

Fish in Rivers Factsheet

The Bandon River catchment is located within the South Western River Basin District and covers an area of approximately 598 km². The Bandon River rises in the Maughanaclea Hills approximately 10 km north-west of Dunmanway and flows in an easterly direction entering the sea at Kinsale Harbour. Catchment geology is mixed between limestone and sandstone and agriculture is the dominant land use. Portions of this catchment, close to Dunmanway are situated within the Bandon River Special Area of Conservation.

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 factsheet summarises the results of a catchment-wide survey of the Bandon River catchment undertaken in 2021.

A total of thirty-five sites were surveyed by electro-fishing (CEN 2003) in the catchment from the 30th of August to the 6th of September 2021 (Figs. 1, 2 & 3). The survey methods included 10-minute timed Electro-Fishing (TEF₁₀) and Area Delineated Electro-Fishing (ADEF (boat)). All TEF₁₀ fish count results were converted to minimum population estimates according to Matson *et al.* (2018).

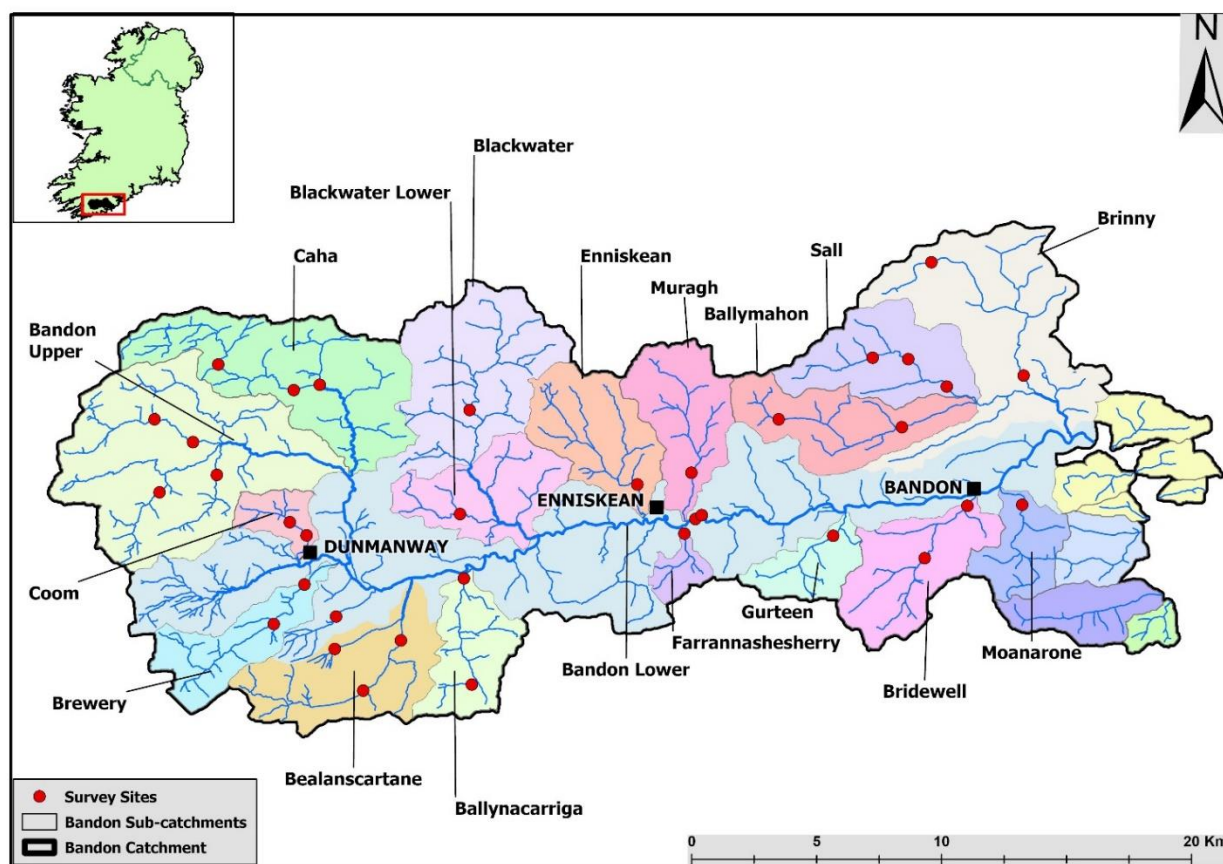


Fig. 1. Bandon River sub-catchments and location of electrofishing survey sites, 2021

Table 1. Site survey details on the Bandon River Catchment, August/September 2021

