

Fish in Rivers Factsheet

SWRBD

Blackwater (Munster) River Catchment

Factsheet: 2023/06

The River Blackwater is one of Munster's largest rivers. It rises in the Derrynasaggart Mountains, bordering Co. Cork and Kerry, and flows in an easterly direction, through Mallow, Fermoy and Lismore. It turns abruptly southwards at Cappoquin, Co. Waterford, widening out and becoming tidal. It flows further south, finally reaching the sea at Youghal Harbour.

Inland Fisheries Ireland conducts annual nation-wide fish sampling surveys to assess the status of stocks in Ireland's rivers, lakes and transitional waters. This

report presents the results of a survey of the Blackwater (Munster) catchment in 2022.

Sixteen sites were surveyed by electro-fishing (CEN 2003) on the Blackwater (Munster) River catchment between the 25th of July and 11th of August 2022. The survey methods included 10-minute timed Electro-Fishing (TEF₁₀) and Area Delineated Electro-Fishing (ADEF handset and ADEF boat). All TEF₁₀ fish count results were converted to minimum population estimates according to Matson *et al.* (2018).



The Awbeg (Buttevant) River at Kilcummer Bridge (Site 9)



Iascach Iníre Éireann
Inland Fisheries Ireland



Figure 1. Location of electrofishing survey sites on the Blackwater (Munster) catchment, 2022

Blackwater (Munster) catchment (West)

Three sites (no. 2-4) were surveyed on the Blackwater (Munster) main channel, two on the Allow (no. 5 and 6) and one each on the Ballydesmond (site 1), Awbeg (Kanturk) (site 7), Finnow (site 8) and Awbeg (Buttevant) (site 9) sub-catchments. Five long-term Water Framework Directive surveillance (SM) monitoring sites were included (Figure 2 and Table 1).

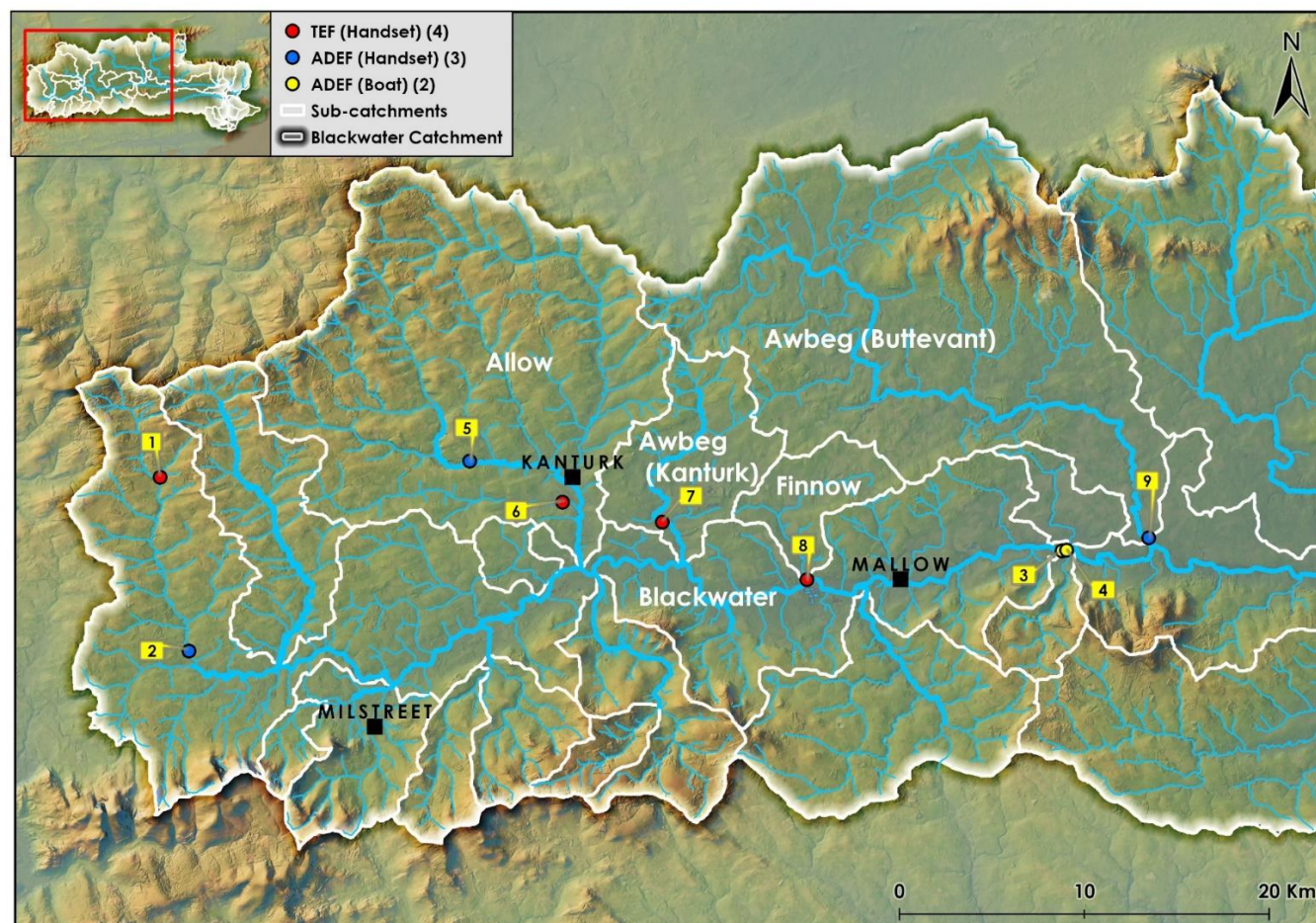


Figure 2. Blackwater (Sites 1-4), Allow (Site 5-6), Awbeg (Kanturk)(Site 7), Finnow (Site 8) and Awbeg Buttevant (Site 9) sub-catchments, 2022.

