

Fish in Rivers Factsheet

NWIRB

Cullies River Catchment

Factsheet: 2023/04

The Cullies River rises along the borders of Co. Leitrim and Co. Longford. It flows through a series of small lakes as it makes its way towards Co. Cavan, joining Lough Oughter and the River Erne system near Killashandra.

Inland Fisheries Ireland conducts annual nationwide fish sampling surveys to assess and report status of stocks in Ireland's rivers, lakes and transitional waters. This report presents the results of a catchment-wide survey of the Cullies River in 2023.

Twelve sites were surveyed by electro-fishing (CEN 2003) on the Cullies River from the 5th to the 11th of July 2023.

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 Cullies River at Bridge near Kilbracken House, Co. Cavan, July 2023 (Site 10).



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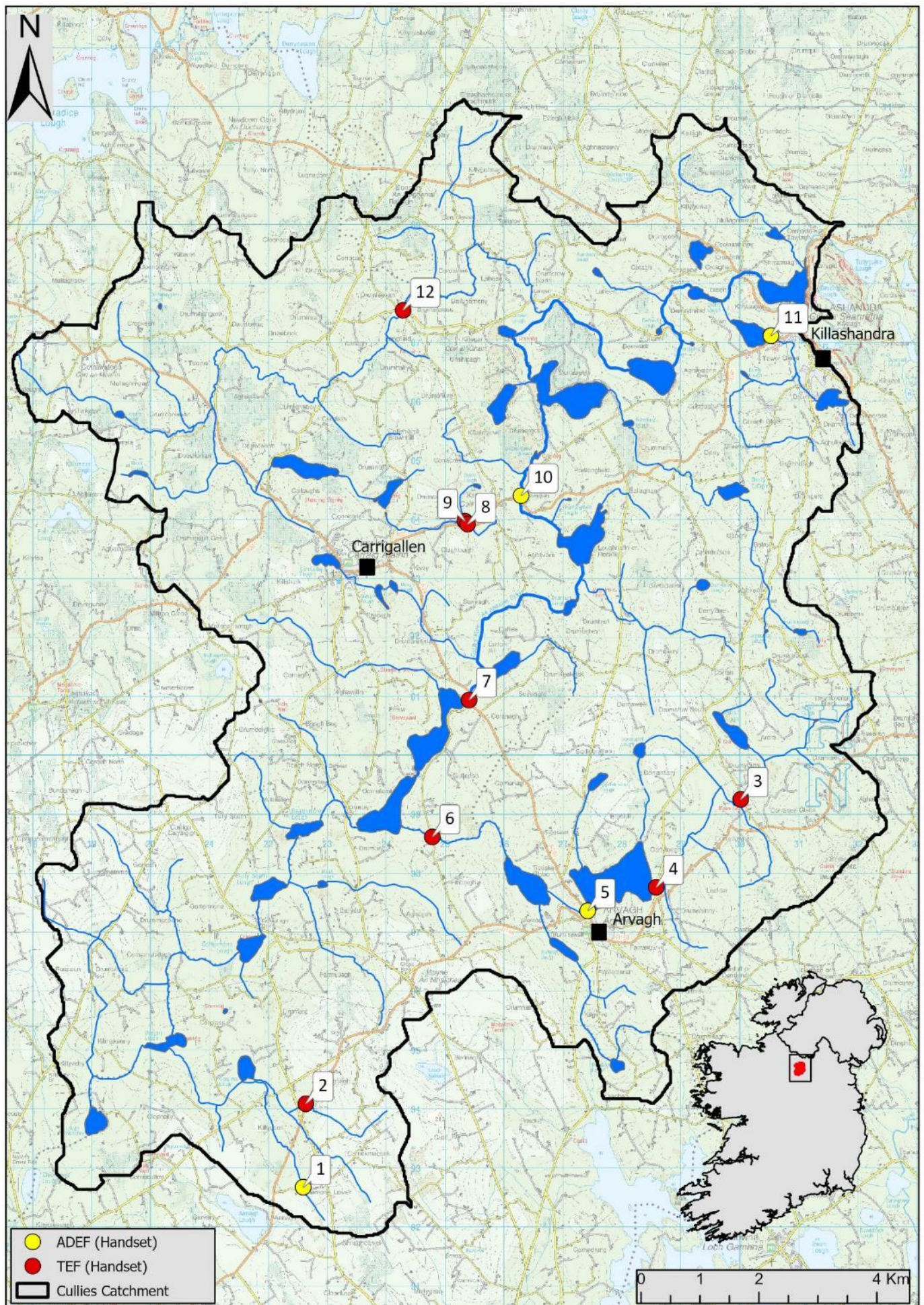


