Fish in Rivers Factsheet

WRBD **Dunneill River Catchment** **Factsheet: 2021/13**

The Dunneill River is located in north-west Co. Sligo. It rises in the Ox Mountains and flows northwards through Dromore West Village before reaching the sea a few kilometres west of Sligo Bay. A limestone gorge and a series of natural waterfalls are present in the lower part of the river.

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 presents the results of a catchment-wide survey of the Dunneill River catchment undertaken in 2021.

A total of ten sites were surveyed by electro-fishing (CEN 2003) in the Dunneill River catchment from the 13th of September to the 14th of September 2021 (Figure 1 & Table 1). The survey method used was 10-minute Timed Electro-Fishing (TEF_{10}). All fish count results were converted to minimum population estimates according to Matson *et al.* (2018).

Dunneill River at Dromore West (Site 5)

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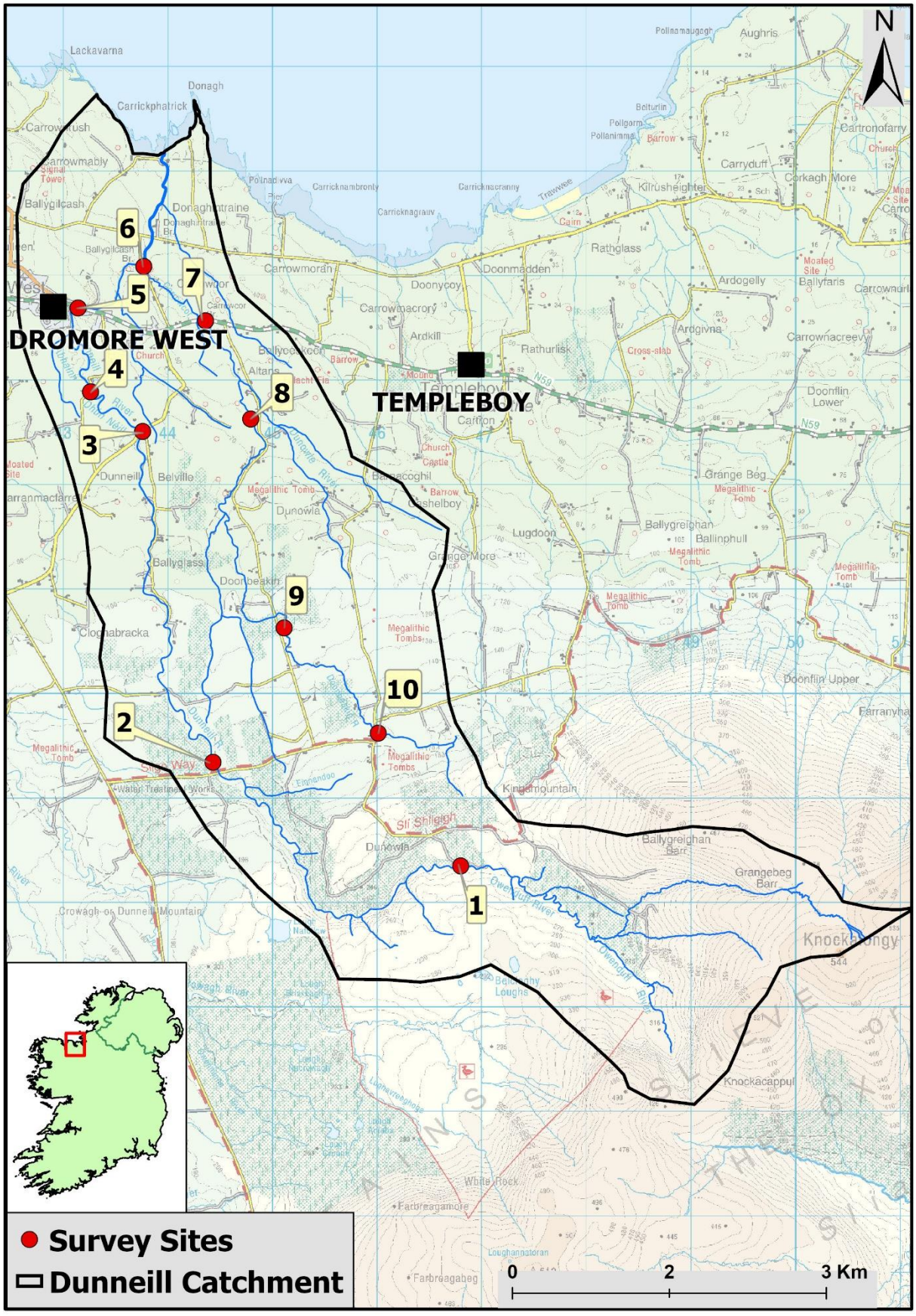

