Annual Environmental Report

2023

Dromcollagher

D0316-01

CONTENTS

7 APPENDIX

7.1 SMALL STREAM RISK SCORE ASSESSMENT

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0316-01, Dromcollagher, in Limerick in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

- Dromcollagher WWTP with a Plant Capacity PE of 400, the treatment type is 2 - Secondary treatment .

1.3 ELV OVERVIEW

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF1900D0316SW001	Dromcollagher WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l COD-Cr mg/l ortho-Phosphate (as P) - unspecified mg/l Suspended Solids mg/l Total Phosphorus (as P) mg/l

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report
Small Stream Risk Score Assessment

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 DROMCOLLAGHER WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - DROMCOLLAGHER WWTP

A summary of influent monitoring for the treatment plant is presented below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

Parameters	Number of Samples	Annual Max	Annual Mean
COD-Cr mg/l	12	810	196
Total Phosphorus (as P) mg/l	12	6.63	2.09
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	389	91
Total Nitrogen mg/l	12	58	19
Hydraulic Capacity	N/A	1293	278

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is greater than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional ‘Operational Performance Summary’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF1900D0316SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	12	8	3	95	Fail
Suspended Solids mg/l	35	87.5	N/A	12	6	2	27	Fail
pH pH units	9	9	N/A	12	N/A	N/A	7.76	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	3.5	7	N/A	12	12	12	41	Fail
Total Phosphorus (as P) mg/l	1	1.2	N/A	12	9	9	2.15	Fail
Ammonia-Total (as N) mg/l	0.2	0.4	N/A	12	12	12	7.57	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.1	0.2	N/A	12	12	12	1.12	Fail
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	13	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 – For pH the WWDA specifies a range of pH 6 - 9

Cause of Exceedance(s):

Upgrades to WWTP required to meet ELV

Significance of Results:

The WWTP is not in compliance with the ELV, as set out in the WWDL. The impact on receiving waters is assessed further in section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1900D0316SW001

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Ecological Status
Upstream	137921, 121475	RS24A020310	No	No	No	No	Poor
Downstream	137582, 121873	RS24A020400	No	No	No	No	Poor

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
BOD - 5 days (Total) mg/l	RS24A020310	1.41	RS24A020400	3.36	1.50	129.4

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Ammonia-Total (as N) mg/l	RS24A020310	0.032	RS24A020400	0.559	0.065	809.8
ortho-Phosphate (as P) - unspecified mg/l	RS24A020310	0.035	RS24A020400	0.129	0.035	266.4
pH pH units	RS24A020310	7.77	RS24A020400	7.54	N/A	
Temperature °C	RS24A020310	7.30	RS24A020400	9.31	N/A	
Dissolved Oxygen % O2	RS24A020310	100	RS24A020400	89	N/A	

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results do not meet the required EQS at the downstream monitoring location. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

Based on ambient monitoring results a deterioration in Ammonia BOD Ortho Phosphate, concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are unknown.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - DROMCOLLAGHER WWTP

2.1.4.1 Treatment Efficiency Report - Dromcollagher WWTP

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TN	2193	1471	33
COD	23134	10500	55
cBOD	10800	4544	58
TP	247	238	3.67
SS	N/A	3030	N/A

Note: The above data is based on sample results for the number of dates reported

2.1.4.2 Treatment Capacity Report Summary - Dromcollagher WWTP

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

Dromcollagher WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	257
DWF to the Treatment Plant (m^3/day)	100
Current Hydraulic Loading - annual max (m^3/day)	1293
Average Hydraulic loading to the Treatment Plant (m^3/day)	278
Organic Capacity (PE) - As Constructed	400
Organic Capacity (PE) - Collected Load (peak week)[Note1]	794
Organic Capacity (PE) - Remaining	0

Dromcollagher WWTP	
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

2.1.5 SLUDGE / OTHER INPUTS - DROMCOLLAGHER WWTP

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature related to the discharge(s) to water from the WWTP and network is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2023.			

