

# Fish in Rivers Factsheet

NWRBD

River Swilly Catchment

Factsheet: 2021/6

The River Swilly is located in the North Western River Basin District. It flows in an easterly direction from the Glendowen Mountains towards Letterkenny, Co. Donegal where it joins the sea through Lough Swilly. The geology of this catchment is primarily marble and schist, with the main land use types being blanket bog, agriculture and forestry. A small portion of the Swilly Catchment falls within two special areas of conservation (SAC's); Meentygrannagh Bog SAC far upstream towards the source and Lough Swilly SAC at the mouth.

Inland Fisheries Ireland conducts annual nation-wide fish sampling surveys to assess the status of stocks in Ireland's rivers, lakes and estuaries. This report presents the results of a catchment-wide survey undertaken in the River Swilly catchment in 2021.

A total of ten sites were surveyed by electro-fishing (CEN 2003) in the River Swilly catchment from the 24<sup>th</sup> August to the 26<sup>th</sup> August, 2021. The survey method used was 10-minute timed electro-fishing (TEF<sub>10</sub>). All TEF<sub>10</sub> fish count results were converted to minimum population estimates according to Matson *et al.* (2018).

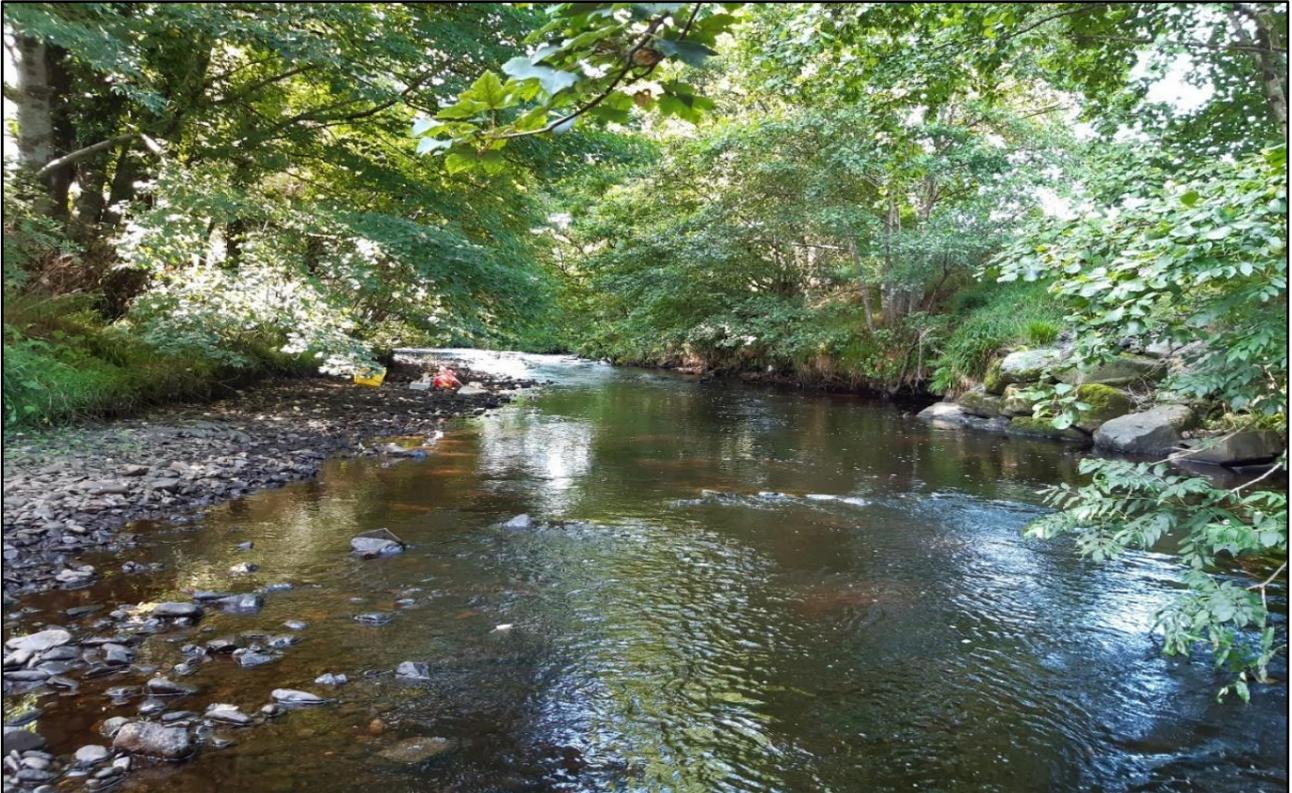


Plate 1. River Swilly at Rashedoge (Site 4)