Figure 1. Location of electrofishing survey sites (Sites 1-10), Dunneill River catchment, September 2021

Table 1. Site survey details for the Dunneill River catchment, 2021

No.	River	Site	Method	WFD	Date
Dunneill Catchment					
1	Owenduff	Dunowla East	TEF_{10}	–	14/09/2021
2	Dunneill	Windfarm	TEF_{10}	–	14/09/2021
3	Dunneill	Dunneill North	TEF_{10}	–	14/09/2021
4	Dunneill	Behind Farm	TEF_{10}	–	14/09/2021
5	Dunneill	Dromore West	TEF_{10}	YES	13/09/2021
6	Dunneill	Ballygilcash Br.	TEF_{10}	–	13/09/2021
7	Carrowcor	Carrowcor Br.	TEF_{10}	–	13/09/2021
8	Doonbeakin	Altans	TEF_{10}	–	14/09/2021
9	Doonbeakin	Doonbeakin	TEF_{10}	–	14/09/2021
10	Doonbeakin	Sligo Way	TEF_{10}	–	14/09/2021

Table 2. Minimum density estimates (no. fish/m²) for the Dunneill River catchment, September 2021. Previous results are shown where applicable

Site no.	1	2	3	4	5		6	7	8	9	10
Species	**2021**	**2021**	**2021**	**2021**	**2012**	**2021**	**2021**	**2021**	**2021**	**2021**	**2021**
Brown trout	0.025	0.060	0.168	0.151	0.288	0.178	0.088	0.053	0.168	0.077	–
0+ brown trout	0.025	0.028	0.134	0.082	0.179	0.067	0.052	0.021	0.088	0.038	–
1+ & older brown trout	–	0.032	0.034	0.069	0.109	0.111	0.036	0.032	0.080	0.038	–
European eel	–	–	–	–	0.009	0.011	0.064	0.011	0.051	0.057	–
Three-spined stickleback	–	–	–	–	–	–	–	–	–	0.172	–
All fish	**0.025**	**0.060**	**0.168**	**0.151**	**0.297**	**0.189**	**0.152**	**0.064**	**0.219**	**0.306**	**no fish**

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

Brown trout				
Site No.	% of catch			
	0+	1+	2+	3+
Dunneill Catchment				
1	100	–	–	–
2	44	56	–	–
3	76	24	–	–
4	52	43	5	–
5	37	37	26	–
6	57	36	7	–
7	40	20	30	10
8	50	36	14	–
9	50	50	–	–

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

Site No.	2012	2021
Dunneill Catchment		
1	–	P
2	–	M
3	–	G
4	–	G
5	G	G
6	–	M
7	–	M
8	–	G
9	–	M
10	–	N/A