No.	Sub-catchment	River	Site	Method	WFD	Date
Upper Bandon Catchment						
1	Blackwater	Blackwater River	Ahakeera	TEF ₁₀	-	02/09/2021
2	Caha	Cummernamart River	Cummernamart	TEF ₁₀	-	31/08/2021
3		Caha River	Poulnaberry Br.	TEF ₁₀	-	30/08/2021
4		Caha River	Coolmountain Br.	TEF ₁₀	-	30/08/2021
5	Bandon (upper)	Derragh River	Keenrath	TEF ₁₀	-	31/08/2021
6		Derragh River	Shanacrane	TEF ₁₀	-	30/08/2021
7		Bandon River (main channel)	Farnanes Br.	TEF ₁₀	-	31/08/2021
8		Garrown River	Derrynacaheragh	TEF ₁₀	-	31/08/2021
9	Coom	Coom River	Darkwood	TEF ₁₀	-	31/08/2021
10		Coom River	Coorycullane	TEF ₁₀	-	31/08/2021
11	Brewery	Brewery River	Tonafora	TEF ₁₀	-	01/09/2021
12		Brewery River	Cloonties	TEF ₁₀	-	01/09/2021
13	Bealanscartane	Glasheenahielan River	Kilonane West	TEF ₁₀	-	01/09/2021
14		Bealanscartane River	Bealanscartane Br.	TEF ₁₀	-	02/09/2021
15		Bealanscartane River	Drinagh East	TEF ₁₀	-	01/09/2021
16	Ballynacarriga	Ballynacarriga River	Ballingurteen	TEF ₁₀	-	02/09/2021
17		Ballynacarriga River	Monaneurig Bog	TEF ₁₀	-	02/09/2021
18	Blackwater (Lower)	Glasheenacauha River	Balteenbrack	TEF ₁₀	-	02/09/2021
19	Farrannashesherry	Derrymeeleen River	Roseville Br.	TEF ₁₀	-	01/09/2021
20	Bandon (Lower)	Kealrootha River	Mohana	TEF ₁₀	-	01/09/2021
21		Bandon River (main channel)	Br. Nr Desert Station	ADEF (boat)	YES	06/09/2021
22		Bandon River (main channel)	d/s Murragh Br.	ADEF (boat)	YES	06/09/2021
23	Enniskean	Enniskean River	Castlelands	TEF ₁₀	-	01/09/2021
24	Muragh	Curraghnacarton River	Palaceanne North	TEF ₁₀	-	01/09/2021
Lower Bandon Catchment						
25	Sall	Sall River	Finnis	TEF ₁₀	-	30/08/2021
26		Sall River	Aghaphona Br.	TEF ₁₀	-	31/08/2021
27		Sall River	Lisnagat Br.	TEF ₁₀	-	31/08/2021
28	Ballymahon	Ballymahon (Brinny) River	Ballygarvey Br	TEF ₁₀	-	31/08/2021
29		Ballymahon River	Tullyglen North	TEF ₁₀	-	31/08/2021
30	Gurteen	Cashelmore River	Gaggan Br.	TEF ₁₀	-	03/09/2021
31	Bridewell	Bridewell River	Meelon Br.	TEF ₁₀	-	02/09/2021
32		Bridewell River	Service Station	TEF ₁₀	-	02/09/2021
33	Moanarone	Garranbeg River	Moanarone	TEF ₁₀	-	01/09/2021
34	Brinny	Tuough River	Ballinacurra Br.	TEF ₁₀	-	30/08/2021
35		Tuough River	Rathcullen South	TEF ₁₀	-	30/08/2021

Upper Bandon sub-catchments

Twenty-four sites were surveyed in the upper Bandon River catchment during 2021 (Table 1). One site was surveyed on the Blackwater River, three on the Caha subcatchment, two on the Derragh River, one on the Garrown River, two sites on the Coom and Brewery Rivers, three on the Bealanascartane River subcatchment, two on the Ballynacarriga River, one each on the Glasheenacauha, Derrymeeleen, Kealrotha, Enniskeen and Curraghnacarton rivers. Three sites were also surveyed on the Bandon River main channel (sites 7, 21 and 22) (Figure 2).