Figure 1. Location of electrofishing survey sites, Cullies River Catchment, July 2023.

Table 1. Site survey details, Cullies River Catchment, July 2023.

No.	River	Site	Method	WFD	Date
1	Aghamore Lower	Aghamore Lower	TEF (handset)	No	11/07/2023
2	Leggagh	Leggagh Southwest	TEF (handset)	No	11/07/2023
3	Cullies	Drumyouth Mass Rock	TEF (handset)	No	06/07/2023
4	Cullies	Drumshinny	TEF (handset)	No	10/07/2023
5	Cullies	Downstream of Garty Lough	TEF (handset)	No	10/07/2023
6	Cullies	Fihoragh North	TEF (handset)	No	10/07/2023
7	Cullies	Downstream of Gulladoo Lough	TEF (handset)	No	06/07/2023
8	Drumsillagh	Drumsillagh Lane	TEF (handset)	No	05/07/2023
9	Drumsillagh	Drumsillagh Gate	TEF (handset)	No	05/07/2023
10	Cullies	Bridge near Kilbrackan House	ADEF (Handset)	Yes	05/07/2023
11	Killytawny	Upstream of Bawn Lough	TEF (handset)	No	06/07/2023
12	Laheen	Drumleevan	TEF (handset)	No	11/07/2023



The Laheen River at Drumleevan, Co. Cavan (Site 12).

Table 2. Minimum density estimates of fish (no. fish/m²), Cullies River Catchment, July 2023 (previous results are shown where applicable).

Site no.	1	2	3	4	5	6	7
Species	2023	2023	2023	2023	2023	2023	2023
Brown trout	-	-	-	0.023	-	-	-
0+ brown trout	-	-	-	-	-	-	-
1+ & older brown trout	-	-	-	0.023	-	-	-
European eel	-	-	-	-	0.018	-	-
Roach	-	-	-	0.050	0.115	0.018	0.004
Perch	-	-	-	0.006	0.018	0.042	0.008
Gudgeon	-	-	-	-	-	0.006	0.045
Tench	-	-	-	-	-	0.006	-
Stone loach	-	0.207	-	-	-	-	-
Pike	-	-	-	-	-	-	0.004
Bream	-	-	-	-	-	-	-
Lamprey spp.	-	-	-	-	-	-	-
Roach x bream	-	-	-	-	-	-	-
Three-spined stickleback	-	-	0.257	-	-	-	-
All fish	no fish	0.207	0.257	0.079	0.150	0.073	0.061
Site no.	8	9	10	11	12		
Species	2023	2023	2010	2013	2016	2023	2023
Brown trout	-	-	0.018	-	-	-	0.079
0+ brown trout	-	-	-	-	-	-	0.041
1+ & older brown trout	-	-	0.018	-	-	-	0.038
European eel	-	-	0.004	-	-	-	-
Roach	-	-	0.477	0.185	0.269	0.298	0.374
Perch	-	-	0.437	0.130	0.017	0.072	0.089
Gudgeon	-	-	0.004	0.118	0.054	0.115	0.053
Tench	-	-	-	-	-	-	-
Stone loach	-	-	-	-	-	-	-
Pike	-	-	0.018	0.012	0.014	0.015	0.053
Bream	-	-	0.013	-	-	-	-
Lamprey spp.	-	-	0.009	0.004	-	-	-
Roach x bream	-	-	0.026	-	0.003	0.003	-
Three-spined stickleback	-	-	-	-	-	-	0.112
Minnow	-	-	-	-	-	0.090	-
All fish	no fish	no fish	1.007	0.450	0.357	0.594	0.570
							0.227

Table 3. Fish age class structure Cullies River Catchment, July 2023.