Table 1. Site survey details, Blackwater (Munster) catchment, 2022

No.	Sub-catchment	River	Site	Method	WFD	Date
1	Blackwater	Ballydesmond	Ballydesmond	TEF (handset)	No	10/08/2022
2		Blackwater	Nohaval Bridge	ADEF (handset)	Yes	28/07/2022
3		Blackwater	Killavullen Bridge (RHB)	ADEF (boat)	Yes	26/07/2022
4		Blackwater	Killavullen Bridge (LHB)	ADEF (boat)	Yes	26/07/2022
5	Allow	Dalua	Footbridge SW of Liscongill	ADEF (handset)	Yes	11/08/2022
6		Allow (Monvara)	Monvara	TEF (handset)	No	10/08/2022
7	Awbeg (Kanturk)	Awbeg (Kanturk)	Bannagh Bridge	TEF (handset)	No	10/08/2022
8	Finnow	Finnow	Ballynafeaha	TEF (handset)	No	10/08/2022
9	Awbeg (Buttevant)	Awbeg (Buttevant)	Kilcummer Bridge	ADEF (handset)	Yes	27/07/2022

Table 2. Minimum density estimates of fish (no. fish/m²), Blackwater (Munster) catchment, 2022 (previous results are shown where applicable)

Blackwater & Ballydesmon									
Site no.	1			2			3		4
Species	2022			2010	2013	2022	2022		2022
Brown trout	0.209	0.043	0.047	0.025	0.0002	0.002		0.002	
0+ brown trout	0.176	0.001	0.009	0.015	–	–		0.0005	
1+ & older brown trout	0.032	0.042	0.037	0.010	0.0002	0.001		0.001	
Salmon	0.577	0.038	–	0.125	0.0002	0.011		0.011	
0+ salmon	0.545	0.009	–	0.072	–	0.006		0.006	
1+ & older salmon	0.032	0.029	–	0.052	0.0002	0.005		0.005	
Dace	–	–	–	–	0.0003	0.016		0.016	
European eel	–	0.001	–	0.002	0.0001	0.0005		0.0005	
Gudgeon	–	–	0.0009	–	–	0.0005		0.0005	
Lamprey sp.	–	0.001	0.005	–	–	–		–	
Minnow	–	0.017	0.024	–	0.0004	0.005		0.005	
Roach	–	–	–	–	–	0.0005		0.0005	
Stone loach	–	0.003	0.002	0.032	0.0001	0.0005		0.0005	
Three-spined stickleback	–	0.002	0.001	–	0.0001	0.004		0.004	
All fish	0.786	0.105	0.079	0.184	0.001	0.040		0.040	
	Allow				Awbeg	Finnow	Awbeg (Buttevant)		
Site no.	5			6	7	8	9		
Species	2010	2013	2022	2022	2022	2022	2009	2012	2022
Brown trout	0.035	0.022	0.024	0.168	0.284	0.239	0.012	0.017	0.022
0+ brown trout	–	0.018	0.015	0.032	0.179	0.063	–	–	–
1+ & older brown trout	0.035	0.004	0.010	0.135	0.104	0.175	0.012	0.017	0.022
Salmon	0.629	0.364	0.524	0.032	0.067	0.058	0.023	0.020	0.076
0+ salmon	0.435	0.191	0.400	0.011	0.067	0.029	0.002	0.004	0.035
1+ & older salmon	0.194	0.173	0.124	0.022	–	0.029	0.021	0.016	0.041
Dace	–	–	–	–	–	–	0.001	–	–
European eel	0.008	0.007	0.002	0.016	–	0.029	0.002	0.003	0.002
Lamprey sp.	0.004	0.002	0.002	0.011	–	–	–	0.001	–
Minnow	0.014	–	0.002	–	–	–	–	–	–
Stone loach	–	0.002	0.002	–	–	–	0.0003	0.0003	0.002
All fish	0.690	0.397	0.556	0.227	0.351	0.326	0.038	0.041	0.102

Note: ¹ Sites 3 and 4 were previously surveyed in whole sections but in 2022, each side was surveyed separately and staggered (previous densities not reported here as not comparable).