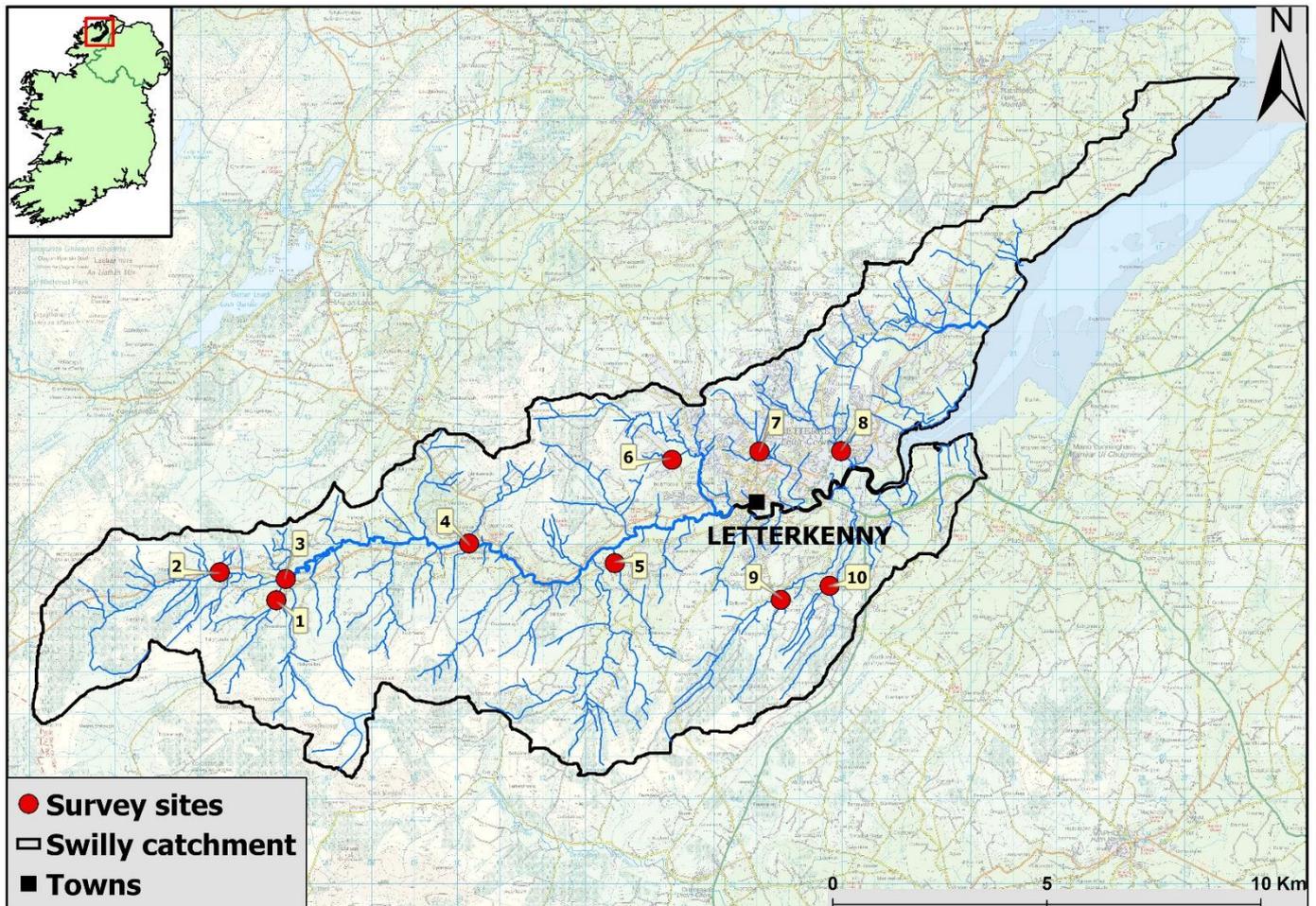


Figure 1. Location of electrofishing survey sites, River Swilly catchment, August 2021