3.2 REPORTED INCIDENTS SUMMARY

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Uisce Éireann but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
Breach of ELV	WWTP upgrade required to meet ELV	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	1
Number of Incidents reported to the EPA via EDEN in 2023	1
Explanation of any discrepancies between the two numbers above	N/A

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

A summary of the operation of the storm water overflows and their significance where known is included below:

4.1.1 SWO IDENTIFICATION

WWDL Name / Code for Storm Water Overflow (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2023 (No. of events)	Total volume discharged in 2023 (m3)	Monitoring Status
SW2	137816,121711	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
SW3	137933,121481	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW5	137936,121479	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

SWO Summary	
How much wastewater discharge by metered SWOs during the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	No

SWO Summary	
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS.

4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0316-SIP:01	Additional treatment to meet the ELVs with commencement date 31/12/2021	C	31/12/2021	No	At Planning Stage	2031	
D0316-SIP:02	Installation of interim (package) secondary treatment plant	C	31/12/2015	Yes	At Planning Stage	2031	

A summary of the status of any other improvements identified by under Condition 5 assessments- is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
No additional improvements planned at this time.				

4.2.3 SEWER INTEGRITY RISK ASSESSMENT

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Tables 4.2.1 and 4.2.2.

5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Licence Specific Report	Required by licence	Included in this AER
D0316-01-Priority Substances Assessment	Yes	No
D0316-01-Small Stream Risk Score Assessment	Yes	Yes

6 CERTIFICATION AND SIGN OFF

6.1 SUMMARY OF AER CONTENTS

Parameter	Answer
Does the AER include an Executive Summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for Consideration of a Technical Amendment/Review of the Licence?	Yes
List reason e.g. additional SWO identified	Capital upgrade
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	Yes
List reason e.g. changes to monitoring requirements	Ambient Monitoring Location Changes
Have these processes commenced?	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: Date: 07/03/2024

This AER has been produced by Uisce Éireann's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of ,

Eleanor Roche

Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Small Stream Risk Score Assessment

SSRS Compliance Monitoring: *Dromcolliher* Waste Water Treatment Plant 2023

Report to Uisce Éireann

Limnos Consultancy, January 2024

Contents

Dromcolliher WWTP

Introduction

Small Streams Risk Score (SSRS) assessments upstream and downstream of the Dromcolliher waste water treatment plant (WWTP) on the Ahavarraga Stream are outlined in this report. The assessments were made on 7 December 2023. Limnos Consultancy was contracted by Irish Water to undertake the surveys.

Methodology

Small Streams Risk Score (SSRS)

Samples were taken using an ISO compliant kick-sampling sampling method compatible with the Environmental Protection Agency (EPA) Standard Operating Procedure for sampling aquatic macroinvertebrates. Samples were taken upstream and downstream of the discharge from the WWTP. SSRS results were assigned based on the macroinvertebrate fauna.

The author was the main initiator of the SSRS system developed by the Western River Basin District and the EPA under his supervision in 2005–2006 (McGarrigle 2014). He has undertaken SSRS training of local authority and other professional staff at the Local Government Water Services Training Centres around the country for over 100 personnel.

The SSRS was calculated based on selected sub-groups of the macroinvertebrates recorded. The score is calculated based on the number of taxa and their relative abundance in four main invertebrate groups as follows:

Group 1: Ephemeroptera (excluding *Baetis rhodani*)
Group 2: Plecoptera
Group 3: Trichoptera
Group 4: GOlD (Gastropoda, Oligochaeta, Diptera)
Group 5: *Asellus*

The first three groups above, mayflies, stoneflies, and caddis flies, are regarded as pollution-sensitive whereas gastropods, oligochaetes, dipterans and *Asellus* are relatively pollution-tolerant. The maximum score that can be achieved is 11.2 and threshold scores deciding the degree of risk of not being at good ecological status are as follows:

> 7.25 Probably not at risk
- > 6.5 to 7.25 Indeterminate
< 6.5 Stream may be at risk.

Samples were taken with a standard 1 mm mesh pond net. A 3-minute kick sample was combined with a 1-minute stonewash. Samples were placed on a white tray and, once cleaned of debris such as leaves and twigs and excessive sand or gravel by decanting and hand picking, the sample was examined carefully to identify the macroinvertebrates. At least 25 minutes were spent identifying and assigning each taxon found to a relative abundance category. Table 1 gives the definition of the relative abundance terms Few, Common, Numerous, Dominant and Excessive. The numeric code is used in the results tables below.

Table 1. Relative abundance table.

