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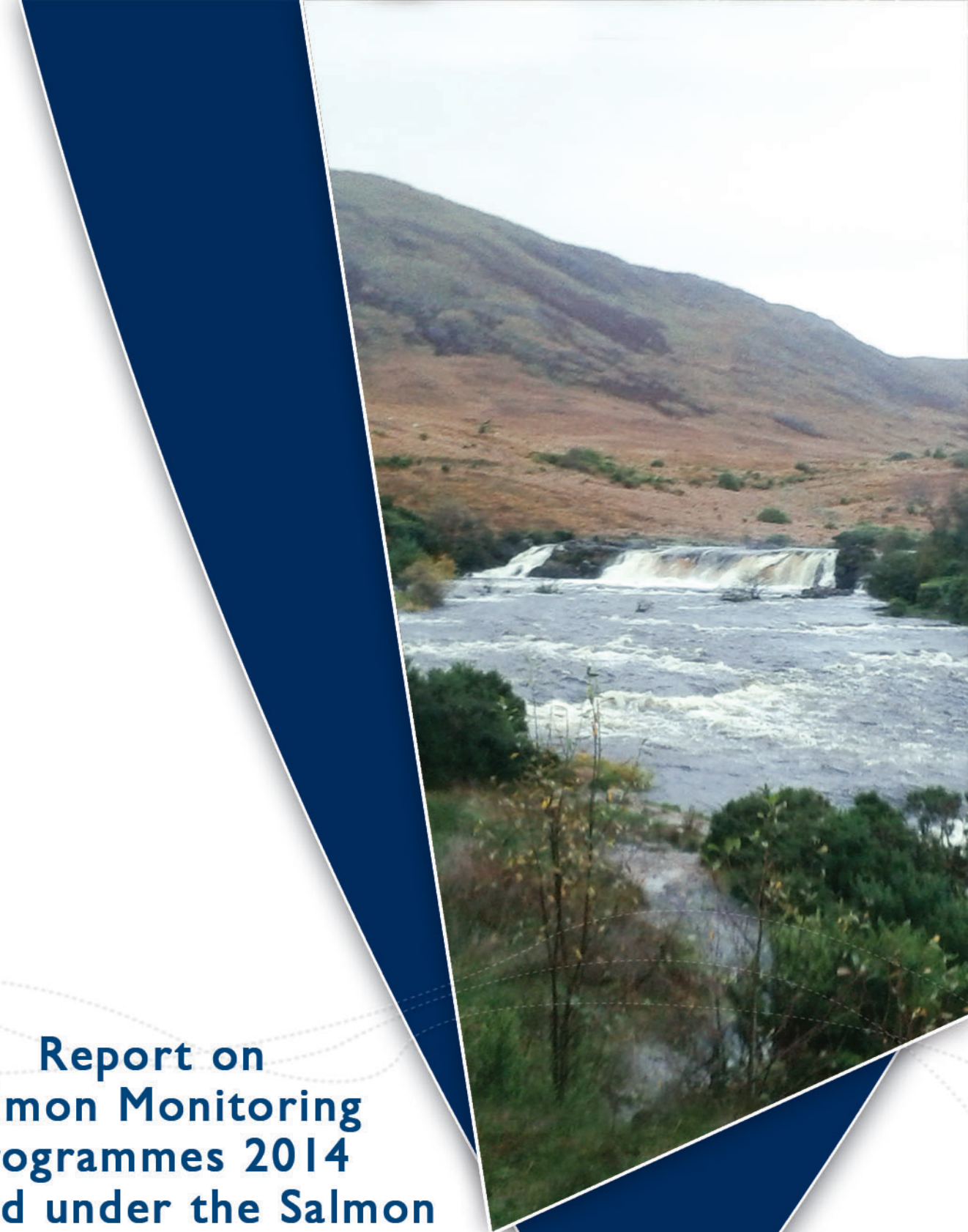

Report on Salmon Monitoring Programmes 2014 Funded under the Salmon Conservation Fund

December 2015

IASCACH INTÍRE ÉIREANN
INLAND FISHERIES IRELAND

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Report on Salmon Monitoring Programme - 2014

Report on projects to assess attainment of Conservation Limit for Atlantic Salmon in Irish Rivers

Project Personnel

This report was written and researched by P. Gargan, Ph.D. and W. Roche Ph.D. of the Salmonid Section, Research Division of Inland Fisheries Ireland and Tony Holmes M.Sc.

Acknowledgements

Much of the catchment wide electro-fishing programme was undertaken by the staff of the River Basin Districts (formerly the seven Regional Fisheries Boards). The excellent contribution and cooperation of the staff of each of the Boards during the fieldwork element of these projects is greatly appreciated.

Thanks are due to Nigel Bond (Marine Institute) for technical support on the Boyne telemetry project.

Contents

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 2014 programme - **Catchment-wide Electro-Fishing, Development of a raising factor for a partial counter facility and Determination of the life history characteristics of adult salmon in selected catchments.**

- The objective of the catchment-wide (CW) electro-fishing programme is to develop an index of juvenile salmon abundance to support assessment of attainment of salmon conservation limits (CL) on individual rivers. Salmon conservation limits (the number of adult salmon required to spawn to maintain the population), or, as defined by NASCO as "the spawning stock level that produces maximum sustainable yield", were set for 143 Irish salmon rivers (SSC 2005).

- Catchment Wide electro-fishing was completed in 38 catchments in 2014 to assess abundance and distribution of salmon fry. A total of 1048 sites were visited. Over the eight years of the programme to date (2007-2014), a total of 314 catchment surveys in 134 catchments have been carried out, comprising 6795 individual site surveys.

- For the 38 salmon catchments surveyed in 2014, the salmon fry abundance ranged from an average of zero fry on the Erne, to a catchment average of 28.14 salmon fry per 5 min on the Abbey. The Ray, Newport, Kerry Blackwater, Ballintra, Leannan, Bride, Slaney, Currane, Erriff and Abbey all recorded an annual catchment wide average of >17 fry. Salmon fry densities of over 15 Salfry/min were also recorded on the Owenascaul and Oily catchments.

- Since 2009 a threshold salmon fry abundance value of 17 salmon fry (catchment mean of salmon fry counted per 5 minutes electric fishing) was deemed as a threshold representative of rivers likely to be meeting their CL. The majority of the rivers known to be meeting and exceeding CL have a salmon fry index of 17 or higher. Consequently this value was proposed by the SSC as a qualifying value for rivers for managers to consider operating on a catch and release basis in the subsequent year where information is limited or insufficient. Where more than one year's fry indices are available, the value should be equal to, or greater than 17 salmon fry.

- Generally there was good agreement between the Standing Scientific Committee scientific assessment of attainment of salmon conservation limit from rod catch or counter data and the results of the catchment-wide electro-fishing surveys. However, some rivers, primarily small rivers with a rod catch < 10 rivers, were, based on electro-fishing results, very unlikely to be meeting their derived CL (e.g. the Adrigole).

- Results to date indicate that the catchment wide electro-fishing technique has good potential for salmon stock assessment. It is anticipated that at least 5 years data from many different catchments will be required before meaningful relationships between juvenile abundance and conservation limits can be developed. The technique is likely to provide the best estimate of salmon stock status in small rivers where rod catch was low (<10 salmon annual rod catch) and cannot be used to estimate salmon stock size currently.

- CW electro-fishing is 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 should be used to target any remediation works that may be required.

- The partial counter at Blackcastle weir on the River Boyne counts a proportion of the annual adult salmon run. An unquantified proportion ascends uncounted over the "open" part of this weir. Historically, a raising factor has been applied to the count. To refine this raising factor a telemetry study is ongoing. Adult salmon, captured by traditional draft net fishermen, under the supervision of staff from IFI Drogheda are tagged in the Boyne estuary. In 2014 a total of 13 fish were PIT tagged in August. None of the PIT tagged fish were detected at the two monitoring units located at Blackcastle. Low water levels and high temperatures over the summer period may have resulted in altered migration patterns through the Blackcastle facility. Eight PIT tagged fish were also radio tagged to determine the proportion of fish migrating to and above Blackcastle weir.

- Salmon scales were collected and analysed for life history information from the commercial fishery on the Munster Blackwater, Nore and Suir and rod fisheries on the Owenmore River (Connemara) and Sneem River (Co. Kerry). The proportion of fish of various life histories varies greatly between catchments. There appears to be a pattern with catchments on the west coast having a higher proportion of grilse than those on the south and east coast. The Munster Blackwater recorded 58% grilse, 38% multi sea winter (MSW) and 3% previous spawners. The river Suir recorded 49% grilse, 46% MSW and 5% previous spawners while the river Nore recorded 36% grilse, 56% MSW and 8% previous spawners. The Owenmore (Ballynahinch River) was dominated by one sea winter fish (85%) with 13% MSW and 2% previous spawners while the Sneem recorded 53% grilse and 47% MSW.

1. Assessment of Attainment of Conservation Limits for Atlantic Salmon in Irish rivers in 2014: Report on Activities.

1.1. 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.

This report presents the results of activities undertaken in 2014 to assess attainment of salmon conservation limits nationally in line with assessment methods identified by the scientists.

An application was made to the Salmon Conservation Fund for funding for 2014 to assess attainment of salmon conservation limits nationally and €83,270 was provided for this project. The project had three elements:

1. Catchment wide Electro-Fishing Programme.

Undertake 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. Development of a raising factor for upstream counts at partial fish counters

Several existing fish counters are partial counters, i.e. they only cover a portion of the river and only count part of the salmon run. Examples include the Slaney, Blackwater, Bandon and Corrib where counters are usually located at the head of fish passes or traps. The recorded count on these rivers is raised by a factor to provide an estimate of the total upstream run. The project was designed to assess the feasibility of using the technology for assessing the efficiency of other partial counters. This work had progressed on the Boyne in 2013 and was continued on this system in 2014 to provide an extended time series.

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 and analysed from a range of commercial and rod fisheries in 2014.

This report presents the work undertaken on these elements in 2014.

2. Catchment-Wide Electrofishing Programme 2014

2.1.1. Sampling Methodology.

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

2.2. Results 2014.

During 2014 a total of 38 salmon catchments were surveyed nationally; 1048 sites were visited, 12374 salmon fry were sampled.

The results for 2014 are summarised in figure 2.1 and map 2.1 and table 2.1. Table 2.1 summarises the data for each catchment, those catchments where the mean is >17 fry are highlighted. 12 catchments surveyed in 2014 had a mean catchment wide salmon fry index over all surveys of 17 fry or greater: Castletown, Boyne, Slaney, Colligan, Blackwater (Kerry), Currane, Owenascaul, Erriff, Bungosteen, Abbey, Oily and Leannan.

For the 38 salmon catchments surveyed in 2014, the salmon fry abundance for **this year alone** ranged from an average of 0.18 fry/5min on the Deel, to a catchment average of 28.14 salmon fry per 5 min on the Abbey. The Ray, Newport, Kerry Blackwater, Ballintra, Leannan, Bride, Slaney, Currane, Erriff and Abbey all recorded an annual catchment wide average of >17 fry. Salmon fry densities of over 15 Salfry/min were also recorded on the Owenascaul and Oily catchments. Individual catchment results for the 2014 sampling year are presented in Appendix A.

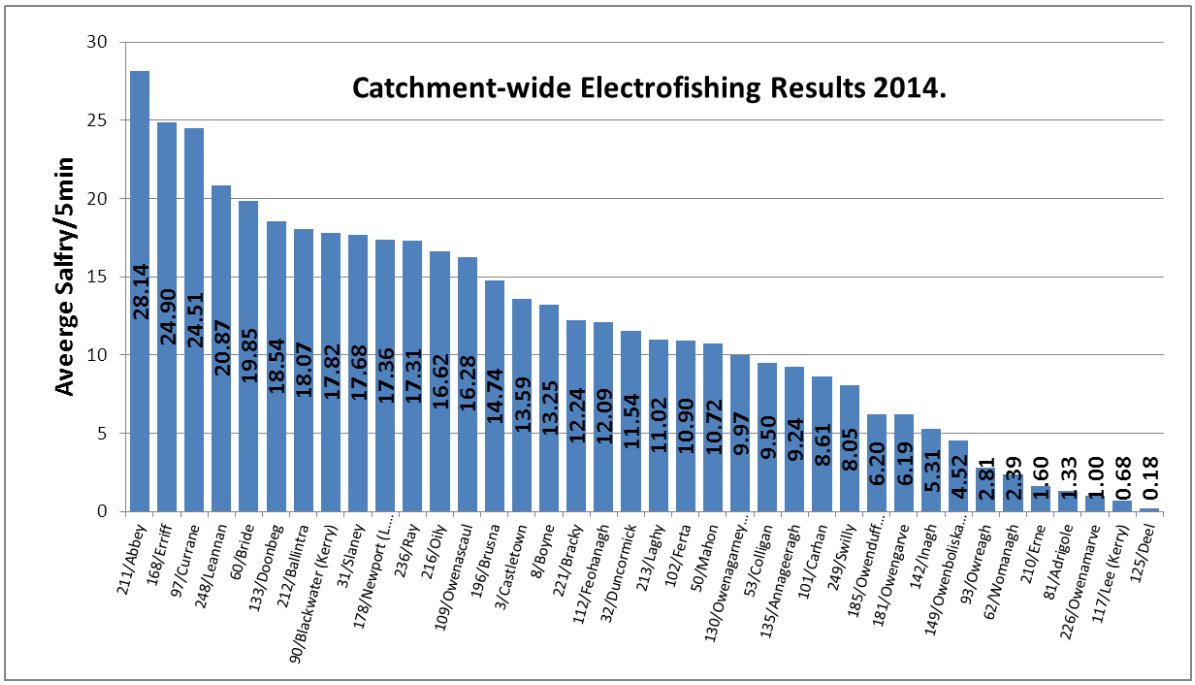
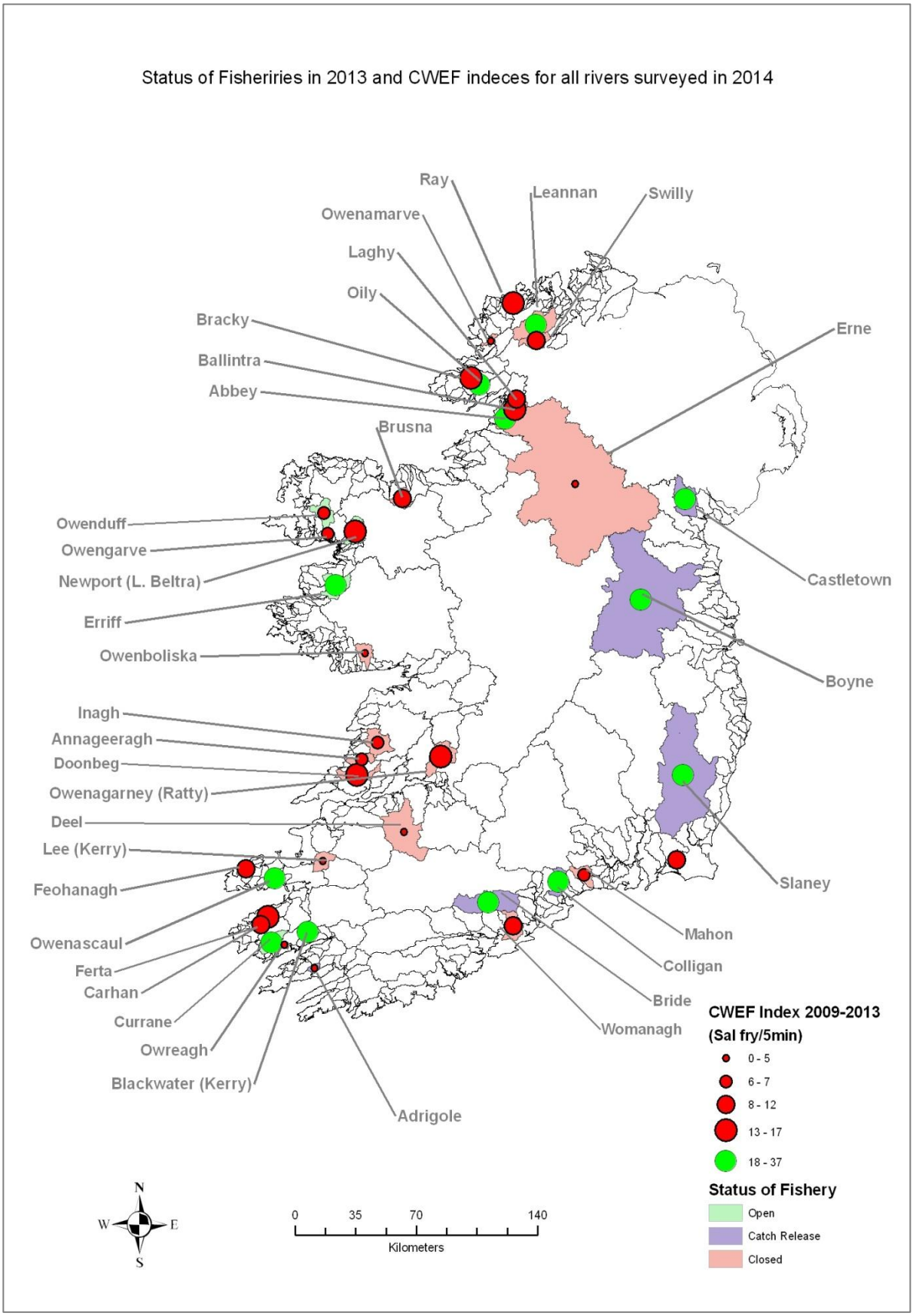


Figure 2.1: Summary of CWEF results for the Catchments Surveyed in 2014.

IFI Code/ River	Survey Year								Current Index	# of Annual Surveys Considered
	2007	2008	2009	2010	2011	2012	2013	2014		
003/Castletown			26.41				22.96	13.59	20.99	3
008/Boyne		21.91	17.54	19.38				13.25	18.02	4
031/Slaney	19.05		15.94	18.42				17.68	17.77	4
050/Mahon		2.11						10.72	6.41	2
053/Colligan					29.32			9.50	19.41	2
060/Bride		10.40		24.70				19.85	18.32	3
062/Womanagh		15.45						2.39	8.92	2
81/Adrigole							4.01	1.33	2.67	2
90/Blackwater (Kerry)	30.54	15.52	13.35					17.82	19.31	4
093/Owreagh	8.94						2.07	2.81	4.61	3
097/Currane								24.51	24.51	1
101/Carhan	15.76						6.05	8.61	10.14	3
102/Ferta	19.42							10.90	15.16	2
109/Owenascaul	20.41		22.27				16.08	16.28	18.76	4
112/Feohanagh			16.61				3.20	12.09	10.64	3
117/Lee (Kerry)		0.67						0.68	0.67	2
125/Deel					0.14			0.18	0.16	2
130/Owenagarney							16.97	9.97	13.47	2
133/Doonbeg				8.17				18.54	15.72	2
135/Annageeragh							1.82	9.24	5.53	2
142/Inagh								5.31	5.31	1
149/Owenboliska)		4.06						4.52	4.29	2
168/Erriff	29.51	24.10	16.03	20.43	20.86	24.45	27.45	24.90	23.62	5
178/Newport	16.06		5.53					17.36	12.99	3
181/Owengarve			5.51					6.19	5.85	2
185/Owenduff			6.00					6.20	6.10	2
196/Brusna			4.70				14.16	14.74	11.20	3
210/Erne		7.37	0.17	0.29	0.00	0.00	0.00	1.60	0.34	5
211/Abbey							7.20	28.14	17.67	2
212/Ballintra			10.27				13.40	18.07	13.91	3
213/Laghy			8.58				14.97	11.02	11.52	3
216/Oily			9.49		33.68			16.62	19.93	3
221/Bracky		10.82				21.57		12.24	14.88	3
226/Owenamarve			3.76				2.64	1.00	2.47	3
236/Ray		6.43			14.89			17.31	12.88	3
248/Leannan	9.47	7.41	8.73	16.71	12.36	21.51	19.51	20.87	18.91	5
249/Swilly		9.33	7.36				18.08	8.05	10.71	4

Table 2.1: Summary of Catchments fished during 2014. Need to define what current index is.



Map 2.1: Summary catchment-wide electrofishing results for catchments surveyed in 2014 along with their fishery status during the 2013 fishing season. Green circles represent catchments where the threshold value (17 salmon fry/5 min catchment average) was exceeded and red circles represent catchments under the threshold value.

Numerous fish species and other large invertebrate species were recorded in various systems surveyed in 2014. Fish species included eel, flounder, gudgeon, lamprey spp., minnow, perch, pike, trout (brown trout/sea trout), three-spined stickleback and stoneloach. Distribution maps, at the catchment and site levels, are presented for each species in Appendix B. Crayfish and M. margaritifera presence was also noted and mapped.

The complete CWEF mean catchment values for all catchments surveyed 2007-2014 are presented in Appendix C. All survey data by catchment, where ≥ two surveys carried out, are summarised in box-plots in Appendix D. Each plot provides a median catchment fry abundance value for each survey year and highlights extremely high and low values (outliers) thus providing a good representation of catchment performance, expressed in terms of salmon fry, over time. Sampling intensity values (sites sampled per km) are presented in Appendix E; these values represent the mean sampling distance between sites per km of channel ≥ stream order 2. Low values represent high site density and vice versa. Some catchments have high values (examples include the Fane, Broadmeadow, Corrib and Bunowen) as only limited project specific CWEF sampling was carried out.

2.3. Results 2007 – 2014

Update for 2014

Over the 2007 to 2014 period, a total of 6795 site surveys have taken place in 314 catchment surveys on 134 separate catchments or sub-catchments nationally. Current CWEF indices are based on the most recent 5 years data gathered from this survey since 2007.

For results 2007 to 2014 see appendix C.

Trends in Salmon Fry Abundance Over Time

Data in figures 2.2 and 2.3 present the catchment-wide electro-fishing mean abundances of salmon fry in 80 catchments where more than one year's electro-fishing results are available; Figure 2.4 shows the current average salmon index for all catchments surveyed to date. Fifty four catchments have only one survey within the period used to calculate the CWEF index.

High mean salmon fry abundance was recorded each year on the Castletown, Glyde, Dee, Boyne, Liffey Lower, Slaney, Cloonee, Owenascaul, Carrownisky, Erriff, Garvogue, Duff, Eany, Bungosteen, Lackagh and Leannan. A decrease in salmon fry abundance was observed on the Finnihy, Emlagh, Feohanagh, Ballinglen, Glenna and Glennagannon Glenna rivers. An increase in salmon fry abundance was observed on the Fane, Liffey Upper, Dargle, Barrow, Owenwee (Yellow) and Erriff rivers; a more detailed assessment of trends in salmon fry abundance by Fishery Region is provided in Appendix A.

A catchment-wide salmon fry average for rivers electro-fished from 2007 to 2014 is presented (Map 2.2) Generally, rivers fished along the east and south east coast recorded low salmon fry densities. Low fry densities were also recorded for rivers in the north-west and Donegal bay. Highest salmon fry densities were recorded in rivers in Kerry and Connemara.

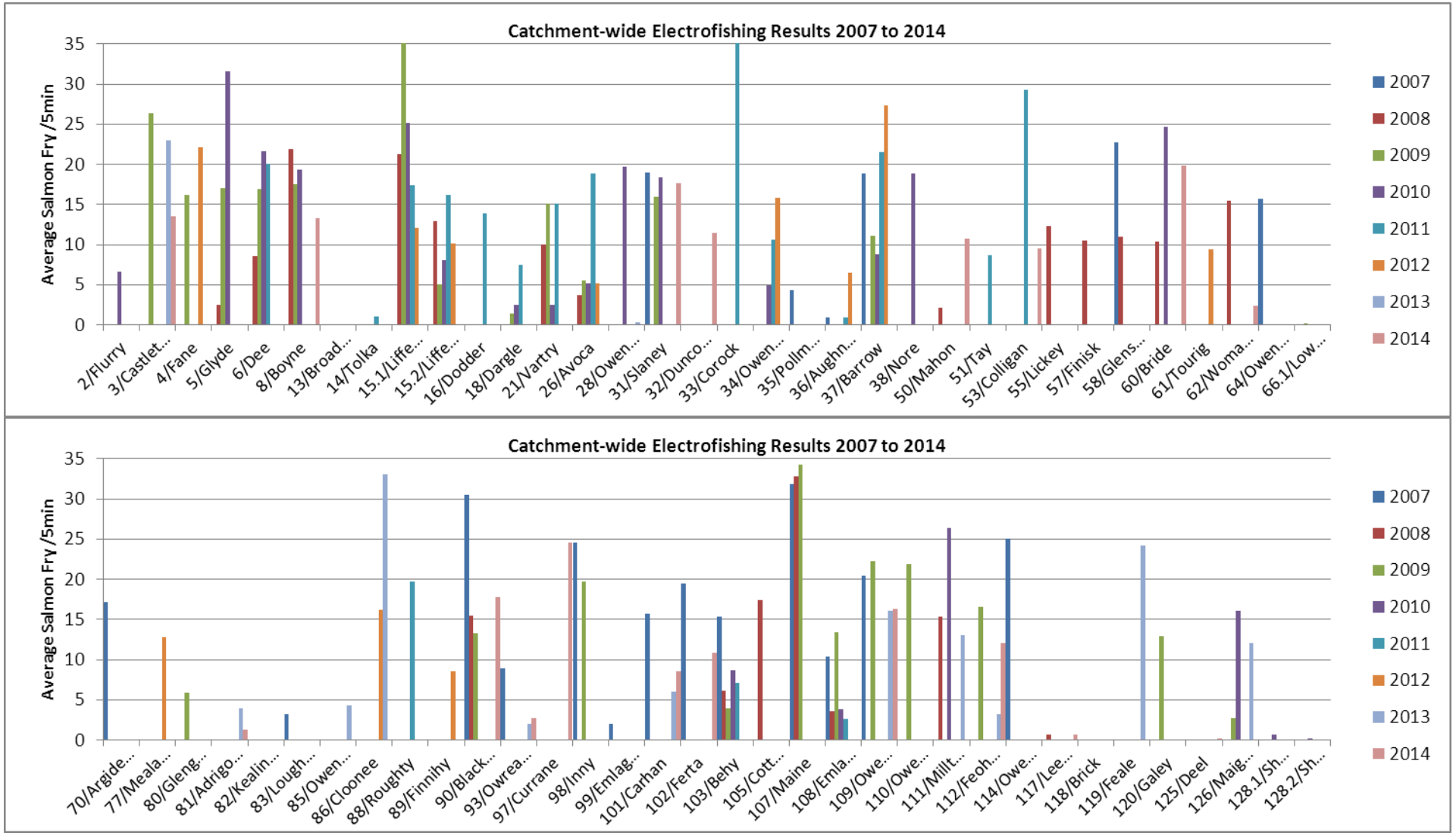


Fig 2.2: Annual Catchment-Wide Electrofishing results for Catchments with current CWEF indices that have been sampled more than once between 2007-2014.

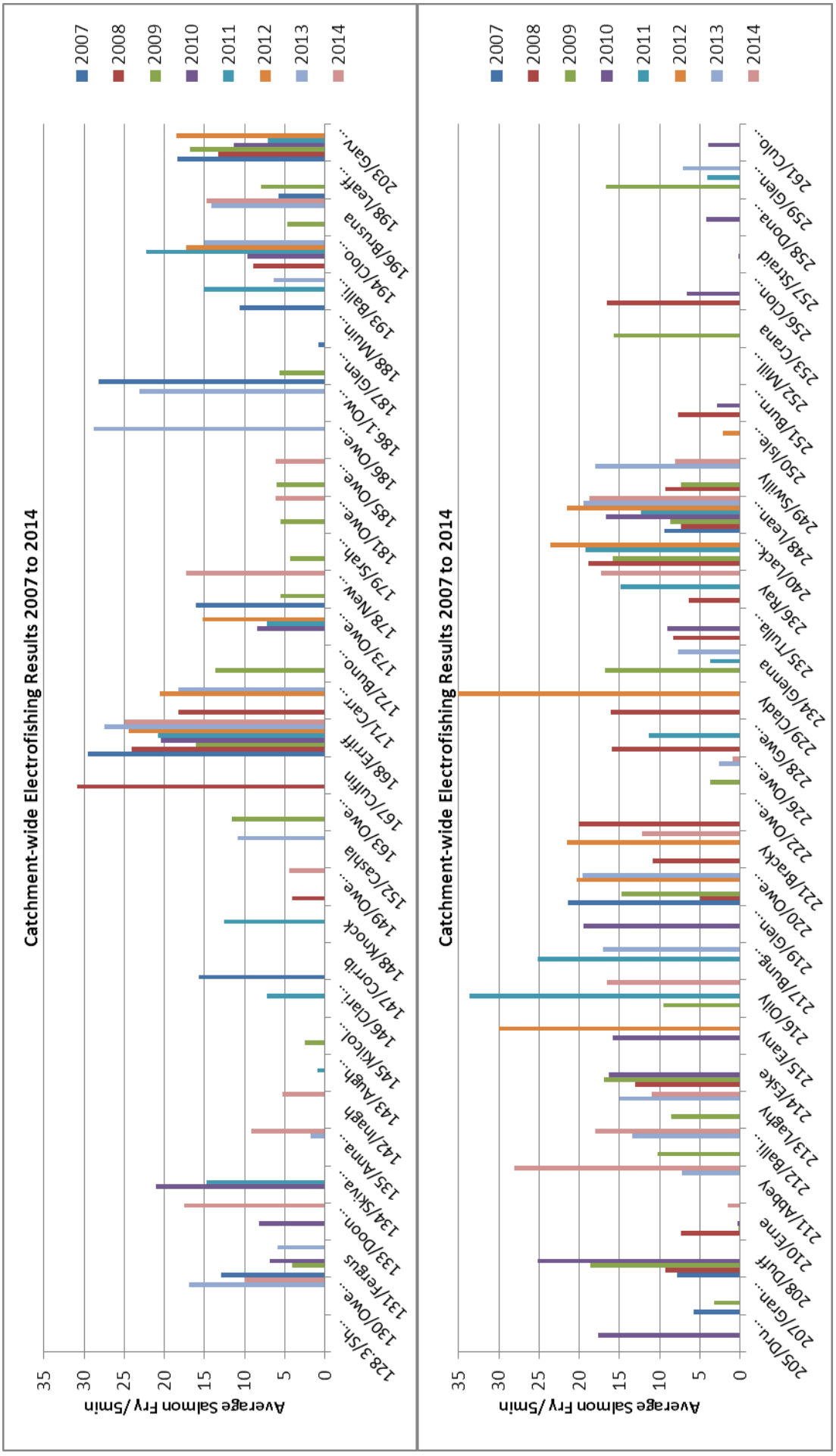


Fig 2.3: Annual Catchment-Wide Electrofishing results for Catchments with current CWEF indices that have been sampled more than once between 2007-2014.

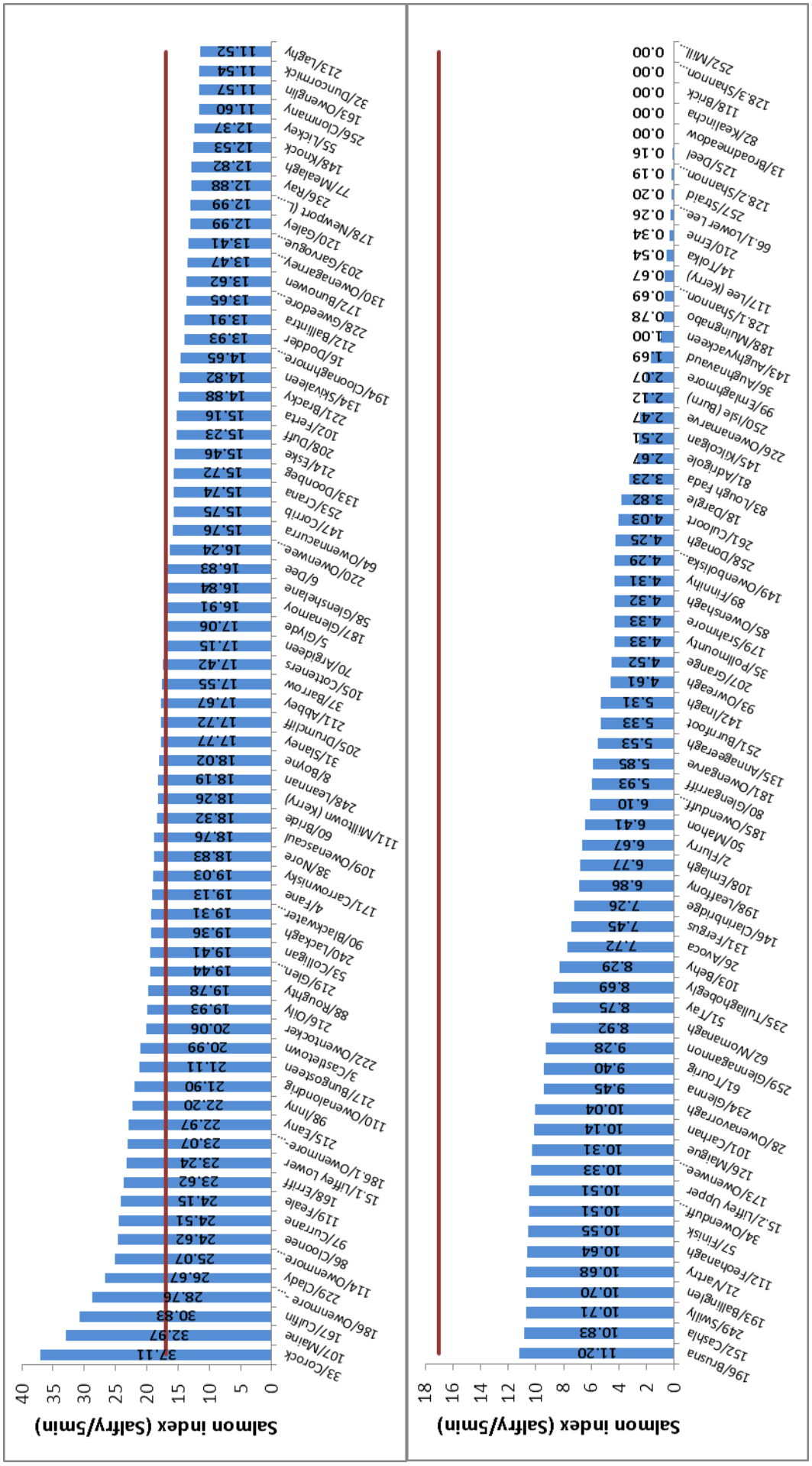
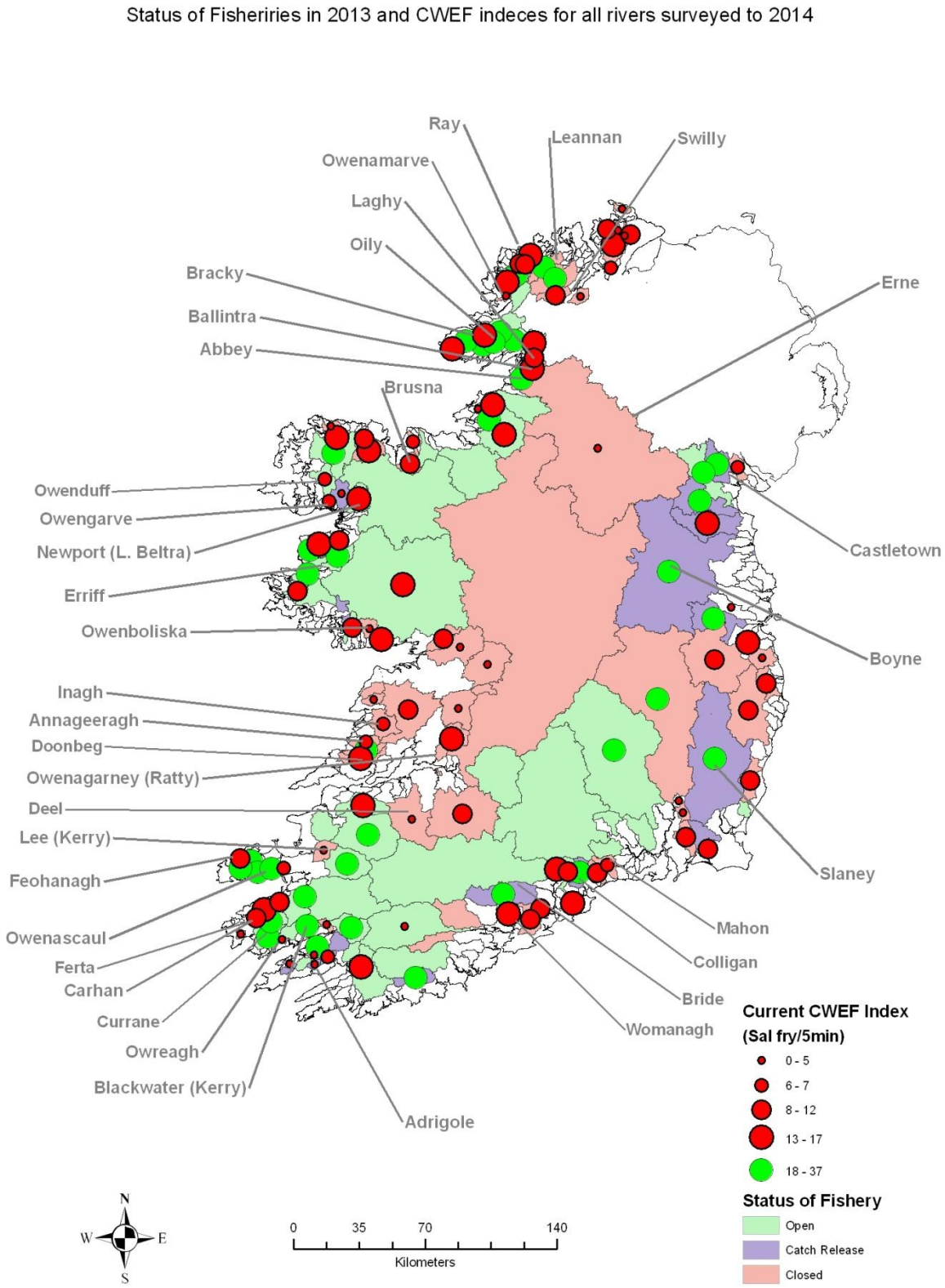


Figure 2.4: Current CWEF index (mean salmon fry per 5 minutes) for all catchments surveyed to date.



Map 2.2: Mean Salmon Fry indices in 2014 for all catchments with current CWEF Indices up to 2014 along with the status of all catchments during the 2013 fishing season.

3. Development of a raising factor for upstream counts at partial fish counters

Several existing fish counters are partial counters, i.e. they cover a portion of the river and only count a proportion of the adult salmon run. Examples include the Slaney, Blackwater, Bandon, Corrib, and Moy where counters are usually located at the head of fish passes or traps. The recorded count on each of these rivers has to be raised by a factor to provide an estimate of the total upstream run. A feasibility study, using PIT (Passive Integrated Transponder) tag technology, was undertaken in 2008 on the River Corrib to assess the potential for improving the accuracy of the raising factor applied to the upstream count at the counter at the Salmon Weir in Galway. The project was designed to assess the feasibility of using the technology for assessing the efficiency of all partial counters and it proved successful.

The basis for these site-specific Passive Integrated Transponder (PIT) tag studies is a variation of a mark-recapture exercise. Adult salmon are tagged with an individual PIT tag; these are small uniquely coded microchips (about 10 mm in length). A tag is mounted on a floy tag and this floy tag/PIT tag assembly is attached to the salmon just under the dorsal fin using a hand-held applicator gun. A PIT tag scanner (antenna) is permanently positioned in or close to the fish counter and the scanner will read the electromagnetic code of the tag after a tagged salmon has passed through the scanner. A de-coder stores the tag number and the date and time of this event. In its simplest application, in single channel full river counters, by determining the number of pit-tagged salmon passing through the counter relative to the total number of fish pit tagged, it is possible to determine, for the prevailing conditions, the total upstream run. To increase knowledge of upstream migrations related to local conditions pit tagging needs to be undertaken over a range of water heights as the usage of a fish pass and counter may change with changing river flow conditions. Results from the Corrib study have demonstrated that the technique has the ability to more accurately estimate total salmon runs at partial salmon count sites. Where the counter utilises multiple channels (i.e. the Boyne counter) the analysis is more complex.

The Boyne PIT tagging study outlined in this report is part of an ongoing project which is complemented by radio tagging of some of the PIT tagged fish. Radio tagging provides data on the proportions of all PIT tagged fish that migrated to the fish counting facility at Blackcastle and a more accurate estimation of the numbers of salmon available to ascend through the multiple counter channels at the counting site.

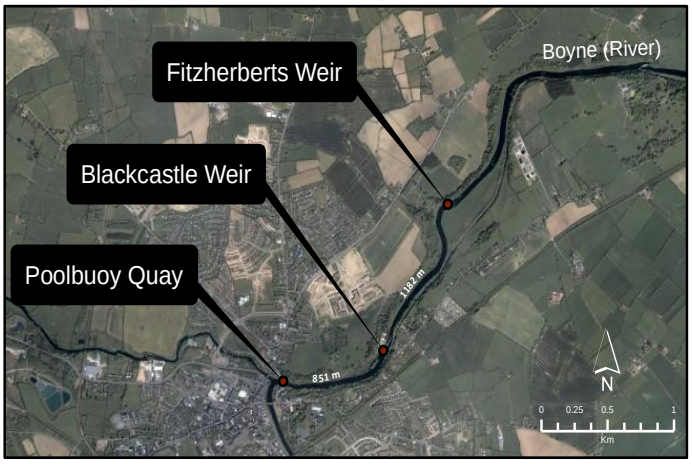
3.1. River Boyne.

PIT tagging on the Boyne 2014

Sampling of adult salmon was undertaken, using a traditional draft net, by Boyne draftnet fishermen, under the daily supervision of Eastern RBD staff, based in Drogheda, from August 5 – August 26, 2014. A total of 13 salmon were PIT tagged at the draft net sampling station in the Boyne estuary at Mornington. Sampling was intensive over the sampling period but few fish were captured. High water temperatures and low water levels were a feature of the Boyne in summer 2014 and this is likely to have influenced the numbers of salmon available for capture and tagging. None of the PIT tagged fish were recorded at Blackcastle.

Radio tagging on the Boyne 2014

Four ATS radio receiver/dataloggers were installed at fixed locations along the Boyne in 2014. Three locations, Fitzherberts weir, Blackcastle weir and Poolbuoy are close to Navan town, and these locations were selected to provide information on salmon migration through the system up in order to quantify the escapement of salmon to Blackcastle. The other receiver was situated at the Curly Hole/ Marry's to detect fish that ascended into freshwater near the tidal/freshwater interface and provide an estimate of the numbers /frequency and timing of salmon entering freshwater. The receivers automatically detect radio tagged fish within their scanning range and store date and time of detection.



Map 4. 1: Location of Radio receivers on the Boyne. Pit tag detectors are present at Blackcastle weir.

In 2014 a total of 8 salmon were radio tagged (Table 3.1). Tagging was carried on various dates over the sampling period.

Date	Est weight (kg)	Radio Tag No.
05/08/14	4.99	173212
18/08/14	3.18	173221
19/08/14	2.95	173232
20/08/14	2.50	173242
21/08/14	3.63	173252
22/08/14	1.82	173261
25/08/14	2.72	173272
26/08/14	2.04	173282

Table 3.1: Radio tagged salmon: tagging date and estimated weight (kg)

A detailed analysis of the data from 2010 – 2014 is on-going and the fate of individual fish, in respect of associated radio and PIT tag data, will be used to drive development of a model for the revised raising factor which will provide a more robust basis to raise the overall count at Blackcastle.

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, biological data such as 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. 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.

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 for each stock. Run-timing of the different components may influence harvesting options.

4.1. Salmon Life History.

Salmon scales have been collected from the commercial draft net fisheries and from anglers, building up a scale collection for analysis from 2005 to present. To date the collection consists of scales of 6685 fish from 16 fisheries around the country (Table 4.1).

The main source of the scales has been from commercial fisheries, mainly the Waterford estuary and its associated rivers of the Nore and Suir; the Castlemaine harbour fishery consisting of fish mainly from the Laune and the Maine; The Lee and Munster Blackwater in Cork; the Feale in Kerry and the Boyne (survey fishery for tagging programme) in Meath. All of these fisheries occur in a limited period during the summer months; these operate primarily in the lower reaches of the rivers or in the harbours or estuaries into which the rivers drain.

Additional scales have been provided by anglers; the angling season is longer than the commercial fishing period and the fish are captured higher up into the system than would be the case for commercial fisheries. A small number of scales have been recovered by Fisheries Officers in the course of enforcement duties. (See table 4.1 for details). Figure 4.1 shows the numbers that have been collected by week during the year; large numbers have been collected during the summer and the fewer from other weeks. To some extent this disparity is inevitable due to restrictions on fishing and the variation in fish runs throughout the year.

In cases where there are only a few fish scales from a catchment then all the scales from that catchment are analysed. Where large numbers of scales are available (e.g. The Nore 2013 has 1472 scales) a subsample of scales is examined from which the characteristics of the entire sample may be inferred. This work is ongoing and is part of a long-term programme to compare historical samples with current samples.

		Fisher Type			Length Weight Information						Dates Fish Captured	
River	Year	Angling	Commercial or Scientific	Illegal	None	Length & Weight	Length only	Weight Only	Grand Total	Read	From	To
Blackwater (Munster)	2011	13	55			53	11	4	68	68	13/07/2011	12/08/2011
Blackwater (Munster)	2012	1	133			103		31	134	132	28/05/2012	27/08/2012
Blackwater (Munster)	2013	6				1		5	6	6	02/05/2013	26/06/2013
Boyne	2013		101		1			100	101	101	18/06/2013	07/09/2013
Castlemaine Harbour[1]	2010		785			785			785	163	10/06/2010	28/08/2010
Castlemaine Harbour[1]	2013		238		54	32	6	146	238	28	03/05/2013	30/07/2013
Corrib	2012	1				1			1	1	23/09/2012	
Corrib	2014	385				372	10	3	385	50	02/04/2014	22/08/2014
Erriff	2005		6			6			6	6	02/07/2005	08/07/2005
Feale	2006		15				15		15	15		
Ilen	2013		13					13	13	13	14/05/2013	22/07/2013
Inny	2013		9		3	3		3	9	6	26/06/2013	02/07/2013
Laune	2013		18		18				18		07/06/2013	10/07/2013
Lee	2013		142		21	80	1	40	142	25	16/05/2013	01/08/2013
Nore	2009	2	42		2	16	22	4	44	44	03/08/2009	29/09/2009
Nore	2010	4	87		6	80		5	91	78	05/07/2010	30/09/2010
Nore	2011	1	1205		5	1182	8	11	1206	143	12/05/2011	12/08/2011
Nore	2012	2	357	2		351		10	361	76	10/05/2012	15/09/2012
Nore	2013	1	1471		9	1404	23	36	1472	81	14/05/2013	18/06/2013
Nore	2014		498			484	2	12	498		13/05/2014	14/08/2014
Owenmore	2006		18				18		18	17		
Owenmore (Bangor)	2006		6		6				6	6		
Owenmore (Connemara)	2007	12				11		1	12	12	16/07/2007	21/09/2007
Owenmore (Connemara)	2008	18				18			18	18	23/06/2008	19/09/2008
Owenmore (Connemara)	2009	13				13			13	13	13/07/2009	04/08/2009
Owenmore (Connemara)	2010	2				2			2	2	27/07/2010	23/08/2010
Owenmore (Connemara)	2011	9				8		1	9	9	09/05/2011	13/08/2011
Sneem	2011	18				7		11	18	17	21/05/2011	17/09/2011
Suir	2010	8		2		9	1		10	8	12/08/2010	21/10/2010
Suir	2011	2	480		2	448	8	24	482	111	01/07/2011	09/09/2011
Suir	2012		9			9			9	9	19/07/2012	06/08/2012
Waterford Estuary[1]	2007	4		1			5		5	5	10/05/2007	09/08/2007
Waterford Estuary[1]	2008	14				10	4		14	14	23/10/2008	23/11/2008
Waterford Estuary[1]	2009	4	6			4	6		10	9	01/08/2009	03/11/2009
Waterford Estuary[1]	2010	7	459		2	20	444		466	296	14/07/2010	02/10/2010
Grand Total		527	6153	5	129	5512	584	460	6685	1582		

Table 4.1: Summary of Scale collection from adult fish caught 2005 to 2014 at various locations throughout Ireland. ([1]- Common estuaries)

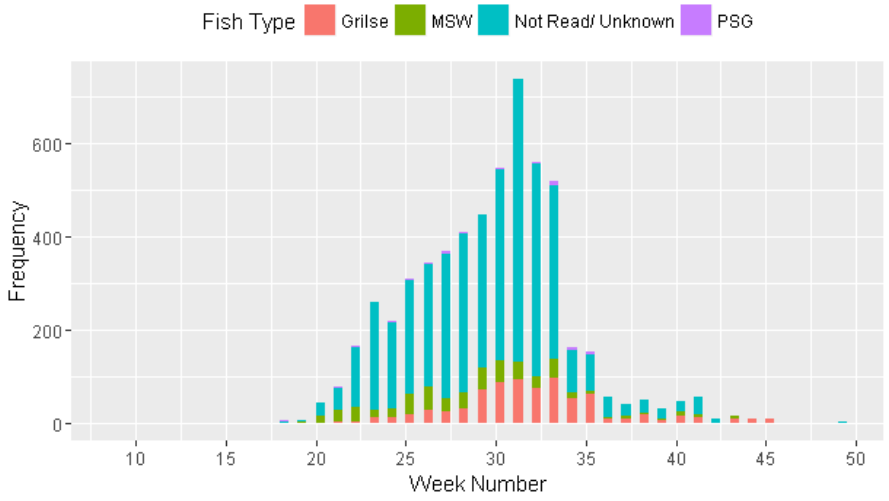


Figure 4.1: The number of salmon scales (n=5729) in the total sample collection by week of capture (where known).

Summary

The majority (90%) of scale samples were sampled between week 23 and week 36 reflecting the periodicity of the commercial fishery and the angling fishery (Fig 4.1). 1 sea winter salmon (grilse) dominate the sample and appear in the fishery from week 21 onwards. MSW are a constant in all sampling weeks although this component of the stock is more prevalent from week 20 to week 34.

Of the 1184 fish for which age has been determined, 461 of fish were Multi-sea winter fish (MSW), 582 were grilse; the remaining 66 fish were previously spawned grilse (PSG). Of these three fish types the MSW were on average the largest, with a mean weight of 5.12 kg, PSG had an average weight of 7.86kg and grilse an average weight of 2.72kg. 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.

Fish Type	Mean	SD	n
Grilse	2.72	0.90	582
MSW	5.12	1.51	536
PSG	4.86	1.89	66
Total			1184

Table 4.2: Summary of Weights (kg) of fish for which age has been determined by scale reading.

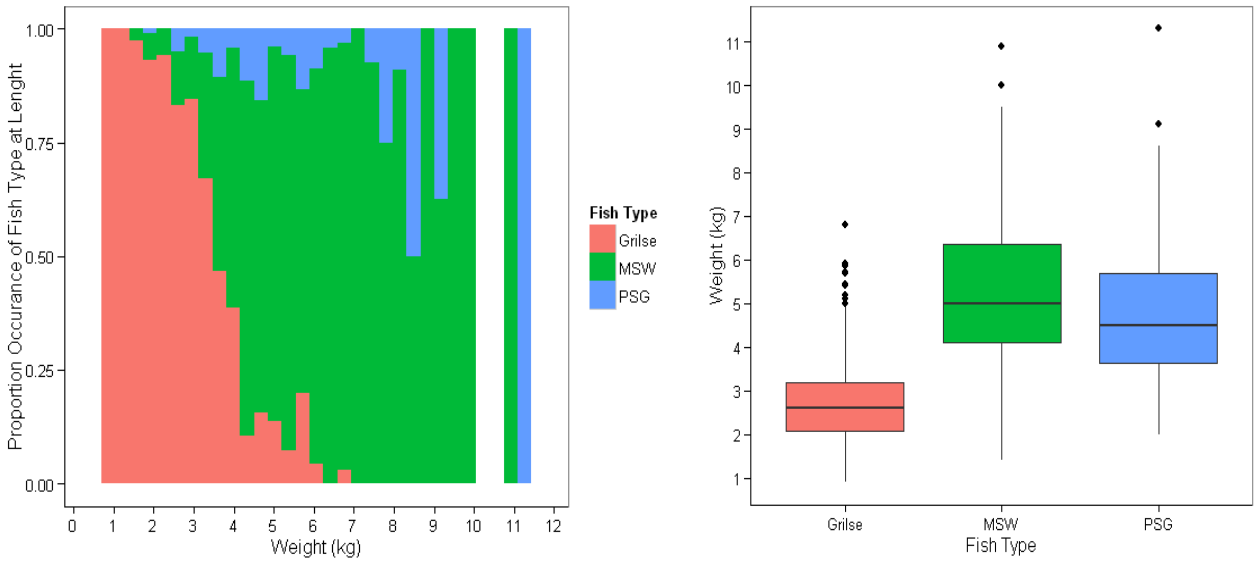


Figure 4.2: Left: Relationship between sea age and weight (kg) for adult salmon from scale samples from rivers - Munster Blackwater-192, Boyne-100, Castlemaine Harbour*-190, Corrib-50, Erriff-6, Ilen-12, Inny-5, Lee-23, Nore-385, Sneem-17, Suir-126, Waterford Estuary*-24, Owenmore- 54, from 2005-2014 (*=mixed fisheries in common estuaries). Right: Boxplots of weights (kg) of individual fish of different types. (n: Grilse-582, MSW- 536, PSG- 66) (Same dataset for both graphs).

4.2.Comparison of Life history over time in various catchments.

The lengths and sea ages of salmon from various systems was plotted and compared (Fig 4.3- left panel). Median values for 1 SW fish ranged from 580 to 670 mm length with the majority around the 600 mm length. Exceptions were the Lee (Cork) and the Sneem Rivers where grilse were smaller than recorded elsewhere. The majority of MSW fish ranged from 700-800 mm (median value) although values for the Feale, Lee, Owenmore and Sneem were lower than the general range recorded. Previous spawners tended to be ≥ 700mm (median). Grouping these data by year (Fig 4.3 – right panel) it is evident that the median length (mm) of 1SW salmon has remained relatively constant at around 600 mm and 800 mm for MSW salmon. The data also show that salmon ≥ 700 mm tend to be multi sea-winter fish.

Some characteristics of the fisheries from which large numbers of scales have been collected are shown in figures 4.4 to 4.8. The Nore sample (Fig 4.4) is notable because of the high percentage of larger salmon (≥5 kg and 75 cm length) the majority are MSW captured in the June – August period. Like the Nore the Suir has a large component of MSW fish, whereas the Castlemaine fishery and Munster Blackwater are dominated by 1 SW fish Grilse, as is the recreational fishery on the Ballynahinch (aka the Owenmore in Connemara). The Munster Blackwater fishery takes both grilse and MSW fish.

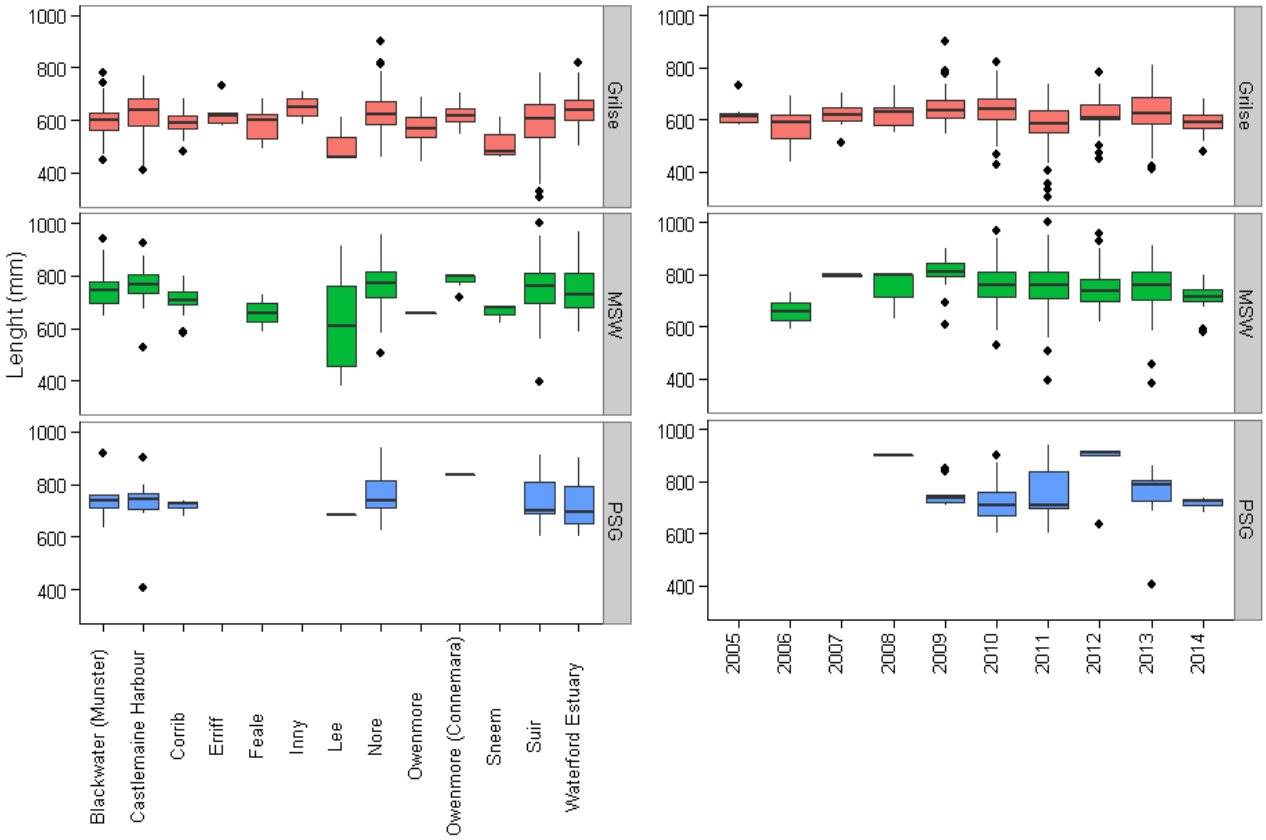


Figure 4.3: Left: Relationship between sea age and length (mm) for adult salmon from scale samples from rivers - Munster Blackwater (n=192), Boyne (n=100), Castlemaine Harbour*(n=190), Corrib (n=50), Erriff (n=6), Ilen (n=12), Inny (n=5), Lee (n=23), Nore (n=385), Sneem (n=17), Suir (n=126), Waterford Estuary*(n=24), Owenmore (n=54), from 2005-2014 (*=mixed fisheries in common estuaries).
Right: Relationship between sea age and length (mm) for adult salmon from scale samples from the year 2005 to 2014 (n: Grilse-582, MSW- 536, PSG- 66) (Same dataset for both graphs).

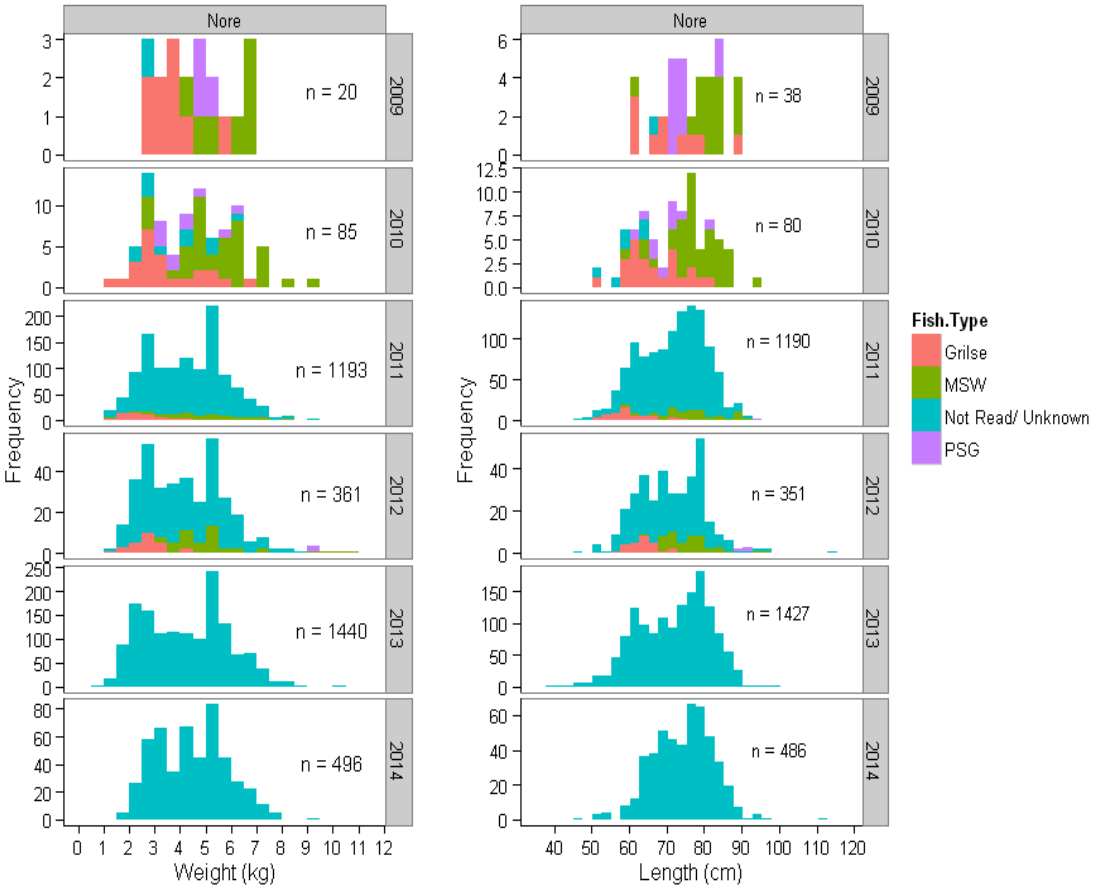
Variation in lengths and weight are apparent on the Suir, the samples from 2010 and 2012 comprised relatively few fish in comparison to the 2011 sample (9 fish with both weight and length data from each of 2010 and 2012, compared with 448 fish in 2013) and estimates of the length weight relationships in those years are much more susceptible to bias in consequence to that.