Table 3. Salmonid age class structure Blackwater (Munster) catchment, 2022

Sub-catchment	Site no.	% catch			
		0+	1+	2+	3+
Brown trout					
Blackwater	1	86	14	-	-
	2	60	30	10	-
	3	-	33	67	-
	4	25	25	25	25
Allow	5	60	30	5	5
	6	20	67	13	-
Awbeg (Kanturk)	7	65	24	12	-
Finnow	8	32	56	12	-
Awbeg (Buttevant)	9	-	64	36	-
Salmon					
Blackwater	1	95	5	-	-
	2	58	42	-	-
	3	-	100	-	-
	4	52	48	-	-
Allow	5	76	24	-	-
	6	33	67	-	-
Awbeg (Kanturk)	7	100	-	-	-
Finnow	8	50	50	-	-
Awbeg (Buttevant)	9	46	54	-	-

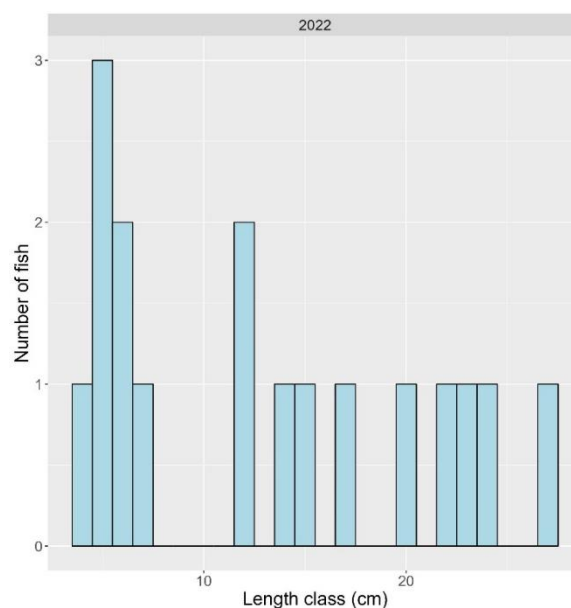


Figure 3. Length frequency distribution for brown trout (n=26) in the Blackwater (Munster) main channel, 2022 (N=4 sites)

Table 4. Fish ecological status, Blackwater (Munster) catchment (West), 2022¹

Site No.	2009	2010	2012	2013	2014	2017	2022
Blackwater & sub-catchment							
1	-	-	-	-	-	-	G
2	-	G	-	G	-	-	G
3	M*	-	-	M*	-	-	N/A
4	M*	-	-	M*	-	-	N/A
Allow sub-catchment							
5	-	G	-	G	-	-	G
6	-	-	-	-	-	-	G
Awbeg (Kanturk) sub-catchment							
7	-	-	-	-	-	-	G
Finnow sub-catchment							
8	-	-	-	-	-	-	G
Awbeg (Buttevant) sub-catchment							
9	G	-	G	-	-	-	G

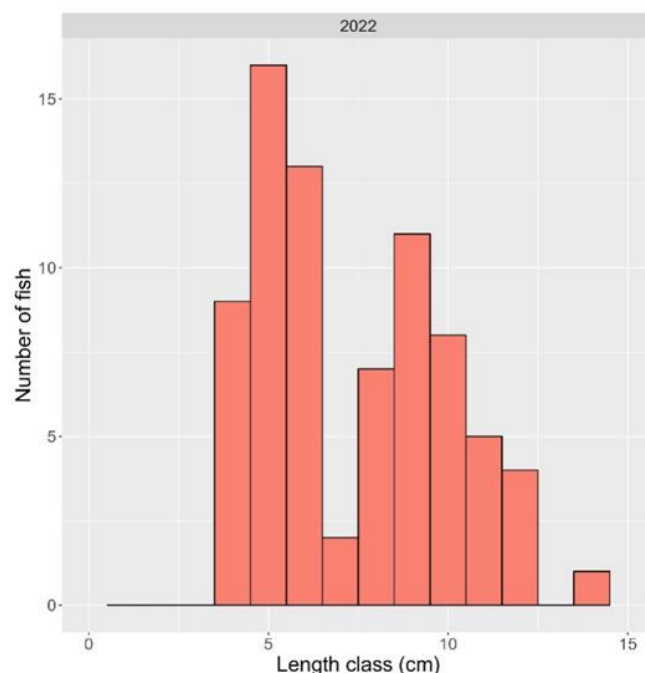


Figure 4. Length frequency distribution for salmon (n=81) in the Blackwater (Munster) main channel, 2022 (N=4 sites)

¹ Sites 3 and 4 were previously surveyed in whole sections but in 2022, each side was surveyed separately and staggered

Blackwater (Munster) catchment (East)

One site was surveyed on the River Bride (site 10), two on the Funshion (sites 11 and 12), one each on Araglin, Finisk and Licky rivers. All seven sites were long-term Water Framework Directive surveillance (SM) monitoring sites (Figure 3 and Table 5).

