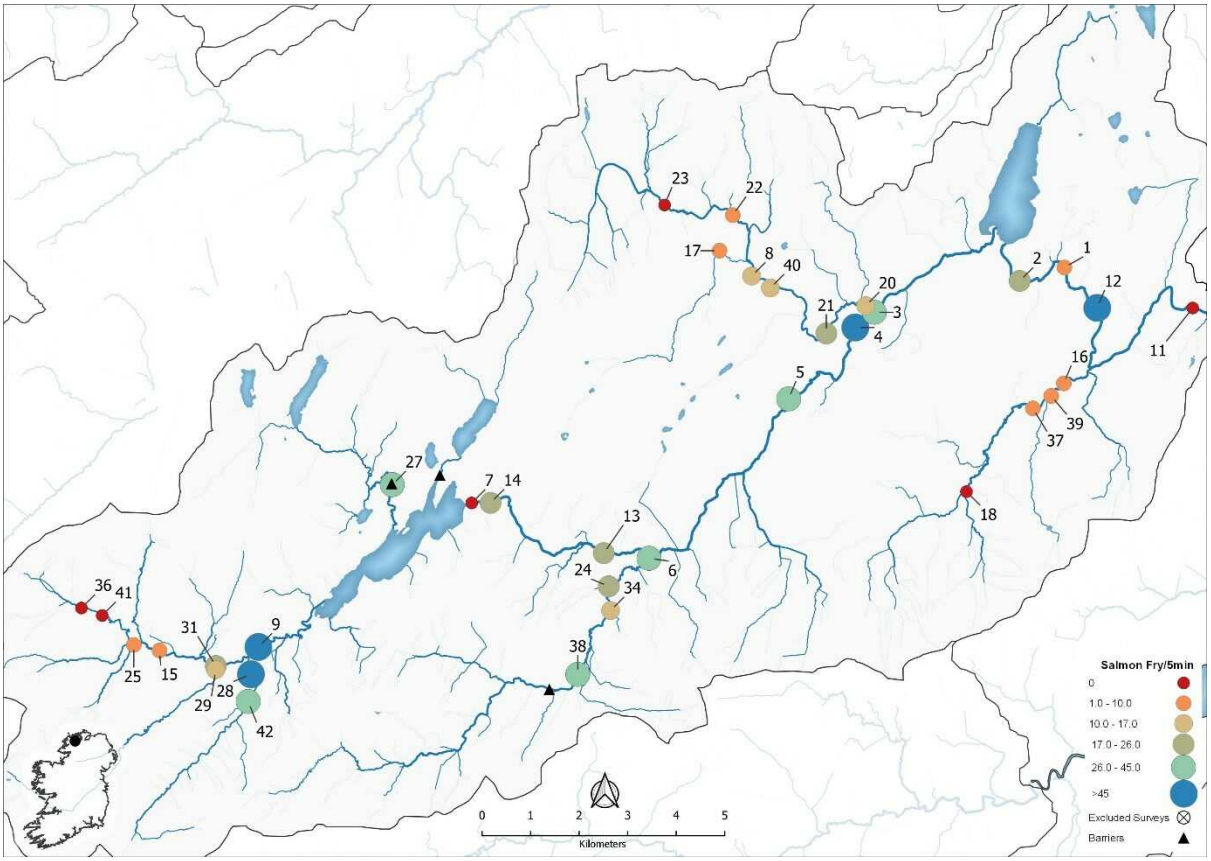
The Leannan had a salmon abundance of 17.72 salfry/5min in 2021. Taking the five most recent complete surveys into account this results in a cumulative average of 19.66 salmon fry/5min which is above the 17 salmon fry threshold.

Table A.7.4.1: Site specific results of CWEF on the Leannan catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	C 19032 21832	5	3	0	5	Include	0.00	6.00
002	C 18110 21555	5	2	1	17	Include	1.28	21.72
003	C 15115 20910	5	1	2	33	Include	2.40	39.60
004	C 14722 20597	5	1	0	36	Include	0.00	46.00
005	C 13349 19129	5	2	2	29	Include	2.32	33.68
006	C 10470 15850	5	1	1	31	Include	1.19	36.81
007	C 06817 16987	5	3	0	0	Include	0.00	0.00
008	C 12588 21655	4	1	12	12	Include	14.50	14.50
009	C 02422 14028	4	1	2	38	Include	2.50	47.50
010	C 22234 21028	5	3	0	3	Include	0.00	4.00
011	C 21677 20999	5	3	0	0	Include	0.00	0.00
012	C 19710 21001	5	2	1	44	Include	1.27	55.73
013	C 09540 15957	5	3	0	22	Include	0.00	24.00
014	C 07206 16991	5	2	3	17	Include	3.45	19.55
015	C 00385 13956	4	2	1	6	Include	1.57	9.43
016	C 19019 19448	4	2	6	2	Include	7.50	2.50
017	C 11925 22178	2	2	10	6	Include	11.25	6.75

Table A.7.4.1: Site specific results of CWEF on the Leannan catchment in 2021.								
Site #	**Grid Ref.**	**Stream Order**	**Riffle Grade**	**Trout Fry Captured**	**Salmon Fry Captured**	**Site Status**	**Trout Fry/5min**	**Salmon Fry/5min**
018	C 17013 17222	4	2	8	0	Include	8.00	0.00
020	C 14938 21045	4	2	3	10	Include	3.46	11.54
021	C 14125 20475	4	1	4	16	Include	4.60	18.40
022	C 12199 22907	4	2	22	4	Include	25.38	4.62
023	C 10793 23117	4	2	16	0	Include	17.00	0.00
024	C 09643 15275	4	2	8	15	Include	9.39	17.61
025	B 99853 14070	4	3	0	2	Include	0.00	2.00
027	C 05181 17366	4	2	0	27	Include	0.00	33.00
028	C 02269 13466	3	1	13	37	Include	16.90	48.10
029	C 01542 13558	3	2	12	11	Include	14.61	13.39
031	C 01544 13637	4	1	4	15	Include	5.68	21.32
034	C 09680 14776	4	2	16	13	Include	18.21	14.79
036	B 98773 14828	3	2	1	0	Include	1.00	0.00
037	C 18382 18934	4	2	21	2	Include	27.39	2.61
038	C 09004 13462	4	1	4	30	Include	4.71	35.29
039	C 18760 19189	4	3	21	5	Include	24.23	5.77
040	C 12972 21411	4	2	7	8	Include	9.33	10.67
041	B 99203 14674	3	3	1	0	Include	1.00	0.00
042	C 02211 12907	3	1	19	27	Include	21.89	31.11
001	C 19032 21832	5	3	0	5	Include	0.00	6.00
002	C 18110 21555	5	2	1	17	Include	1.28	21.72
003	C 15115 20910	5	1	2	33	Include	2.40	39.60
004	C 14722 20597	5	1	0	36	Include	0.00	46.00
005	C 13349 19129	5	2	2	29	Include	2.32	33.68
006	C 10470 15850	5	1	1	31	Include	1.19	36.81
007	C 06817 16987	5	3	0	0	Include	0.00	0.00
008	C 12588 21655	4	1	12	12	Include	14.50	14.50
009	C 02422 14028	4	1	2	38	Include	2.50	47.50
010	C 22234 21028	5	3	0	3	Include	0.00	4.00
011	C 21677 20999	5	3	0	0	Include	0.00	0.00
012	C 19710 21001	5	2	1	44	Include	1.27	55.73
013	C 09540 15957	5	3	0	22	Include	0.00	24.00

Map A.7.4.1: Showing locations of 2021 survey sites on Leannan River.



A.7.5. Isle Burn.

IFI Salmon Catchment #: 250
2021 survey dates: 17/8/2021
Mean Salmon Fry/5 min (2021): 0.00 fry/5min.
CWEF Index: 1.06 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Flounder
Salmon
3-Spined Stickleback

Figure A.7.5.1: Length distribution of salmon captured in 2021 CWEF survey on the Isle Burn.

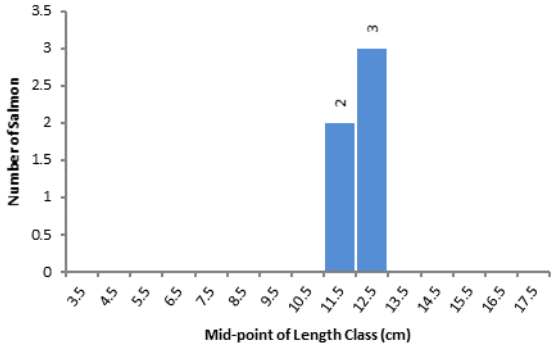
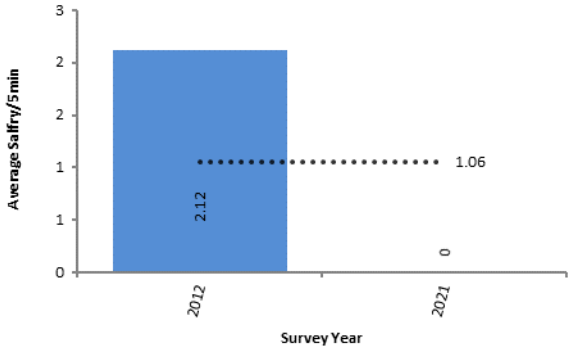


Figure A.7.5.2: Comparison of mean salmon fry/5min for all surveys on the Isle Burn catchment to 2021.



The survey this year consisted of 10 sites fished on the 17th of August, Salmon fry (0+) were absent from all sites, salmon parr (>0+) were observed at 5 sites; the highest numbers were at site 5 where 2 parr were observed. The modal length of salmon was 12.5 cm. The mean fry catch at these sites was 0.00 salmon fry/5min

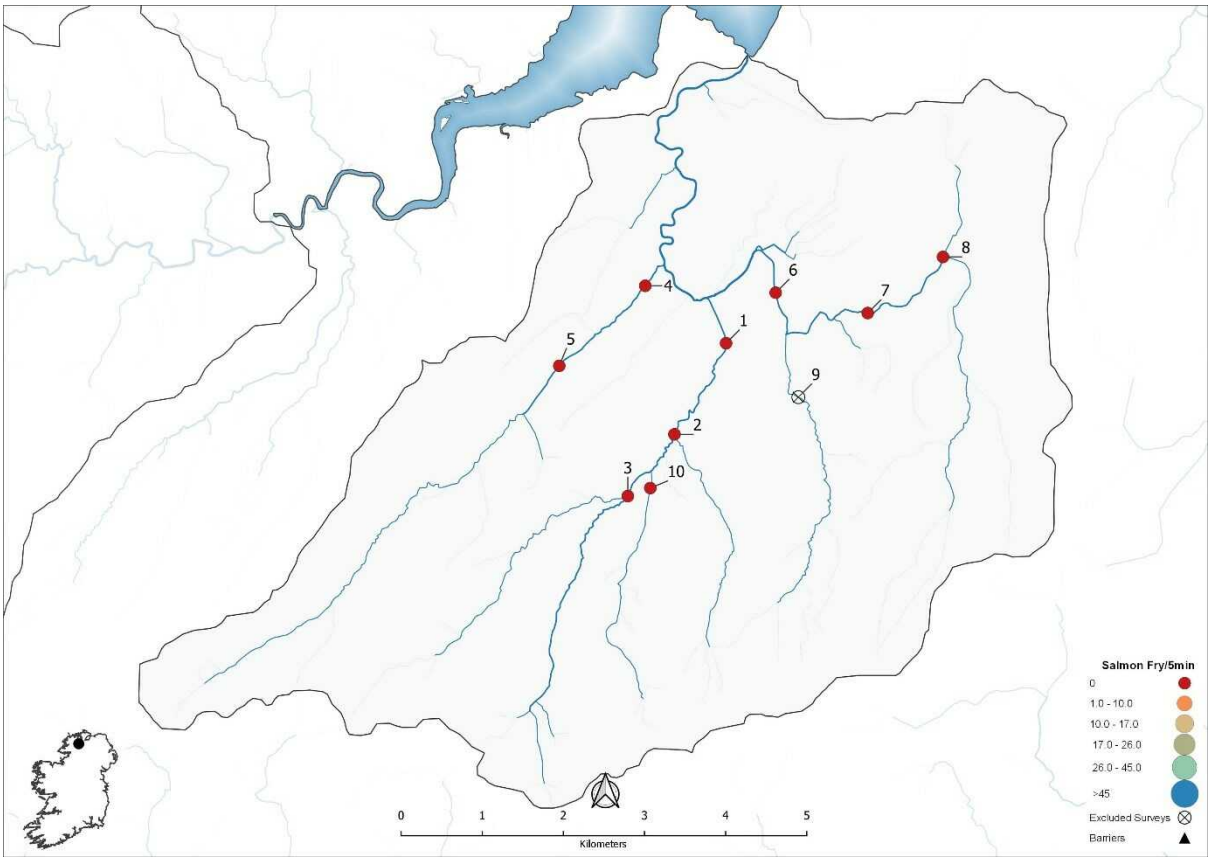
Conclusion

The no salmon fry (0+) were observed in 2021. Taking the previous survey into account this results in a cumulative average of 1.06 salmon fry/5min which is below the 17 salmon fry threshold.

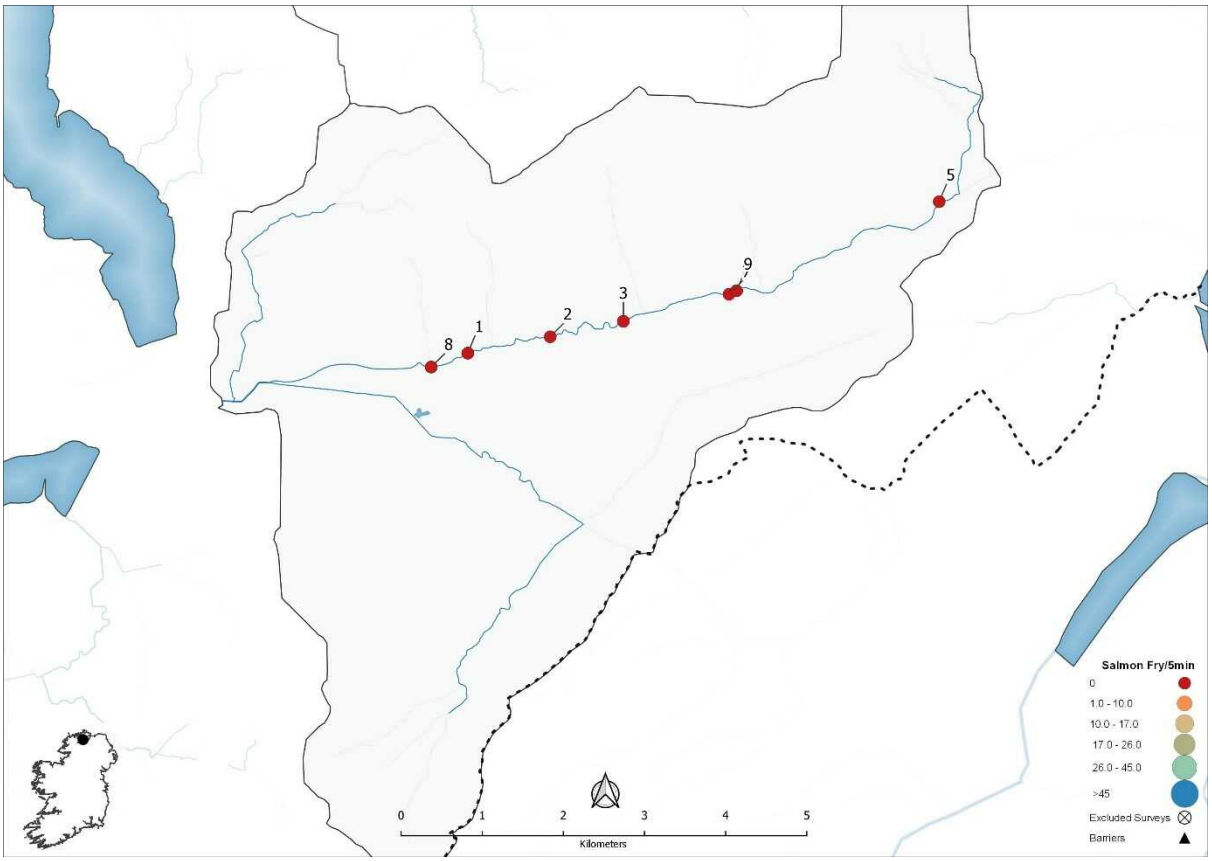
Table A.7.5.1: Site specific results of CWEF on the Isle Burn catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	C 23927 09686	3	2	5	0	Include	7.00	0.00
002	C 23291 08563	3	1	11	0	Include	11.00	0.00
003	C 22716 07801	3	1	16	0	Include	17.00	0.00
004	C 22931 10394	3	2	3	0	Include	4.00	0.00
005	C 21872 09407	3	2	8	0	Include	10.00	0.00
006	C 24539 10309	3	2	1	0	Include	1.00	0.00
007	C 25673 10058	3	2	6	0	Include	8.00	0.00
008	C 26602 10749	3	3	1	0	Include	1.00	0.00
009	C 24818 09020	2	3	3	0	Unsuitable Site For Fry		
010	C 22994 07901	2	1	3	0	Include	5.00	0.00
001	C 23927 09686	3	2	5	0	Include	7.00	0.00
002	C 23291 08563	3	1	11	0	Include	11.00	0.00

Map A.7.5.1: Showing locations of 2021 survey sites on Isle Burn.



Map A.7.6.1: Showing locations of 2021 survey sites on Burnfoot.



A.7.6. Burnfoot River.

IFI Salmon Catchment #: 251
2021 survey dates: 17/8/2027 & 6/9/2021
Mean Salmon Fry/5 min (2021): 0.00 fry/5min.
CWEF Index: 3.56 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
3-Spined Stickleback

Figure A.7.6.1: Length distribution of salmon captured in 2021 CWEF survey on the Burnfoot.