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

No.	River	Site	Method	WFD	Date
<b>River Swilly Catchment</b>					
1	Treanakeel	Treanakeel	TEF <sub>10</sub>	–	24/08/2021
2	Swilly	Altadush	TEF <sub>10</sub>	–	24/08/2021
3	Swilly	Swilly Br. (near Breenagh)	TEF <sub>10</sub>	YES	24/08/2021
4	Swilly	Rashedoge	TEF <sub>10</sub>	–	24/08/2021
5	Letterleague	Bomany Br.	TEF <sub>10</sub>	–	25/08/2021
6	Ballymacool	Upper Ballymacool	TEF <sub>10</sub>	–	25/08/2021
7	Sprack Burn	High Road	TEF <sub>10</sub>	–	25/08/2021
8	Knocknamona	Arena 7	TEF <sub>10</sub>	–	25/08/2021
9	Swilly	NW of Curragh	TEF <sub>10</sub>	–	26/08/2021
10	Corranagh	Corranagh Br.	TEF <sub>10</sub>	–	26/08/2021

**Table 2. Minimum density estimates (no. fish/m<sup>2</sup>) for the River Swilly catchment, August 2021. Previous results are shown where applicable**

Site no.	1		2		3			4	
Species	2021	2014	2021	2011	2014	2017	2021	2021	
Brown trout	0.202	0.089	0.073	0.129	0.219	0.065	0.082	0.021	
0+ brown trout	0.118	0.009	0.018	0.073	0.177	0.031	0.050	–	
1+ & older brown trout	0.084	0.080	0.055	0.056	0.042	0.034	0.031	0.021	
Salmon	0.185	–	–	0.050	0.096	0.248	0.113	0.055	
0+ salmon	0.051	–	–	0.026	0.019	0.176	0.063	0.021	
1+ & older salmon	0.135	–	–	0.023	0.077	0.073	0.050	0.034	
European eel	–	–	–	0.006	0.004	0.004	0.044	0.013	
Lamprey sp.	–	–	–	0.009	–	–	–	–	
<b>All fish</b>	<b>0.388</b>	<b>0.089</b>	<b>0.073</b>	<b>0.194</b>	<b>0.319</b>	<b>0.317</b>	<b>0.238</b>	<b>0.088</b>	
Site no.	5		6	7	8	9	10		
Species	2021	2021		2021	2021	2021	2021		
Brown trout	0.310	–		–	–	0.120	0.317		
0+ brown trout	0.274	–		–	–	0.060	0.277		
1+ & older brown trout	0.037	–		–	–	0.060	0.040		
Salmon	–	–		–	–	–	–		
0+ salmon	–	–		–	–	–	–		
1+ & older salmon	–	–		–	–	–	–		
European eel	0.055	–		–	0.227	–	–		
Three-spined stickleback	–	–		–	0.044	–	–		
<b>All fish</b>	<b>0.365</b>	<b>no fish</b>		<b>no fish</b>	<b>0.271</b>	<b>0.120</b>	<b>0.317</b>		

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

Site No.	Brown trout			Site No.	Salmon	
	% of catch				% of catch	
	0+	1+	2+		0+	1+
<b>River Swilly Catchment</b>						
<b>1</b>	67	33	–	<b>1</b>	25	75
<b>2</b>	20	60	20	<b>2</b>	60	40
<b>3</b>	50	38	13	<b>3</b>	–	–
<b>4</b>	–	100	–	<b>4</b>	38	63
<b>5</b>	90	10	–	<b>5</b>	–	–
<b>9</b>	50	–	50	<b>9</b>	–	–
<b>10</b>	83	17	–	<b>10</b>	–	–