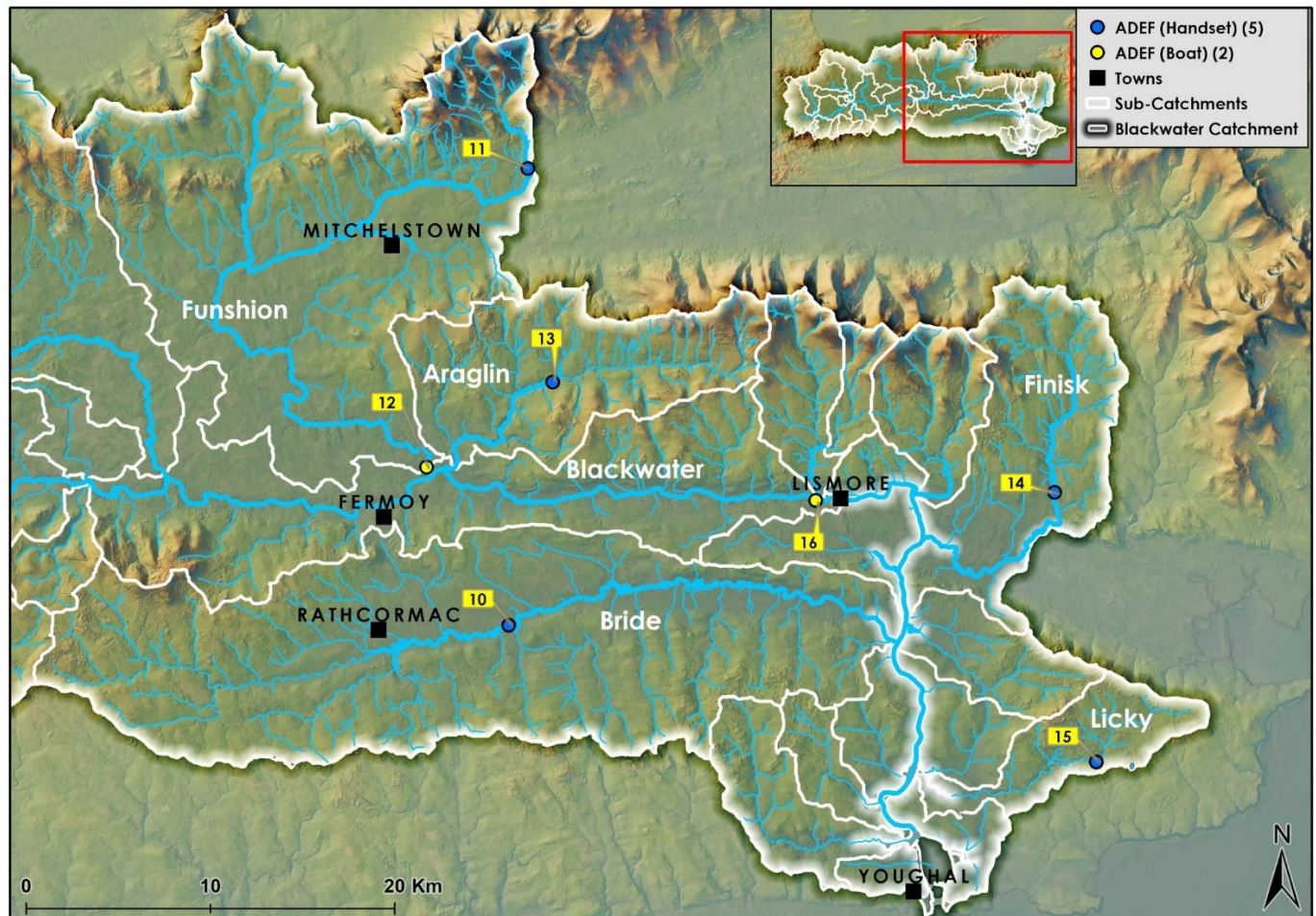


Figure 5. Location of electrofishing survey sites on the Bride (Site 10), Funshion (Sites 11-12), Araglin (Site 13), Finisk (Site 14), Licky (Site 15) and Blackwater (Site 16) sub-catchments, 2022.

Table 5. Site survey details, Blackwater (Munster) catchment (East), 2022

No.	Sub-catchment	River	Site	Method	WFD	Date
10	Bride	Bride	Footbridge North of Ballynella	ADEF (handset)	Yes	25/07/2022
11	Funshion	Funshion	Brackbaun Bridge	ADEF (handset)	Yes	27/07/2022
12	Funshion	Funshion	Br. U/S Blackwater River confl	ADEF (boat)	Yes	28/07/2022
13	Araglin	Araglin	Elizabeth's Bridge	ADEF (handset)	Yes	09/08/2022
14	Finisk	Finisk	Modelligo Bridge	ADEF (handset)	Yes	09/08/2022
15	Licky	Licky	Bridge North-East of Glenlicky	ADEF (handset)	Yes	08/08/2022
16	Blackwater	Blackwater	Lismore Bridge (RHB)*	ADEF (boat)	Yes	26/07/2022



The Funshion River at bridge upstream of Blackwater River confluence (Site 12)



The Finisk River at Mondelligo Bridge (Site 14)

Table 6. Minimum density estimates of fish (no. fish/m²), Blackwater (Munster) catchment, 2022 (previous results are shown where applicable)

