

Fish in Rivers Factsheet

WRBD

Bunowen River Catchment

Factsheet: 2022/03

The Bunowen River is located in southwest County Mayo. It rises in the Sheeffry Hills and flows north-west through Louisburgh before entering the sea at Clew Bay. The Bunowen River catchment is located within the Western River Basin District and covers an area of approximately 74.8km². The source of the river lies within the Mweelrea/Sheeffry/Erriff Complex, a large SAC that contains many EU Habitats Directive Annex I priority habitats. Atlantic salmon, freshwater pearl mussel and otters are among the Annex II species found in this SAC (NPWS, 2021).

Inland Fisheries Ireland conducts annual nationwide 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 six sites in the Bunowen River catchment on the 19th of July 2022. One long-term Water Framework Directive (WFD) surveillance monitoring site was included in the survey (site 5).

Six sites were surveyed by electro-fishing (CEN 2003). The survey methods included 10-minute timed Electro-Fishing (TEF₁₀) and Area Delineated Electro-Fishing (ADEF handset). All TEF₁₀ fish count results were converted to minimum population estimates according to Matson *et al.* (2018).



The Bunowen River at Tully Bridge (Site 5)

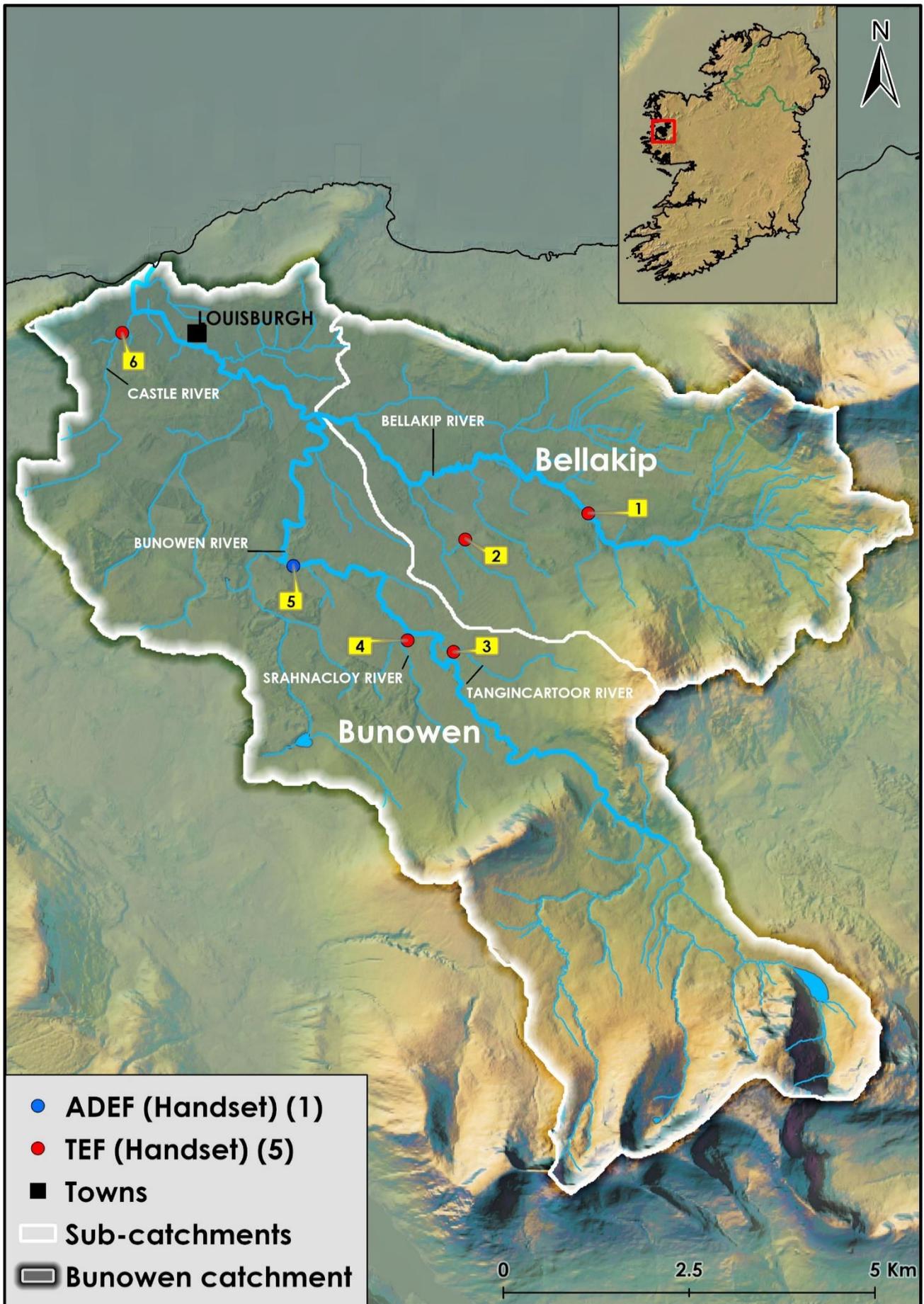


Figure 1. Location of electrofishing survey sites on the Bunowen catchment, July 2022 (Sites 1-6)

Table 1. Site survey details, Bunowen catchment, 2022