Species	Site No.	% of catch						
		0+	1+	2+	3+	4+	5+	6+
Brown trout	4	-	-	100	-	-	-	-
	12	57	43	-	-	-	-	-
Roach	4	-	-	100	-	-	-	-
	5	15	69	16	-	-	-	-
	6	33	-	-	33	34	-	-
	7	-	100	-	-	-	-	-
	10	61	17	12	2	6	1	1
	11	-	-	93	7	-	-	-
	12	-	80	-	20	-	-	-

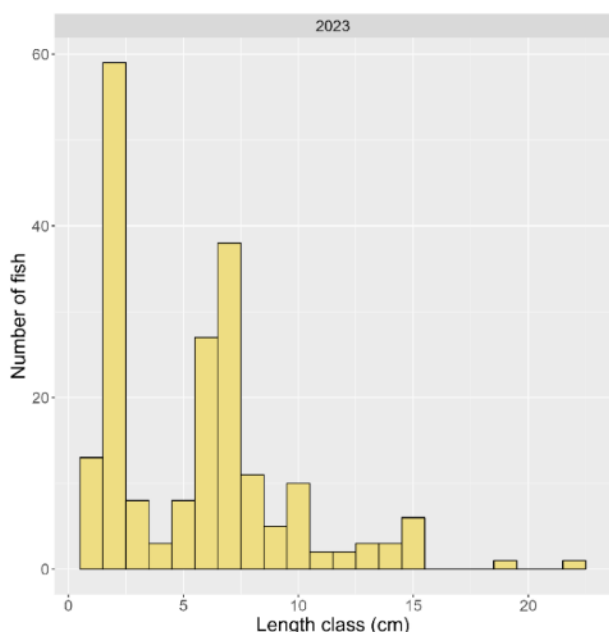


Figure 3. Length frequency distribution for roach (N=200) in the Cullies Catchment, 2023 (no. sites=7).

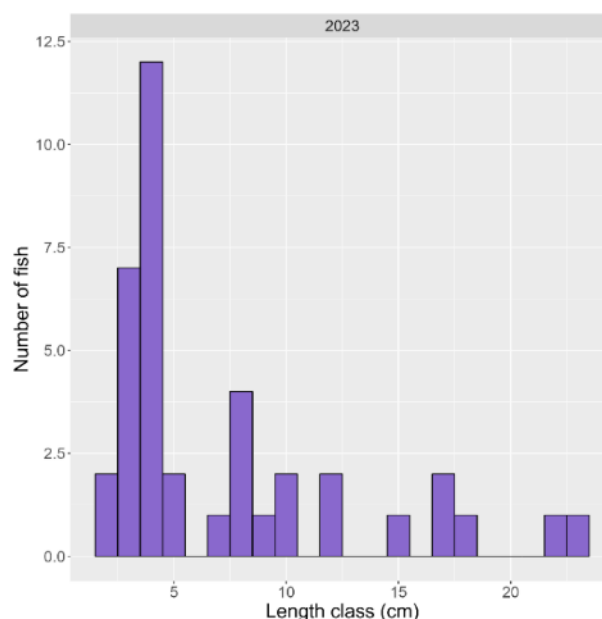


Figure 4. Length frequency distribution for perch (N=62) in the Cullies Catchment, 2023 (no. sites=7).