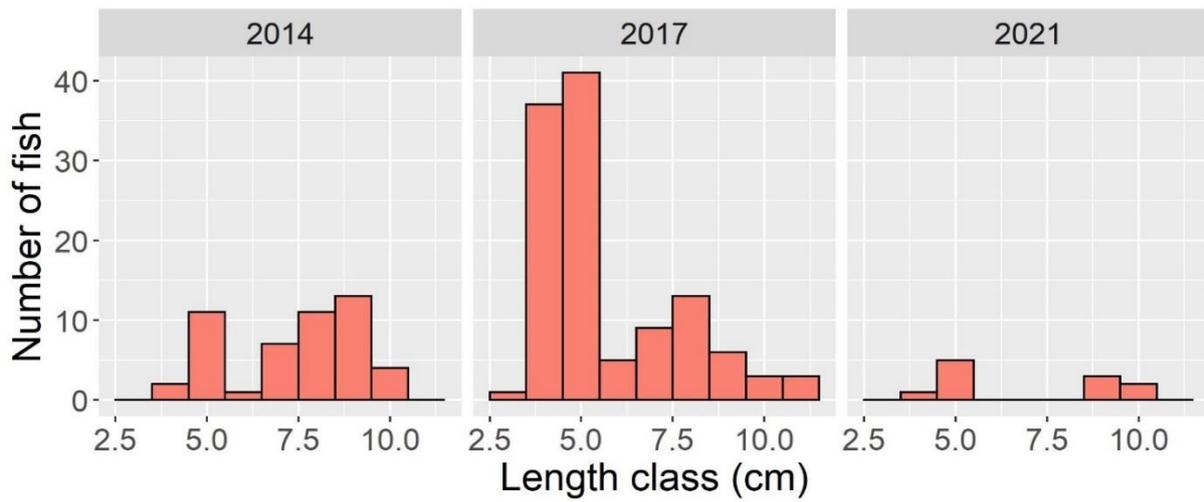


Figure 2. Length frequency distribution for salmon (2014, n=49; 2017, n=118; 2021, n=11) for the River Swilly at Site 3 (Swilly Br. near Breenagh)

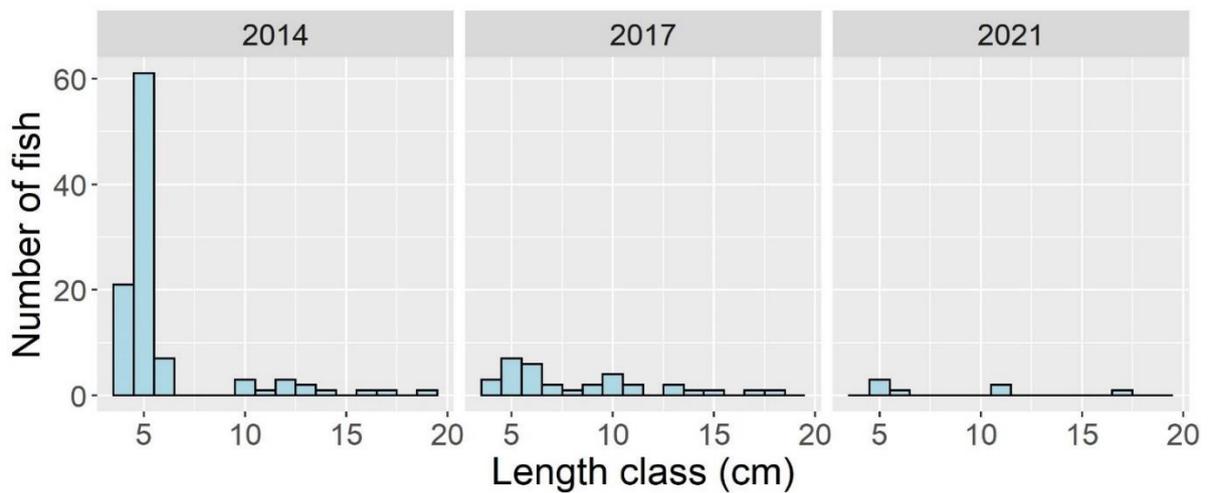


Figure 3. Length frequency distribution for brown trout (2014, n=102; 2017, n= 33; 2021, n=7) for the River Swilly at Site 3 (Swilly Br. near Breenagh)