Abundance	Number of Individual Specimens	Relative abundance numeric code
Few:	1 to 5 individuals	1
Common:	6 to 20	2
Numerous:	21-50	3
Dominant:	51 to 100	4
Excessive:	>100	5

Physico-Chemical Measurements

Physico-chemical measurements were also made for dissolved oxygen, temperature and conductivity using a HACH HQ40d meter with appropriate compatible probes.

Location of Sites Sampled

Figure 1 maps the sampling sites and Table 2 gives the details of the locations sampled.

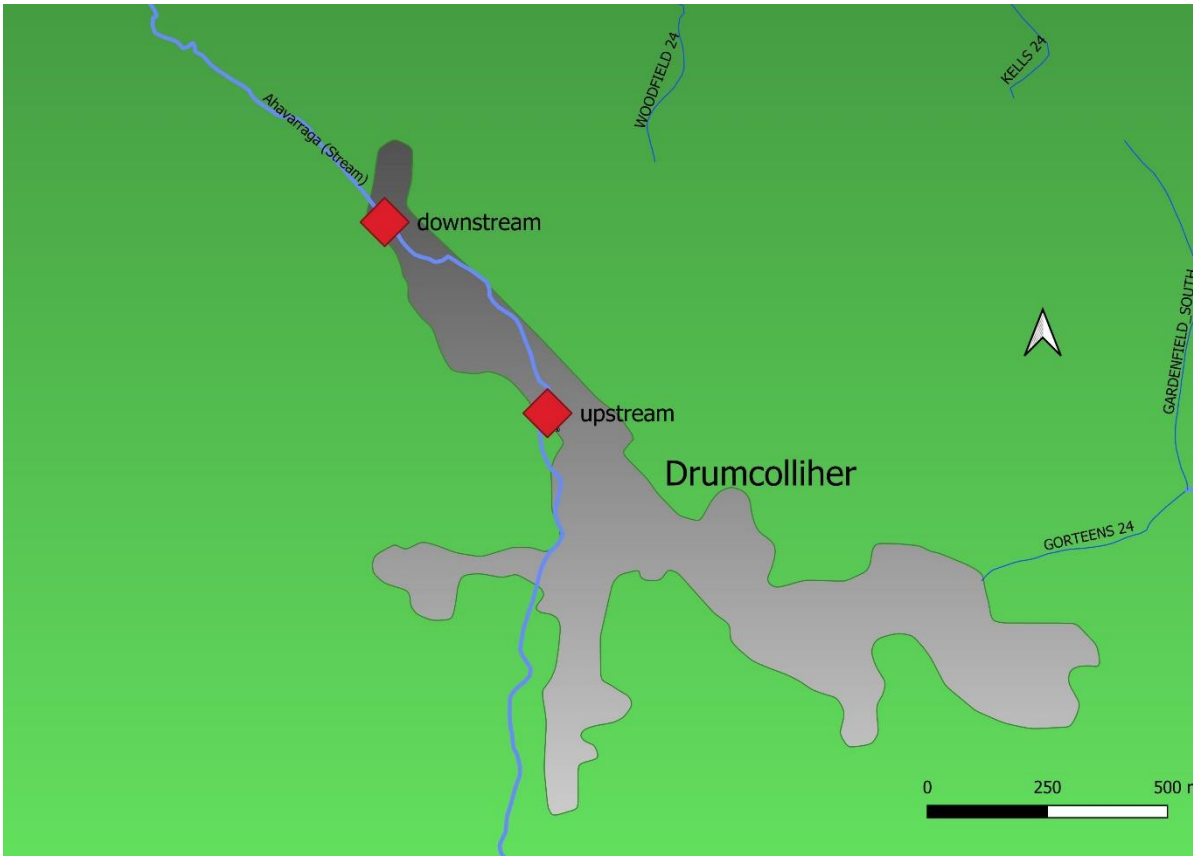

Figure 1. Location of upstream and downstream monitoring sites for Dromcolliher WWTP. The river flows to the Northwest.

Table 2. Location of sites sampled upstream and downstream of Dromcolliher WWTP.