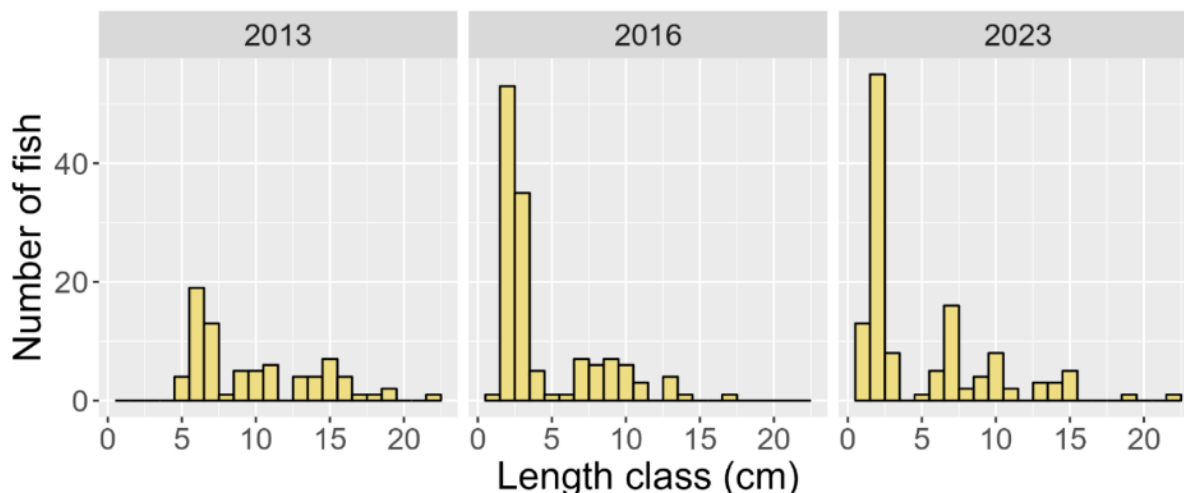


Figure 5. Length frequency distribution of roach (2013 n= 77, 2016 n=131, 2023 n=127) in the Cullies Catchment at Site 10 (Bridge near Kilbrackan House).

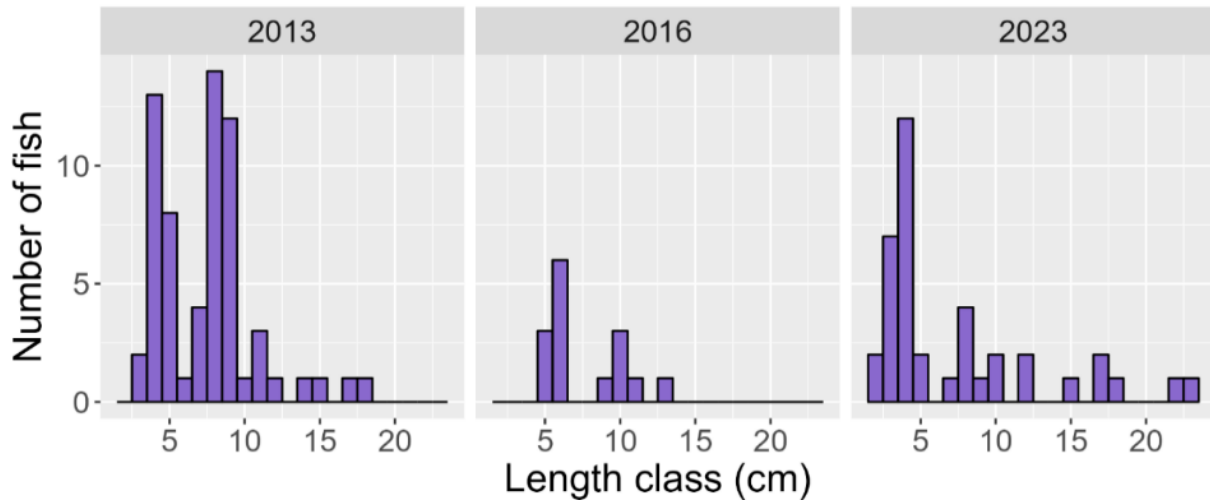


Figure 6. Length frequency distribution of perch (2013 n= 63, 2016 n=15, 2023 n=39) in the Cullies Catchment at Site 10 (Bridge near Kilbrackan House).