No.	Sub-catchment	River	Site	Method	WFD	Date
1	Bellakip	Bellakip	Cartoor	TEF (handset)	No	19/07/2022
2	Bellakip	Bellakip	Cregganroe North	TEF (handset)	No	19/07/2022
3	Bunowen	Tangincartoor	Srahnacloy West	TEF (handset)	No	19/07/2022
4	Bunowen	Srahnacloy	Srahnacloy Ford	TEF (handset)	No	19/07/2022
5	Bunowen	Bunowen	Tully Bridge	ADEF (Handset)	Yes	19/07/2022
6	Bunowen	Castle	Carrowmore Road	TEF (handset)	No	19/07/2022

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

Bellakip			Bunowen					
Site no.	1	2	3	4	5		6	
Species	2022	2022	2022	2022	2008	2012	2022	2022
Brown trout	0.105	0.148	0.374	0.620	0.001	0.027	0.035	-
0+ brown trout	0.042	0.074	0.080	0.450	-	0.012	0.004	-
1+ & older brown trout	0.063	0.074	0.294	0.170	0.001	0.015	0.032	-
Salmon	0.191	-	0.214	0.200	0.008	0.437	0.146	-
0+ salmon	0.106	-	0.107	0.040	0.003	0.338	0.047	-
1+ & older salmon	0.085	-	0.107	0.160	0.005	0.099	0.099	-
European eel	0.032	-	-	-	-	0.006	0.008	-
Sea trout	-	-	-	-	0.002	-	-	-
All fish	0.328	0.148	0.588	0.821	0.011	0.47	0.189	no fish

Table 3. Salmonid age class structure Bunowen catchment 2022

Species	Site no.	% Catch		
		0+	1+	2+
Brown trout	1	40	40	20
	2	50	50	-
	3	29	71	-
	4	78	22	-
	5	9	73	18
Salmon	1	56	44	-
	3	50	50	-
	4	20	80	-
	5	42	58	-

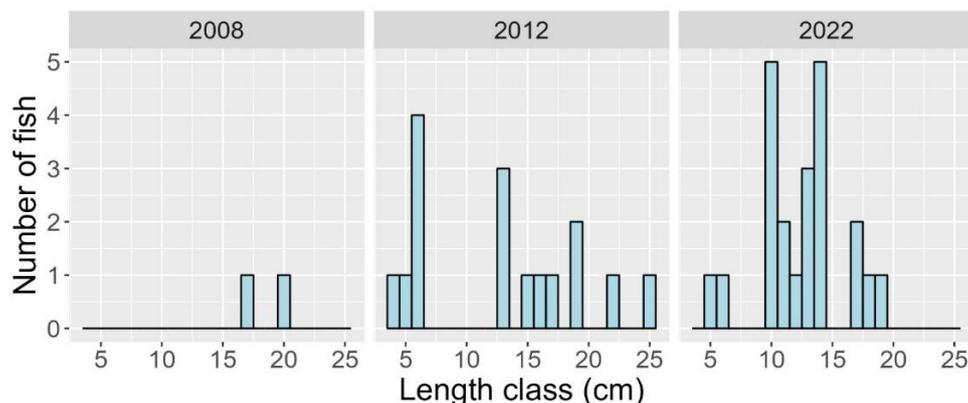


Figure 2. Length frequency distribution for brown trout (2008 n=2, 2012 n=16, 2022 n=22) in the Bunowen Catchment at Site 5 (Tully Bridge)