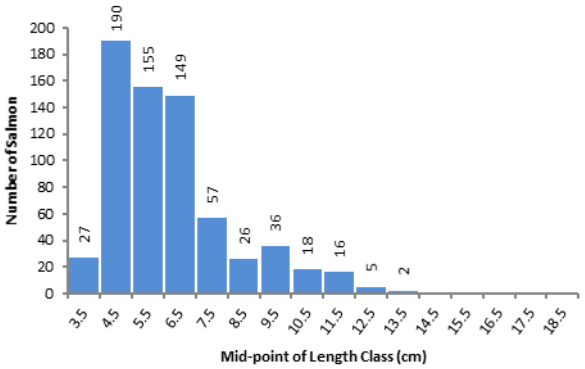
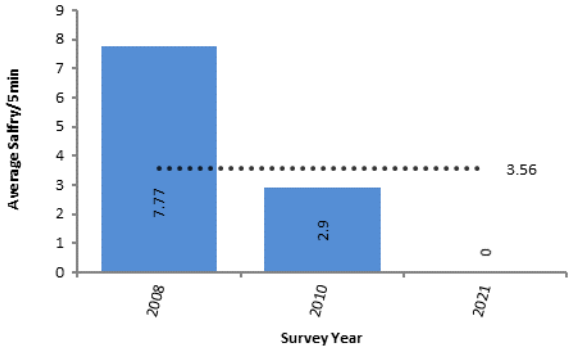


Figure A.7.6.2: Comparison of mean salmon fry/5min for all surveys on the Burnfoot catchment to 2021.



The survey this year consisted of 7 sites fished on the 17th of August and 6th of September, Salmon fry and parr (0+) were absent from all sites. A low abundance of trout was observed.

Conclusion

The no salmon fry (0+) were observed in 2021.a clear trend in decreasing abundance has been observed over the course of the three CWEF surveys on this catchment. Taking the previous surveys into account there is a cumulative index of 3.56 salmon fry/5min which is below the 17 salmon fry threshold.

Table A.7.6.1: Site specific results of CWEF on the Burnfoot catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	C 38482 23859	2	1	6	0	Include	8.00	0.00
002	C 39498 24062	2	2	0	0	Include	0.00	0.00
003	C 40399 24252	2	2	6	0	Include	8.00	0.00
005	C 44293 25728	2	1	14	0	Include	16.00	0.00
007	C 41703 24586	2	2	1	0	Include	1.00	0.00
008	C 38030 23688	2	2	2	0	Include	2.00	0.00
009	C 41795 24630	2	1	6	0	Include	8.00	0.00

A.7.7. Mill River.

IFI Salmon Catchment #: 252
2021 survey dates: 16/8/2021
Mean Salmon Fry/5 min (2021): 0 fry/5min.
CWEF Index: 0 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Flounder

The survey this year consisted of 3 sites fished on the 18th of August, Salmon were absent from all three sites A low abundance of trout was observed.

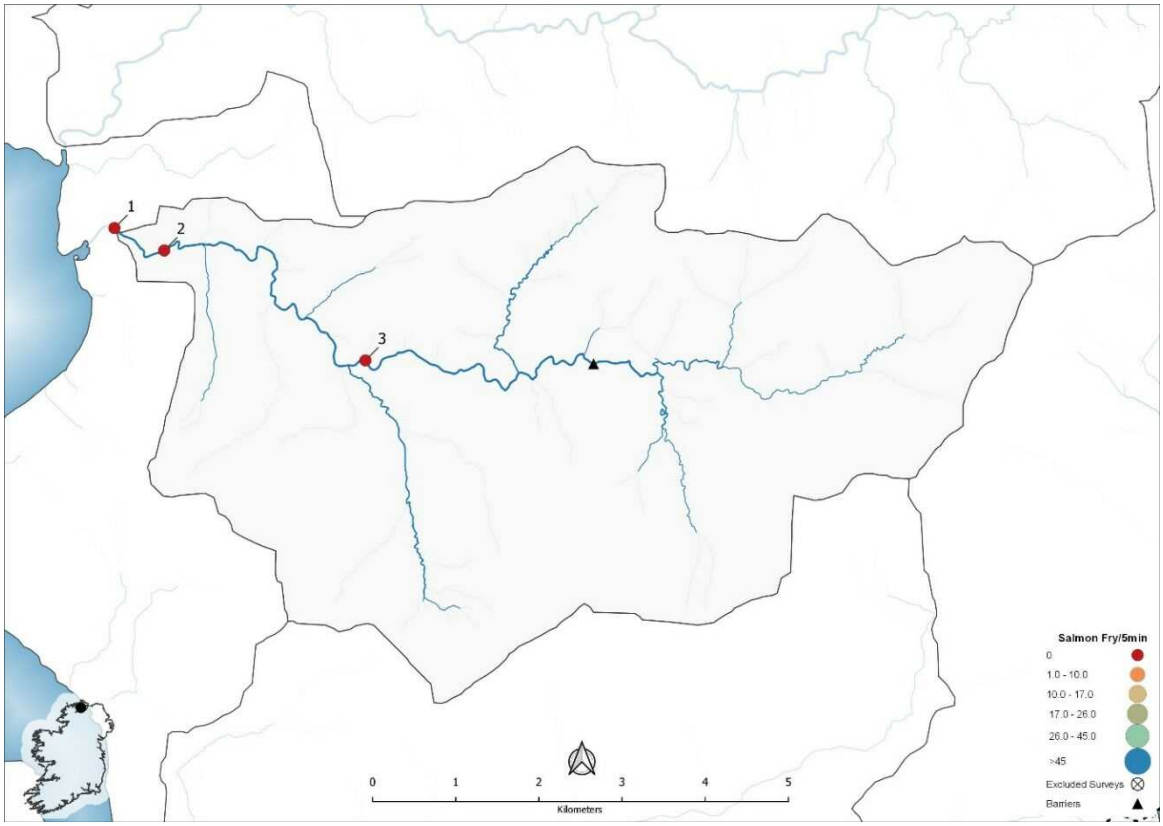
Conclusion

The three CWEF surveys on the mill river (2010,2015 and 2021) have failed to show any salmon fry. The CWEF index for this river is zero salmon fry/5min.

Table A.7.7.2: Site specific results of CWEF on the Leannan catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	C 34943 31660	4	3	4	0	Include	4.00	0.00
002	C 35543 31391	4	3	3	0	Include	3.00	0.00
003	C 37961 30070	4	1	5	0	Include	8.00	0.00

Map A.7.7.1: Showing locations of 2021 survey sites on Mill River.



A.7.8. Clonmany River.

IFI Salmon Catchment #: 256
2021 survey dates: 7/9/2021
Mean Salmon Fry/5 min (2021): 9.55 fry/5min.
CWEF Index: 8.24 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
Flounder
Salmon

Figure A.7.8.1: Length distribution of salmon captured in 2021 CWEF survey on the Clonmany.

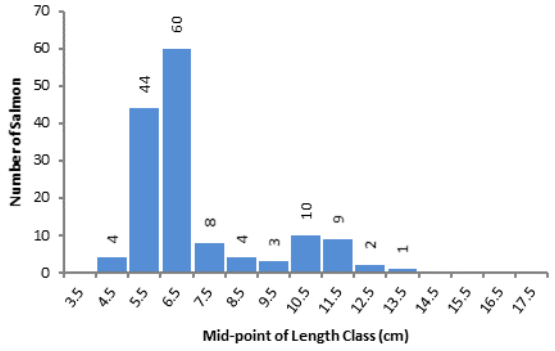
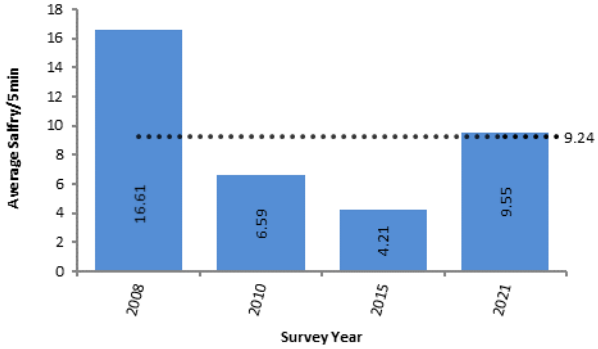


Figure A.7.8.2: Comparison of mean salmon fry/5min for all surveys on the Clonmany catchment to 2021.



The survey this year consisted of 14 sites fished on 7 of September, Salmon fry (0+) were found at nine sites, the highest numbers were at site 3 where 40 fry were observed. The modal length of 0+ salmon was 6.5 cm. All 14 sites were included in the analysis; the mean catch at these sites was 9.55 salmon fry/5min.

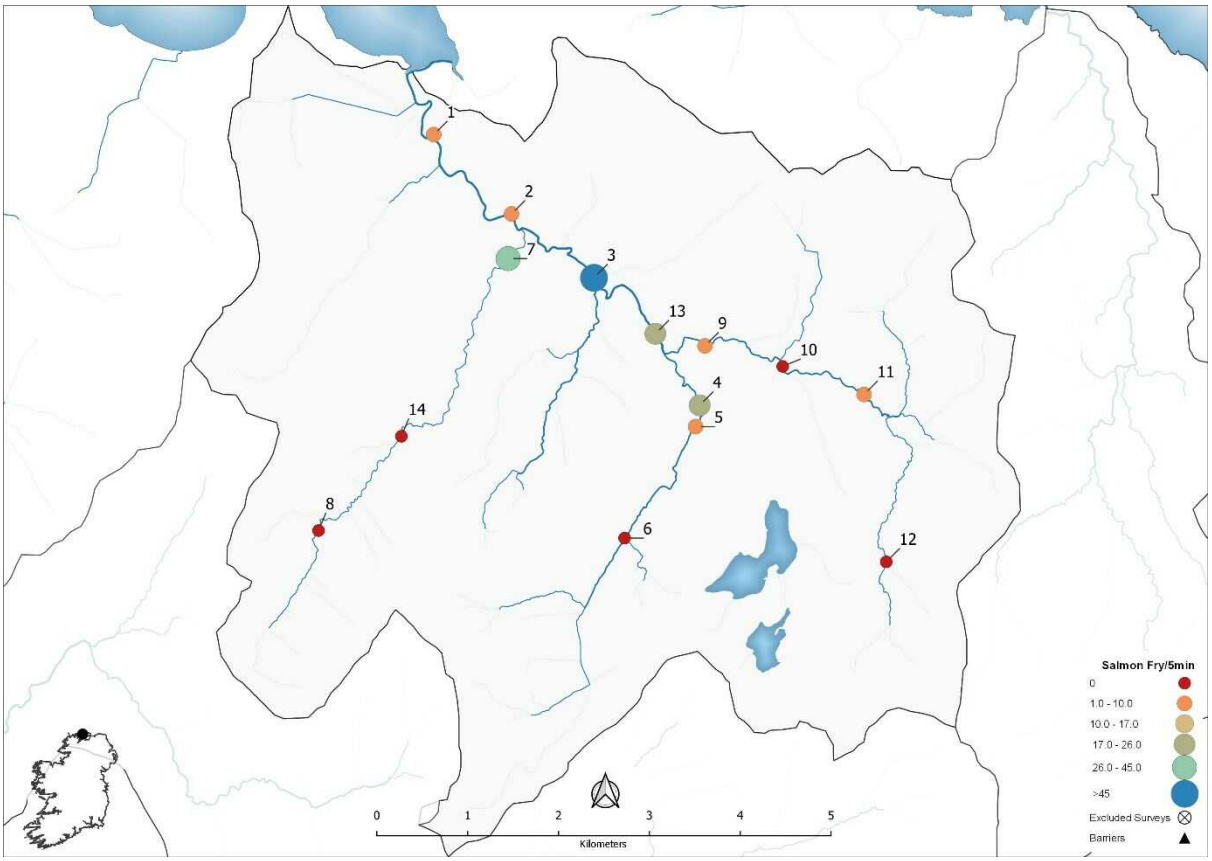
Conclusion

The Clonmany had a salmon abundance of 9.55 salfry/5min in 2021. Taking the four most recent complete surveys into account this results in a cumulative average of 8.24 salmon fry/5min which is below the 17 salmon fry threshold.

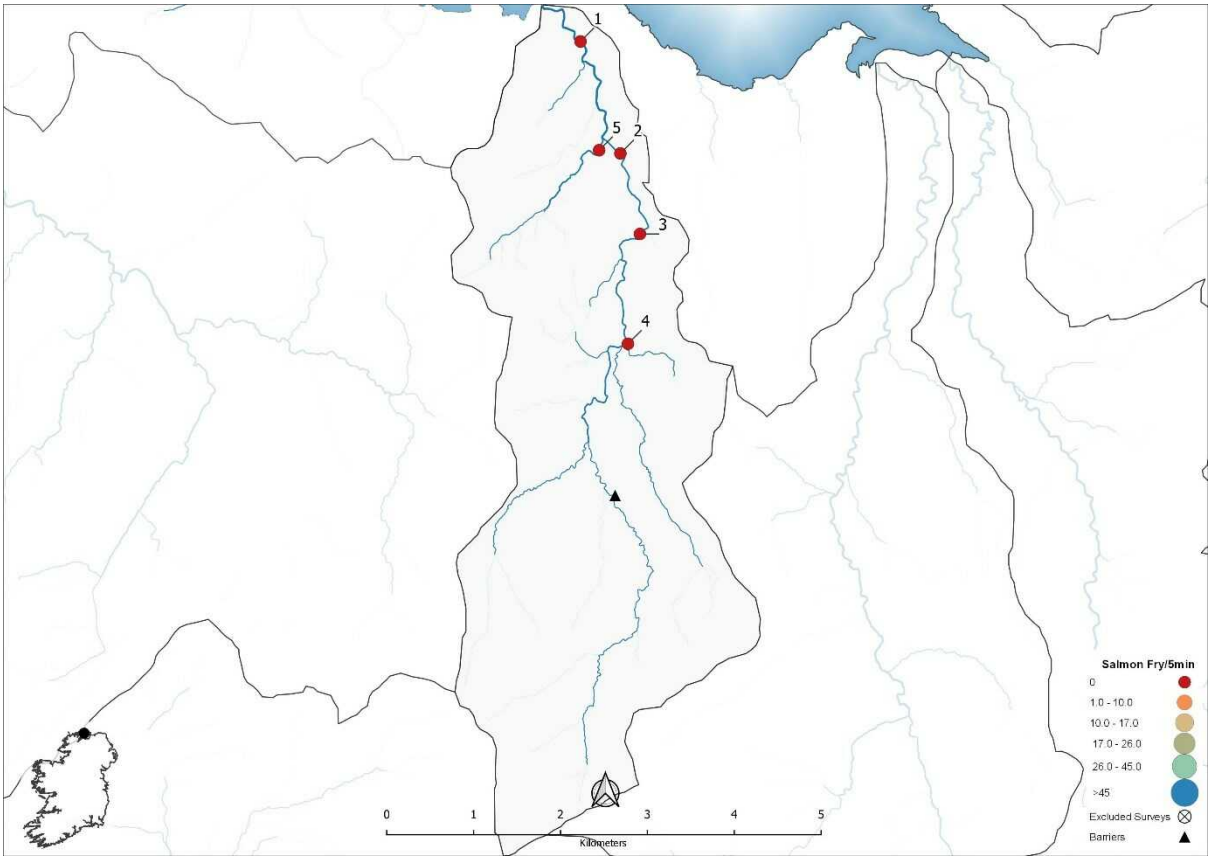
Table A.7.8.1: Site specific results of CWEF on the Clonmany catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	C 36111 47419	4	1	2	1	Include	2.67	1.33
002	C 36967 46545	4	1	1	3	Include	1.50	4.50
003	C 37875 45842	4	2	2	40	Include	2.29	45.71
004	C 39039 44440	3	1	19	17	Include	21.64	19.36
005	C 38994 44204	3	2	12	4	Include	15.75	5.25
006	C 38212 42978	3	2	36	0	Include	41.00	0.00
007	C 36929 46054	2	1	11	25	Include	12.53	28.47
008	C 34844 43060	2	1	15	0	Include	18.00	0.00
009	C 39098 45094	3	2	12	3	Include	14.40	3.60
010	C 39954 44867	3	2	8	0	Include	12.00	0.00
011	C 40848 44559	3	3	1	1	Include	1.00	1.00
012	C 41092 42715	2	3	2	0	Include	3.00	0.00
013	C 38552 45227	4	2	5	22	Include	5.56	24.44
014	C 35755 44099	2	3	1	0	Include	1.00	0.00

Map A.7.8.1: Showing locations of 2021 survey sites on Clonmany River.



Map A.7.9.1: Showing locations of 2021 survey sites on Straid River.



A.7.9. Straid River.

IFI Salmon Catchment #: 248
2021 survey dates: 18-20/8/2020
Mean Salmon Fry/5 min (2021): 20.50 fry/5min.
CWEF Index: 19.17 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:
Brown Trout
European Eel
3-Spined Stickleback

Figure A.7.9.1: Length distribution of brown trout captured in 2021 CWEF survey on the Straid.

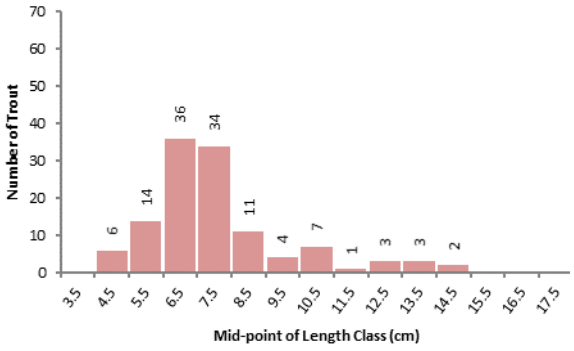
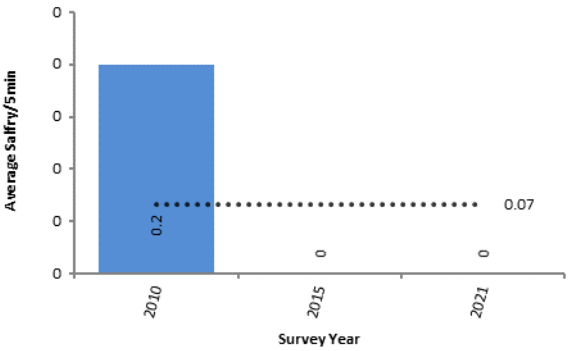


Figure A.7.9.2: Comparison of mean salmon fry/5min for all surveys on the Straid catchment to 2021



The survey this year consisted of 5 sites fished from the on the 8th of September, Salmon fry (0+) were not observed at any site. Good abundances of trout were observed. All sites were included in the analysis; the mean catch at these sites was 0 salmon fry/5min.