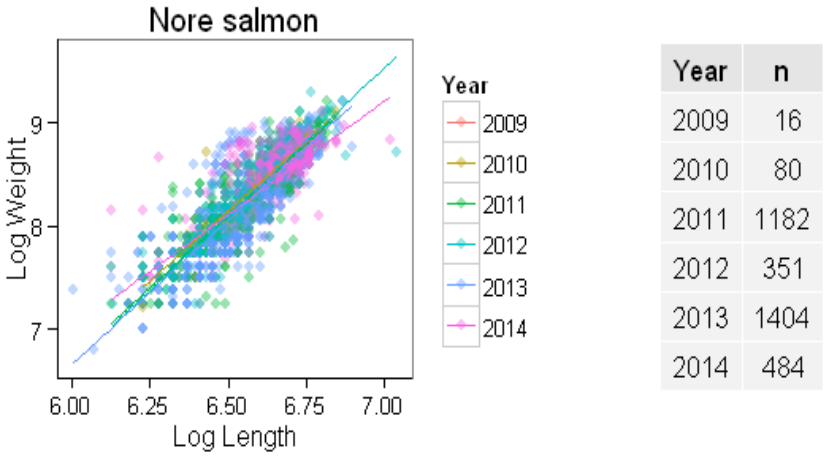
The Nore, In contrast to the Suir and the Castlemaine harbour, is much more consistent over time, in most years large samples are available, the exemption being 2009 from which only 16 fish with both length and weight are available. The weight length relationship $R^2 = 0.7649$for the entire Nore dataset is described by:

$$\text{Weight(g)} = \text{EXP}(-9.6615) \times \text{Length(mm)}^{2.7298}$$

Though the Ballynahinch data set is small it is consistent over time.

Comparison of Weight (kg) and Length profile of Nore Salmon 2009-2014

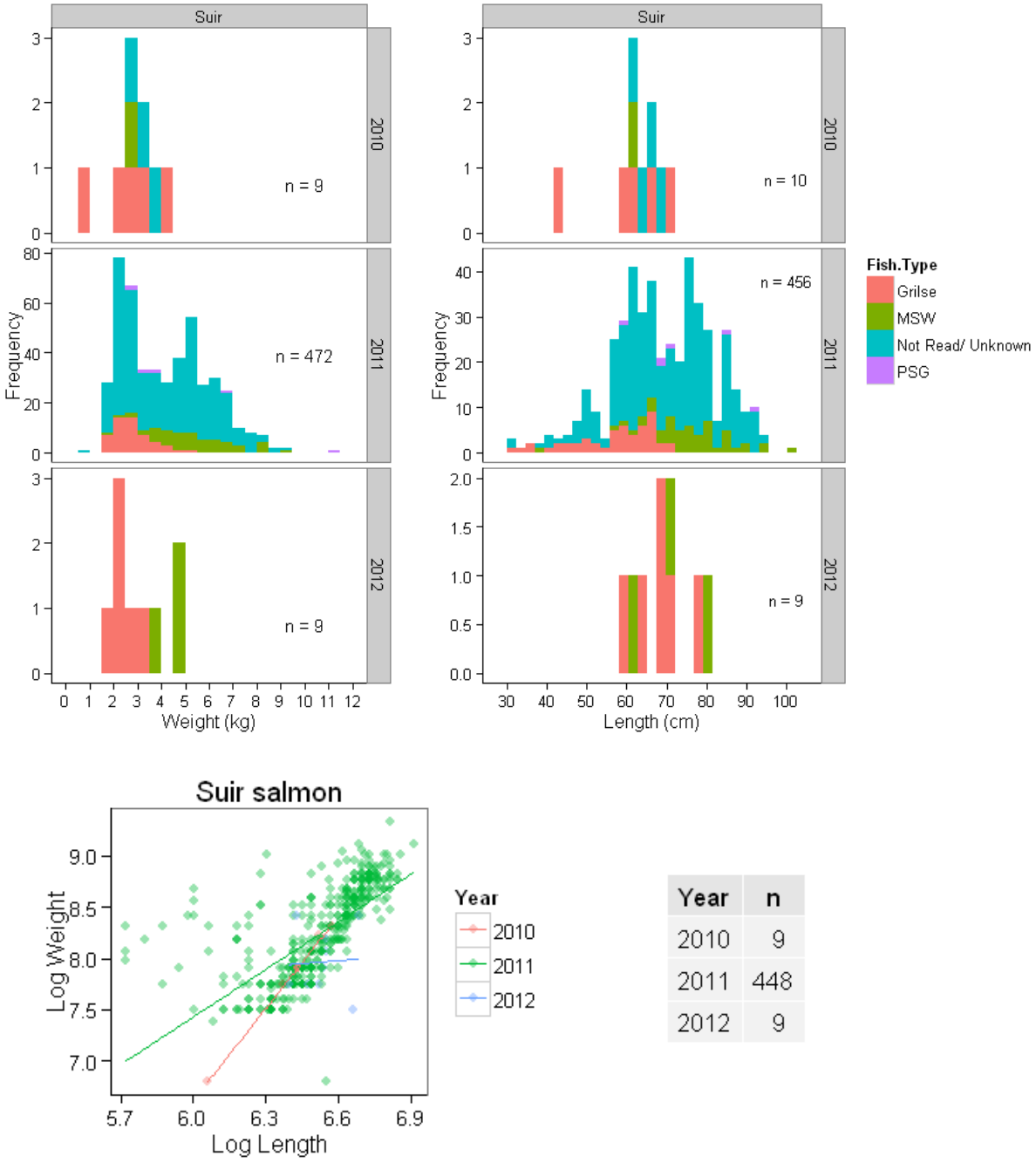




Year	n
2009	16
2010	80
2011	1182
2012	351
2013	1404
2014	484

Figure 4.4. Summary of lengths and weights of fish captured on the Nore 2009 to 2014.Top left: Weight frequency histograms; top right, length frequency histograms; Bottom left: Log Length/ Log weight relationship each year; Bottom right: Number of fish with both length and weight information each year.

Comparison of Weight (kg) and Length profile of Suir Salmon over time.



Year	n
2010	9
2011	448
2012	9

Figure 4.5. Showing summary of lengths and weights of fish captured on the Suir 2010 to 2012.Top left: Weight frequency histograms; top right, length frequency histograms; Bottom left: Log Length/Log weight relationship each year; Bottom right: Number of fish with both length and weight information each year.

Comparison of Weight (kg) and Length profile of Castlemaine Salmon.

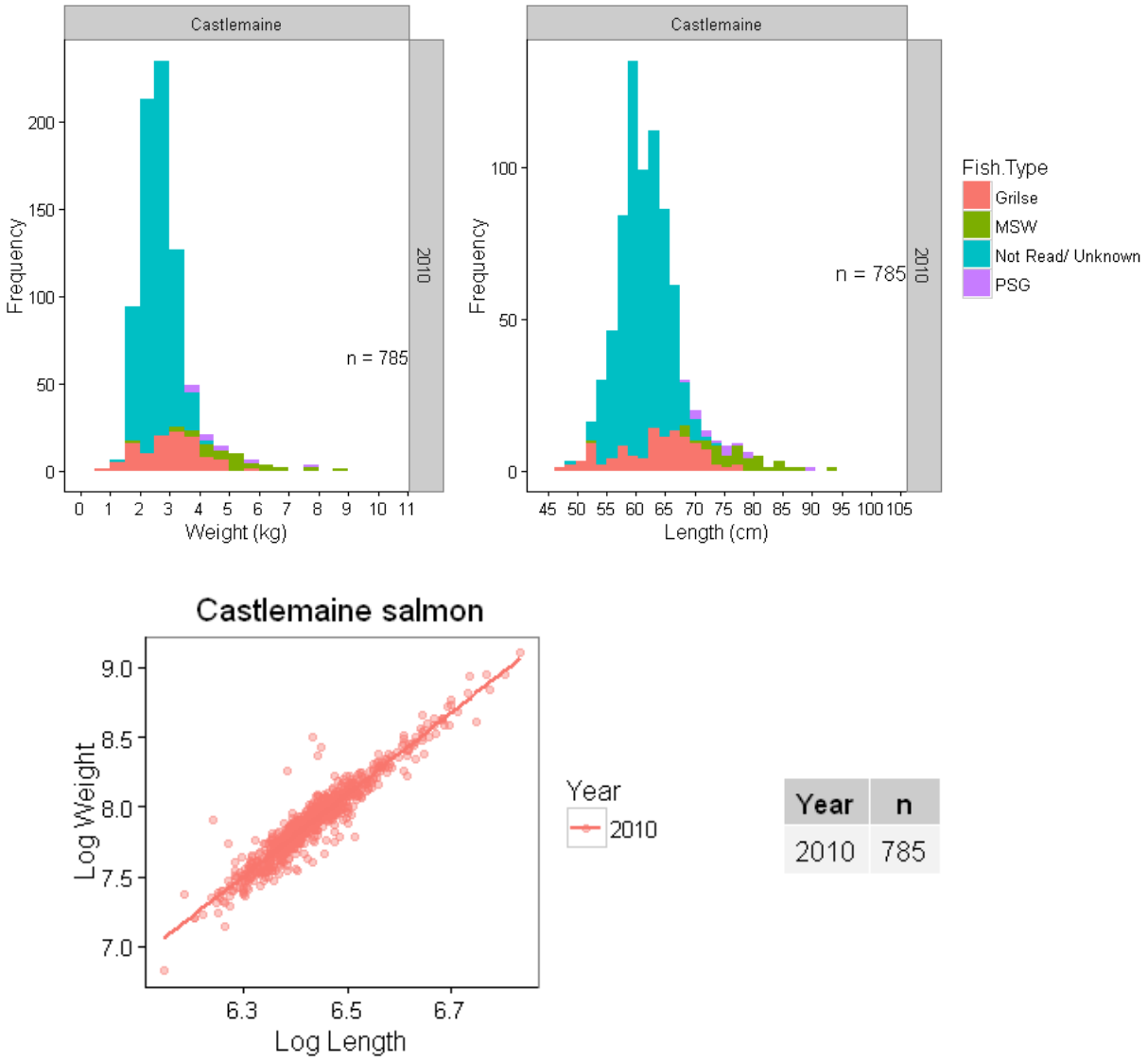
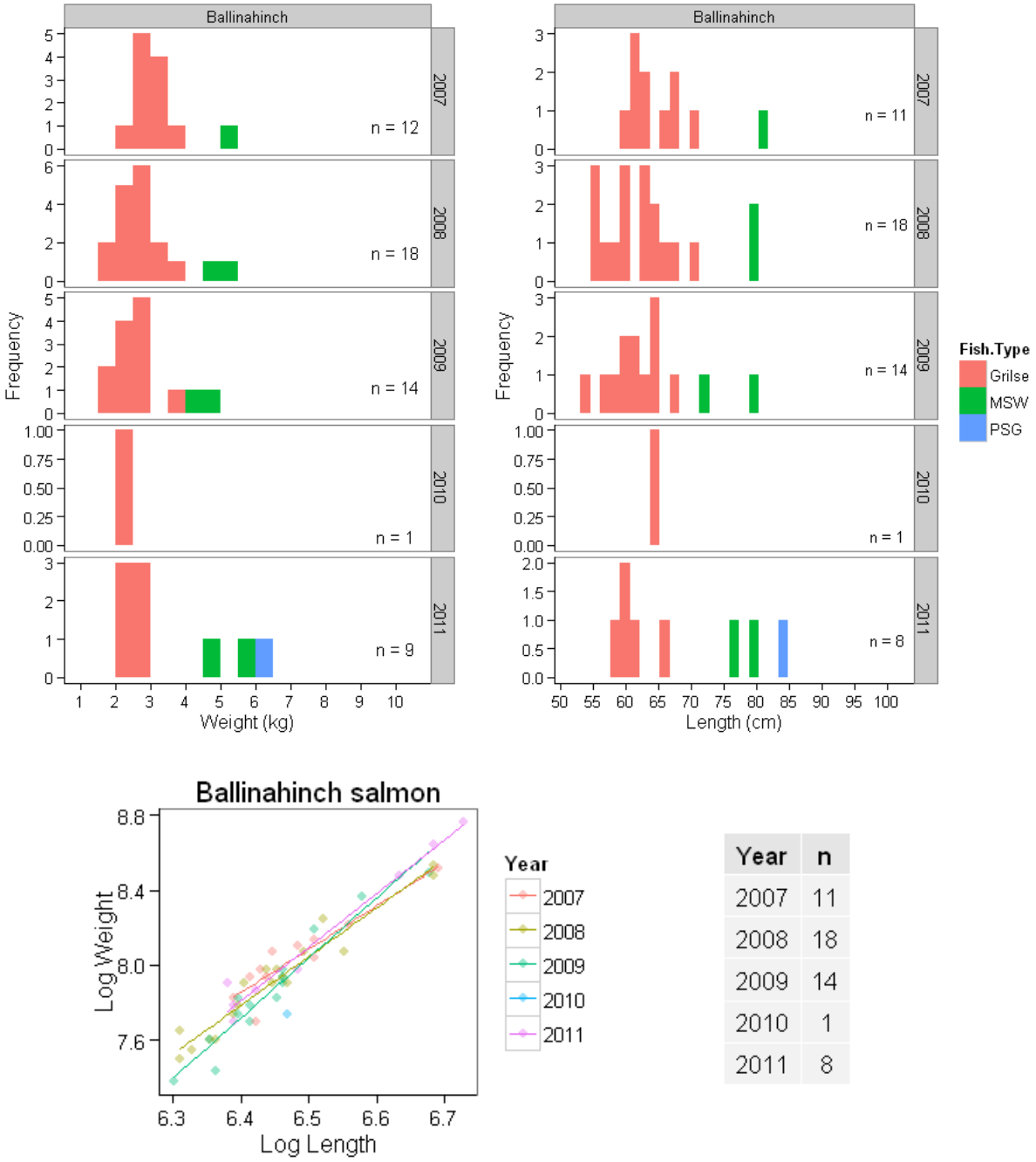


Figure 4.6.Showing summary of lengths and weights of fish captured in the Castlemaine Fishery 2010.Top left: Weight frequency histograms; top right, length frequency histograms; Bottom left: Log Length/ Log weight relationship; Bottom right: Number of fish with both length and weight information.

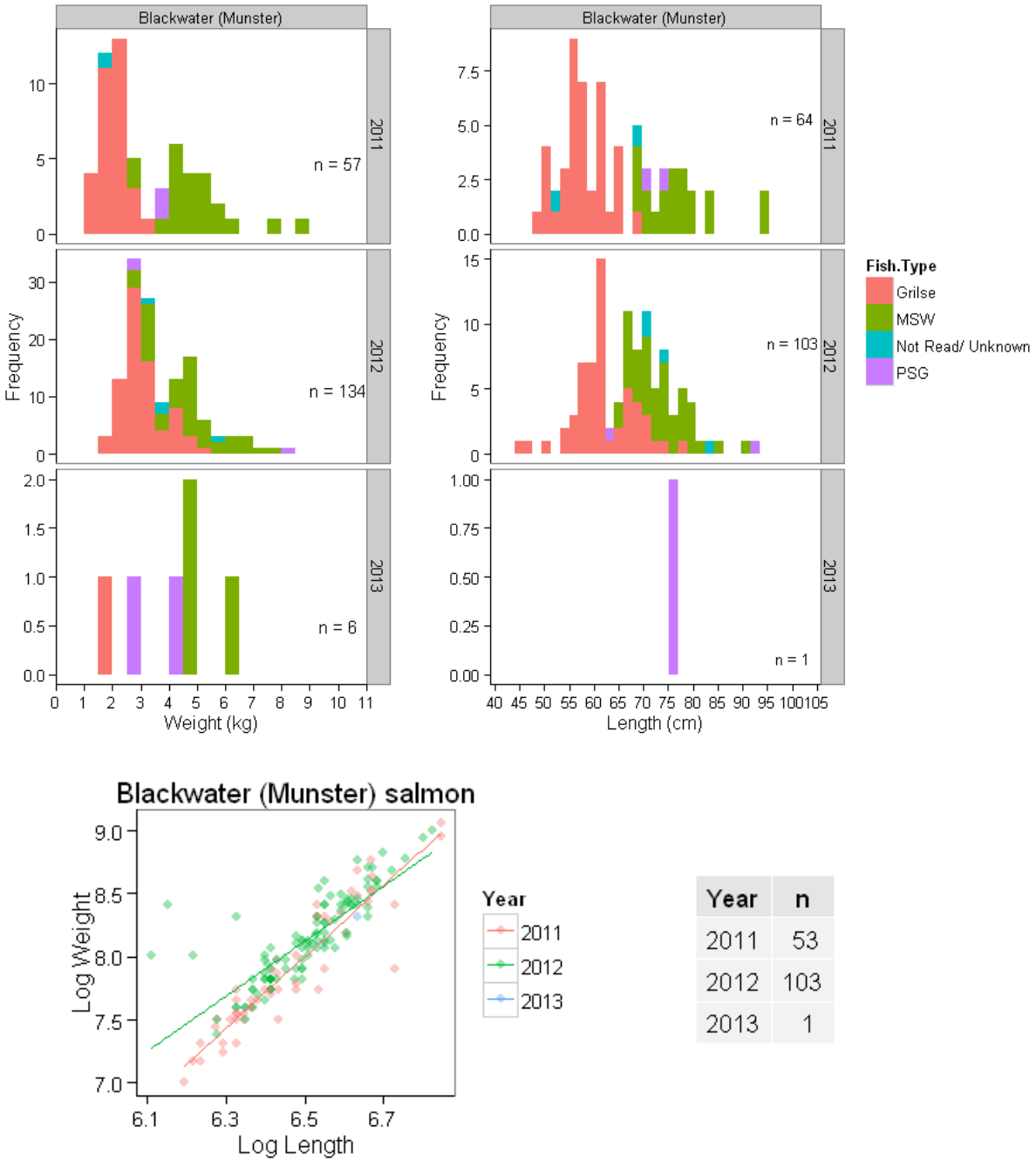
Comparison of Weight (kg) and Length profile of Ballinahinch Salmon over time.



Year	n
2007	11
2008	18
2009	14
2010	1
2011	8

Figure 4.7.Showing summary of lengths and weights of fish captured in the Ballinahinch fishery from 2007 to 2011.Top left: Weight frequency histograms; top right, length frequency histograms; Bottom left: Log Length/ Log weight relationship each year; Bottom right: Number of fish with both length and weight information each year.

Comparison of Weight (kg) and Length profile of Munster Blackwater Salmon over time.



Year	n
2011	53
2012	103
2013	1

Figure 4.8. Showing summary of lengths and weights of fish captured on the Munster Blackwater 2011 to 2013.Top left: Weight frequency histograms; top right, length frequency histograms; Bottom left: Log Length/Log weight relationship each year; Bottom right: Number of fish with both length and weight information each year.

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A. Appendix: Electrofishing Results.

Presentation of Electro-fishing Results

Data are presented for rivers electro-fished in each River Basin District in 2014. Results of any previous catchment wide electro-fishing surveys undertaken over the 2007-2013 period are also shown. Data is presented on the Current CWEF index and the number of surveys considered in the index calculation.

A.1 Neagh Bann IRDB.

A.1.1 Summary

Since 2007 five rivers in the Neagh Bann Inland Fisheries District have been surveyed as part of the on-going catchment-wide electrofishing surveys (Table A.1.1.1). At present three rivers are meeting the threshold of 17 salmon fry per 5min. Only one catchment, the Castletown, was surveyed in this district in 2014. Catchment-wide electrofishing show the 2014 survey result was much lower than that recorded in 2013 but overall the index for the catchment is above the 17 salmon fry/5min threshold.

	Survey Year								Current Index	# of Annual Surveys Considered
IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014		
4/Fane			16.17			22.09			**19.13**	2
5/Glyde		2.49	17.08	31.61					**17.06**	3
6/Dee		8.55	16.92	21.72	20.13				16.83	4
3/Castletown			26.41				22.96	13.59	**20.99**	3
2/Flurry				6.67					6.67	1

Table A.1.1.1: Catchment-wide Electrofishing data for ERFB 2007- 2014 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate.

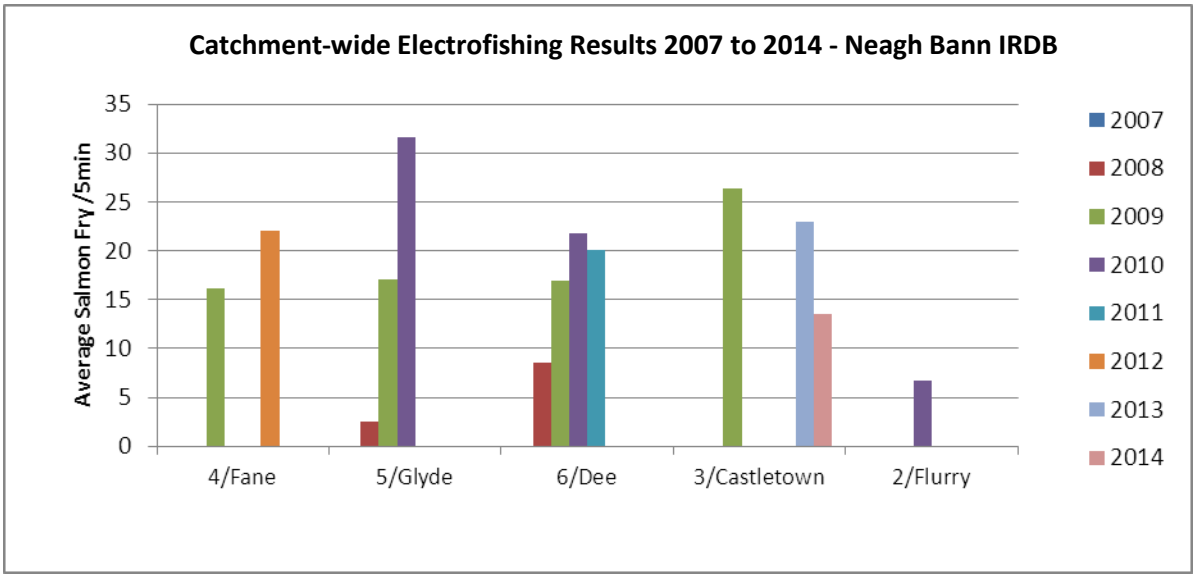


Figure A.1.1.1: Summary of CWEF results in Neagh Bann IRDB 2009-2013.

A.1.2 The Castletown River.

IFI Salmon Catchment #: 3
2014 survey dates: 29/8/2014 - 18/9/2014
Mean Salmon Fry/5 min (2014): 13.59 fry/5min.
CWEF Index: 20.99 fry/5min.

Sampling carried out by:

Brendan Cusack,
Ronan McCormick,
Dermot Wynne.

Fish Species Present:

Brown Trout
European Eel
Minnow
Salmon
Stone Loach
Three-spined Stickleback

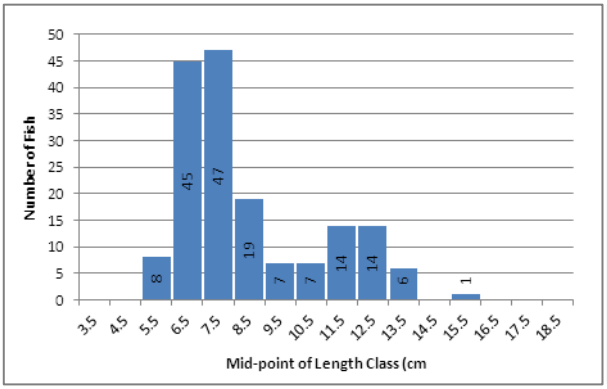


Figure A.1.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Castletown Catchment.

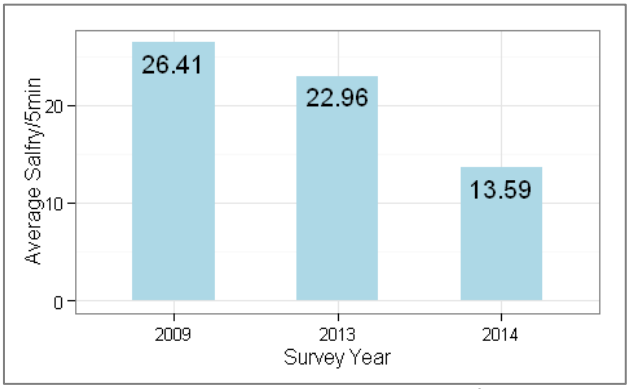


Figure A.1.2.2: Comparison of Mean Salfry/5 min for all surveys on the Castletown catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	8	5				2.25
2013	11					2.66
2014	11					2.66

Table A.1.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

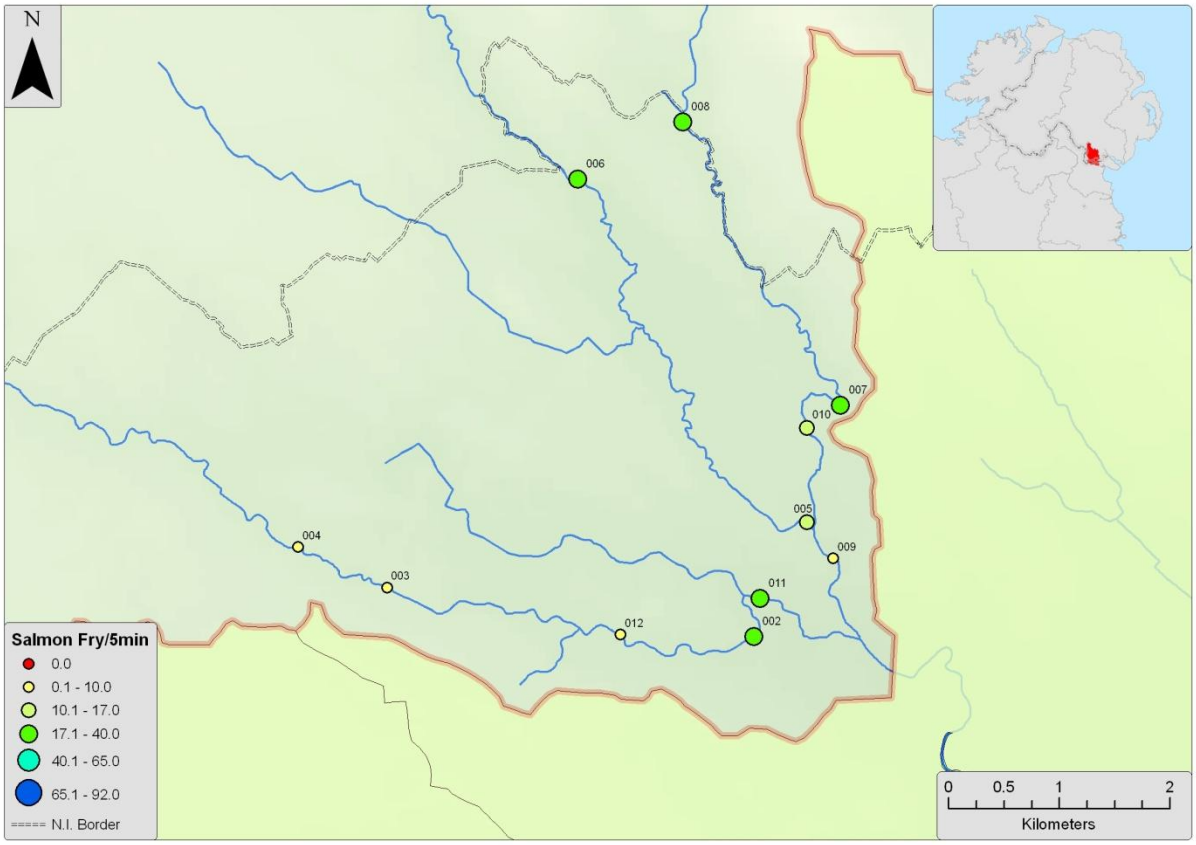
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2008	2009	197	42	Open	26.41	
2009	2010	197	-7	Open		
2010	2011	197	-7	Open		
2011	2012	197	206	Open		
2012	2013	197	60	Catch and Release	22.96	
2013	2014	1451	-713	Catch and Release	13.59	20.99

Table A.1.2.2: Conservation limits and provisional returns on the Castletown catchment along with the 2014 CWEF fishing result.

This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August and Sept 2014. The survey comprised 11 sites, all of which were included in the analysis. Salmon fry were present at all sites. The maximum fry catch was 16 salmon at site 7. The mean catch of included sites was 13.59 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
002	301904	309874	3	1	14	Included	19.6
003	298585	310317	2	2	6	Included	7.5
004	297781	310682	2	3	3	Included	3.75
005	302385	310907	3	2	10	Included	12.31
006	300311	314008	2	2	13	Included	18.69
007	302689	311965	3	2	16	Included	21.33
008	301262	314526	2	2	13	Included	17.59
009	302622	310581	2	1	4	Included	5.6
010	302384	311760	2	2	10	Included	12.11
011	301960	310216	2	1	15	Included	21
012	300700	309891	2	2	7	Included	10

Table A.1.2.3: Site specific Results of CWEF on the Castletown catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Castletown River.

Conclusion

The Castletown had a mean catch of 13.59 salfry/5min in 2014 resulting in a cumulative average of 20.99 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Castletown would be open for catch & release angling in 2015.

A.2 Eastern River Basin District.

A.2.1 Summary

Since 2007, nine salmon rivers have been surveyed in the Eastern River Basin District (ERFB) as part of the on-going catchment-wide electrofishing surveys. These are presented in (Table A.2.1.1). The Boyne catchment was surveyed in this district in 2014. Two catchments, the Boyne and the Lower Liffey, are currently above the threshold of 17 salmon fry/ 5Min

	Survey Year								Current Index	# of Annual Surveys Considered
IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014		
8/Boyne		21.91	17.54	19.38				13.25	18.02	4
13/Broadmeadow				0.00					0.00	1
14/Tolka					1.08	0.00			0.54	2
15.1/Liffey Lower		21.33	40.12	25.16	17.47	12.12			23.24	5
15.2/Liffey Upper		12.93	5.11	8.15	16.20	10.13			10.51	5
16/Dodder					13.93				13.93	1
18/Dargle			1.40	2.53	7.52				3.82	3
21/Vartry		10.00	15.11	2.54	15.07				10.68	4
26/Avoca		3.79	5.56	5.20	18.88	5.15			7.72	5

Table A.2.1.1: Catchment-wide Electrofishing data for ERFB 2007- 2014 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate.

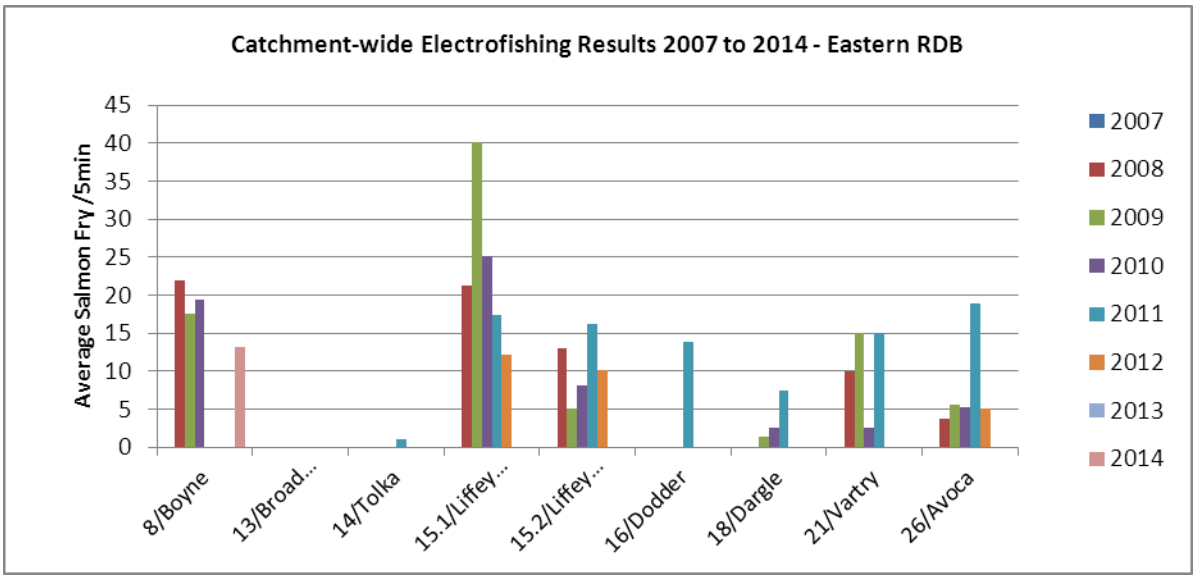


Figure A.2.1.1. Summary of CWEF results in ERFB from 2007 to 2014.

A.2.2 River Boyne

IFI Salmon Catchment #: 8
2014 survey dates: 11/7/2014 – 11/9/2014
Mean Salmon Fry/5 min (2014): 13.25 fry/5min.
CWEF Index: 18.02 fry/5min.

Sampling carried out by:

Maureen Byrne,
Philip Duff,
Robert Bergin.

Fish Species Present:

Brown Trout	Roach
European Eel	Salmon
Gudgeon	Stone Loach
Minnow	Three-spined Stickleback

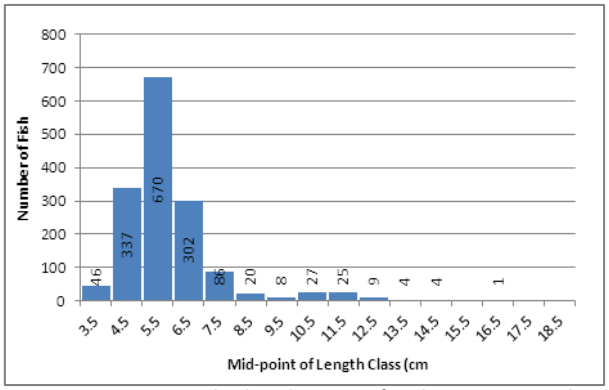


Figure A.2.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Boyne Catchment.

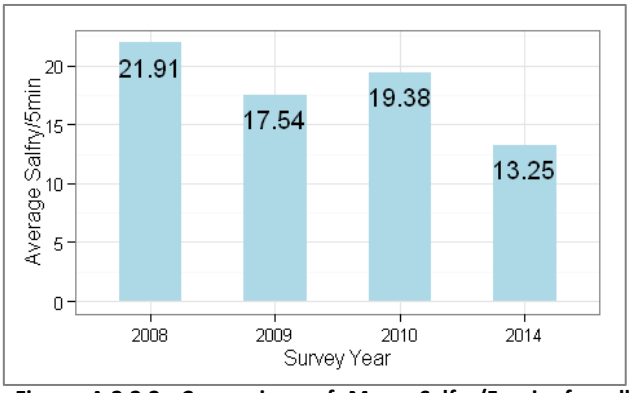


Figure A.2.2.2: Comparison of Mean Salfry/5 min for all surveys on the Boyne catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	127	1	4			8.68
2009	142		4			7.82
2010	143	1	1			7.71
2014	143	2	2	1		7.66

Table A.2.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	14274	-5009	Catch and Release	21.91	
2008	2009	13831	-4553	Catch and Release	17.54	
2009	2010	13831	-4239	Catch and Release	19.38	
2010	2011	13831	-7069	Catch and Release		
2011	2012	13831	-6328	Catch and Release		
2012	2013	13831	-7069	Catch and Release		
2013	2014	10236	-5857	Catch and Release	13.25	18.02

Table A.2.2.2: Conservation limits and provisional returns on the Boyne catchment along with the 2014 CWEF fishing result.

This, the fourth CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July, August and Sept 2014. The survey comprised 148 sites, 143 of which were included in the analysis giving a good coverage of 7.66 km per survey site. Salmon fry were present at 94 sites. The maximum fry catch was 82 salmon at site 89. The mean catch of included sites was 13.25 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	304559	276271	2	2	0	Include	0
002	303744	276131	2	1	0	Include	0
003	303553	275563	4	1	2	Include	2
004	301836	274787	4	1	4	Include	6
005	301073	275662	3	1	16	Include	21.05
006	300151	276304	3	1	5	Include	6.18
007	300655	277097	3	1	3	Include	3.88
008	301278	278168	3	1	0	Include	0
009	302357	279930	3	1	0	Include	0
010	301860	280757	3	2	0	Include	0
011	299758	281707	2	3	0	Include	0
012	300044	276347	2	1	0	Include	0
013	298016	276796	2	1	0	Include	0
014	295160	274121	6	1	21	Include	27.39
015	294110	274801	3	2	9	Include	12.6
016	292779	272238	3	1	0	Include	0
017	291863	272425	3	1	12	Include	17.14
018	283524	271088	4	1	3	Include	4
019	284388	272738	4	1	1	Include	1.44
020	284325	274352	4	1	0	Include	0
021	276727	279157	4	1	6	Include	7.5
022	275611	280251	4	1	48	Include	65.78
023	274106	281624	4	1	61	Include	82.53
024	273144	282837	4	1	6	Include	7.5
025	271964	283239	4	1	53	Include	74.2
026	271646	284960	4	1	19	Include	24.7
028	267971	290856	4	2	1	Include	1.33
029	267584	291610	4	2	0	Include	0
030	268235	293900	4	2	0	Include	0
031	274737	276794	5	1	14	Include	18
032	273728	277254	5	1	40	Include	59.05
033	271593	277350	5	1	35	Include	53.47
034	265288	280339	5	1	8	Include	11.2
035	263065	283352	5	3	0	Include	0
036	260425	287205	4	1	0	Include	0
037	259973	288843	4	1	0	Include	0
038	268796	277068	2	1	1	Include	1.25
039	268685	275948	2	1	1	Include	1
041	267019	278414	2	1	10	Include	11.5
042	266343	277362	2	1	0	Include	0
043	263512	281171	3	1	5	Include	7.14
044	261967	280727	2	2	0	Include	0
045	262235	286174	3	1	0	Include	0
046	264049	285436	3	2	0	Include	0
047	259475	287074	4	2	0	Include	0
048	259024	287853	4	2	0	Include	0
050	290109	262665	4	1	54	Include	71.36
051	289457	261385	4	1	49	Include	53
053	288995	257371	4	1	45	Include	54.9
054	290551	262213	2	1	11	Include	13.75
055	293217	261861	2	1	0	Include	0
056	285005	260594	4	1	9	Include	13
057	284059	260264	4	1	9	Include	12

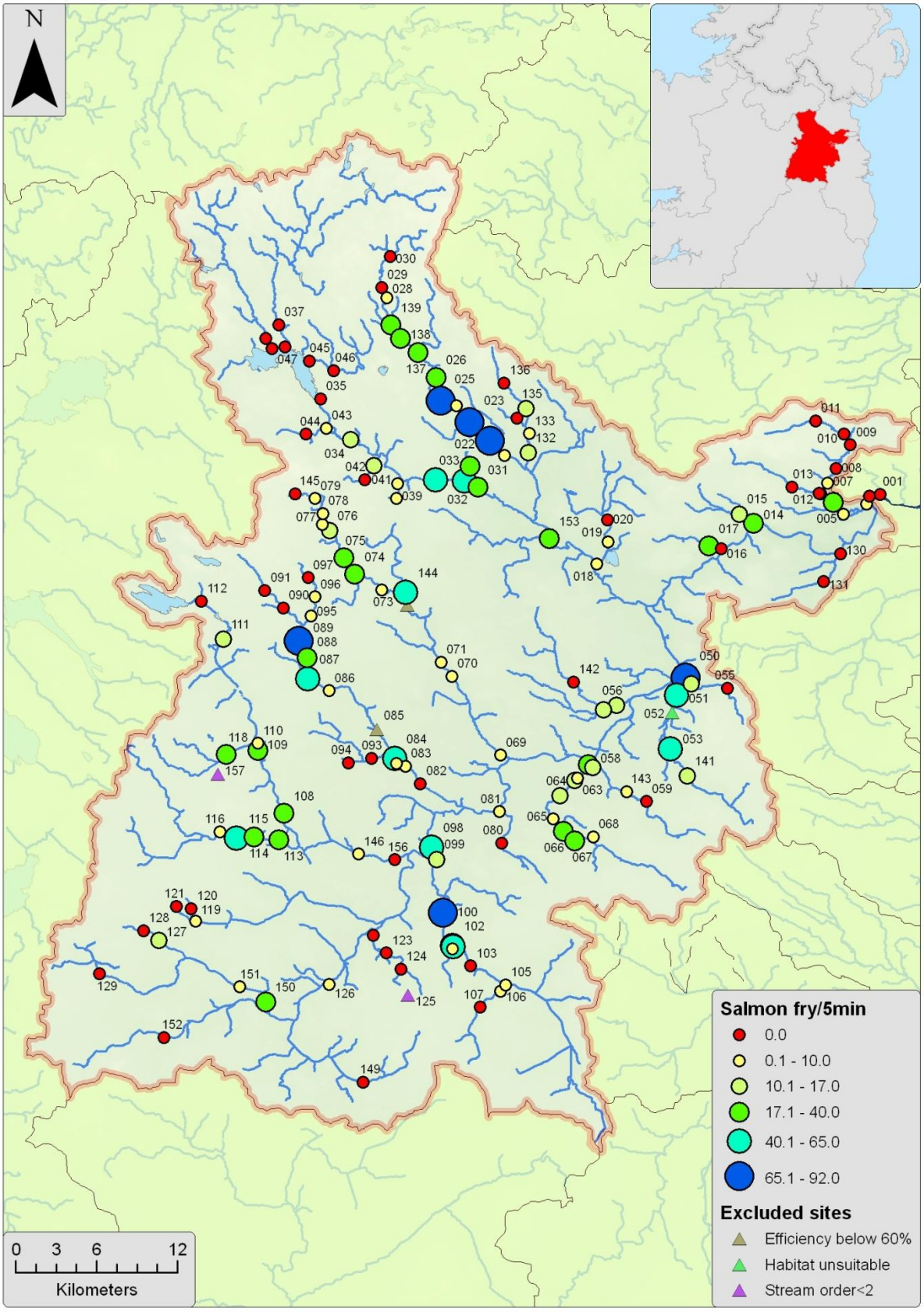
Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
058	283256	256014	3	1	11	Include	14.14
059	287242	253466	3	2	0	Include	0
060	282908	256215	3	1	14	Include	19.44
061	282104	255216	3	1	7	Include	8.75
063	281905	255027	3	2	10	Include	14
064	280810	253900	3	1	8	Include	10.48
065	280320	252183	3	2	7	Include	9.19
066	281074	251259	3	1	22	Include	30.46
067	281887	250550	3	1	18	Include	25
068	283301	250858	3	1	3	Include	3.86
069	276412	256920	4	1	2	Include	3.33
070	272825	262765	4	2	1	Include	1
071	271994	263812	4	1	4	Include	5.5
072	269500	268044	4	1	3	Efficiency below 60%	
073	267623	269164	3	2	5	Include	5.36
074	265594	270337	3	1	23	Include	31.85
075	264778	271562	3	1	28	Include	40
076	263740	273560	3	2	11	Include	13.59
077	263218	274014	3	1	5	Include	6
078	263240	274845	3	1	4	Include	5.9
079	262647	275946	3	2	2	Include	2.44
080	276481	250394	3	2	0	Include	0
081	276348	252727	6	3	4	Include	5.6
082	270475	254798	4	2	0	Include	0
083	269381	256086	4	2	5	Include	6
084	268561	256661	4	1	39	Include	48.29
085	267214	258824	4	2	1	Efficiency below 60%	
086	263710	261686	4	2	1	Include	1
087	262096	262592	4	1	34	Include	41.85
088	262072	264153	4	1	15	Include	19.09
089	261447	265383	4	1	82	Include	91.88
090	260320	267826	3	2	0	Include	0
091	258938	269129	2	2	0	Include	0
092	268705	256304	3	2	1	Include	1
093	266854	256664	3	1	0	Include	0
094	265128	256331	2	3	0	Include	0
095	262347	267248	3	2	3	Include	3.5
096	262664	268653	2	1	1	Include	1.43
097	262148	270071	2	1	0	Include	0
098	271286	250090	4	1	31	Include	41.33
099	271659	249174	4	2	9	Include	13
100	272143	245210	4	1	55	Include	69.73
101	272892	242696	2	1	33	Include	45
102	272839	242771	4	1	42	Include	49.64
103	274207	241257	4	1	0	Include	0
104	272859	242546	2	1	7	Include	8.91
105	276797	239863	3	1	1	Include	1.4
106	276404	239382	3	1	2	Include	2.57
107	274907	238201	3	1	0	Include	0
108	260352	252599	4	1	14	Include	18
109	258398	257266	4	1	16	Include	19
110	258430	257785	3	1	4	Include	5
111	255871	265519	3	1	11	Include	15.13

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
112	254235	268324	3	1	0	Include	0
113	259981	250615	4	1	17	Include	23.61
114	258139	250836	4	2	24	Include	33
115	256838	250746	4	1	31	Include	43
116	255620	251220	4	1	3	Include	3.9
118	256070	256967	3	1	13	Include	17.59
119	253814	244575	3	1	4	Include	4.57
120	253479	245529	2	1	0	Include	0
121	252391	245677	2	1	0	Include	0
122	266964	243530	4	1	0	Include	0
123	267958	242230	3	1	0	Include	0
124	269039	241023	2	2	0	Include	0
126	263705	239876	2	1	1	Include	1.27
127	251089	243161	2	1	12	Include	14.18
128	249935	243867	2	2	0	Include	0
129	246656	240674	3	2	0	Include	0
130	301610	271842	3	1	0	Include	0
131	300363	269793	2	2	0	Include	0
132	278450	279346	3	2	11	Include	14.14
133	278572	280783	3	2	5	Include	6.92
134	277637	281928	2	1	0	Include	0
135	278297	282622	2	1	12	Include	16.24
136	276678	284536	2	3	0	Include	0
137	270281	286801	4	1	20	Include	28.33
138	269000	287851	4	1	13	Include	17.73
139	268278	288850	4	1	13	Include	18.91
140	274136	278352	2	1	23	Include	28.52
141	290272	255363	3	2	14	Include	15.91
142	281828	262333	3	3	0	Include	0
143	285778	254202	3	2	2	Include	2.5
144	269381	268981	4	1	35	Include	42
145	261196	276312	3	2	0	Include	0
146	265889	249570	5	2	5	Include	7.5
149	266238	232638	3	1	0	Include	0
150	258993	238580	3	1	17	Include	23
151	257062	239719	3	1	6	Include	8
152	251444	235955	2	3	0	Include	0
153	280033	272968	2	1	14	Include	19
156	268552	249143	5	2	0	Include	0
052	289136	260065	4	0	0	Habitat unsuitable	
125	269553	239085	1	2	0	Stream order<2	
157	255432	255508	1	2	6	Stream order<2	

Table A.2.2.3: Site specific Results of CWEF on the Boyne catchment in 2014.

Conclusion

The Boyne had a mean catch of 13.25 salfry/5min in 2014 resulting in a cumulative average of 18.02 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Boyne would be open for catch & release angling in 2015.



Map A.2.2.1: Showing locations of 2014 survey sites on Boyne River.

A.3 South Eastern River Basin District.

A.3.1 Summary

Since 2007, eleven rivers have been surveyed in the South Eastern River Basin District (ERBD) as part of the on-going catchment-wide electrofishing surveys. These are presented in (Table A.3.1.1). Five rivers currently have a survey average salmon fry capture rate of greater than 17 fry/5min: Slaney, Corock, Nore and Colligan and the Barrow. The Slaney, the Mahon and the Colligan were surveyed in 2014.

	Survey Year								Current Index	# of Annual Surveys Considered
IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014		
28/Owenavorragh				19.76			0.33		10.04	2
31/Slaney	19.05		15.94	18.42				17.68	17.77	4
33/Corock					37.11				37.11	1
34/Owenduff (Wx.)				4.97	10.65	15.91			10.51	3
35/Pollmounty	4.33								4.33	1
36/Aughnavaud	1.00		0.00	0.00	1.00	6.47			1.69	5
37/Barrow	18.92		11.10	8.83	21.59	27.32			17.55	5
38/Nore				18.83					18.83	1
50/Mahon		2.11						10.72	6.41	2
51/Tay					8.75				8.75	1
53/Colligan					29.32			9.50	19.41	2

Table A.3.1.1: Catchment-wide Electrofishing data for SERBD 2007- 2014 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate.

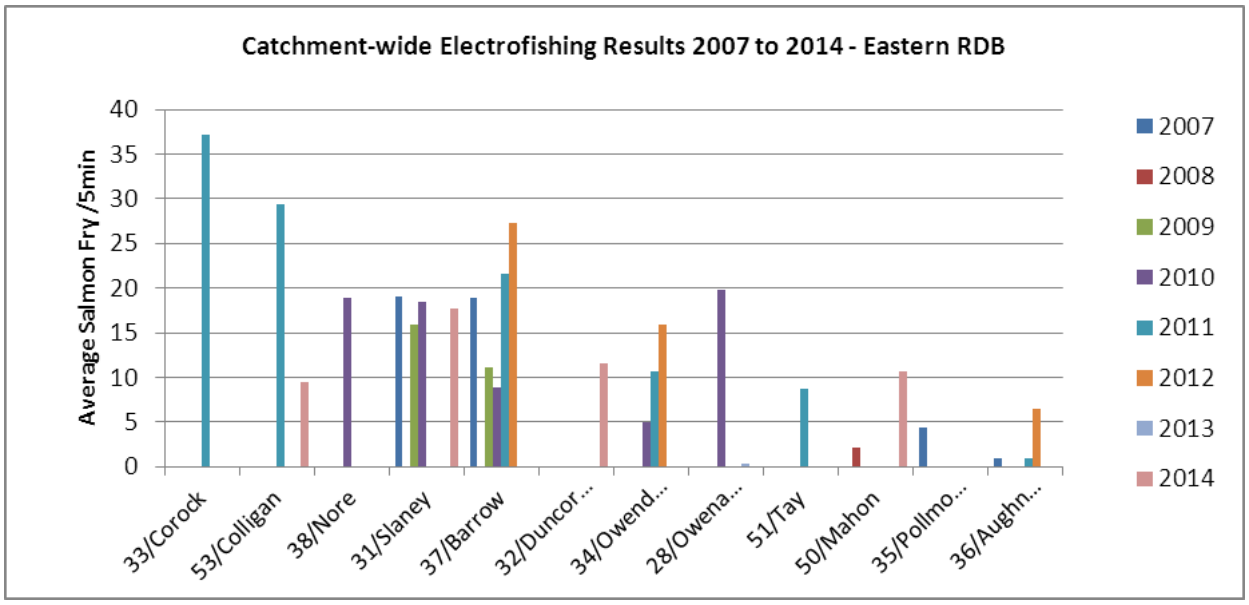


Figure A.3.1.1: Summary of CWEF results in SERFB from 2007 to 2014.

A.3.2 River Slaney.

IFI Salmon Catchment #: 8
2014 survey dates: 5/8/2014 - 26/9/2014
Mean Salmon Fry/5 min (2014): 17.68 fry/5min.
CWEF Index: 17.77 fry/5min.

Sampling carried out by:

Myles Roban
Morgan Rowsome
Michael Farnan
Ken Whelan

Fish Species Present:

Common Name	Minnow
Brown Trout	Roach
European eel	Salmon
Flounder	Sea trout
Gudgeon	Stone loach
Lamprey sp.	Three-spined stickleback

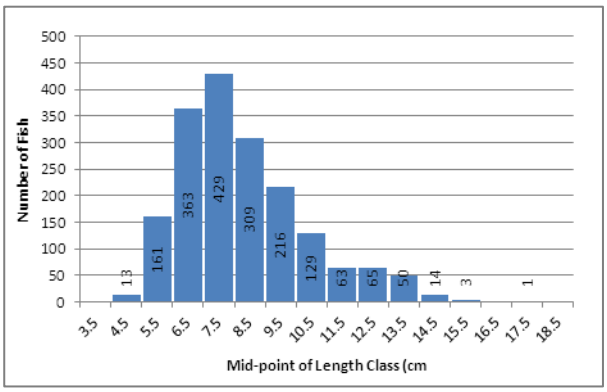


Figure A.3.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Slaney Catchment.

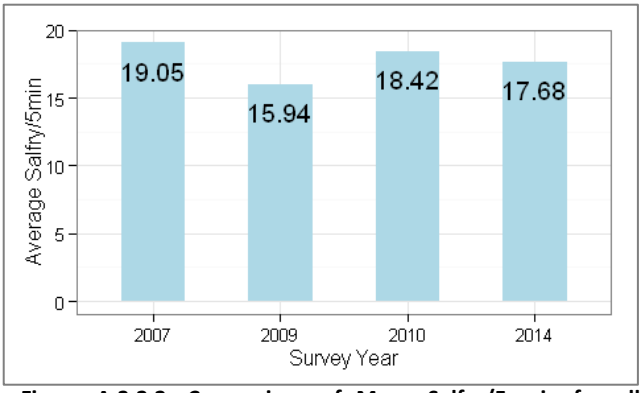


Figure A.3.2.2: Comparison of Mean Salfry/5 min for all surveys on the Slaney catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2007	8					108.24
2009	31	17				18.04
2010	79					10.96
2014	99	22				7.16

Table A.3.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW Conservation Limit	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2008	2009	829	490	Catch and Release	15.94	
2009	2010	923	33	Catch and Release	18.42	
2010	2011	609	-202	Catch and Release		
2011	2012	609	-282	Catch and Release		
2012	2013	609	-208	Catch and Release		
2013	2014	917	-740	Catch and Release	17.68	17.77

Table A.3.2.2: Conservation limits and provisional returns on the Slaney catchment along with the 2014 CWEF fishing result.

This, the fourth CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August and September 2014. The survey comprised 121 sites, 99 of which were included in the analysis giving a good coverage of 7.16 km per survey site. Salmon fry were present at 112 sites. The maximum fry catch was 44 salmon at site 146. The mean catch of included sites was 17.68 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was very large at 7.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	294291	152608	2	1	14	Include	19.25
002	287442	190777	4	1	17	Include	24.16
004	297670	193867	4	2	11	Include	16.08
005	306529	152250	4	1	4	Include	5.33
007	289648	154845	3	1	0	Include	0
008	295051	192400	3	1	7	Include	10.11
012	299828	183556	4	1	17	Include	17
014	295410	180761	4	2	13	Include	20.22
015	294418	180423	4	1	12	Include	17.71
016	299608	185860	4	1	28	Efficiency below 60%	
017	296097	194787	4	1	4	Efficiency below 60%	
018	294156	194384	4	1	23	Include	34.5
019	293369	193121	4	2	20	Include	28
020	291635	193905	4	1	13	Include	19.07
022	288928	159755	2	2	0	Include	0
023	288111	160348	2	1	8	Include	11.2
024	289212	159376	2	1	10	Include	14.55
025	296144	192379	3	1	15	Include	20.63
026	295684	192485	3	2	12	Include	18.46
027	293583	193103	3	1	16	Include	22.59
028	311567	168173	3	1	0	Include	0
030	312207	164339	3	1	0	Include	0
031	309280	160004	3	1	0	Include	0
032	303092	149217	4	1	17	Include	26.44
033	290820	194898	3	1	22	Include	29.65
035	291682	196041	2	2	10	Include	15.29
036	290764	194874	3	1	27	Include	34.45
037	290413	194534	3	2	19	Include	27.14
038	284251	137840	3	1	10	Include	14.44
039	284742	137710	3	1	11	Include	18
042	287694	136443	4	1	10	Include	13.85
044	295718	136464	4	1	10	Include	10
048	298993	167359	5	2	0	Include	0
049	301390	169267	5	1	12	Efficiency below 60%	
051	303870	172472	3	2	20	Include	25.63
052	302120	148455	4	1	3	Efficiency below 60%	
053	299924	184250	4	2	8	Include	8
055	285248	168469	4	2	25	Include	36.54
056	287709	162686	3	1	13	Include	17.64
058	309363	157490	4	1	4	Efficiency below 60%	
059	312058	162108	4	1	5	Include	7.5
060	310830	159100	3	1	6	Include	7.71
061	311343	159329	4	1	8	Include	11.56
063	300794	143835	3	1	7	Include	8.91
064	288130	186523	4	1	33	Include	48
065	287003	188171	4	1	25	Include	35.19
066	305230	151330	4	1	6	Include	7.71
067	288827	185649	4	1	15	Include	25
068	283204	177720	5	1	18	Efficiency below 60%	
069	285599	178597	5	1	7	Include	9
070	287772	182216	5	1	23	Include	33
071	285188	173012	5	1	20	Include	29.09
072	285007	171434	5	1	26	Include	36
073	284913	169836	5	1	13	Include	17.64
074	290221	157862	6	1	22	Include	34
075	292312	155672	6	1	10	Efficiency below 60%	

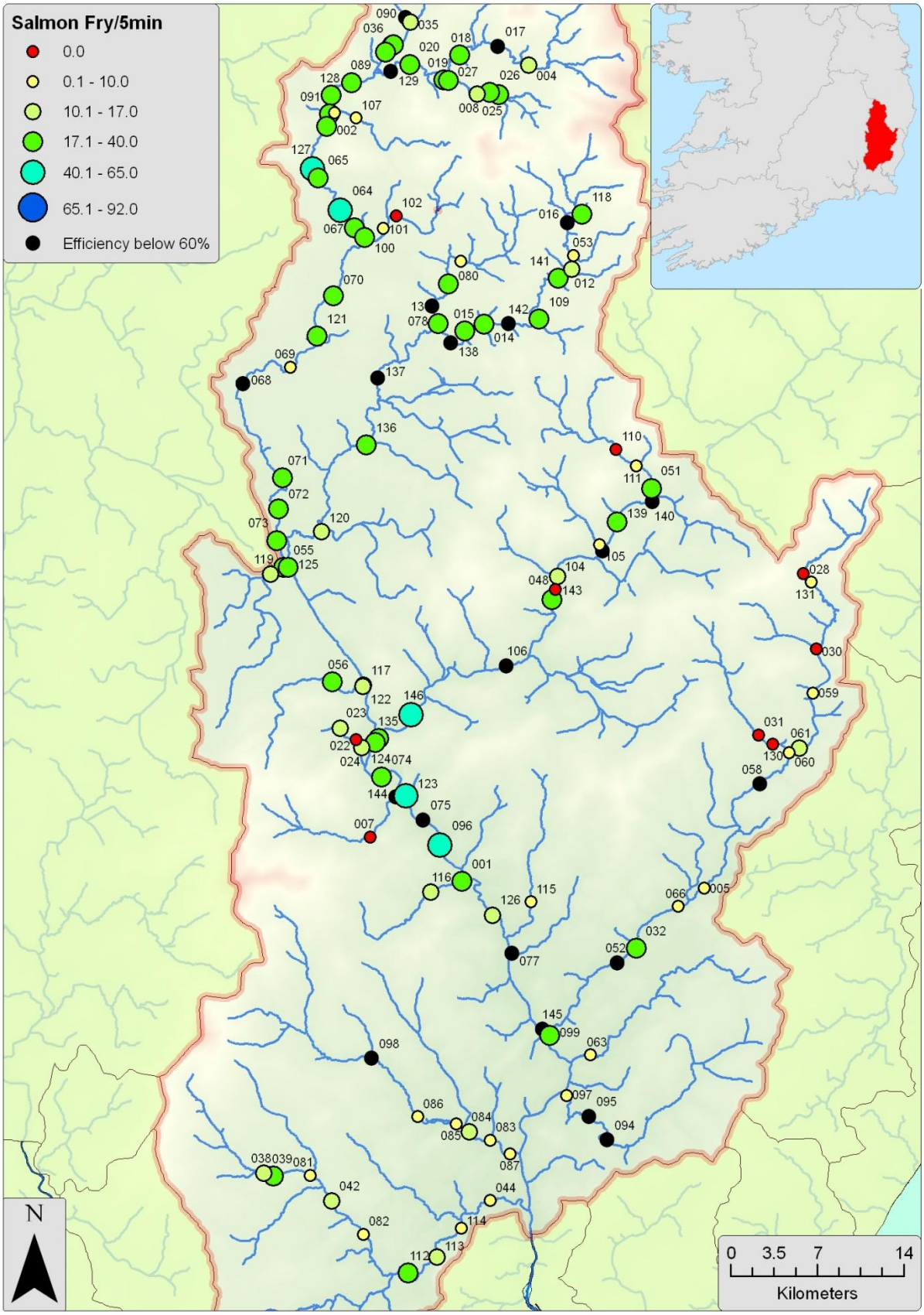
Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
076	293165	154435	6	1	19	Efficiency below 60%	
077	296792	148945	6	1	14	Efficiency below 60%	
078	292748	181652	2	1	6	Efficiency below 60%	
080	293589	182810	4	1	13	Include	17.33
081	286598	137736	3	1	6	Include	9
082	289283	134754	4	1	5	Include	6.25
083	295723	139514	4	1	5	Include	6.43
084	294662	139925	4	1	10	Include	11.67
085	293979	140349	4	1	7	Include	8.91
086	292038	140710	4	1	4	Include	6.22
087	296710	138823	4	1	6	Include	9.43
089	288687	192985	4	2	11	Include	17.42
090	291401	196244	3	1	12	Efficiency below 60%	
091	287579	191406	4	1	20	Include	27
094	301614	139499	3	2	1	Efficiency below 60%	
095	300694	140696	3	2	5	Efficiency below 60%	
096	293167	154433	6	1	32	Include	51.39
097	299589	141780	3	2	6	Include	10
098	289705	143626	4	1	1	Efficiency below 60%	
099	298729	144805	4	1	13	Include	18.57
100	289354	185159	4	2	16	Include	19
101	290292	185613	4	1	1	Include	1
102	290956	186254	4	1	0	Include	0
104	299109	168019	5	2	11	Include	15.4
105	301230	169624	4	2	4	Include	5.65
106	296509	163472	5	1	10	Efficiency below 60%	
107	288911	191196	2	2	1	Include	1.3
108	287819	191463	2	2	8	Include	8.8
109	298170	181034	4	2	13	Include	17.73
110	302079	174452	3	0	0	Include	0
111	303111	173597	3	2	3	Include	3
112	291565	132797	4	1	13	Include	18
113	293007	133617	4	1	11	Include	14.67
114	294245	135057	4	2	8	Include	8
115	297784	151563	3	1	3	Include	3.43
116	292713	152052	2	1	11	Include	14.67
117	289301	162515	6	2	11	Include	16.5
118	300364	186336	2	2	26	Include	31.03
119	284581	168128	4	1	11	Include	14.14
120	287175	170277	3	1	9	Include	11.7
121	286950	180163	5	1	19	Include	29
122	289276	162470	6	2	10	Include	15
123	291431	156920	6	1	29	Include	43.5
124	289892	159633	6	1	21	Include	30.55
125	285496	168466	4	1	31	Include	33
126	295826	150898	6	1	11	Include	13
127	286725	188622	4	1	35	Include	48.61
128	287660	192335	4	1	21	Include	29.59
129	290678	193522	4	3	7	Efficiency below 60%	
130	310011	159548	3	2	0	Include	0
131	311969	167721	3	1	1	Include	1.57
132	294227	183939	4	1	5	Include	6.76
134	293085	180806	4	1	16	Include	20.71
135	290063	159821	5	1	22	Include	32
136	289449	174670	5	1	13	Include	21
137	290021	178006	5	3	6	Efficiency below 60%	

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
138	293718	179786	4	2	8	Efficiency below 60%	
139	302126	170777	4	1	16	Include	24
140	303920	171775	4	2	1	Efficiency below 60%	
141	299148	183096	4	1	20	Include	27.69
142	296630	180759	4	1	9	Efficiency below 60%	
143	298836	166847	5	1	17	Include	20.4
144	290937	156835	3	1	13	Efficiency below 60%	
145	298336	145102	6	2	10	Efficiency below 60%	
146	291689	161034	5	1	44	Include	64

Table A.3.2.3: Site specific results of CWEF on the Slaney catchment in 2014.