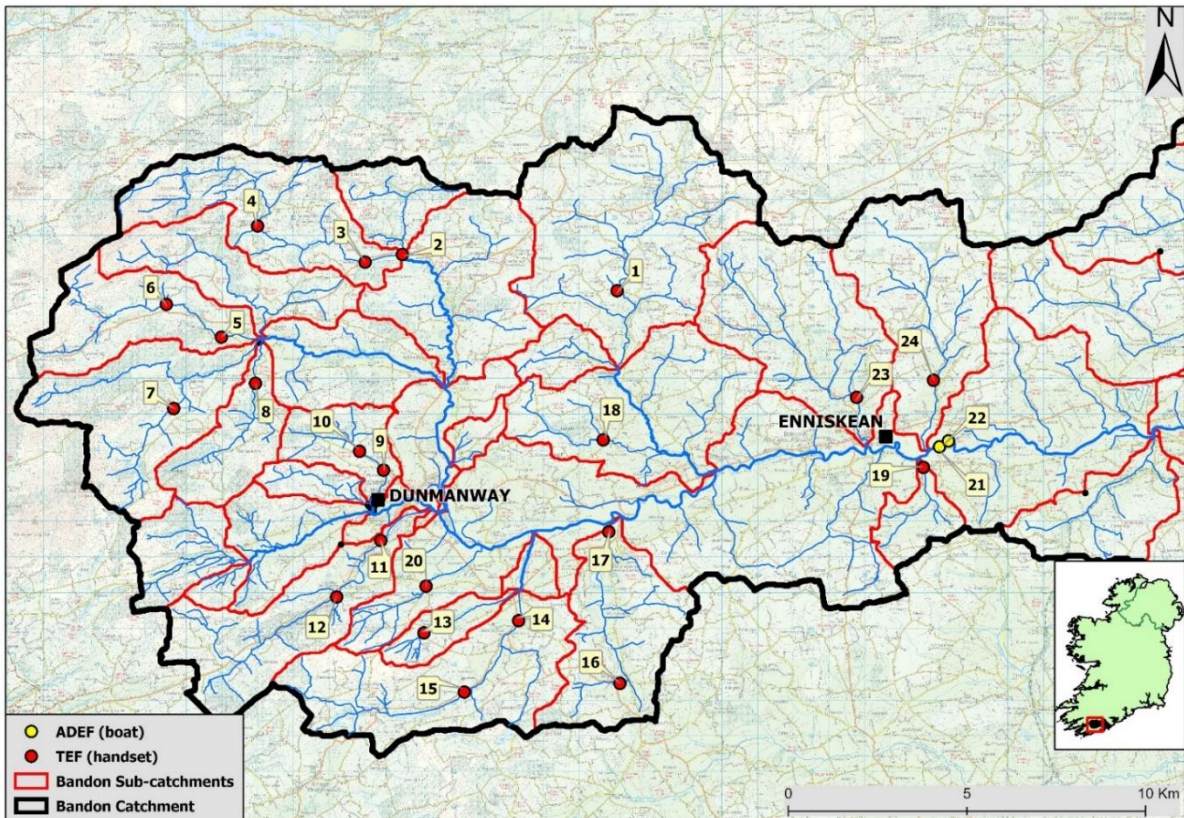


Figure 2. Location of electrofishing survey sites (1-24), Bandon River catchment, August/September 2021



Bandon River at the Bridge near Desert Station (Site 21)

Table 2 (a). Minimum density estimates (no. fish/m²) for the Bandon River catchment (Sites 1-24), August/September 2021.
 Previous results are included where applicable.

	Blackwater		Cummernamart		Caha				Derragh	
Site no.	1		2		3		4		5	
Species	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021
Brown trout	0.461	0.344	0.352	0.098	0.228	0.144	0.257	0.201	0.086	0.248
0+ brown trout	0.323	0.314	0.253	0.098	0.114	0.096	0.227	0.139	0.023	0.053
1+ & older brown trout	0.138	0.031	0.1	-	0.114	0.048	0.031	0.061	0.063	0.195
Salmon	-	-	0.253	0.106	0.053	-	0.082	0.017	0.161	0.318
0+ salmon	-	-	0.253	0.098	0.053	-	0.082	-	0.103	0.239
1+ & older salmon	-	-	-	0.008	-	-	-	0.017	0.057	0.08
European eel	-	-	-	0.041	0.011	0.018	-	-	0.04	-
Minnow	-	-	-	-	-	-	-	-	0.092	0.027
Three-spined stickleback	-	0.031	-	0.008	0.061	0.222	-	-	-	-
All fish	0.461	0.375	0.605	0.252	0.353	0.384	0.34	0.217	0.379	0.593
	Derragh		Bandon		Garrown		Coom			
Site no.	6		7		8		9		10	
Species	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021
Brown trout	0.175	0.228	0.226	0.318	0.091	0.54	0.083	0.032	0.237	0.273
0+ brown trout	0.123	0.176	0.065	0.097	0.037	0.389	0.083	0.019	0.113	0.196
1+ & older brown trout	0.052	0.053	0.161	0.221	0.055	0.151	-	0.013	0.124	0.077
Salmon	0.362	0.217	0.238	0.4	0.384	0.413	0.609	0.263	-	-
0+ salmon	0.349	0.205	0.238	0.38	0.347	0.325	0.595	0.263	-	-
1+ & older salmon	0.013	0.012	-	0.021	0.037	0.087	0.014	-	-	-
Minnow	-	-	0.428	0.545	-	-	-	-	-	-
All fish	0.537	0.445	0.892	1.263	0.475	0.952	0.692	0.295	0.237	0.273
	Brewery				Bealanscartane					
Site no.	11		12		13		14		15	
Species	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021
Brown trout	0.253	0.478	0.22	0.285	0.079	0.197	0.024	0.256	-	0.029
0+ brown trout	0.15	0.392	0.22	0.263	0.02	0.197	-	0.066	-	0.029
1+ & older brown trout	0.103	0.086	-	0.022	0.059	-	0.024	0.191	-	-
Salmon	0.506	0.184	0.04	-	-	-	0.319	0.292	-	0.018
0+ salmon	0.474	0.153	0.02	-	-	-	0.215	0.262	-	0.018
1+ & older salmon	0.032	0.031	0.02	-	-	-	0.104	0.024	-	-
European eel	0.024	0.018	-	0.033	0.069	-	0.012	0.018	0.022	0.047
Lamprey sp.	-	0.018	-	-	-	-	-	-	0.006	0.05
Minnow	-	-	-	-	-	-	0.02	-	-	-
Pike	-	-	-	-	-	-	-	-	0.009	-
Stone loach	0.039	0.055	-	-	0.059	-	0.008	-	0.065	0.007
Three-spined stickleback	-	0.257	-	-	-	-	-	-	-	-
All fish	0.822	1.01	0.26	0.318	0.206	0.197	0.383	0.566	0.102	0.151