Bride				Funshion					
Site no.	10			11			12		
Species	2009	2012	2022	2014	2017	2022	2010	2013	2022
Brown trout	0.017	0.053	0.094	0.132	0.077	0.134	0.010	0.008	0.004
0+ brown trout	0.0004	0.001	0.012	0.124	0.073	0.096	-	-	-
1+ & older brown trout	0.016	0.052	0.082	0.008	0.004	0.038	0.010	0.008	0.004
Salmon	0.019	0.018	0.140	0.100	0.029	0.151	0.031	0.012	0.003
0+ salmon	0.004	0.005	0.118	0.019	0.008	0.089	0.003	0.002	0.001
1+ & older salmon	0.014	0.013	0.022	0.081	0.021	0.062	0.028	0.010	0.002
Dace	-	-	-	-	-	-	0.001	0.002	-
European eel	0.001	-	0.006	0.003	-	-	0.003	0.004	0.0001
Gudgeon	-	-	-	-	-	-	-	-	0.0002
Lamprey sp.	-	-	-	-	-	-	0.001	0.0004	-
Minnow	-	-	0.002	-	-	-	0.001	0.004	0.001
Sea trout	0.0002	0.001	-	-	-	-	-	-	-
Stone loach	0.001	0.0003	0.002	-	-	-	0.005	0.0003	0.0003
Three-spined stickleback	-	-	0.004	-	-	-	0.004	0.0004	0.0004
All fish	0.38	0.072	0.248	0.235	0.106	0.285	0.056	0.031	0.009
Araglin			Finisk			Licky	Blackwater		
Site no.	13		14			15	16		
Species	2013	2022	2014	2017	2022	2022	2010	2016	2022
Brown trout	0.036	0.037	0.011	0.108	0.148	0.188	-	0.0010	0.001
0+ brown trout	0.013	0.008	0.002	0.071	0.051	0.075	-	0.0001	-
1+ & older brown trout	0.023	0.029	0.009	0.037	0.097	0.113	-	0.0010	0.0010
Salmon	0.107	0.086	0.200	0.040	0.190	0.016	0.0050	-	0.0004
0+ salmon	0.013	0.026	0.173	0.040	0.148	0.013	0.0001	-	0.0001
1+ & older salmon	0.095	0.059	0.027	-	0.042	0.003	0.005	-	0.0003
Dace	-	-	-	-	-	-	0.001	0.003	0.0004
European eel	0.016	0.012	-	0.024	0.004	0.013	0.001	0.002	0.0002
Flounder	-	-	-	-	-	-	0.003	0.006	0.0003
Gudgeon	-	-	-	-	-	-	0.0003	0.0002	0.0002
Lamprey sp.	0.002	0.002	-	-	-	-	0.0001	-	-
Minnow	-	-	-	-	-	-	0.0005	0.001	0.001
Roach	-	-	-	-	-	-	0.0001	0.0003	-
Sea trout	-	-	-	-	-	-	-	-	0.0001
Stone loach	0.004	0.004	0.011	-	-	-	0.001	0.0001	0.0003
Three-spined stickleback	-	-	0.005	-	0.004	-	0.0001	-	-
All fish	0.165	0.141	0.227	0.172	0.346	0.217	0.012	0.013	0.004

Table 7. Salmonid age class structure Blackwater (Munster) catchment 2022

Sub-catchment	Site no.	% Catch				
		0+	1+	2+	3+	4+
Brown trout						
Bride	10	11	66	22	2	
Funshion	11	72	28	-	-	
	12	-	29	49	22	
Araglin	13	26	65	9	-	
Finisk	14	33	60	8	-	
Licky	15	37	62	1	-	
Blackwater	16	-	89	11	-	
Salmon						
Bride	10	85	15	-	-	
Funshion	11	59	41	-	-	
	12	19	81	-	-	
Araglin	13	24	76	-	-	
Finisk	14	80	19	1	-	
Licky	15	80	20	-	-	
Blackwater	16	20	80	-	-	
Dace						
Blackwater	16	0	0	50	33	17

Table 8. Fish ecological status, Blackwater (Munster) catchment (West), 2022.

Site No.	2009	2010	2012	2013	2014	2017	2022
Bride sub-catchment							
10	G	-	G	-	-	-	H
Funshion sub-catchment							
11	G	-	-	-	G	N/A	G
12	-	G	-	G	-	-	G
Araglin sub-catchment							
13	-	-	-	G	-	-	G
Finisk sub-catchment							
14	-	G	-	-	G	M	G
Licky sub-catchment							
15	-	-	-	-	-	-	M
Blackwater River							
16	-	M	-	M	-	-	M

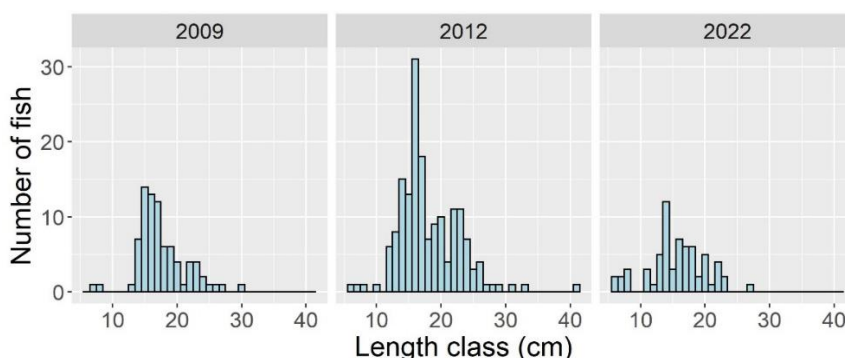


Figure 6. Length frequency distribution for brown trout (2009 n=80, 2012 n=167, 2022 n=65) in the Bride River Sub-catchment at Footbridge North of Ballynella (Site 10)