Conclusion

In both 2015 and 2021 the Straid had a salmon abundance of zero. Only one salmon fry was observed in 2010. Taking the previous three surveys into account results in a cumulative average of 0.07 salmon fry/5min which is below the 17 salmon fry threshold.

Table A.7.9.1: Site specific results of CWEF on the Straid catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	C 43300 48381	4	2	12	0	Include	12.00	0.00
002	C 43758 47092	3	2	24	0	Include	27.00	0.00
003	C 43984 46166	3	2	18	0	Include	20.00	0.00
004	C 43847 44901	3	0	19	0	Include	24.00	0.00
005	C 43515 47130	3	2	27	0	Include	30.00	0.00

A.7.10. Donagh River.

IFI Salmon Catchment #: 258
2021 survey dates: 24/8/2021 & 31/8/2021
Mean Salmon Fry/5 min (2021): 6.79 fry/5min.
CWEF Index: 3.90 fry/5min.

Sampling carried out by:
Dara Timpson
Kevin McCloosey
Michael Patton

Fish Species Present:
Brown Trout
European Eel
Salmon

Figure A.7.10.1: Length distribution of salmon captured in 2021 CWEF survey on the Donagh.

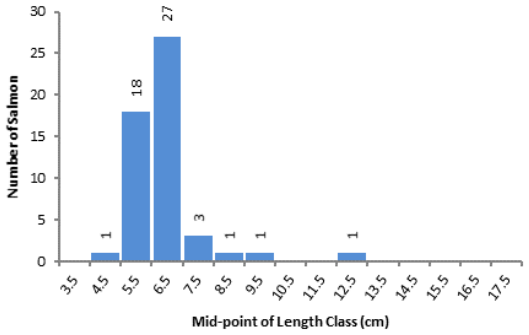
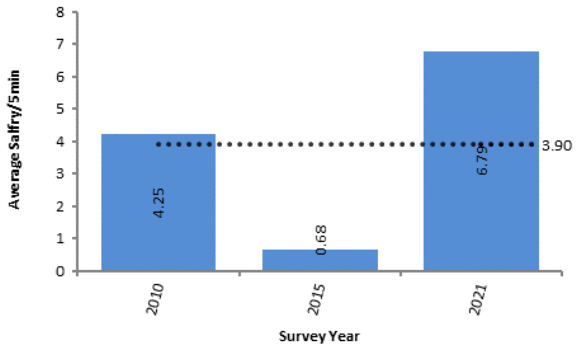


Figure A.7.10.2: Comparison of mean salmon fry/5min for all surveys on the Donagh catchment to 2021.



The survey this year consisted of 8 sites fished from the 18th to the 20th of August, Salmon fry (0+) were found at twenty-nine sites, the highest numbers were at site 3 where 16 fry were observed. The modal length of 0+ salmon was 6.5 cm.33 sites were included in the analysis; the mean catch at these sites was 6.79 salmon fry/5min.

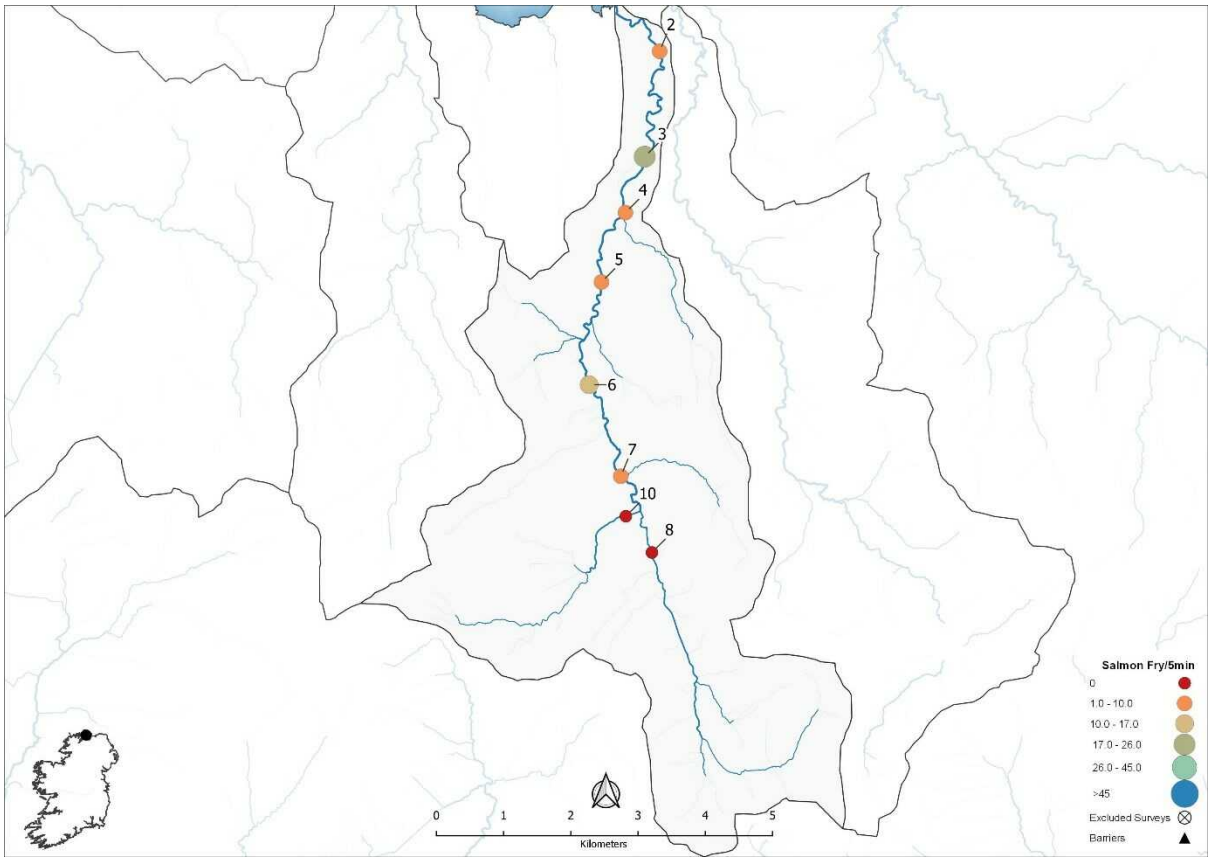
Conclusion

The Donagh had a salmon abundance of 6.79 salfry/5min in 2021. Taking the three previous surveys into account this results in a cumulative average of 3.90 salmon fry/5min which is below the 17 salmon fry threshold.

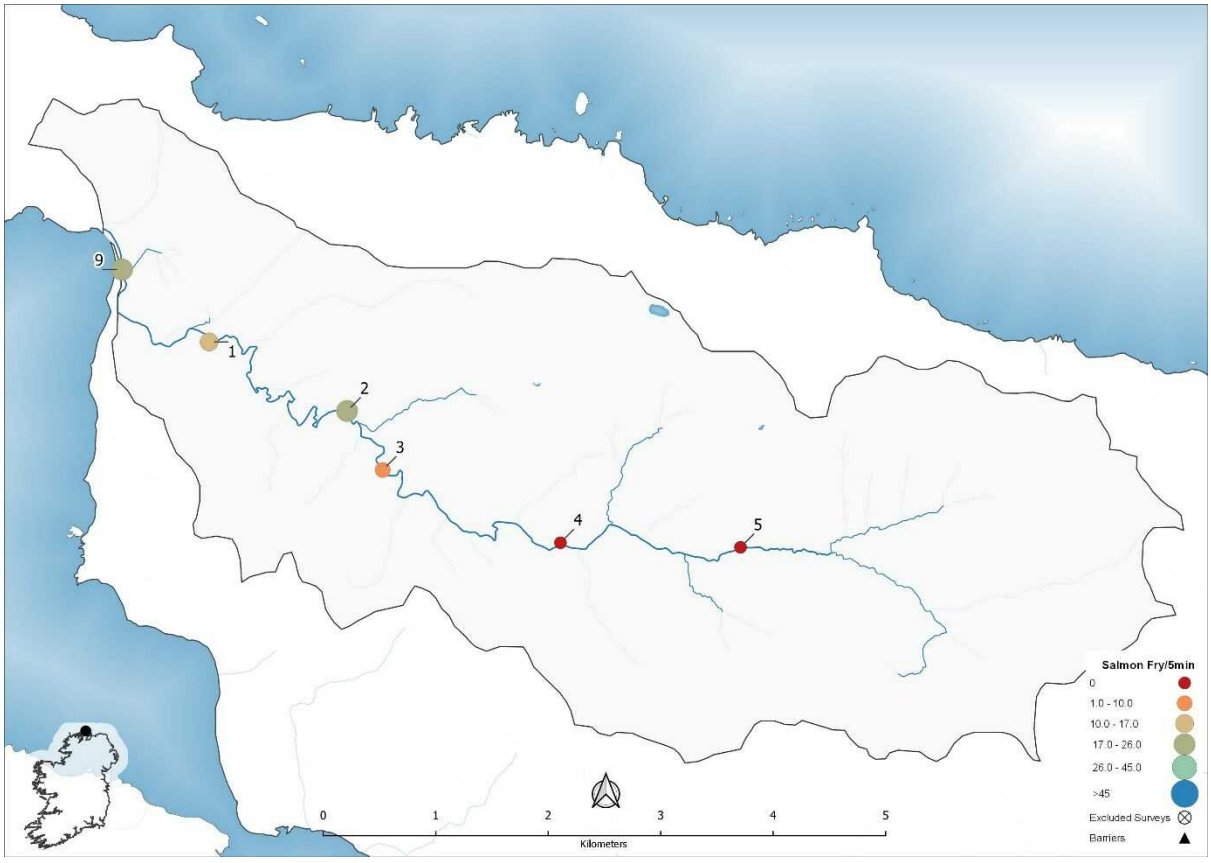
Table A.7.10.1: Site specific results of CWEF on the Donagh catchment in 2021.

Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
002	C 47369 47452	4	2	2	8	Include	2.20	8.80
003	C 47148 45887	4	2	1	16	Include	1.12	17.88
004	C 46861 45055	4	2	11	4	Include	12.47	4.53
005	C 46504 44023	4	2	9	5	Include	9.64	5.36
006	C 46321 42498	4	2	11	15	Include	12.27	16.73
007	C 46792 41137	4	2	5	1	Include	5.00	1.00
008	C 47255 40004	3	1	7	0	Include	7.00	0.00
010	C 46868 40542	3	2	8	0	Include	9.00	0.00

Map A.7.10.1: Showing locations of 2021 survey sites on Donagh River.



Map A.7.11.1: Showing locations of 2021 survey sites on Culoort River.



A.7.11. Culoort River.

IFI Salmon Catchment #: 261
2021 survey dates: 30/7/21
Mean Salmon Fry/5 min (2021): 11.41 fry/5min.
CWEF Index: 7.72 fry/5min.

Sampling carried out by:
Louis O'Sullivan
Tony Holmes

Fish Species Present:

Brown Trout	Salmon
Eurpoean Eel	3-Spined Stickleback
Flounder	

Figure A.7.11.1: Length distribution of salmon captured in 2021 CWEF survey on the Culoort.

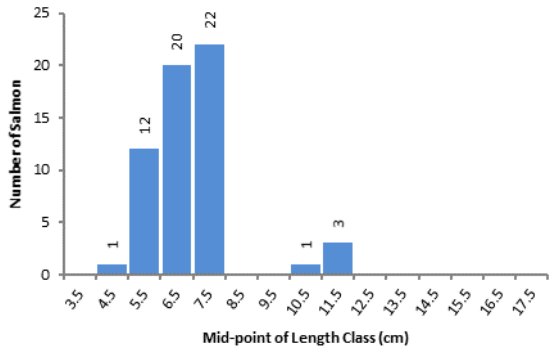
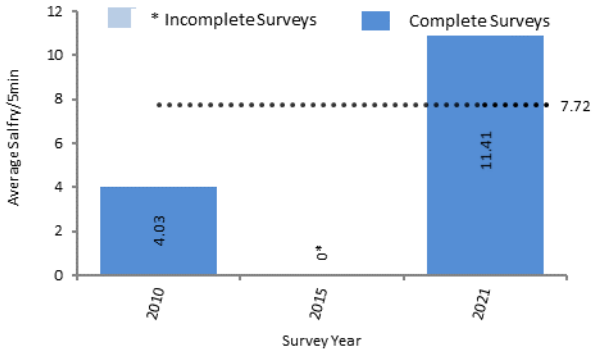


Figure A.7.11.2: Comparison of mean salmon fry/5min for all surveys on the Culoort catchment to 2021.



The survey this year consisted of 6 sites fished on the 30th of July. Salmon fry (0+) were found at four sites, the highest numbers were at site 3 where 19 fry were observed. The modal length of 0+ salmon was 7.5 cm. All sites were included in the analysis; the mean catch at these sites was 11.41 salmon fry/5min.

Conclusion

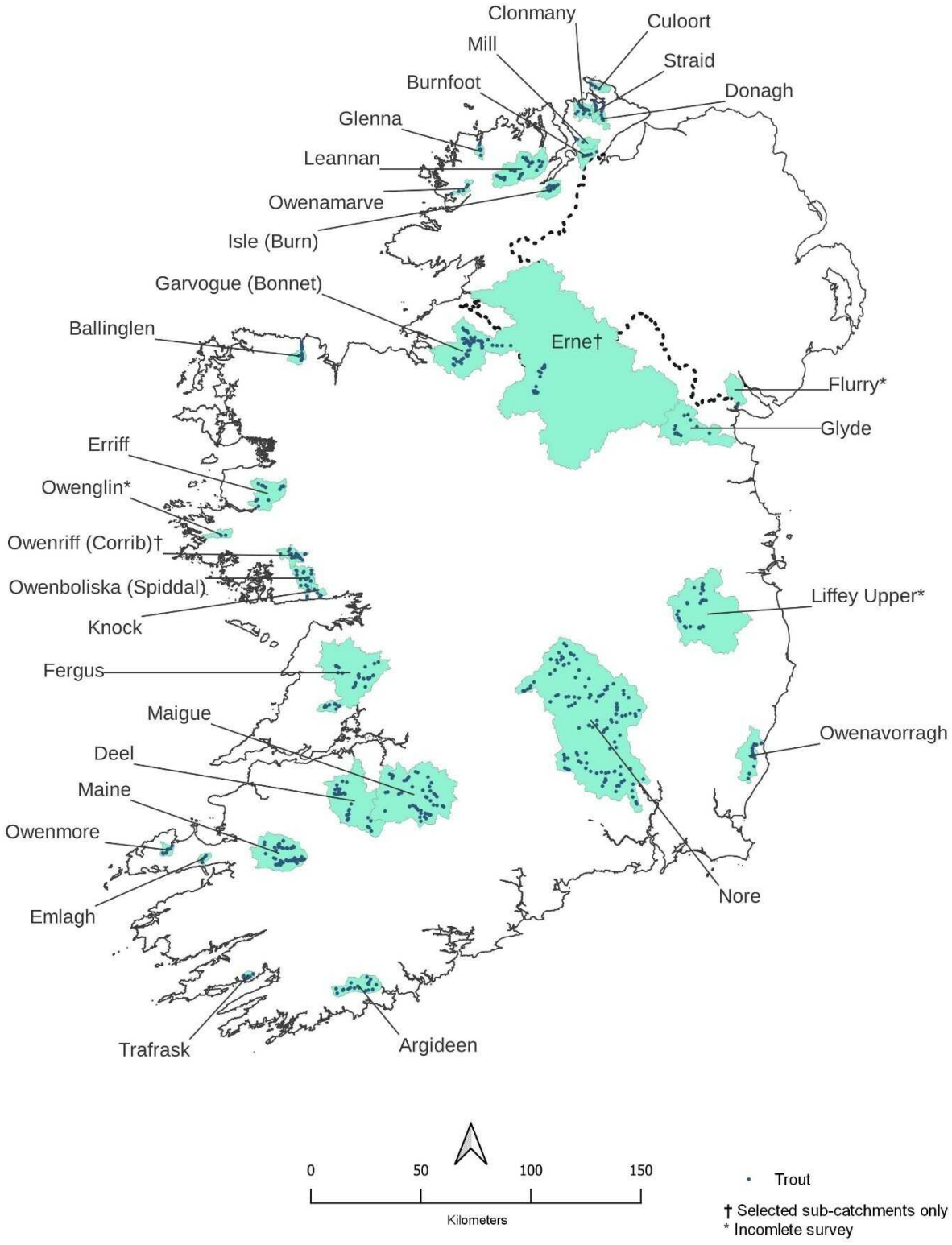
The Culoort had a salmon abundance of 11.41 salfry/5min in 2021. Taking the two complete surveys into account this results in a cumulative average of 7.72 salmon fry/5min which is below the 17 salmon fry threshold.

Table A.7.11.1: Site specific results of CWEF on the Culoort catchment in 2021.