Table 2 (b). Minimum density estimates (no. fish/m²) for the Bandon River catchment (Sites 16-24), August/September 2021. Previous results are included where applicable

Site no.	Ballynacarriga				Blackwater Lwr.		Farrannasherry	
	16		17		18		19	
Species	2019	2021	2019	2021	2019	2021	2019	2021
Brown trout	0.38	0.741	0.257	0.234	0.055	0.378	0.95	1.088
0+ brown trout	0.317	0.688	0.092	0.102	-	0.378	0.859	0.977
1+ & older brown trout	0.063	0.053	0.165	0.132	0.055	-	0.09	0.111
Salmon	-	-	0.474	0.193	-	-	-	0.111
0+ salmon	-	-	0.369	0.173	-	-	-	0.111
1+ & older salmon	-	-	0.105	0.02	-	-	-	-
European eel	0.024	0.027	-	0.031	-	-	0.045	0.055
Lamprey sp.	-	-	-	0.051	-	-	-	-
Minnow	-	-	0.066	-	0.869	0.033	-	-
Stone loach	-	-	0.013	0.02	-	-	0.256	-
Three-spined stickleback	-	-	-	0.051	0.259	0.489	-	-
All fish	0.404	0.767	0.81	0.580	1.184	0.901	1.251	1.254

Table 2 (c). Minimum density estimates (no. fish/m²) for the Bandon River catchment (Sites 16-24), August/September 2021. Previous results are included where applicable.

Site no.	Bandon Lwr.					Enniskean		Muragh	
	20		21		22	23		24	
Species	2019	2021	2009	2021	2021	2019	2021	2019	2021
Brown trout	-	0.045	0.001	0.003	0.009	0.401	0.270	0.167	0.152
0+ brown trout	-	0.028	0.001	0.0005	0.009	0.142	0.183	0.061	0.069
1+ & older brown trout	-	0.017	-	0.002	0.0004	0.259	0.096	0.106	0.082
Salmon	0.033	0.017	0.003	0.01	0.02	0.272	0.148	0.273	0.290
0+ salmon	0.033	0.017	0.002	0.008	0.019	0.247	0.131	0.222	0.196
1+ & older salmon	-	-	0.001	0.002	0.001	0.025	0.017	0.05	0.095
European eel	-0.025	0.057	0.0002	-	-	-	0.061	0.035	0.019
Lamprey sp.	-	0.017	0.0002	0.0002	0.001	-	0.026	-	-
Minnow	0.561	-	-	0.0005	0.005	0.309	-	-	-
Stone loach	-	-	0.0002	-	0.002	-	-	-	-
Three-spined stickleback	0.025	-	0.0002	-	-	0.019	0.017	-	-
All fish	0.005	0.181	0.005	0.014	0.038	1.674	0.523	0.474	0.461



Blackwater River at Ahakeera (Site 1)

Table 3. Salmonid % age class structure (where recorded) for the Bandon River catchment, 2021

Site No.	Brown trout				Salmon		
	% of catch				% of catch		
	0+	1+	2+	3+	0+	1+	2+
1	91	6	-	-	-	-	-
2	100	-	-	-	94	6	-
3	62	31	8	-	-	-	-
4	65	35	-	-	-	100	-
5	20	71	9	-	75	25	-
6	75	25	-	-	96	4	-
7	29	64	7	-	95	5	-
8	70	30	-	-	79	21	-
9	67	33	-	-	100	-	-
10	71	29	-	-	-	-	-
11	82	16	2	-	84	16	-
12	93	7	-	-	-	-	-
13	100	-	-	-	-	-	-
14	23	50	27	-	91	9	-
15	100	-	-	-	100	-	-
16	92	8	-	-	-	-	-
17	42	50	8	-	92	8	-
18	100	-	-	-	-	-	-
19	88	9	3	-	100	-	-
20	60	40	-	-	100	-	-
21	18	45	36	-	78	22	-
22	8	46	33	13	94	6	-
23	67	24	5	5	82	18	-
24	44	50	6	-	69	31	-

Table 4. Fish ecological status, Bandon River catchment 2021. Previous results are shown where applicable (H=High, G=Good, M=Moderate, P=Poor and B=Bad).

Site No.	2009	2019	2021
1	-	M	M
2	-	H	M
3	-	G	M
4	-	G	M
5	-	G	H
6	-	G	G
7	-	G	H
8	-	G	H
9	-	M	M
10	-	M	M
11	-	H	H
12	-	M	M
13	-	M	M
14	-	M	H
15	-	P	M
16	-	G	G
17	-	H	H
18	-	P	M
19	-	G	H
20	-	P	M
21	M	-	G
22	-	-	G
23	-	H	H
24	-	H	H



Coom River at Coorycullane (Site 10)

Lower Bandon sub-catchments

Eleven sites were surveyed in the eastern portion of the River Bandon Catchment during 2021 (Table 1). Three sites were surveyed on the Sall River, two sites on the Ballymahon/Brinny River, one site on the Gurteen River, two sites on the Bridewell River, one site on the Garranbeg River and two sites on the Tuough River (Figure 3).