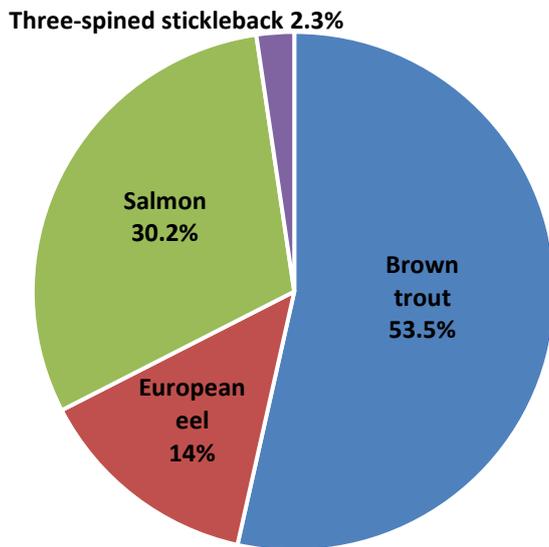


Figure 4. Fish species composition (%), River Swilly catchment, 2021

Table 4. Fish ecological status for the River Swilly catchment, 2008 to 2021. Previous results are shown where applicable (H=High, G=Good, M=Moderate, P=Poor and B=Bad).

Site No.	2008	2011	2014	2014	2017	2021
River Swilly Catchment						
1	-	-	-	-	-	G
2	-	-	-	P	-	P
3	G	G	G	-	G	G
4	-	-	-	-	-	M
5	-	-	-	-	-	G
6	-	-	-	-	-	N/A
7	-	-	-	-	-	B
8	-	-	-	-	-	P
9	-	-	-	-	-	M
10	-	-	-	-	-	M

### Summary

A total of four fish species were recorded during the River Swilly catchment survey in August 2021 (Table 2 and Figure 3). Brown trout were the most common and abundant species captured with lengths ranging from 5.3 to 20.7cm. Three age classes (0+, 1+ and 2+) were present with 0+ being the most abundant (Table 3). The highest density (0.317 fish/m<sup>2</sup>) of brown trout (all age classes) was recorded at Site 10 (Corranagh Bridge). The highest density (0.277 fish/m<sup>2</sup>) of 0+ brown trout was

also observed at Site 10. The highest density (0.084 fish/m<sup>2</sup>) of 1+ and older brown trout was observed at Site 1 (Treanakeel).

Salmon were recorded at three sites and ranged in length from 4.9 to 12.2cm. Two age classes (0+ and 1+), were present with 1+ being the most abundant cohort. The highest density (0.185 fish/m<sup>2</sup>) of salmon (all age classes) was recorded on Site 1. The highest density (0.063 fish/m<sup>2</sup>) of 0+ salmon was observed at Site 3 (Swilly Br. near Breenagh). The highest density (0.135 fish/m<sup>2</sup>) of 1+ and older salmon was observed at Site 1.

European eel was recorded at four sites (n = 12). Three-spined stickleback were also recorded at one site (n=2).

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 fish ecological status if all type specific indicator species 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 River Swilly Catchment during August 2021 (Table 4 and Figure 4). Three sites achieved Good status. The remaining six sites failed to meet the required standard of at least Good status. When compared to earlier surveys, Site 2 (Altadush) and site 3 (Swilly Br. near Breenagh) remained unchanged at Poor and Good respectively.

The reasons for the failures in fish ecological status 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 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 (e.g. Plate 2).



Plate 2. A culvert on the Sprack Burn (upstream end) at Site 7 (High Road)

