

D4: Surface Water Data of the Study Area

The EPA website <http://www.epa.ie/rivermap/data> and the Northern Ireland Environmental Agency (NIEA) website <https://apps.d.aera-ni.gov.uk/RiverBasinViewer/> contain information regarding the water quality in selected Irish and Northern Ireland rivers based on surveys carried out by the EPA and NIEA respectively. Biological information is provided in the form of Q values. Q Values are used to express biological water quality and are based on changes in the macro invertebrate communities of riffle areas brought about by organic pollution. Q1 indicates a seriously polluted water body and Q5 indicates unpolluted water of high quality. A value of Q3 indicates moderately polluted water. These Q value ratings are shown in **Table D1**.

Table D1 Q value classification

Quality Ratings	Quality Class	Pollution Status	Condition (re beneficial uses)
Q5, Q4-5, Q4	Class A	Unpolluted	Satisfactory
Q3-4	Class B	Slightly Polluted	Unsatisfactory
Q3, Q2-3	Class C	Moderately Polluted	Unsatisfactory
Q2, Q1-2, Q1	Class D	Seriously Polluted	Unsatisfactory

There are six national monitoring stations located within the study area according to the EPA website. These are:

- Finn (Donegal)- U/s Lifford (i.e. u/s Mourne R) (RS01F011300)
- Finn (Donegal)- u/s Lifford STW (RS01F011400)
- Finn (Donegal)- d/s Lifford STW (RS01F011500)
- Deelee (Donegal)- Bridge at Murlough (RS01D010700)
- Downstream ballindrait outlet (RS01D010660)
- Bridge in Ballindrait (RS01D010650)

Data was not available for five of these sites. Both datasets were incomplete and inconsistent with data collection. Biological data for the Bridge in Ballindrait (RS01D010650) monitoring point within the study area is shown in **Table D2**.

Table D2 Biological water quality in the Study Area based on EPA data

Biological Quality Rating (Q Values)																	
Station Name	Station ID.	1971	1973	1977	1981	1985	1989	1994	1997	1998	2002	2005	2007	2010	2014	2016	2019
Bridge in Ballindrait	RS01D010650	-	5	4	4	4	-	4	4	4	2	-	4	-	-	-	-

Table D3 below shows the surface water quality standards applied across a range of relevant legislation.

Table D3 Mandatory levels for physiochemical parameters for specific legislation

Parameter	Units	European Communities (Quality of Surface Water Intended for the Abstraction of Drinking Water) Regulations, 1989 (S.I. No. 294/1989) *	European Communities Environmental Objectives (Surface Water) Regulations (S.I. No. 272 of 2009)	European Communities Drinking Water Regulations S.I. 106 of 2007	Salmonid Water Regulations (Mandatory Level) (S.I. No. 293 of 1988)
BOD	mg/l	5 – A1 & A2 7 – A3	High status ≤1.3 (mean) or ≤2.2 (95%ile) Good status ≤1.5 (mean) or ≤2.6 (95%ile)	N/A	≤ 5
Suspended Solids	mg/l	50	N/A	N/A	≤ 25
pH	-	5.5-8.5 – A1 5.5-9.0 – A2 & A3	4.5-9.5 (Soft Water) 6.0-9.0 (Hard Water)	≥ 6.5 & ≤ 9.5	≥ 6 & ≤ 9
Conductivity	µS/cm	1,000	N/A	2,500	N/A
Phosphates	mg/l P ₂ O ₅	0.5 – A1 & A2 0.7 A3	N/A	N/A	N/A
Molybdate Reactive Phosphorus (MRP)	mg/l P	N/A	High status ≤0.025 (mean) or ≤0.045 (95%ile) Good status ≤0.035 (mean) or ≤0.075 (95%ile)	N/A	N/A
Chloride	mg/l Cl	250	N/A	250	N/A
Ammonium	mg/l NH ₄	0.2 – A1 1.5 – A2 4 – A3	N/A	N/A	≤ 1.0
Total Ammonia	mg/l N	N/A	High status ≤0.040 (mean) or ≤0.090 (95%ile)	N/A	N/A

Parameter	Units	European Communities (Quality of Surface Water Intended for the Abstraction of Drinking Water) Regulations, 1989 (S.I. No. 294/1989) *	European Communities Environmental Objectives (Surface Water) Regulations (S.I. No. 272 of 2009)	European Communities Drinking Water Regulations S.I. 106 of 2007	Salmonid Water Regulations (Mandatory Level) (S.I. No. 293 of 1988)
			Good status ≤ 0.065 (mean) or ≤ 0.140 (95%ile)		
Nitrate	mg/l NO ₃	50	N/A	50	N/A
Nitrite	mg/l NO ₂	N/A	N/A	0.5	≤ 0.05
Dissolved Oxygen	-	>60% - A1 >50% - A2 >30% - A3	Lower limit: 95%ile > 80% saturation Upper limit: 95%ile < 120% saturation	N/A	50% ≥ 9 mg/l
Total Hardness	mg/l CaCO ₃	N/A	N/A	N/A	N/A
Copper	mg/l Cu	0.05 – A1 0.1 – A2 1.0 – A3	5 - water hardness ≤ 100 mg/l CaCO ₃ 30 - water hardness > 100 mg/l CaCO ₃	2.0	≤ 0.005 [1, 6] ≤ 0.022 [2, 6] ≤ 0.04 [3, 6] ≤ 0.112 [4, 6]
Zinc	mg/l Zn	3 – A1 5 - A2 & A3	0.008 - water hardness ≤ 10 mg/l CaCO ₃ 0.05 - water hardness > 10 ≤ 100 mg/l CaCO ₃ 0.1 - water hardness > 100 mg/l CaCO ₃	N/A	≤ 0.03 [1, 6] ≤ 0.2 [2, 6] ≤ 0.3 [3, 6] ≤ 0.5 [5, 6]
Total coliforms	no/100ml	5,000 – A1 25,000 – A2 100,000 – A3	N/A	N/A	N/A
Faecal coliforms	no/100ml	1,000 – A1 5,000 – A2 40,000 – A3	N/A	0	N/A

1] At water hardness 10 mg/l CaCO₃; [2] At water hardness 50 mg/l CaCO₃; [3] At water hardness 100 mg/l CaCO₃; [4] At water hardness 300 mg/l CaCO₃; [5] At water hardness 500 mg/l CaCO₃; [6] To be conformed with by 95% of samples over a period of 12 months where sampling is carried out at least once a month; where sampling is less frequent, to be conformed with by all samples.

*S.I. No. 294/1989 is superseded by S.I. No. 272 of 2009. If a particular parameter is not found in SI 272 of 2009 then the 1989 value applies.