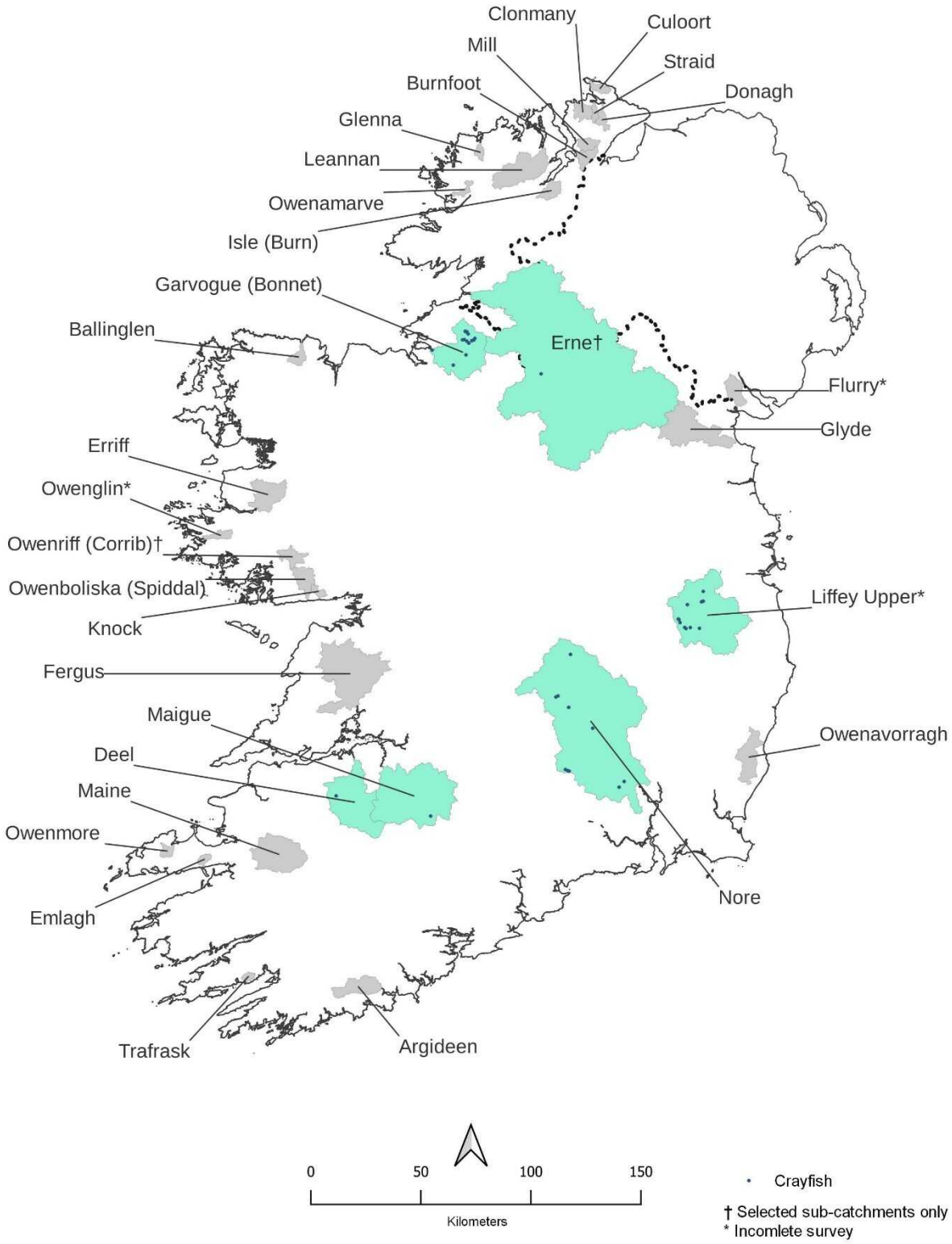
Site #	Grid Ref.	Stream Order	Riffle Grade	Trout Fry Captured	Salmon Fry Captured	Site Status	Trout Fry/5min	Salmon Fry/5min
001	C 42253 56174	3	1	7	12	Include	8.84	15.16
002	C 43481 55561	3	1	11	19	Include	13.93	24.07
003	C 43797 55036	3	1	19	6	Include	21.28	6.72
004	C 45377 54392	3	2	11	0	Include	13.00	0.00
005	C 46978 54350	3	3	0	0	Include	0.00	0.00
009	C 41478 56816	3	2	14	18	Include	17.50	22.50

B. Other Species.

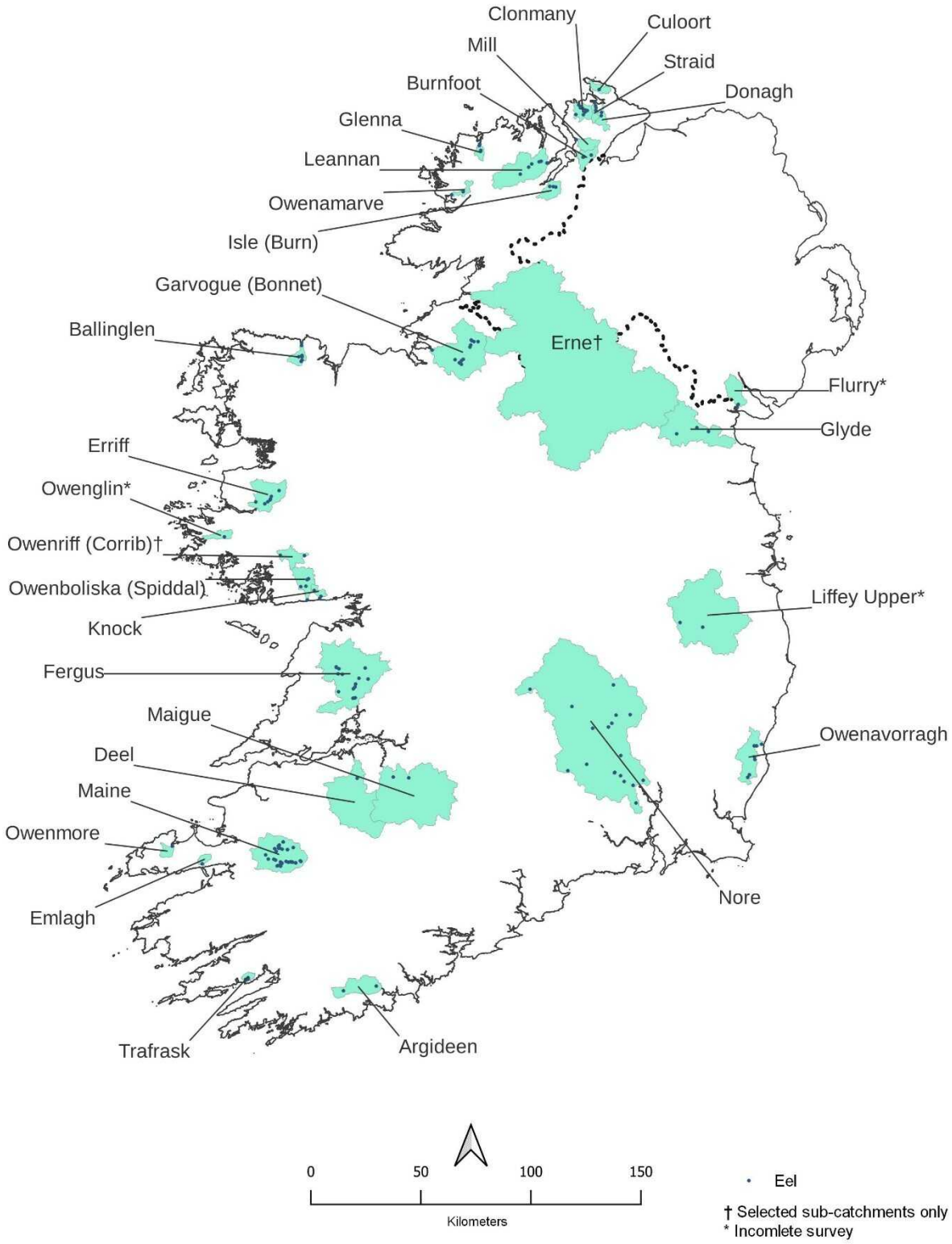
B.1. Brown Trout



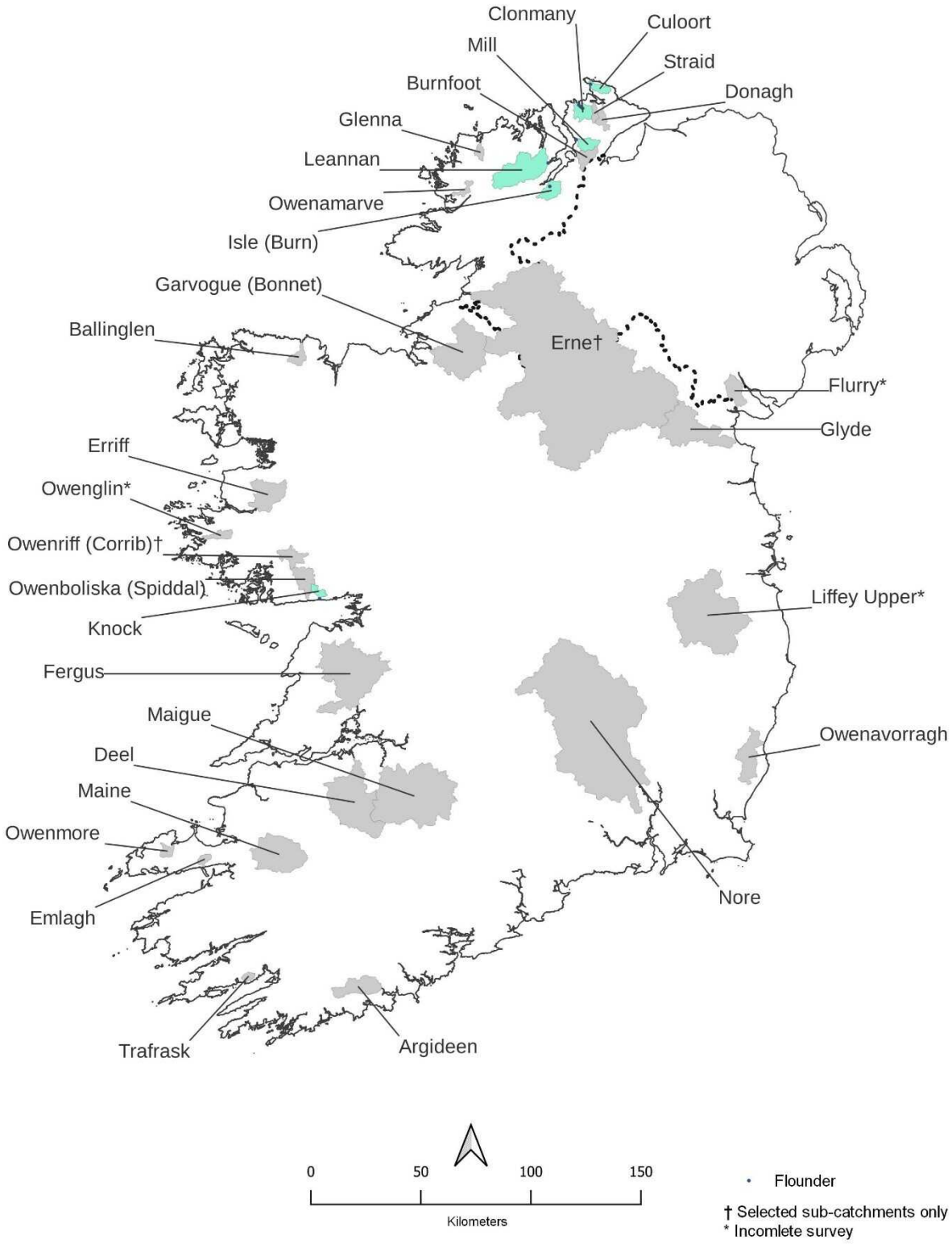
B.2. White Clawed Crayfish



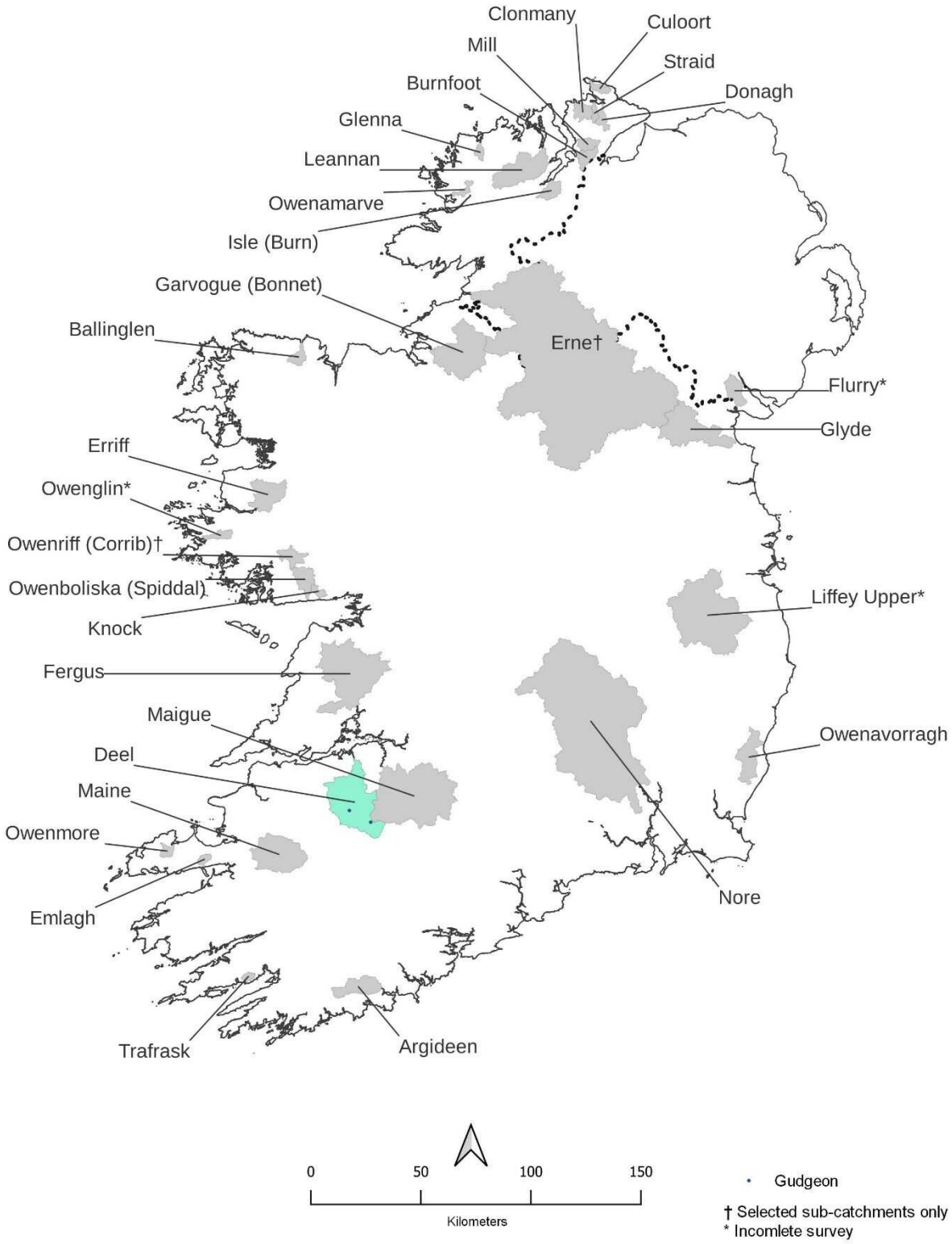
B.3. European eel



B.4. Flounder


Clonmany
Culoort
Mill
Straid
Burnfoot
Donagh
Glenna
Leannan
Owenamarve
Isle (Burn)
Garvogue (Bonnet)
Ballinglen
Erne†
Flurry*
Glyde
Erriff
Owenglin*
Owenriff (Corrib)†
Owenboliska (Spiddal)
Knock
Liffey Upper*
Fergus
Maigue
Deel
Maine
Owenmore
Owenavorragh
Nore
Emlagh
Trafrask
Argideen
0
50
100
150
Kilometers
Flounder
† Selected sub-catchments only
* Incomlete survey

B.5. Gudgeon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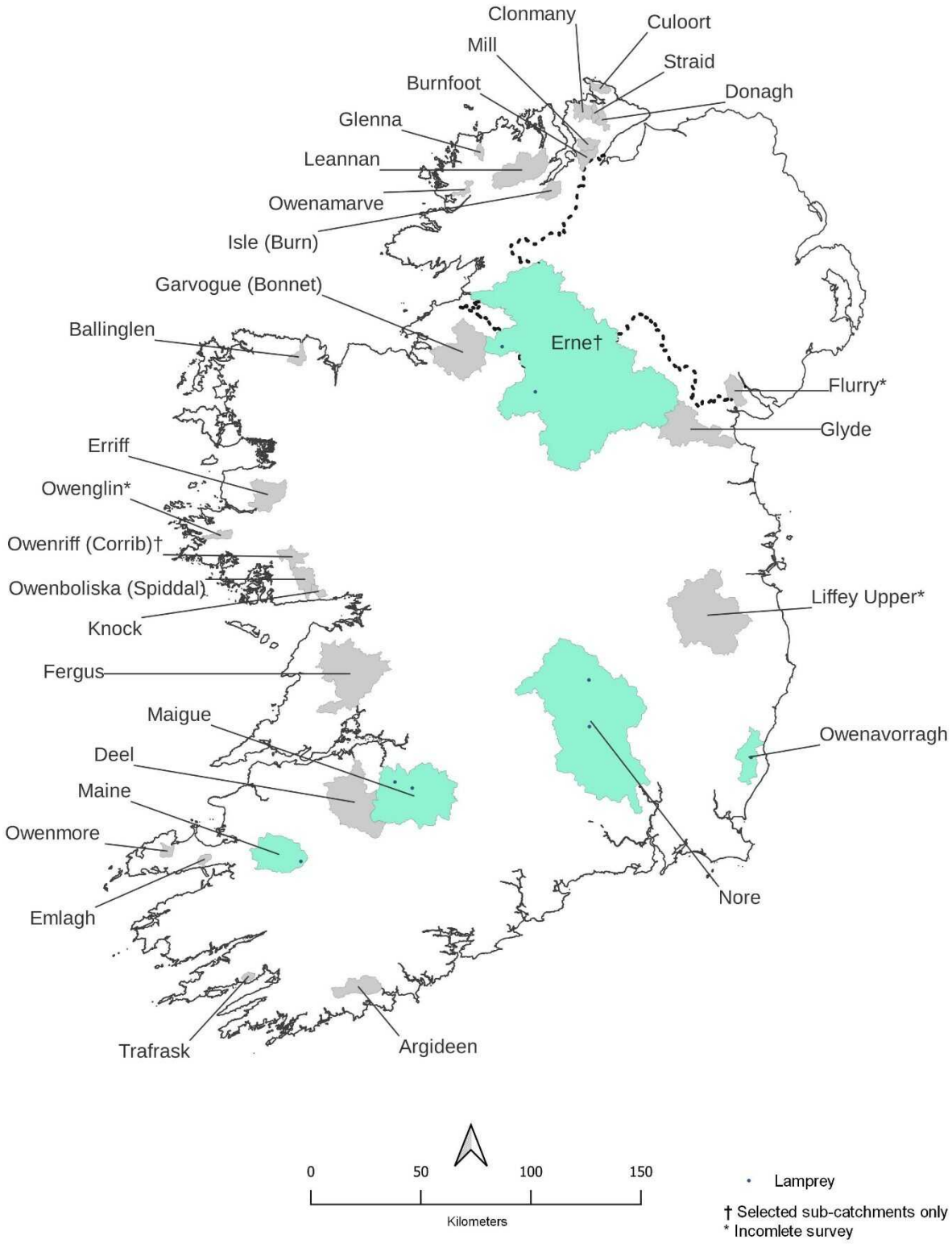
Burnfoot
Donagh
Glenna
Leannan
Owenamarve
Isle (Burn)
Garvogue (Bonnet)
Ballinglen
Erne†
Flurry*
Glyde
Erriff
Owenglin*
Owenriff (Corrib)†
Owenboliska (Spiddal)
Knock
Liffey Upper*
Fergus
Maigue
Owenavorragh
Deel
Maine
Owenmore
Nore
Emlagh
Trafrask
Argideen
0
50
100
150
Kilometers
Gudgeon
† Selected sub-catchments only
* Incomlete survey