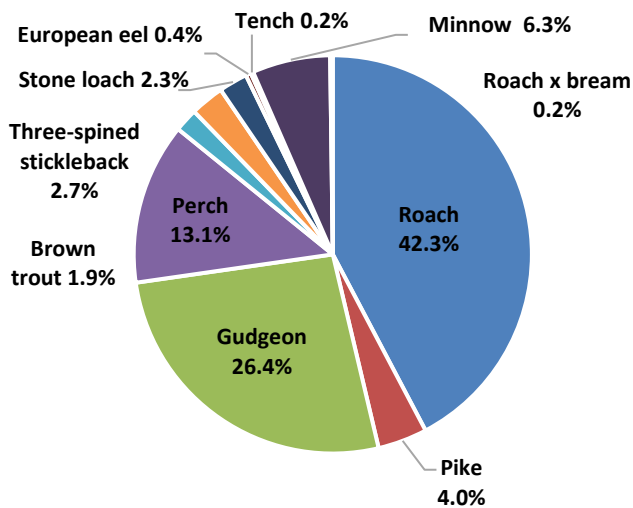


Figure 7. Fish species composition (%), Cullies Catchment, July 2023.



The Cullies River at Drumshinny (Site 4).

Table 4. Fish ecological status Cullies Catchment, July 2023 (Previous results are shown where applicable).

Site No.	2010	2013	2016	2023
1	-	-	-	Bad
2	-	-	-	Bad
3	-	-	-	Poor
4	-	-	-	Poor
5	-	-	-	Poor
6	-	-	-	Poor
7	-	-	-	Poor
8	-	-	-	Bad
9	-	-	-	Bad
10	Poor	Poor	Poor	Poor
11	-	-	-	Poor
12	-	-	-	Moderate



The Cullies River d/s Garty Lough (Site 5).