Conclusion

The Slaney had a mean catch of 17.68 salfry/5min in 2014 resulting in a cumulative average of 17.77 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Slaney would be open for catch & release angling in 2015.



Map A.3.2.1: Showing locations of 2014 survey sites on the Slaney River.

A.3.3 River Mahon.

IFI Salmon Catchment #: 50
2014 survey dates: 15/9/2014 - 19/9/2014
Mean Salmon Fry/5 min (2014): 10.72 fry/5min.
CWEF Index: 6.41 fry/5min.

Sampling carried out by:

Noel Power
Declan Cullagh.

Fish Species Present:

Brown Trout
European eel
Flounder
Lamprey sp.
Salmon
Three-spined stickleback

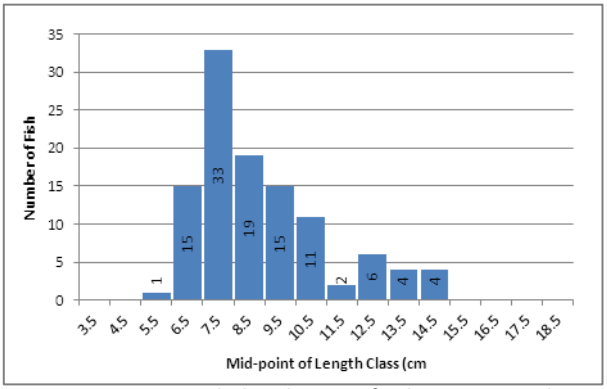


Figure A.3.3.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Mahon Catchment.

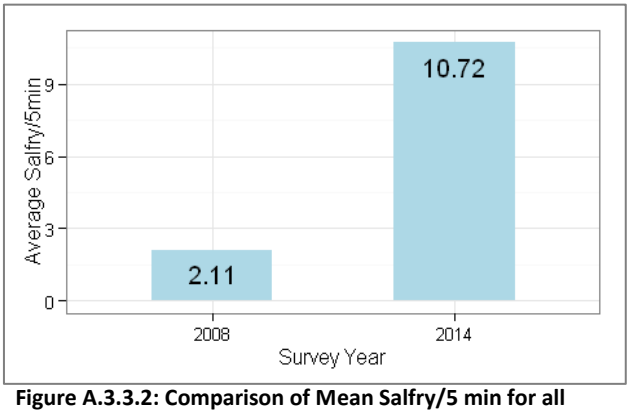


Figure A.3.3.2: Comparison of Mean Salfry/5 min for all surveys on the Mahon catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	9	1				6.41
2014	8					8.01

Table A.3.3.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

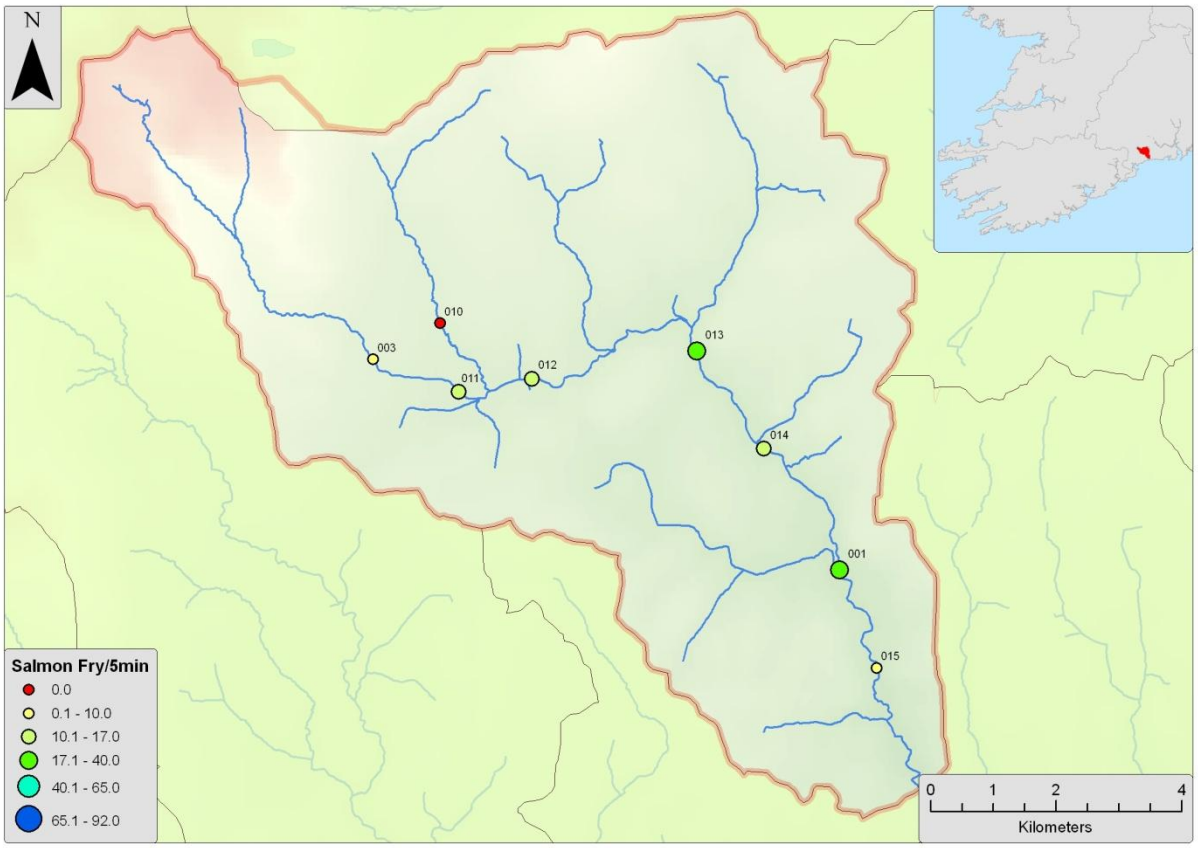
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	442	-250	Closed	2.11	
2008	2009	442	-247	Closed		
2009	2010	442	-388	Closed		
2010	2011	442	-387	Closed		
2011	2012	442	-387	Closed		
2012	2013	442	-387	Closed		
2013	2014	442	-302	Closed	10.72	6.41

Table A.3.3.2: Conservation limits and provisional returns on the Mahon catchment along with the 2014 CWEF fishing result.

This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. The survey comprised 8 sites, all of which were included in the analysis giving a good coverage of 8km per survey site. Salmon fry were present at 7 sites. The maximum fry catch was 18 salmon at site 13. The mean catch of included sites was 10.72 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 7.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	241687	102654	5	1	17	Include	20.78
003	234254	105999	3	2	2	Include	2.29
010	235322	106573	3	2	0	Include	0
011	235614	105482	3	14	8	Include	10.67
012	236786	105692	4	1	12	Include	13.89
013	239411	106136	5	2	18	Include	21.27
014	240481	104583	5	1	8	Include	11
015	242278	101092	5	2	5	Include	5.83

Table A.3.3.3: Site specific Results of CWEF on the Mahon catchment in 2014.



Map A.3.3.1: Showing locations of 2014 survey sites on Mahon River.

Conclusion

The Mahon had a mean catch of 10.72 salfry/5min in 2014 resulting in a cumulative average of 6.41 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Mahon would be closed to angling in 2015.

A.3.4 River Colligan.

IFI Salmon Catchment #: 53
2014 survey dates: 21/8/2014 - 01/9/2014
Mean Salmon Fry/5 min (2014): 9.5 fry/5min.
CWEF Index: 19.41 fry/5min.

Sampling carried out by:

Noel Power
Declan Cullagh.

Fish Species Present:

Brown Trout
European Eel
Salmon
Stone Loach
Three-spined Stickleback

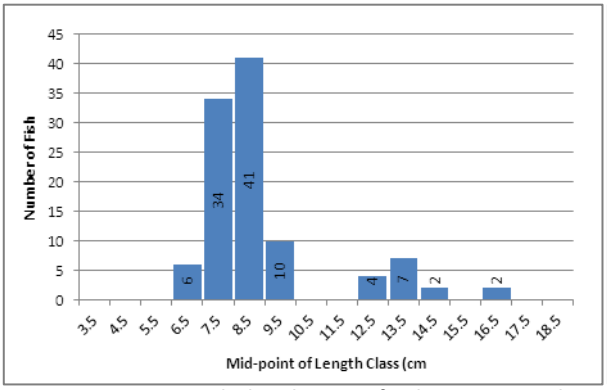


Figure A.3.4.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Colligan Catchment.

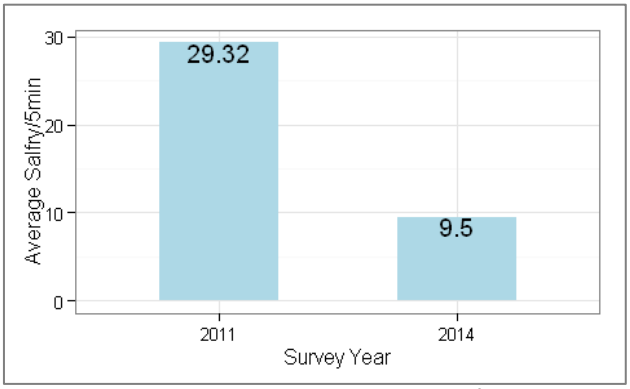


Figure A.3.4.2: Comparison of Mean Salfry/5 min for all surveys on the Colligan catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2011	5					11.09
2014	12					4.62

Table A.3.4.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

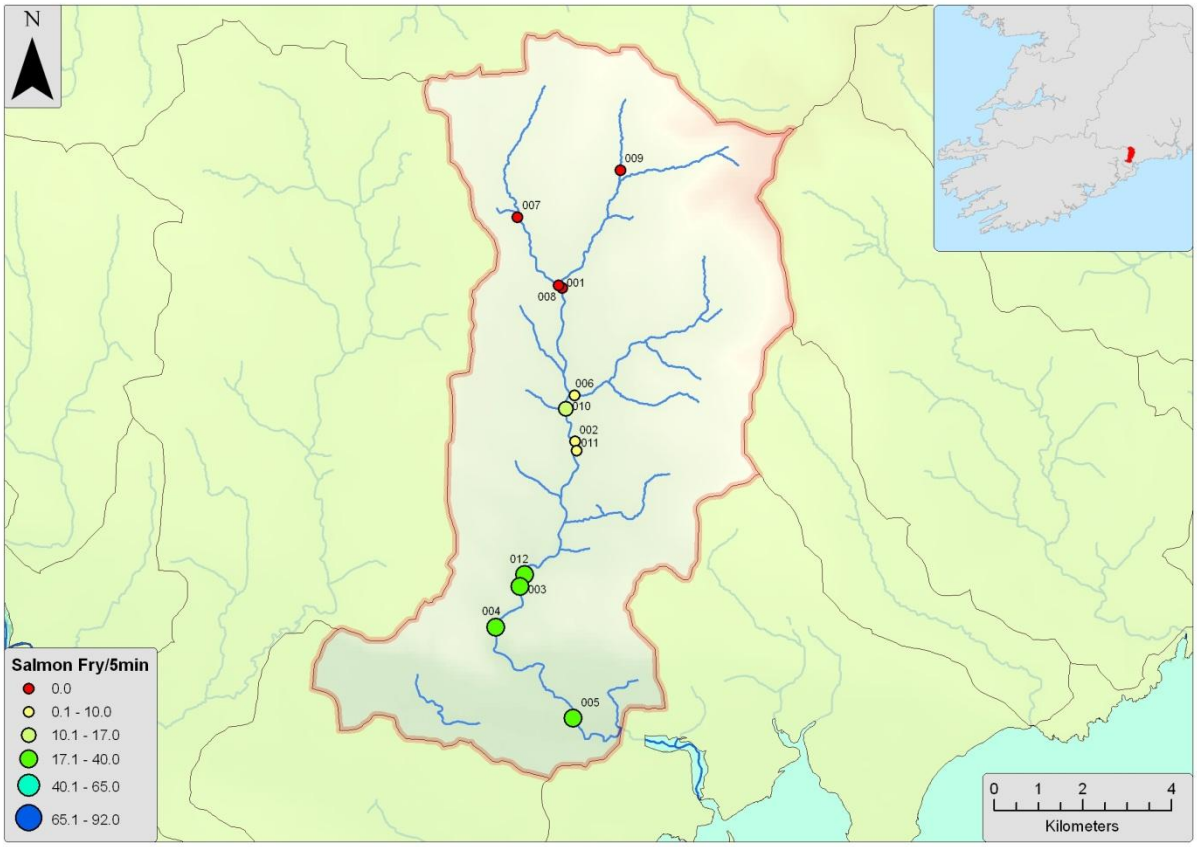
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	338	-136	Catch and Release		
2008	2009	338	-54	Catch and Release		
2009	2010	338	-48	Catch and Release		
2010	2011	338	-27	Catch and Release	29.32	
2011	2012	338	-8	Catch and Release		
2012	2013	338	118	Catch and Release		
2013	2014	424	-96	Catch and Release	9.50	19.41

Table A.3.4.2: Conservation limits and provisional returns on the Colligan catchment along with the 2014 CWEF fishing result.

This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August and September 2014. The survey comprised 12 sites, all of which were included in the analysis giving a very good coverage of 4.62 km per survey site. Salmon fry were present at 8 sites. The maximum fry catch was 20 salmon at site 4.The mean catch of included sites was 9.5 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of fry caught was very large at 8.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	222978	104848	4	2	0	Include	0
002	223270	101390	4	1	5	Include	5.36
003	222019	98113	4	1	15	Include	20.29
004	221476	97201	4	1	20	Include	24.8
005	223218	95146	4	1	17	Include	21.25
006	223255	102434	3	2	5	Include	5.79
007	221968	106453	2	2	0	Include	0
008	222894	104911	3	2	0	Include	0
009	224296	107509	2	2	0	Include	0
010	223064	102128	4	1	9	Include	12
011	223305	101188	4	2	3	Include	4
012	222133	98382	4	1	17	Include	20.52

Table A.3.4.3: Site specific Results of CWEF on the Colligan catchment in 2014.



Map A.3.4.1: Showing locations of 2014 survey sites on the Colligan River.

Conclusion

The Colligan had a mean catch of 9.5 salfry/5min in 2014 resulting in a cumulative average of 19.41 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Colligan would be open for catch & release angling in 2015.

A.3.5 River Bride.

IFI Salmon Catchment #: 60
2014 survey dates: 25/8/2014 - 28/8/2014
Mean Salmon Fry/5 min (2014): 19.85 fry/5min.
CWEF Index: 18.32 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
Crayfish
European eel
Flounder
Gudgeon
Lamprey sp.
Salmon
Stone Loach
Three-spined Stickleback

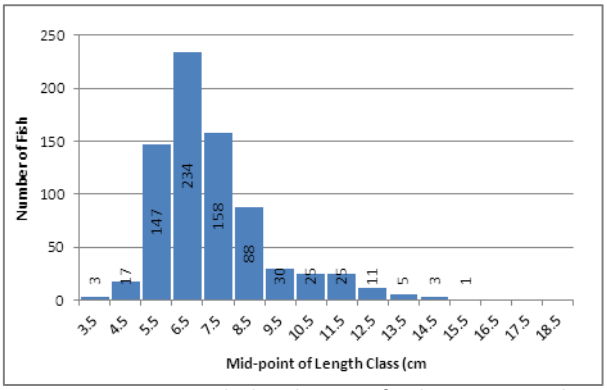


Figure A.3.5.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Bride Catchment.

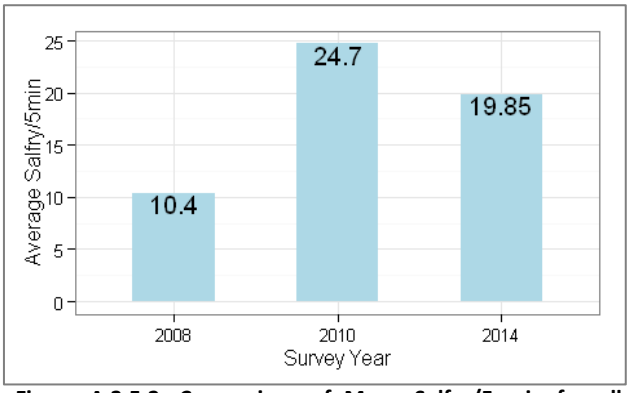


Figure A.3.5.2: Comparison of Mean Salfry/5 min for all surveys on the Bride catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	19	2				7.65
2010	25		1			6.43
2014	33	2	1	1		4.59

Table A.3.5.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	1379	-991	Catch and Release	10.40	
2008	2009	1379	-940	Catch and Release		
2009	2010	1379	-1028	Catch and Release	24.70	
2010	2011	1379	-1039	Catch and Release		
2011	2012	1379	-1039	Catch and Release		
2012	2013	1379	-1038	Catch and Release		
2013	2014	1570	-641	Catch and Release	19.85	18.32

Table A.3.5.2: Conservation limits and provisional returns on the Bride catchment along with the 2014 CWEF fishing result.

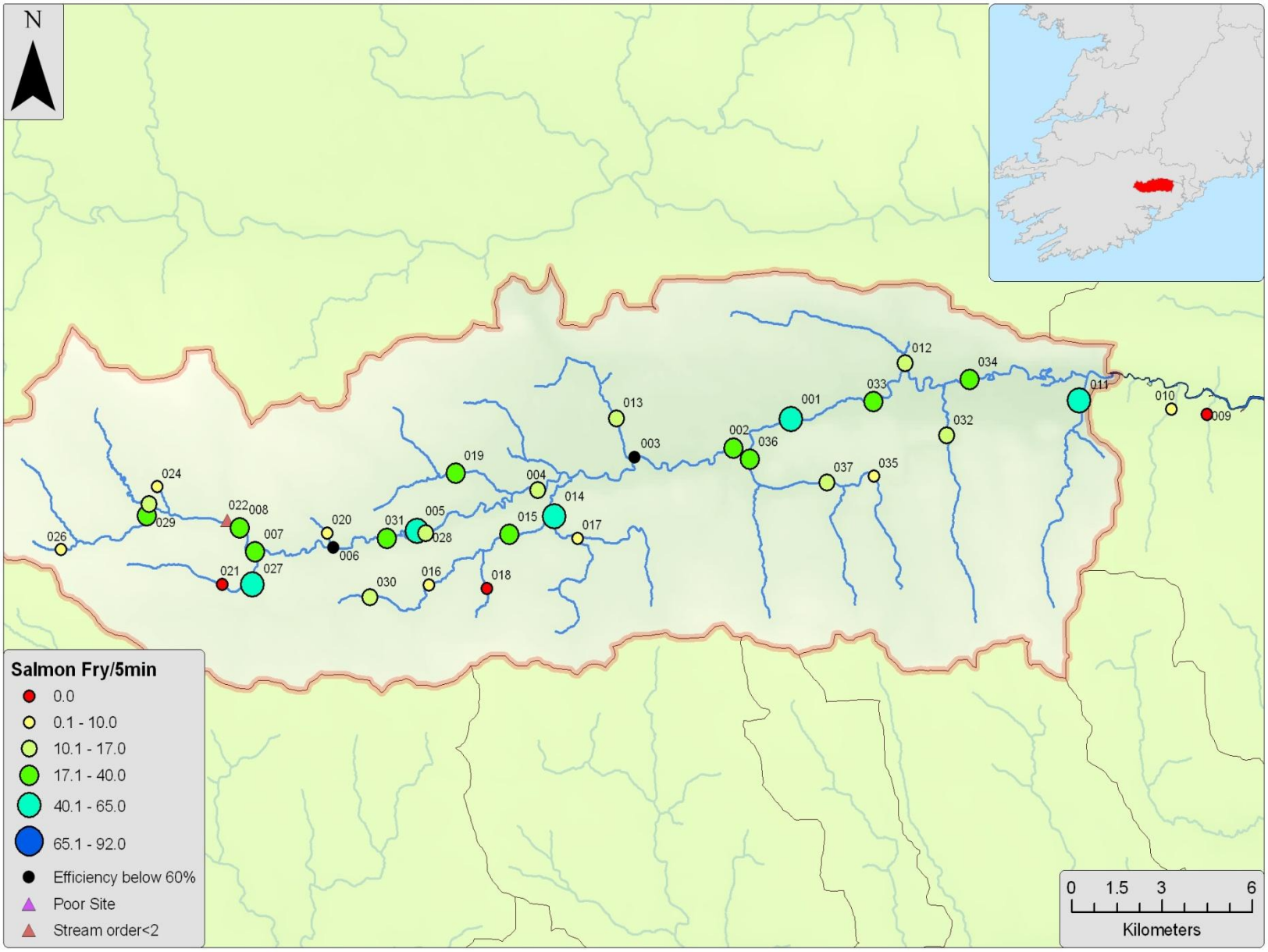
This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August2014. The survey comprised 37 sites, 33 of which were included in the analysis giving a good coverage of 4.59km per survey site. Salmon fry were absent from 3 sites. The maximum fry catch was 37 salmon at site11. The mean catch of included sites was 19.85salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	189733	92892	5	1	36	Include	56
002	187832	91990	5	1	13	Include	19
003	184550	91687	5	1	35	Efficiency below 60%	
004	181312	90665	4	1	8	Include	11.33
005	177293	89404	3	1	37	Include	57
006	174527	88866	3	1	22	Efficiency below 60%	
007	171909	88742	3	1	21	Include	32.67
008	171390	89498	3	1	26	Include	35.63
009	203592	93032	2	2	0	Include	0
010	202400	93205	2	1	5	Include	5.67
011	199329	93479	3	1	37	Include	44.59
012	193543	94636	3	2	10	Include	11.82
013	183937	92916	3	2	8	Include	13
014	181850	89847	4	1	35	Include	52.07
015	180356	89296	3	1	20	Include	28.7
016	177685	87710	2	0	4	Include	4
017	182644	89166	3	2	2	Include	2.46
018	179610	87604	2	0	0	Include	0
019	178575	91202	3	1	32	Include	32
020	174300	89333	2	2	4	Include	5.71
021	170801	87730	2	2	0	Include	0
023	168367	90241	2	2	9	Include	15
024	168641	90782	2	2	1	Include	1.17
026	165436	88818	2	2	5	Include	6.47
027	171816	87728	2	1	27	Include	40.5
028	177583	89330	3	2	9	Include	11.25
029	168296	89877	3	2	23	Include	25.8
030	175730	87327	2	2	10	Include	12.22
031	176292	89169	3	1	24	Include	34
032	194928	92379	2	1	11	Include	14.47
033	192493	93432	5	1	18	Include	26
034	195682	94136	5	2	12	Include	18
035	192511	91108	2	1	4	Include	4.8
036	188367	91637	3	1	13	Include	19
037	190936	90911	3	1	12	Include	14.82
022	170990	89726	1	2	5	Stream order<2	
023	168367	90241	2	3	6	Poor Site	

Table A.3.5.3: Site specific Results of CWEF on the Bride catchment in 2014.

Conclusion

The Bride had a mean catch of 19.85 salfry/5min in 2014 resulting in a cumulative average of 18.32 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Bride would be open for catch & release angling in 2015.



Map A.3.5.1: Showing locations of 2014 survey sites on the Colligan River.

A.3.6 River Womanagh.

IFI Salmon Catchment #: 62
2014 survey dates: 28/8/2014 - 29/9/2014
Mean Salmon Fry/5 min (2014): 2.39 fry/5min.
CWEF Index: 8.92 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Flounder
Salmon
Stone Loach
Three-spined Stickleback

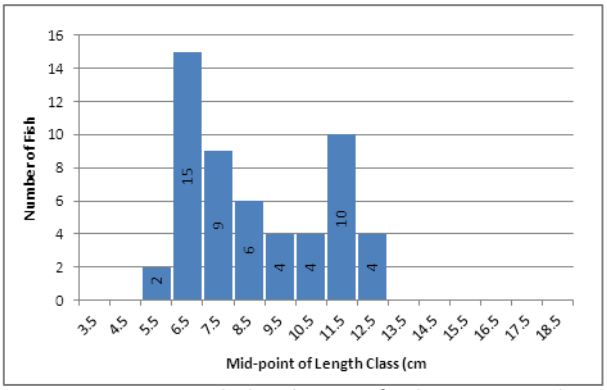


Figure A.3.6.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Womanagh Catchment.

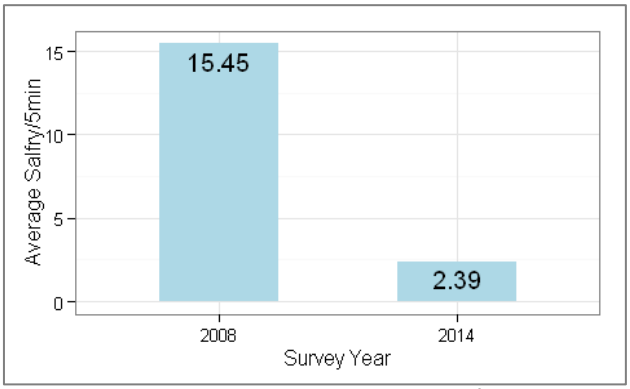


Figure A.3.6.2: Comparison of Mean Salfry/5 min for all surveys on the Womanagh catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	8	3				4.80
2014	15					3.52

Table A.3.6.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

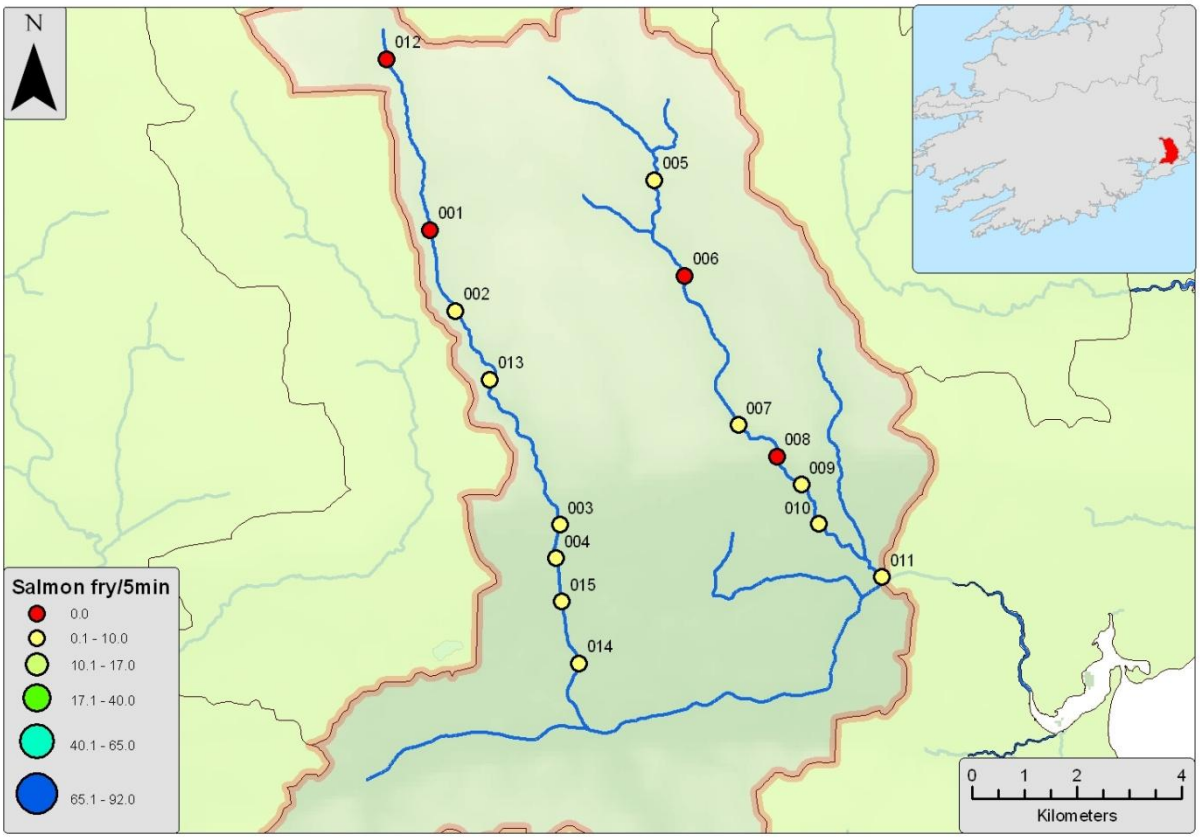
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	293	-172	Closed	15.45	
2008	2009	293	-172	Closed		
2009	2010	293	-177	Closed		
2010	2011	293	-177	Closed		
2011	2012	293	-177	Closed		
2012	2013	293	-177	Closed		
2013	2014	366	-276	Closed	2.39	8.92

Table A.3.6.2: Conservation limits and provisional returns on the Womanagh catchment along with the 2014 CWEF fishing result.

This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August 2014. The survey comprised 15 sites, all of which were included in the analysis giving a good coverage of 3.52 km per survey site. Salmon fry were absent from 3 sites. The maximum fry catch was 5salmon at sites 7 and 11. The mean catch of included sites was 2.39 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	193540	81446	2	1	0	Include	0
002	194015	79902	2	1	4	Include	4
003	196000	75831	2	1	3	Include	3.27
004	195931	75197	2	2	2	Include	2.67
005	197795	82394	3	2	1	Include	1.32
006	198379	80570	3	2	0	Include	0
007	199395	77730	3	1	5	Include	5.63
008	200125	77135	3	1	0	Include	0
009	200592	76599	3	3	2	Include	2
010	200929	75856	3	1	3	Include	3
011	202124	74836	3	1	5	Include	7
012	192712	84693	2	1	0	Include	0
013	194671	78596	2	1	3	Include	3
014	196371	73195	2	2	1	Include	1
015	196044	74371	2	2	3	Include	3

Table A.3.6.3: Site specific Results of CWEF on the Womanagh catchment in 2014.



Map A.3.6.1: Showing locations of 2014 survey sites on Womanagh River.

Conclusion

The Womanagh had a mean catch of 2.39 salfry/5min in 2014 resulting in a cumulative average of 8.92 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Womanagh would be closed to angling in 2015.

A.4 South Western River Basin District.

A.4.1 Summary

Since 2007, thirty two 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.4.1.1. Twelve rivers currently have a survey average salmon fry capture rate of greater than 17 fry per 5min. Nine catchments ,the Bride, Womanagh, Adrigole, Blackwater (Kerry) Currane, Carhan, Ferta and Owenascaul were surveyed in 2014 The Bride, Blackwater Currane and Owenascaul all exceeded the 17 salfry threshold. At present 12 rivers are exceeding the threshold.

	Survey Year								Current Index	# of Annual Surveys Considered
IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014		
055/Lickey		12.37							12.37	1
057/Finisk		10.55							10.55	1
058/Glenshelane	22.72	10.96							16.84	2
060/Bride		10.40		24.70				19.85	18.32	3
061/Tourig						9.40			9.40	1
062/Womanagh		15.45						2.39	8.92	2
064/Owennacurra	15.76								15.76	1
066.1/Lower Lee (Cork)			0.26						0.26	1
070/Argideen	17.15								17.15	1
077/Mealagh						12.82			12.82	1
080/Glengarriff			5.93						5.93	1
081/Adrigole							4.01	1.33	2.67	2
082/Kealincha	0.00								0.00	1
083/Lough Fada	3.23								3.23	1
085/Owenshagh							4.32		4.32	1
086/Cloonee						16.18	33.06		24.62	2
088/Roughty					19.78				19.78	1
089/Finnihy						8.61	0.00		4.31	2
090/Blackwater (Kerry)	30.54	15.52	13.35					17.82	19.31	4
093/Owreagh	8.94						2.07	2.81	4.61	3
097/Currane								24.51	24.51	1
098/Inny	24.63		19.78						22.20	2
099/Emlaghmore	2.07								2.07	1
101/Carhan	15.76						6.05	8.61	10.14	3
102/Ferta	19.42							10.90	15.16	2
103/Behy	15.41	6.14	4.03	8.71	7.17				8.29	5
105/Cotteners		17.42							17.42	1
107/Maine	31.88	32.81	34.23						32.97	3
108/Emlagh	10.37	3.66	13.38	3.84	2.59				6.77	5
109/Owenascaul	20.41		22.27				16.08	16.28	18.76	4
110/Owenalondrig			21.90						21.90	1
111/Milltown (Kerry)		15.33		26.44			13.02		18.26	3

Table A.4.1.1: Catchment-wide Electrofishing data for SWRBD 2007- 2014 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate.

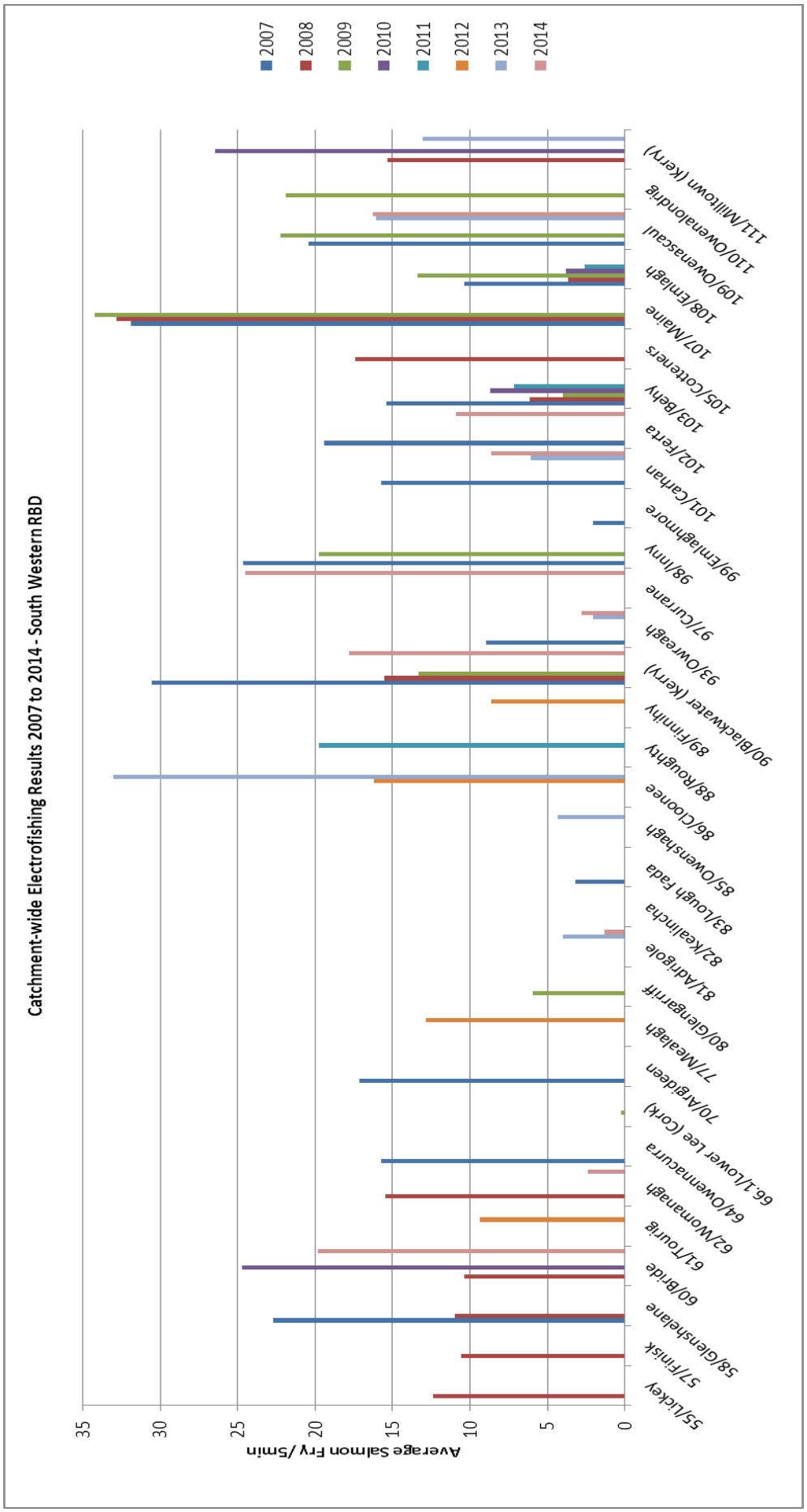


Figure A.4.1.1. Summary of CWEF results in SWRFB from 2007 to 2014

A.4.2 River Adrigole.

IFI Salmon Catchment #: 81
2014 survey date: 1/9/2014
Mean Salmon Fry/5 min (2014): 1.33 fry/5min.
CWEF Index: 2.67 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Salmon

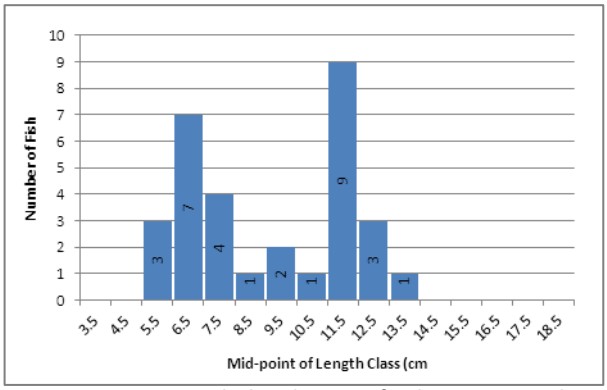


Figure A.4.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Adrigole Catchment.

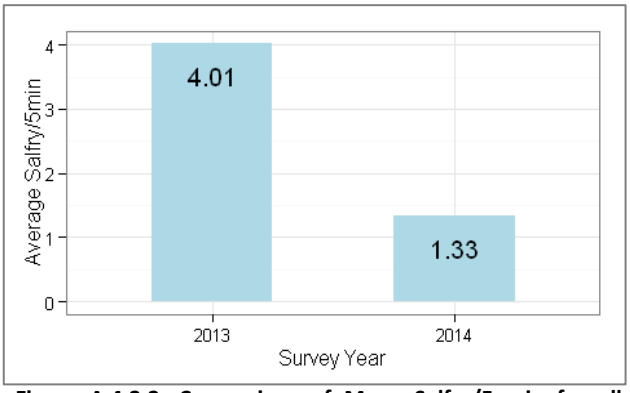


Figure A.4.2.2: Comparison of Mean Salfry/5 min for all surveys on the Adrigole catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2013	7			2		5.01
2014	11					3.19

Table A.4.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

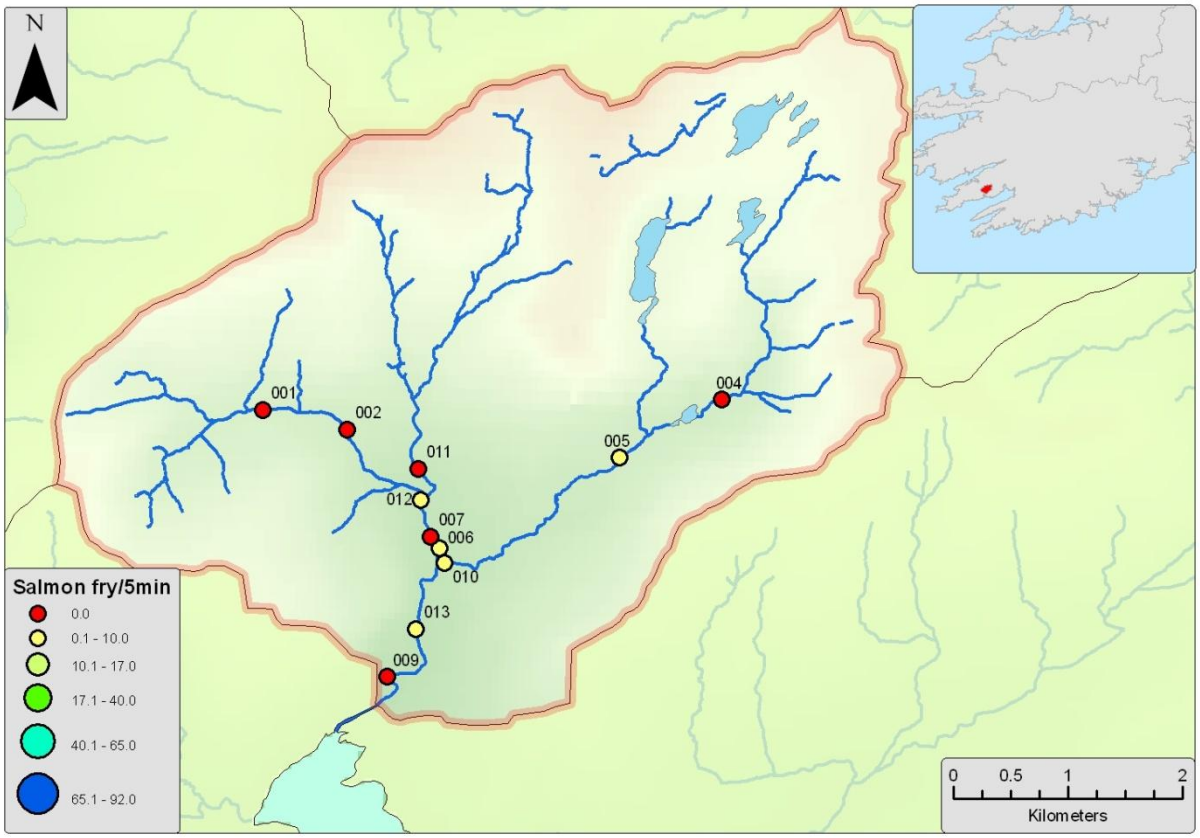
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	169	24	Catch and Release		
2008	2009	169	24	Catch and Release		
2009	2010	169	24	Catch and Release		
2010	2011	169	29	Catch and Release		
2011	2012	169	29	Catch and Release		
2012	2013	169	29	Catch and Release	4.01	
2013	2014	166	8	Catch and Release	1.33	2.67

Table A.4.2.2: Conservation limits and provisional returns on the Adrigole catchment along with the 2014 CWEF fishing result.

This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. The survey comprised 11 sites, all of which were included in the analysis giving a good coverage of 3.19 km per survey site. Salmon fry were present at just 5 sites. The maximum fry catch was 6 salmon at site 5. The mean catch of included sites was 1.33 salmon fry/5min. The modal length category of 0+ fry caught was 6.5cm.water levels during the survey were moderate. Many of the channels on this system are high gradient mountainous streams and would not be expected to hold salmon. Site 4 however had excellent spawning potential but no salmon were found either during the 5 minute survey or during several more minutes fishing in the immediate vicinity.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	80079	53041	4	0	0	Include	0
002	80813	52873	4	0	0	Include	0
004	84093	53131	4	1	0	Include	0
005	83193	52624	4	3	6	Include	6.63
006	81623	51833	4	1	1	Include	1
007	81545	51935	5	3	0	Include	0
009	81162	50707	5	2	0	Include	0
010	81664	51706	4	2	2	Include	3
011	81436	52527	4	3	0	Include	0
012	81455	52255	5	2	1	Include	1
013	81418	51126	5	2	3	Include	3

Table A.4.2.3: Site specific Results of CWEF on the Adrigole catchment in 2014.



Map A.4.2.1: Showing locations of 2014 survey sites on the Adrigole River.

Conclusion

The Adrigole had a mean catch of 1.33 salfry/5min in 2014 resulting in a cumulative average of 2.67 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is assessed, based on rod catch, that the Adrigole is meeting >65% CL and management recommended that the Adrigole would be open for catch & release angling in 2015.

A.4.3 Kerry Blackwater.

IFI Salmon Catchment #: 90
2014 survey dates: 29/8/2014 - 18/9/2014
Mean Salmon Fry/5 min (2014): 17.82 fry/5min.
CWEF Index: 19.31 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Species Present:

Brown Trout
European Eel
Minnow
Salmon
Margaritifera

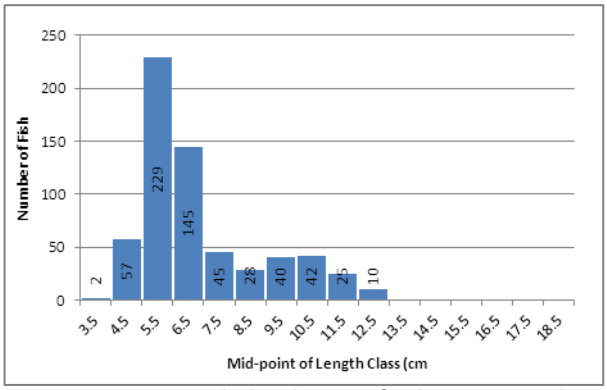


Figure A.4.3.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Kerry Blackwater Catchment.

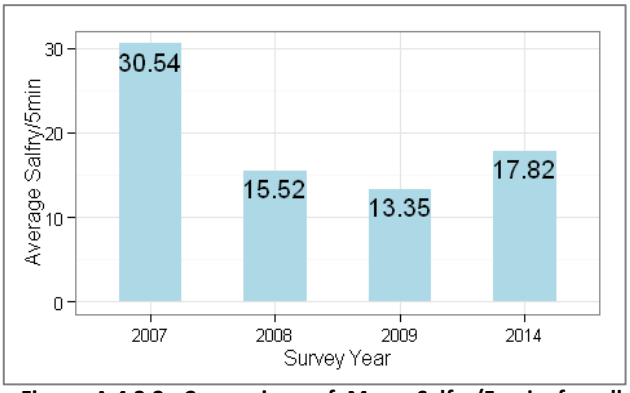


Figure A.4.3.2: Comparison of Mean Salfry/5 min for all surveys on the Kerry Blackwater catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2007	5					16.15
2008	10	3		13		6.21
2009	11	3		3		5.77
2014	35	1		7		2.24

Table A.4.3.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

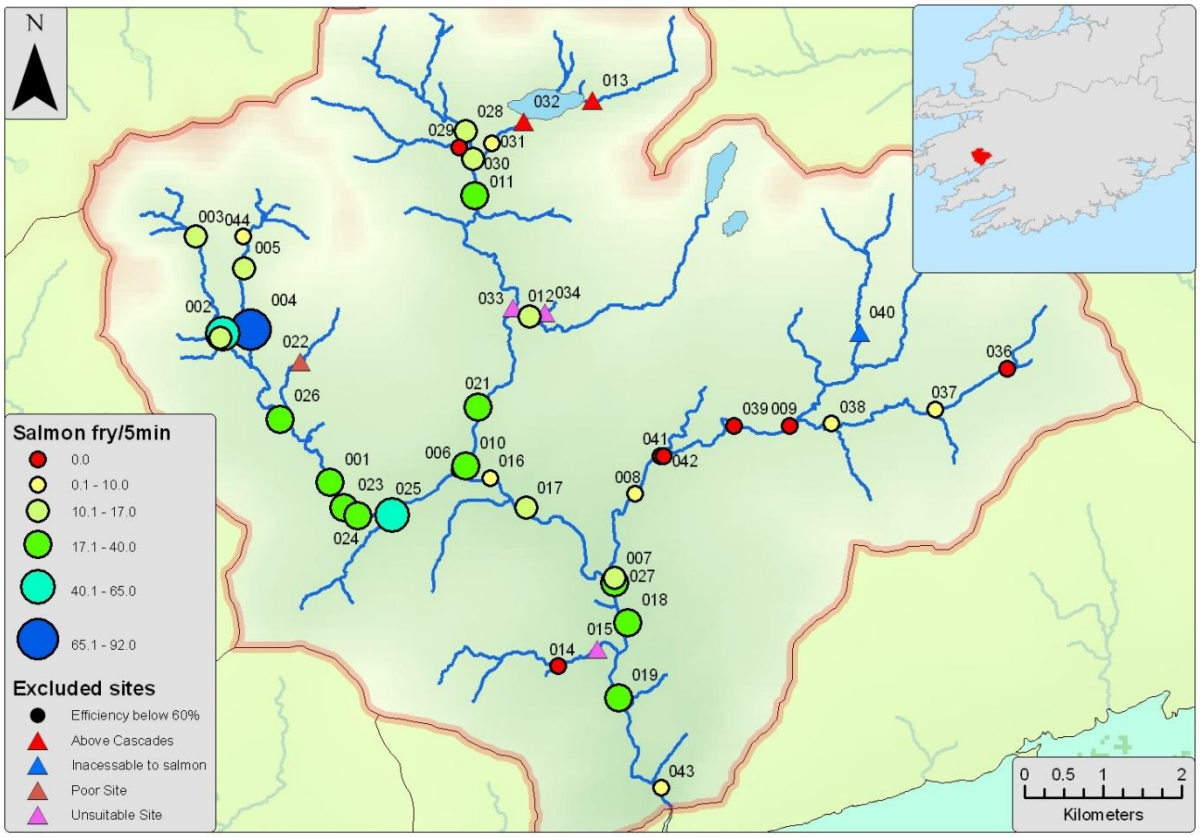
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	539	593	Open	15.52	
2008	2009	539	621	Open	13.35	
2009	2010	539	584	Open		
2010	2011	539	-14	Open		
2011	2012	539	27	Open		
2012	2013	539	79	Brown Tag		
2013	2014	435	-3	Brown Tag	17.82	19.31

Table A.4.3.2: Conservation limits and provisional returns on the Kerry Blackwater catchment along with the 2014 CWEF fishing result.

This, the fourth CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August and Sept 2014. The survey comprised 43 sites, 35 of which were included in the analysis giving a very good coverage of 2.24 per survey site. Salmon fry were present at 29 sites. The maximum fry catch was 51 salmon at site 4. The mean catch of included sites was 17.82 salmon fry/5min. Salmon fry were absent or present in only small numbers on the Dereendarragh- the most easterly mian tributary of the catchment,this river appears to be spatey, thae substrate is domiated by bedraock and large cobble/small boulders for large parts of it's length. No salmn wewre located upstream r immediatley downstrea of L. Brin, a long section of cascade leading up to the lake probably hinders adults' progress in most water condtions. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	75589	72630	4	1	21	Include	30.13
002	74227	74531	3	1	37	Include	53.44
003	73884	75763	3	1	10	Include	12.14
004	74575	74575	3	1	51	Include	72.17
005	74491	75362	3	3	12	Include	16
006	77216	72789	4	2	9	Efficiency below 60%	
007	79209	71412	4	1	11	Include	14.67
008	79462	72484	4	2	6	Include	8
009	81430	73350	4	3	0	Include	0
010	77311	72837	5	2	24	Include	37.85
011	77432	76287	5	2	13	Include	17.06
012	78122	74748	3	1	13	Include	15.6
014	78491	70288	3	2	0	Include	0
016	77627	72685	5	1	6	Include	8
017	78079	72310	5	1	14	Include	16.63
018	79372	70841	5	1	27	Include	35
019	79257	69884	5	2	15	Include	22
020	74194	74477	2	1	13	Include	15.79
021	77472	73594	5	1	14	Include	23
023	75764	72309	4	3	28	Include	38
024	75936	72202	4	2	21	Include	30.55
025	76377	72214	4	1	27	Include	42.83
026	74952	73437	4	1	16	Include	19
027	79210	71356	5	1	27	Include	35.68
028	77314	77107	4	1	10	Include	15.26
029	77233	76902	3	1	0	Include	0
030	77406	76749	4	1	10	Include	12.73
031	77648	76947	4	3	7	Include	7
036	84199	74076	3	3	0	Include	0
037	83283	73560	3	2	6	Include	6.67
038	81965	73377	3	3	2	Include	3
039	80723	73355	4	2	0	Include	0
041	79792	72968	2	3	0	Include	0
042	79835	72960	4	3	0	Include	0
043	79798	68740	5	2	7	Include	10
044	74488	75759	3	2	4	Include	5.6
013	78926	77496	3	1	0	Above Cascades	
015	78986	70506	3	3	0	Unsuitable Site	
022	75214	74169	2	1	0	Poor Site	
032	78053	77230	4	3	0	Above Cascades	
033	77921	74855	5	0	0	Unsuitable Site	
034	78327	74800	2	2	0	Unsuitable Site	
040	82325	74548	3	3	0	Highly unlikely to be accessible to salmon	

Table A.4.3.3: Site specific Results of CWEF on the Kerry Blackwater catchment in 2014.



Map A.4.3.1: Showing locations of 2014 survey sites on Kerry Blackwater.

Conclusion

The Kerry Blackwater had a mean catch of 17.82 salfry/5min in 2014 resulting in a cumulative average of 19.31 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Kerry Blackwater would be open for catch & release angling in 2015.

A.4.4 River Owreagh.

IFI Salmon Catchment #: 93
2014 survey date: 31/7/2014
Mean Salmon Fry/5 min (2014): 2.81 fry/5min.
CWEF Index: 4.61 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Salmon.

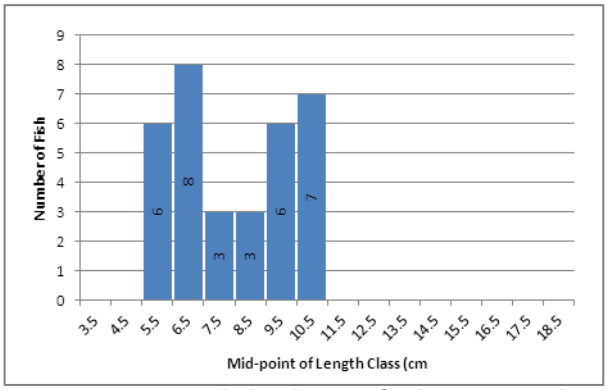


Figure A.4.4.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Owreagh Catchment.

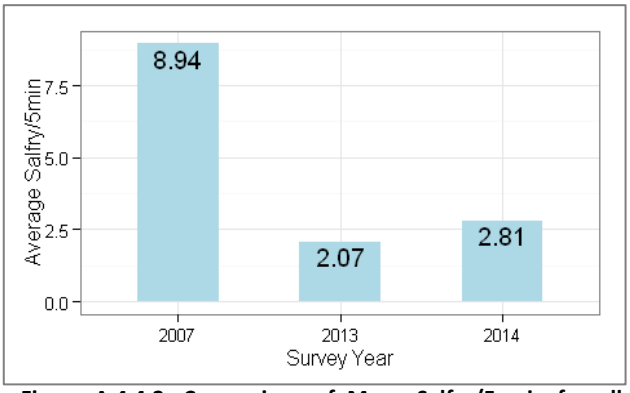


Figure A.4.4.2: Comparison of Mean Salfry/5 min for all surveys on the #s# catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2007	6			6		2.90
2013	6					2.90
2014	8					2.18

Table A.4.4.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

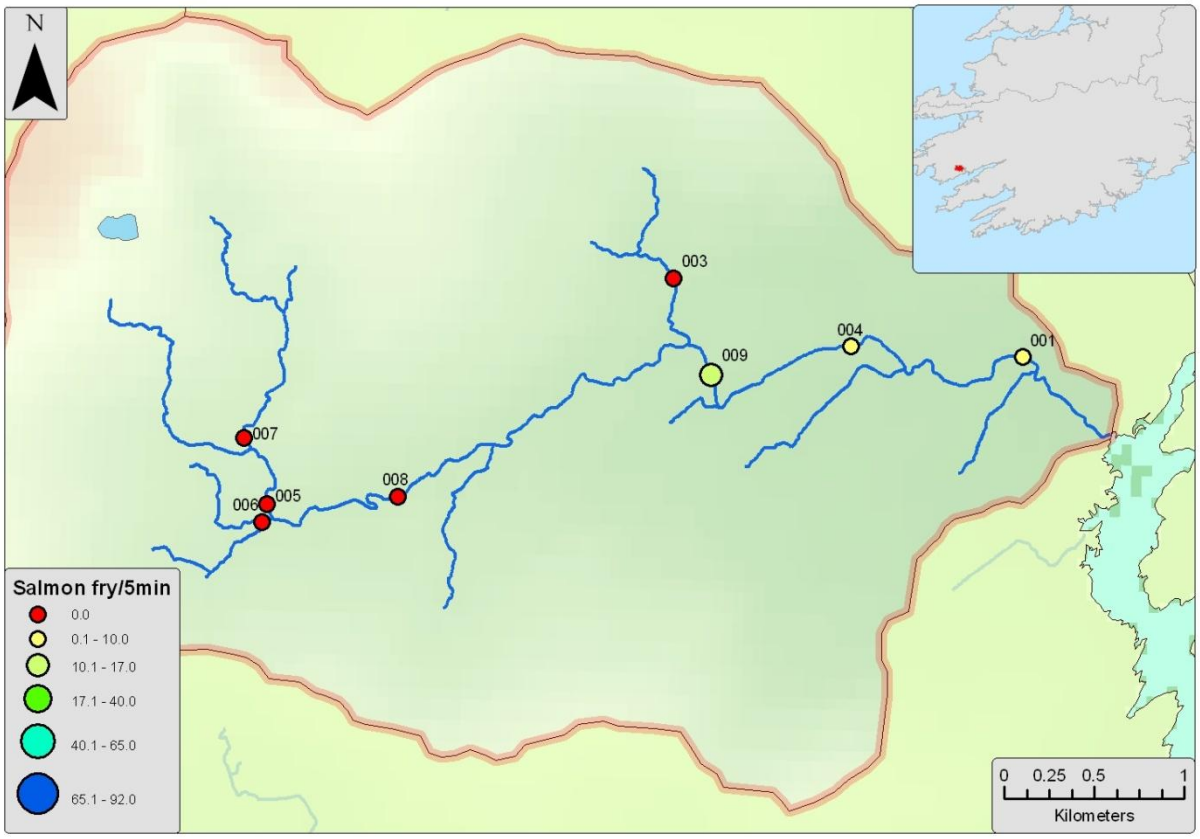
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	106	-42	Closed		
2008	2009	106	-42	Closed		
2009	2010	106	-42	Closed		
2010	2011	106	-42	Closed		
2011	2012	106	-42	Closed		
2012	2013	106	-42	Closed	2.07	
2013	2014	87	-41	Closed	2.81	2.44

Table A.4.4.2: Conservation limits and provisional returns on the Owreagh catchment along with the 2014 CWEF fishing result.

This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The survey comprised 8 sites, all of which were included in the analysis giving a good coverage of 2.18 km per survey site. Salmon fry were present at only 3 sites. The maximum fry catch was 9 salmon at site 9. The mean catch of included sites was 2.81 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	68041	66705	4	3	5	Include	6.56
003	66109	67141	3	2	0	Include	0
004	67091	66763	4	1	4	Include	5.33
005	63856	65890	3	1	0	Include	0
006	63828	65789	3	1	0	Include	0
007	63730	66257	3	1	0	Include	0
008	64580	65931	4	2	0	Include	0
009	66315	66604	4	1	9	Include	10.59

Table A.4.4.3: Site specific Results of CWEF on the Owreagh catchment in 2014.



Map A.4.4.1: Showing locations of 2014 survey sites on the Owreagh River.

Conclusion

The Owreagh had a mean catch of 2.81 salfry/5min in 2014 resulting in a cumulative average of 4.61 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on very poor electro-fishing results that the Owreagh would be closed to fishing in 2015.

A.4.5 River Currane.

IFI Salmon Catchment #: 97
2014 survey dates: 1/8/2014 – 11/8/2014
Mean Salmon Fry/5 min (2014): 24.51 fry/5min.
CWEF Index: 24.51 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Salmon

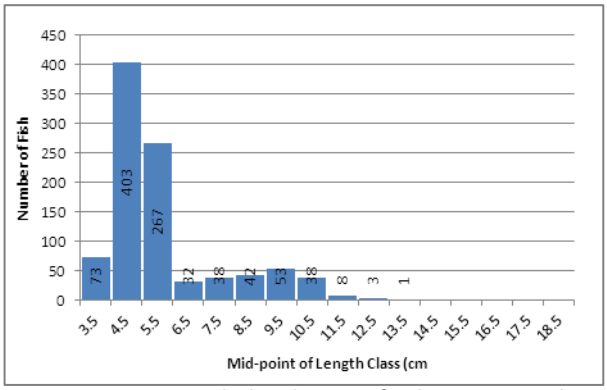


Figure A.4.5.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Currane Catchment.