Location	Dromcolliher WWTP Upstream	Dromcolliher WWTP Downstream
EPA Code	24A020300	24A020400
Station	Upstream of WWTP	500m d/s Priests Bridge
River	Ahavarraga	Ahavarraga
Easting	137921	137623
Northing	121476	121827

Results

Site Photographs

Figure 2 shows photographs for the upstream and downstream of the Dromcolliher WWTP taken on 7 December 2023.

	
U/S Dromcolliher WWTP looking downstream	U/S Dromcolliher WWTP looking upstream
	
D/S Dromcolliher WWTP looking downstream	D/S Dromcolliher WWTP looking upstream

Figure 2. Upstream (U/S) and downstream (D/S) of Dromcolliher WWTP.

Macroinvertebrates - SSRS

Table 3 gives the recorded macroinvertebrate taxa for the standard kick samples taken at these sites.

Table 3. Relative abundances of macroinvertebrates recorded upstream and downstream of Dromcolliher WWTP discharge point.

		Ahavarraga	**Ahavarraga**
		Upstream	**Downstream**
		Dromcolliher WWTP	
		Date of Survey	
SSRS Group	**Taxon**	**07/12/2023**	**07/12/2023**
3, Trich	Limnephilidae	Few	-
3, Trich	*Sericostoma personatum*	Few	-
4, GOlD	Chironomidae	Common	Common
4, GOlD	*Dicranota*	-	Few
4, GOlD	Tipulidae	Common	-
5, Asellus	*Asellus*	Common	Common
n/a	*Baetis rhodani*	Numerous	Numerous
n/a	*Elmis aenea*	Few	-
n/a	*Erpobdella octoculata*	-	Few
n/a	*Gammarus*	Dominant	Dominant
n/a	Hydrachnidae	Few	Few
	Number Taxa	**9**	**7**
	SSRS	**2.4**	**1.6**
		At Risk!	**At Risk!**
	Q-Value	**Q3**	**Q2**

The taxa are ordered from top to bottom in terms of their SSRS Grouping. Groups 1 to 3 are sensitive to pollution while Groups 4 and 5 comprise more tolerant taxa. Note that not all taxa are included in the SSRS system.

The upstream site had nine taxa and the downstream had just seven taxa.

No Group 1 Ephemeroptera or Group 2 Plecoptera were found at the upstream site but two Group 3 Trichoptera, the cased caddis Limnephilidae and *Sericostoma personatum* were recorded. *Baetis* and *Gammarus* dominated the fauna and two dipteran taxa belonging to Group 4 GOlD, Chironomidae and

Tipulidae were noted. *Asellus* was also common. The SSRS value of 2.4 places the site "At risk!" indicating significant upstream pressures on the stream at this point even upstream of the WWTP discharges.

The downstream site had seven taxa. In the SSRS Groups there were just two GOlD taxa: Chironomidae and *Dicranota* plus *Asellus* was common. Again *Gammarus* and *Baetis* were the most abundant types present. The SSRS of 1.6 suggests additional pressure downstream of the WWTP. A Q-Value of Q2 was assigned.

Thus, both sites showed signs of significant impact.

Physico-Chemical Results

The physico-chemical measurements made in the field on the day of sampling in the Ahavarraga River (Table 4) showed both sites to be reasonably well-oxygenated. On the day, the river was flooded up following some heavy overnight rainfall and this may have helped the oxygen saturation. Conductivities and pH values are typical for the catchment geology. (In passing: the author sampled the downstream site in 2018 for the EPA and recorded a dissolved oxygen reading that was close to zero with the bloodworm *Chironomus* prominent and a Q-Value of Q1. The 2023 sampling shows improvement on the 2018 values.)

Table 4. Physico-chemical results for Ahavarraga River, Dromcolliher, 7 December 2023.

Station	Dissolved Oxygen (DO) % Saturation	DO mg/l	Temp. °C	Conductivity µS/cm	pH
Upstream Dromcolliher WWTP	**97.1**	**10.94**	**10.2**	**179.1**	**6.81**
Downstream Dromcolliher WWTP	**96.0**	**10.72**	**10.3**	**177.0**	**6.88**

Summary

The Ahavarraga is in poor condition at both sites with a further deterioration noted downstream of the WWTP discharges.

Reference

McGarrigle, M. 2014. “Assessment of Small Water Bodies in Ireland.” *Biology and Environment* 114B(3). doi: 10.3318/BIOE.2014.15.