B.6. Lamprey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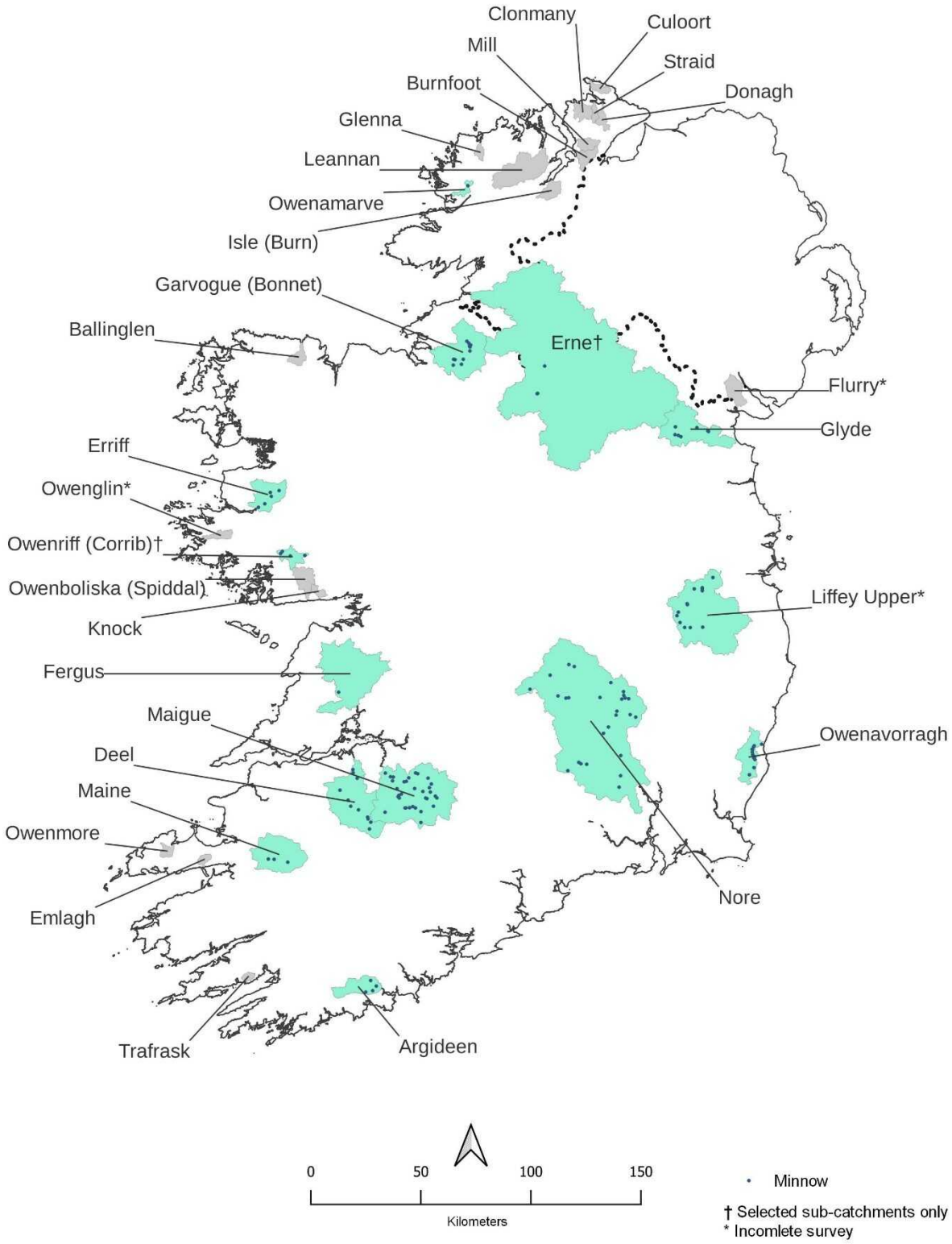
Erne†
Flurry*
Glyde
Erriff
Owenglin*
Owenriff (Corrib)†
Owenboliska (Spiddal)
Knock
Liffey Upper*
Fergus
Maigue
Owenavorragh
Deel
Maine
Owenmore
Nore
Emlagh
Trafrask
Argideen
0
50
100
150
Kilometers
Lamprey
† Selected sub-catchments only
* Incomlete survey

B.7. Minnow


Clonmany
Culoort
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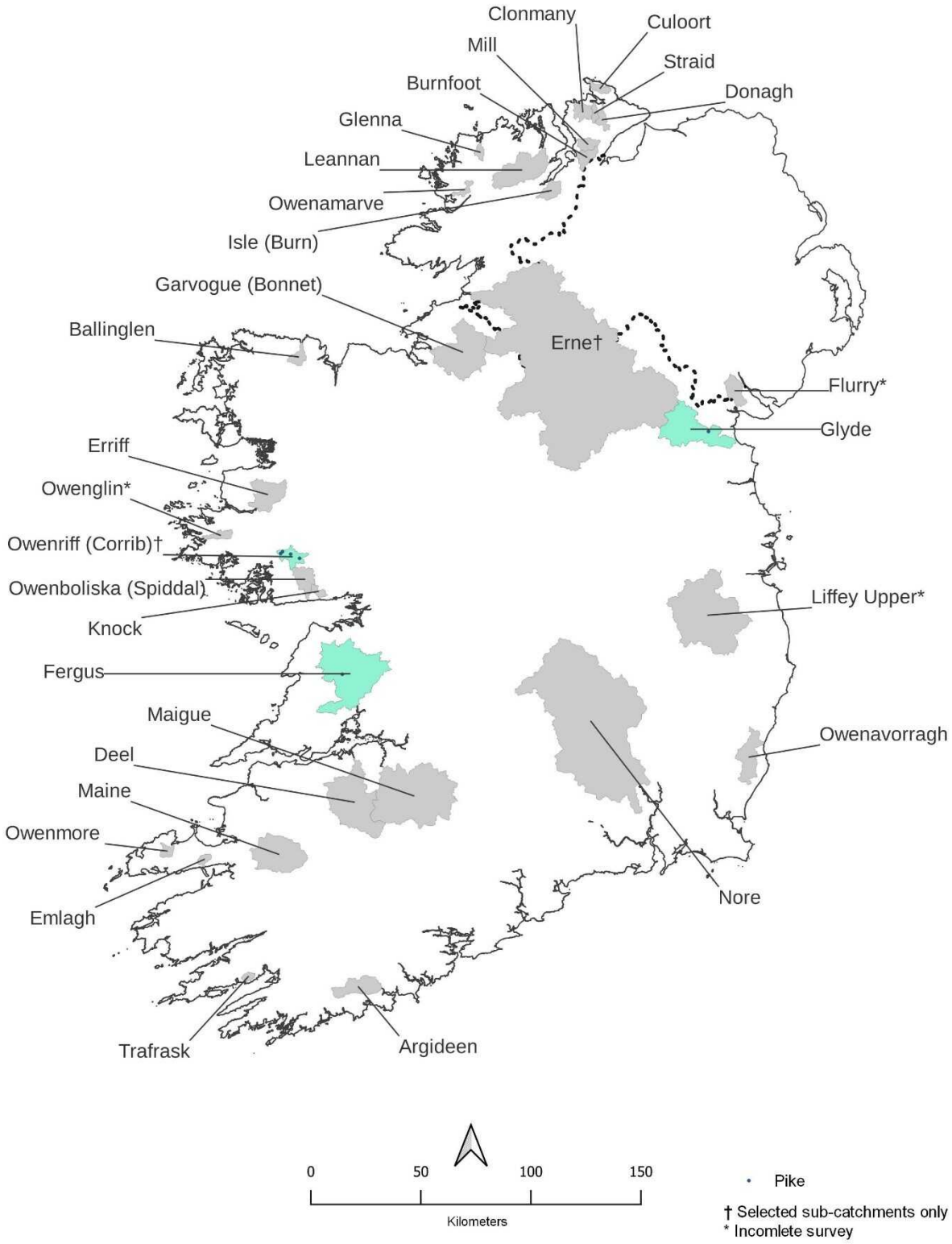
Straid
Burnfoot
Donagh
Glenna
Leannan
Owenamarve
Isle (Burn)
Garvogue (Bonnet)
Ballinglen
Erne†
Flurry*
Glyde
Erriff
Owenglin*
Owenriff (Corrib)†
Owenboliska (Spiddal)
Knock
Liffey Upper*
Fergus
Maigue
Owenavorragh
Deel
Maine
Owenmore
Nore
Emlagh
Trafrask
Argideen
0
50
100
150
Kilometers
Minnow
† Selected sub-catchments only
* Incomlete survey

B.8. Pike


Clonmany
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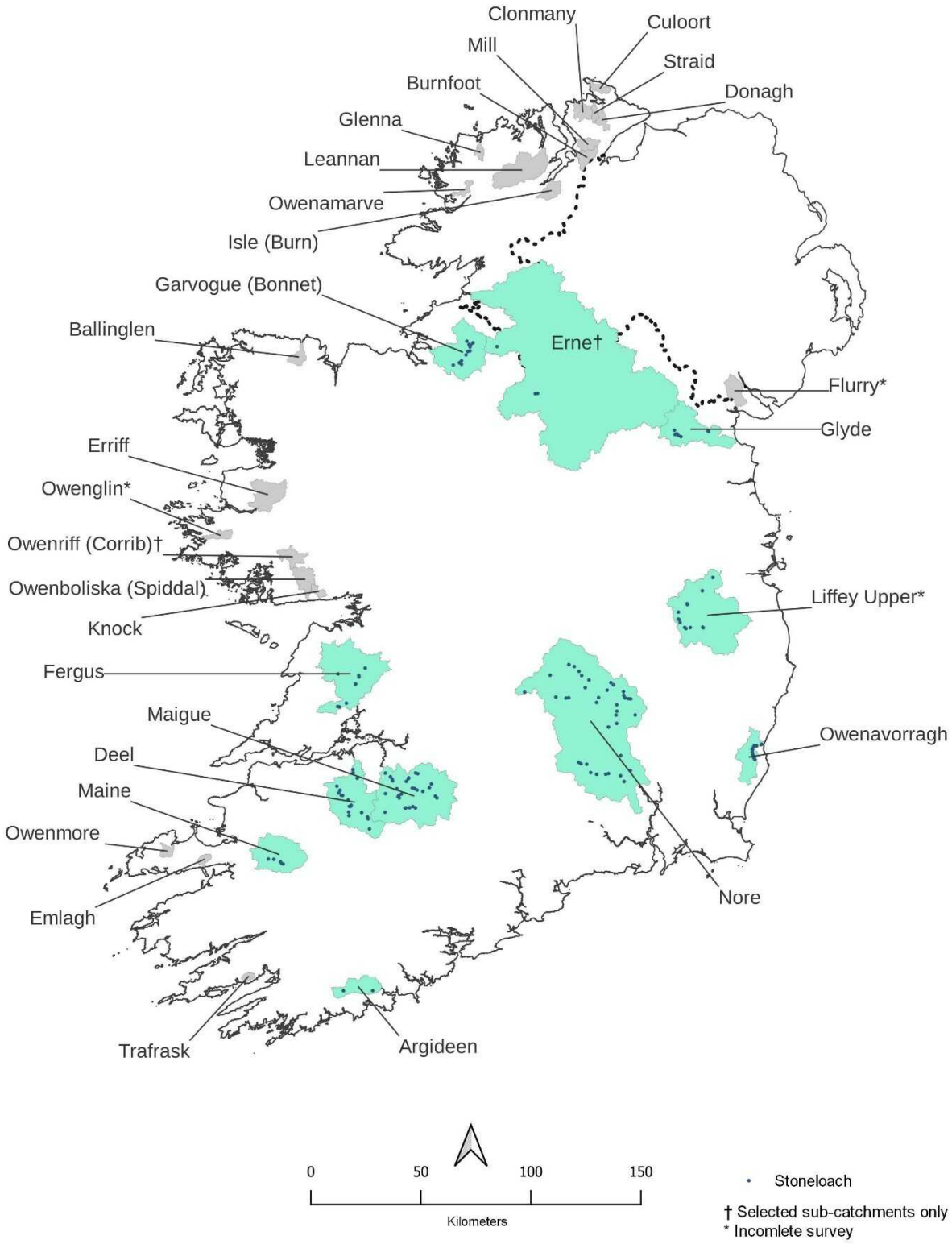
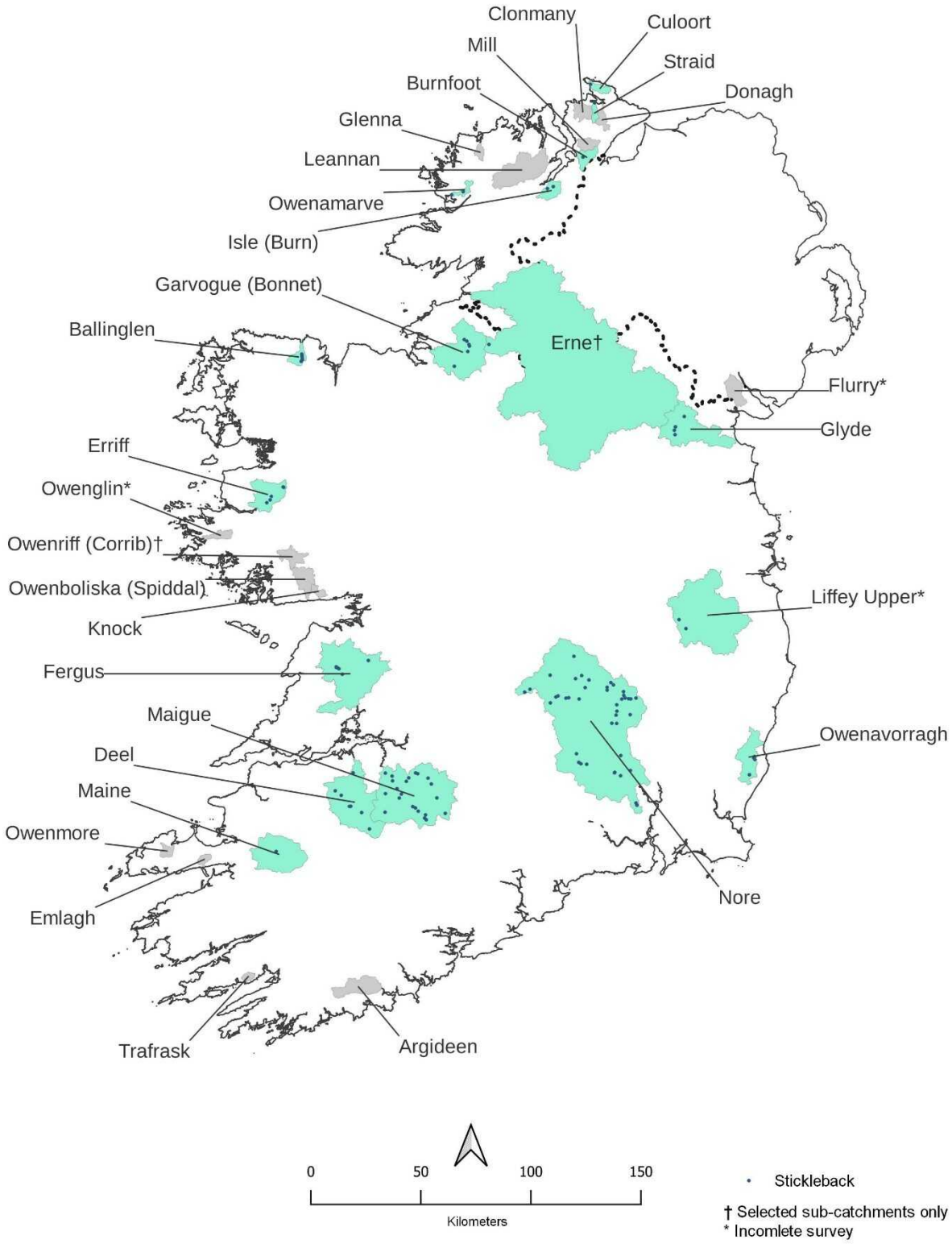
Garvogue (Bonnet)
Ballinglen
Erne†
Flurry*
Glyde
Erriff
Owenglin*
Owenriff (Corrib)†
Owenboliska (Spiddal)
Knock
Liffey Upper*
Fergus
Maigue
Owenavorragh
Deel
Maine
Owenmore
Nore
Emlagh
Trafrask
Argideen
0
50
100
150
Kilometers
Pike
† Selected sub-catchments only
* Incomlete survey