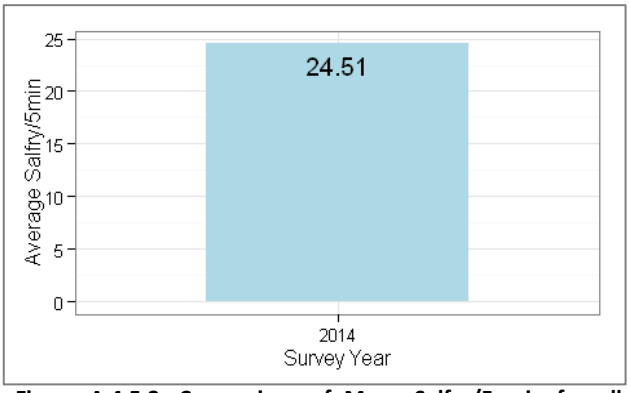


Figure A.4.5.2: Comparison of Mean Salfry/5 min for all surveys on the Currane catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2014	40	1	7	6		1.90

Table A.4.5.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

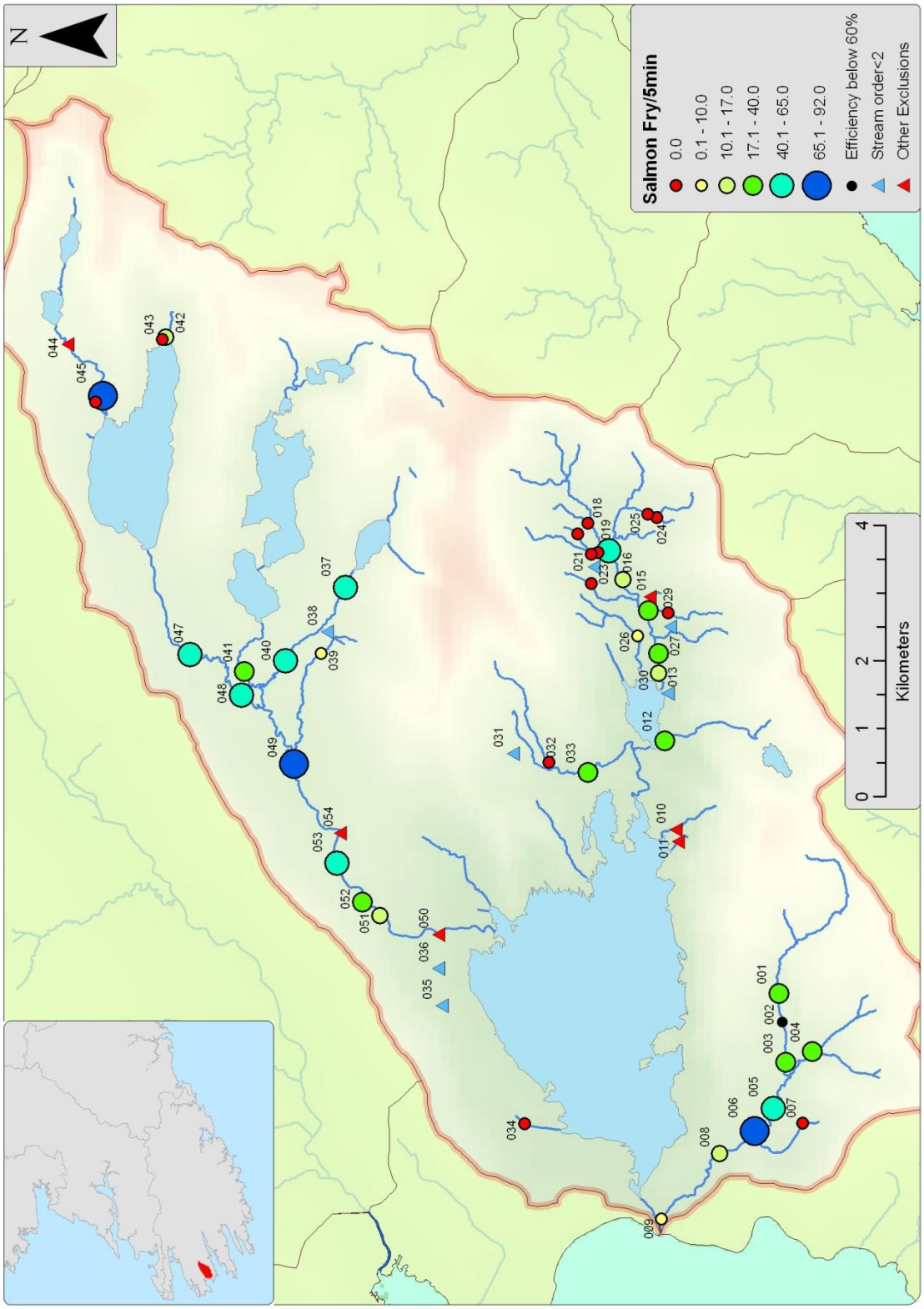
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	279	558	Open		
2008	2009	279	2279	Open		
2009	2010	336	672	Open		
2010	2011	336	672	Open		
2011	2012	336	665	Open		
2012	2013	336	523	Open		
2013	2014	119	237	Open	24.51	24.51

Table A.4.5.2: Conservation limits and provisional returns on the Currane catchment along with the 2014 CWEF fishing result.

This, the first CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August 2014. The survey comprised 54 sites, 40 of which were included in the analysis giving a good coverage of 1.9 km per survey site. Salmon fry were present at 32 sites. The maximum fry catch was 65 salmon at site 49. The mean catch of included sites was 24.51 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 4.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	53594	63455	3	1	17	Include	23.3
002	53182	63405	3	2	9	Efficiency below 60%	
003	52576	63357	3	1	27	Include	36
004	52741	62964	4	1	15	Include	19.55
005	51899	63541	4	1	38	Include	48.18
006	51562	63809	4	1	60	Include	77.65
007	51683	63105	2	1	0	Include	0
008	51226	64328	4	3	8	Include	11.33
009	50265	65185	4	1	6	Include	6.95
012	57325	65138	3	2	29	Include	37.41
016	59709	65756	4	3	13	Include	15.6
017	60380	66422	2	1	0	Include	0
018	60541	66271	3	1	0	Include	0
019	60128	65957	4	1	37	Include	42.41
020	60103	66120	2	2	0	Include	0
021	60083	66219	2	1	0	Include	0
023	59648	66217	2	1	0	Include	0
024	60626	65249	2	1	0	Include	0
025	60675	65383	3	2	0	Include	0
026	58873	65536	3	2	1	Include	1.2
027	58618	65231	4	2	15	Include	18.41
028	59249	65379	4	1	29	Include	36.84
029	59215	65084	2	3	0	Include	0
030	58320	65227	4	3	14	Include	15.4
032	57007	66842	2	2	0	Include	0
033	56857	66267	3	1	22	Include	33
034	51668	67199	2	2	0	Include	0
037	59586	69842	3	1	42	Include	55.13
039	58612	70195	3	1	4	Include	4.52
040	58509	70725	3	1	44	Include	62.72
041	58348	71330	3	2	27	Include	36.64
042	63289	72484	2	3	9	Include	11.14
043	63251	72537	0	2	0	Include	0
045	62422	73410	3	1	52	Include	68.88
046	62327	73518	2	1	0	Include	0
047	58601	72126	3	1	43	Include	56.44
048	57998	71370	3	1	49	Include	63.41
049	56984	70597	4	1	65	Include	82.57
051	54740	69336	4	3	13	Include	15.6
052	54942	69588	4	2	28	Include	37.03
053	55515	69965	4	1	42	Include	63
010	56017	64970	2	2	0	Above Log JAM	
011	55844	64936	2	3	0	Poor site	
013	58034	65082	1	2	2	Stream order<2	
014	59013	65050	1	2	0	Stream order<2	
015	59456	65349	2	2	0	Above Falls	
022	59896	66180	1	3	0	Stream order<2	
031	57145	67364	1	2	0	Stream order<2	
035	53417	68418	1	1	4	Stream order<2	
036	53967	68469	1	2	0	Stream order<2	
038	58943	70102	1	3	6	Stream order<2	
044	63188	73929	2	1	0	Above Barrier	
050	54468	68463	4	3	0	Water Levels Too High	
054	55969	69918	4	3	13	Site unsuitable	

Table A.4.5.3: Site specific Results of CWEF on the Currane catchment in 2014.



Map A 4.5.1: Showing locations of 2014 survey sites on Currane

Conclusion

The Currane had a mean catch 24.51/5min in 2014 resulting in a cumulative average of 24.51 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min.

A.4.6 River Carhan.

IFI Salmon Catchment #: 101
2014 survey date: 30/7/2014
Mean Salmon Fry/5 min (2014): 8.61 fry/5min.
CWEF Index: 10.41 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Salmon

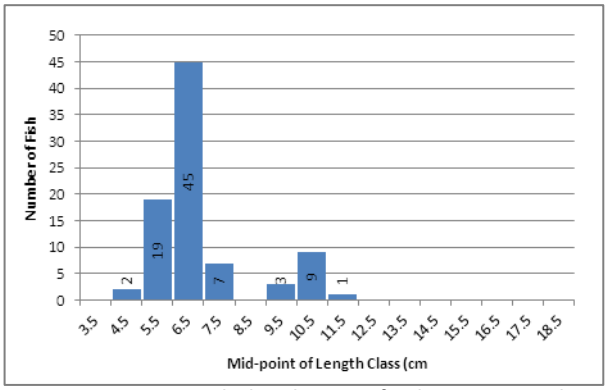


Figure A.4.6.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Carhan Catchment.

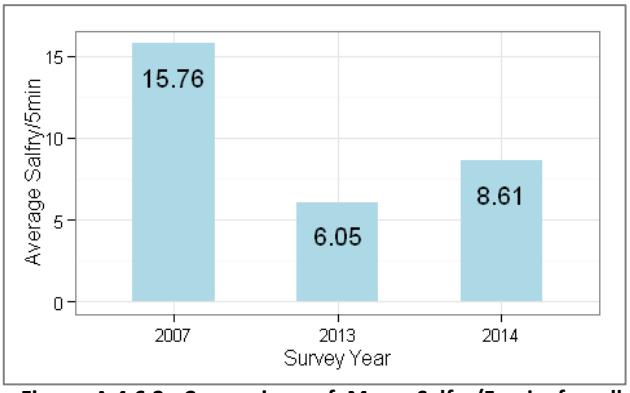


Figure A.4.6.2: Comparison of Mean Salfry/5 min for all surveys on the Carhan catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2007	6			6		3.00
2013	8					2.25
2014	10					1.80

Table A.4.6.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

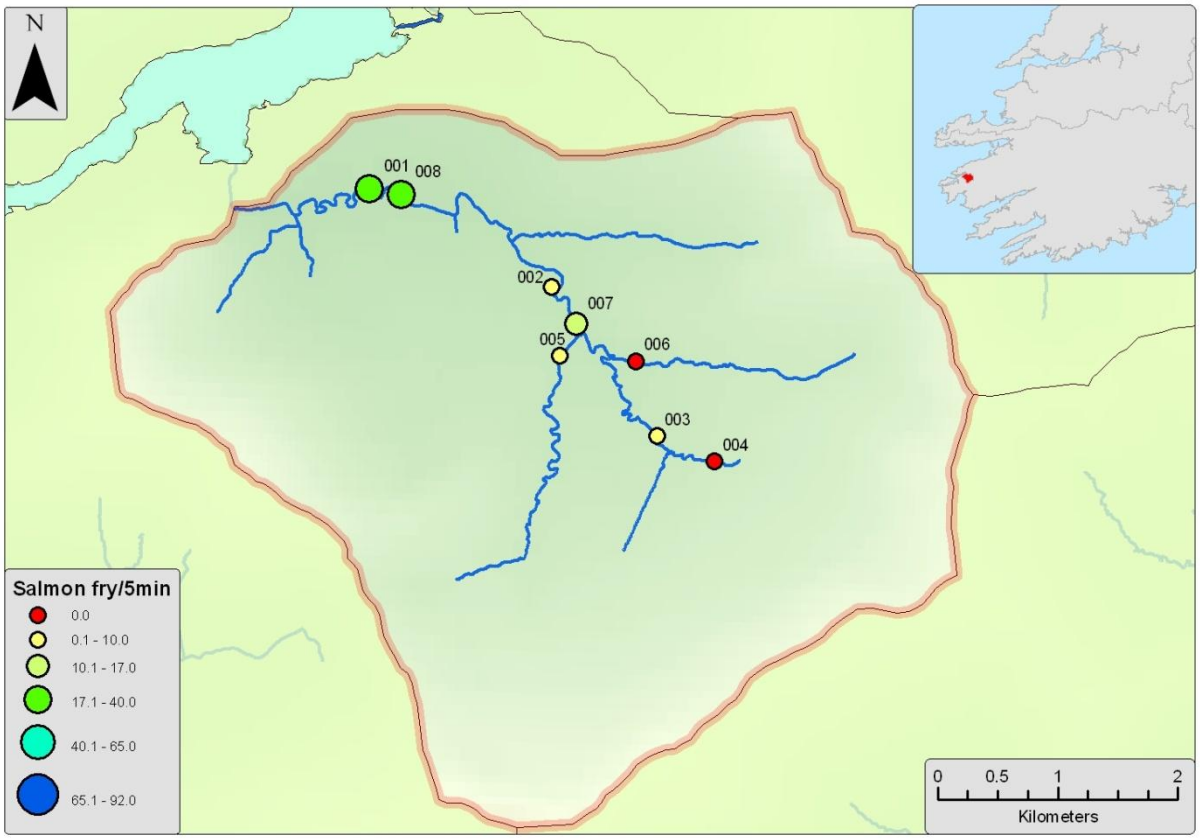
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2006	2007				15.76	
2007	2008	93	-18	Closed		
2008	2009	93	-18	Closed		
2009	2010	93	-27	Closed		
2010	2011	93	-27	Closed		
2011	2012	93	-27	Closed		
2012	2013	93	-26	Closed	6.05	
2013	2014	88	-34	Closed	8.61	10.41

Table A.4.6.2: Conservation limits and provisional returns on the Carhan catchment along with the 2014 CWEF fishing result.

This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The survey comprised 10 sites, all of which were included in the analysis giving a good coverage of 1.80 km per survey site. Salmon fry were present at eight sites. The maximum fry catch was 20 salmon at site 8. The mean catch of included sites was 8.61 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	49659	79787	3	1	18	Include	21.6
002	51173	78972	3	1	4	Include	6.67
003	52047	77733	3	1	3	Include	4.13
004	52528	77522	2	2	0	Include	0
005	51243	78401	2	2	4	Include	4.62
006	51875	78358	2	1	0	Include	0
007	51379	78669		0	15	Include	15
008	49920	79742		1	20	Include	23
009	0	0		1	1	Include	1.29
010	0	0		1	8	Include	9.78

Table A.4.6.3: Site specific Results of CWEF on the Carhan catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Carhan River.

Conclusion

The Carhan had a mean catch 8.61 salfry/5min in 2014 resulting in a cumulative average of 10.14 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Carhan would be closed for angling in 2015.

A.4.7 River Ferta.

IFI Salmon Catchment #: 102
2014 survey date: 29/7/2014
Mean Salmon Fry/5 min (2014): 10.90 fry/5min.
CWEF Index: 15.16 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Salmon

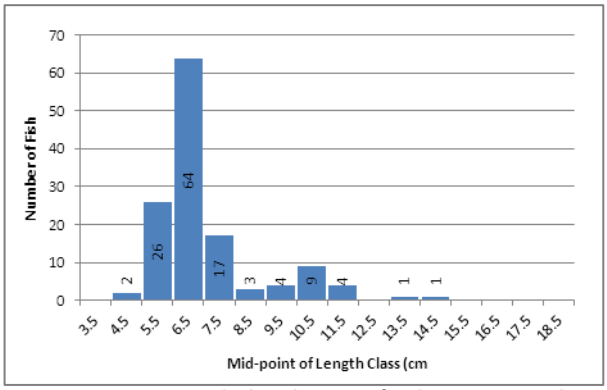


Figure A.4.7.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Ferta Catchment.

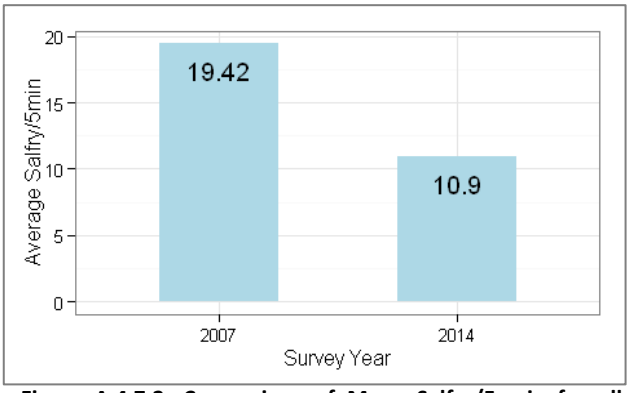


Figure A.4.7.2: Comparison of Mean Salfry/5 min for all surveys on the Ferta catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2007	8			8		4.30
2014	12	1				2.65

Table A.4.7.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2006	2007				19.42	
2007	2008	197	-34	Open		
2008	2009	197	-34	Open		
2009	2010	197	-51	Open		
2010	2011	197	45	Open		
2011	2012	197	153	Open		
2012	2013	197	76	Open		
2013	2014	225	-44	Open	10.90	15.16

Table A.4.7.2: Conservation limits and provisional returns on the Ferta catchment along with the 2014 CWEF fishing result.

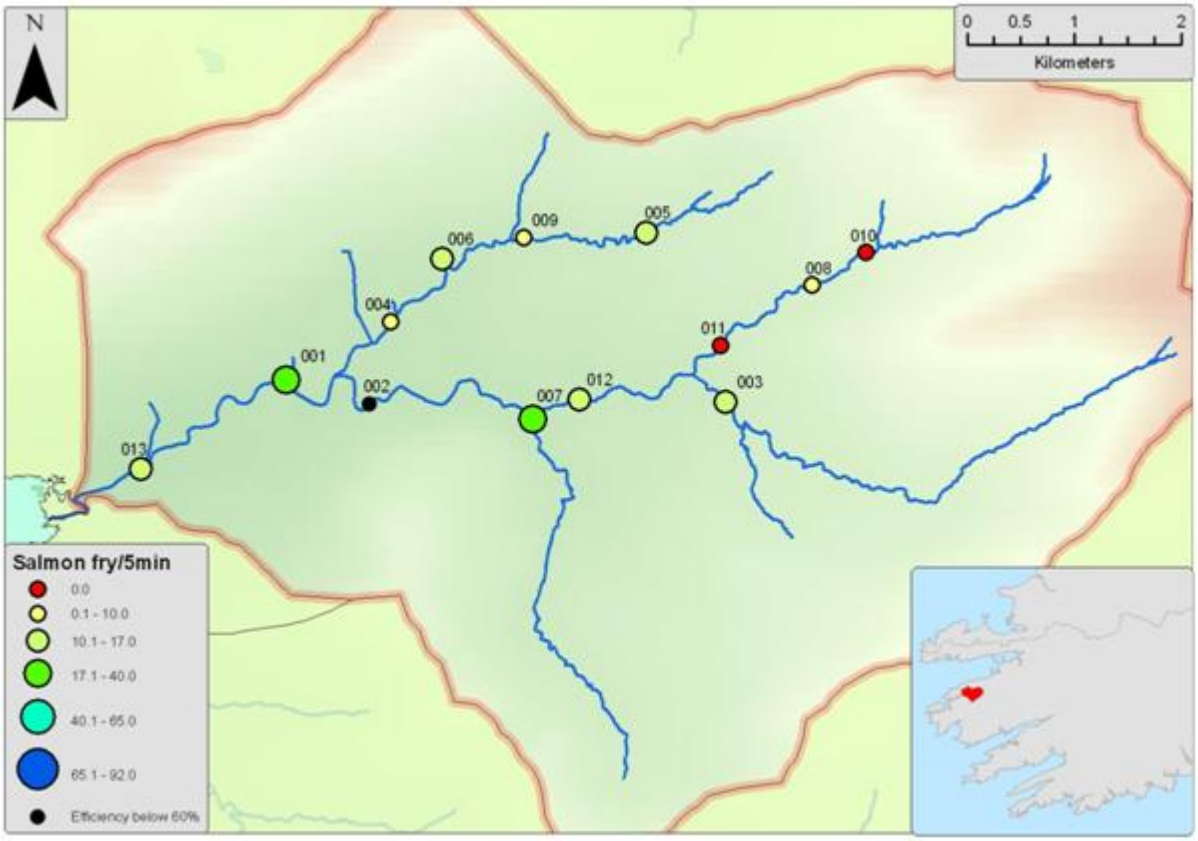
This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The survey comprised 10 sites, all of which were included in the analysis giving a good coverage of 2.45 km per survey site. Salmon fry were absent from three sites. The maximum fry catch was 20 salmon at site 8. The mean catch of included sites was 10.9 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	52109	82431	2	1	20	Include	25.71
002	52884	82209	4	2	4	Efficiency below 60%	
003	56209	82220	3	2	9	Include	13
004	53084	82971	3	3	6	Include	7.71
005	55471	83801	3	2	14	Include	16.33
006	53560	83553	2	2	10	Include	12.5
007	54410	82062	2	1	16	Include	18.67
008	57015	83310	3	2	5	Include	5
009	54324	83758	3	1	3	Include	3.92
010	57518	83615	3	2	0	Include	0
011	56159	82749	3	2	0	Include	0
012	54842	82246	4	1	15	Include	15
013	50752	81597	4	2	9	Include	13

Table A.4.7.3: Site specific Results of CWEF on the Ferta catchment in 2014.

Conclusion

The Ferta had a mean catch of 10.9 salfry/5min in 2014 resulting in a cumulative average of 15.16 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. Based on rod catch data, the Ferta is open for angling in 2015.



Map A.1.2.1: Showing locations of 2014 survey sites on Ferta River.

A.4.8 River Owenascaul.

IFI Salmon Catchment #: 109
2014 survey date: 2/9/2014
Mean Salmon Fry/5 min (2014): 16.28 fry/5min.
CWEF Index: 18.76 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Salmon

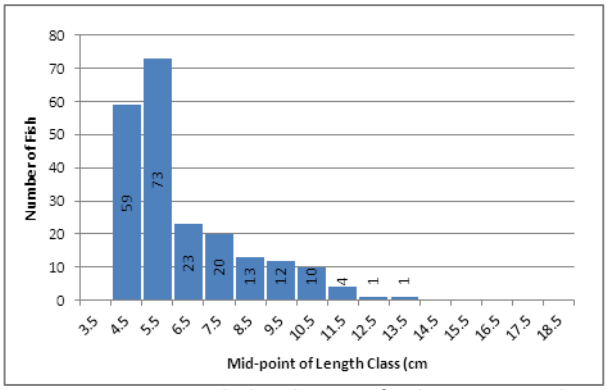


Figure A.4.8.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Owenascaul Catchment.

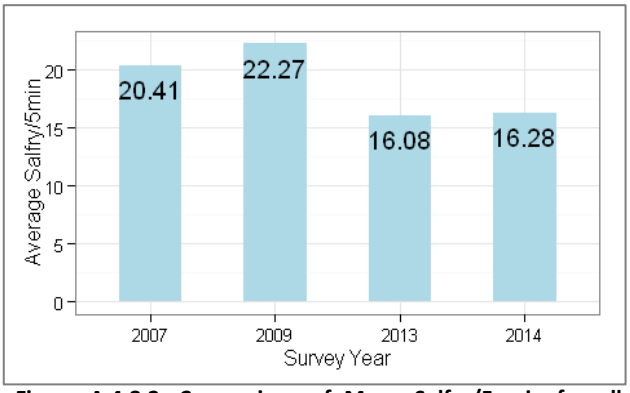


Figure A.4.8.2: Comparison of Mean Salfry/5 min for all surveys on the Owenascaul catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2007	5	1		6		5.69
2009	10					3.42
2013	10					3.42
2014	13					2.63

Table A.4.8.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

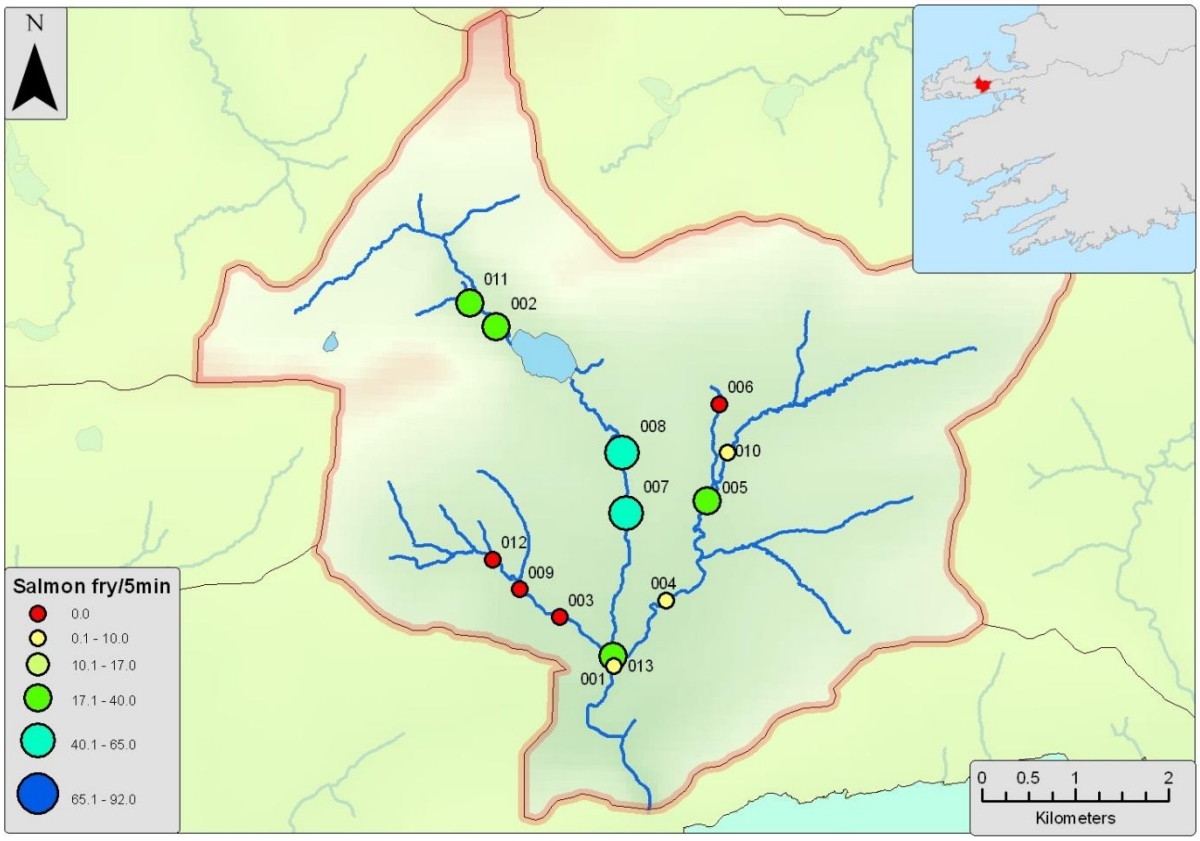
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	193	-72	Catch and Release		
2008	2009	193	-72	Catch and Release	22.27	
2009	2010	193	-83	Catch and Release		
2010	2011	193	-83	Catch and Release		
2011	2012	193	-83	Catch and Release		
2012	2013	193	-82	Catch and Release	16.08	
2013	2014	181	-98	Catch and Release	16.28	18.76

Table A.4.8.2: Conservation limits and provisional returns on the Owenascaul catchment along with the 2014 CWEF fishing result.

This, the fourth CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. The survey comprised 13 sites, all of which were included in the analysis giving a good coverage of 2.63 km per survey site. Salmon fry were present at nine sites. The maximum fry catch was 38 salmon at site 8. The mean catch of included sites was 16.28 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm. Salmon were abundant on the main channel exiting from Annascaul Lake but were not found in the westernmost main tributary, a channel at time of survey affected by farm effluent.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	59257	101820	4	2	2	Include	2
002	57998	105445	3	1	34	Include	38.72
003	58681	102339	3	0	0	Include	0
004	59816	102519	4	2	2	Include	2
005	60252	103585	4	0	20	Include	20
006	60386	104617	3	0	0	Include	0
007	59382	103451	3	0	33	Include	47.56
008	59344	104095	3	1	38	Include	56.54
009	58245	102636	3	0	0	Include	0
010	60466	104097	3	0	3	Include	3
011	57712	105703	3	2	15	Include	20.83
012	57962	102955	3	1	0	Include	0
013	59246	101919	3	1	21	Include	21

Table A.4.8.3: Site specific Results of CWEF on the Owenascaul catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Owenascaul River.

Conclusion

The Owenascaul had a mean catch of 16.28 salfry/5min in 2014 resulting in a cumulative average of 18.76 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Owenascaul would be open for catch & release angling in 2015.

A.5 Shannon River Basin District.

A.5.1 Summary

Since 2007, eighteen catchments or sub catchments have been surveyed in the Shannon River Basin District, as part of the on-going catchment-wide electrofishing surveys. These are presented in table A.5.1.1. Just two rivers currently have a survey average salmon fry capture rate of greater than 17 fry per 5min, while twelve fall below that level. Seven catchments were surveyed in 2014. The Feohanagh, the Owenmore, the Deel, Owenagarney, Doonbeg, Annageeragh and Inagh were all surveyed in 2014, all were below the threshold of 17salfry/5min.

	Survey Year								Current Index	# of Annual Surveys Considered
IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014		
112/Feohanagh			16.61				3.20	12.09	10.64	3
114/Owenmore (Ky)	25.07								**25.07**	1
117/Lee (Ky)		0.67						0.68	0.67	2
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			0.18	0.16	2
126/Maigue			2.82	16.05			12.05		10.31	3
128.1/Shan. Kilcrow				0.69					0.69	1
128.2/Shan. Graney				0.19					0.19	1
128.3/Shan.Woodfd				0.00					0.00	1
130/Owenagarney							16.97	9.97	13.47	2
131/Fergus	12.96		4.10	6.84			5.89		7.45	4
133/Doonbeg				8.17				18.54	15.72	2
134/Skivaleen				21.01	14.82				**17.91**	2
135/Annageeragh							1.82	9.24	5.53	2
142/Inagh								5.31	5.31	1
143/Aughyvackeen					1.00				1.00	1

Table A.5.1.1. Catchment-wide Electrofishing data for SHRFB 2007-2014 and the average salmon fry captured /5min each year. Also shown is the CWEF Index.

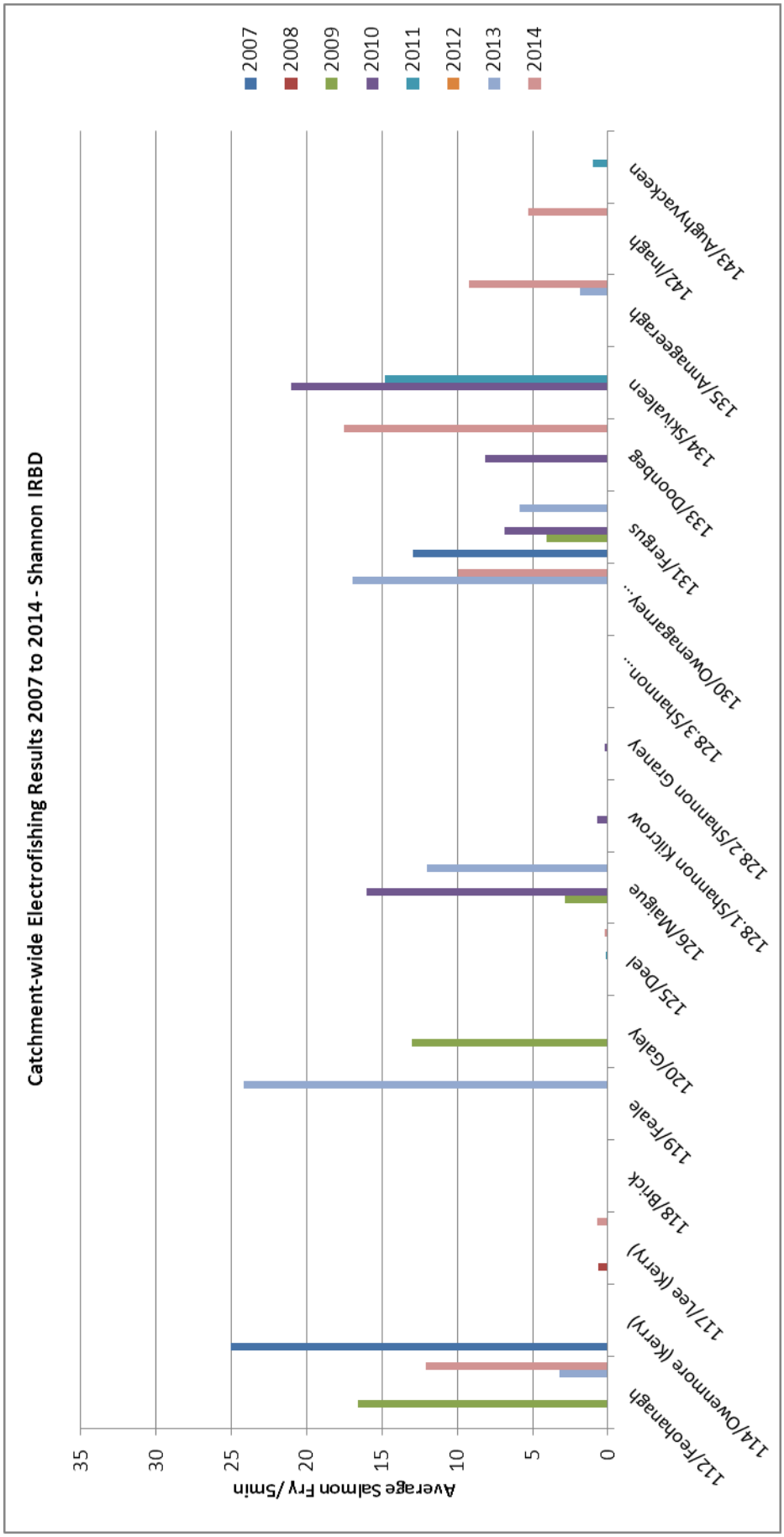


Figure A.5.1.1. Summary of CWEF results in SHRFB from 2007 to 2014.

A.5.2 River Feohanagh.

IFI Salmon Catchment #: 112
2014 survey dates: 12/8/2014 - 13/8/2014
Mean Salmon Fry/5 min (2014): 12.09 fry/5min.
CWEF Index: 10.64 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Salmon

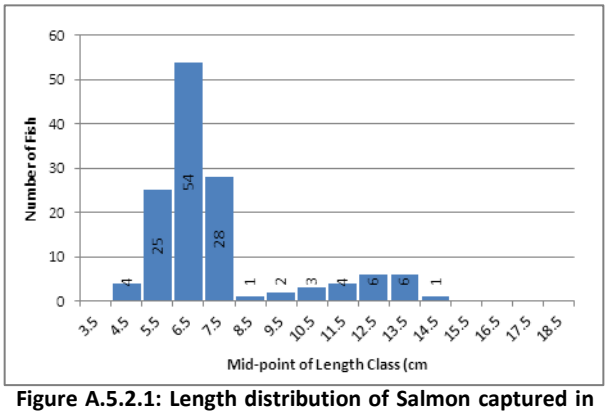


Figure A.5.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Feohanagh Catchment.

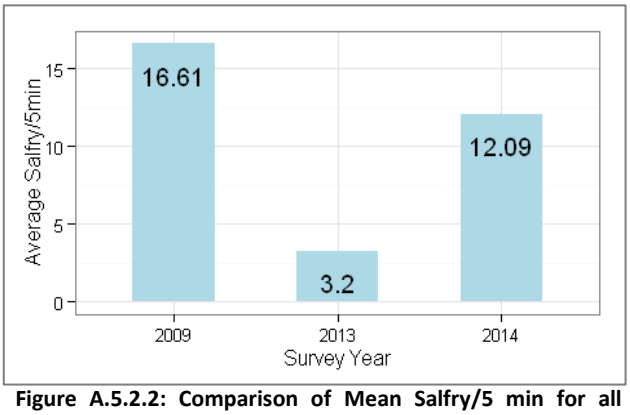


Figure A.5.2.2: Comparison of Mean Salfry/5 min for all surveys on the Feohanagh catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	10					2.94
2013	10			1		2.94
2014	12					2.45

Table A.5.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

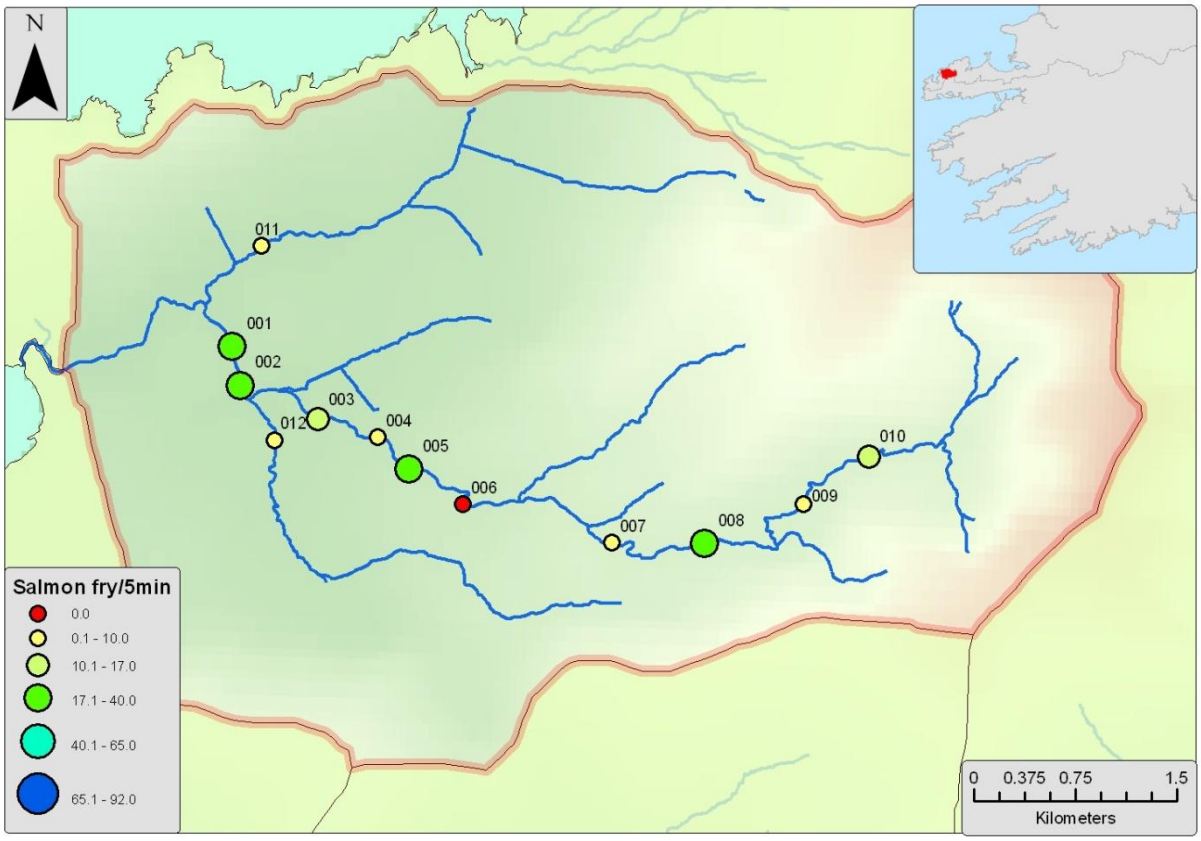
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	157	-61	Catch and Release		
2008	2009	157	-61	Catch and Release	16.61	
2009	2010	157	-70	Catch and Release		
2010	2011	157	-70	Catch and Release		
2011	2012	157	-70	Catch and Release		
2012	2013	157	-69	Catch and Release	3.20	
2013	2014	161	-93	Catch and Release	12.09	10.64

Table A.5.2.2: Conservation limits and provisional returns on the Feohanagh catchment along with the 2014 CWEF fishing result.

This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August 2014. The survey comprised 12 sites, all of which were included in the analysis giving a good coverage of 2.45 km per survey site. Salmon fry were present at all but one site. The maximum fry catch was 24 salmon at site 5. The mean catch of included sites was 12.09 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	40432	109928	4	1	18	Include	22.74
002	40492	109642	4	1	13	Include	17.64
003	41064	109391	4	1	9	Include	12.46
004	41506	109259	4	0	7	Include	9.55
005	41733	109021	4	0	24	Include	29.76
006	42133	108761	4	3	0	Include	0
007	43235	108479	4	2	7	Include	7
008	43913	108471	4	2	12	Include	18.46
009	44648	108766	4	1	8	Include	8
010	45130	109116	4	1	12	Include	16.5
011	40650	110671		3	1	Include	1
012	40742	109237		2	2	Include	2

Table A.5.2.3: Site specific Results of CWEF on the Feohanagh catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Feohanagh River.

Conclusion

The Feohanagh had a mean catch of 12.09 salfry/5min in 2014 resulting in a cumulative average of 10.64 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Feohanagh should be closed to angling in 2015.

A.5.3 River Lee (Kerry).

IFI Salmon Catchment #: 117
2014 survey dates: 29/8/2014 - 18/9/2014
Mean Salmon Fry/5 min (2014): 0.68 fry/5min.
CWEF Index: 0.67 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Flounder
Salmon
Stone Loach

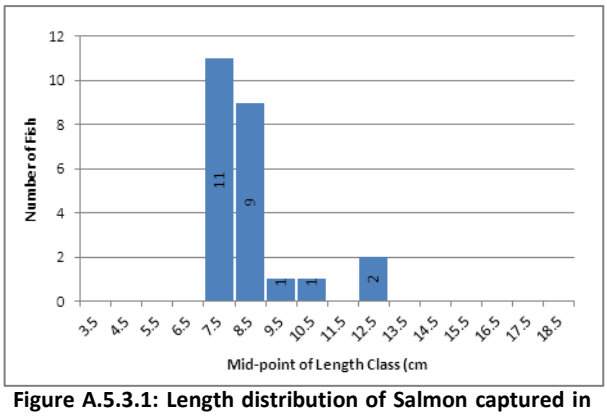


Figure A.5.3.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Lee (Kerry) Catchment.

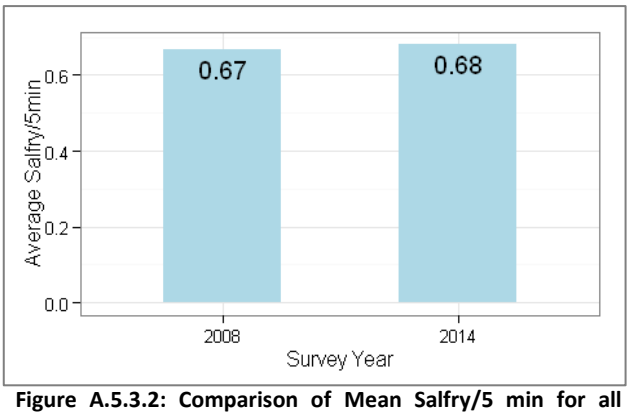


Figure A.5.3.2: Comparison of Mean Salfry/5 min for all surveys on the Lee (Kerry) catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	30	4				2.58
2014	19					4.61

Table A.5.3.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	586	-229	Closed	0.67	
2008	2009	586	-229	Closed		
2009	2010	586	-261	Closed		
2010	2011	586	-261	Closed		
2011	2012	586	-261	Closed		
2012	2013	586	-229	Closed		
2013	2014	509	-247	Closed	0.68	0.67

Table A.5.3.2: Conservation limits and provisional returns on the Lee (Kerry) catchment along with the 2014 CWEF fishing result.

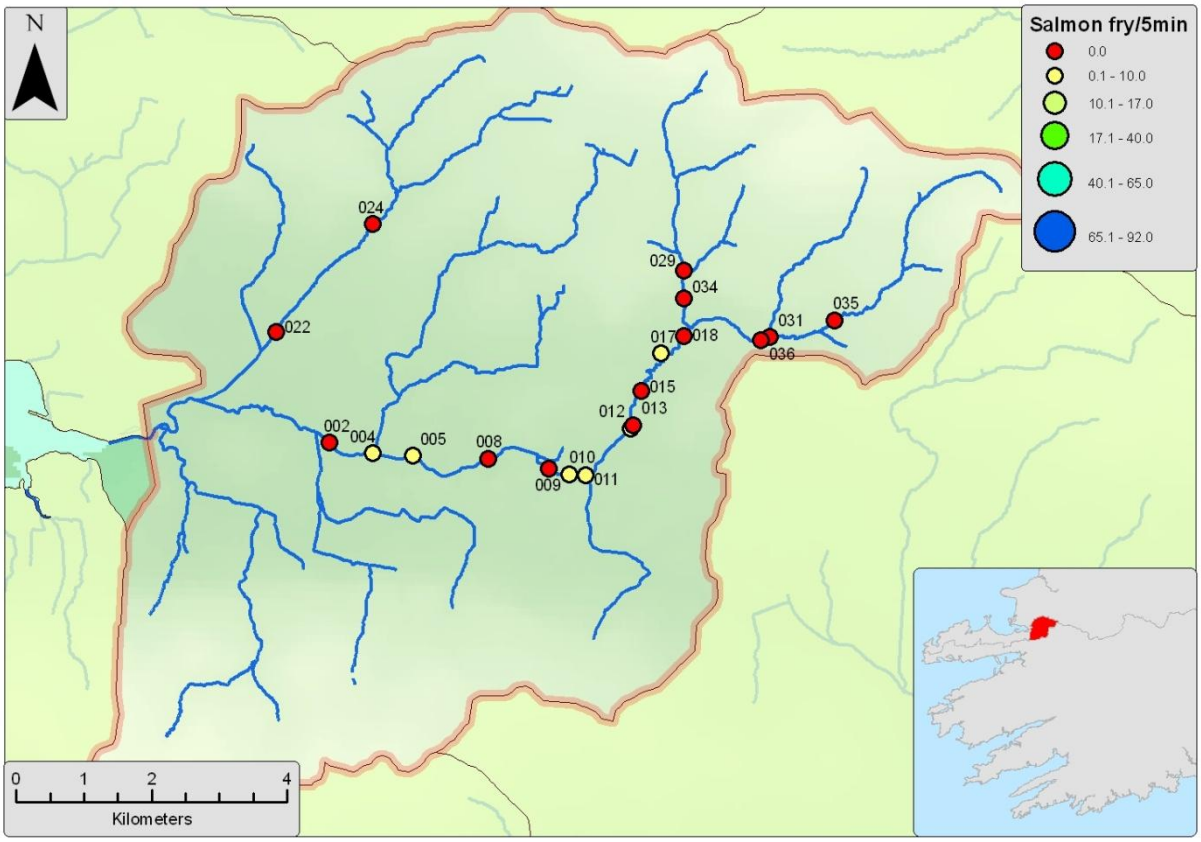
This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August 2014. The survey comprised 19 sites, all of which were included in the analysis giving a good coverage of 4.61 km per survey site. Salmon fry were present at 6 sites. The maximum fry catch was 3 salmon at site 12. The mean catch of included sites was 0.68 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 7.5cm.

Conclusion

The Lee (Kerry) had a mean catch of 0.68 salfry/5min in 2014 resulting in a cumulative average of 0.67 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Lee (Kerry) would be closed for angling in 2015.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
002	84799	113148	5	3	0	Include	0
004	85434	112990	5	2	1	Include	1
005	86027	112955	4	3	2	Include	2
008	87142	112909	4	2	0	Include	0
009	88039	112769	4	1	0	Include	0
010	88341	112683	4	1	2	Include	2.4
011	88585	112669	4	1	2	Include	2.67
012	89245	113361	4	1	3	Include	3.86
013	89282	113409	4	1	0	Include	0
015	89407	113911	4	1	0	Include	0
017	89695	114470	4	1	1	Include	1
018	90041	114731	4	1	0	Include	0
022	84005	114791	4	1	0	Include	0
024	85440	116378	4	1	1	Include	1
029	90039	115694	3	1	0	Include	0
031	91305	114707	3	1	0	Include	0
034	90039	115277	4	1	0	Include	0
035	92255	114958	3	1	0	Include	0
036	91168	114670	3	2	0	Include	0

Table A.5.3.3: Site specific Results of CWEF on the Lee (Kerry) catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Lee River (Kerry).

A.5.4 River Deel.

IFI Salmon Catchment #: 125
2014 survey dates: 18/9/2014 - 27/9/2014
Mean Salmon Fry/5 min (2014): 0.18 fry/5min.
CWEF Index: 0.16 fry/5min.

Sampling carried out by:

Catherine Hayes, Mark Wheelan,
David Germaine, Ray Byrne,
Jane Gilleran, Ryan McCarthy.

Fish Species Present:

Brown Trout Stone Loach
Minnow Three-spined Stickleback
Salmon

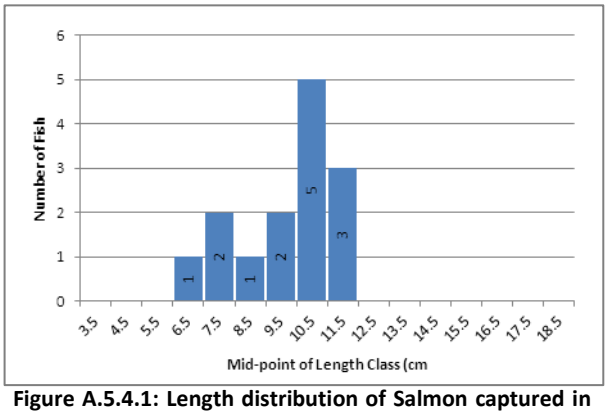


Figure A.5.4.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Deel Catchment.

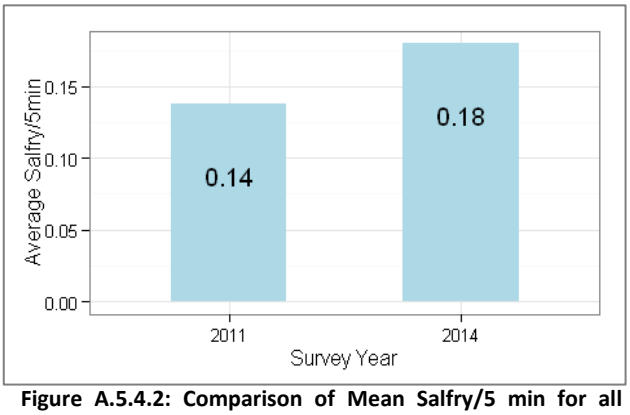


Figure A.5.4.2: Comparison of Mean Salfry/5 min for all surveys on the Deel catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2011	40				59	6.28
2014	32				71	7.85

Table A.5.4.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	2462	-1189	Closed		
2008	2009	2462	-1188	Closed		
2009	2010	2462	-1188	Closed		
2010	2011	2462	-1188	Closed	0.14	
2011	2012	2462	-1188	Closed		
2012	2013	2462	-1188	Closed		
2013	2014	2824	-1821	Closed	0.18	0.16

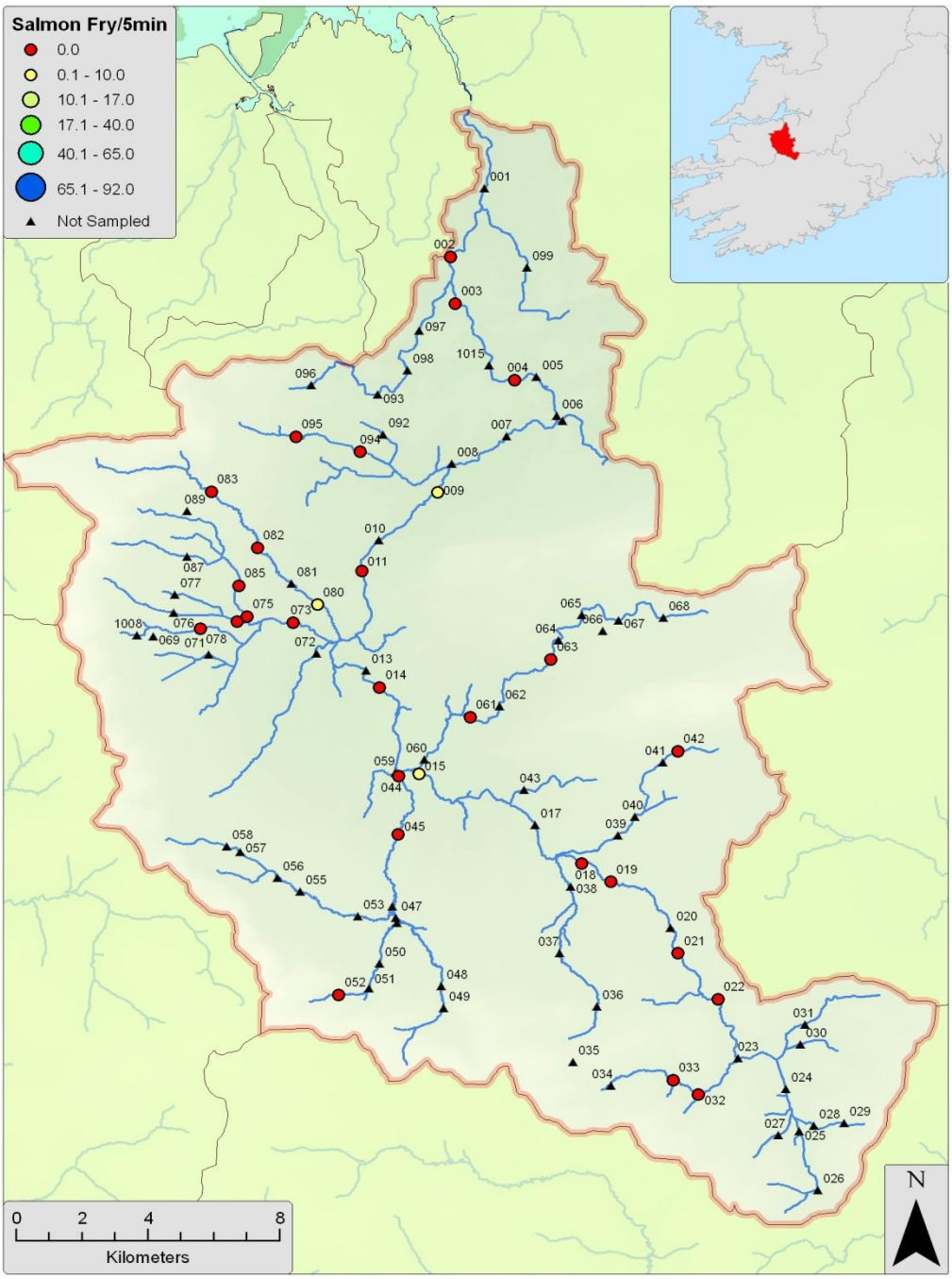
Table A.5.4.2: Conservation limits and provisional returns on the Deel catchment along with the 2014 CWEF fishing result.

This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. One hundred and three sites were visited, though due to lack of suitable habitat only 32 were surveyed; all 32 were included in the analysis giving coverage of 7.85 km per survey site. Salmon fry were present at only 3 sites. The maximum fry catch was 3 salmon at site 80. The mean catch of included sites was 0.18 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 7.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
002	133450	145278	6	3	0	Include	0
003	133594	143776	6	2	0	Include	0
004	135396	141315	6	3	0	Include	0
009	133047	137688	6	2	1	Include	1
011	130747	135153	6	1	0	Include	0
014	131289	131400	5	3	0	Include	0
015	132490	128618	4	2	1	Include	1
018	137423	125731	4	0	0	Include	0
019	138316	125135	4	0	0	Include	0
021	140362	122831	4	2	0	Include	0
022	141579	121353	4	1	0	Include	0
032	140982	118277	3	3	0	Include	0
033	140209	118746	2	2	0	Include	0
042	140357	129341	2	0	0	Include	0
044	131870	128546	4	1	0	Include	0
045	131854	126663	4	2	0	Include	0
052	130046	121490	2	1	0	Include	0
061	134047	130444	2	3	0	Include	0
063	136498	132304	2	3	0	Include	0
073	128659	133497	5	2	0	Include	0
074	126955	133516	3	1	0	Include	0
075	127257	133683	3	2	0	Include	0
078	125843	133292	3	1	0	Include	0
080	129408	134067	3	1	3	Include	3.75
082	127579	135906	3	1	0	Include	0
083	126174	137711	3	1	0	Include	0
085	127004	134681	3	1	0	Include	0
094	130695	138997	3	1	0	Include	0
095	128747	139476	3	1	0	Include	0
1017	0	0	0	0	0	Include	0
1070	0	0	0	1	0	Include	0
1071	0	0	0	0	0	Include	0
Unsuitable Sites:							
001	134477	147495	6	0	0	Not Sampled	
005	136057	141416	6	0	0	Not Sampled	
006	136672	140162	6	0	0	Not Sampled	
007	135147	139504	6	0	0	Not Sampled	
008	133474	138609	6	0	0	Not Sampled	
010	131262	136156	6	0	0	Not Sampled	
013	130878	131944	5	0	0	Not Sampled	
017	136006	126973	4	0	0	Not Sampled	
020	140135	123660	4	0	0	Not Sampled	
023	142184	119454	4	0	0	Not Sampled	
024	143631	118466	3	0	0	Not Sampled	
025	144050	117101	3	0	0	Not Sampled	
026	144607	115198	3	0	0	Not Sampled	
027	143411	116961	2	0	0	Not Sampled	
028	144485	117278	2	0	0	Not Sampled	
029	145403	117359	2	0	0	Not Sampled	
030	144080	119901	2	0	0	Not Sampled	
031	144213	120535	2	0	0	Not Sampled	
034	138312	118569	2	0	0	Not Sampled	
035	137168	119329	1	0	0	Not Sampled	
036	137898	121114	2	0	0	Not Sampled	
037	136767	122831	2	0	0	Not Sampled	
038	137102	124972	3	0	0	Not Sampled	

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
039	138530	126622	3	0	0	Not Sampled	
040	139047	127223	3	0	0	Not Sampled	
041	139901	128978	2	0	0	Not Sampled	
043	135676	128092	2	0	0	Not Sampled	
046	131667	124339	4	0	0	Not Sampled	
047	131785	123970	4	0	0	Not Sampled	
048	133162	121778	3	0	0	Not Sampled	
049	133230	121055	3	0	0	Not Sampled	
050	131286	122500	3	0	0	Not Sampled	
051	130953	121694	3	0	0	Not Sampled	
053	130629	124025	3	0	0	Not Sampled	
055	128871	124829	3	0	0	Not Sampled	
056	128180	125270	3	0	0	Not Sampled	
057	127040	126097	2	0	0	Not Sampled	
058	126640	126282	2	0	0	Not Sampled	
059	131756	128646	2	0	0	Not Sampled	
060	132653	129069	3	0	0	Not Sampled	
062	134934	130792	2	0	0	Not Sampled	
064	136730	132921	2	0	0	Not Sampled	
065	137437	133737	2	0	0	Not Sampled	
066	138061	133219	1	0	0	Not Sampled	
067	138548	133563	2	0	0	Not Sampled	
068	139906	133650	2	0	0	Not Sampled	
069	124401	133037	1	0	0	Not Sampled	
071	126086	132469	3	0	0	Not Sampled	
072	129360	132489	2	0	0	Not Sampled	
076	125020	133814	2	0	0	Not Sampled	
077	125054	134385	2	0	0	Not Sampled	
081	128610	134752	3	0	0	Not Sampled	
087	125430	135620	2	0	0	Not Sampled	
089	125434	137080	1	0	0	Not Sampled	
092	131395	139544	2	0	0	Not Sampled	
093	131225	140847	2	0	0	Not Sampled	
096	129206	141148	2	0	0	Not Sampled	
097	132495	142905	2	0	0	Not Sampled	
098	132128	141632	2	0	0	Not Sampled	
099	135763	144934	2	0	0	Not Sampled	
1008	123898	133088	2	0	0	Not Sampled	
1015	134608	141776	6	0	0	Not Sampled	
1016	136841	139998	2	0	0	Not Sampled	
1018	131808	123817	3	0	0	Not Sampled	
1069	0	0	0	0	0	Not Sampled	
1072	0	0	0	0	0	Not Sampled	
1073	0	0	0	0	0	Not Sampled	
1074	0	0	0	0	0	Not Sampled	
1075	0	0	0	0	0	Not Sampled	
1076	0	0	0	0	0	Not Sampled	
1077	0	0	0	0	0	Not Sampled	

Table A.5.4.3: Site specific Results of CWEF on the Deel catchment in 2014.



Map A.5.4.1: Showing locations of 2014 survey sites on Deel River.

Conclusion

The Deel had a very poor mean catch of 0.18 salfry/5min in 2014 resulting in a cumulative average of 0.16 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Deel would be closed for angling in 2015.

A.5.5 River Owenagarney.

IFI Salmon Catchment #: 130
2014 survey dates: 7/9/2014 - 17/9/2014
Mean Salmon Fry/5 min (2014): 9.97 fry/5min.
CWEF Index: 13.47 fry/5min.

Sampling carried out by:

Catherine Hayes, Liam Horrigan, David Germaine, Ray Byrne. Jane Gilleran,

Fish Species Present:

Brown Trout, Salmon, European Eel, Lamprey sp., Gudgeon, Three-spined Stickleback

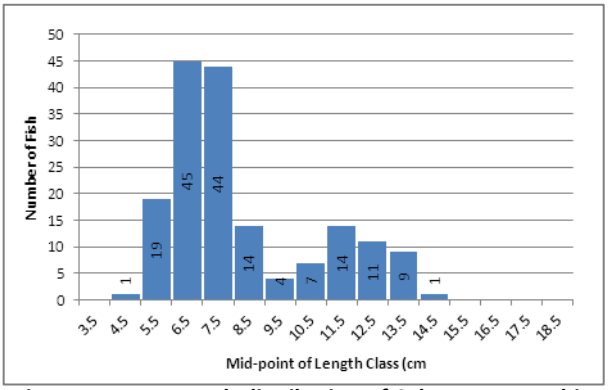


Figure A.5.5.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Owenagarney Catchment.