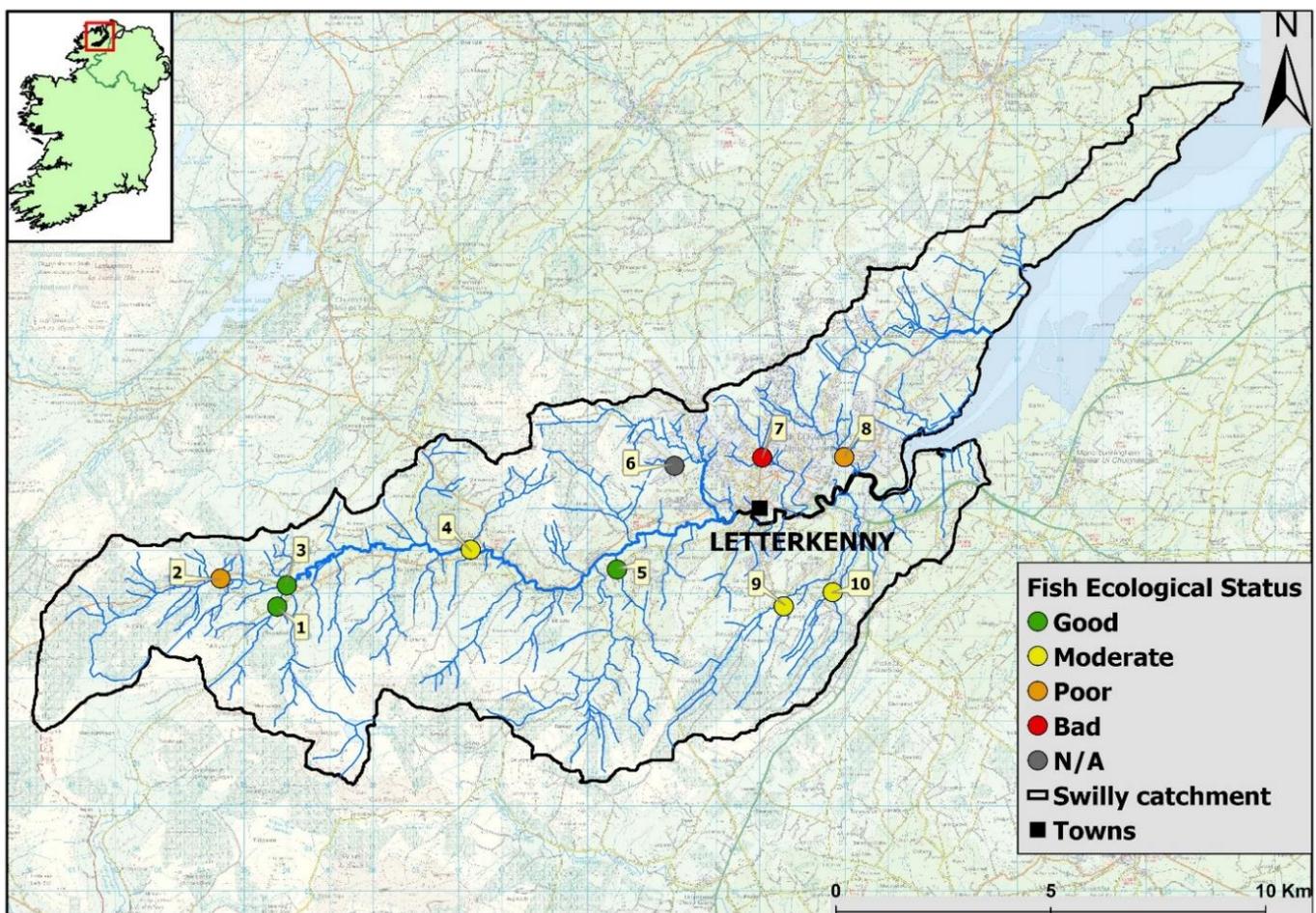


Figure 4. Fish ecological status map for the River Swilly catchment, August 2021

## 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.

**Inland Fisheries Ireland: 3044 Lake Drive, Citywest Business Campus, Dublin, D24 Y265, Ireland**

CITATION: Gordon, P., Matson, R., Corcoran, W., Donovan, R., Kelly, K., Duffy, P., Burke, E. and Kelly, F.L. (2021) Sampling Fish in Rivers 2021 –Swilly Catchment, Factsheet No. 2021/6. National Research Survey Programme. Inland Fisheries Ireland

The report includes Ordnance Survey Ireland data reproduced under OSI Copyright Permit No. MP 007508. Unauthorised reproduction infringes Ordnance Survey Ireland and Government of Ireland copyright. © Ordnance Survey Ireland, 2022.



Iascach Iníre Éireann  
Inland Fisheries Ireland