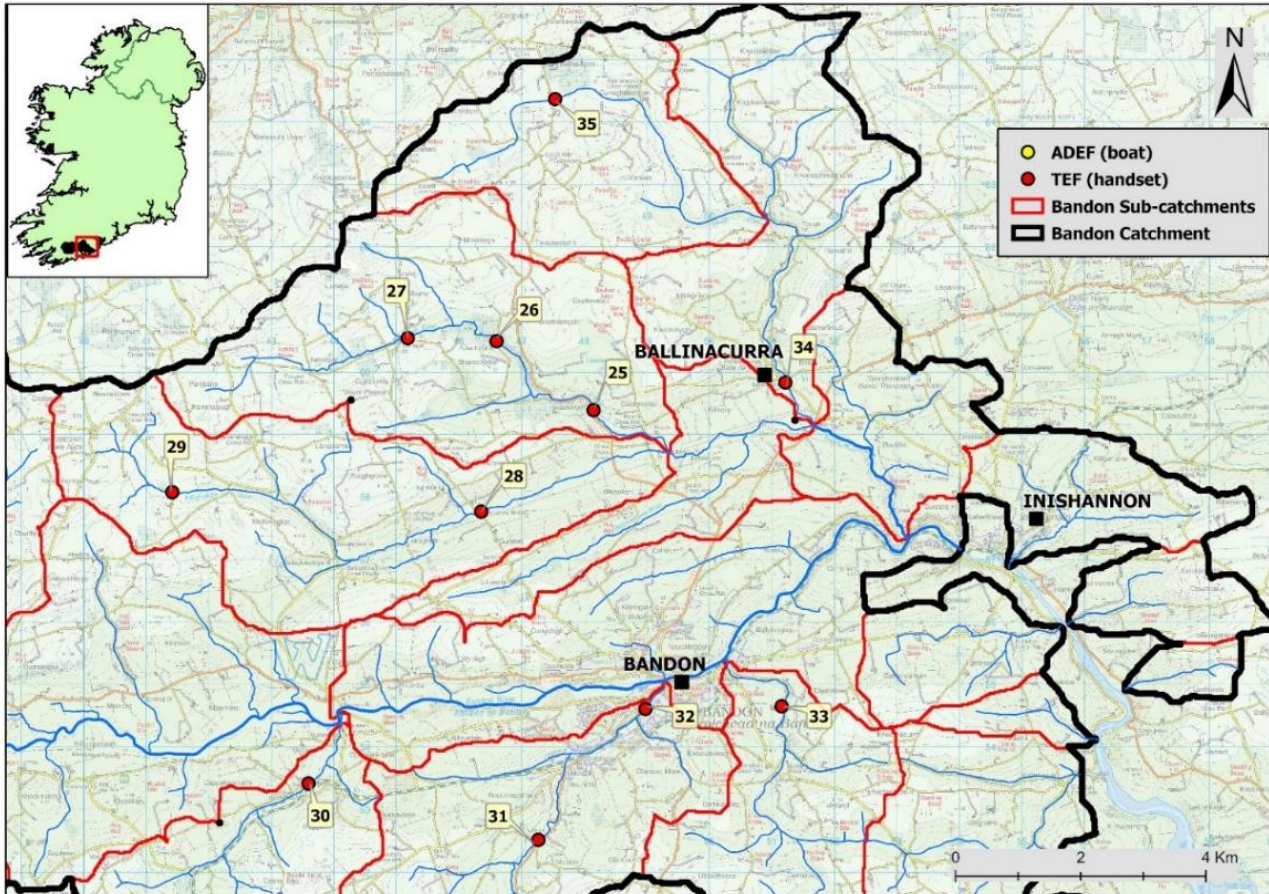
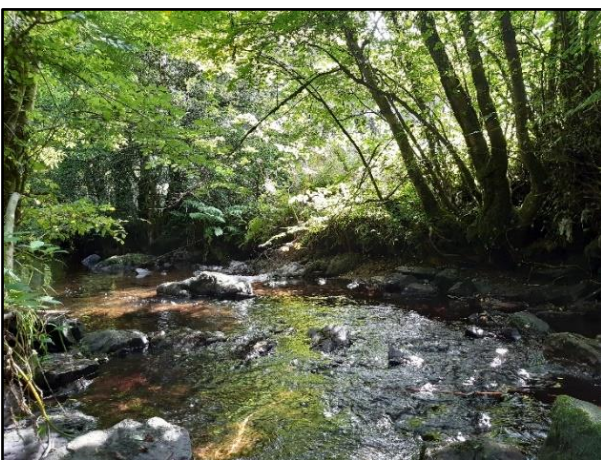


Figure 3. Location of electrofishing survey sites (25-35), Bandon River catchment, August/September 2021



Sall River at Finnis (Site 25)



Bridewell River at Service Station (Site 32)

Table 5. Minimum density estimates (no. fish/m²) for the Bandon River catchment (Sites 25-35), August/September 2021. Previous results are shown where applicable.