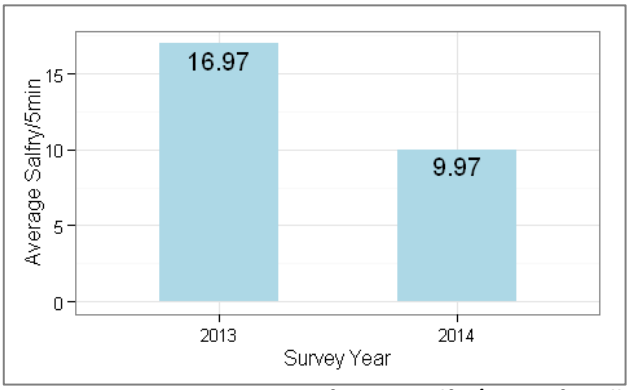


Figure A.5.5.2: Comparison of Mean Salfry/5 min for all surveys on the Owenagarney catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2013	15			1	14	5.95
2014	16		1	1	5	5.58

Table A.5.5.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	814	-393	Closed		
2008	2009	814	-392	Closed		
2009	2010	814	-392	Closed		
2010	2011	814	-392	Closed		
2011	2012	814	-392	Closed		
2012	2013	814	-423	Closed	16.97	
2013	2014	629	-344	Closed	9.97	13.47

Table A.5.5.2: Conservation limits and provisional returns on the Owenagarney catchment along with the 2014 CWEF fishing result.

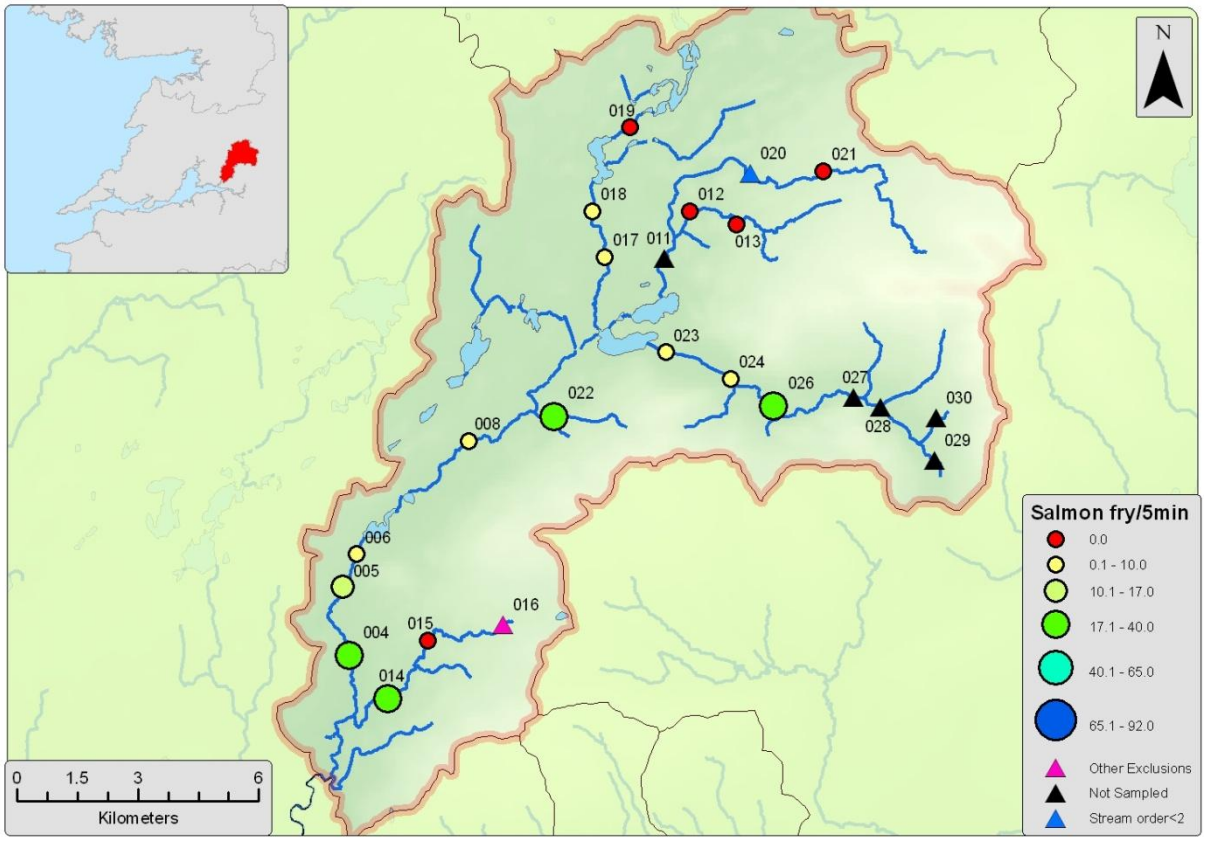
This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. Twenty-three sites were surveyed; all of which were included in the analysis giving coverage of 5.58 km per survey site. Salmon fry were present at 11 sites. The maximum fry catch was25 salmon at site 4. The mean catch of included sites was 9.97 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
004	147831	165890	4	1	25	Include	35
005	147669	167609	4	2	11	Include	15
006	148023	168412	4	3	5	Include	7
008	150803	171227	4	3	6	Include	9
012	156289	176940	3	1	0	Include	0
013	157461	176607	3	1	0	Include	0
014	148786	164809	3	1	22	Include	25.83
015	149794	166259	2	3	0	Include	0
017	154189	175801	3	1	7	Include	8.62
018	153887	176940	3	2	2	Include	2.5
019	154812	179025	2	0	0	Include	0
021	159613	177939	2	1	0	Include	0
022	152914	171838	3	2	20	Include	28
023	155702	173439	3	3	1	Include	1
024	157322	172769	3	2	6	Include	7.64
026	158380	172098	3	1	18	Include	20
011	155671	175787	3	2	0	Not Sampled	
016	151657	166673	2	0	0	Datasheet Missing	
020	157801	177891	1	1	0	Stream order<2	
027	160370	172325	3	0	0	Not Sampled	
028	161033	172077	3	0	0	Not Sampled	
029	162390	170760	2	0	0	Not Sampled	
030	162417	171811	2	0	0	Not Sampled	

Table A.5.5.3: Site specific Results of CWEF on the Owenagarney catchment in 2014.

Conclusion

The Owenagarney had a mean catch of 9.7 salfry/5min in 2014 resulting in a cumulative average of 13.47 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Owenagarney would be closed for angling in 2015.



Map A.5.5.1: Showing locations of 2014 survey sites on Owenagarney River.

A.5.6 River Doonbeg.

IFI Salmon Catchment #: 133
2014 survey dates: 4/9/2014 - 9/9/2014
Mean Salmon Fry/5 min (2014): 18.54 fry/5min.
CWEF Index: 15.72 fry/5min.

Sampling carried out by:

David Germaine
Mark Wheelan
Ray Byrne

Fish Species Present:

Brown Trout
European Eel
Flounder
Lamprey sp.
Salmon
Three-spined Stickleback

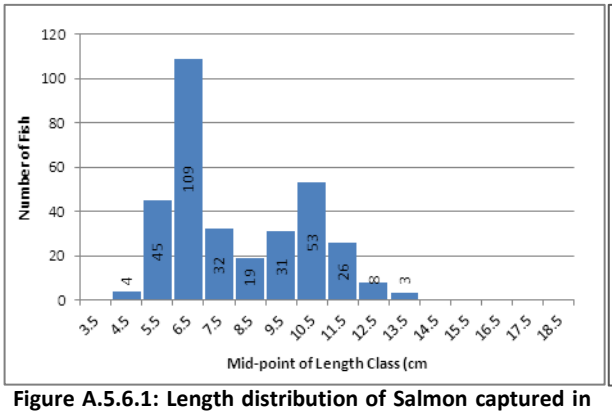


Figure A.5.6.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Doonbeg Catchment.

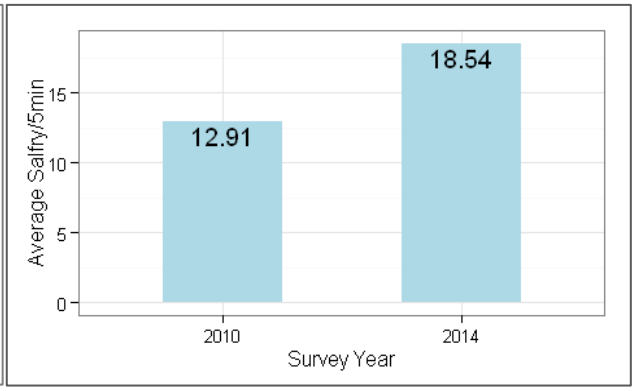


Figure A.5.6.2: Comparison of Mean Salfry/5 min for all surveys on the Doonbeg catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2010	14		5			4.9
2014	14	1	1		5	4.6

Table A.5.6.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

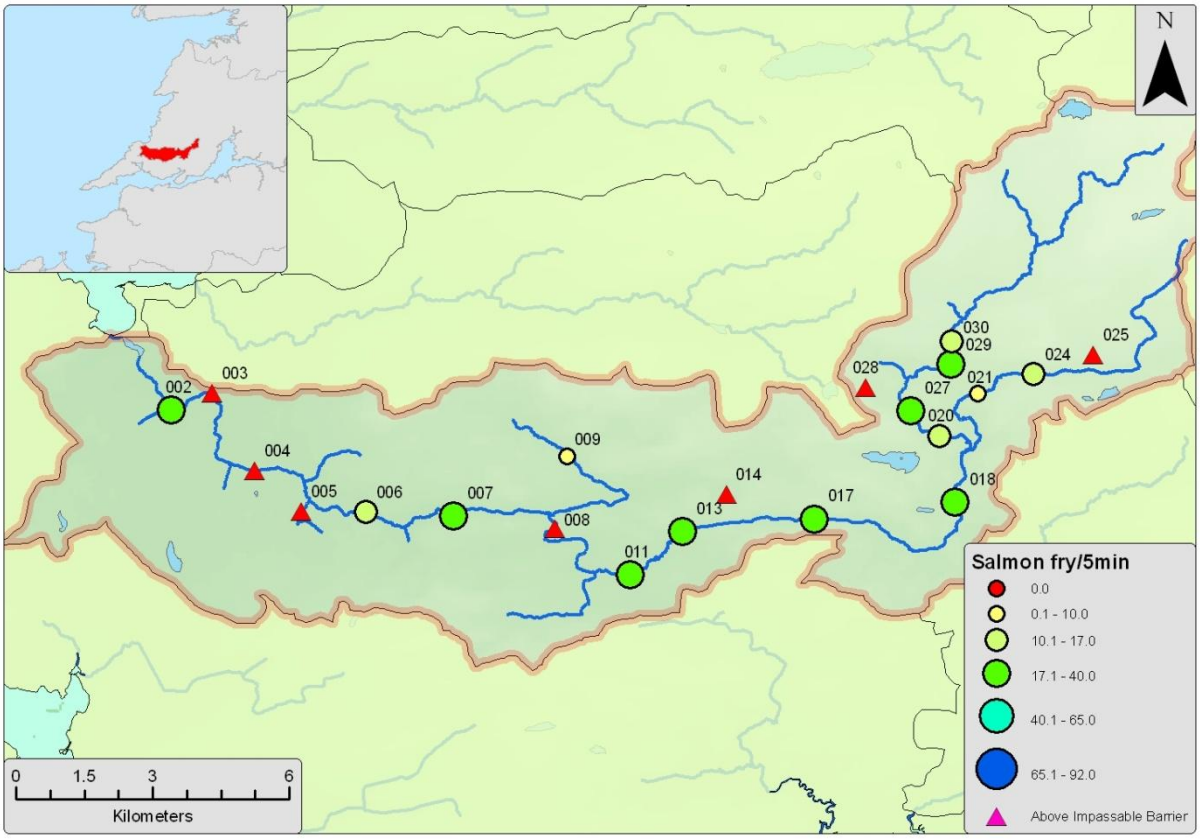
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	426	-201	Closed		
2008	2009	426	-201	Closed		
2009	2010	426	-201	Closed	12.91	
2010	2011	426	-201	Closed		
2011	2012	426	-201	Closed		
2012	2013	426	-217	Closed		
2013	2014	524	-353	Closed	18.54	15.72

Table A.5.6.2: Conservation limits and provisional returns on the Doonbeg catchment along with the 2014 CWEF fishing result.

This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. The survey comprised 16 sites, 12 of which were included in the analysis giving a good coverage of 3.98km per survey site. Salmon fry were present at 16 sites. The maximum fry catch was 27 salmon at site 27. The mean catch of included sites was 18.53 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
002	97840	164366	4	1	15	Include	17.65
006	102114	162116	3	2	14	Include	16.8
007	104034	162029	3	1	17	Include	24.56
008	106262	161764	3	2	2	Efficiency below 60%	
009	106536	163351	2	2	6	Include	6.75
011	107917	160734	2	2	13	Include	18
013	109070	161692	2	1	17	Include	23.61
017	111962	161964	2	2	17	Include	21.1
018	115065	162337	2	1	23	Include	27.42
020	114712	163797	3	1	14	Include	16.95
021	115570	164721	2	2	2	Include	2.5
024	116791	165154	2	1	9	Include	10.75
027	114080	164353	3	1	27	Include	32.56
029	114975	165377	3	1	22	Include	27.92
030	114990	165881	3	1	10	Include	12.94
003	98742	164753	4	0	0	Not Sampled	
004	99681	163031	4	0	0	Not Sampled	
005	100696	162130	3	0	0	Not Sampled	
014	110036	162510	1	0	0	Not Sampled	
025	118100	165591	1	2	1	Stream order<2	
028	113105	164863	3	0	0	Not Sampled	

Table A.5.6.3: Site specific Results of CWEF on the Doonbeg catchment in 2014.



Map A.5.6.1: Showing locations of 2014 survey sites on the Doonbeg River.

Conclusion

The Doonbeg had a mean catch of 18.54.salfry/5min in 2014 resulting in a cumulative average of 15.72 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Owenagarney would be closed to angling in 2015.

A.5.7 River Annageeragh.

IFI Salmon Catchment #: 135
2014 survey dates: 9/9/2014 – 13/9/2014
Mean Salmon Fry/5 min (2014): 9.24 fry/5min.
CWEF Index: 5.53 fry/5min.

Sampling carried out by:

David Germaine,
Mark Wheelan
Ray Byrne

Fish Species Present:

Brown Trout
European Eel
Lamprey sp.
Salmon

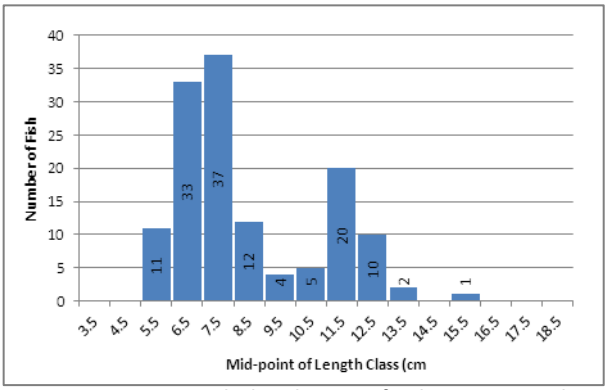


Figure A.5.7.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Annageeragh Catchment.

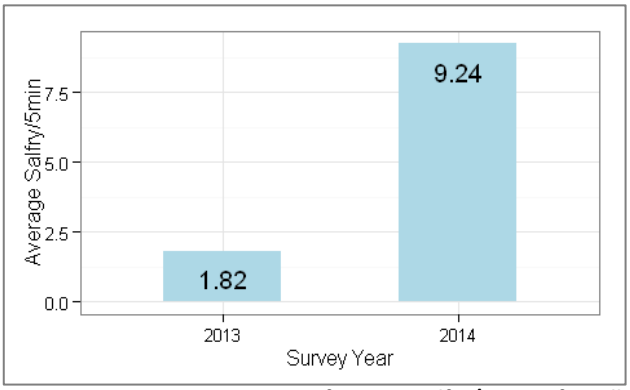


Figure A.5.7.2: Comparison of Mean Salfry/5 min for all surveys on the Annageeragh catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2013	12				6	2.96
2014	12				5	2.96

Table A.5.7.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

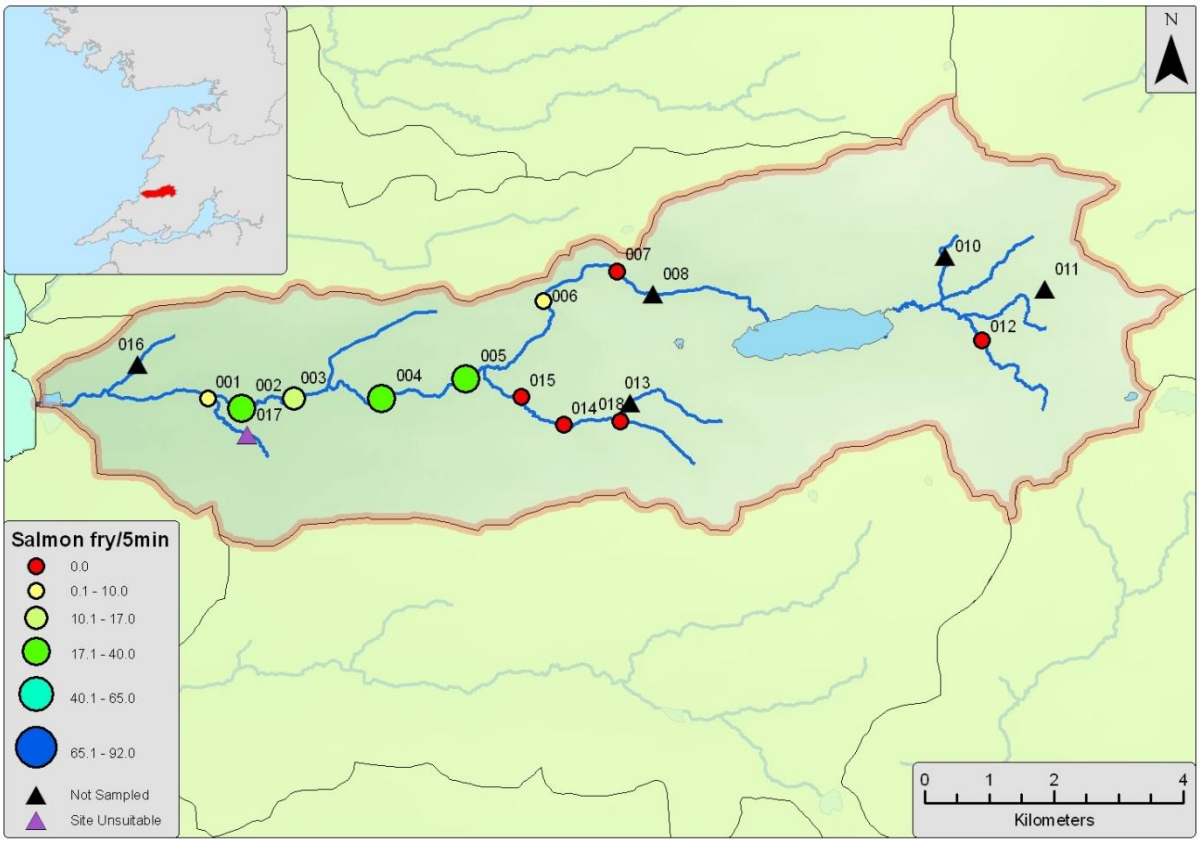
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	302	-143	Closed		
2008	2009	302	-143	Closed		
2009	2010	302	-143	Closed		
2010	2011	302	-143	Closed		
2011	2012	302	-143	Closed		
2012	2013	302	-154	Closed	1.82	
2013	2014	320	-210	Closed	9.24	5.53

Table A.5.7.2: Conservation limits and provisional returns on the Annageeragh catchment along with the 2014 CWEF fishing result.

This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. The survey comprised 12 sites, all of which were included in the analysis giving a good coverage of 2.96 km per survey site. Salmon fry were present at six sites. The maximum fry catch was 27 salmon at site 5. The mean catch of included sites was 9.24 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 7.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	102669	171046	4	2	7	Include	7
002	103188	170892	4	1	20	Include	22.42
003	104006	171048	4	2	10	Include	12.5
004	105357	171041	4	1	23	Include	28.75
005	106661	171345	4	1	27	Include	33.1
006	107867	172556	4	1	6	Include	7.06
007	108997	173006	4	2	0	Include	0
009	0	0	0	0	0	Include	0
012	114642	171951	2	3	0	Include	0
014	108176	170637	3	3	0	Include	0
015	107523	171065	3	2	0	Include	0
018	109058	170694	3	3	0	Include	0
008	109564	172663	4	0	0	Not Sampled	
010	114082	173251	2	3	0	Not Sampled	
011	115623	172747	1	0	0	Not Sampled	
013	109209	170984	2	0	0	Not Sampled	
016	101589	171578	2	0	0	Not Sampled	
017	103274	170493	2	3	0	Site Unsuitable	

Table A.5.7.3: Site specific Results of CWEF on the Annageeragh catchment in 2014.



Map A.5.7.1: Showing locations of 2014 survey sites on Annageeragh River.

Conclusion

The Annageeragh had a mean catch of 9.24 salfry/5min in 2014 resulting in a cumulative average of 5.53 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Annageeragh should closed to angling in 2015.

A.5.8 River Inagh

IFI Salmon Catchment #: 142
2014 survey dates: 20/8/2014 - 22/8/2014
Mean Salmon Fry/5 min (2014): 5.31 fry/5min.
CWEF Index: 5.31 fry/5min.

Sampling carried out by:

Catherine Hayes
David Germaine
Mark Wheelan
Ray Byrne

Fish Species Present:

Brown Trout
European Eel
Perch
Pike
Salmon
Stone Loach
Three-spined Stickleback

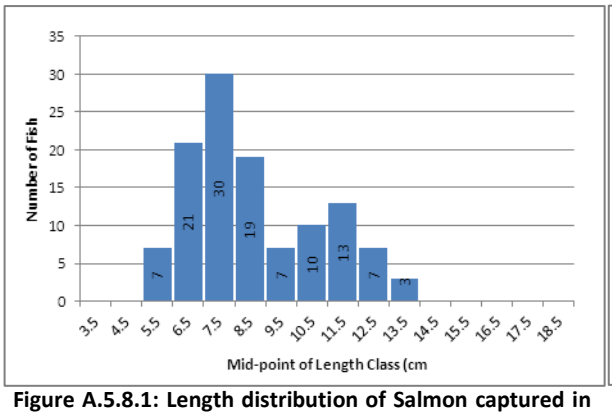


Figure A.5.8.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Inagh Catchment.

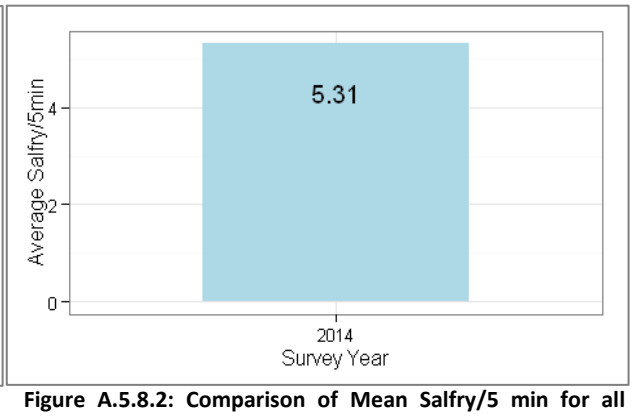


Figure A.5.8.2: Comparison of Mean Salfry/5 min for all surveys on the Inagh catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	8	5				2.25

Table A.5.8.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

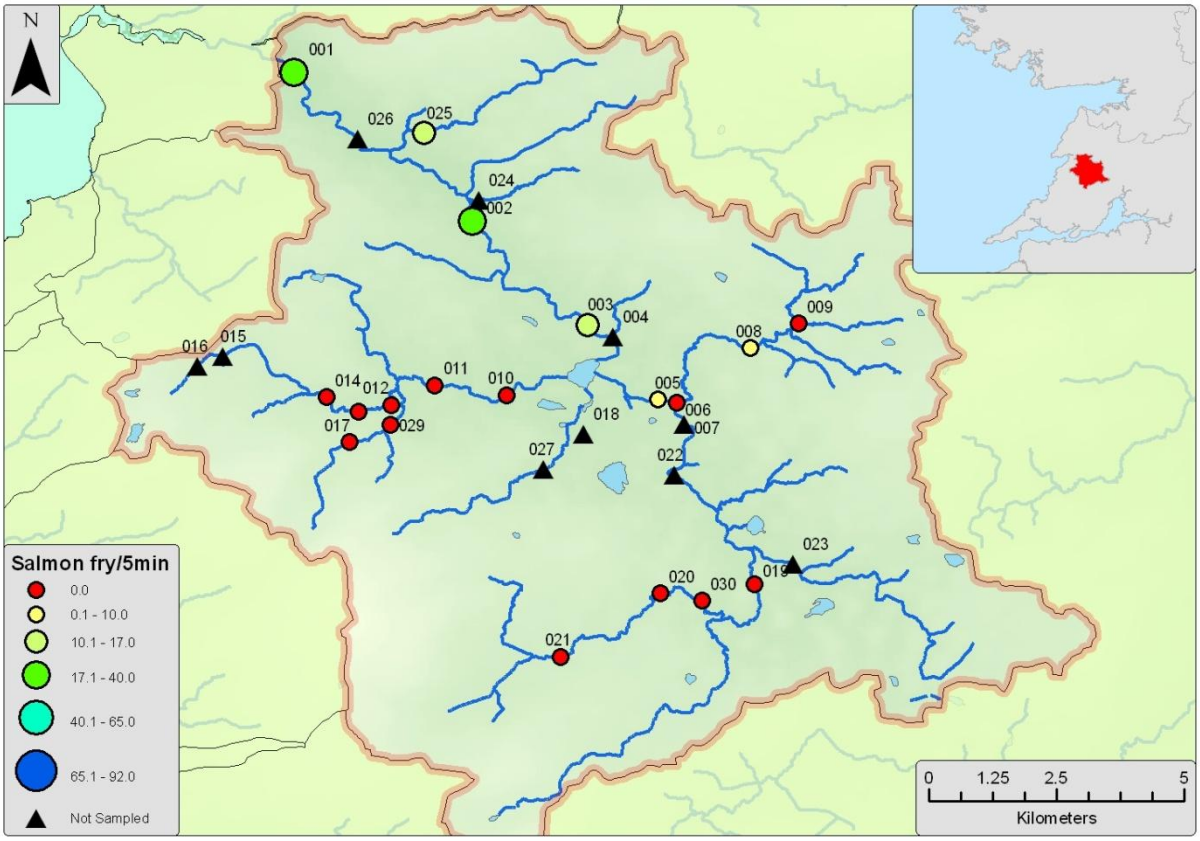
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	1033	-989	Closed		
2008	2009	1033	-929	Closed		
2009	2010	1033	-664	Closed		
2010	2011	1033	-664	Closed		
2011	2012	1033	-664	Closed		
2012	2013	1033	-668	Closed		
2013	2014	1095	-860	Closed	5.31	5.31

Table A.5.8.2: Conservation limits and provisional returns on the Inagh catchment along with the 2014 CWEF fishing result.

This, the first CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August 2014. The survey comprised 19 sites, all of which were included in the analysis giving a good coverage of 7.16 km per survey site. Salmon fry were present at six sites. The maximum fry catch was 29 salmon at site 2. The mean catch of included sites was 5.31 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 7.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	113194	188193	5	2	20	Include	28
002	116675	185281	5	1	29	Include	36.48
003	118937	183248	5	2	13	Include	16.71
005	120326	181775	5	2	1	Include	1.45
006	120695	181717	4	2	0	Include	0
008	122129	182790	4	3	1	Include	1.38
009	123070	183267	3	3	0	Include	0
010	117351	181860	4	3	0	Include	0
011	115949	182051	4	1	0	Include	0
012	115090	181677	3	1	0	Include	0
013	114449	181545	3	2	0	Include	0
014	113825	181823	3	2	0	Include	0
017	114273	180944	2	2	0	Include	0
019	122211	178154	3	3	0	Include	0
020	120367	177978	3	3	0	Include	0
021	118416	176734	3	1	0	Include	0
025	115733	187009	3	2	13	Include	16.82
029	115079	181280	3	3	0	Include	0
030	121182	177835	3	3	0	Include	0
004	119443	183013	2	0	0	Not Sampled	
007	120836	181305	4	0	0	Not Sampled	
015	111789	182634	3	0	0	Not Sampled	
016	111295	182433	2	0	0	Not Sampled	
018	118866	181109	1	0	0	Not Sampled	
022	120635	180303	4	0	0	Not Sampled	
023	122970	178559	3	0	0	Not Sampled	
024	116812	185690	2	0	0	Not Sampled	
026	114441	186894	5	0	0	Not Sampled	
027	118078	180412	2	0	0	Not Sampled	
028	99982	99984	0	0	0	Not Sampled	

Table A.5.8.3: Site specific Results of CWEF on the Inagh catchment in 2014.



Map A.5.8.1: Showing locations of 2014 survey sites on Inagh River.

Conclusion

The Inagh had a mean catch of 5.31 salfry/5min in 2014 resulting in a cumulative average of 5.31 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Inagh would be closed for angling in 2015.

A.6 Western River Basin District.

A.6.1 Summary

Since 2007, twenty seven rivers have been surveyed in the Western River Basin District (ERFB) as part of the on-going catchment-wide electrofishing surveys. These are presented in table A.6.1. Six rivers currently have a survey average salmon fry capture rate of greater than 17 fry per 5min, these are the Culfin, the Erriff, Carrownisky, Owenmore, Carrowmore and Drumcliff. Six catchments were surveyed in 2014, The Erriff and the Newport had good numbers of Salmon fry.

	Survey Year								Current Index	# of Annual Surveys Considered
IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014		
145/Kilcolgan			2.51						2.51	1
146/Clarinbridge					7.26				7.26	1
147/Corrib	15.75								15.75	1
148/Knock					12.53				12.53	1
149/Owenboliska		4.06						4.52	4.29	2
152/Cashla							10.83		10.83	1
163/Owenglin			11.57						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	23.62	5
171/Carrownisky		18.25				20.60	18.22		19.03	3
172/Bunowen			13.62						13.62	1
173/Owenwee				8.47	7.25	15.27			10.33	3
178/Newport	16.06		5.53					17.36	12.99	3
179/Srahmore			4.33						4.33	1
181/Owengarve			5.51					6.19	5.85	2
185/Owenduff			6.00					6.20	6.10	2
186.1/ Carrowmore							23.07		23.07	1
186/Owenmore							28.76		28.76	1
187/Glenamoy	28.16		5.65						16.91	2
188/Muingnabo	0.78								0.78	1
193/Ballinglen	10.65				15.09		6.37		10.70	3
194/Cloonaghmore		8.96		9.71	22.27	17.32	15.02		14.65	5
196/Brusna			4.70				14.16	14.74	11.20	3
198/Leaffony	5.76		7.95						6.86	2
203/Garvogue	18.41	13.26	16.83	11.31	7.08	18.54			13.41	5
205/Drumcliff				17.72					17.72	1
207/Grange	5.75		3.29						4.52	2

Table A.6.1.1: Catchment-wide Electrofishing data for SERBD 2007- 2014 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate.

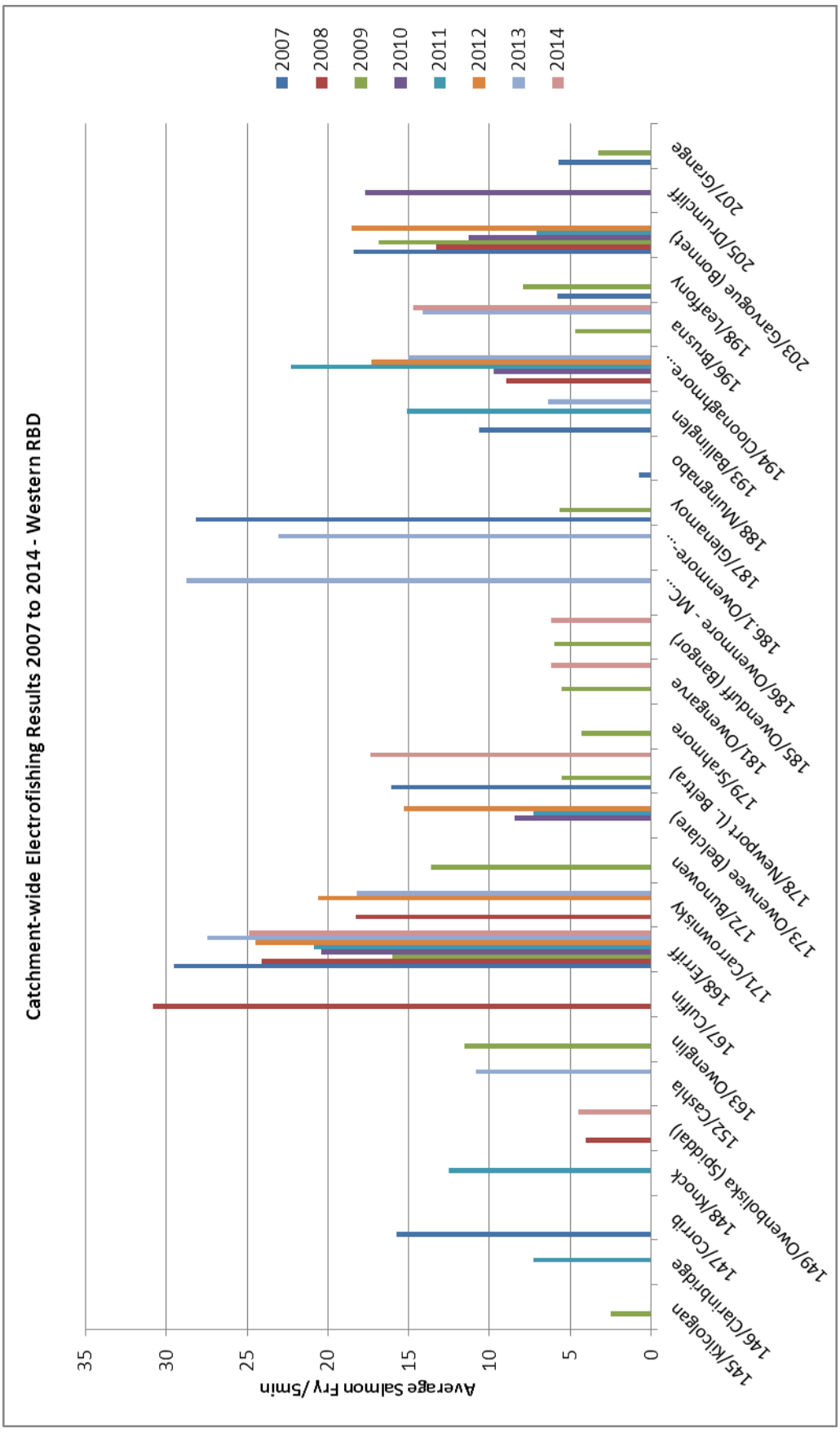


Chart A.6.1: Summary of CWEF results in ERFB from 2007 to 2014.

A.6.2 River Owenboliska.

IFI Salmon Catchment #: 3
2014 survey dates: 29/8/2014 - 18/9/2014
Mean Salmon Fry/5 min (2014): 4.52 fry/5min.
CWEF Index: 4.29 fry/5min.

Sampling carried out by:

Lonan O'Farrell.
Paddy Gargan
Tony McQuinn

Fish Species Present:

Brown Trout
European Eel
Salmon
Three-spined Stickleback

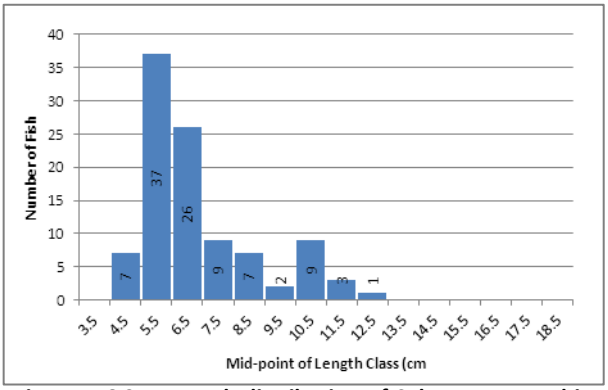


Figure A.6.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Owenboliska Catchment.

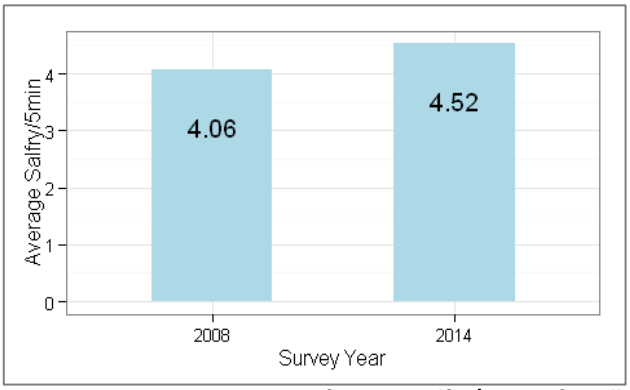


Figure A.6.2.2: Comparison of Mean Salfry/5 min for all surveys on the Owenboliska catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	21		6			2.77
2014	21					2.77

Table A.6.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	550	-240	Closed	4.06	
2008	2009	550	-241	Closed		
2009	2010	550	-266	Closed		
2010	2011	550	-241	Closed		
2011	2012	550	-241	Closed		
2012	2013	550	-241	Closed		
2013	2014	594	-352	Closed	4.52	4.29

Table A.6.2.2: Conservation limits and provisional returns on the Owenboliska catchment along with the 2014 CWEF fishing result.

This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August and September 2014. The survey comprised 21 sites, all of which were included in the analysis giving a good coverage of 2.77 km per survey site. Salmon fry were present at 9 sites. The maximum fry catch was 19 salmon at site 26. The mean catch of included sites was 4.52 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

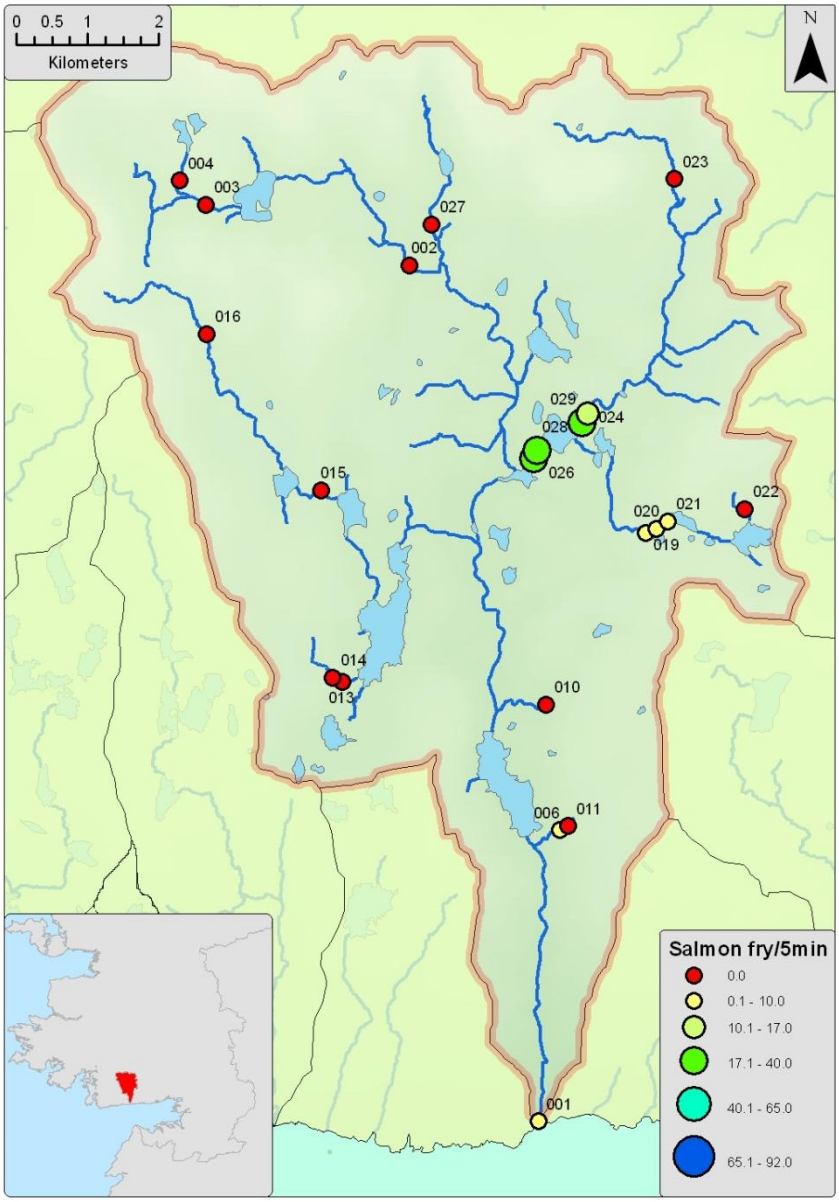
Though average salmon numbers were low on both occasions the 2014 results compare favourably with the previous survey which took place in 2008, when five of 21 sites surveyed produced salmon. Nineteen sites were surveyed twice, of these sites 5 produced salmon on both occasions; densities at these sites were generally higher in 2014. The two best sites in 2008 produced poor numbers in 2014. Two sites that had no salmon in 2008 produced salmon in 2014, and 12 sites had no salmon at either survey.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	112684	222167	5	0	3	Include	4.29
002	110873	234231	3	0	0	Include	0
003	107994	235078	3	3	0	Include	0
004	107631	235422	2	3	0	Include	0
006	112991	226273	2	0	2	Include	2.25
010	112797	228036	2	2	0	Include	0
011	113104	226330	2	0	0	Include	0
013	109927	228366	2	2	0	Include	0
014	109783	228416	2	2	0	Include	0
015	109619	231059	3	3	0	Include	0
016	108008	233258	2	3	0	Include	0
019	114196	230461	3	2	8	Include	9.45
020	114343	230518	3	2	4	Include	4.4
021	114508	230621	3	2	2	Include	2.5
022	115596	230792	2	2	0	Include	0
023	114603	235445	2	3	0	Include	0
024	113375	232138	3	1	12	Include	14.22
026	112621	231502	4	2	19	Include	22.93
027	111182	234802	3	3	0	Include	0
028	112670	231618	4	2	15	Include	17.25
029	113304	232009	3	2	14	Include	17.65

Table A.6.2.3: Site specific Results of CWEF on the Owenboliska catchment in 2014.

Site Number	Salmon Catch	
	2008	2014
Site 1	1	3
Site 2	0	0
Site 3	0	0
Site 4	0	0
Site 5	0	
Site 6	31	2
Site 7	0	
Site 8	0	
Site 9	0	
Site 10	0	0
Site 11	0	0
Site 12	0	
Site 13	0	0
Site 14	0	0
Site 15	0	0
Site 16	0	0
Site 17	0	
Site 18	0	
Site 19	3	8
Site 20	2	4
Site 21	0	2
Site 22	0	0
Site 23	0	0
Site 24	33	12
Site 25	0	
Site 26	0	19
Site 27	0	0
Site 28		15
Site 29		14

Table A.6.2.4: Salmon catch at sites surveyed on the Owenboliska catchment in 2008 and 2014.



Map A.6.2.1: Showing locations of 2014 survey sites on Owenboliska River.

Conclusion

The Owenboliska had a mean catch of 4.52 salfry/5min in 2014 resulting in a cumulative average of 4.29 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Owenboliska would be closed to angling in 2015.

A.6.3 River Erriff.

IFI Salmon Catchment #: 168
2014 survey dates: 8/9/2014 - 10/9/2014
Mean Salmon Fry/5 min (2014): 24.90 fry/5min.
CWEF Index: 23.62 fry/5min.

Sampling carried out by:

Barry Kelly
Declan Doyle
Justin Kilcoyne
Paddy Gargan.

Fish Species Present:

Brown Trout
European Eel
Minnow
Salmon

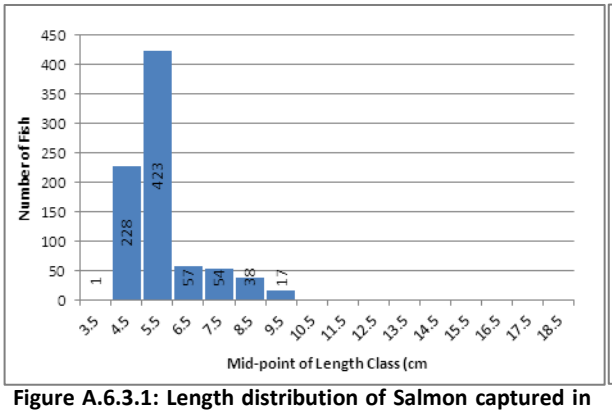


Figure A.6.3.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Erriff Catchment.

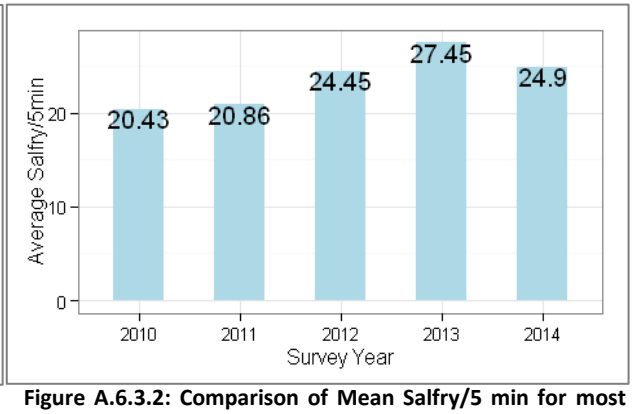


Figure A.6.3.2: Comparison of Mean Salfry/5 min for most recent five years' surveys on the Erriff catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	8	5				2.25
2013	11					2.66
2014	11					2.66

Table A.6.3.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	1300	1621	Open	24.10	
2008	2009	1300	2346	Open	16.03	
2009	2010	1300	716	Open	20.43	
2010	2011	1300	512	Open	20.86	
2011	2012	1300	605	Open	24.45	
2012	2013	1300	592	Open	27.45	
2013	2014	1382	520	Open	24.90	22.60

Table A.6.3.2: Conservation limits and provisional returns on the Erriff catchment along with the 2014 CWEF fishing result.

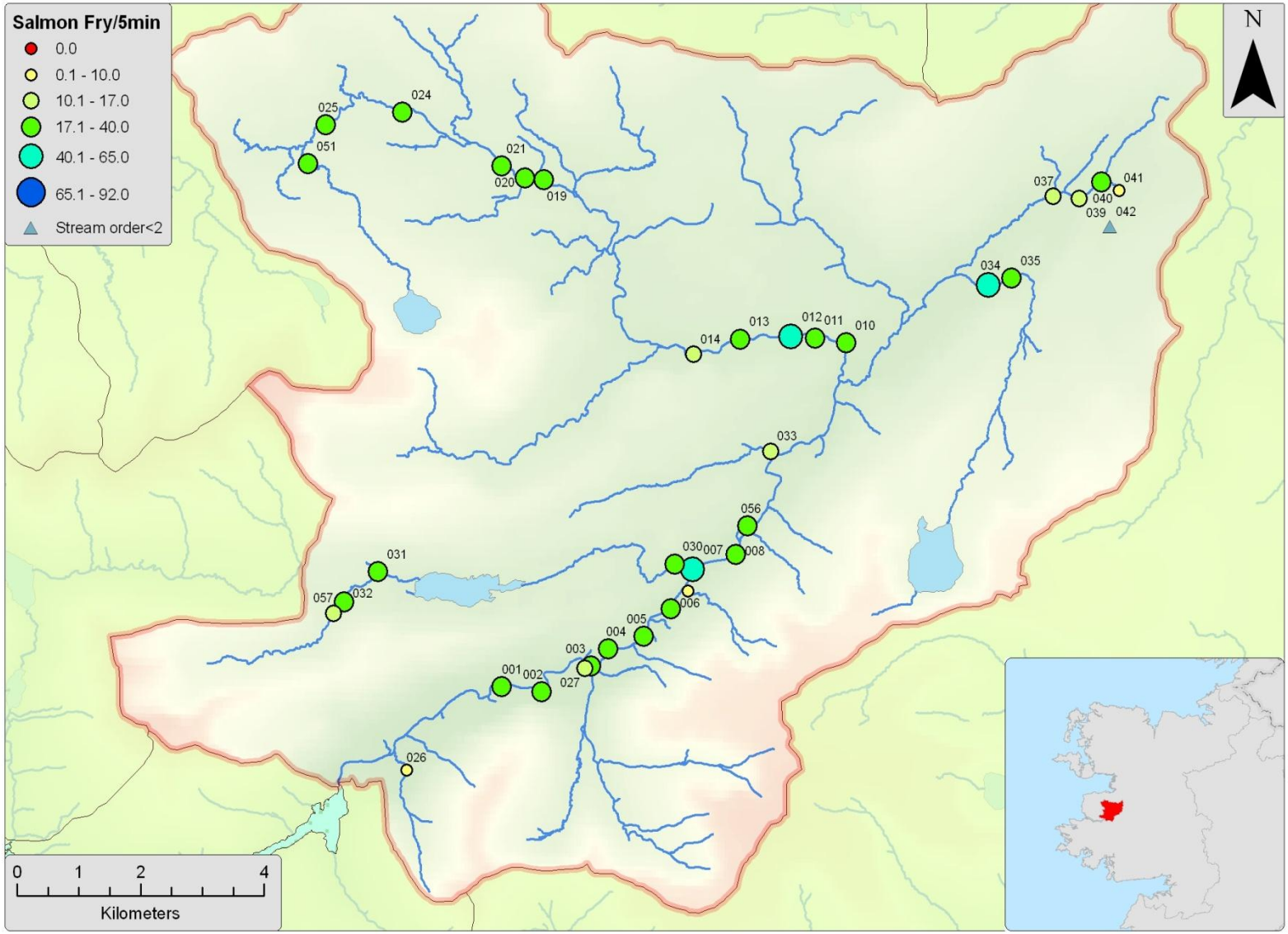
This, the seventh CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. The survey comprised 35 sites, 34 of which were included in the analysis giving a good coverage of 2.66 km per survey site. Salmon fry were present at all sites. The maximum fry catch was 43 salmon at site 34. The mean catch of included sites was 24.9 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	92057	265797	5	0	19	Include	25
002	92702	265721	5	0	23	Include	31
003	93503	266122	5	0	18	Include	23
004	93785	266390	5	0	23	Include	28.75
005	94353	266590	5	0	25	Include	30
006	94798	267020	5	0	25	Include	31
007	95142	267641	5	0	41	Include	49
008	95847	267875	5	0	21	Include	27
010	97631	271190	4	0	19	Include	24
011	97126	271270	4	1	27	Include	34
012	96732	271296	4	1	36	Include	43
013	95920	271252	4	1	36	Include	40
014	95163	271013	4	1	11	Include	13
019	92740	273749	4	1	26	Include	29.59
020	92439	273774	4	2	21	Include	24.82
021	92057	273962	4	1	25	Include	28.7
024	90455	274810	3	1	24	Include	33
025	89217	274613	3	2	15	Include	18
026	90525	264492	3	0	3	Include	4
027	93408	266092	4	0	10	Include	14
029	95077	267299	3	0	7	Include	9
030	94855	267725	3	0	19	Include	25
031	90058	267606	3	0	18	Include	21.48
032	89507	267128	2	0	14	Include	19
033	96407	269493	3	0	9	Include	11.7
034	99926	272098	4	1	43	Include	52
035	100302	272204	4	1	27	Include	34
037	100973	273488	3	1	10	Include	12.73
039	101401	273457	3	2	12	Include	17
040	101753	273718	3	2	15	Include	19
041	102047	273579	2	2	8	Include	10
051	88924	274002	2	2	17	Include	21
056	96035	268325	5	0	25	Include	31
057	89337	266953	2	0	10	Include	12.73
042	101904	273012	1	2	7	Stream order<2	

Table A.6.3.3: Site specific Results of CWEF on the Erriff catchment in 2014.

Conclusion

The Erriff had a mean catch of 24.9 salfry/5min in 2014 resulting in a cumulative average of 23.62 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 minute.



Map A.6.3.1: Showing locations of 2014 survey sites on Erriff River.

A.6.4 River Newport.

IFI Salmon Catchment #: 178
2014 survey dates: 29/9/2014 - 31/9/2014
Mean Salmon Fry/5 min (2014): 17.36fry/5min.
CWEF Index: 12.99 fry/5min.

Sampling carried out by:

Gerry Hoban
Tony Holmes.

Species Present:

Brown Trout
European Eel
Margaritifera
Salmon

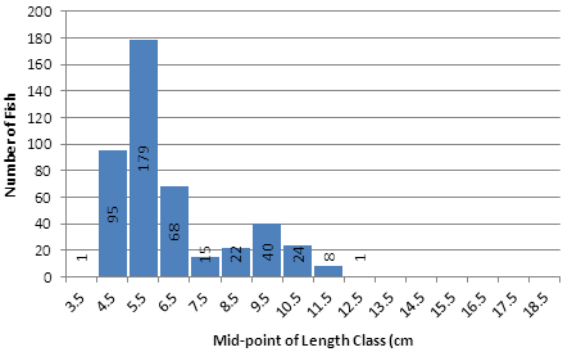


Figure A.1.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Newport Catchment.

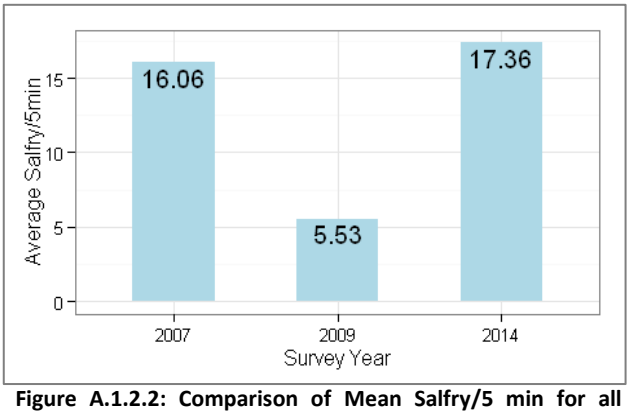


Figure A.1.2.2: Comparison of Mean Salfry/5 min for all surveys on the Newport catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2007	11	1				8.96
2009	6	1				15.36
2014	27					3.98

Table A.1.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	619	-216	O/CR		
2008	2009	319	319	O/CR	5.53	
2009	2010	319	372	O/CR		
2010	2011	523	405	O/CR		
2011	2012	523	448	O/CR		
2012	2013	523	492	O/CR		
2013	2014	506	305	O/CR	17.36	11.45

Table A.1.2.2: Conservation limits and provisional returns on the Newport catchment along with the 2014 CWEF fishing result.

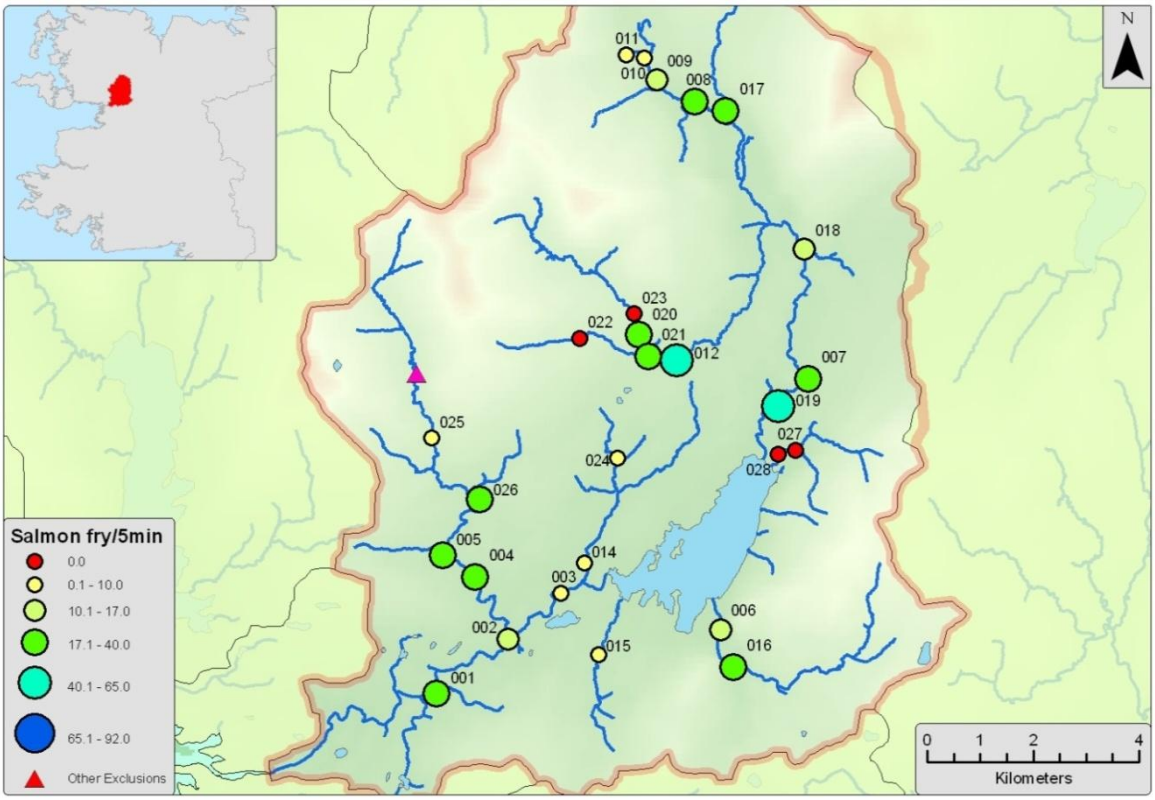
This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. The survey comprised 27 sites, 28 of which were included in the analysis giving a good coverage of 3.98 km per survey site. Salmon fry were present at 23 sites. The maximum fry catch was 47 salmon at site 12. The mean catch of included sites was 17.36salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Conclusion

The Newport had a mean catch of 17.36 salfry/5min in 2014 resulting in a cumulative average of 12.99 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 minute. The SSC assess that, based on rod catch, this river is meeting exceeding its conservation limit and has recommended that the Newport would be open for angling in 2015.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	101965	295358	5	2	17	Include	25.5
002	103307	296407	5	1	12	Include	16
003	104309	297286	4	2	3	Include	3
004	102690	297593	4	3	20	Include	25.71
005	102073	298017	4	1	20	Include	25.22
006	107332	296586	3	1	11	Include	14.24
007	108982	301386	4	1	22	Include	26.4
008	106841	306712	3	1	25	Include	32
009	106124	307127	3	1	9	Include	11.37
010	105896	307550	2	1	7	Include	9.33
011	105541	307609	2	2	3	Include	4
012	106505	301755	3	1	47	Include	60.56
014	104752	297866	3	2	5	Include	5.63
015	105021	296100	3	2	2	Include	2.2
016	107574	295869	3	1	21	Include	25.67
017	107431	306533	2	1	23	Include	30.93
018	108913	303876	3	2	10	Include	12
019	108429	300878	4	2	32	Include	42
020	105787	302240	3	2	21	Include	31
021	105964	301818	3	2	23	Include	25.88
022	104675	302169	2	1	0	Include	0
023	105700	302637	3	2	0	Include	0
024	105387	299869	2	3	2	Include	2
025	101875	300258	3	2	4	Include	4.55
026	102773	299083	4	1	27	Include	33.52
027	108747	300024	3	2	0	Include	0
028	108428	299948	3	1	0	Include	0
013	101591	301492	3	1	0	Above Impassable Barrier	

Table A.1.2.3: Site specific Results of CWEF on the Newport catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Newport River.

A.6.5 River Owengarve.

IFI Salmon Catchment #: 3
2014 survey dates: 18/9/2014 – 30/9/2014
Mean Salmon Fry/5 min (2014): 6.19 fry/5min.
CWEF Index: 5.85 fry/5min.

Sampling carried out by:

Danny Breen
Tony Holmes.

Fish Species Present:

Brown Trout
European Eel
Minnow
Salmon
Stone Loach
Three-spined Stickleback

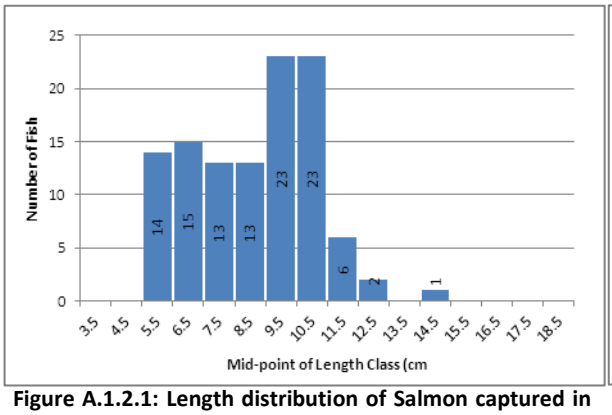


Figure A.1.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Owengarve Catchment.

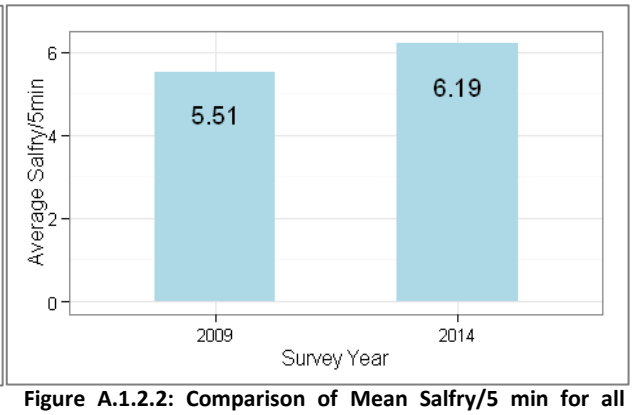


Figure A.1.2.2: Comparison of Mean Salfry/5 min for all surveys on the Owengarve catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	3	1				6.24
2014	9					2.77

Table A.1.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	194	-89	Closed		
2008	2009	194	-89	Closed	5.51	
2009	2010	194	-89	Closed		
2010	2011	194	-89	Closed		
2011	2012	194	-89	Closed		
2012	2013	194	-89	Closed		
2013	2014	227	-143	Closed	6.19	5.85

Table A.1.2.2: Conservation limits and provisional returns on the Owengarve catchment along with the 2014 CWEF fishing result.