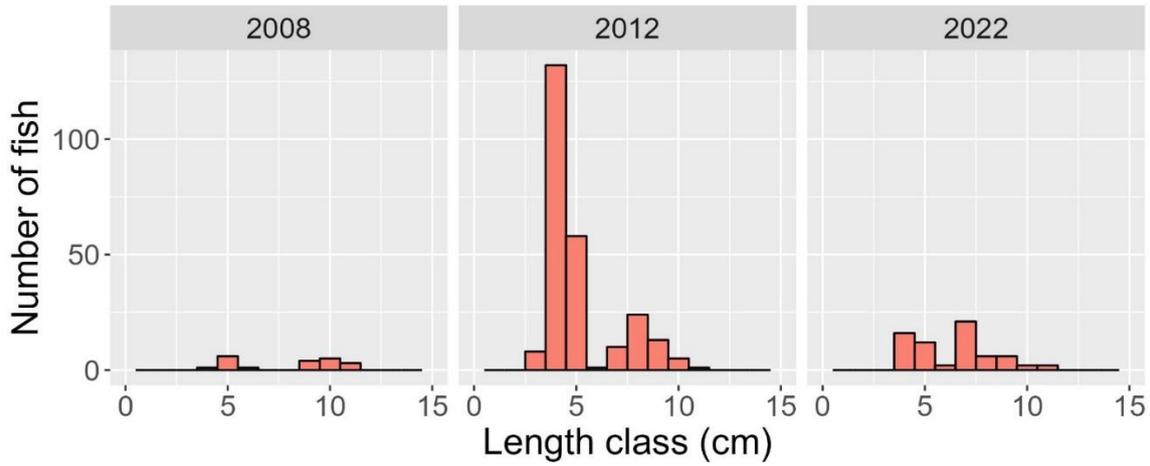


Figure 3. Length frequency distribution for salmon (2008 n=20, 2012 n=252, 2022 n=67) in the Bunowen catchment at Site 5 (Tully Bridge)

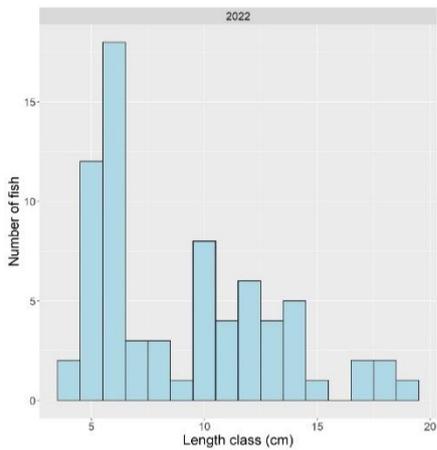


Figure 4. Length frequency distribution for brown trout (n=72) in the Bunowen catchment, 2022 (n-sites=5)

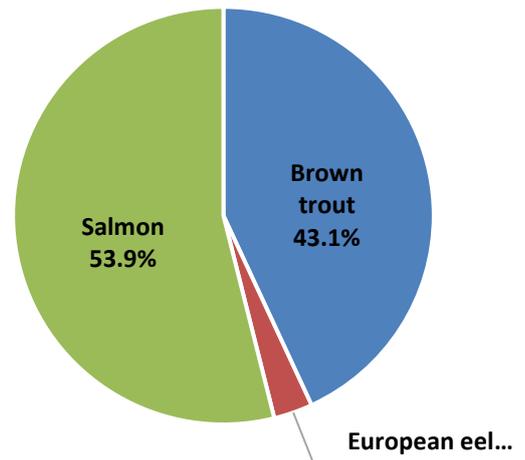


Figure 6. Fish species composition (%), Bunowen catchment, 2022

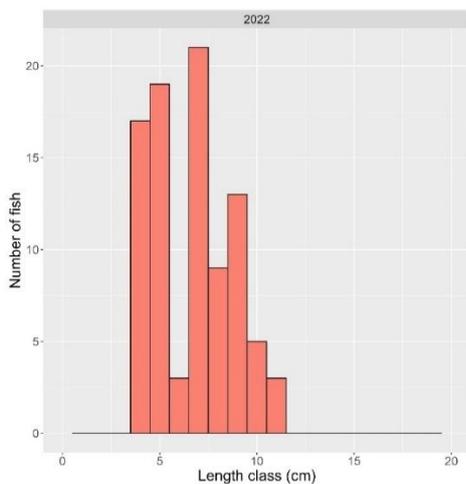


Figure 5. Length frequency distribution for salmon (n=90) in the Bunowen catchment, 2022 (n-sites=4)

Table 4. Fish ecological status, Bunowen catchment, 2022

Site No.	2008	2012	2022
Bunowen Catchment			
1	-	-	G
2	-	-	G
3	-	-	G
4	-	-	H
5	G	G	M
6	-	-	P