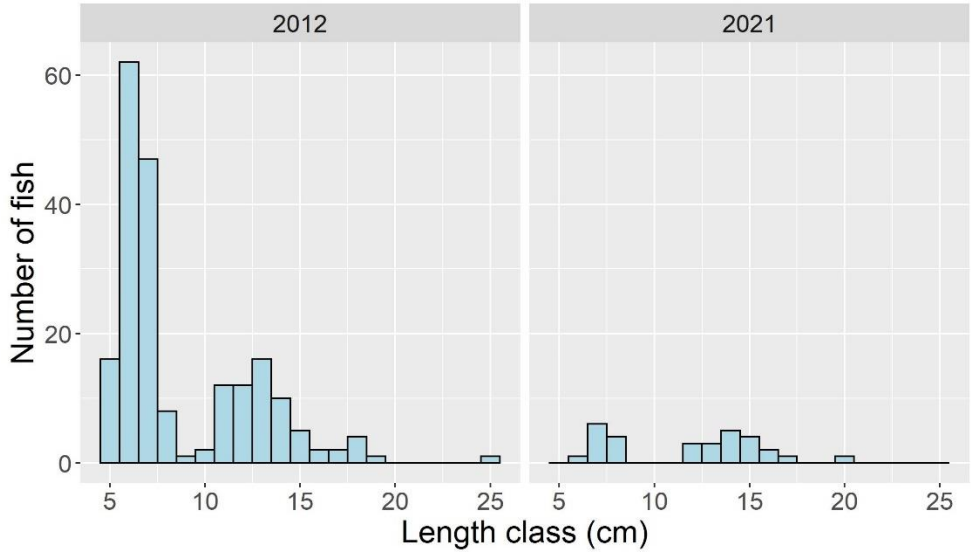

Figure 2. Brown trout (2012 n= 201; 2021 n= 30) length frequency for Site 5 (Dunneill River at Dromore West)

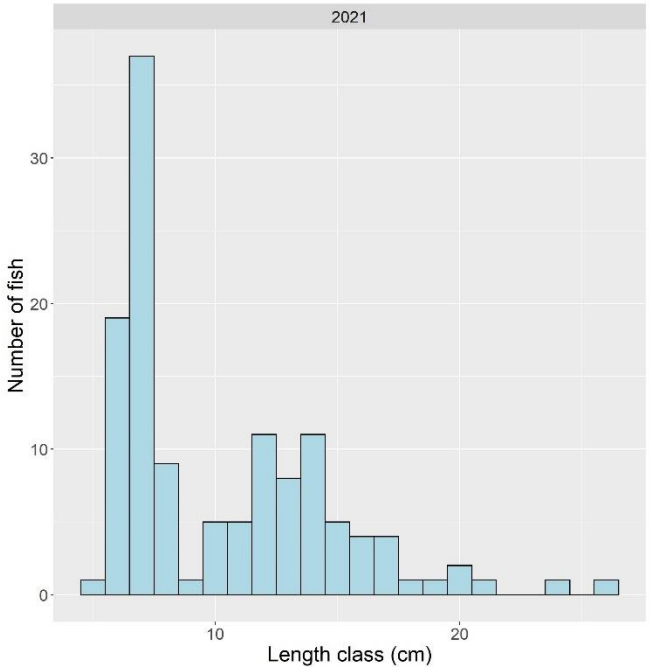

Figure 3. Brown trout (n = 127) length frequency for the Dunneill River catchment 2021

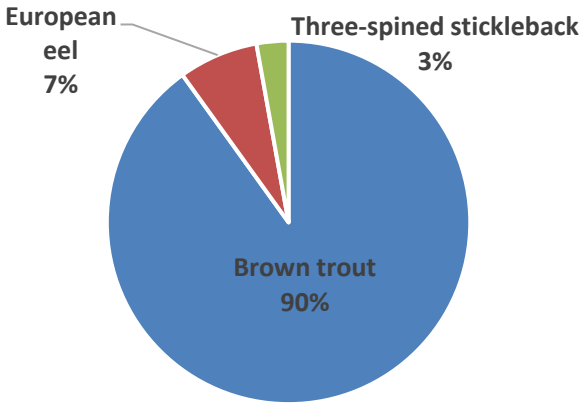

Figure 4. Fish species composition (%), Dunneill River catchment, September 2021

Summary

Three fish species were recorded during the Dunneill catchment survey in 2021 (Table 2 & Figure 4). Brown trout were the most abundant species captured with lengths ranging from 5.9 to 26.3cm. Four age classes (0+, 1+, 2+ and 3+) were present with 0+ being the most abundant. European eel was recorded at five sites (n = 10) and three-spined stickleback at one site (n=4).