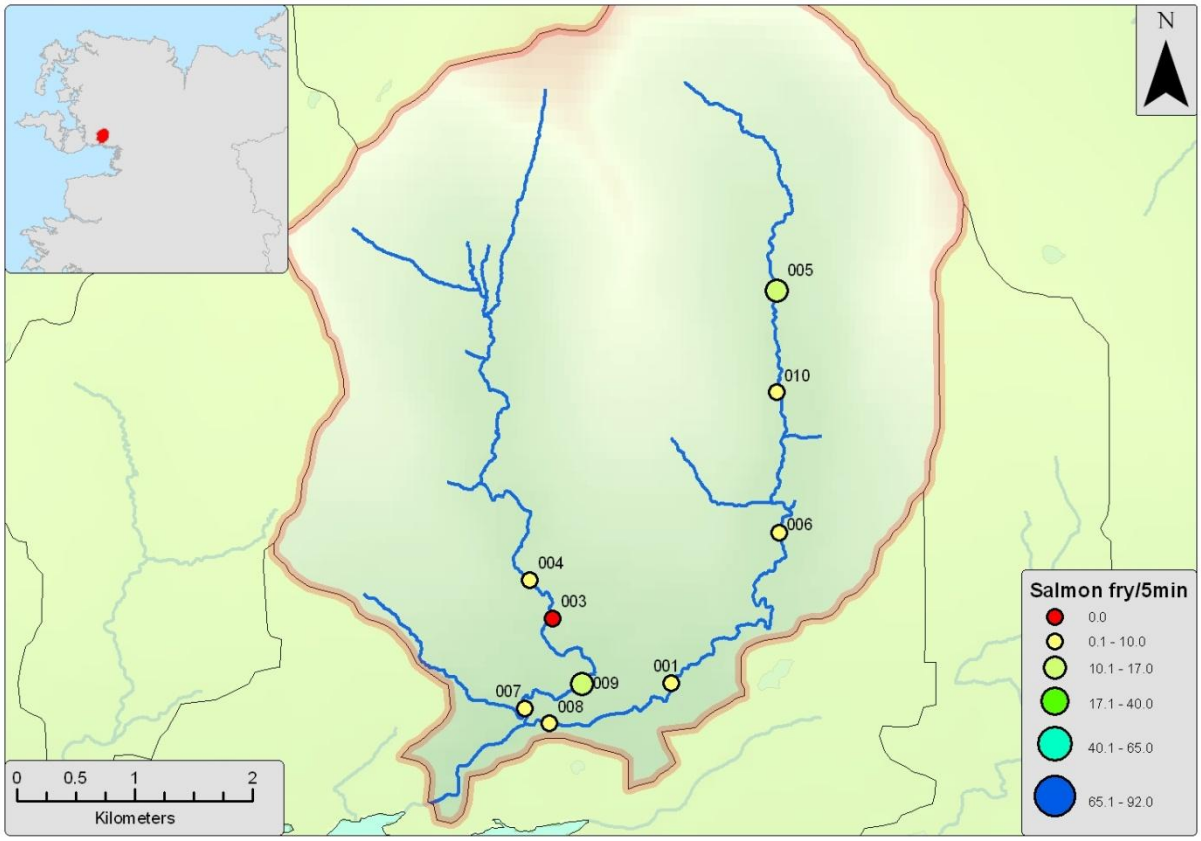
This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during September 2014. The survey comprised 9 sites, all of which were included in the analysis giving a good coverage of 2.77 km per survey site. Salmon fry were present at 8 sites. The maximum fry catch was 14 salmon at site 5.The mean catch of included sites was 6.19 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5 cm.

Conclusion

The Owengarve had a mean catch of 6.19 salfry/5min in 2014 resulting in a cumulative average of 5.85 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 minute. It is recommended based on electro-fishing results that the Owengarve would be closed for angling in 2015.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	90429	297021	3	3	6	Include	7.5
003	89421	297570	3	2	0	Include	0
004	89226	297897	3	1	2	Include	3.11
005	91325	300360	3	2	14	Include	15.27
006	91346	298297	3	2	2	Include	2.33
007	89185	296804	3	2	7	Include	9
008	89394	296681	3	2	1	Include	1.5
009	89670	297009	3	2	12	Include	14
010	91325	299924	2	3	2	Include	3

Table A.1.2.3: Site specific Results of CWEF on the Owengarve catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Owengarve River.

A.6.6 River Owenduff.

IFI Salmon Catchment #: 185
2014 survey dates: 25/9/2014 - 30/9/2014
Mean Salmon Fry/5 min (2014): 6.2 fry/5min.
CWEF Index: 6.1 fry/5min.

Sampling carried out by:

G Stadler
Gerry Sweeney
Tommy Ginnelly.

Fish Species Present:

Brown Trout
European Eel
Salmon

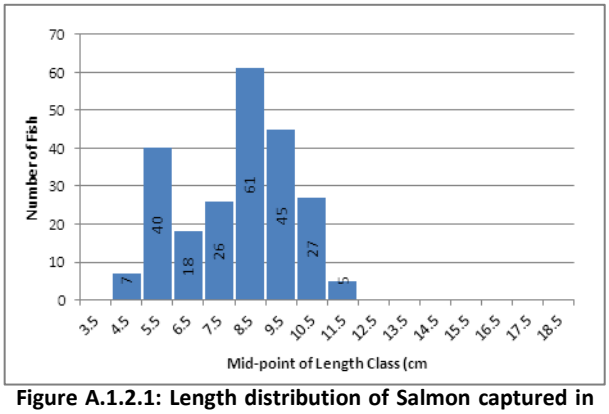


Figure A.1.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Owenduff Catchment.

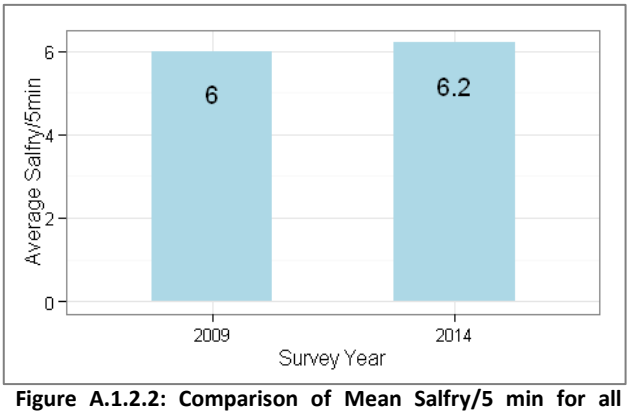


Figure A.1.2.2: Comparison of Mean Salfry/5 min for all surveys on the Owenduff catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	1	1				63.65
2014	14					9.09

Table A.1.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	1058	1038	Open		
2008	2009	537	1437	Open	6.00	
2009	2010	925	1024	Open		
2010	2011	925	1183	Open		
2011	2012	925	1850	Open		
2012	2013	925	1732	Open		
2013	2014	711	1422	Open	6.20	6.10

Table A.1.2.2: Conservation limits and provisional returns on the Owenduff catchment along with the 2014 CWEF fishing result.

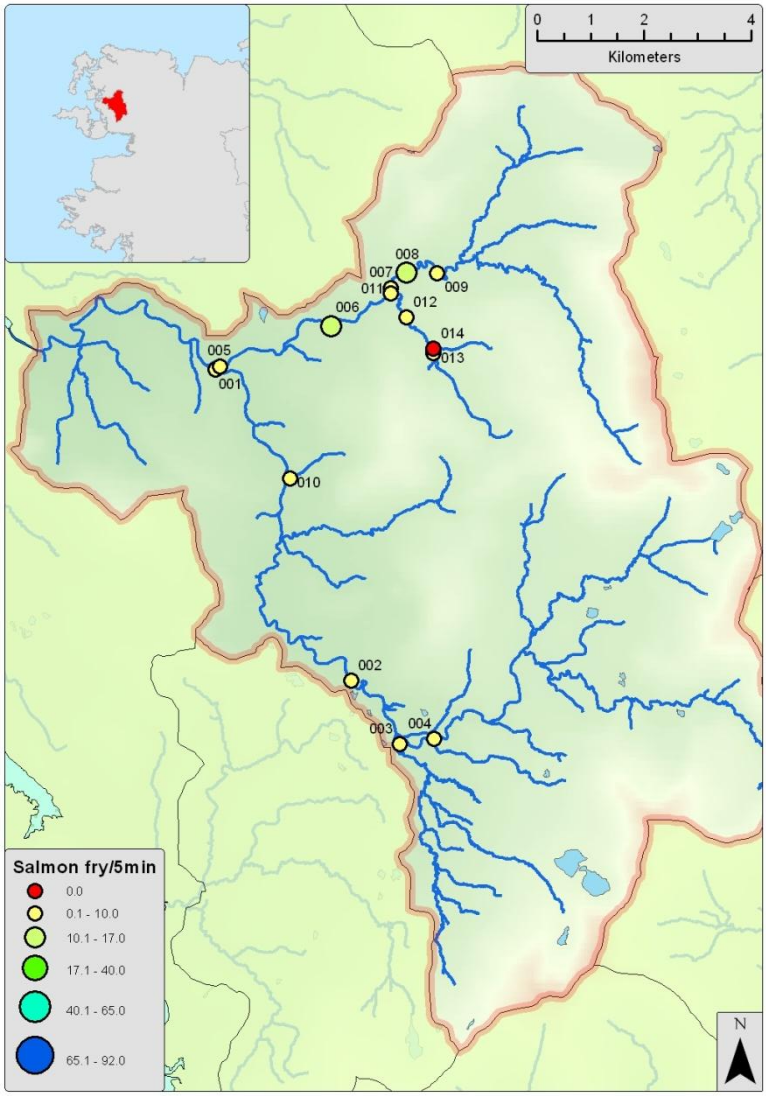
The survey was carried out during September 2014. The survey comprised 14 sites, all of which were included in the analysis. Only one major branch of the catchment was intensively surveyed. . Salmon fry were present at all but one site. The maximum fry catch was 12 salmon at site 8. The mean catch of included sites was 6.2 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Conclusion

The Owenduff had a mean catch of 6.2 salfry/5min in 2014 resulting in a cumulative average of 6 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 minute. The survey is considered as a partial survey as a large area of the catchment was not surveyed. The SSC assess that this river is exceeding its conservation limit based on fish counter data.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	83204	314287	5	2	6	Include	8
002	85737	308477	5	2	4	Include	5
003	86649	307287	4	2	3	Include	3.6
004	87293	307388	4	2	8	Include	10
005	83290	314347	4	2	6	Include	7
006	85369	315101	4	2	11	Include	13
007	86482	315814	4	2	7	Include	8.75
008	86776	316097	4	2	12	Include	14.57
009	87344	316093	4	2	6	Include	7
010	84596	312247	2	3	4	Include	5
011	86477	315715	3	0	1	Include	1.25
012	86767	315265	3	2	2	Include	2.29
013	87281	314595	3	2	1	Include	1.33
014	87276	314673	2	3	0	Include	0

Table A.1.2.3: Site specific Results of CWEF on the Owenduff catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Owenduff River.

A.6.7 River Brusna.

IFI Salmon Catchment #: 1963
2014 survey dates: 29/8/2014 - 18/9/2014
Mean Salmon Fry/5 min (2014): 14.74 fry/5min.
CWEF Index: 11.20 fry/5min.

Sampling carried out by:

Brian Flannerry GT
DD OC
DO

Fish Species Present:

Brown Trout Salmon
European Eel Three-spined Stickleback

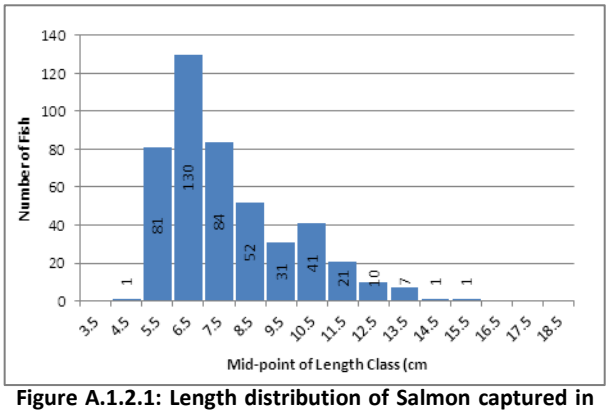


Figure A.1.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Brusna Catchment.

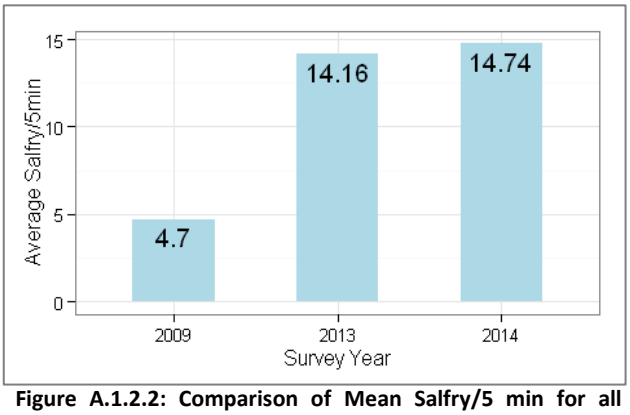


Figure A.1.2.2: Comparison of Mean Salfry/5 min for all surveys on the Brusna catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	34	1				2.94
2013	30					3.42
2014	27	1				3.67

Table A.1.2.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	1113	-692	Closed		
2008	2009	1113	-692	Closed	4.70	
2009	2010	1113	-692	Closed		
2010	2011	1113	-692	Closed		
2011	2012	1113	-692	Closed		
2012	2013	1113	-692	Closed	14.16	
2013	2014	1096	-834	Closed	14.74	11.20

Table A.1.2.2: Conservation limits and provisional returns on the Brusna catchment along with the 2014 CWEF fishing result.

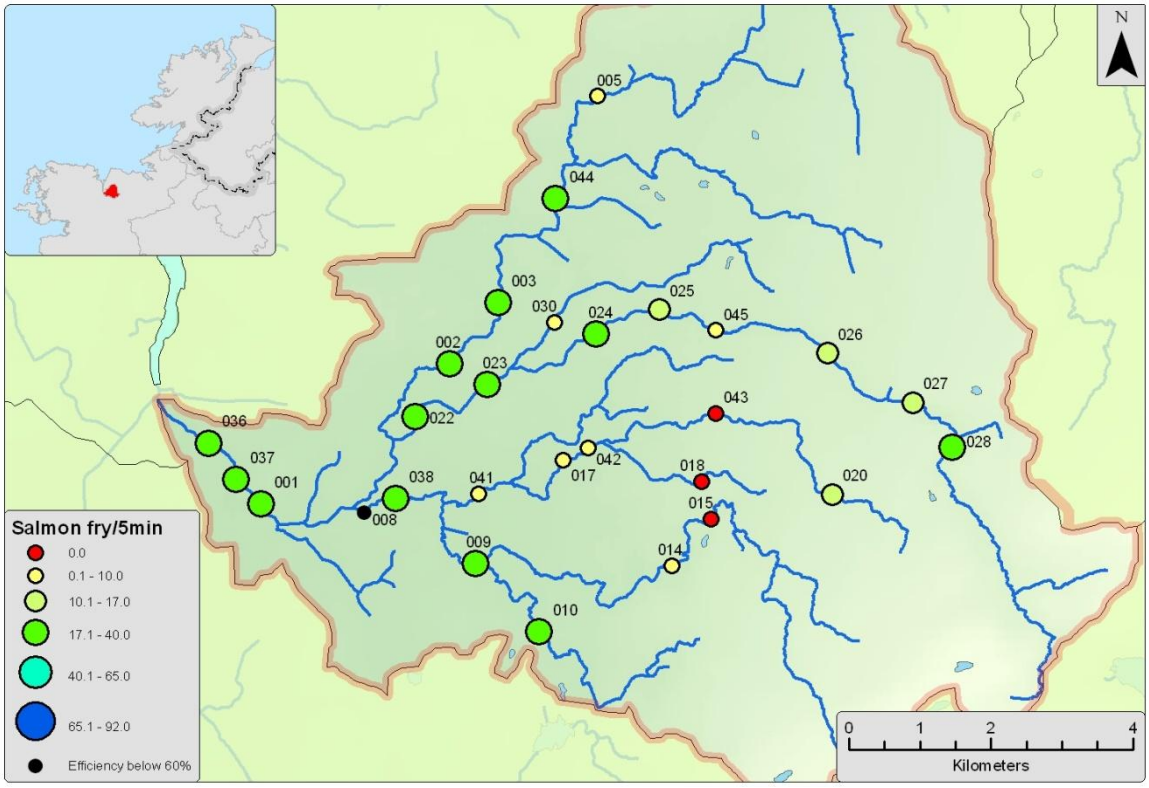
This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August and September 2014. The survey comprised 28 sites, 27 of which were included in the analysis giving a good coverage of 3.67 km per survey site. Salmon fry were present at 25 sites. The maximum fry catch was 29 salmon at site 44. The mean catch of included sites was 14.74 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 6.5cm.

Conclusion

The Brusna had a mean catch of 14.74 salfry/5min in 2014 resulting in a cumulative average of 11.20salmon fry/5min; this is below the threshold of 17 salmon fry per 5 minute. It is recommended based on electro-fishing results that the Brusna would be closed for angling in 2015.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/ 5min
001	126851	318060	6	2	18	Include	24
002	129514	320081	4	1	15	Include	20
003	130197	320963	4	2	23	Include	27.42
005	131601	323939	3	2	5	Include	7
008	128311	317946	5	2	2	Efficiency below 60%	
009	129874	317200	4	1	20	Include	20
010	130775	316223	3	2	23	Include	27.79
014	132650	317175	3	2	3	Include	3.75
015	133195	317846	3	2	0	Include	0
017	131117	318689	3	1	6	Include	7.8
018	133069	318383	3	2	0	Include	0
020	134904	318202	2	1	9	Include	12
022	129031	319319	4	1	22	Include	26.58
023	130041	319786	4	1	17	Include	22
024	131576	320509	3	2	18	Include	21
025	132464	320863	3	1	14	Include	15.87
026	134836	320234	3	2	12	Include	17
027	136039	319523	3	2	8	Include	11
028	136595	318885	3	1	13	Include	18
030	130987	320678	3	3	1	Include	1
036	126115	318939		1	15	Include	20
037	126507	318420		1	23	Include	30.96
038	128750	318141		1	12	Include	17.54
041	129916	318211		2	5	Include	5.94
042	131470	318869	3	2	2	Include	2.5
043	133266	319364	2	2	0	Include	0
044	131004	322464	4	2	29	Include	34
045	133263	320567	3	1	4	Include	4.89

Table A.1.2.3: Site specific Results of CWEF on the Brusna catchment in 2014.



Map A.1.2.1: Showing locations of 2014 survey sites on Brusna River.

A.7 North Western River Basin District.

A.7.1 Summary

Since 2007, Thirty one rivers have been surveyed in the North Western River Basin District (ERFB) as part of the on-going catchment-wide electrofishing surveys. These are presented in table A.4.7; Nine rivers: The Abbey, Eany, Oily, Bungosteen, Glen, Owentocker, Clady the Lackagh and the Leannan currently have a survey average salmon fry capture rate of greater than 17 fry per 5min,. Ten rivers were surveyed in 2014, The Abbey, Ballintra, Ray and the Leannan all had survey results above 17 salmon fry/5min for this survey The Owenamarve and Swilly had a poor results the Erne survey encountered salmon but only at sites where brood stock had been released in 2013.

	Survey Year								Current Index	# of Annual Surveys Considered
IFI Code/ River	2007	2008	2009	2010	2011	2012	2013	2014		
208/Duff	7.84	9.31	18.59	25.16					15.23	4
210/Erne		7.37	0.17	0.29	0.06	0.00	0.00	1.60	0.39	5
211/Abbey							7.20	28.14	17.67	2
212/Ballintra			10.27				13.40	18.07	13.91	3
213/Laghy			8.58				14.97	11.02	11.52	3
214/Eske		13.10	16.99	16.30					15.46	3
215/Eany				15.86		30.08			22.97	2
216/Oily			9.49		33.68			16.62	19.93	3
217/Bungosteen					25.12		17.09		21.11	2
219/Glen				19.44					19.44	1
220/Owenwee	21.45	5.00	14.81			20.31	19.65		16.24	5
221/Bracky		10.82				21.57		12.24	14.88	3
222/Owentocker		20.06							20.06	1
226/Owenamarve			3.76				2.64	1.00	2.47	3
228/Gweedore		15.99			11.32				13.65	2
229/Clady		16.12				37.21			26.67	2
234/Glenna			16.80		3.77		7.77		9.45	3
235/Tullaghobegly		8.33		9.05					8.69	2
236/Ray		6.43			14.89			17.31	12.88	3
240/Lackagh		18.86	15.82		19.20	23.57			19.36	4
248/Leannan	9.47	7.41	8.73	16.71	12.36	21.51	19.51	18.71	17.76	5
249/Swilly		9.33	7.36				18.08	8.05	10.71	4
250/Isle (Burn)						2.12			2.12	1
251/Burnfoot		7.77		2.90					5.33	2
252/Mill				0.00					0.00	1
253/Crana			15.74						15.74	1
256/Clonmany		16.61		6.59					11.60	2
257/Straid				0.20					0.20	1
258/Donagh				4.25					4.25	1
259/Glennagannon			16.65		4.05		7.13		9.28	3
261/Culoort				4.03					4.03	1

Table A.7.1.1: Catchment-wide Electrofishing data for NWRBD 2007- 2014 showing the average salmon fry captured /5min for each year surveyed. Also shown is the Surveys Mean capture rate.

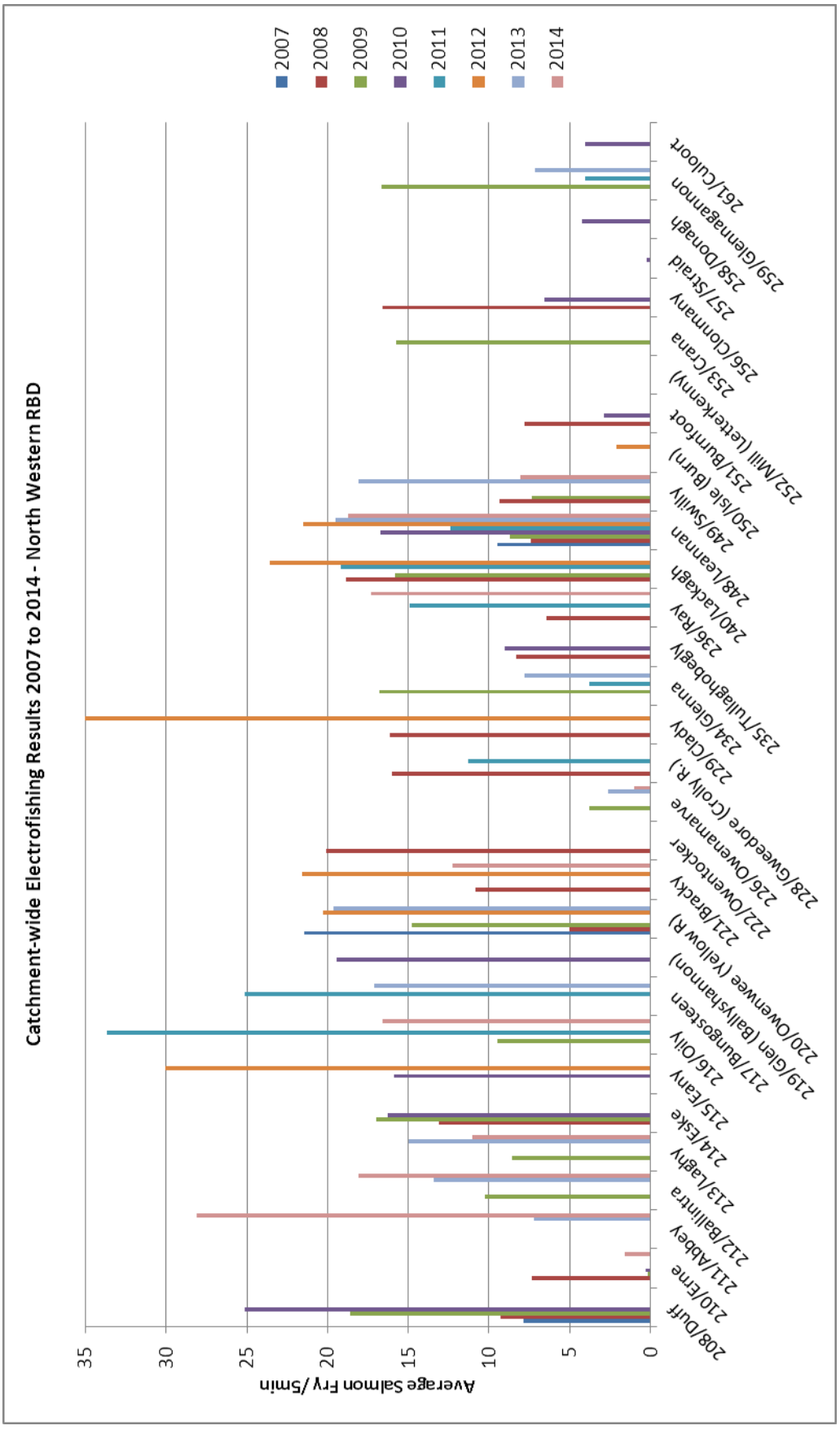


Chart A.7.1: Summary of CWEF results in NWRFB from 2009 to 2013.

A.7.2 River Erne.

IFI Salmon Catchment #: 210
2014 survey dates: 15/7/2014 - 24/9/2014
Mean Salmon Fry/5 min (2014): 1.6 fry/5min.
CWEF Index: 0.34 fry/5min.

Sampling carried out by:

Kevan Murphy
Frank Greene
Val Fitzpatrick
Henry Keating
Jimmy O'Rielly
Tony Holmes

Fish Species Present:

Brown Trout
European Eel
Minnow
Salmon
Stone Loach
Three-spined Stickleback

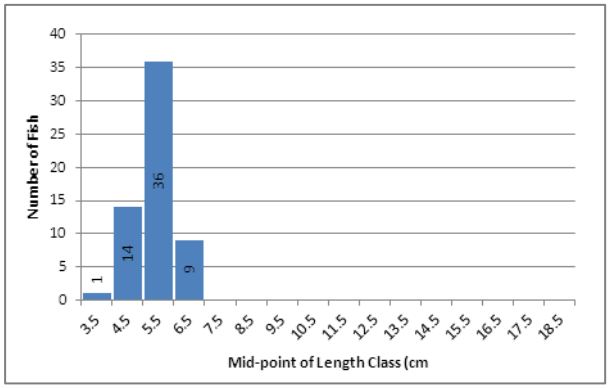


Figure A.7.2.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Erne Catchment.

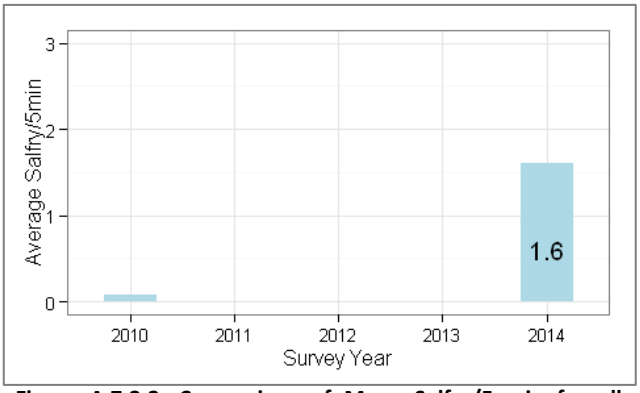


Figure A.7.2.2: Comparison of Mean Salfry/5 min for all surveys on the Erne catchment to 2014.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008			Closed	7.37	
2008	2009			Closed	0.17	
2009	2010			Closed	0.08	
2010	2011			Closed	0.00	
2011	2012			Closed	0.00	
2012	2013			Closed	0.00	
2013	2014	16554	-14692	Closed	1.60	0.34

Table A.7.2.1: Conservation limits and provisional returns on the Erne catchment along with the 2014 CWEF fishing result.

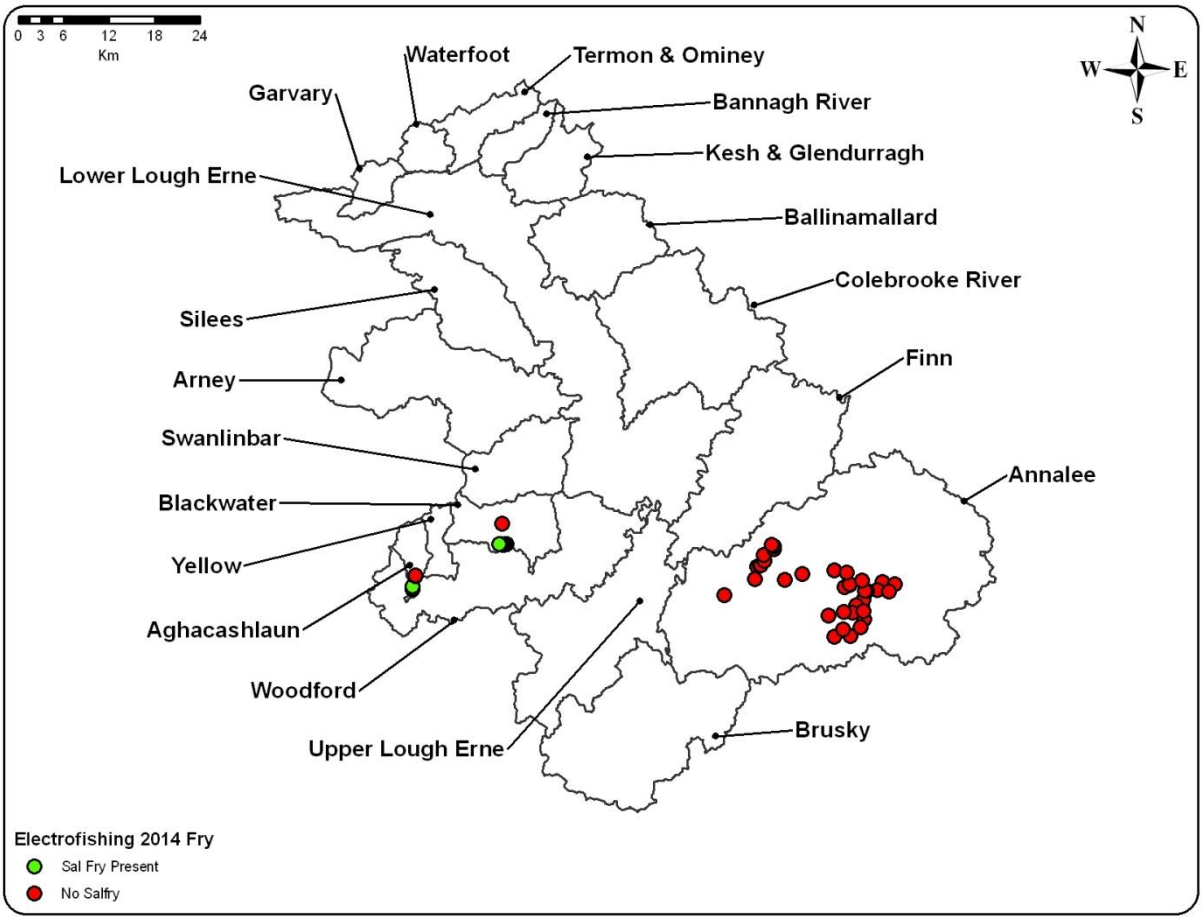
This, the seventh CWEF survey of this catchment in the 2007 to 2014 period, was carried out from July to September 2014. The survey comprised 50 sites, 43 of which were included in the analysis. Salmon fry were present at 9 sites all in areas close to where broodstock had been released in late 2013. The maximum fry catch was 15 salmon at site 130. The mean catch of included sites was 1.6 salmon fry/5min. One cohort of juvenile salmon was captured; the modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
084	264846	310040	3	3	0	Include	0
085	264591	310006	3	3	0	Include	0
086	246015	309435	3	2	0	Include	0
087	263403	308148	2	1	0	Include	0
089	261908	310547	2	2	0	Include	0
092	259793	306764	2	3	0	Include	0
093	261835	307217	2	2	0	Include	0
094	267795	309958	3	2	0	Include	0
095	264064	305245	3	2	0	Include	0
096	264357	307348	3	2	0	Include	0
100	260551	312747	2	3	0	Include	0
101	262644	304055	3	3	0	Include	0
102	264547	306300	3	3	0	Include	0
103	264210	308120	3	2	0	Include	0
104	264358	308913	3	1	0	Include	0
106	216726	318917		2	0	Include	0
107	0	0		2	0	Include	0
108	250418	313165	3	3	0	Include	0
109	250729	313435	3	3	0	Include	0
110	250863	313412	3	3	0	Include	0
111	251302	313973	3	2	0	Include	0
112	251273	314706	3	2	0	Include	0
113	252576	315500	3	2	0	Include	0
114	252554	315930	3	2	0	Include	0
115	252327	316110	3	2	0	Include	0
116	250086	311539	5	0	0	Include	0
117	254061	311427	5	2	0	Include	0
118	256310	312238	4	3	0	Include	0
119	262535	310777	4	3	0	Include	0
120	266201	310160	4	2	0	Include	0
121	268518	310864	3	2	0	Include	0
122	217293	316197	4	3	3	Include	3
123	217191	316177	4	2	9	Include	10.5
124	216968	316105	4	2	3	Include	3
125	216787	316084	4	1	0	Include	0
126	216558	316140	4	2	6	Include	7.38
127	216503	316144	3	2	2	Include	2.33
128	216348	316190	3	2	4	Include	4
129	204877	310265	3	1	11	Include	13.06
130	204926	310428	3	1	15	Include	16.88
131	204923	310611	3	2	7	Include	8.75
132	205284	311963	3	3	0	Include	0
133	205334	312039	3	2	0	Include	0
088	262988	307103	1	0	0	Stream order<2	
090	262593	310859	1	0	0	Stream order<2	
091	260554	303986	1	3	0	Stream order<2	
097	261665	304917	1	2	0	Stream order<2	
098	264192	311400	1	3	0	Stream order<2	
099	262151	312455	1	3	0	Stream order<2	
105	266919	311187	1	0	0	Stream order<2	

Table A.7.2.3: Site specific Results of CWEF on the Erne catchment in 2014.

Conclusion

The Erne had a mean catch of 1.6 salfry/5min in 2014 resulting in a cumulative average of 0.34 salmon fry/5min; this is well below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Erne would remain closed to angling in 2015.



Map A.7.2.1: Showing locations of 2014 survey sites on Erne River.

A.7.3 River Abbey.

IFI Salmon Catchment #: 3
2014 survey dates: 23/7/2014 – 27/7/2014
Mean Salmon Fry/5 min (2014): 28.44 fry/5min.
CWEF Index: 17.67 fry/5min.

Sampling carried out by:

Chris Britton.
Paul Gallagher

Fish Species Present:

Brown Trout
European Eel
Pike
Salmon

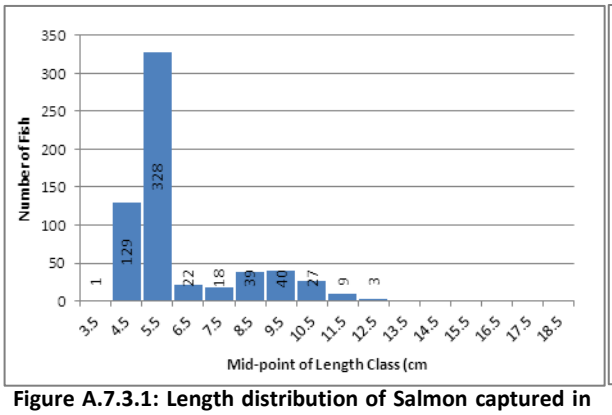


Figure A.7.3.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Abbey Catchment.

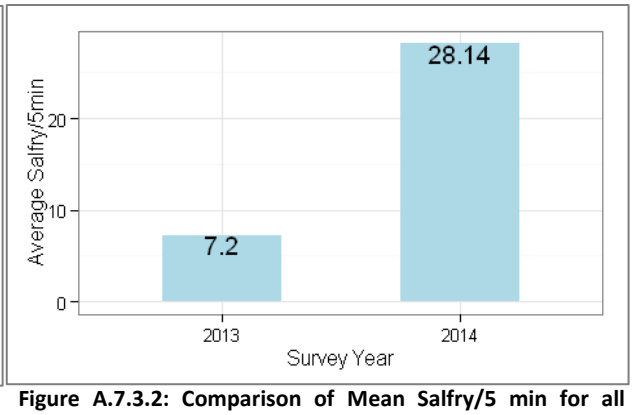


Figure A.7.3.2: Comparison of Mean Salfry/5 min for all surveys on the Abbey catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2013	2					14.81
2014	19					1.56

Table A.7.3.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	276	-122	Closed		
2008	2009	276	-122	Closed		
2009	2010	276	-122	Closed		
2010	2011	276	-122	Closed		
2011	2012	276	-122	Closed		
2012	2013	276	-122	Closed	7.20	
2013	2014	333	-207	Closed	28.14	17.67

Table A.7.3.2: Conservation limits and provisional returns on the Abbey catchment along with the 2014 CWEF fishing result.

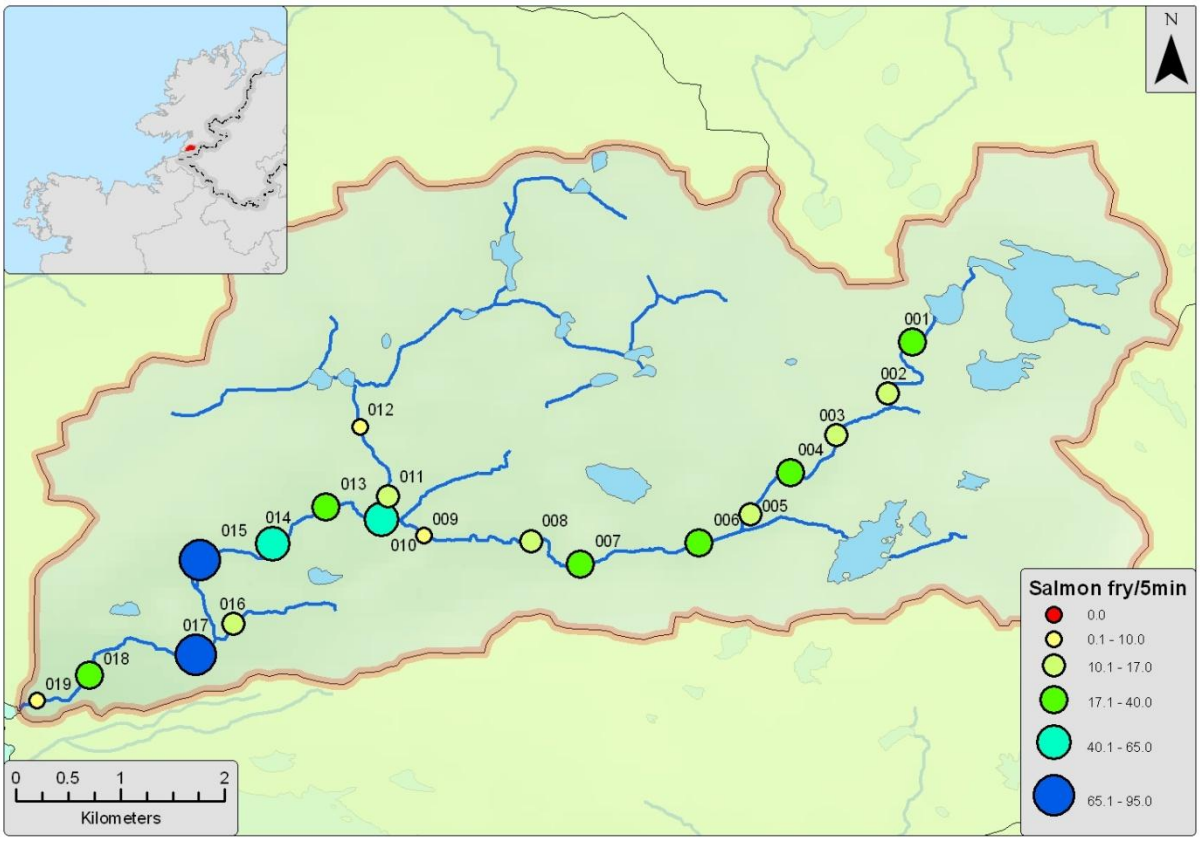
This, the second CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The survey comprised 19 sites, all of which were included in the analysis giving a good coverage of 1.56 km per survey site. Salmon fry were present at all sites. The maximum fry catch was an exceptional 86 salmon at site 15. The mean catch of included sites was 28.14 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Conclusion

The Abbey had a mean catch of 28.14 salfry/5min in 2014 resulting in a cumulative average of 17.67 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 minute.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	195391	365676	2	1	18	Include	19.93
002	195160	365179	2	2	14	Include	14
003	194663	364779	3	1	13	Include	14.95
004	194226	364419	3	1	18	Include	20.08
005	193843	364020	3	2	9	Include	10.06
006	193348	363745	3		38	Include	39.62
007	192211	363538	3	1	24	Include	27.84
008	191738	363764	3	2	14	Include	14.78
009	190714	363813	3	2	6	Include	6.5
010	190305	363972	4	1	39	Include	40.77
011	190368	364191	4	1	15	Include	16.15
012	190097	364861	4	2	4	Include	4.5
013	189772	364092	4	1	26	Include	26.9
014	189259	363739	4	1	60	Include	62.54
015	188567	363582	4	1	86	Include	93.96
016	188887	362969	2	1	12	Include	12
017	188522	362671	4	1	57	Include	65.51
018	187502	362475	4	2	37	Include	39.52
019	187006	362229	4	3	5	Include	5

Table A.7.3.3: Site specific Results of CWEF on the Abbey catchment in 2014.



Map A.7.3.1: Showing locations of 2014 survey sites on Abbey River.

A.7.4 River Ballintra.

IFI Salmon Catchment #: 212
2014 survey dates: 31/7/2014 - 10/9/2014
Mean Salmon Fry/5 min (2014): 18.07 fry/5min.
CWEF Index: 13.91 fry/5min.

Sampling carried out by:

Chris Britton.
Paul Gallagher

Fish Species Present:

Brown Trout
European Eel
Flounder
Salmon

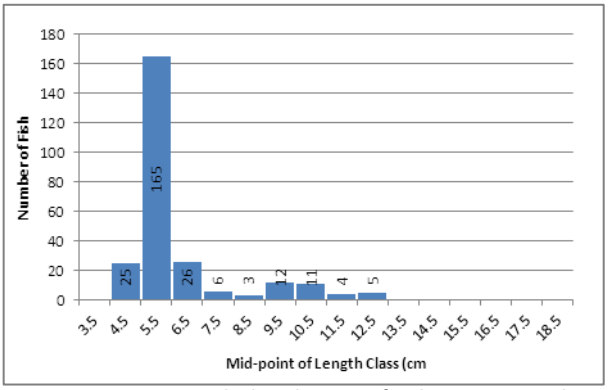


Figure A.7.4.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Ballintra Catchment.

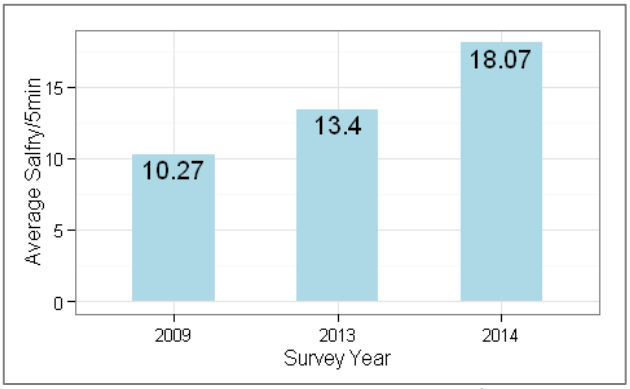


Figure A.7.4.2: Comparison of Mean Salfry/5 min for all surveys on the Ballintra catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	3					27.72
2013	16					5.20
2014	13					6.40

Table A.7.4.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

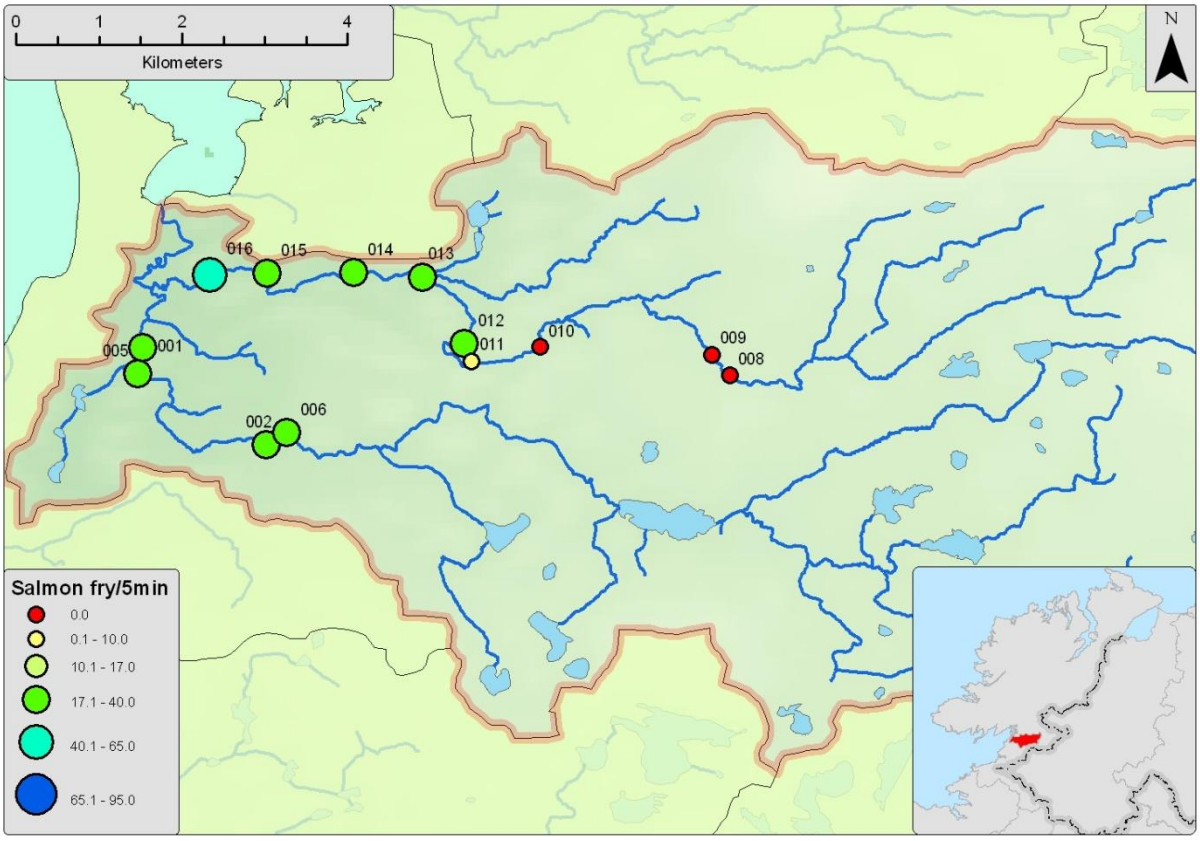
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	407	-148	Closed		
2008	2009	407	-148	Closed	10.27	
2009	2010	407	-197	Closed		
2010	2011	407	-197	Closed		
2011	2012	407	-197	Closed		
2012	2013	407	-197	Closed	13.40	
2013	2014	546	-321	Closed	18.07	13.91

Table A.7.4.2: Conservation limits and provisional returns on the Ballintra catchment along with the 2014 CWEF fishing result.

This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July and August 2014. The survey comprised 13 sites, all of which were included in the analysis giving coverage of 6.4 km per survey site. Salmon fry were present at 10 sites. The maximum fry catch was 38 salmon at site 16. The mean catch of included sites was 18.07 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	190280	370948	4	1	21	Include	21.95
002	191769	369772	4	1	24	Include	24.45
005	190218	370630		1	21	Include	22
006	192015	369926		1	17	Include	17.92
008	197366	370612		2	0	Include	0
009	197151	370860		1	0	Include	0
010	195076	370960		0	0	Include	0
011	194244	370785		2	7	Include	8.31
012	194153	370999		1	32	Include	33.94
013	193655	371803		2	18	Include	18
014	192821	371858		2	23	Include	24.64
015	191779	371848		3	21	Include	22.91
016	191085	371831		1	38	Include	40.78

Table A.7.4.3: Site specific Results of CWEF on the Ballintra catchment in 2014.



Map A.7.4.1: Showing locations of 2014 survey sites on Ballintra River.

Conclusion

The Ballintra had a mean catch of 18.07 salfry/5min in 2014 resulting in a cumulative average of 13.91 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Ballintra would be closed to angling in 2015.

A.7.5 River Laghy.

IFI Salmon Catchment #: 213
2014 survey dates: 29/8/2014 - 18/9/2014
Mean Salmon Fry/5 min (2014): 11.02 fry/5min.
CWEF Index: 11.52 fry/5min.

Sampling carried out by:

Chris Britton.
Paul Gallagher.

Fish Species Present:

Brown Trout
European Eel
Flounder
Salmon
Sea Trout

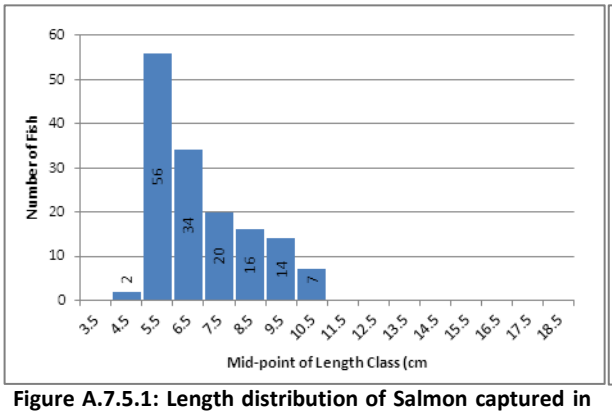


Figure A.7.5.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Laghy Catchment.

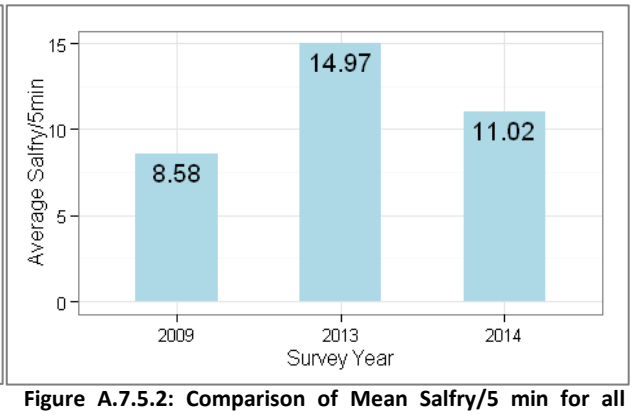


Figure A.7.5.2: Comparison of Mean Salfry/5 min for all surveys on the Laghy catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	9					5.19
2013	11					4.25
2014	11	1				3.89

Table A.7.5.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

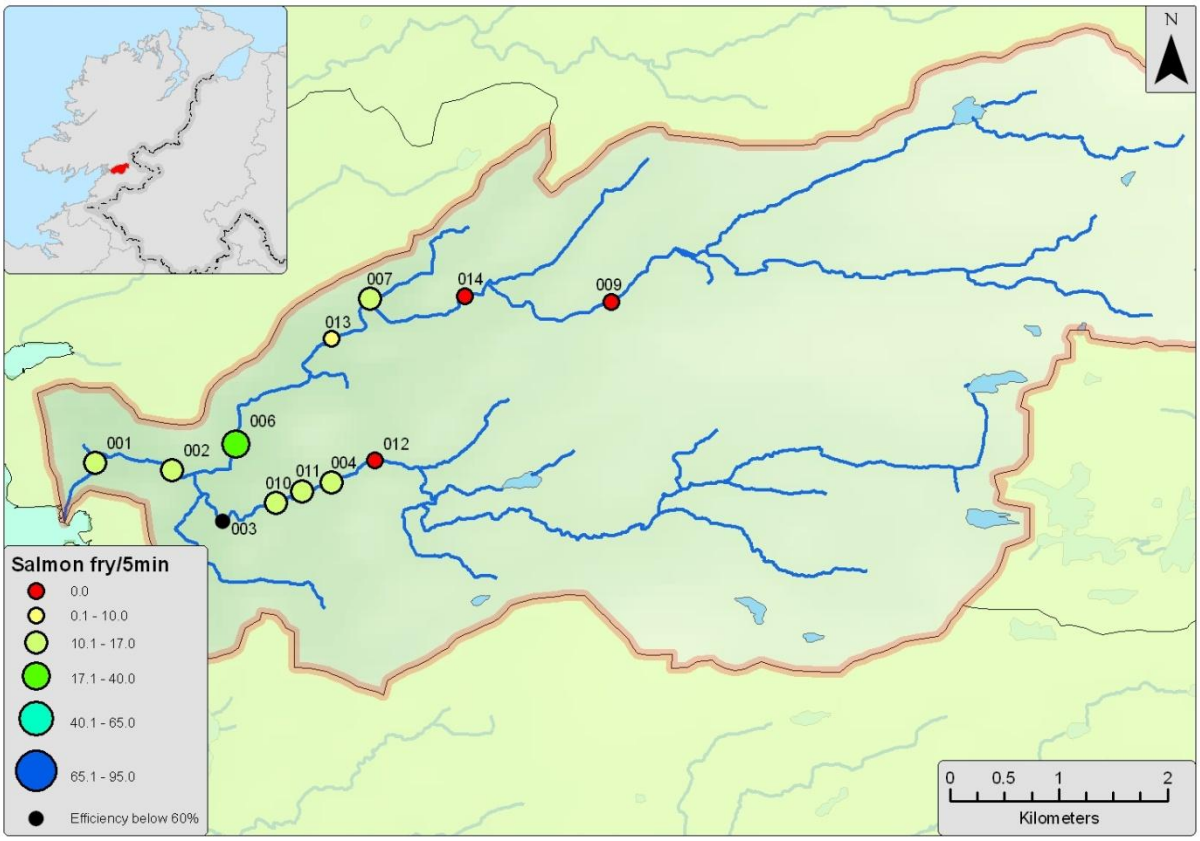
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	479	-211	Closed		
2008	2009	479	-211	Closed	8.58	
2009	2010	479	-211	Closed		
2010	2011	479	-211	Closed		
2011	2012	479	-211	Closed		
2012	2013	479	-211	Closed	14.97	
2013	2014	447	-253	Closed	11.02	11.52

Table A.7.5.2: Conservation limits and provisional returns on the Laghy catchment along with the 2014 CWEF fishing result.

This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August and September 2014. The survey comprised 12 sites, 11 of which were included in the analysis giving a good coverage of 3.89 km per survey site. Salmon fry were present at 8 sites. The maximum fry catch was 19 salmon at site 6. The mean catch of included sites was 11.02 salmon fry/5min. The modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	193310	374996	4	1	12	Include	13.85
002	194020	374929	4	2	14	Include	14
003	194485	374468	3	2	1	Efficiency below 60%	
004	195485	374816	3	2	14	Include	15.75
006	194601	375173	4	1	19	Include	22.3
007	195836	376510	2		12	Include	13.92
009	198059	376483	4	2	0	Include	0
010	194974	374628		1	13	Include	14.53
011	195216	374738		1	17	Include	17
012	195884	375018		3	0	Include	0
013	195487	376141		1	9	Include	9.82
014	196709	376538		1	0	Include	0

Table A.7.5.3: Site specific Results of CWEF on the Laghy catchment in 2014.



Map A.7.5.1: Showing locations of 2014 survey sites on Laghy River.

Conclusion

The Laghy had a mean catch of 11.02 salfry/5min in 2014 resulting in a cumulative average of 11.52 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Laghy would be closed to in 2015.

A.7.6 River Oily.

IFI Salmon Catchment #: 216
2014 survey dates: 26/8/2014 - 10/9/2014
Mean Salmon Fry/5 min (2014): 16.62 fry/5min.
CWEF Index: 19.93 fry/5min.

Sampling carried out by:

Chris Britton.
Paul Gallagher

Fish Species Present:

Brown Trout
European Eel
Margaritifera
Salmon

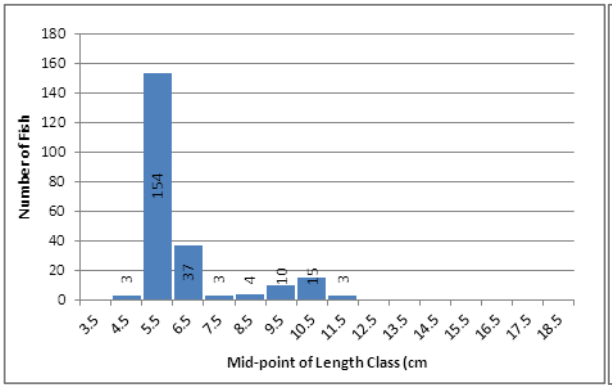


Figure A.7.6.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Oily Catchment.

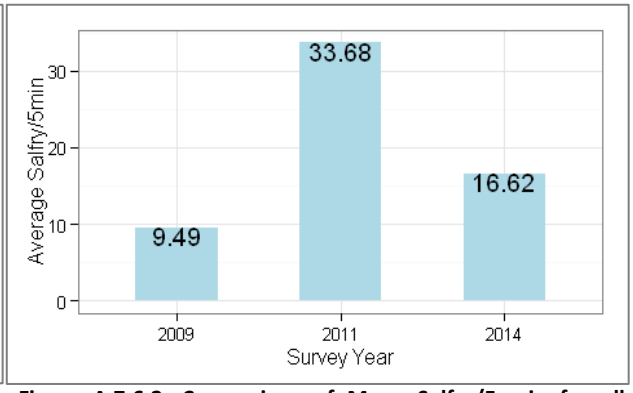


Figure A.7.6.2: Comparison of Mean Salfry/5 min for all surveys on the Oily catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	11					4.20
2011	7					6.60
2014	13					3.55

Table A.7.6.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	549	-155	Catch and Release		
2008	2009	549	-153	Catch and Release	9.49	
2009	2010	549	-153	Catch and Release		
2010	2011	549	-153	Catch and Release	33.68	
2011	2012	549	-153	Catch and Release		
2012	2013	549	-114	Catch and Release		
2013	2014	628	-375	Catch and Release	16.62	19.93

Table A.7.6.2: Conservation limits and provisional returns on the Oily catchment along with the 2014 CWEF fishing result.

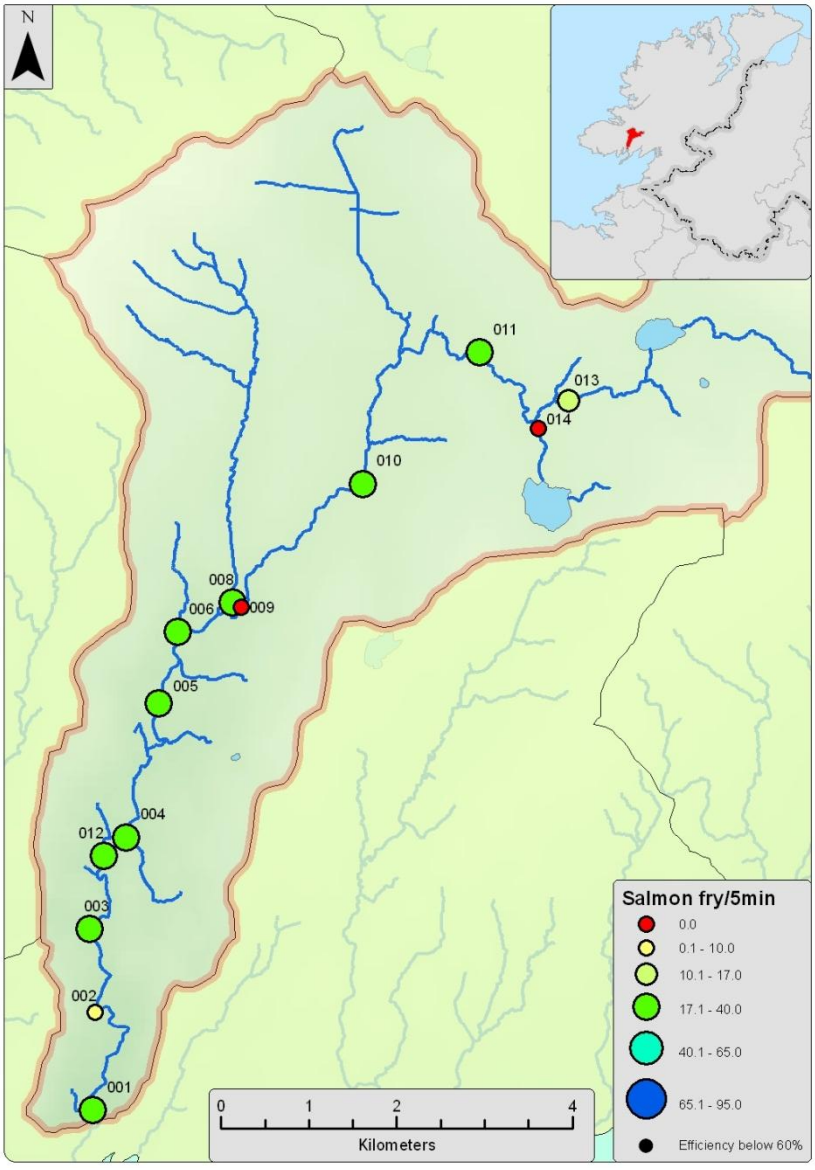
This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during August and September 2014. The survey comprised 13 sites, all of which were included in the analysis giving a good coverage of 3.55 km per survey site. Salmon fry were present at 11 sites. The maximum fry catch was 26 salmon at site 6. The mean catch of included sites was 16.62 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Conclusion

The Oily had a mean catch of 16.62 salfry/5min in 2014 resulting in a cumulative average of 19.93 salmon fry/5min; this is below above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Oily would be closed to open for catch & release angling in 2015.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	174639	377008	4	1	16	Include	17.88
002	174663	378122	4	3	5	Include	5
003	174598	379074	4	1	21	Include	21
004	175019	380117	4	2	21	Include	21
005	175389	381640	4	1	17	Include	19
006	175605	382451	4	1	26	Include	28.36
008	176226	382785	3		23	Include	25.76
009	176323	382731	4	0	0	Include	0
010	177708	384138	4	2	18	Include	20.77
011	179035	385636	3	2	18	Include	20.77
012	174759	379903	4	1	18	Include	20.84
013	180047	385087	3	2	14	Include	15.65
014	179709	384771	2	2	0	Include	0

Table A.7.6.3: Site specific Results of CWEF on the Oily catchment in 2014.