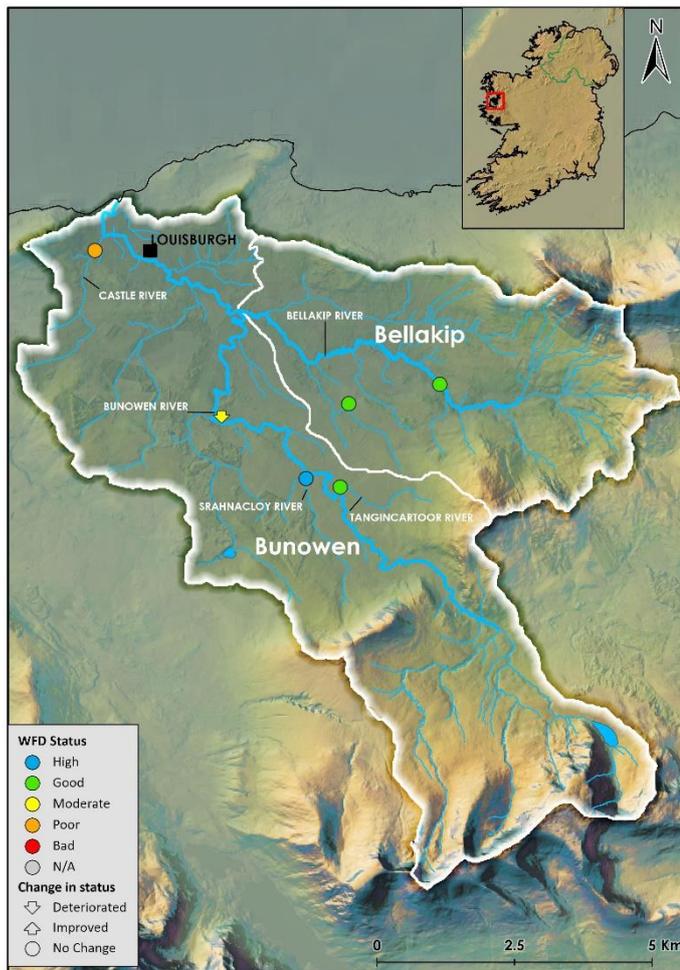


Figure 7. WFD fish ecological status in the Bunowen catchment, 2022. Arrows indicate a change in status where relevant.

Summary

Three fish species were recorded at six sites fished on the Bunowen River catchment in 2022.

Brown trout was the most common species present (83% sites), followed by salmon (67%), and European eel (33%). There were no fish recorded at Site 6.

Salmon was the most abundant species recorded, followed by brown trout and European eel (Figure 4).

Salmon ranged in length from 4.4 to 11.5cm. Two age classes were present (0+ and 1+), with 1+ being the most abundant cohort. The highest density of 0+ salmon (0.107 fish/m²) was recorded at Site 3 on the Tangincartoor River at Srahnacloy West. The greatest density of 1+ and older salmon (0.160 fish/m²) was observed at Site 4 on the Srahnacloy River at Srahnacloy Ford.

Brown trout ranged in length from 4.5 to 19.3cm. Three age classes were present (0+, 1+ and 2+), with 0+ being the most abundant cohort. The highest density (0.450 fish/m²) of 0+ brown trout was also recorded at Site 4, while the highest density (0.294 fish/m²) of 1+ and older brown trout was observed Site 3.

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 six sites surveyed in the Bunowen catchment during 2022 (Table 4 and Figure 7). One site achieved High status, with three sites Good, one site Moderate and one site Poor. One site (site 5 – Bunowen River at Tully Bridge) was surveyed previously on this catchment and assigned fish ecological status. When compared with the most recent previous surveys, this site has deteriorated in status (Table 4 and Figure 7).

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 were likely caused by nutrient enrichment, hydromorphological (e.g. habitat modification and fish passage obstruction due to artificial barriers) and other pressures.

References

- CEN 2003 Water Quality Sampling of Fish with Electricity. CEN EN 14011:2000. Brussels. European Committee for Standardization.
- Matson, R., Delanty, K., Shephard, S., Coghlan, B. and Kelly, F. (2018). *Moving from multiple pass depletion to single pass timed electrofishing for fish community assessment in wadeable streams*. Fisheries Research, 198, 99-108.

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SNIFFER River Fish Classification Tool: Science Work. WFD68c, Phase 2. Final Report. Version 6. Edinburgh. Scotland and Northern Ireland Forum for Environmental Research.

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