Site no.	Sall						Ballymahon			Gurteen	
	25		26		27		28		29	30	
Species	2019	2021	2019	2021	2019	2021	2019	2021	2021	2019	2021
Brown trout	0.115	0.121	0.257	0.721	0.408	0.363	0.645	0.351	0.619	0.418	0.863
0+ brown trout	0.095	0.083	0.157	0.693	0.175	0.32	0.077	0.125	0.477	0.129	0.343
1+ & older brown trout	0.02	0.038	0.1	0.028	0.232	0.043	0.567	0.225	0.124	0.289	0.52
Salmon	0.28	0.212	0.105	0.141	-	-	0.175	0.309	-	0.1519	0.201
0+ salmon	0.21	0.106	0.105	0.112	-	-	0.093	0.267	-	0.152	0.106
1+ & older salmon	0.07	0.106	-	0.028	-	-	0.083	0.042	-	-	0.095
European eel	0.1	0.076	0.014	0.066	-	0.021	0.015	-	0.124	-	0.036
Minnow	-	-	-	-	-	-	0.072	-	-	0.6	-
Stone loach	-	-	-	-	-	-	0.165	-	-	-	-
All fish	0.496	0.41	0.376	0.927	0.408	0.384	1.073	0.659	0.742	1.17	1.099
Site no.	Bridewell				Moanarone		Brinny Upper		Tuough		
	31		32		33		34		35		
Species	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021	
Brown trout	0.586	1.319	0.067	0.662	0.306	0.172	0.347	0.354	0.309	0.284	
0+ brown trout	0.189	0.774	0.018	0.335	0.145	0.045	0.073	0.304	0.309	0.284	
1+ & older brown trout	0.396	0.545	0.049	0.328	0.161	0.127	0.274	0.051	-	-	
Salmon	0.09	0.07	0.179	0.591	-	0.298	0.313	0.312	-	-	
0+ salmon	-	0.053	-	0.57	-	0.217	0.28	0.295	-	-	
1+ & older salmon	0.09	0.018	0.179	0.021	-	0.081	0.034	0.017	-	-	
European eel	-	0.026	-	0.05	0.016	-	0.056	0.084	-	-	
Lamprey sp.	-	0.018	-	-	-	-	-	-	-	-	
Three-spined stickleback	-	-	-	0.036	-	-	0.017	-	0.021	-	
All fish	0.676	1.433	0.291	1.339	0.322	0.47	0.733	0.751	0.329	0.284	

Table 6. Fish species composition (%), Bandon River catchment, August/September 2021

Site No.	Brown trout % of catch				Salmon % of catch		
	0+	1+	2+	3+	0+	1+	2+
25	70	30	-	-	50	50	-
26	96	4	-	-	80	20	-
27	86	14	-	-	-	-	-
28	35	62	4	-	88	13	-
29	75	20	5	-	-	-	-
30	35	49	16	-	55	45	-
31	57	42	1	-	80	20	-
32	51	49	-	-	96	2	2
33	25	67	8	-	73	27	-
34	15	74	11	-	96	4	-
35	100	-	-	-	-	-	-

Table 7. Fish ecological status, Bandon River catchment 2021. Previous results are shown where applicable (H=High, G=Good, M=Moderate, P=Poor and B=Bad).

Site No.	2009	2019	2021
25		H	H
26		G	H
27		M	M
28		H	H
29		-	G
30		G	H
31		G	H
32		M	H
33		M	G
34		H	H
35		M	M

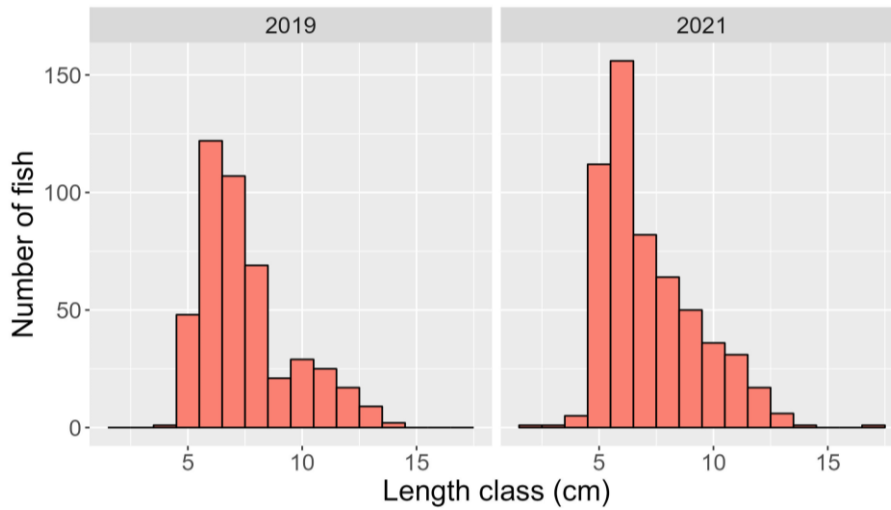


Figure 4. Length frequency distribution for salmon (2019 n= 441; 2021 n= 513) in the Bandon River catchment