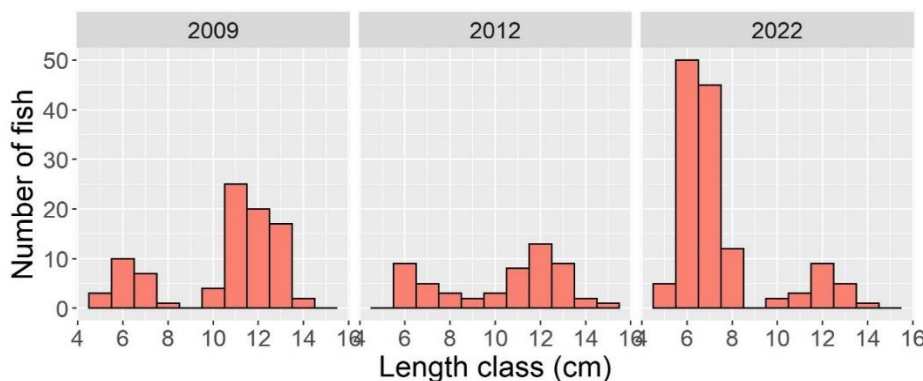


Figure 7. Length frequency distribution for salmon (2009 n= 89, 2012 n=55, 2022 n=132) in the Bride River Sub-catchment at Site 19 (Footbridge North of Ballynella)

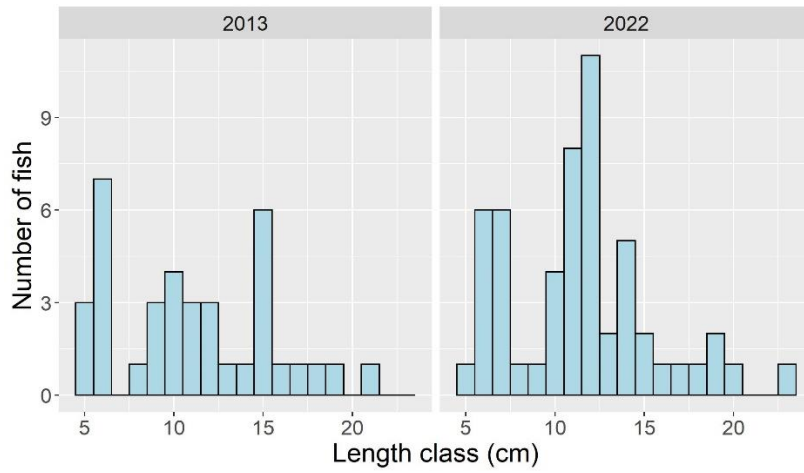


Figure 8. Length frequency distribution for brown trout (2013 n=37; 2022 n=54) in the Araglin River sub-catchment at Elizabeth’s Bridge (Site 13)

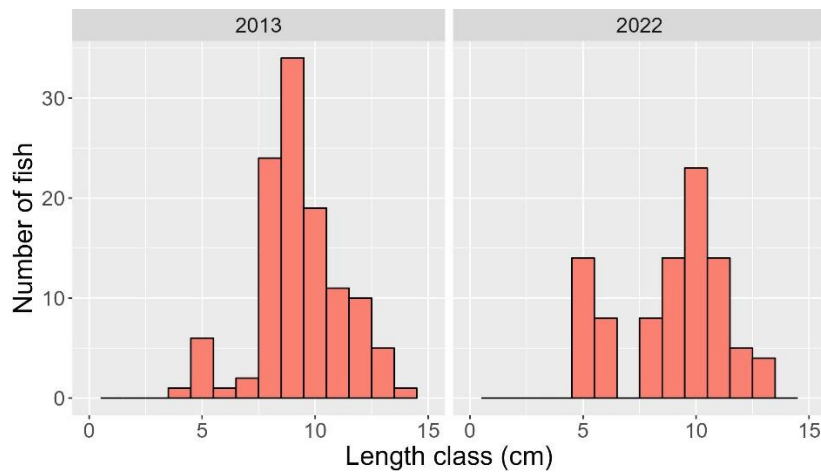
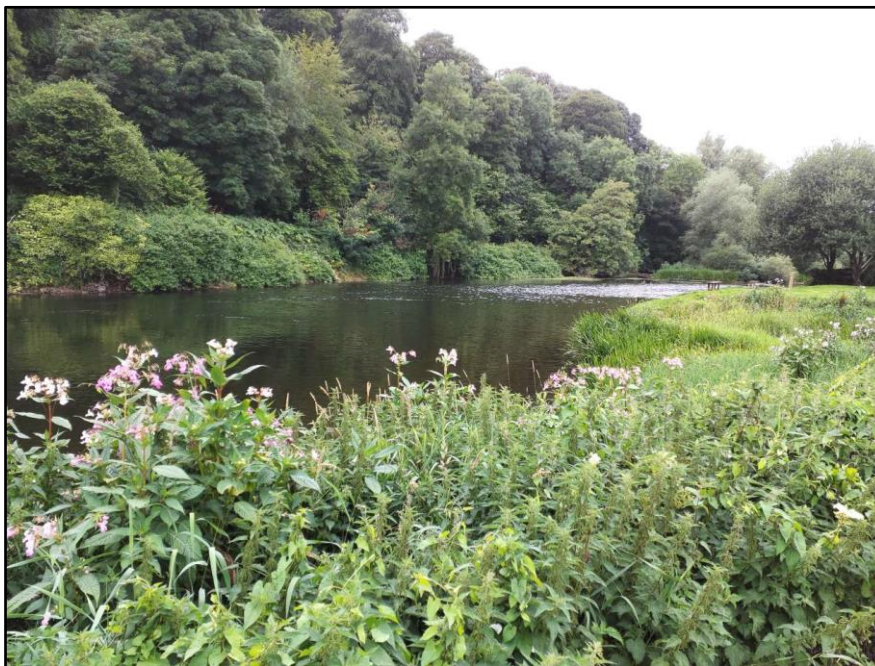