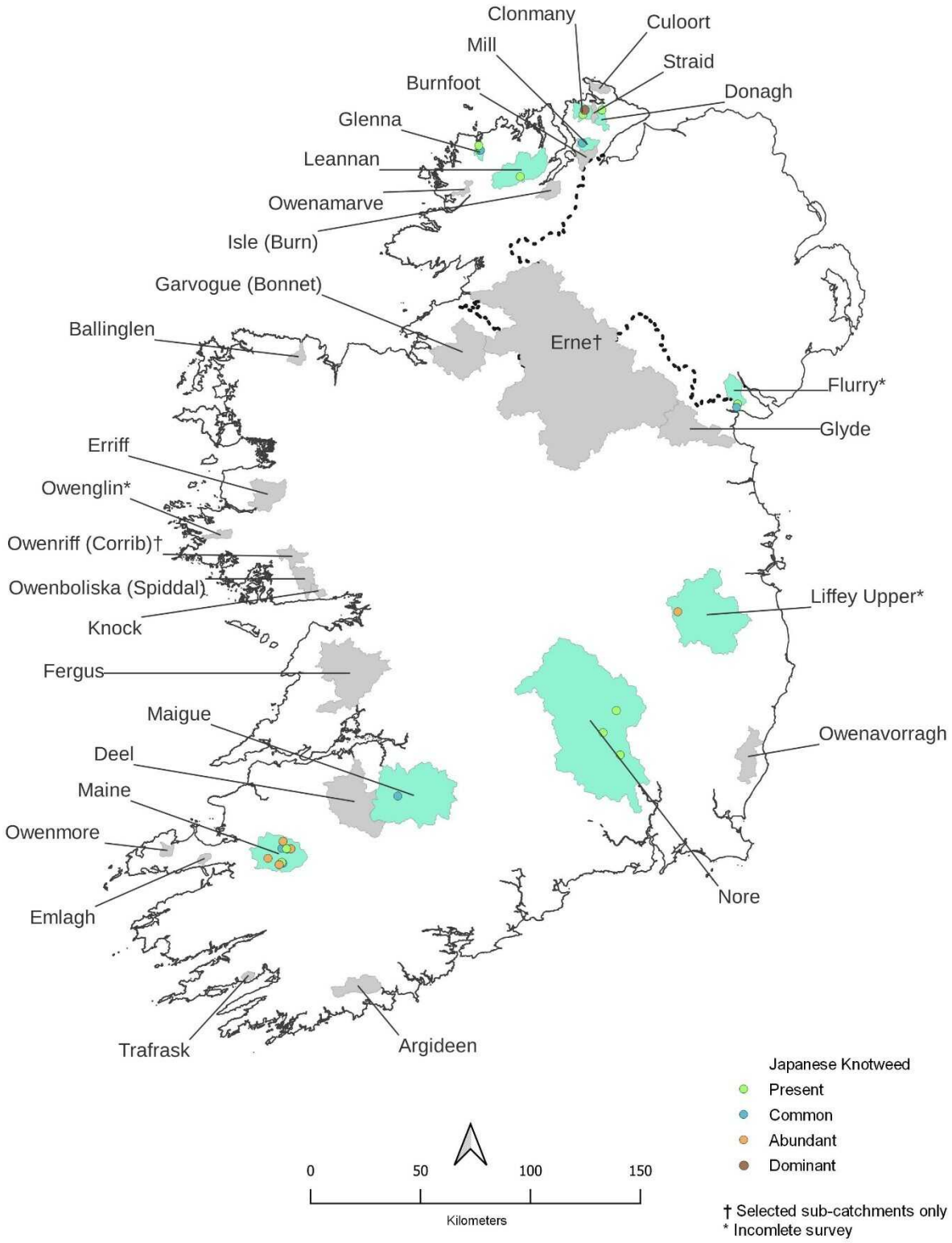
B.9. Stone loach



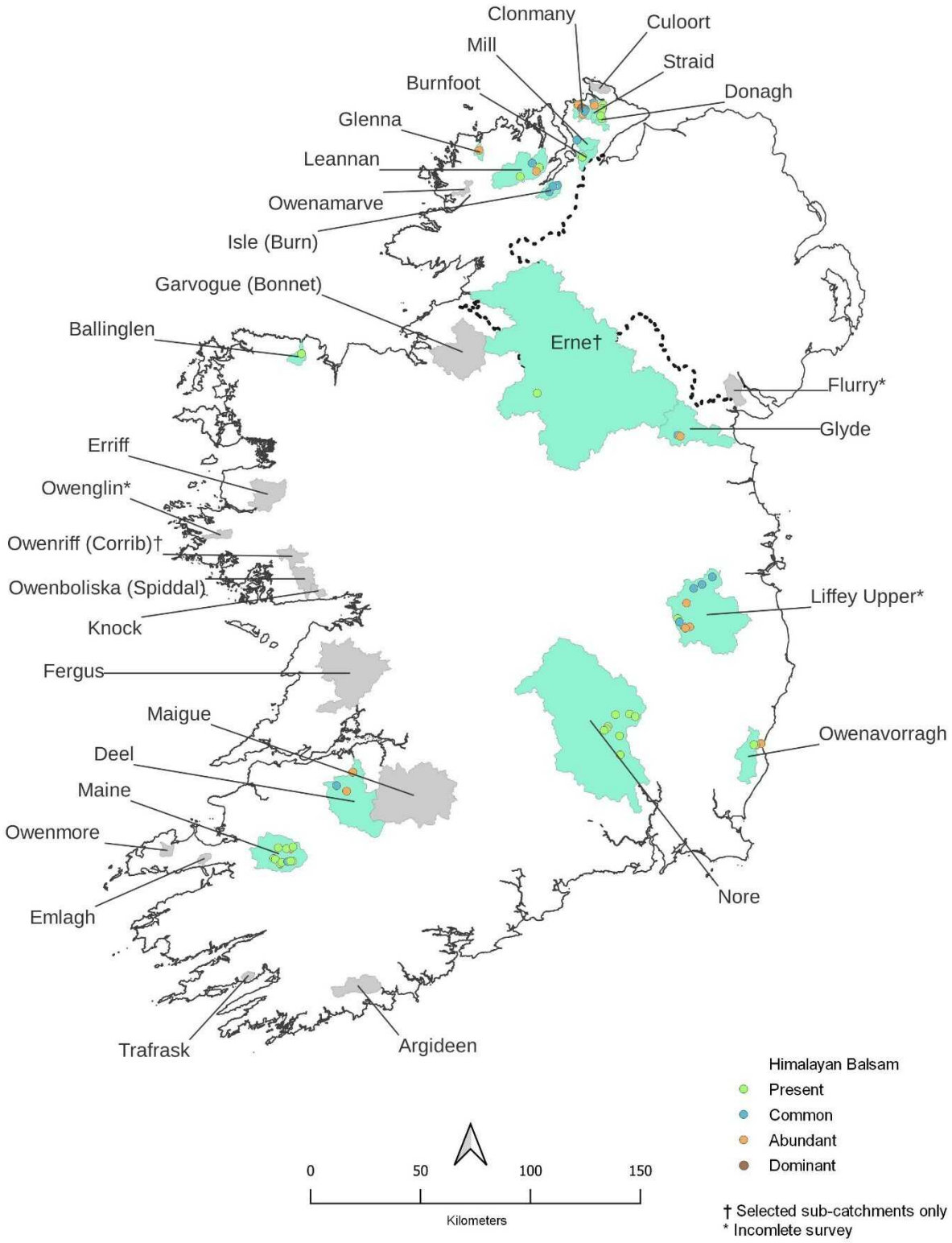
B.10. Three spined-stickleback



B.11. Japanese Knotweed



B.12. Himalayan Balsam.



C. Annual CWEF results and averages to date.

River	Survey Year															Most recent 5 surveys		Most recent 5 years data	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Index	Surveys	Index	Surveys
002/Flurry				5.24					17.15					37.55*	1.35*	11.19	2		
003/Castletown			26.41				22.96	13.59					5.58	1.87		14.08	5	3.72	2
004/Fane			16.17			22.09			8.94*		0.5*	3.65				13.97	3	3.65	1
005/Glyde		2.49	17.08	31.61					5.19				4.02		6.58	12.08	5	4.02	1
006/Dee		8.85	16.92	21.72	20.13				10.51				4.18*	7.59		15.37	5	7.59	1
008/Boyne		21.91	17.54	19.38				13.21		14.37				14.94		15.89	5	14.66	2
013/Broadmeadow				0.00												0.00	1		
014/Tolka					1.08	0.00						0.00				0.36	3	0.00	1
015/Liffey Lower		21.33	40.12	25.16	17.47	12.12				6.75		16.69				15.64	5	11.72	2
015/Liffey Upper		12.93	5.11	8.15	16.20	10.13				2.63*		5.33*			1.50*	10.51	5		
016/Dodder					13.93											13.93	1		
018/Dargle			1.40	2.53	7.52				4.19				1.03			3.33	5	1.03	1
020/Newcastle												0.00				0.00	1	0.00	1
021/Vartry		10.00	15.11	2.54	15.07				5.34	1.75				9.63		6.86	5	5.69	2
026/Avoca		3.79	5.56	5.20	18.88	5.15				1.89		8.37*	3.95			7.01	5	2.92	2
028/Owenavorragh				19.76			0.33		4.61			5.75			2.40	6.57	5	4.07	2
031/Slaney	19.05		15.94	18.42				17.68		8.70	14.30		3.45*			15.01	5	11.50	2
033/Corock					37.11					5.47	1.23		6.47†			14.60	3	3.35	2
034/Owenduff (Wx.)				4.97	10.65	15.91				3.47	0.40		16.0*			7.08	5	1.93	2
037/Barrow	17.72		10.93	8.71	21.23	26.72				8.93*	11.54		16.50			16.94	5	14.02	2
038/Nore				18.83						11.77			12.7*		16.79	15.80	3	16.79	1
039/Blackwater (Wd.)														26.54		26.54	1	26.54	1
041/Lingaun										14.52				47.60		31.06	2	31.06	2
042/Glen (Wd.)										0.00						0.00	1	0.00	1
043/Suir										9.81						9.81	1	9.81	1
044/Clodiagh										11.77				51.00		31.39	2	31.39	2
050/Mahon		2.11						10.72	3.92				8.60			6.34	4	8.60	1
051/Tay					8.75				3.07	1.40				8.67		5.47	4	5.03	2
053/Colligan					29.32			9.50		3.62			4.84			11.82	4	4.23	2
055/Lickey		12.37							14.14					12.00		12.84	3	12.00	1
059/Blackwater (Munst.)	22.72	10.67								13.53		22.7*				15.64	3	13.53	1
060/Bride		10.40		24.70				19.85			7.65		18.93			16.31	5	13.29	2
061/Tourig						9.40					0.73*			11.19		10.29	2	11.19	1

River	Survey Year															Most recent 5 surveys		Most recent 5 years data	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Index	Surveys	Index	Surveys
062/Womanagh		15.45						2.39			1.43					6.42	3	1.43	1
064/Owennacurra	15.76										1.77*			9.47		12.62	2	9.47	1
066/Lee (Cork)			0.26													0.26	1		
066/Lower Lee												18.34				18.34	1	18.34	1
069/Bandon										11.01						11.01	1	11.01	1
070/Argideen	17.15														27.55	22.35	2	27.55	1
077/Mealagh						12.82										12.82	1		
080/Glengarriff			5.93													5.93	1		
081/Adrigole							4.01	1.33				15.64				6.99	3	15.64	1
082/Kealincha	0.00								0.00					0.00		0.00	3	0.00	1
083/Lough Fada	3.23								1.68					0.00		1.63	3	0.00	1
084/Croanshagh										23.38						23.38	1	23.38	1
085/Owenshagh							4.32		6.73			19.27		13.00		10.83	4	16.13	2
086/Cloonee						16.18	33.06				24.09		26.48			24.95	4	25.29	2
088/Roughty					19.78											19.78	1		
089/Finnihy						8.61	0.00				0.58		0.89			2.52	4	0.73	2
090/Blackwater (Kerry)	30.54	15.52	13.35					18.01								19.08	4		
093/Owreagh	8.94						2.07	2.81					8.51			5.58	4	8.51	1
097/Currane								24.51								24.51	1		
098/Inny	24.63		19.78									17.67				20.69	3	17.67	1
099/Emlaghmore	2.07								1.45					5.78		3.10	3	5.78	1
101/Carhan	15.76						6.05	8.61					7.55			9.49	4	7.55	1
102/Ferta	19.42							10.74			6.88		12.06			12.27	4	9.47	2
103/Behy	15.41	6.14	4.03	8.71	7.17					2.89			6.60			5.88	5	4.75	2
106/Laune		17.4†									21.41					21.41	1	21.41	1
107/Maine	31.88	32.81	34.2*								22.1†	19.6†			37.62	34.10	3	37.62	1
108/Emlagh	10.37	3.66	13.38	3.84	2.59					2.10					1.02	4.58	5	1.02	1
109/Owenascaul	20.41		22.27				16.08	16.28				9.51		11.52		15.13	5	10.51	2
110/Owenalondrig			21.90													21.90	1		
111/Milltown (Kerry)		15.33		26.44			13.02		8.76				11.25			14.96	5	11.25	1
112/Feohanagh			16.61				3.20	11.93					13.75			11.37	4	13.75	1
114/Owenmore (Kerry)	25.07														26.72	25.89	2	26.72	1
115/Scorid										1.86						1.86	1	1.86	1
115/Glenahoo										1.87						1.87	1	1.87	1
116/Aghacashla										4.89						4.89	1	4.89	1
116/Owenamallagh										0.00						0.00	1	0.00	1
116/Meennascarty										0.00						0.00	1	0.00	1

River	Survey Year															Most recent 5 surveys		Most recent 5 years data	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Index	Surveys	Index	Surveys
117/Lee (Kerry)		0.67						0.68			0.69					0.68	3	0.69	1
118/Brick	0.00															0.00	1		
119/Feale							24.15									24.15	1		
120/Galey			12.99													12.99	1		
125/Deel					0.14			0.21		1.87*	0.04				3.74	1.03	4	1.89	2
126/Maigue			2.82	16.05			12.05								13.75	11.17	4	13.75	1
128/Shannon Kilcrow				0.69†												0.69	1		
128/Sh. Graney				0.19†												0.19	1		
128/Sh. Woodford				0.00†												0.00	1		
128/Sh. Mulkear												8.00*							
128/Sh. Blackwater											10.74†	10.74†				10.74	2	10.74	2
128/Sh. Groody											0.00†	7.45†				3.73	2	3.73	2
128/Sh. Kilmastula											10.35†	24.45†				17.40	2	17.40	2
128/Sh. Old Main Ch.											5.50*†	18.2*†	35.68†			35.68	1	35.68	1
130/Owenagarney (Ratty)							16.97	8.87						3.55		9.97	3	3.55	1
131/Fergus	12.96		4.10	6.84			5.89		6.66					5.26*	9.04	6.51	5	9.04	1
133/Doonbeg				12.28				17.39		16.14*	18.77					16.15	3	18.77	1
134/Skivaleen					14.82				11.70	14.54*				10.30		12.27	3	10.30	1
135/Annageeragh							1.82	9.24						0.72		3.93	3	0.72	1
142/Inagh								5.60	3.59					7.23		5.47	3	7.23	1
143/Aughyvackeen					1.00						1.70					1.35	2	1.70	1
145/Kilcolgan			2.51								0.10*	0.79*		11.95		7.23	2	11.95	1
146/Clarinbridge					7.26									1.77		4.51	2	1.77	1
147/Corrib Owenriff	15.75†											10.3*†			22.30				
148/Knock					12.53							1.50*			16.93	14.73	2	16.93	1
149/Owenboliska		4.06						4.52				0.60			12.90	5.48	4	6.75	2
152/Cashla							10.83									10.83	1		
154/L.Na Furnace									0.00							0.00	1		
155/Screeb											10.70					10.70	1	10.70	1
161/Ballinahinch														14.83		14.83	1	14.83	1
163/Owenglin			11.57												29.86*	11.57	1		
167/Culfin		30.83														30.83	1		
168/Erriff	29.51	24.10	16.03	20.43	20.86	24.45	27.45	24.90	28.52	21.72	13.69	22.81	22.25	31.95	40.49	26.24	5	26.24	5
171/Carrownisky		18.25				20.60	18.22				4.25*		15.24			18.08	4	15.24	1
172/Bunowen			13.62													13.62	1		
173/Owenwee (Belclare)				8.47	7.25	15.27							4.49			8.87	4	4.49	1
178/Newport (L.Beltra)	16.06		5.53					17.40								13.00	3		

River	Survey Year															Most recent 5 surveys		Most recent 5 years data	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Index	Surveys	Index	Surveys
179/Srahmore			4.33													4.33	1		
181/Owengarve			5.51					6.19	0.72					13.01		6.36	4	13.01	1
185/Owenduff (Bangor)			6.00					6.20								6.10	2		
186/Owenmore-MC							27.65									27.65	1		
186 Carrowmore							25.77									25.77	1		
187/Glenamoy	28.16		5.65													16.91	2		
188/Muingnabo	0.78								1.87*					0.33		0.55	2	0.33	1
193/Ballinglen	10.65				15.09		6.37			4.97					10.73	9.56	5	10.73	1
194/Cloonaghmore		8.96		9.71	22.27	17.32	15.02				5.07*	14.63				15.79	5	14.63	1
196/Brusna			4.70				14.16	14.74						6.73*		11.20	3		
198/Leaffony	5.76		7.95						1.73					0.67*		5.15	3		
203/Garvogue (Bonnet)	18.41	13.26	16.83	11.31	7.08	18.54									19.53	14.66	5	19.53	1
205/Drumcliff				17.72												17.72	1		
207/Grange	5.75		3.29						4.56					4.08		4.42	4	4.08	1
208/Duff	7.84	9.31	18.59	25.16							18.05	20.34				18.29	5	19.20	2
210/Erne		7.37†	0.17†	0.08†	0.00†	0.00†	0.00†	1.60†	1.16†	1.25†	0.00†	0.63†	0.00†	0.00†	1.20†	0.37	5	0.37	5
211/Abbey							7.20*	28.14								28.14	1		
212/Ballintra			10.27				13.40	19.82					13.31			14.20	4	13.31	1
213/Laghy			8.58				14.97	11.02					8.56			10.78	4	8.56	1
214/Eske		13.10	16.99	16.30					13.45			10.94				14.16	5	10.94	1
215/Eany				15.86		30.08			12.89							19.61	3		
216/Oily			9.49		33.68			16.62			21.26			18.64		19.94	5	19.95	2
217/Bungosteen					27.91		19.23				13.17		13.41			18.43	4	13.29	2
219/Glen (Ballyshannon)				19.44					18.37			18.56		11.71		17.02	4	15.13	2
220/Owenwee (Yellow)	24.13	5.00	16.93			20.31	21.05						14.20			15.50	5	14.20	1
221/Bracky		10.82				21.57		12.24						5.31		12.49	4	5.31	1
222/Owentocker		20.06														20.06	1		
223/Owenea												33.94				33.94	1	33.94	1
226/Owenamarve			3.76				2.64	1.00							10.67	4.52	4	10.67	1
228/Gweedore (Crolly)		15.99			11.32											13.65	2		
229/Clady		16.12				37.21										26.67	2		
234/Glenna			16.80		3.77		7.77			4.00					11.43	8.76	5	11.43	1
235/Tullaghobegly		8.33		9.05						0.00*						8.69	2		
236/Ray		7.35			14.89			17.31		3.71*				6.65		11.55	4	6.65	1
240/Lackagh		18.86	15.82		19.20	23.57				17.50*	22.50					19.99	5	22.50	1
248/Leannan	9.47	7.68	9.73	17.30	12.82	22.19	19.51	20.87	15.27	15.05*	18.66	20.11	21.33	20.50	17.72	19.66	5	19.66	5
249/Swilly		9.33	7.36				18.08	8.05						14.36		11.44	5	14.36	1