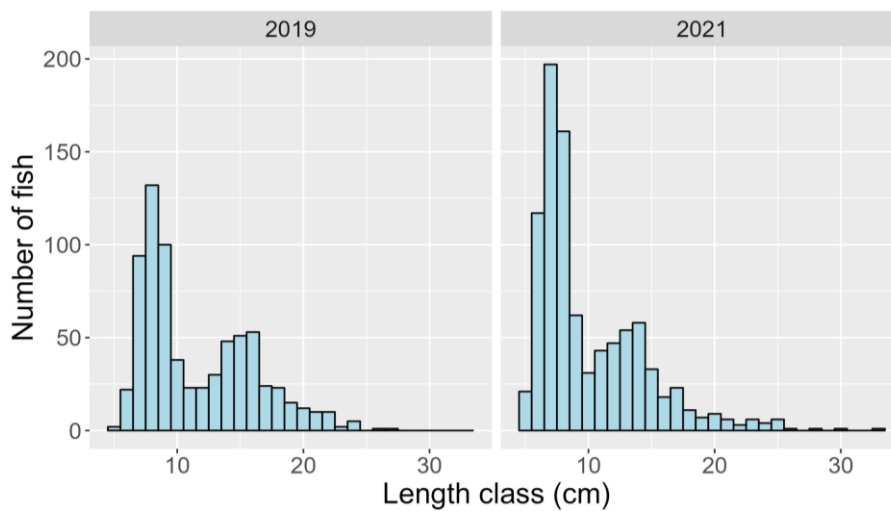


Figure 5. Length frequency distribution (2019 n= 634; 2021 n= 876) in the Bandon River catchment, 2021

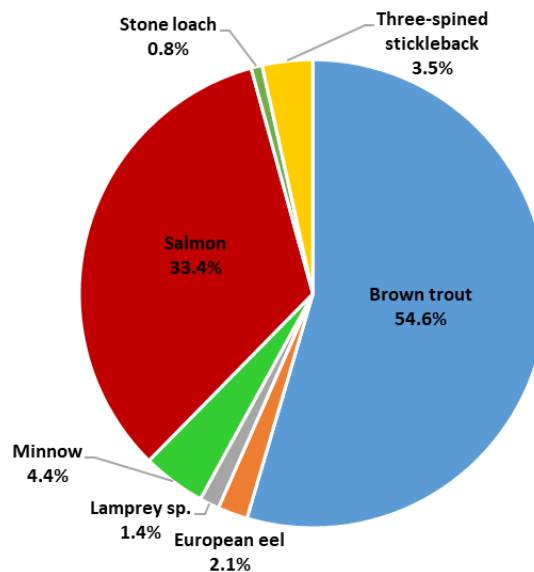


Figure 6. Fish species composition on the Bandon River catchment, 2021.

Summary

A total of seven fish species were recorded at 35 sites during the Bandon River catchment survey in August/September 2021. Brown trout was the most abundant species captured at all sites surveyed with lengths ranging from 5.2 to 33.5cm. Four age classes (0+, 1+, 2+ and 3+) were present. Brown trout fry (0+) was the most common age cohort present while 1+ and older fish were present at 30 (86%) sites surveyed. Salmon were recorded at 25 sites (71%) with lengths ranging from 2.6 to 17.4cm. Three age classes (0+, 1+ and 2+), were present with 0+ being the most abundant cohort (24 sites).

European eel was recorded at 20 sites (n=35), lamprey at eight sites (n=23), minnow at five sites (n=74), stone loach at four sites (n=13) and three-spined stickleback at eight sites (n=59).

The highest density of brown trout (1.319 fish/m²) was recorded at Site 31 on the Bridewell River at Meelon Br. The highest density of 0+ brown trout (0.977 fish/m²) was recorded at Site 19 on the Derrymeeleen River at Roseville Br., with the highest density of 1+ and older brown trout (0.545 fish/m²) also recorded at Site 31 on the Bridewell River at Meelon Br.

The highest density of salmon (0.591 fish/m²) was recorded at Site 32 on the Bridewell River (Service Station), with the highest density of 0+ salmon (0.57 fish/m²) also observed at this site. The highest density of 1+ and older salmon (0.106 fish/m²) was recorded at Site 25 on the Sall River at Finnis.

The highest density of European eel was observed at Site 29 (0.124 fish/m²), while the highest densities of minnow (0.545 fish/m²) and three-spined stickleback (0.489 fish/m²) were recorded at Sites 7 and 18 respectively.

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 type specific indicator species (e.g., salmon and trout age cohorts) are present and in expected numbers. Status will decline if such indicators are absent, are in poor abundance, or if more tolerant species proliferate.

Fish ecological status was assigned to 35 sites surveyed in the Bandon River Catchment during 2021 (Tables 4 and 7 and Figure 7). Sixteen (46%) sites achieved High status and six (17%) sites were assigned Good status. The remaining 13 (37%) sites were assigned Moderate status and therefore failed to reach the required standard of at least Good status.