The highest density (0.178 fish/m^2) of brown trout was recorded at Site 5 (Dromore West). The highest density of 0+ brown trout (0.134 fish/m^2) was observed at Site 3 (Dunneill North). The highest density of 1+ and older brown trout (0.11 fish/m^2) was also recorded at Site 5 (Dromore West). Three-spined stickleback (0.172 fish/m^2) was the dominant species at Site 9 (Doonbeakin at Doonbeakin).

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 nine sites surveyed in the Dunneill River catchment during 2021 (Table 4 and Figure 5). Four sites achieved Good status, four Moderate status, one Poor status and one site was unassigned (no fish recorded). Although brown trout population density was lower at Site 5 (Dromore West) in 2021 than 2012, the site has remained at Good fish ecological status.

Site 9 (Doonbeakin at Sligo Way) was assigned Poor fish status. Three-spine stickleback was the dominant species at this site (0.172 fish/m^2). This species is more tolerant of pollution than brown trout and, when dominant at a site can be an indicator of poor water quality.

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

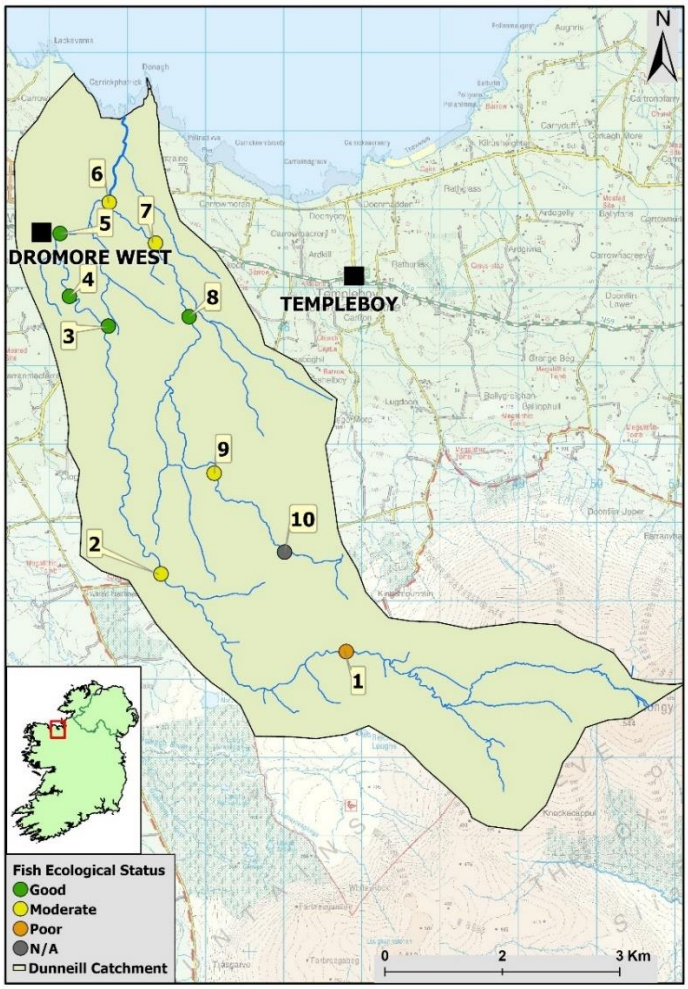

Figure 5. Fish ecological status map, Dunneill River catchment, 2021

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.

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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