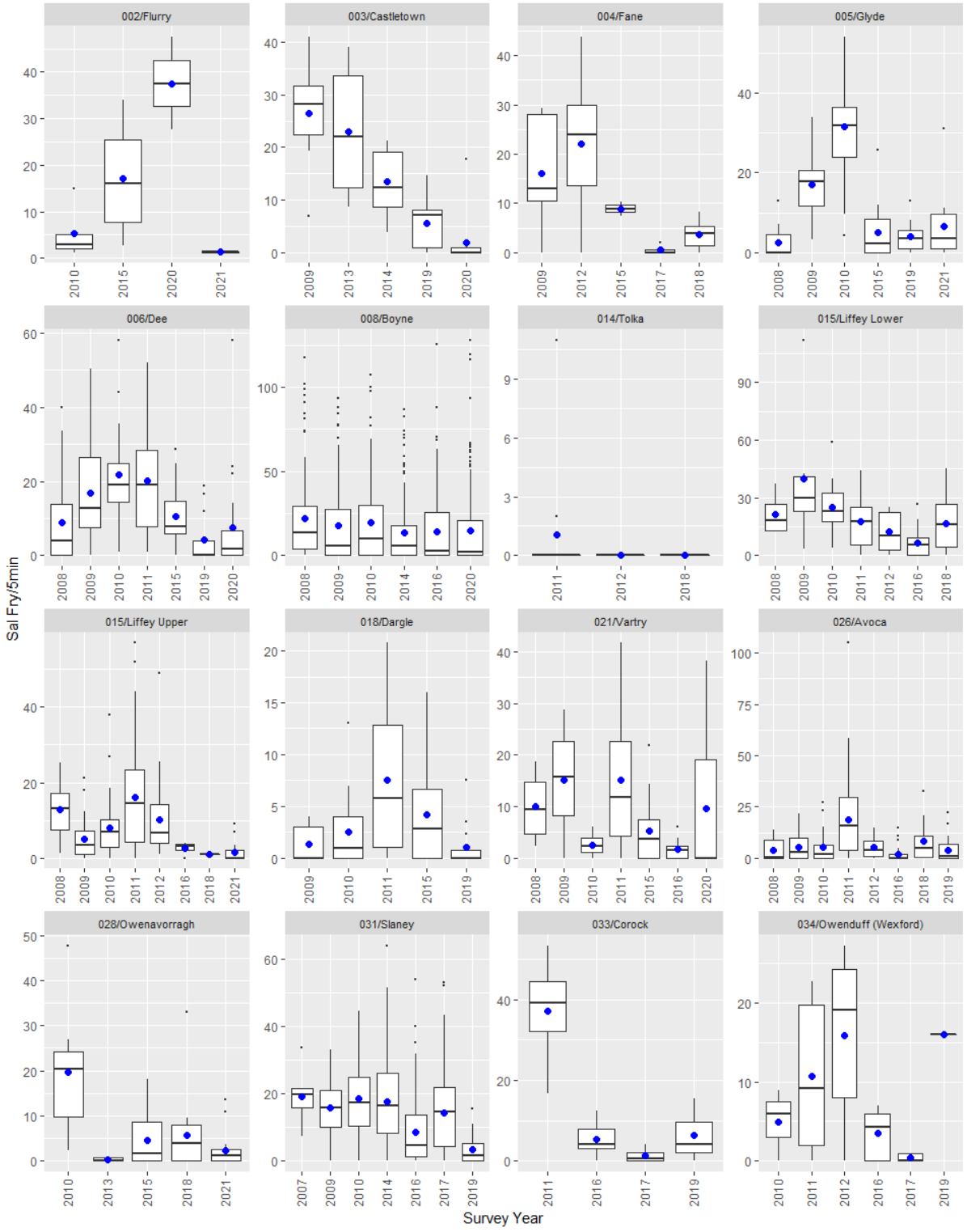
River	Survey Year															Most recent 5 surveys		Most recent 5 years data	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Index	Surveys	Index	Surveys
250/Isle (Burn)						**2.12**									**0.00**	**1.06**	**2**	**0.00**	**1**
251/Burnfoot		**7.77**		**2.90**											**0.00**	**3.56**	**3**	**0.00**	**1**
252/Mill (Letterkenny)				**0.00**					**0.00**						**0.00**	**0.00**	**3**	**0.00**	**1**
253/Crana			**15.74**							**6.00***	**6.93***	**16.38**				**16.06**	**2**	**16.38**	**1**
256/Clonmany		**16.61**		**6.59**					**4.21**						**9.55**	**9.24**	**4**	**9.55**	**1**
257/Straid				**0.20**					**0.00**						**0.00**	**0.07**	**3**	**0.00**	**1**
258/Donagh				**4.25**					**0.68**						**6.79**	**3.90**	**3**	**6.97**	**1**
259/Glennagannon			**16.65**		**4.05**		**7.13**									**9.28**	**3**		
261/Culoort				**4.03**					**0.00***						**11.41**	**7.72**	**2**	**11.41**	**1**
Quin									**5.97**							**5.97**	**1**		
Oranmore												**0.63**				**0.63**	**1**	**0.63**	**1**
Loch An Mhuillin											**0.00†**					**0.00**	**1**	**0.00**	**1**

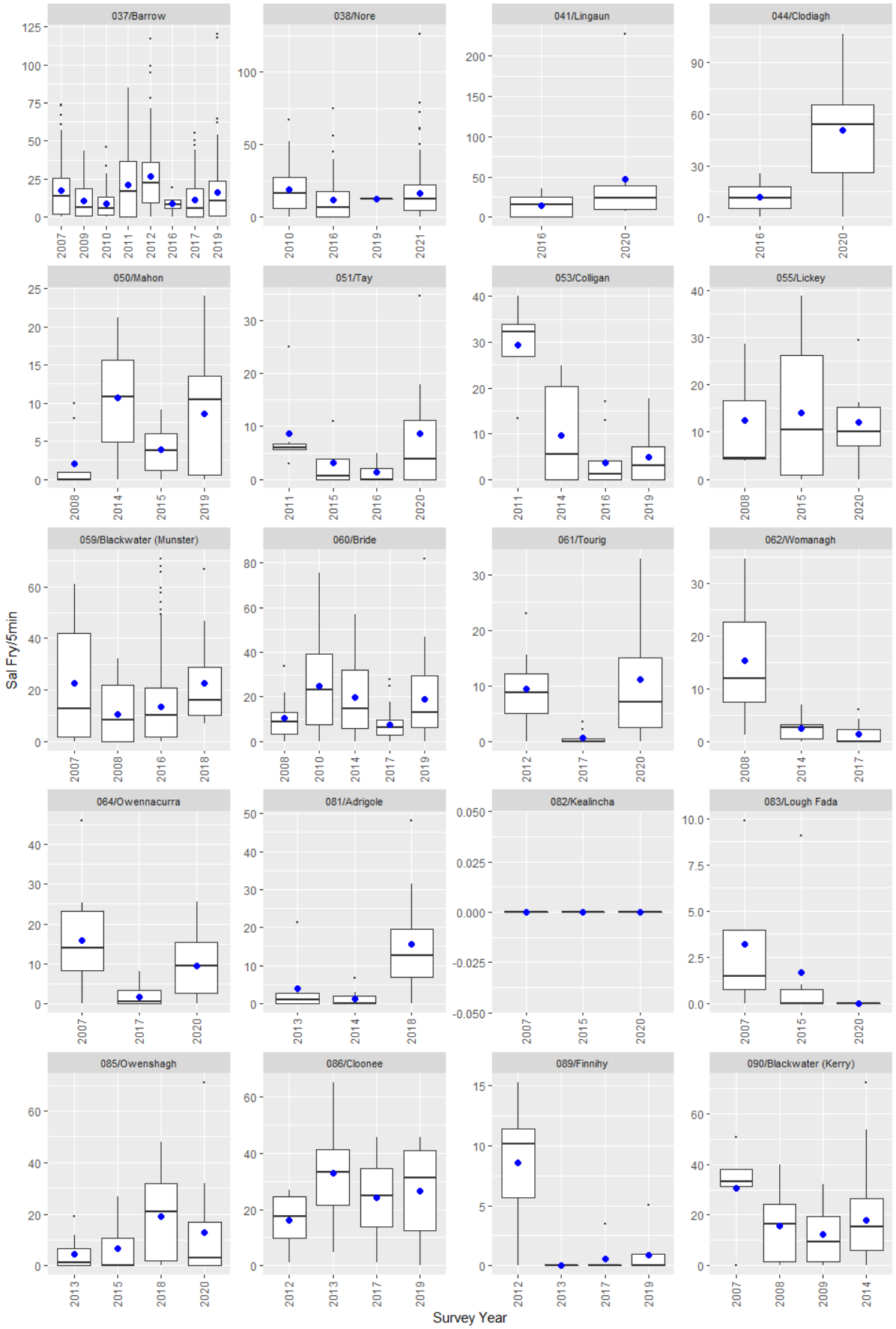
† Sub-catchment Surveys,

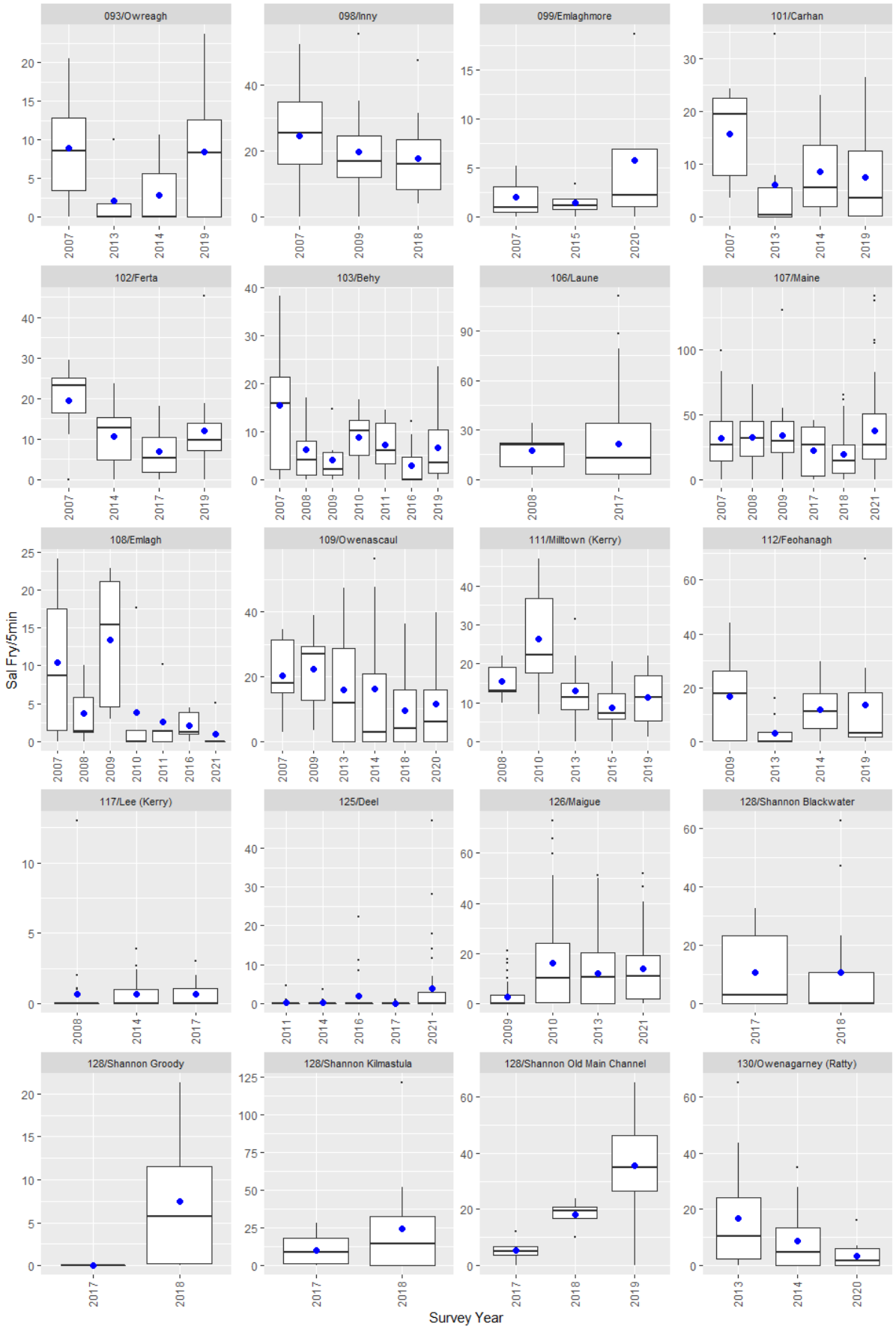
* Incomplete Surveys,

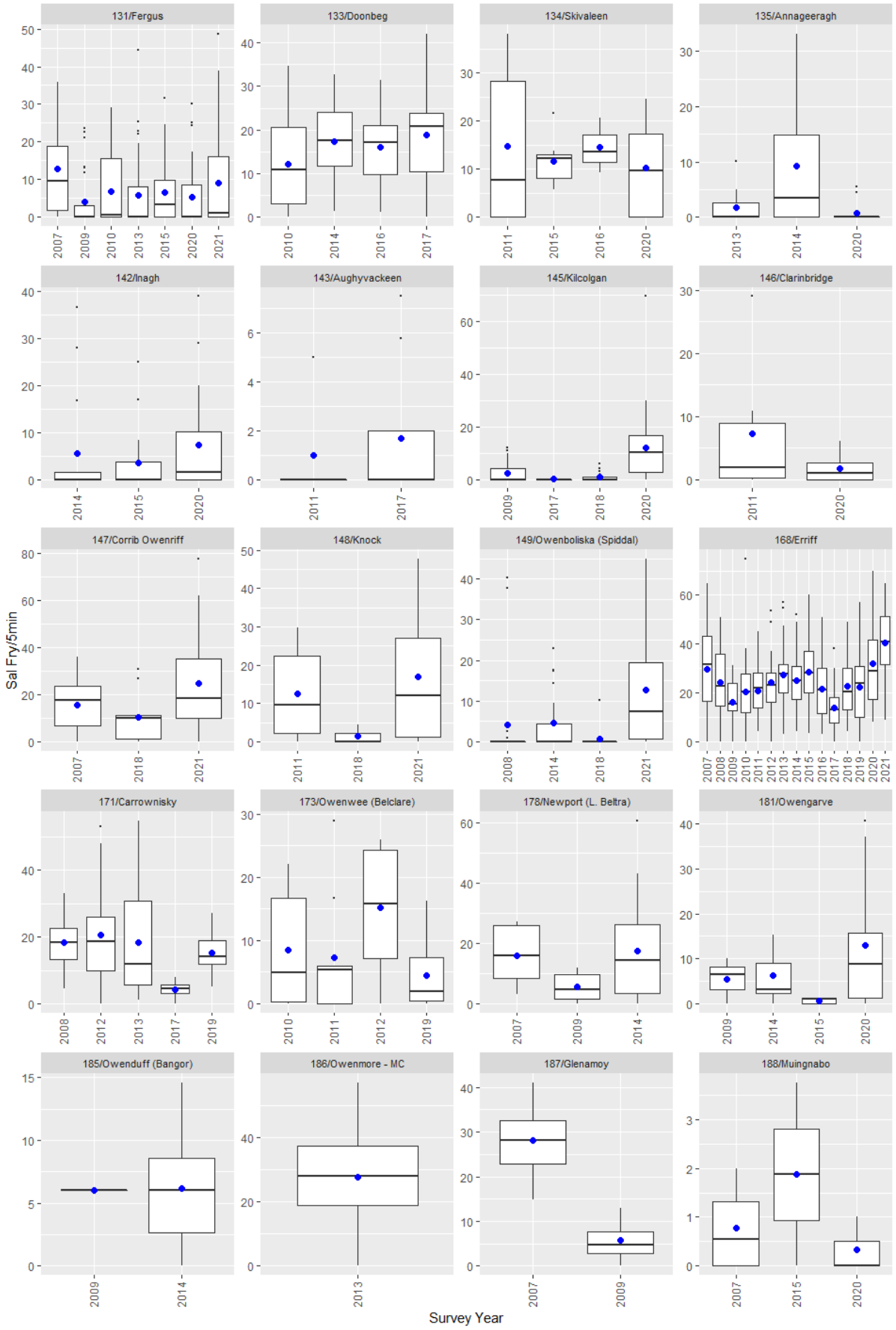
BOLD indicates annual surveys included in CWEF index calculation.