Thirty-two sites were surveyed previously in 2019 and assigned a fish ecological status. When compared with the earlier surveys, three sites (Sites 2, 3 and 4) deteriorated in status, 13 sites improved and 16 remained unchanged (Tables 4 and 7). The most significant deterioration was observed at Site 2 (Cummernamart River). This site deteriorated by two classes from High to Moderate. Brown trout and salmon densities were lower at this site in 2021 than 2019 and 1+ and older brown trout were also absent indicating a recruitment failure. Sites 3 and 4 (Caha River) deteriorated from Good to Moderate. Salmon were not recorded at Site 3 and three-spined stickleback was the dominant species in 2021. 0+ salmon were also absent at Site 4 in 2021 but were present in 2019. Relatively high densities of three-spined stickleback and minnow were also recorded at Sites 18 and 7. These species are more tolerant to pollution than brown trout, and salmon and when

dominant at a site, can be an indication of poor water quality.

The reasons for the failures and deteriorations in fish ecological status were due to lower-than-expected abundance of type specific indicator species (e.g., salmon and trout), absence of certain age cohorts indicating recruitment failures and/or the presence of a relatively high abundance of tolerant fish species (e.g. three-spined stickleback). Failures and deteriorations in fish ecological status were likely caused by pressures such as nutrient enrichment, habitat modification and fish passage issues.

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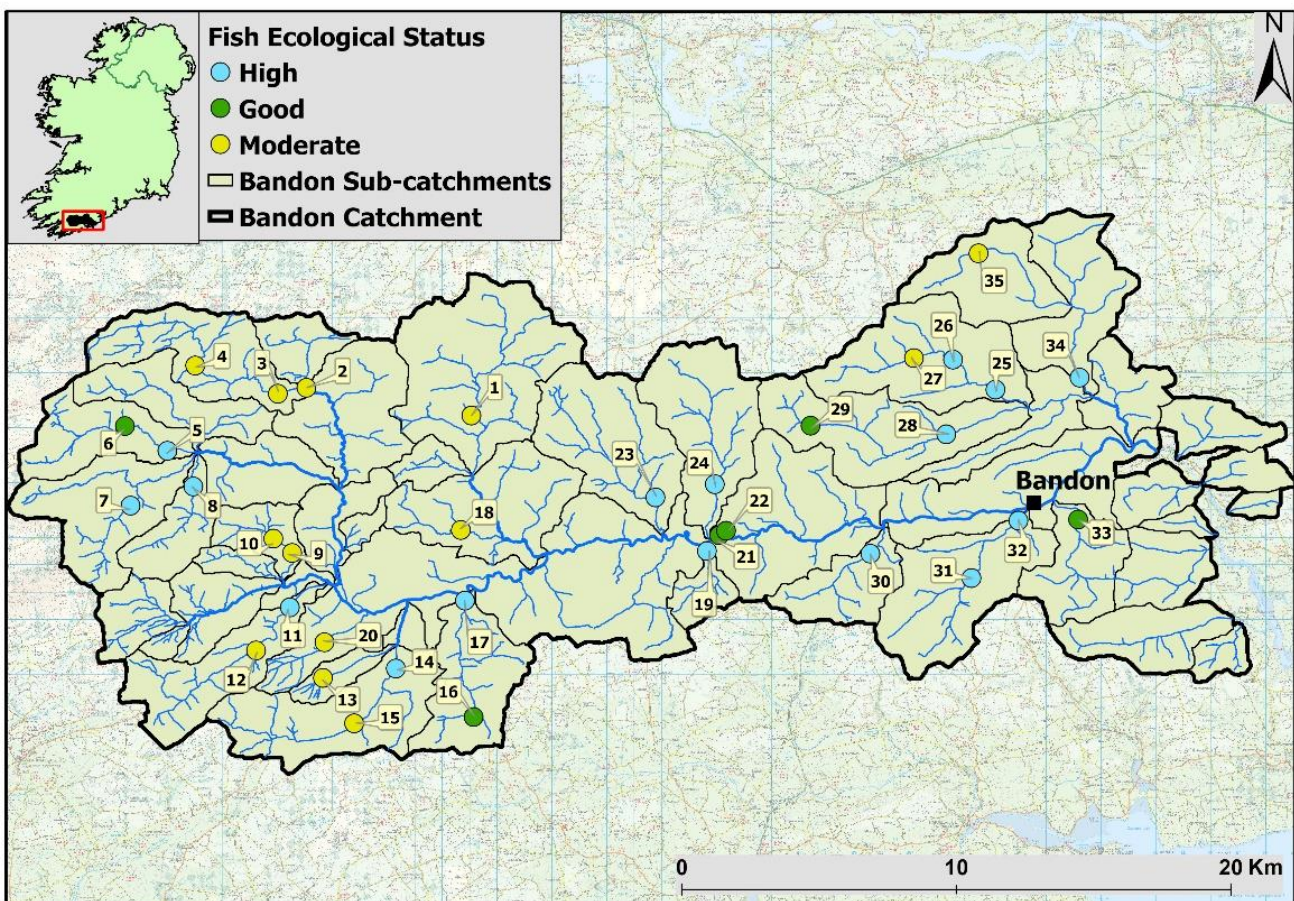



Figure 7. Fish ecological status Bandon River catchment, 2021