Map A.7.6.1: Showing locations of 2014 survey sites on Oily River.

A.7.7 River Bracky.

IFI Salmon Catchment #: 221
2014 survey dates: 24/7/2014 – 15/7/2014
Mean Salmon Fry/5 min (2014): 12.24 fry/5min.
CWEF Index: 14.88 fry/5min.

Sampling carried out by:

Cormac Goulding
Gabriel Timoney
Paul Burke

Fish Species Present:

Brown Trout
European Eel
Flounder
Salmon
Sea Trout
Three-spined Stickleback

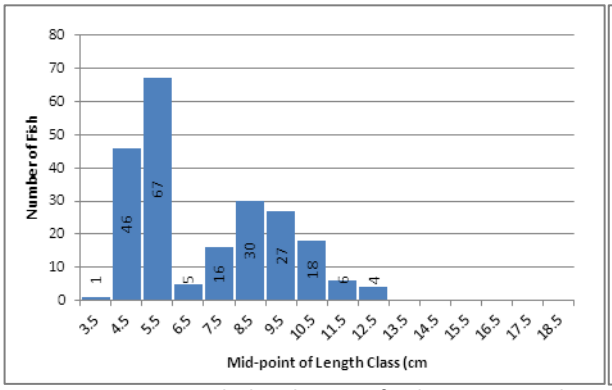


Figure A.7.7.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Bracky Catchment.

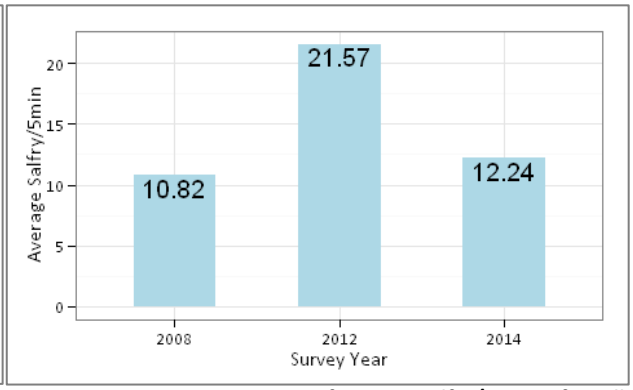


Figure A.7.7.2: Comparison of Mean Salfry/5 min for all surveys on the Bracky catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	8					4.39
2012	12					2.92
2014	12					2.92

Table A.7.7.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

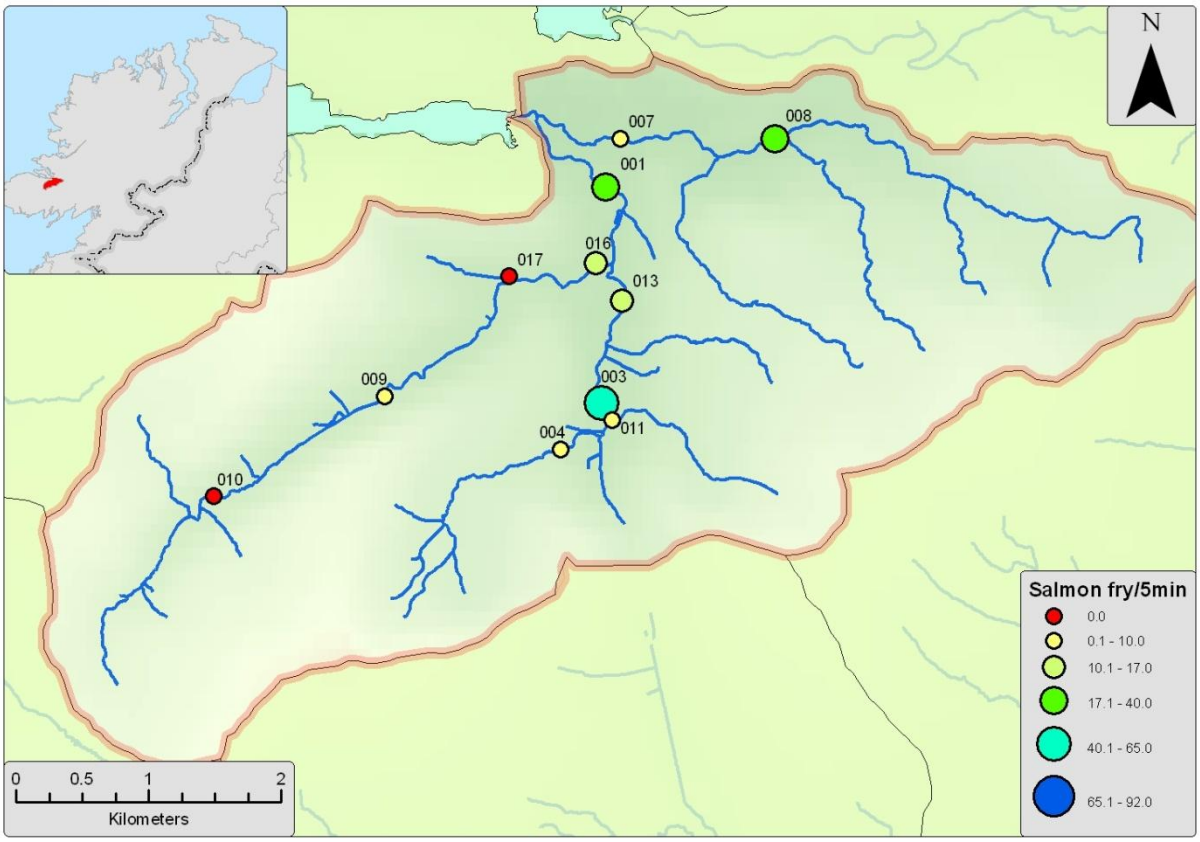
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	305	-47	Catch and Release	10.82	
2008	2009	305	-47	Catch and Release		
2009	2010	305	-47	Catch and Release		
2010	2011	305	-47	Catch and Release		
2011	2012	305	-47	Catch and Release	21.57	
2012	2013	305	-47	Catch and Release		
2013	2014	200	9	Catch and Release	12.24	14.88

Table A.7.7.2: Conservation limits and provisional returns on the Bracky catchment along with the 2014 CWEF fishing result.

This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The survey comprised 12 sites, all of which were included in the analysis giving a good coverage of 2.92 km per survey site. Salmon fry were present at 9 sites. The maximum fry catch was 51 salmon at site 3. The mean catch of included sites was 12.24 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	172797	389479	4	2	17	Include	21.47
003	172767	387852	4	1	51	Include	61.77
004	172457	387500	4	3	1	Include	1.27
007	172907	389845	3	3	3	Include	3.5
008	174070	389843	3	2	17	Include	20.78
009	171129	387902		1	1	Include	1.2
010	169844	387146		2	0	Include	0
011	172845	387724		2	5	Include	6.76
013	172916	388620		1	12	Include	15
016	172722	388905		2	12	Include	15.16
017	172069	388805		1	0	Include	0
018	0	0	3	3	0	Include	0

Table A.7.7.3: Site specific Results of CWEF on the Bracky catchment in 2014.



Map A.7.7.1: Showing locations of 2014 survey sites on Bracky River.

Conclusion

The Bracky had a mean catch of 12.24 salfry/5min in 2014 resulting in a cumulative average of 14.88 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Bracky would be closed to angling in 2015.

A.7.8 River Owenamarve.

IFI Salmon Catchment #: 226
2014 survey date: 23/7/2014
Mean Salmon Fry/5 min (2014): 1 fry/5min.
CWEF Index: 2.47 fry/5min.

Sampling carried out by:

Cormac Goulding
Gabriel Timoney

Fish Species Present:

Brown Trout
European Eel
Minnow
Salmon
Sea Trout
Three-spined Stickleback

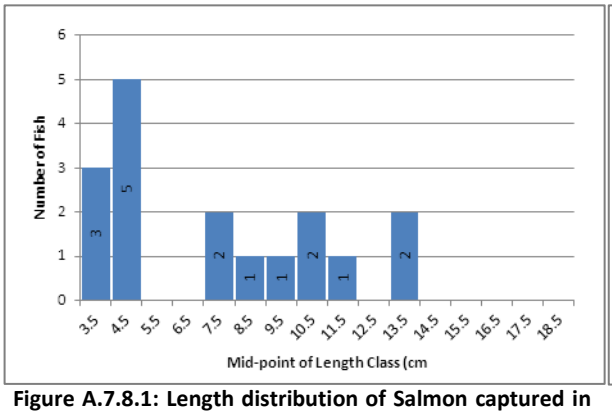


Figure A.7.8.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Owenamarve Catchment.

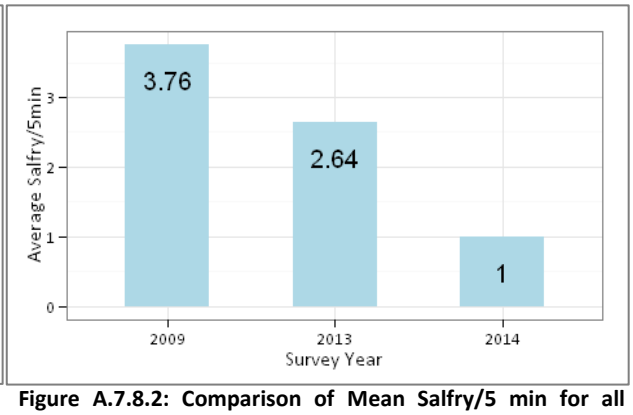


Figure A.7.8.2: Comparison of Mean Salfry/5 min for all surveys on the Owenamarve catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2009	6	1				2.33
2013	7					2.33
2014	6	1				2.33

Table A.7.8.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

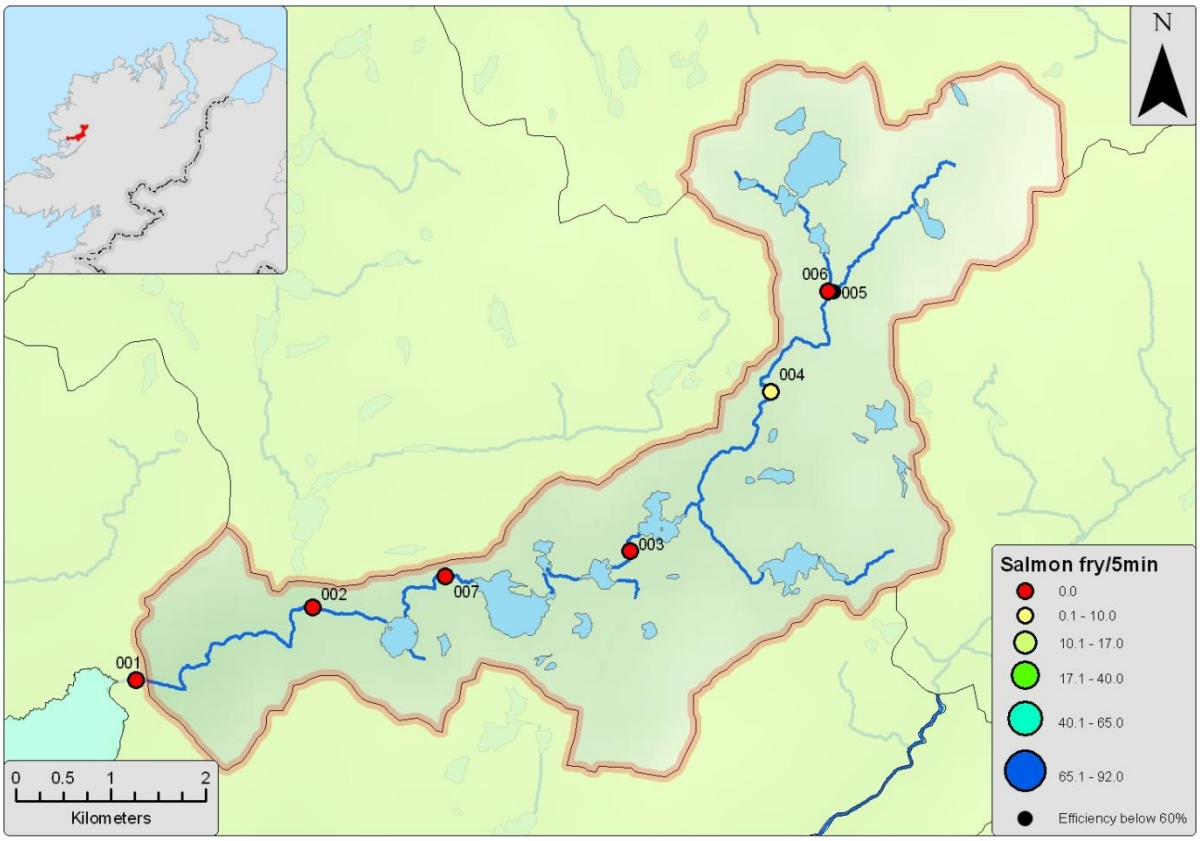
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	160	-61	Closed		
2008	2009	160	-62	Closed	3.76	
2009	2010	160	-62	Closed		
2010	2011	160	-62	Closed		
2011	2012	160	-62	Closed		
2012	2013	160	-62	Closed	2.64	
2013	2014	204	-119	Closed	1.00	2.47

Table A.7.8.2: Conservation limits and provisional returns on the Owenamarve catchment along with the 2014 CWEF fishing result.

This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The survey comprised 7 sites, 6 of which were included in the analysis giving a good coverage of 2.33 km per survey site. Salmon fry were present at two sites. The maximum fry catch was 4 salmon at sites 5 and 7. The mean catch of included sites was 1 salmon fry/5min. Two cohorts of juvenile salmon were captured; the 0+ fry caught on this system are very small, the modal length category of 0+ fry caught was 4.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	178364	406596	3	2	0	Include	0
002	180220	407364	3	3	0	Include	0
003	183569	407955	3	3	0	Include	0
004	185055	409642	3	2	4	Include	6
005	185714	410699	2	3	4	Efficiency below 60%	
006	185660	410704	2	3	0	Include	0
007	181623	407690	3	3	0	Include	0

Table A.7.8.3: Site specific Results of CWEF on the Owenamarve catchment in 2014.



Map A.7.8.1: Showing locations of 2014 survey sites on Owenamarve River.

Conclusion

The Owenamarve had a mean catch of 1 salfry/5min in 2014 resulting in a cumulative average of 2.47 salmon fry/5min; this is well below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Owenamarve would be closed to angling in 2015.

A.7.9 River Ray.

IFI Salmon Catchment #: 236
2014 survey dates: 19/7/2014 - 21/7/2014
Mean Salmon Fry/5 min (2014): 17.31 fry/5min.
CWEF Index: 12.88 fry/5min.

Sampling carried out by:

Cormac Goulding
James Doherty
Paul Burke.

Fish Species Present:

Brown Trout
European Eel
Salmon

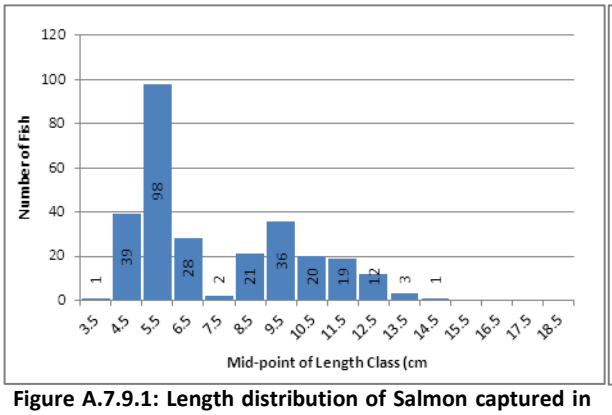


Figure A.7.9.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Ray Catchment.

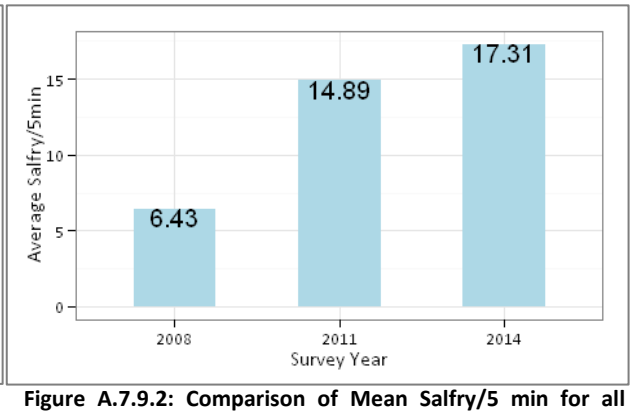


Figure A.7.9.2: Comparison of Mean Salfry/5 min for all surveys on the Ray catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	8					5.64
2011	11					4.10
2014	12					3.76

Table A.7.9.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	433	-65	Catch and Release	6.43	
2008	2009	433	-12	Catch and Release		
2009	2010	433	-13	Catch and Release		
2010	2011	433	15	Catch and Release	14.89	
2011	2012	433	16	Catch and Release		
2012	2013	433	-99	Catch and Release		
2013	2014	435	21	Catch and Release	17.31	12.88

Table A.7.9.2: Conservation limits and provisional returns on the Ray catchment along with the 2014 CWEF fishing result.

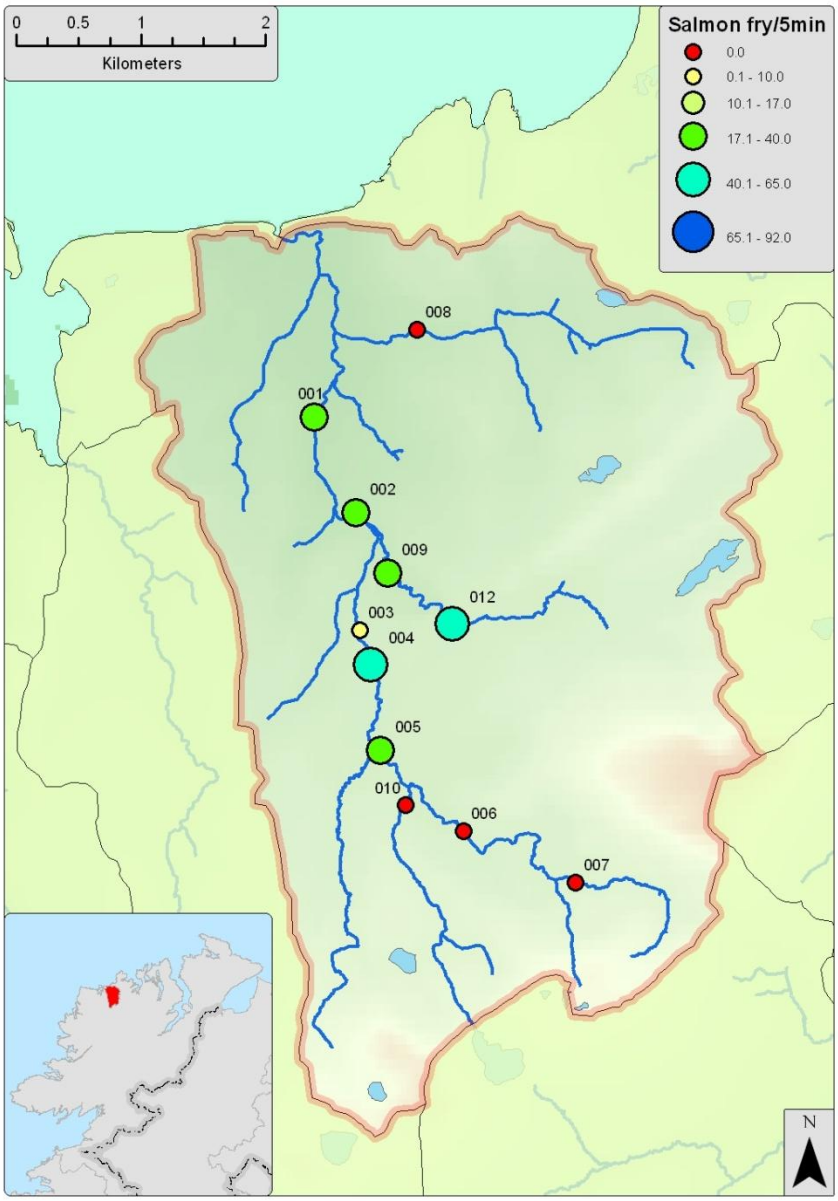
This, the third CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The survey comprised 12 sites, all of which were included in the analysis giving a good coverage of 3.76 km per survey site. Salmon fry were present at 7 sites. The maximum fry catch was 40 salmon at site 12. The mean catch of included sites was 17.31 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Conclusion

The Ray had a mean catch of 17.31 salfry/5min in 2014 resulting in a cumulative average of 12.88 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. Based on rod catch returns the Ray is meeting >65 of CL and is open for catch & release angling in 2015.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	195221	432640	4	1	16	Include	21.33
002	195699	431529	4	2	24	Include	31.45
003	195753	430160	4	2	2	Include	2.67
004	195878	429760	4	2	41	Include	51.7
005	195993	428758	4	2	21	Include	24.09
006	196953	427822	3	2	0	Include	0
007	198260	427227	3	3	0	Include	0
008	196415	433657	3	3	0	Include	0
009	196071	430826	3	2	22	Include	27.18
010	196288	428121	3	2	0	Include	0
012	196826	430237	3	0	40	Include	49.3
015	0	0	0	2	0	Include	0

Table A.7.9.3: Site specific Results of CWEF on the Ray catchment in 2014.



Map A.7.9.1: Showing locations of 2014 survey sites on Ray River.

A.7.10 River Leannan.

IFI Salmon Catchment #: 248
2014 survey dates: 7/7/2014 - 17/7/2014
Mean Salmon Fry/5 min (2014): 20.87 fry/5min.
CWEF Index: 18.19 fry/5min.

Sampling carried out by:

Bill Ferry
Cormac Goulding
Paul Burke

Fish Species Present:

Brown Trout
Salmon

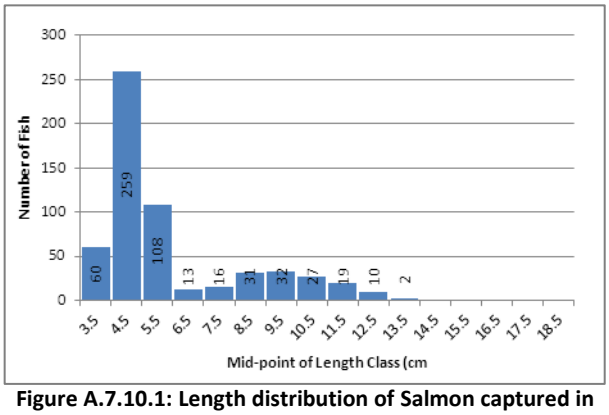


Figure A.7.10.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Leannan Catchment.

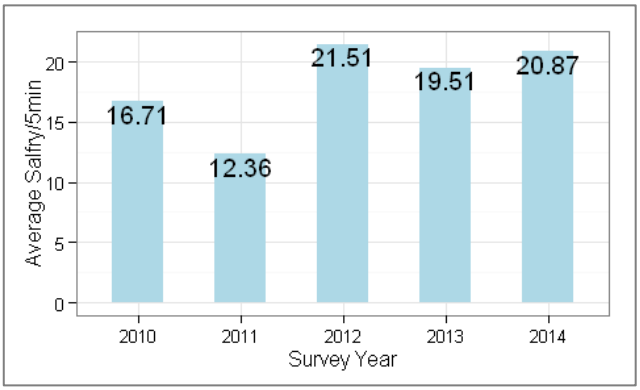


Figure A.7.10.2: Comparison of Mean Salfry/5 min for all surveys on the Leannan catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2007	9					24.34
2008	29					7.55
2009	29					7.55
2010	29					7.55
2011	28	1				7.55
2012	28				1	7.82
2013	26					8.42
2014	26					8.42

Table A.7.10.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	3619	-2820	Closed	(7.41)	
2008	2009	3619	-2620	Closed	(8.73)	
2009	2010	3619	-2619	Closed	16.71	
2010	2011	3619	-2608	Closed	12.36	
2011	2012	3619	-2611	Closed	21.51	
2012	2013	3619	-2611	Closed	19.51	
2013	2014	516	-410	Closed	20.87	18.19

Table A.7.10.2: Conservation limits and provisional returns on the Leannan catchment along with the 2014 CWEF fishing result.

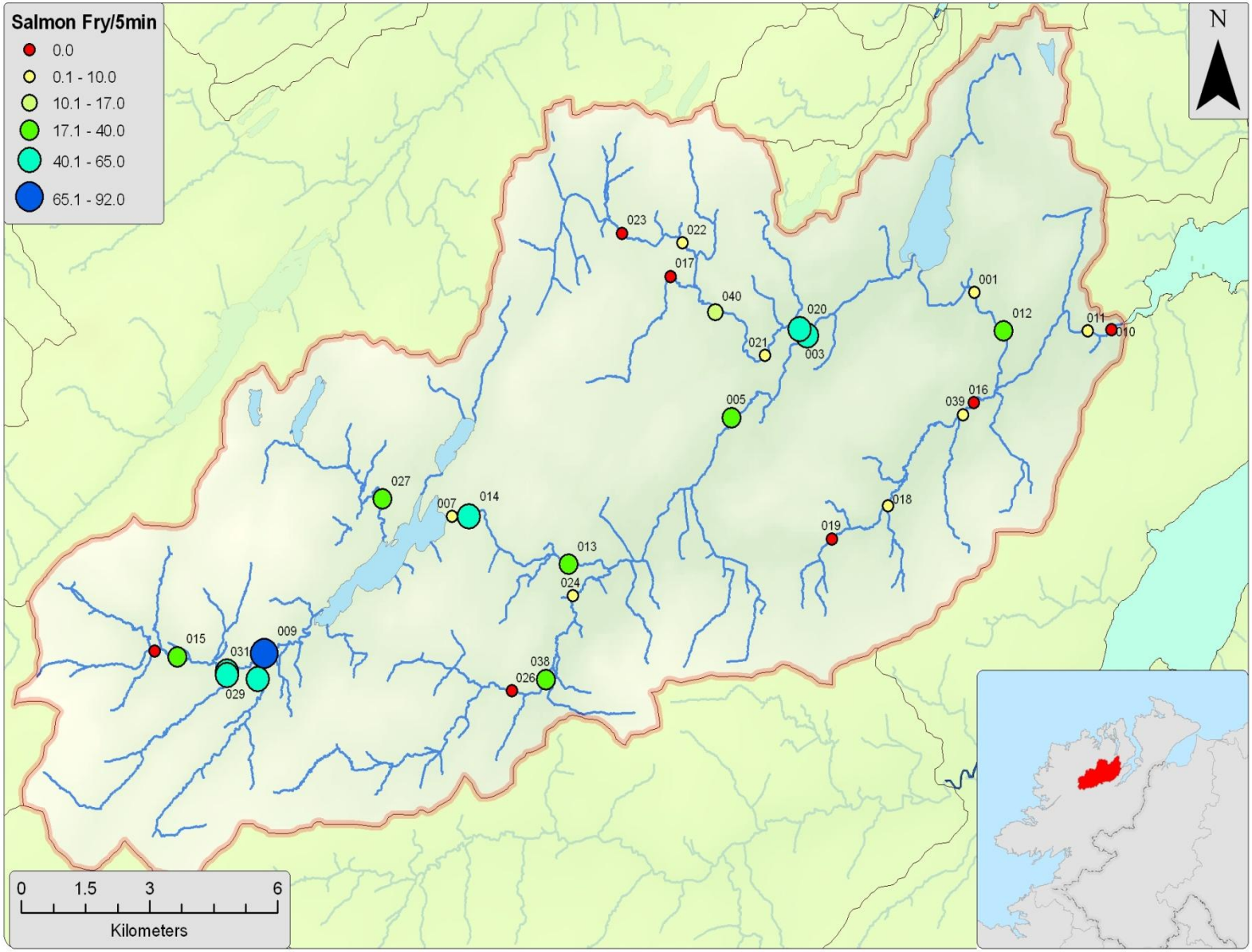
This, the Seventh CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The most recent 5 surveys (ie. those from 2010 to 2014) were used in the calculation of the current CWEF index. The 2014 survey comprised 29 sites, all of which were included in the analysis giving a good coverage of 8.42 km per survey site. Salmon fry were present at 22 sites. The maximum fry catch was 59 salmon at site 9. The mean catch of included sites was 20.87 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 4.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	219032	421832	5	3	4	Include	5.6
003	215115	420911	5	1	35	Include	40.68
005	213349	419129	5	2	22	Include	29
007	206817	416988	5	2	7	Include	8.87
009	202422	414028	4	1	59	Include	70.42
010	222235	421029	5	2	0	Include	0
011	221677	420999	5	3	4	Include	5.33
012	219710	421001	5	1	32	Include	39.53
013	209540	415957	5	3	18	Include	23
014	207206	416991	5	1	40	Include	48.37
015	200385	413956	4	2	17	Include	21.43
016	219020	419448	4	2	0	Include	0
017	211925	422178	2	2	0	Include	0
018	217014	417222	4	3	2	Include	2
020	214938	421046	4	2	32	Include	40.38
021	214126	420475	4	2	8	Include	9.83
022	212199	422908	4	2	2	Include	2
023	210793	423117	4	3	0	Include	0
024	209643	415275	4	2	1	Include	1.21
027	205181	417366	4	2	20	Include	25.71
028	202269	413466	3	1	38	Include	45.86
029	201543	413559	3	2	32	Include	40.59
031	201544	413637	4	2	34	Include	41.16
038	209004	413463	4	2	18	Include	23.4
039	218761	419189	4	3	1	Include	1.25
040	212973	421412	4	2	14	Include	17

Table A.7.10.3: Site specific Results of CWEF on the Leannan catchment in 2014.

Conclusion

The Leannan had a mean catch of 20.87 salfry/5min in 2014 resulting in a cumulative average of 18.19 salmon fry/5min; this is above the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Leannan would be open for catch & release angling in 2015.



Map A.7.10.1: Showing locations of 2014 survey sites on Leannan River.

A.7.11 River Swilly.

IFI Salmon Catchment #: 249
2014 survey dates: 15/7/2014 – 16/7/2014
Mean Salmon Fry/5 min (2014): 8.05 fry/5min.
CWEF Index: 13.07 fry/5min.

Sampling carried out by:

Cormac Goulding
Paul Burke

Fish Species Present:

Brown Trout
European Eel
Salmon

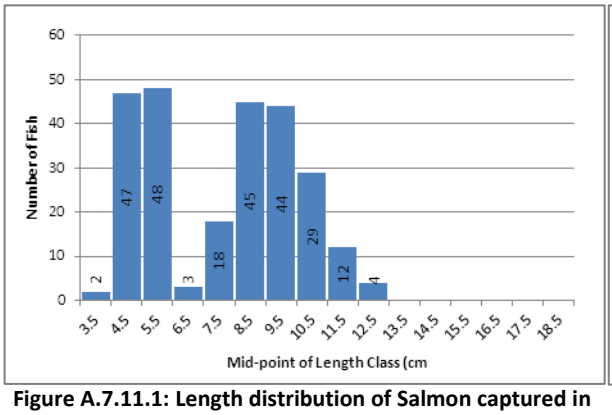


Figure A.7.11.1: Length distribution of Salmon captured in 2014 CWEF Survey on the Swilly Catchment.

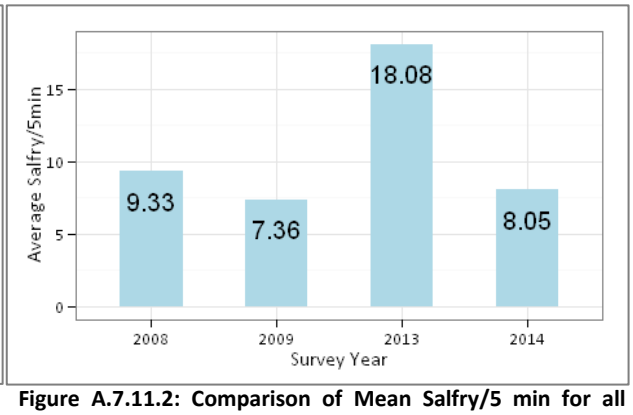


Figure A.7.11.2: Comparison of Mean Salfry/5 min for all surveys on the Swilly catchment to 2014.

Fry Year	Sites Included	Efficiency Below Threshold	Stream order<2	Other Exclusions	Not Sampled	Km per Included Site
2008	2					45.41
2009	17					5.34
2013	14					6.49
2014	16					5.68

Table A.7.11.1: Details of numbers of sites included in the analysis and site density of the CWEF survey.

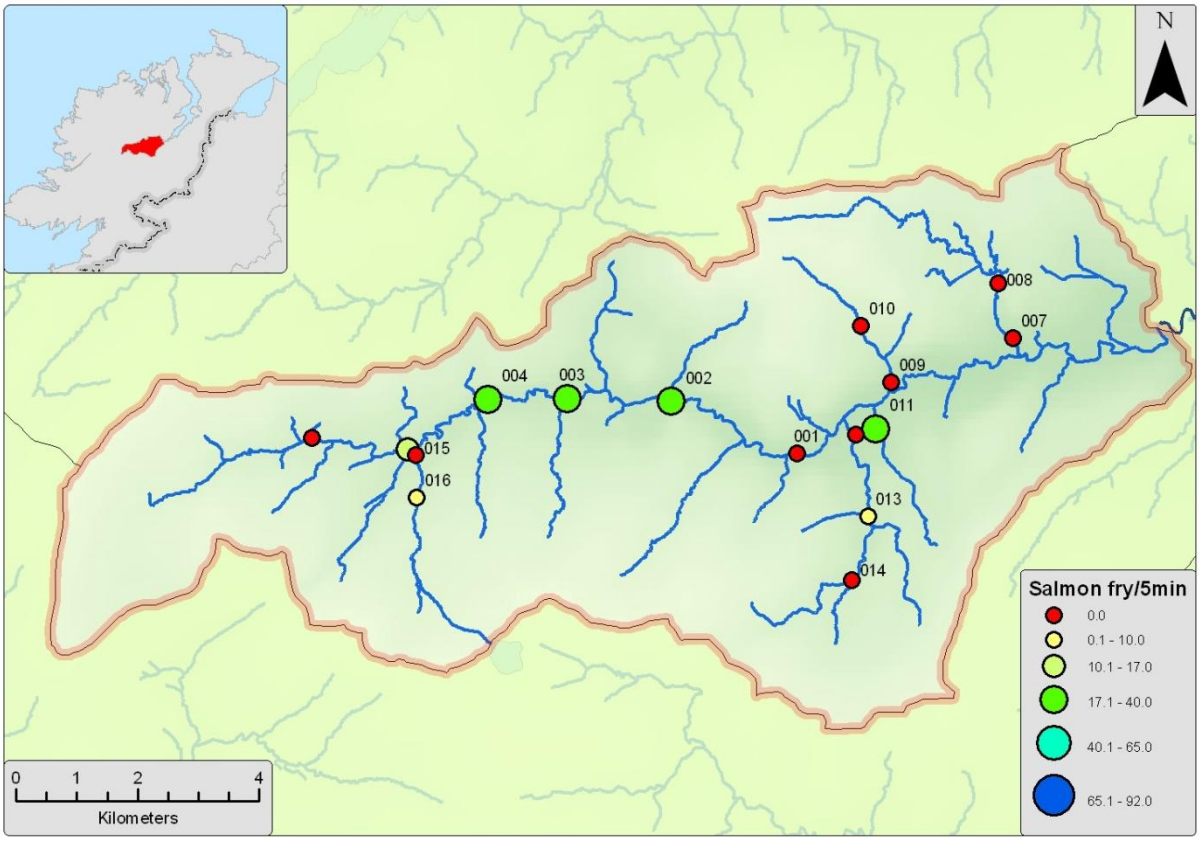
Spawning Year	Fry Year	1SW CL	1SW Predicted Surplus	Status	SalFry/ 5min	Mean SalFry/ 5min
2007	2008	1083	-446	Closed	9.33	
2008	2009	1083	-443	Closed	7.36	
2009	2010	1083	-757	Closed		
2010	2011	1083	-757	Closed		
2011	2012	1083	-757	Closed		
2012	2013	1083	-757	Closed	18.08	
2013	2014	1104	-615	Closed	8.05	13.07

Table A.7.11.2: Conservation limits and provisional returns on the Swilly catchment along with the 2014 CWEF fishing result.

This, the fourth CWEF survey of this catchment in the 2007 to 2014 period, was carried out during July 2014. The survey comprised 16 sites, all of which were included in the analysis giving a good coverage of 5.68km per survey site. Salmon fry were present at all sites. The maximum fry catch was 29 salmon at site 2. The mean catch of included sites was 8.05 salmon fry/5min. Two cohorts of juvenile salmon were captured; the modal length category of 0+ fry caught was 5.5cm.

Site Number	X	Y	Stream Order	Riffle Grade	Sal Fry Captured	Site Status	SalFry/5min
001	212387	409115	4	1	0	Include	0
002	210320	409980	4	1	29	Include	36.98
003	208606	410022	4	1	26	Include	32.74
004	207296	410010	4	1	14	Include	19
005	205985	409177	4	2	13	Include	15.97
006	204401	409374	3	2	0	Include	0
007	215947	411020	4	2	0	Include	0
008	215700	411911	4	3	0	Include	0
009	213936	410289	3	2	0	Include	0
010	213444	411220	2	2	0	Include	0
011	213676	409524	2	2	16	Include	21.6
012	213358	409419	3	2	0	Include	0
013	213554	408084	3	2	1	Include	1.31
014	213292	407033	3	2	0	Include	0
015	206114	409089	3	2	0	Include	0
016	206134	408389	3	2	1	Include	1.26

Table A.7.11.3: Site specific Results of CWEF on the Swilly catchment in 2014.



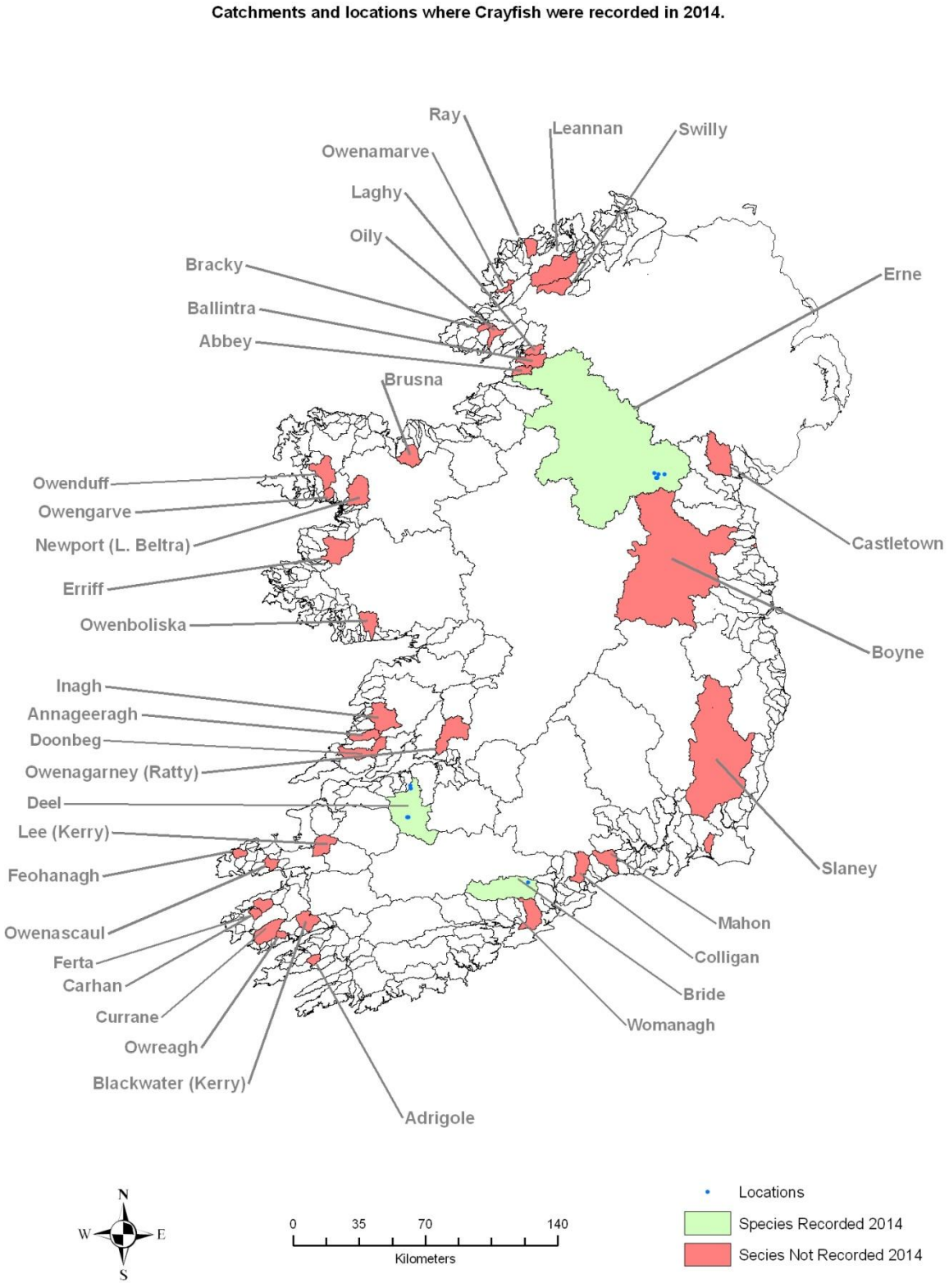
Map A.7.11.1: Showing locations of 2014 survey sites on Swilly River.

Conclusion

The Swilly had a mean catch of 8.05 salfry/5min in 2014 resulting in a cumulative average of 10.71 salmon fry/5min; this is below the threshold of 17 salmon fry per 5 min. It is recommended based on electro-fishing results that the Swilly would be closed to angling in 2015.

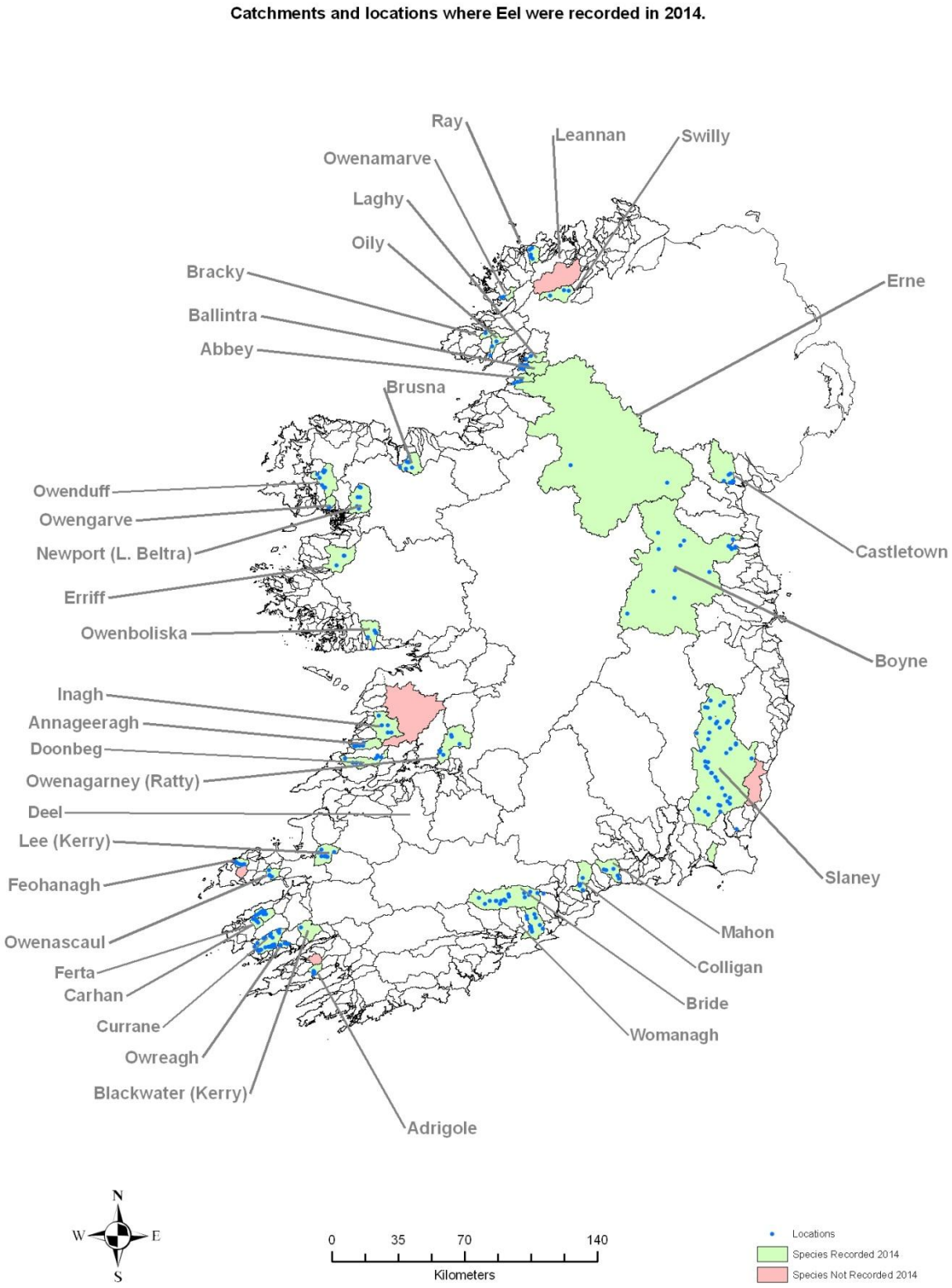
B. Other Species.

B.1 Distribution of Crayfish.



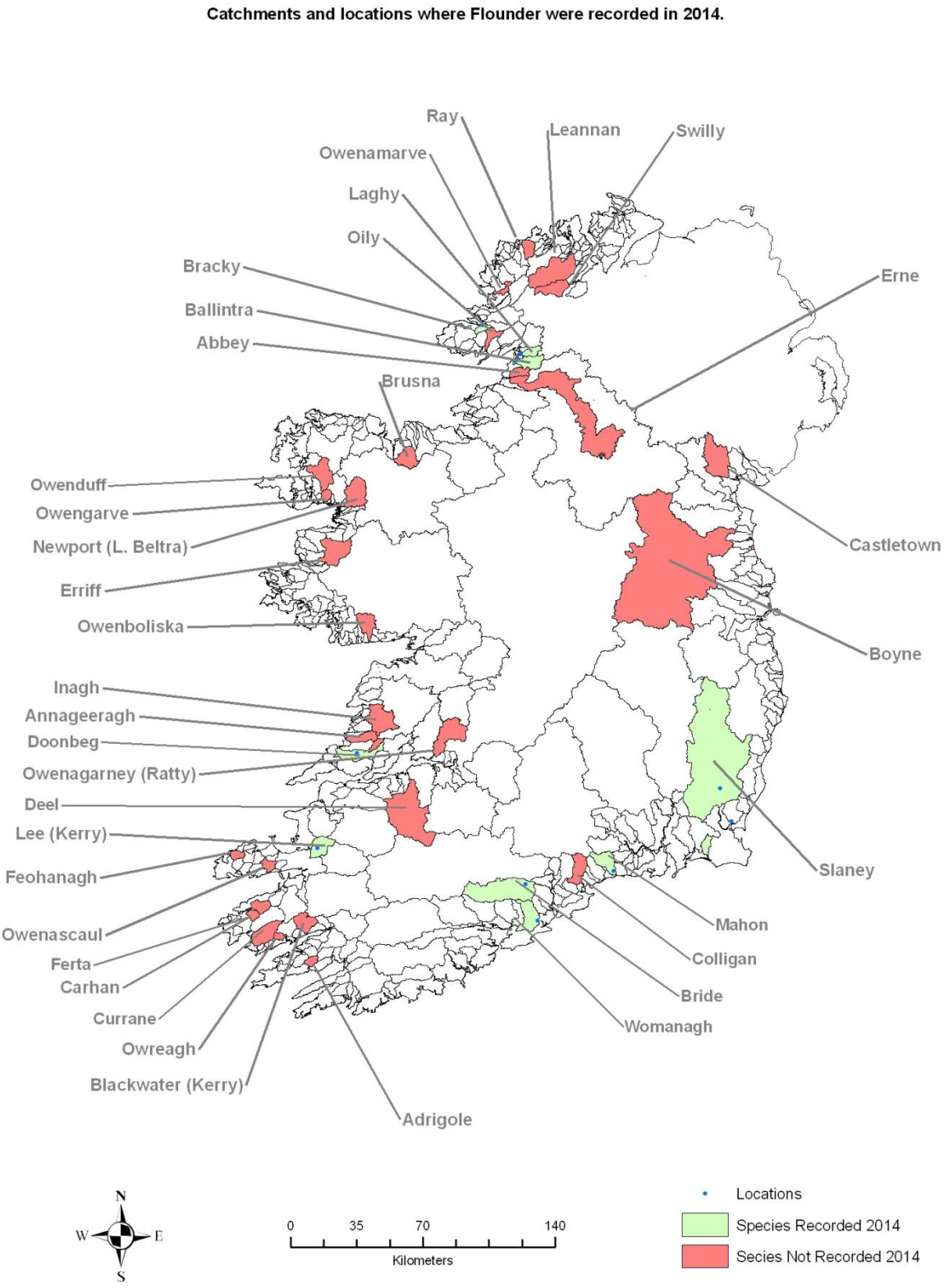
Map B.1: Reported Occurrences' of Crayfish from CWEF surveys 2014.

B.2 Distribution of Eel.



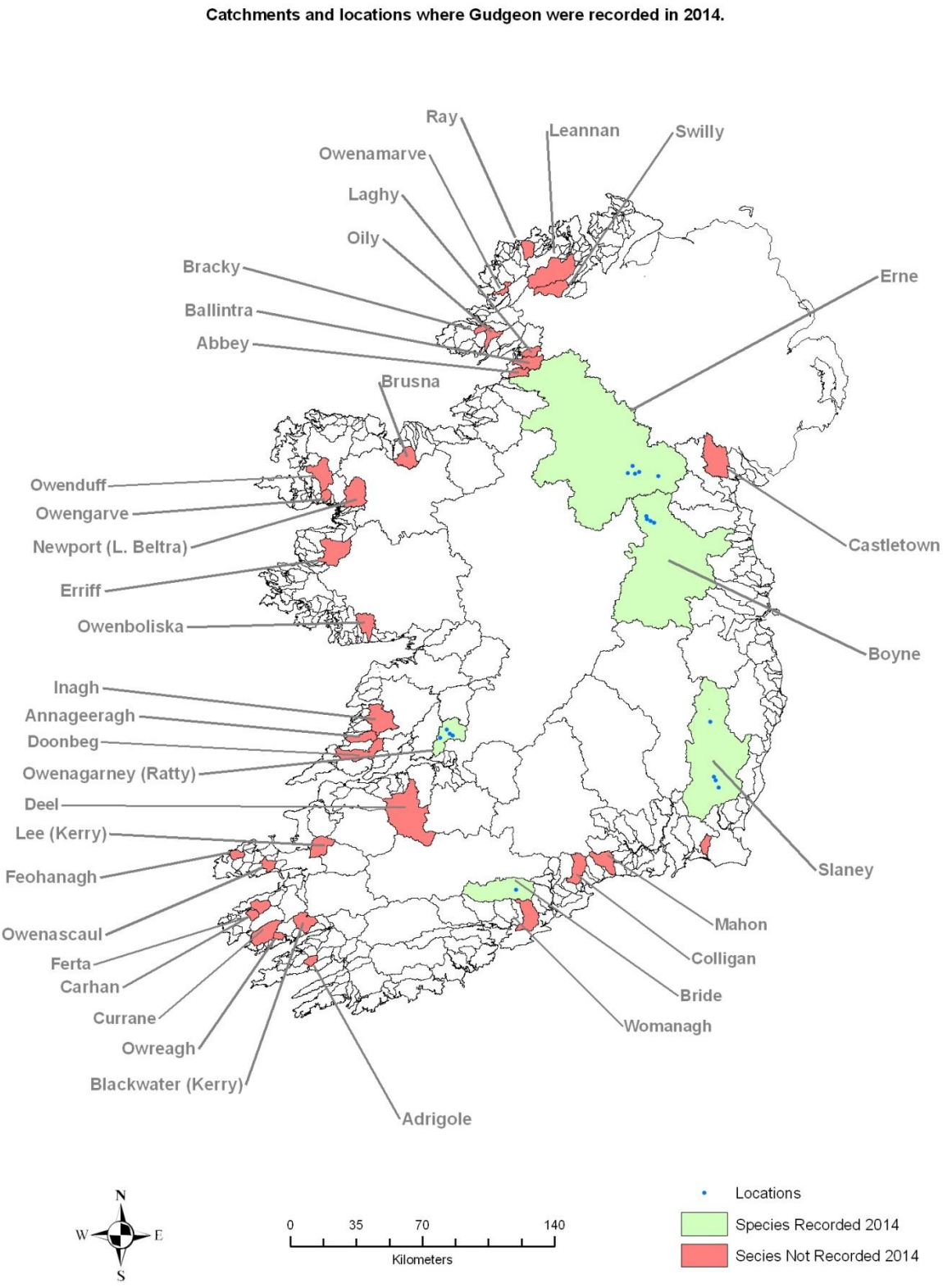
Map B.2: Reported occurrences of eel from CWEF surveys 2014.

B.3 Distribution of Flounder.



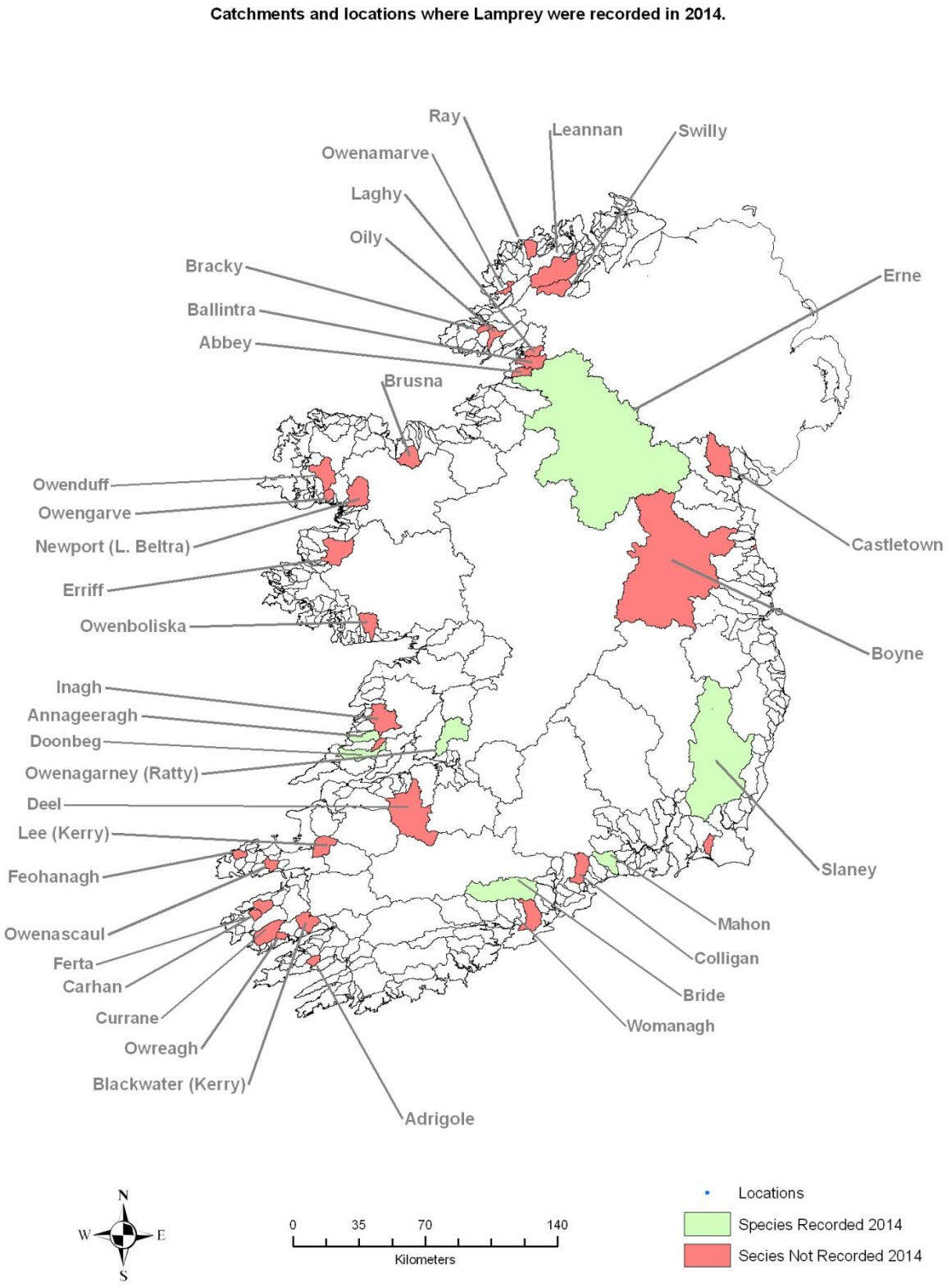
Map B.3: Reported occurrences of flounder from CWEF surveys 2014.

B.4 Distribution of Gudgeon.



Map B.4: Reported occurrences of Gudgeon from CWEF surveys 2014.

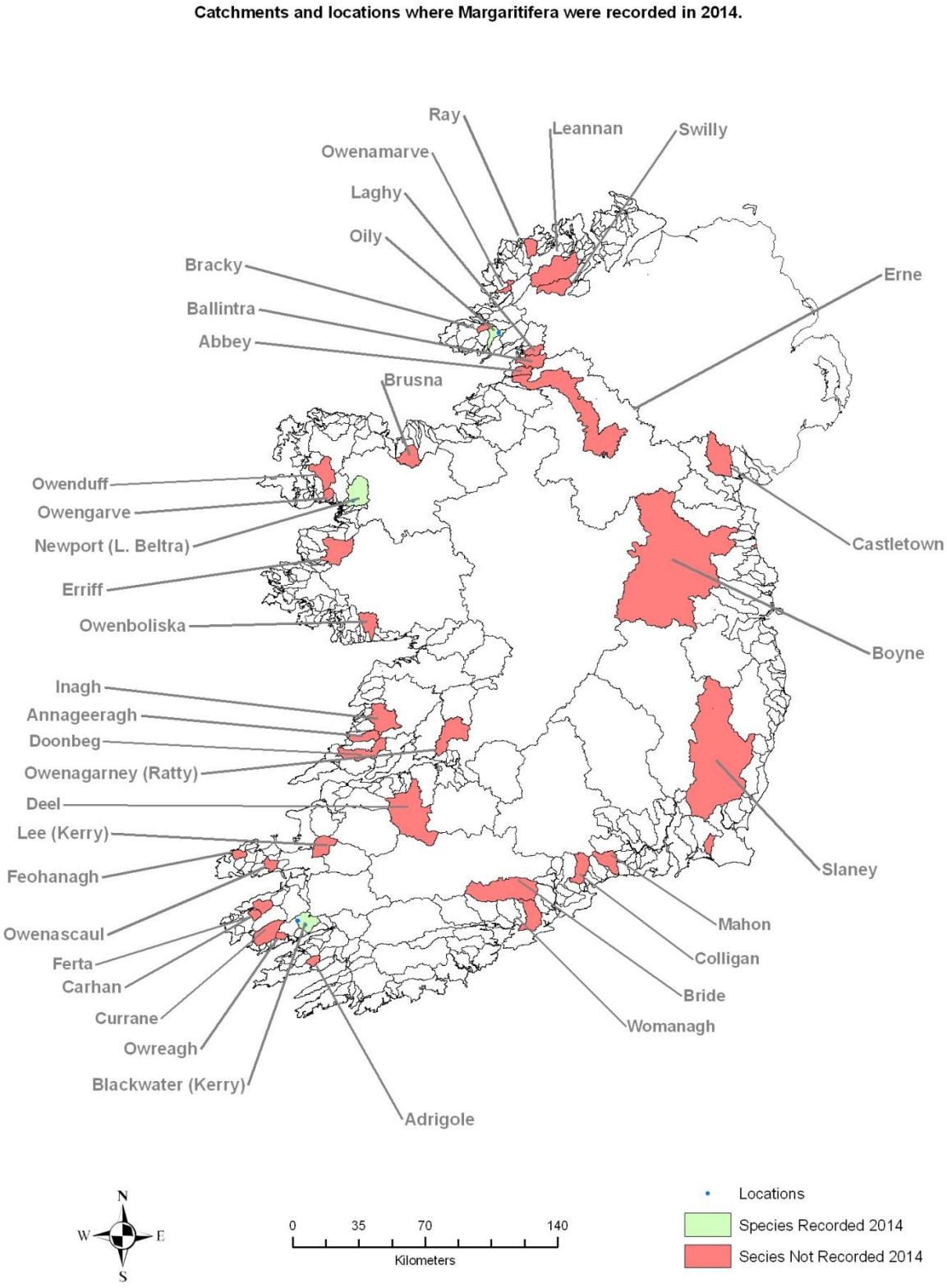
B.5 Distribution of Lamprey sp..