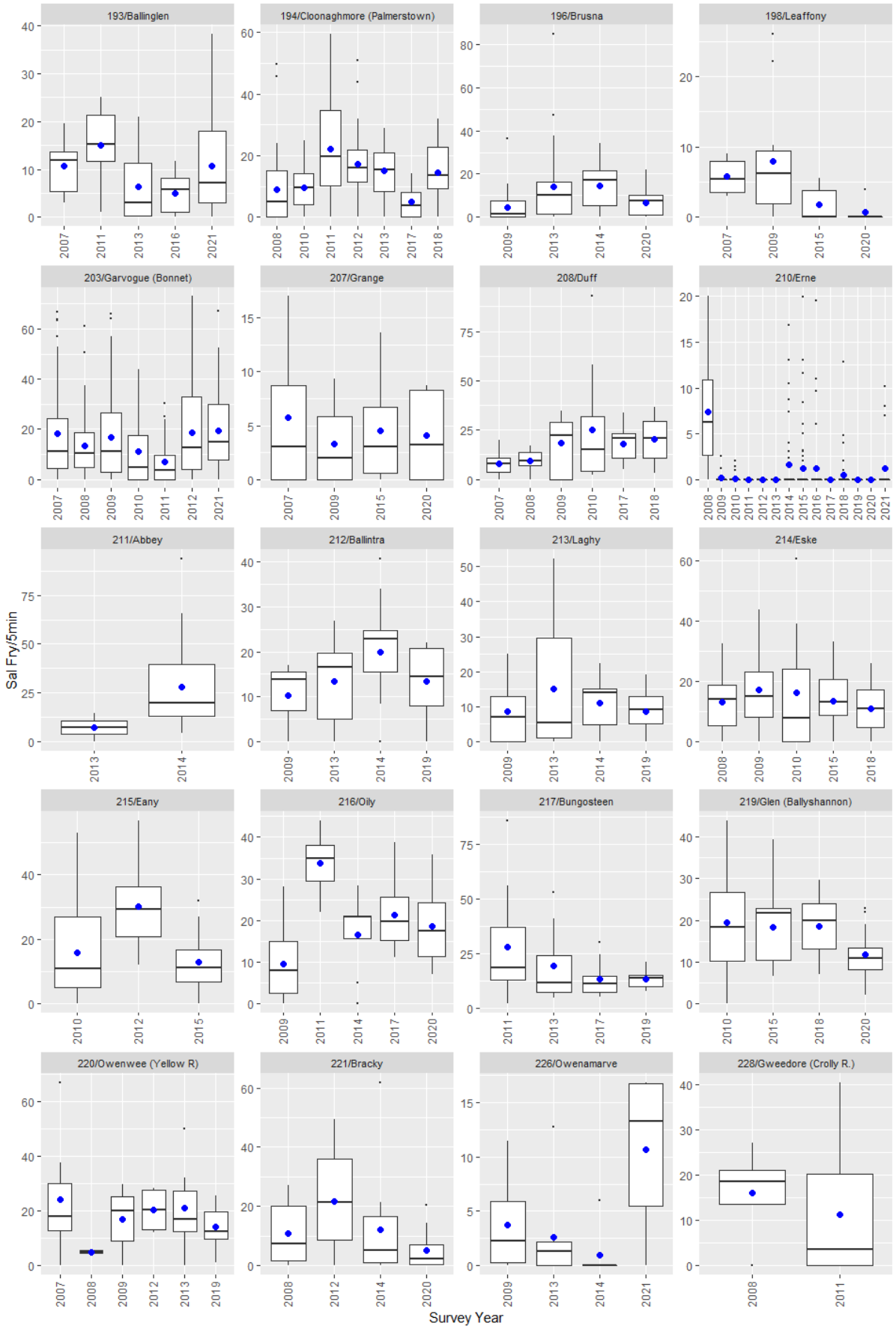
D. Boxplots: CWEF site results from for each catchment >2 surveys from 2007-2021.

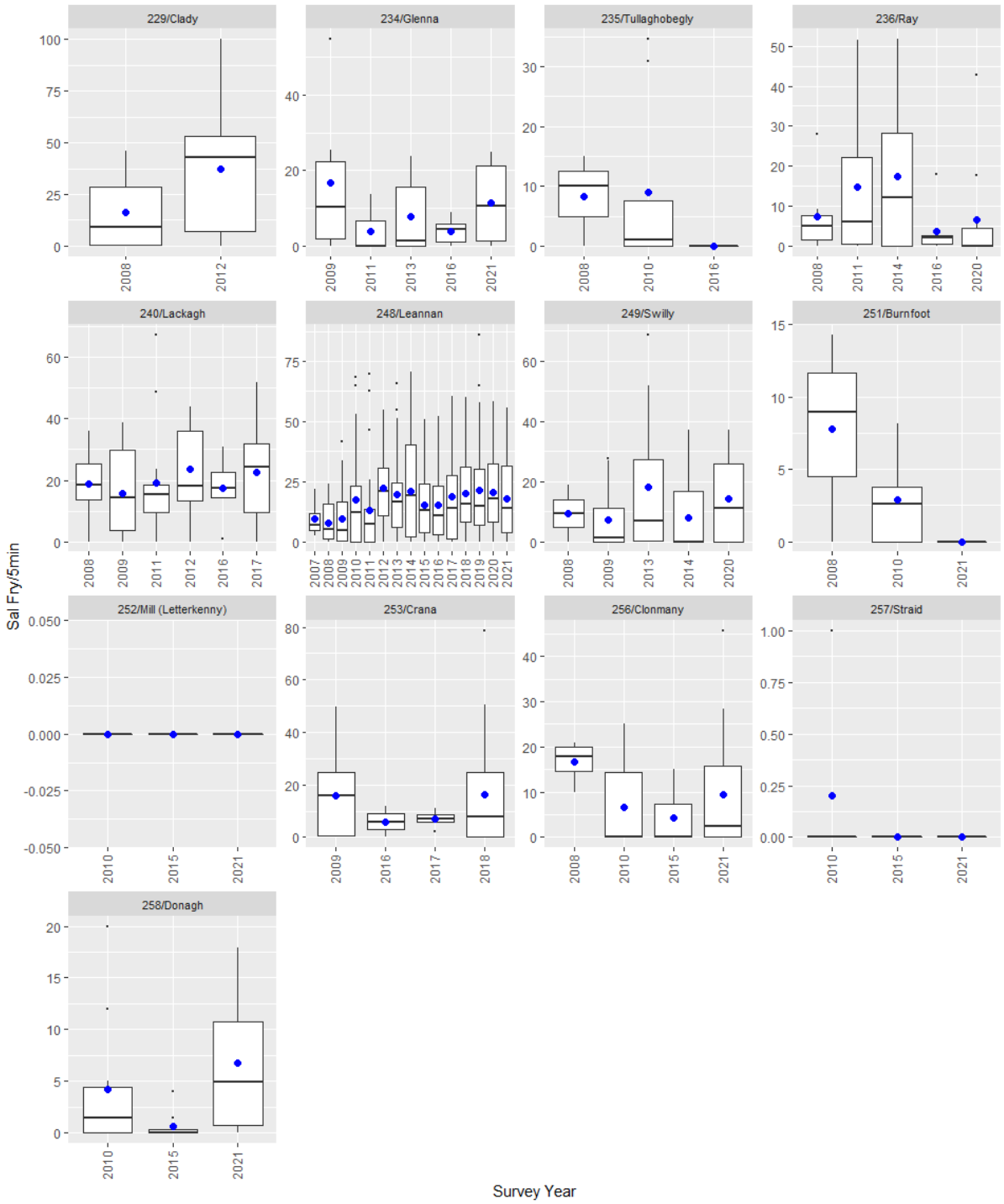



037/Barrow
038/Nore
041/Lingaun
044/Clodiagh
050/Mahon
051/Tay
053/Colligan
055/Lickey
059/Blackwater (Munster)
060/Bride
061/Tourig
062/Womanagh
064/Owennacurra
081/Adrigole
082/Kealincha
083/Lough Fada
085/Owenshagh
086/Cloonee
089/Finnihy
090/Blackwater (Kerry)
Sal Fry/5min
Survey Year


093/Owreagh
098/Inny
099/Emlaghmore
101/Carhan
102/Ferta
103/Behy
106/Laune
107/Maine
108/Emlagh
109/Owenascaul
111/Milltown (Kerry)
112/Feohanagh
117/Lee (Kerry)
125/Deel
126/Maigue
128/Shannon Blackwater
128/Shannon Groody
128/Shannon Kilmastula
128/Shannon Old Main Channel
130/Owenagarney (Ratty)
Sal Fry/5min
Survey Year


131/Fergus
133/Doonbeg
134/Skivaleen
135/Annageeragh
142/Inagh
143/Aughyvackeen
145/Kilcolgan
146/Clarinbridge
147/Corrib Owenriff
148/Knock
149/Owenboliska (Spiddal)
168/Erriff
171/Carrownisky
173/Owenwee (Belclare)
178/Newport (L. Beltra)
181/Owengarve
185/Owenduff (Bangor)
186/Owenmore - MC
187/Glenamoy
188/Muingnabo
Sal Fry/5min
Survey Year


193/Ballinglen
194/Cloonaghmore (Palmerstown)
196/Brusna
198/Leaffony
203/Garvogue (Bonnet)
207/Grange
208/Duff
210/Erne
211/Abbey
212/Ballintra
213/Laghy
214/Eske
215/Eany
216/Oily
217/Bungosteen
219/Glen (Ballyshannon)
220/Owenwee (Yellow R)
221/Bracky
226/Owenamarve
228/Gweedore (Crolly R.)
Sal Fry/5min
Survey Year


229/Clady
234/Glenna
235/Tullaghobegly
236/Ray
240/Lackagh
248/Leannan
249/Swilly
251/Burnfoot
252/Mill (Letterkenny)
253/Crana
256/Clonmany
257/Straid
258/Donagh
Sal Fry/5min
Survey Year

E. Survey Density.

Survey density achieved during CWEF surveys 2008-2021 expressed as number of kilometres of river>stream order1 per survey in each catchment. The lower the figure the more intensive the survey.

IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Min
002/Flurry				4.0					8.1					10.7	10.7	4.0
003/Castletown			2.4				2.8	2.8					3.1	2.4		2.4
004/Fane			15.8			7.9			10.1		22.1	8.5				7.9
005/Glyde		10.3	11.0	11.8					11.0				16.5		12.7	11.0
006/Dee		6.9	10.6	10.0	10.0				10.0				15.4	8.7		10.0
008/Boyne		8.4	7.6	7.7				7.5		7.6				7.1		7.5
013/Broadmeadow				38.7												38.7
014/Tolka					6.9	41.2						16.5				6.9
015/Liffey Lower		20.3	20.3	11.1	7.2	17.4				7.2		5.5				7.2
015/Liffey Upper		24.3	12.9	11.1	7.6	15.9				103.1		137.5			14.7	7.6
016/Dodder					15.5											15.5
018/Dargle		38.7	12.9	4.3	4.8				4.6				5.5			4.3
020/Newcastle												3.0				0.0
021/Vartry		11.0	11.0	3.4	4.0				2.9	3.7				3.7		2.9
026/Avoca		16.4	11.1	13.3	4.3	11.5				7.7		23.0	9.1			4.3
028/Owenavorragh				13.5			15.8		5.3			5.9			5.0	5.3
030/Sow								23.8								23.8
031/Slaney	108.2	865.9	18.0	11.0				7.2		6.3	6.4		36.1			6.3
033/Corock				31.5	15.8	23.6				18.9	15.8		31.5			15.8
034/Owenduff (Wexford)				10.9	5.5	5.5				6.5	6.5		32.7			5.5
037/Barrow	11.4		13.0	13.2	13.0	10.4				273.8	8.5		8.8			8.5
038/Nore				10.8						9.3			555.3		7.0	9.3
039/Blackwater (Waterford)														150.0		0.0
041/Lingaun										183.4				183.4		183.4
042/Glen (Waterford)										4.1						4.1
043/Suir										14.6						14.6
044/Clodiagh										126.9				126.9		126.9
050/Mahon		6.4						8.0	8.0				4.3			8.0
051/Tay					6.8			41.1	8.2	5.9				5.1		5.9
053/Colligan					11.1			4.6		4.3			4.0			4.3
055/Lickey		4.9							2.2					2.5		2.2

IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Min
057/Finisk		98.3								63.9						63.9
058/Glenshelane	213.0	213.0								127.8						127.8
059/Blackwater (Munster)										4.4	85.2	71.0				4.4
060/Bride		7.7		6.2				4.3			4.1		4.3			4.1
061/Tourig						2.1					2.1			2.1		2.1
062/Womanagh		4.8						3.5			4.1					3.5
064/Owennacurra	3.6										4.4			3.9		4.4
066/Lee (Cork)			18.9													18.9
066/Lower Lee (Cork)N (Shournagh)												5.3				0.0
069/Bandon										3.2						3.2
070/Argideen	3.0														2.7	0.0
072/Ilen						26.5										26.5
077/Mealagh						4.5										4.5
080/Glengarriff			4.9													4.9
081/Adrigole							3.9	3.2				3.2				3.2
082/Kealincha	7.9								4.8					4.8		4.8
083/Lough Fada	5.2								4.3					5.2		4.3
084/Croanshagh										4.2						4.2
085/Owenshagh							3.3		5.3			3.8		4.4		3.3
086/Cloonee						2.6	3.0				2.6		2.6			2.6
088/Roughty					15.3											15.3
089/Finnihy						3.7	3.7				3.7		2.8			3.7
090/Blackwater (Kerry)	16.2	6.2	5.4					1.9								1.9
093/Owreagh	2.9						2.9	2.2					2.2			2.2
097/Currane								1.4								1.4
098/Inny	3.9		4.3									4.3				4.3
099/Emlaghmore	3.0								3.7					3.7		3.7
101/Carhan	3.0						2.3	1.8					1.8			1.8
102/Ferta	4.3							2.6			2.2		2.6			2.2
103/Behy	3.5	2.8	2.8	3.1	2.8					2.6			2.8			2.6
106/Laune		45.0									4.9					4.9
107/Maine	3.3	3.6	11.0								7.5	7.2			1.9	7.5
108/Emlagh	5.0	4.0	4.0	4.0	4.0					4.0					4.0	4.0
109/Owenascaul	5.8		3.5				3.5	2.7				2.7		2.7		2.7
110/Owenalondrig			2.3													2.3
111/Milltown (Kerry)		2.7		2.0			1.8		2.0				2.0			1.8
112/Feohanagh			2.9				2.7	2.4					2.4			2.4
114/Owenmore (Kerry)	1.5														1.2	0.0

IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Min
115/Glenahoo										1.2						1.2
115/Scorid										2.1						2.1
116/Aghacashla										2.0						2.0
116/Meennascarty										2.1						2.1
116/Owenamallagh										2.3						2.3
117/Lee (Kerry)		2.6						4.6			6.7					4.6
118/Brick	56.0															0.0
119/Feale							5.7									5.7
120/Galey			10.5													10.5
125/Deel					2.5			2.4		10.5	8.7				5.1	2.4
126/Maigue			6.5	4.8			3.0								4.4	3.0
128/Shannon Blackwater											1.6	1.6				1.6
128/Shannon Graney				2.5												2.5
128/Shannon Groody											2.6	4.3				2.6
128/Shannon Kilcrow				3.4												3.4
128/Shannon Kilmastula											3.8	2.8				3.8
128/Shannon Mulkear												150.5				0.0
128/Shannon Old Main Channel											4.7	4.7	0.9			4.7
128/Shannon Woodford				1.9												1.9
130/Owenagarney (Ratty)							3.0	3.9						3.9		3.0
131/Fergus	12.3		6.5	6.0			3.2		4.4					5.0	4.2	3.2
133/Doonbeg				2.6				3.3		5.8	4.3					2.6
134/Skivaleen					2.5				3.0	7.5				3.7		2.5
135/Annageeragh							2.0	2.0						2.2		2.0
142/Inagh								4.0	5.2					4.3		4.0
143/Aughyvackeen					2.0						1.7					1.7
145/Kilcolgan			4.6								16.2	4.8		6.5		4.6
146/Clarinbridge					6.0									5.2		6.0
147/Corrib														101.4		0.0
147/Corrib Owenriff	1.6											5.9			1.7	0.0
148/Knock					3.3							3.3			3.3	3.3
149/Owenboliska (Spiddal)		2.2						2.8				2.9			2.3	2.8
152/Cashla							1.5									1.5
154/L. Na Furnace stream									2.9							2.9
155/Screeb											0.9					0.9
161/Owenmore - Ballinahinch														2.9		0.0
163/Owenglin			2.1												5.6	2.1
167/Culfin		3.0														0.0

IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Min
168/Erriff	2.7	2.9	2.7	2.8	4.1	4.1	4.2	4.1	3.8	4.3	4.3	4.2	3.9	4.1	4.1	2.7
171/Carrownisky		2.1				2.2	2.5				10.4		3.2			2.2
172/Bunowen			23.2													23.2
173/Owenwee (Belclare)				3.8	4.6	3.8							3.8			3.8
178/Newport (L. Beltra)	9.0		13.4					3.8								3.8
179/Srahmore			23.1													23.1
181/Owengarve			6.2					2.8	5.0					2.5		2.8
185/Owenduff (Bangor)			63.7					9.1								9.1
186/Owenmore - MC			33.5				5.3									5.3
186/Owenmore- Carrowmore (Muinhin)							3.2									3.2
187/Glenamoy	4.7		9.3													9.3
188/Muingnabo	8.4								16.9					8.4		16.9
193/Ballinglen	6.5				2.8		3.6			3.3					2.8	2.8
194/Cloonaghmore (Palmerstown)		2.9		3.5	2.9	3.7	4.2				4.2	4.5				2.9
196/Brusna			2.9				3.4	3.7						4.9		2.9
198/Leaffony	4.2		1.8						1.8					4.2		1.8
203/Garvogue (Bonnet)	4.9	4.9	4.7	4.7	9.9	6.1									4.8	4.7
205/Drumcliff				3.5												3.5
207/Grange	8.4		7.0						6.0					6.0		6.0
208/Duff	8.8	9.6	10.7	8.8							8.8	8.8				8.8
210/Erne		17.3	12.0	4.6	13.8	4.5	8.1	5.5	3.8	6.9	18.5	5.4	9.2	11.5	12.0	3.8
211/Abbey							14.8	1.6								1.6
212/Ballintra			27.7				5.2	6.4					10.4			5.2
213/Laghy			5.2				4.2	3.9					5.2			3.9
214/Eske		8.3	7.2	6.8					5.0			5.8				5.0
215/Eany				4.8		6.9			5.8							4.8
216/Oily			4.2		6.6			3.6			4.2			4.2		3.6
217/Bungosteen					4.4		4.4				4.4		5.5			4.4
219/Glen (Ballyshannon)				4.6					5.9			5.5		5.9		4.6
220/Owenwee (Yellow R)	1.6	5.8	2.2			4.3	1.1						2.2			1.1
221/Bracky		4.4				2.5		2.9						3.2		2.5
222/Owentocker		4.3														0.0
223/Owenea												11.3				0.0
226/Owenamarve			2.3				2.3	2.3							2.7	2.3
228/Gweedore (Crolly R.)		5.8			2.4											2.4
229/Clady		9.7				5.3										5.3
234/Glenna			3.2		3.2		3.2			3.2					3.2	3.2

IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Min
235/Tullaghobegly		5.7		1.7						8.6						1.7
236/Ray		5.6			4.1			3.8		6.4				3.5		3.8
240/Lackagh		9.1	7.6		6.5	6.5				15.1	8.2					6.5
248/Leannan	24.3	7.6	7.6	7.6	7.6	7.6	8.4	8.4	8.4	11.0	7.6	6.1	6.4	5.8	6.1	7.6
249/Swilly		30.3	5.3				6.5									5.3