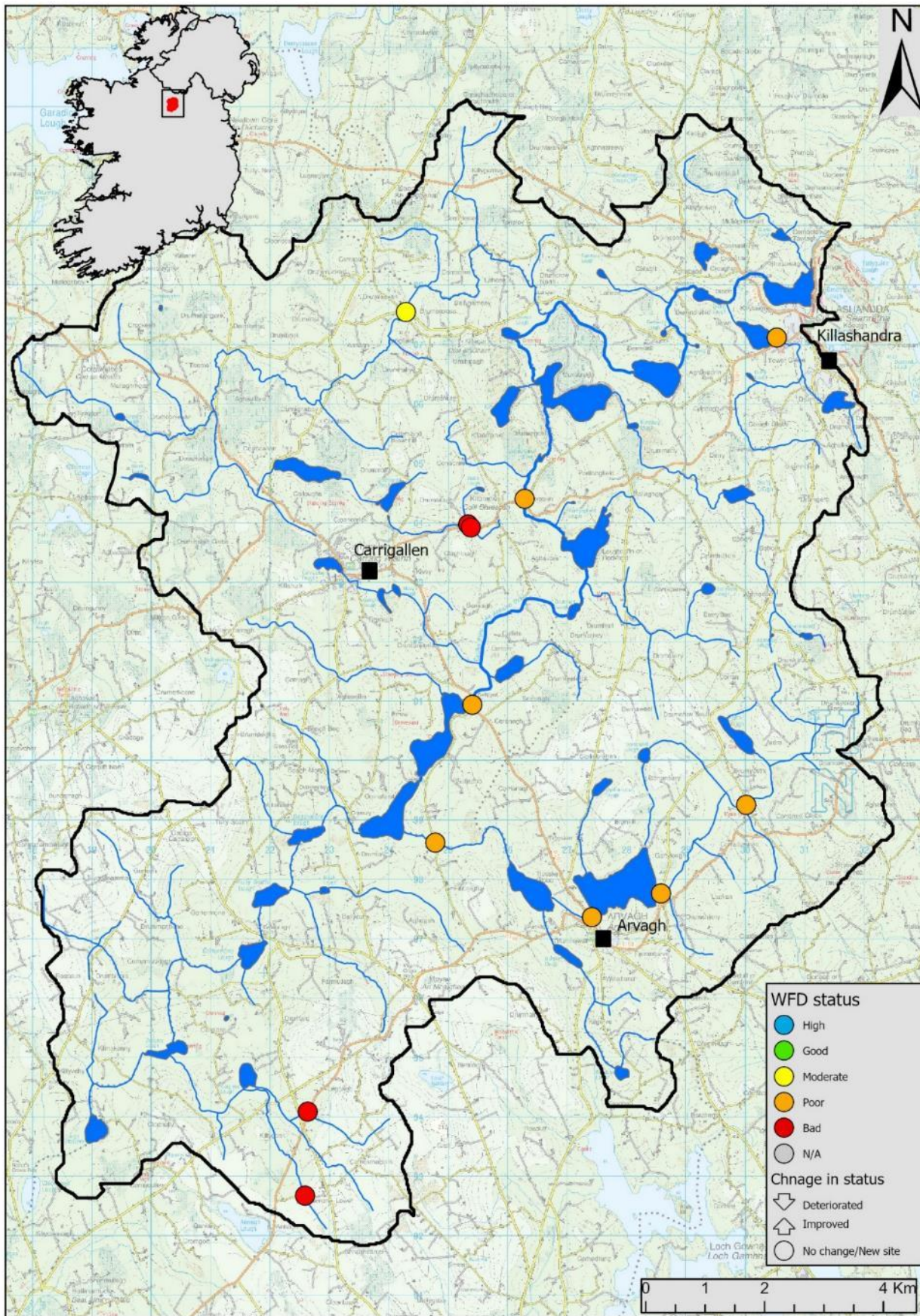


Figure 8. Fish ecological status in the Cullies Catchment, 2023.

Summary

A total of ten fish species and one cyprinid hybrid (roach x bream) were recorded at twelve sites surveyed on the Cullies Catchment in July 2023.

Roach was the most common species present (seven sites, 58%), followed by perch (seven sites, 58%), gudgeon (four sites, 33%), pike (three sites, 25%) three-spined stickleback and brown trout (two sites each, 16%) and European eel, stone loach, tench, minnow and roach x bream hybrid (one site each, 8%). Three sites had no fish caught.

Roach was also the most abundant species recorded, followed by gudgeon, perch, minnow, pike, three-spined stickleback, stone loach, brown trout, European eel, tench and roach x bream hybrid.

Brown trout ranged in length from 4.8 to 23.7cm. Three age classes were present (0+, 1+ and 2+), with 0+ being the most abundant cohort. The highest density of brown trout (all ages combined) (0.079 fish/m²) was recorded at Site 12 on the Laheen River at Drumleeven, with the highest density of 0+ brown trout (0.041 fish/m²) and 1+ and older brown trout (0.038 fish/m²) also recorded at Site 12.

Roach ranged in length from 1.0 to 22.4cm. Seven age classes were present (0+, 1+, 2+, 3+, 4+, 5+, 6+), with 0+ being the most abundant cohort. The highest density of roach (all ages combined) (0.374 fish/m²) was recorded at Site 11 on the Killytawny River, Upstream of Bawn Lough.

Perch ranged in length from 2.2 to 23.1 cm. The highest density of perch (0.089 fish/m²) was recorded at Site 11 on the Killytawny River, Upstream of Bawn Lough.

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 12 sites surveyed in the Cullies Catchment during 2023 (Table 4 and Figure 8). One site achieved Moderate status, seven sites Poor and four Bad. One site (Site 10) was surveyed previously on this catchment and the fish status has remained unchanged (Table 4).

The reasons for the failures (i.e. moderate status) 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. Failures and deteriorations in fish ecological status can be caused by pressures such as nutrient enrichment, habitat modification and fish passage issues.

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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