Map B.5: Reported occurrences of lamprey sp from CWEF surveys 2014.

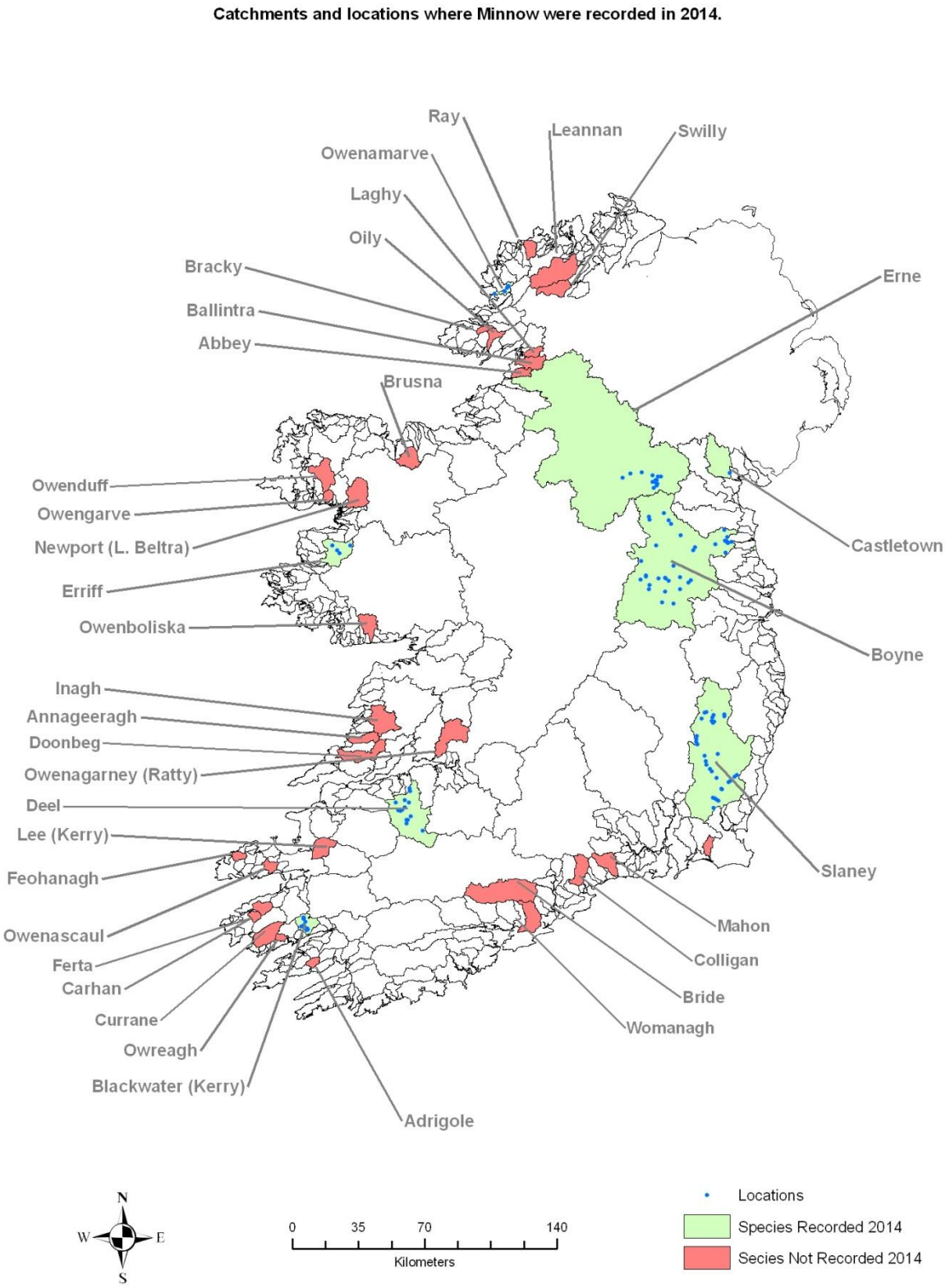
B.6 Distribution of Margaritifera

.



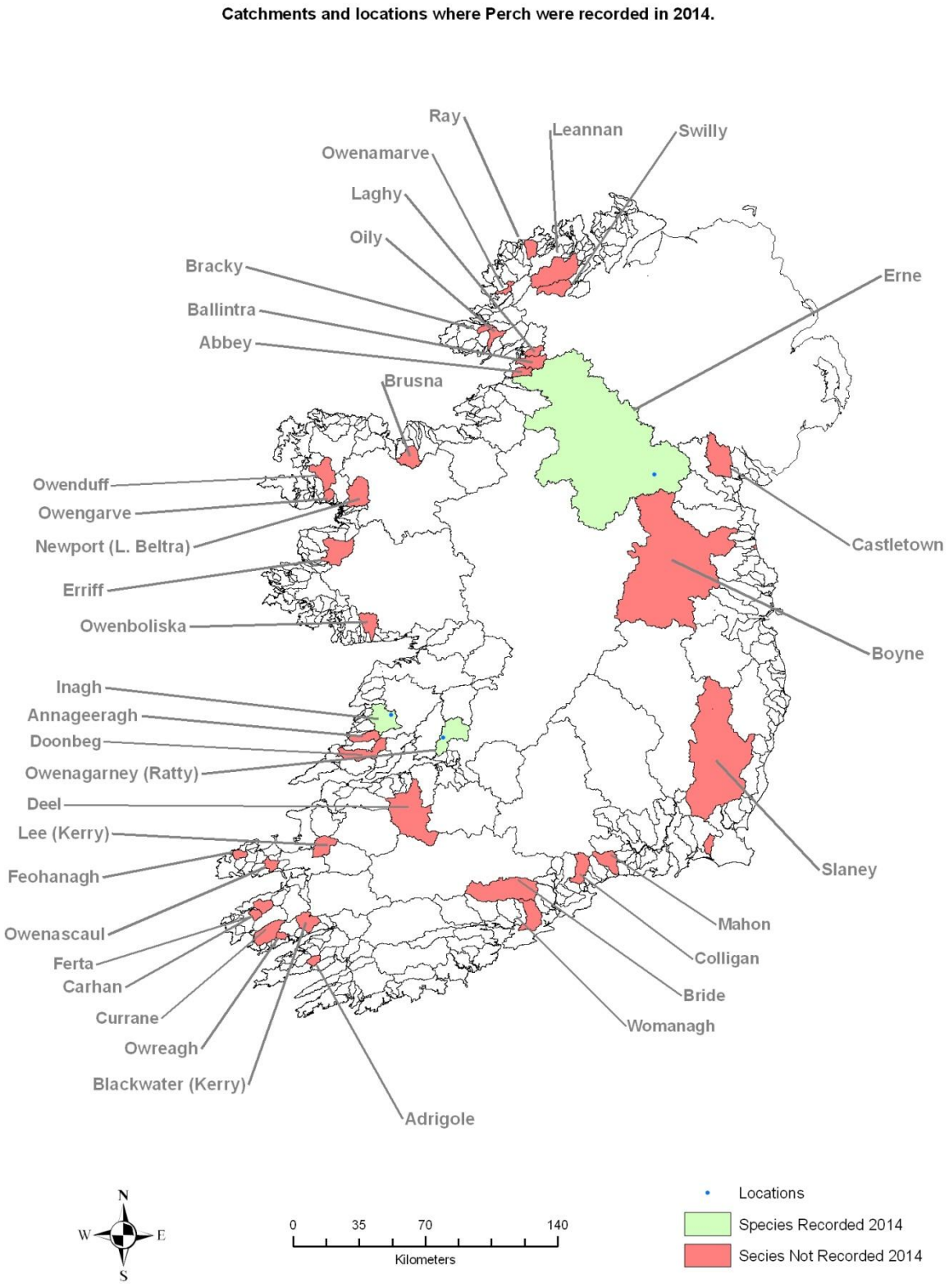
Map B.6: Reported occurrences of margaritifera from CWEF surveys 2014.

B.7 Distribution of Minnow



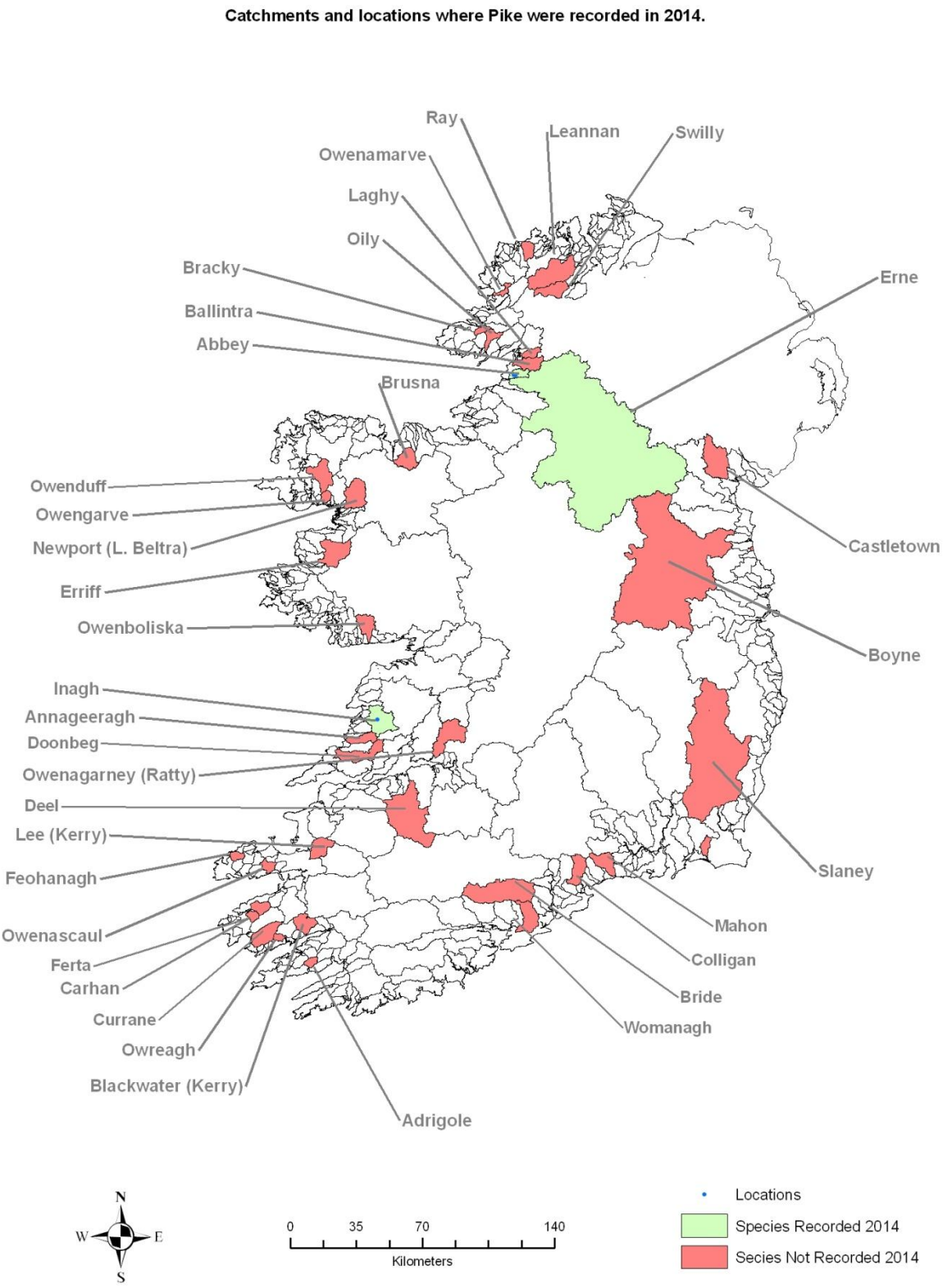
Map B.7: Reported Occurrences' of minnow from CWEF surveys 2014.

B.8 Distribution of Perch.



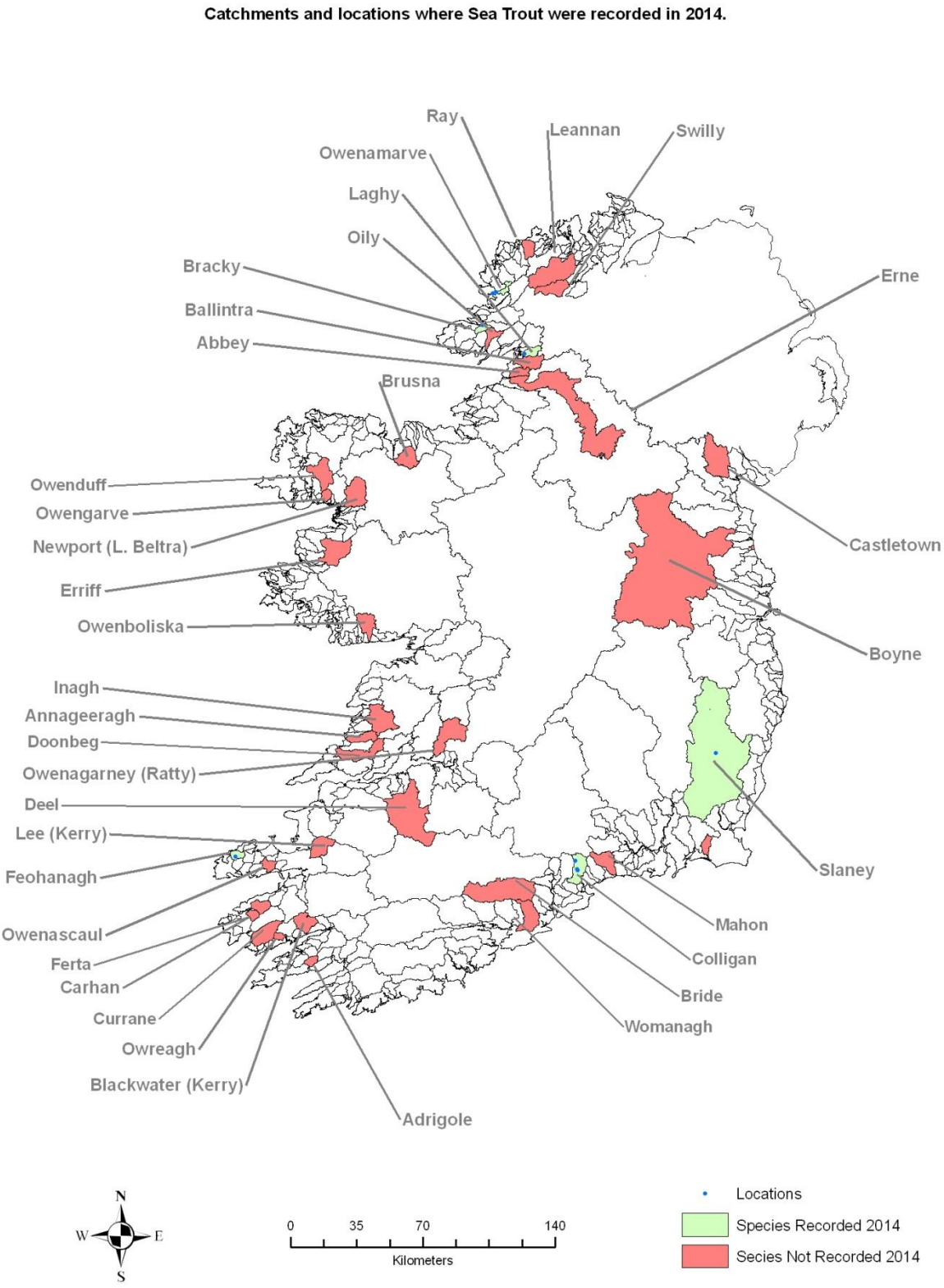
Map B.8: Reported occurrences' of perch from CWEF surveys 2014.

B.9 Distribution of Pike.



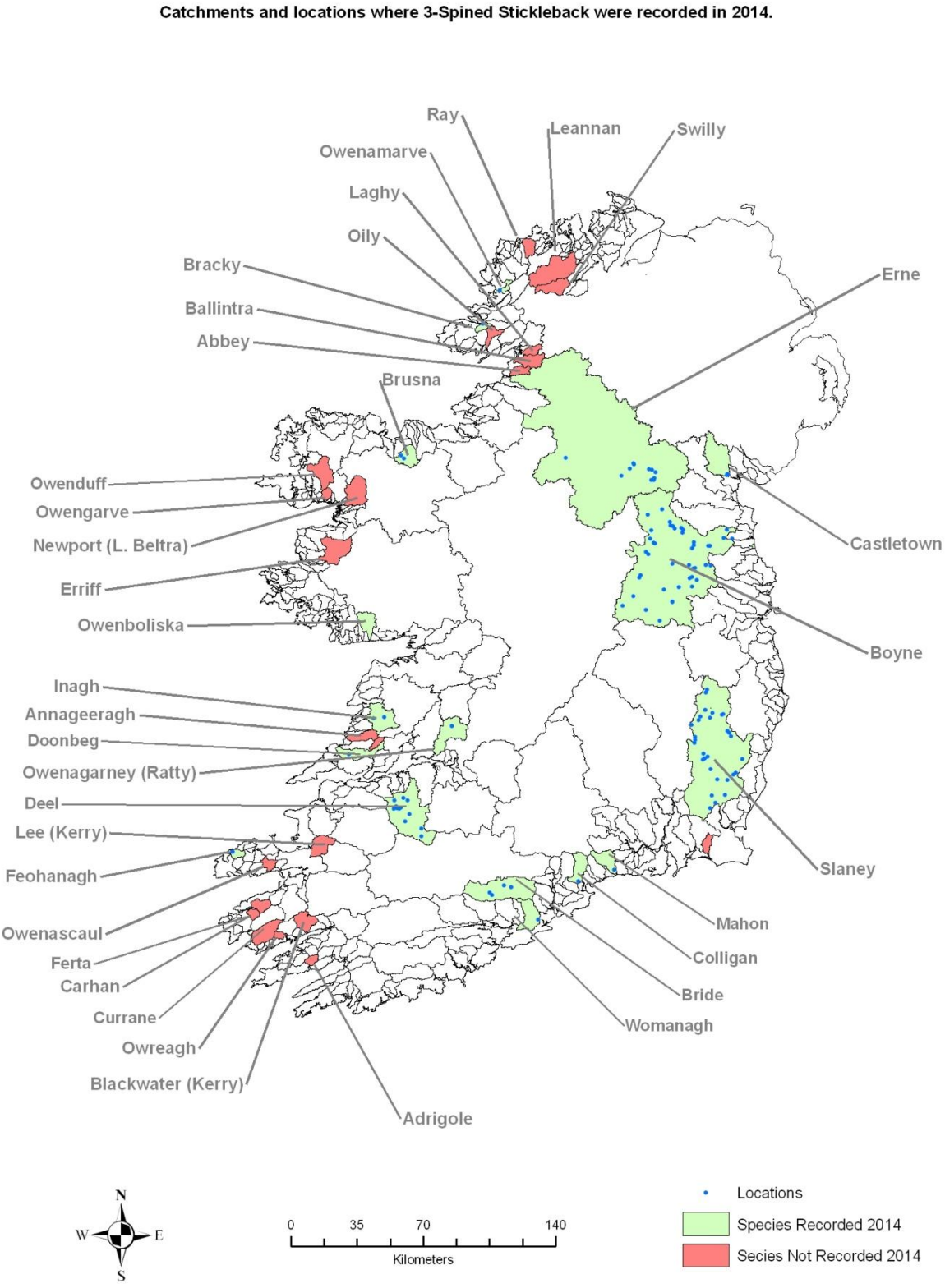
Map B.9: Reported Occurrences' of pike from CWEF surveys 2014.

B.10 Distribution of Sea Trout.



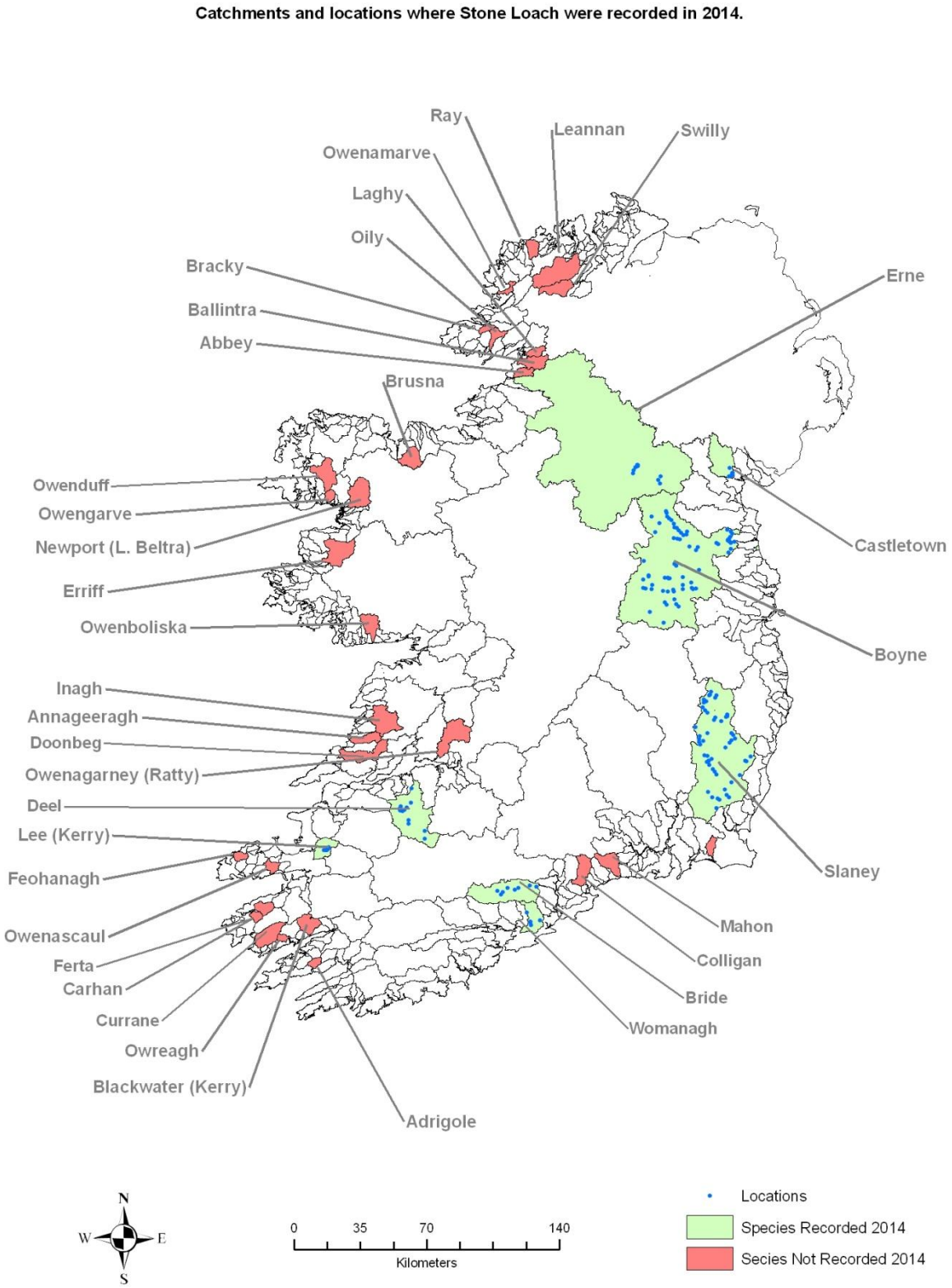
Map B.10: Reported Occurrences' of sea trout from CWEF surveys 2014.

B.11 Distribution of 3-Spined Stickleback.



Map B.11: Reported Occurrences' of 3-spined stickleback from CWEF surveys 2014.

B.12 Distribution of Stone Loach.



Map B.12: Reported Occurrences' of stone loach from CWEF surveys 2014.

C. Overall Catchment-wide Electro-fishing results 2007 to 2014.

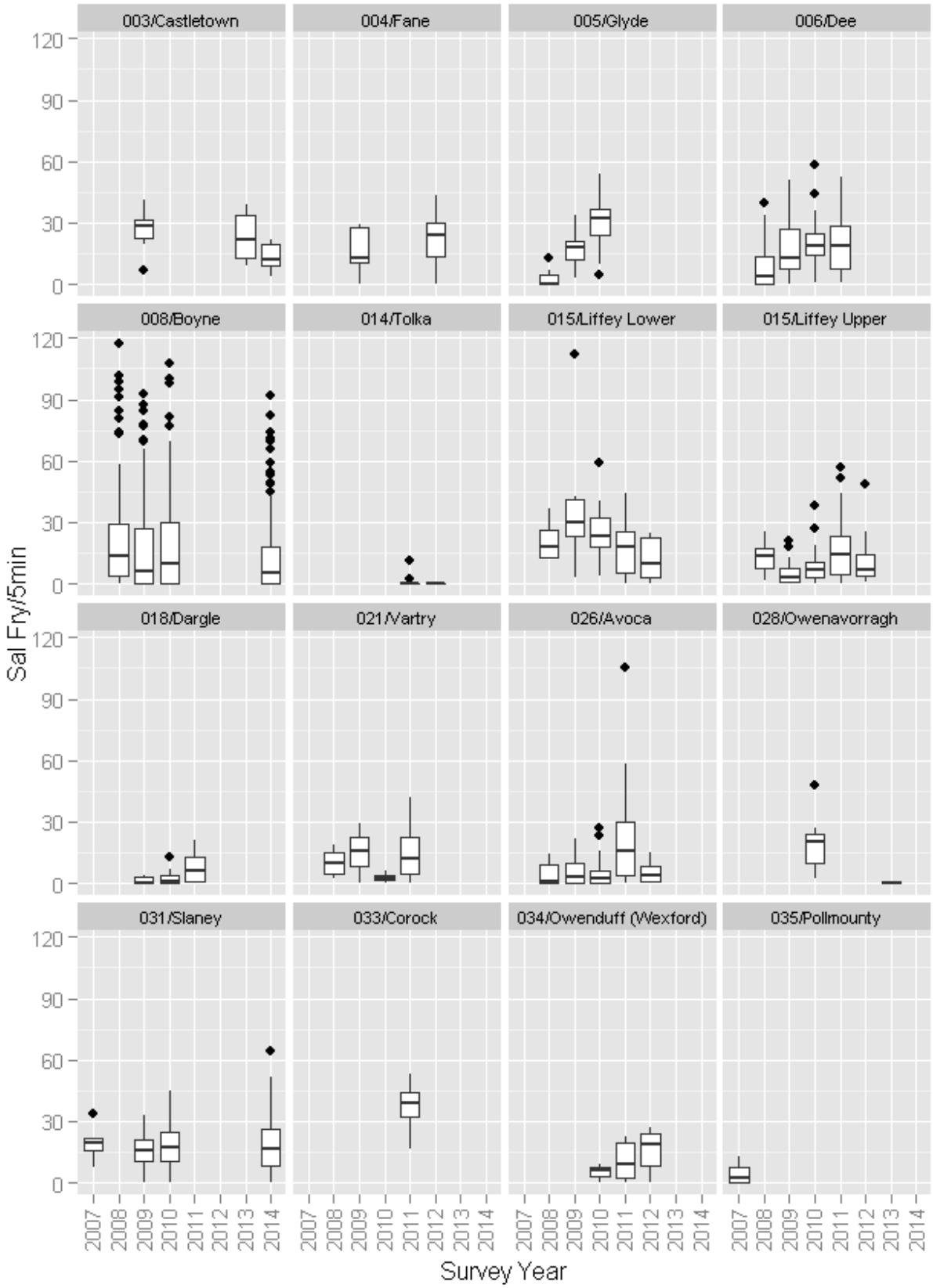
IFI Code/ River	Survey Year								Current Index	# of Annual Surveys Considered
	2007	2008	2009	2010	2011	2012	2013	2014		
2/Flurry				6.67					6.67	1
3/Castletown			26.41				22.96	13.59	20.99	3
4/Fane			16.17			22.09			19.13	2
5/Glyde		2.49	17.08	31.61					17.06	3
6/Dee		8.55	16.92	21.72	20.13				16.83	4
8/Boyne		21.91	17.54	19.38				13.25	18.02	4
13/Broadmeadow				0.00					0.00	1
14/Tolka					1.08	0.00			0.54	2
15.1/Liffey Lower		21.33	40.12	25.16	17.47	12.12			23.24	5
15.2/Liffey Upper		12.93	5.11	8.15	16.20	10.13			10.51	5
16/Dodder					13.93				13.93	1
18/Dargle			1.40	2.53	7.52				3.82	3
21/Vartry		10.00	15.11	2.54	15.07				10.68	4
26/Avoca		3.79	5.56	5.20	18.88	5.15			7.72	5
28/Owenavorragh				19.76			0.33		10.04	2
31/Slaney	19.05		15.94	18.42				17.68	17.77	4
32/Duncormick								11.54	11.54	1
33/Corock					37.11				37.11	1
34/Owenduff (Wexford)				4.97	10.65	15.91			10.51	3
35/Pollmounty	4.33								4.33	1
36/Aughnavaud	1.00		0.00	0.00	1.00	6.47			1.69	5
37/Barrow	18.92		11.10	8.83	21.59	27.32			17.55	5
38/Nore				18.83					18.83	1
50/Mahon		2.11						10.72	6.41	2
51/Tay					8.75				8.75	1
53/Colligan					29.32			9.50	19.41	2
55/Lickey		12.37							12.37	1
57/Finisk		10.55							10.55	1
58/Glenshelane	22.72	10.96							16.84	2
60/Bride		10.40		24.70				19.85	18.32	3
61/Tourig						9.40			9.40	1
62/Womanagh		15.45						2.39	8.92	2
64/Owennacurra	15.76								15.76	1
66.1/Lower Lee (Cork)			0.26						0.26	1
70/Argideen	17.15								17.15	1
77/Mealagh						12.82			12.82	1
80/Glengarriff			5.93						5.93	1
81/Adrigole							4.01	1.33	2.67	2
82/Kealincha	0.00								0.00	1
83/Lough Fada	3.23								3.23	1
85/Owenshagh							4.32		4.32	1
86/Cloonee						16.18	33.06		24.62	2
88/Roughty					19.78				19.78	1
89/Finnihy						8.61	0.00		4.31	2
90/Blackwater (Kerry)	30.54	15.52	13.35					17.82	19.31	4
93/Owreagh	8.94						2.07	2.81	4.61	3

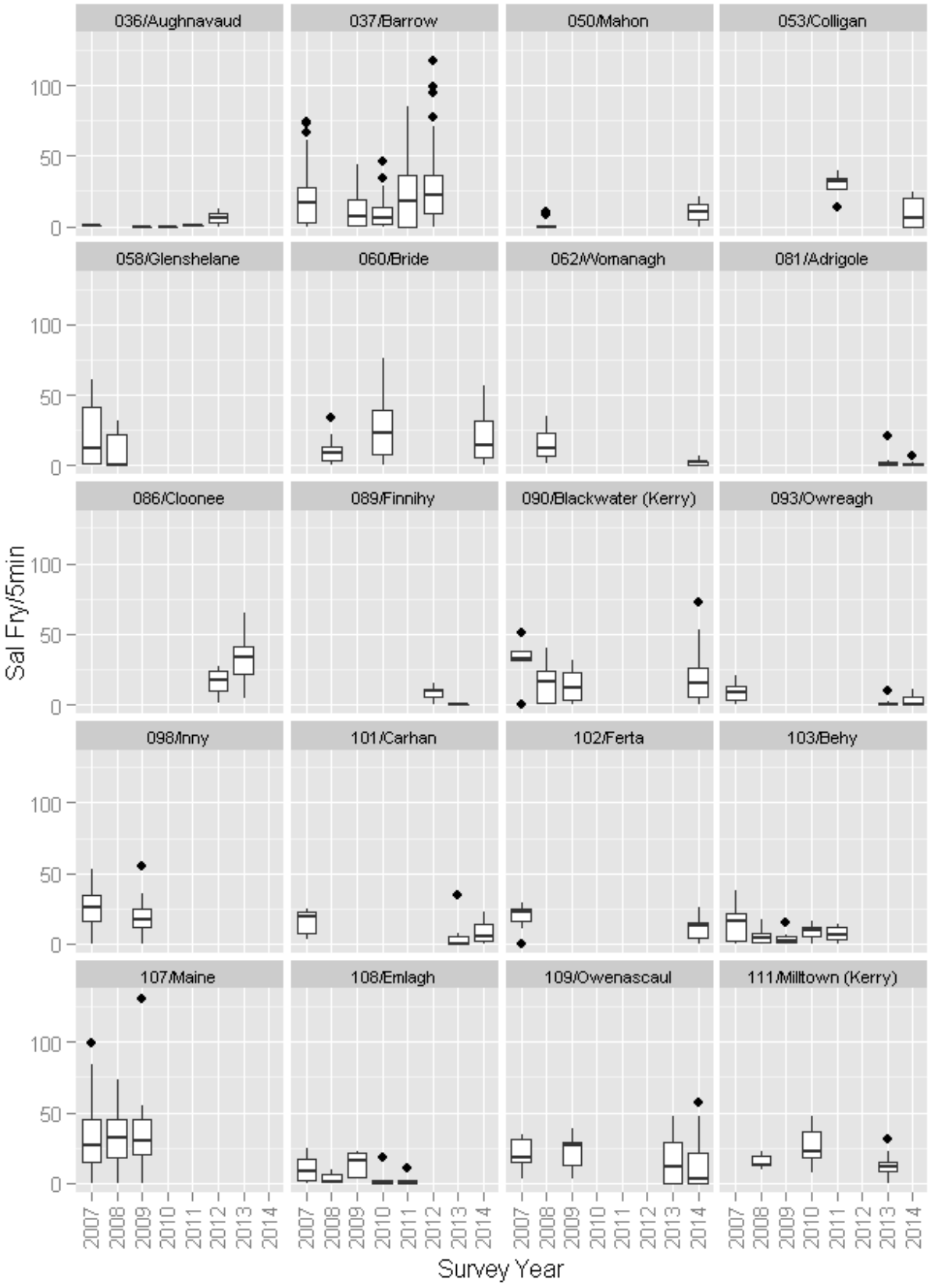
IFI Code/ River	Survey Year								Current Index	# of Annual Surveys Considered
	2007	2008	2009	2010	2011	2012	2013	2014		
97/Currane								24.51	24.51	1
98/Inny	24.63		19.78						22.20	2
99/Emlaghmore	2.07								2.07	1
101/Carhan	15.76						6.05	8.61	10.14	3
102/Ferta	19.42							10.90	15.16	2
103/Behy	15.41	6.14	4.03	8.71	7.17				8.29	5
105/Cotteners		17.42							17.42	1
107/Maine	31.88	32.81	34.23						32.97	3
108/Emlagh	10.37	3.66	13.38	3.84	2.59				6.77	5
109/Owenascaul	20.41		22.27				16.08	16.28	18.76	4
110/Owenalondrig			21.90						21.90	1
111/Milltown (Kerry)		15.33		26.44			13.02		18.26	3
112/Feohanagh			16.61				3.20	12.09	10.64	3
114/Owenmore (Kerry)	25.07								25.07	1
117/Lee (Kerry)		0.67						0.68	0.67	2
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			0.18	0.16	2
126/Maigue			2.82	16.05			12.05		10.31	3
128.1/Shannon Kilcrow				0.69					0.69	1
128.2/Shannon Graney				0.19					0.19	1
128.3/Shannon Woodford				0.00					0.00	1
130/Owenagarney (Ratty)							16.97	9.97	13.47	2
131/Fergus	12.96		4.10	6.84			5.89		7.45	4
133/Doonbeg				12.91				17.50	12.84	2
134/Skivaleen					14.82				17.91	2
135/Annageeragh							1.82	9.24	5.53	2
142/Inagh								5.31	5.31	1
143/Aughyvackeen					1.00				1.00	1
145/Kilcolgan			2.51						2.51	1
146/Clarinbridge					7.26				7.26	1
147/Corrib	15.75								15.75	1
148/Knock					12.53				12.53	1
149/Owenboliska (Spiddal)		4.06						4.52	4.29	2
152/Cashla							10.83		10.83	1
163/Owenglin			11.57						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	23.62	5
171/Carrownisky		18.25				20.60	18.22		19.03	3
172/Bunowen			13.62						13.62	1
173/Owenwee (Belclare)				8.47	7.25	15.27			10.33	3
178/Newport (L. Beltra)	16.06		5.53					17.36	12.99	3
179/Srahmore			4.33						4.33	1
181/Owengarve			5.51					6.19	5.85	2
185/Owenduff (Bangor)			6.00					6.20	6.10	2
186/Owenmore							28.76		28.76	1
186.1/ Carrowmore							23.07		23.07	1
187/Glenamoy	28.16		5.65						16.91	2

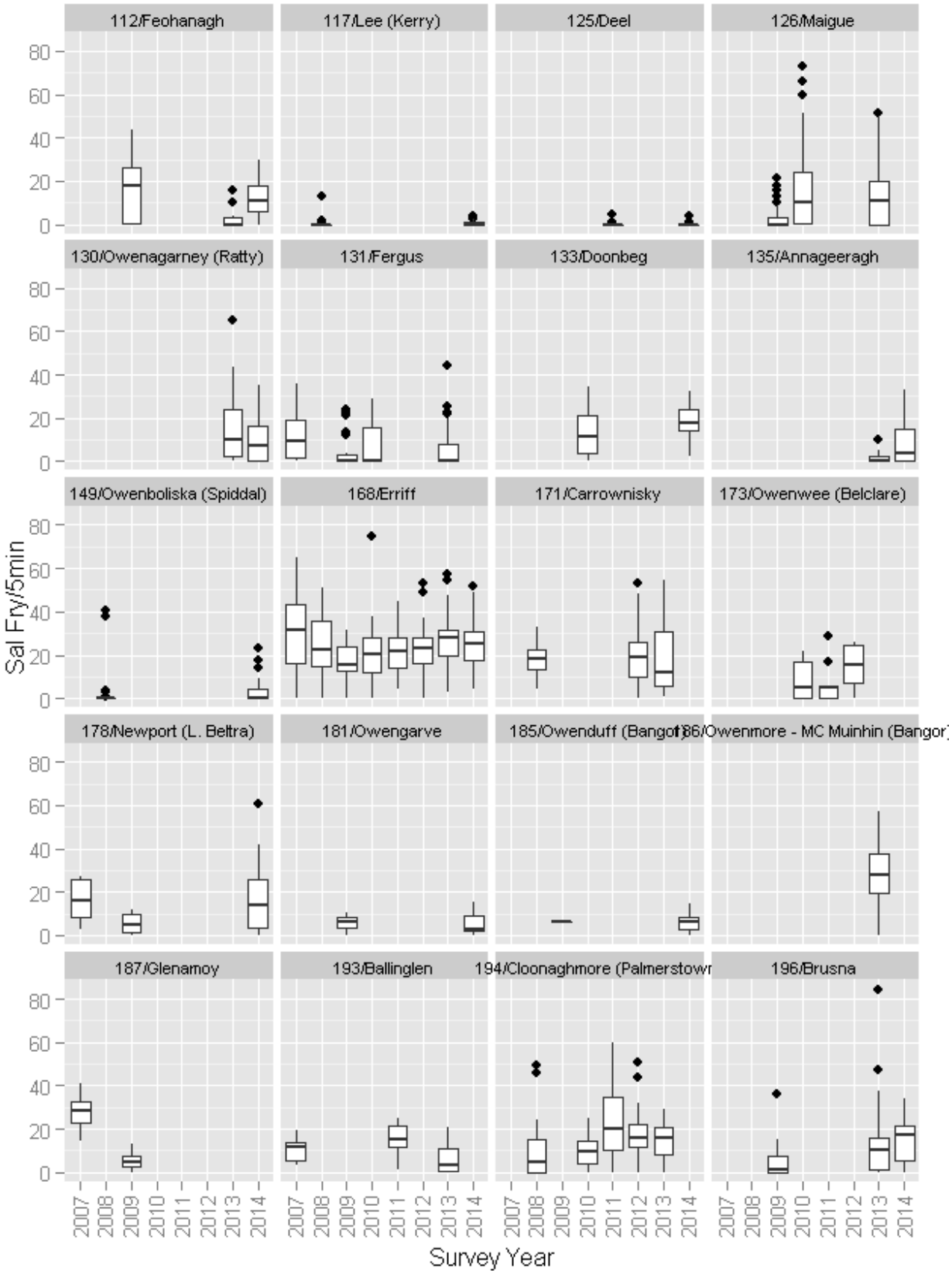
IFI Code/ River	Survey Year								Current Index	# of Annual Surveys Considered
	2007	2008	2009	2010	2011	2012	2013	2014		
188/Muingnabo	0.78								0.78	1
193/Ballinglen	10.65				15.09		6.37		10.70	3
194/Cloonaghmore		8.96		9.71	22.27	17.32	15.02		14.65	5
196/Brusna			4.70				14.16	14.74	11.20	3
198/Leaffony	5.76		7.95						6.86	2
203/Garvogue (Bonnet)	18.41	13.26	16.83	11.31	7.08	18.54			13.41	5
205/Drumcliff				17.72					17.72	1
207/Grange	5.75		3.29						4.52	2
208/Duff	7.84	9.31	18.59	25.16					15.23	4
210/Erne		7.37	0.17	0.29	0.00	0.00	0.00	1.60	0.34	5
211/Abbey							7.20	28.14	17.67	2
212/Ballintra			10.27				13.40	18.07	13.91	3
213/Laghy			8.58				14.97	11.02	11.52	3
214/Eske		13.10	16.99	16.30					15.46	3
215/Eany				15.86		30.08			22.97	2
216/Oily			9.49		33.68			16.62	19.93	3
217/Bungosteen					25.12		17.09		21.11	2
219/Glen (Ballyshannon)				19.44					19.44	1
220/Owenwee (Yellow R)	21.45	5.00	14.81			20.31	19.65		16.24	5
221/Bracky		10.82				21.57		12.24	14.88	3
222/Owentocker		20.06							20.06	1
226/Owenamarve			3.76				2.64	1.00	2.47	3
228/Gweedore (Crolly R.)		15.99			11.32				13.65	2
229/Clady		16.12				37.21			26.67	2
234/Glenna			16.80		3.77		7.77		9.45	3
235/Tullaghobegly		8.33		9.05					8.69	2
236/Ray		6.43			14.89			17.31	12.88	3
240/Lackagh		18.86	15.82		19.20	23.57			19.36	4
248/Leannan	9.47	7.41	8.73	16.71	12.36	21.51	19.51	20.87	18.19	5
249/Swilly		9.33	7.36				18.08	8.05	10.71	4
250/Isle (Burn)						2.12			2.12	1
251/Burnfoot		7.77		2.90					5.33	2
252/Mill (Letterkenny)				0.00					0.00	1
253/Crana			15.74						15.74	1
256/Clonmany		16.61		6.59					11.60	2
257/Straid				0.20					0.20	1
258/Donagh				4.25					4.25	1
259/Glennagannon			16.65		4.05		7.13		9.28	3
261/Culoort				4.03					4.03	1

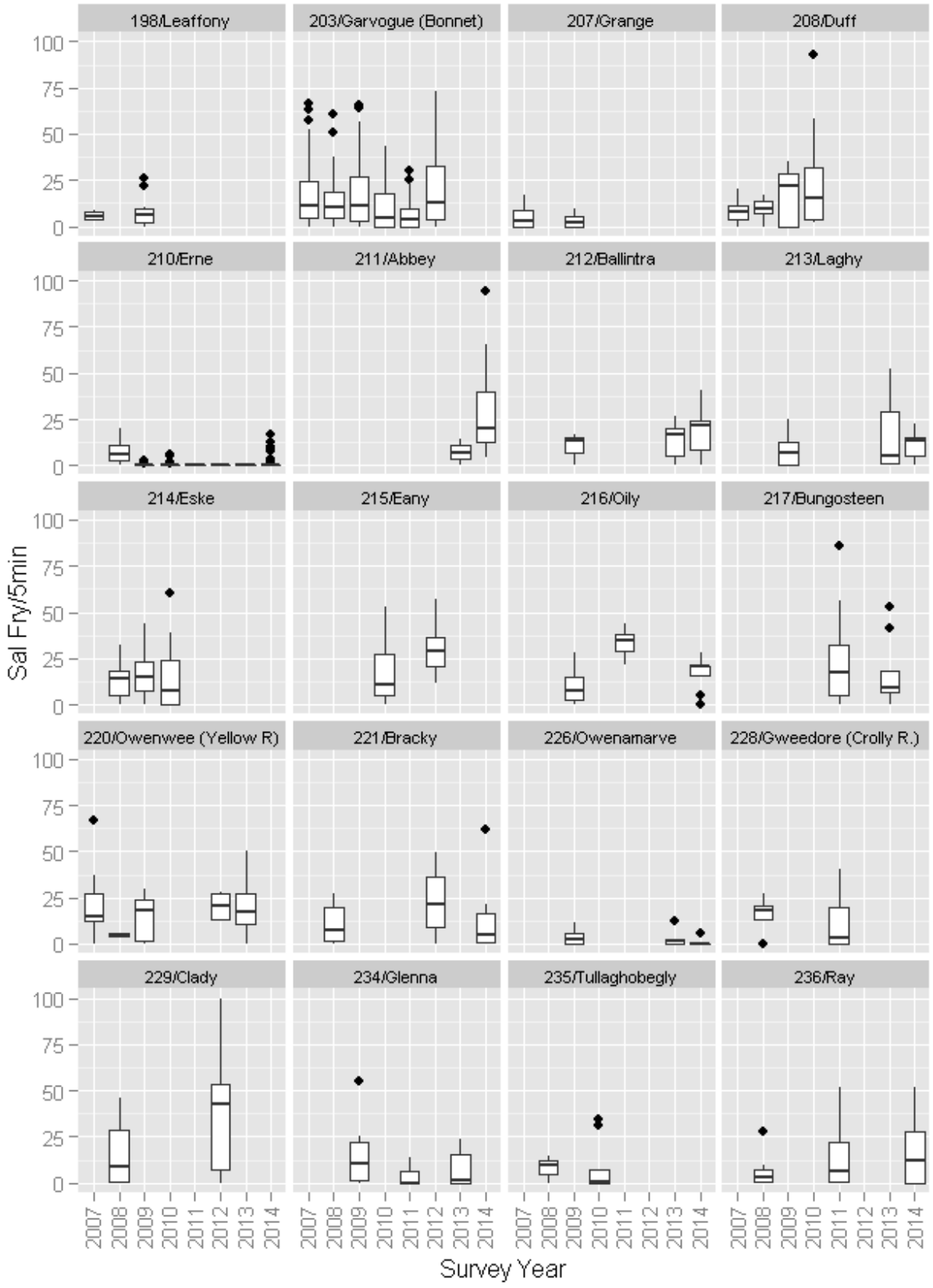
Table C.1: Summary of all sites included in analyses 2007-2014.

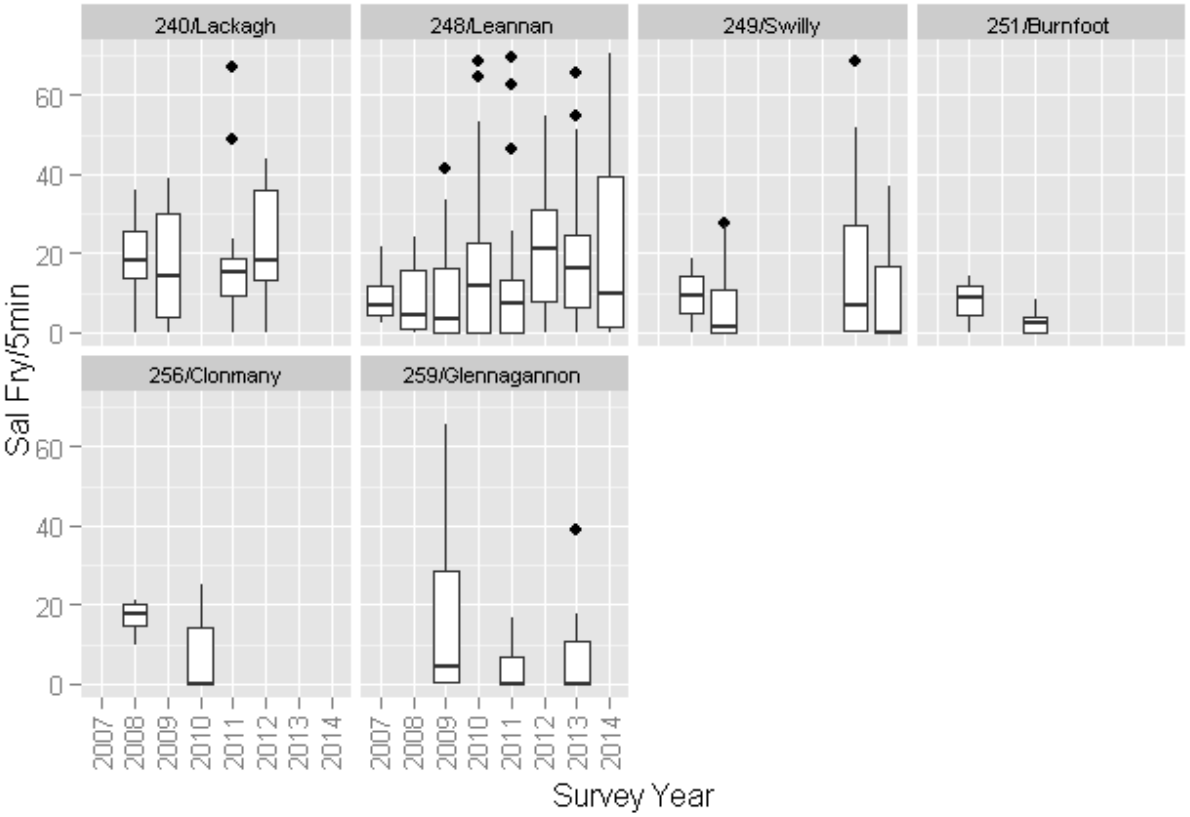
D. Boxplots: CWEF results included in analysis for each catchment >2 surveys.




036/Aughnavaud
037/Barrow
050/Mahon
053/Colligan
058/Glenshelane
060/Bride
062/Vomanagh
081/Adrigole
086/Cloonee
089/Finnihy
090/Blackwater (Kerry)
093/Owreagh
098/Inny
101/Carhan
102/Ferta
103/Behy
107/Maine
108/Emlagh
109/Owenascaul
111/Milltown (Kerry)
Sal Fry/5min
0
50
100
2007
2008
2009
2010
2011
2012
2013
2014
Survey Year


112/Feohanagh
117/Lee (Kerry)
125/Deel
126/Maigue
130/Owenagarney (Ratty)
131/Fergus
133/Doonbeg
135/Annageeragh
149/Owenboliska (Spiddal)
168/Erriff
171/Carrownisky
173/Owenwee (Belclare)
178/Newport (L. Beltra)
181/Owengarve
185/Owenduff (Bangor)
186/Owenmore - MC Muinhin (Bangor)
187/Glenamoy
193/Ballinglen
194/Cloonaghmore (Palmerstown
196/Brusna
Sal Fry/5min
0
20
40
60
80
2007
2008
2009
2010
2011
2012
2013
2014
Survey Year


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
220/Owenwee (Yellow R)
221/Bracky
226/Owenamarve
228/Gweedore (Crolly R.)
229/Clady
234/Glenna
235/Tullaghobegly
236/Ray
Sal Fry/5min
0
25
50
75
100
2007
2008
2009
2010
2011
2012
2013
2014
Survey Year


240/Lackagh
248/Leannan
249/Swilly
251/Burnfoot
256/Clonmany
259/Glennagannon
Sal Fry/5min
0
20
40
60
2007
2008
2009
2010
2011
2012
2013
2014
Survey Year

E. Sampling Density / Survey Quality

IFI Code/ River	Km Length >SO1	2 km per Site	5 km per Site	Km/site achieved								
				2007	2008	2009	2010	2011	2012	2013	2014	Min
002/Flurry	21.6	11	4				3.6					3.6
003/Castletown* (ROI stream segments only)	29.2	15	6			2.2				2.7	2.7	2.2
004/Fane	104.5	52	21			14.9			14.9			14.9
005/Glyde	165.2	83	33		10.3	11.0	11.8					10.3
006/Dee	200.8	100	40		6.9	10.6	10.0	10.0				6.9
008/Boyne	1110.5	555	222		8.7	7.8	7.7				7.7	7.7
013/Broadmeadow	116.0	58	23				38.7					38.7
014/Tolka	82.3	41	16					6.9	41.2			6.9
015/Liffey Lower	121.8	61	24		20.3	20.3	12.2	10.1	20.3			10.1
015/Liffey Upper	412.4	206	82		25.8	13.3	11.5	7.9	15.9			7.9
016/Dodder	93.0	47	19					15.5				15.5
018/Dargle	77.4	39	15			12.9	4.3	4.8				4.3
021/Vartry	44.1	22	9		11.0	11.0	3.4	4.0				3.4
026/Avoca	344.6	172	69		16.4	11.1	13.3	5.3	11.9			5.3
028/Owenavorragh	94.7	47	19				13.5			15.8		13.5
031/Slaney	865.9	433	173	108.2		18.0	11.0				7.2	7.2
032/Duncormick	31.4	16	6								15.7	15.7
033/Corock	94.6	47	19					15.8				15.8
034/Owenduff (Wexford)	32.7	16	7				10.9	5.5	5.5			5.5
035/Pollmounty	16.7	8	3	2.8								2.8
036/Aughnavaud	16.1	8	3	16.1		16.1	16.1	16.1	8.0			8.0
037/Barrow	1062.3	531	212	13.1		13.8	14.0	13.4	13.3			13.1
038/Nore	1110.5	555	222				10.9					10.9
050/Mahon	64.1	32	13		6.4						8.0	6.4
051/Tay	41.1	21	8					6.8				6.8
053/Colligan	55.5	28	11					11.1			4.6	4.6
055/Lickey	19.7	10	4		6.6							6.6
057/Finisk	58.6	29	12		4.5							4.5
058/Glenshelane	26.5	13	5	4.4	4.4							4.4
060/Bride	160.7	80	32		7.7		6.4				4.6	4.6
061/Tourig	16.7	8	3						2.1			2.1
062/Womanagh	52.8	26	11		4.8						3.5	3.5
064/Owennacurra	46.4	23	9	2.6								2.6
066/Lower Lee (Cork)	449.1	225	90			19.5						19.5
070/Argideen	60.4	30	12	3.6								3.6
077/Mealagh	49.2	25	10						7.0			7.0
080/Glengarriff	44.5	22	9			4.9						4.9
081/Adrigole	35.0	18	7							5.0	3.2	3.2
082/Kealincha	23.8	12	5	7.9								7.9
083/Lough Fada	25.8	13	5	6.4								6.4
085/Owenshagh	52.9	26	11							4.8		4.8
086/Cloonee	15.6	8	3						2.6	2.6		2.6
088/Roughty	198.8	99	40					22.1				22.1
089/Finnihy	22.1	11	4						3.7	3.7		3.7
090/Blackwater (Kerry)	80.8	40	16	16.2	6.2	5.8					2.2	2.2
093/Owreagh	17.4	9	3	2.9						2.9	2.2	2.2
097/Currane	77.7	39	16								1.9	1.9
098/Inny	85.1	43	17	3.9		4.3						3.9
099/Emlaghmore	15.0	7	3	3.7								3.7
101/Carhan	18.0	9	4	3.0						2.3	1.8	1.8
102/Ferta	34.4	17	7	4.3							2.6	2.6
103/Behy	28.2	14	6	3.5	2.8	2.8	3.1	2.8				2.8
105/Cotteners	28.8	14	6		2.9							2.9
107/Maine	187.3	94	37	3.4	3.9	11.0						3.4
108/Emlagh	20.1	10	4	5.0	4.0	4.0	4.0	4.0				4.0
109/Owenascaul	34.2	17	7	5.7		3.4				3.4	2.6	2.6

IFI Code/ River	Km Length >SO1	2 km per Site	5 km per Site	Km/site achieved								
				2007	2008	2009	2010	2011	2012	2013	2014	Min
110/Owenalondrig	16.2	8	3			2.3						2.3
111/Milltown (Kerry)	16.4	8	3		3.3		2.0			2.0		2.0
112/Feohanagh	29.4	15	6			2.9				2.9	2.4	2.4
114/Owenmore (Kerry)	19.4	10	4	1.5								1.5
117/Lee (Kerry)	87.6	44	18		2.6						4.6	2.6
118/Brick	108.4	54	22	18.1								18.1
119/Feale	335.7	168	67							6.0		6.0
120/Galey	121.6	61	24			3.8						3.8
125/Deel	251.2	126	50					6.3			7.8	6.3
126/Maigue	418.3	209	84			8.0	7.1			7.0		7.0
128/Shannon Graney	155.6	78	31				5.2					5.2
128/Shannon Kilcrow	193.1	97	39				7.7					7.7
128/Shannon Woodford	27.9	14	6				3.5					3.5
130/Owenagarney (Ratty)	89.3	45	18							6.0	5.6	5.6
131/Fergus	233.2	117	47	12.3		7.8	7.3			4.9		4.9
133/Doonbeg	51.7?	26	10				4.3				4.6	3.4
134/Skivaleen	46.7?	23	9					5.9				5.9
135/Annageeragh	35.6	18	7							3.0	3.0	3.0
142/Inagh	120.7	60	24								6.4	6.4
143/Aughyvackeen	34.8	17	7					7.0				7.0
145/Kilcolgan	162.5	81	32			4.6						4.6
146/Clarinbridge	41.9	21	8					6.0				6.0
147/Corrib	1269.2	635	254	40.9								40.9
148/Knock	19.9	10	4					3.3				3.3
149/Owenboliska (Spiddal)	58.1	29	12		2.8						2.8	2.8
152/Cashla	49.0	24	10							1.5		1.5
163/Owenglin	39.5	20	8			2.1						2.1
167/Culfin	21.2	11	4		3.5							3.5
168/Erriff	141.8	71	28	2.9	3.1	2.9	3.0	4.4	4.3	4.3	4.2	2.9
171/Carrownisky	41.7	21	8		2.2				2.2	2.5		2.2
172/Bunowen	69.7	35	14			23.2						23.2
173/Owenwee (Belclare)	41.4	21	8				3.8	4.6	3.8			3.8
178/Newport (L. Beltra)	107.5	54	22	9.0		15.4					4.0	4.0
179/Srahmore	69.2	35	14			23.1						23.1
181/Owengarve	24.9	12	5			6.2					2.8	2.8
185/Owenduff (Bangor)	127.3	64	25			63.7					9.1	9.1
186/Owenmore - MC Muinhin (Bangor)	201.1	101	40							5.0		5.0
186/Owenmore-Carrowmore	64.1	32	13							3.8		3.8
187/Glenamoy	65.4	33	13	4.7		9.3						4.7
188/Muingnabo	33.8	17	7	8.4								8.4
193/Ballinglen	39.3	20	8	6.5				3.3		3.6		3.3
194/Cloonaghmore (Palmerstown)	120.5	60	24		2.9		3.7	4.2	3.7	4.2		2.9
196/Brusna	102.7	51	21			2.9				3.4	3.7	2.9
198/Leaffony	25.2	13	5	4.2		1.8						1.8
203/Garvogue (Bonnet)	257.2	129	51	4.9	5.0	4.8	4.8	10.3	6.4			4.8
205/Drumcliff	62.3	31	12				3.7					3.7
207/Grange	42.0	21	8	8.4		7.0						7.0
208/Duff	96.5	48	19	8.8	9.6	10.7	8.8					8.8
210/Erne	19.6	10	4							0.6	0.5	0.5
211/Abbey	29.6	15	6							14.8	1.6	1.6
212/Ballintra	83.2	42	17			27.7				5.2	6.4	5.2
213/Laghy	46.7	23	9			5.2				4.2	3.9	3.9
214/Eske	115.8	58	23		8.3	7.2	6.8					6.8
215/Eany	144.1	72	29				4.8		6.9			4.8
216/Oily	46.2	23	9			4.2		6.6			3.6	3.6
217/Bungosteen	44.1	22	9					4.4		4.4		4.4
219/Glen (Ballyshannon)	82.0	41	16				4.6					4.6
220/Owenwee (Yellow R)	17.3	9	3	1.7	5.8	2.2			4.3	1.1		1.1
221/Bracky	35.1	18	7		4.4				2.9		2.9	2.9
222/Owentocker	43.4	22	9		4.3							4.3
226/Owenamarve	16.3	8	3			2.3				2.3	2.3	2.3
228/Gweedore (Crolly R.)	29.2	15	6		7.3			2.7				2.7

IFI Code/ River	Km Length >SO1	2 km per Site	5 km per Site	Km/site achieved								
				2007	2008	2009	2010	2011	2012	2013	2014	Min
229/Clady	**58.4**	29	12		9.7				5.3			5.3
234/Glenna	**19.0**	10	4			3.2		3.2		3.2		3.2
235/Tullaghobegly	**17.2**	9	3		5.7		1.9					1.9
236/Ray	**45.1**	23	9		5.6			4.1			3.8	3.8
240/Lackagh	**90.6**	45	18		12.9	10.1		7.6	8.2			7.6
248/Leannan	**219.0**	110	44	24.3	7.6	7.6	7.6	7.6	7.8	8.4	7.6	7.6
249/Swilly	**90.8**	45	18		45.4	5.3				6.5	5.7	5.3
250/Isle (Burn)	**48.6**	24	10						4.9			4.9
251/Burnfoot	**24.0**	12	5		8.0		4.8					4.8
252/Mill (Letterkenny)	**29.2**	15	6				9.7					9.7
253/Crana	**86.6**	43	17			3.6						3.6
256/Clonmany	**35.3**	18	7		8.8		2.9					2.9
257/Straid	**22.5**	11	5				4.5					4.5
258/Donagh	**30.7**	15	6				3.1					3.1
259/Glennagannon	**26.6**	13	5			2.7		2.4		2.4		2.4
261/Culoort	**18.1**	9	4				3.0					3.0