Figure 9. Length frequency distribution for salmon (2013 n=114; 2022 n=90) in the Araglin River sub-catchment at Elizabeth’s Bridge (Site 13)



The Blackwater (Munster) River at Lismore Bridge (Site 16)

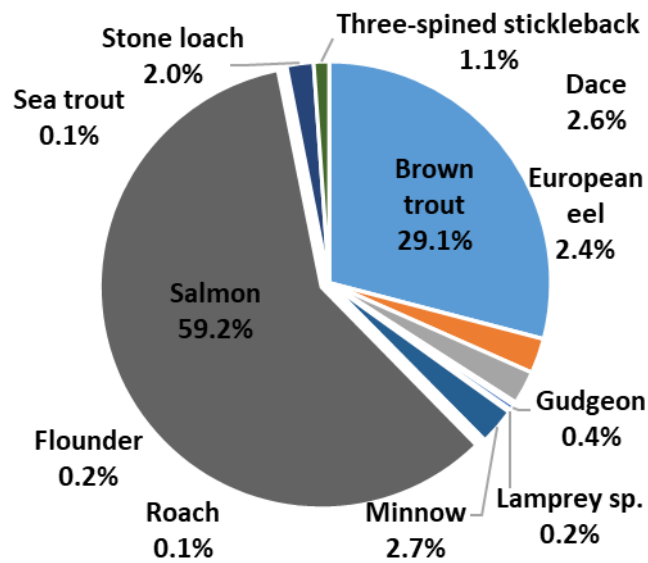


Figure 10. Fish species composition (%), Blackwater (Munster) Catchment,

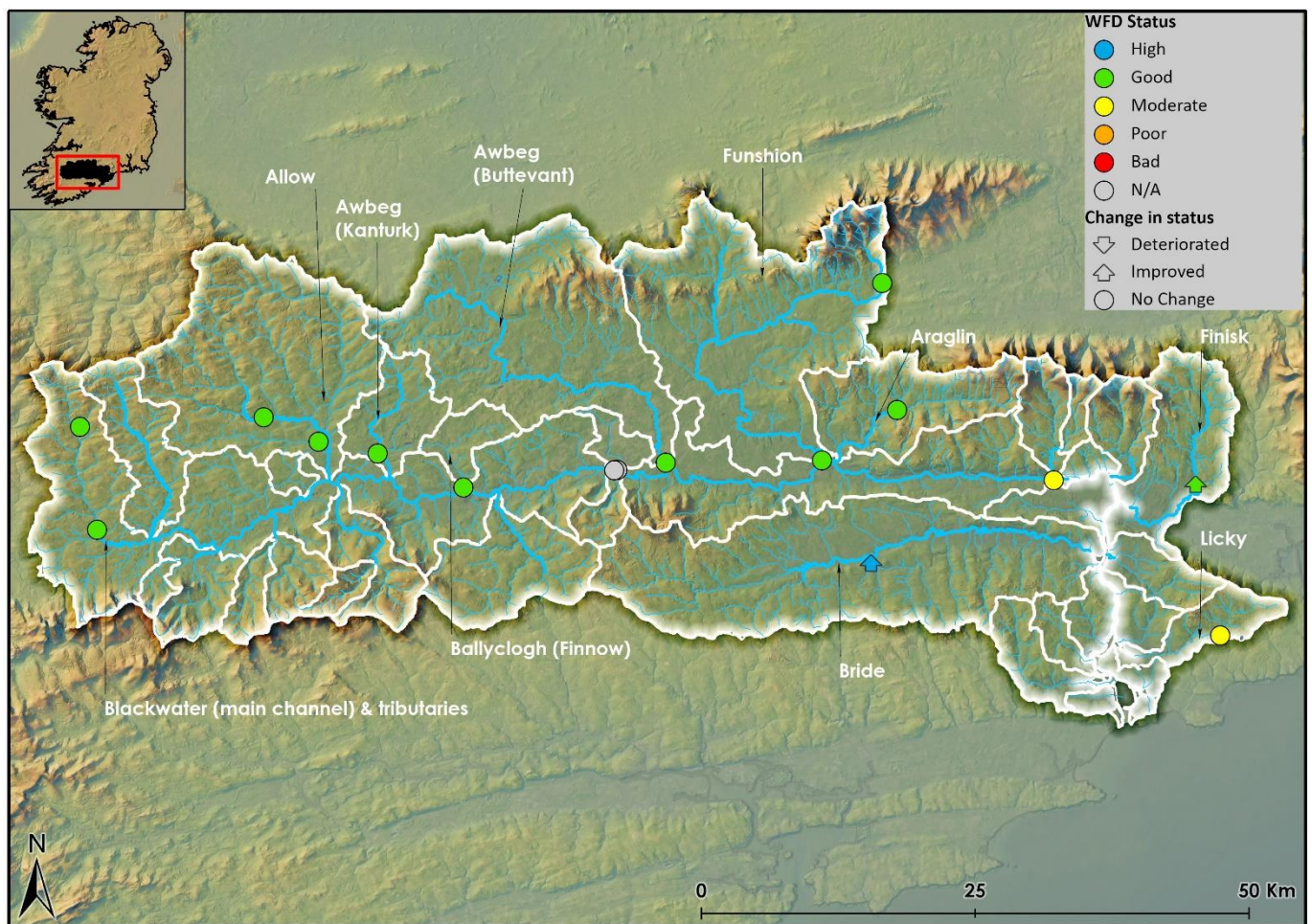


Figure 11. Fish ecological status in the Blackwater (Munster) catchment in 2022. Arrows indicate a change in status since previous survey where applicable.

Summary

A total of 11 fish species and sea trout (a separate 'variety' of trout) were recorded at 16 sites fished on the Blackwater (Munster) River Catchment in 2022.

Salmon and brown trout were the most common species present (16 sites each, 100%), followed by European eel (13 sites, 81%), stone loach (nine sites, 56%), minnow (six sites, 38%), three-spined stickleback (five sites, 31%), dace, gudgeon and lamprey (three sites each, 19%), flounder, roach and sea trout (one site each, 6%).

Salmon was the most abundant species recorded, captured at all 16 sites, followed by brown trout, minnow, dace, European eel, stone loach, three spined stickleback, gudgeon, flounder, lamprey, sea trout and roach (Figure 10).

Salmon ranged in length from 4 to 16.5cm. Three age classes were present (0+, 1+ and 2+), with 0+ being the most abundant cohort. The highest density of 0+ salmon (0.545 fish/m²) was recorded at Site 1 on the River Blackwater at Ballydesmond. The highest density of 1+ and older salmon (0.124 fish/m²) was recorded on Site 5 on the Dalua River.

Brown trout ranged in length from 4.0 to 30.6cm. Four age classes were present (0+, 1+, 2+ and 3+), with 1+ being the most abundant cohort. The highest density of brown trout 0+ brown trout (0.179 fish/m²) was recorded at Site 7 on the Awbeg (Kanturk) River at Bannagh Bridge, while the greatest density of 1+ and older brown trout (0.175 fish/m²) was recorded at Site 8 on the Finnow River at Ballynafeaha.

Dace were captured at three sites, Killavullen Bridge (LHB and RHB) and at Lismore Bridge (RHB), ranging in length from 3.3cm to 25.0cm. The highest density of dace (0.016 fish/m²) was recorded at Killavullen (LHB).

Tolerant fish species (e.g. three-spined stickleback, minnow and stone loach) were recorded at ten sites across the catchment. These species are more tolerant of poor water quality than type specific indicator species (e.g. brown trout and salmon). When dominant at a site or present in relatively high abundances they can be an indicator of poor water quality (Kelly *et al.*,

2007). The highest density recorded for one of these species, was for stone loach at Nohaval Bridge with a density of 0.032 fish/m².

A Water Framework Directive fish classification tool (FCS2) was developed for Irish rivers in 2011 (SNIFFER 2011). The tool works by comparing various fish community metric values within a site to those predicted for a site under un-impacted conditions. In general, a site will achieve High status if indicator species (e.g., both salmonid cohorts 0+ and 1+ and older) are present and in expected numbers. Status will decline if such cohorts are missing, are in poor abundance, or if more tolerant species proliferate.

Fish ecological status was assigned to 16 sites surveyed in the Blackwater (Munster) catchment during 2022 (Table 9, Figure 11). One site achieved High status, with eleven sites Good, and two Moderate, two sites were unassigned. Nine sites were surveyed previously on this catchment and assigned fish ecological status. When compared with their most recent previous surveys, two sites improved and seven remained unchanged, no sites deteriorated in status (Table 9, Figure 11).

The reasons for the failures in fish ecological status (i.e., Moderate or worse) were due to lower-than-expected abundance of type specific indicator species (e.g., salmon and trout) or the absence of certain age cohorts indicating recruitment failures. Failures and deteriorations in fish ecological status can be caused by pressures such as nutrient enrichment, hydromorphological issues and habitat modification, or fish passage obstruction due to artificial barriers.

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CITATION: Kelly, K., Gordon, P., Matson, R., Corcoran, W., Heagney, B. and Kelly, F.L. (2023) Sampling Fish in Rivers 2022 – Blackwater (Munster) Catchment, Factsheet No. 2023/07. National Research Survey Programme. Inland Fisheries Ireland

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