Annual Environmental Report

2024

Moate

D0097-01

CONTENTS

7 APPENDIX

7.1 SMALL STREAM RISK SCORE ASSESSMENT

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2024 AER

This Annual Environmental Report has been prepared for D0097-01, Moate, in Westmeath 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.

There were no capital works, significant changes or operational changes undertaken in 2024.

1.2 TREATMENT SUMMARY

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

- Moate WWTP with a Plant Capacity PE of 4500, the treatment type is 3P - Tertiary P removal.

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
TPEFF3200D0097SW001	Moate WWTP	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report
Small Stream Risk Score Assessment Report.

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 MOATE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - MOATE 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
Suspended Solids mg/l	13	233	122
Total Phosphorus (as P) mg/l	13	9.50	3.6
ortho-Phosphate (as P) - unspecified mg/l	13	4.50	2.29
BOD, 5 days with Inhibition (Carbonaceous) mg/l	13	243	74
Ammonia-Total (as N) mg/l	13	37	19
pH pH units	13	8.00	7.59
Total Nitrogen mg/l	13	64	30
COD-Cr mg/l	13	563	244
Hydraulic Capacity	N/A	912	410

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 less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional 'Operational Performance Summary'. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF3200D0097SW000

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	13	N/A	N/A	29.76	Pass
Suspended Solids mg/l	35	87.5	N/A	13	N/A	N/A	5.98	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	20	40	N/A	13	N/A	N/A	2.45	Pass
pH pH units	6	9	N/A	13	N/A	N/A	7.45	Pass
Ammonia-Total (as N) mg/l	1	2	N/A	13	N/A	N/A	0.38	Pass
ortho-Phosphate (as P) - unspecified mg/l	1	1.2	N/A	13	N/A	N/A	0.13	Pass
Conductivity @20°C µS/cm	N/A	N/A	N/A	13	N/A	N/A	618	

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)
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	13	N/A	N/A	12.95	
Nitrite (as N) mg/l	N/A	N/A	N/A	13	N/A	N/A	0.582	
Nitrate (as N) mg/l	N/A	N/A	N/A	13	N/A	N/A	12 .35	
Total Nitrogen mg/l	N/A	N/A	N/A	13	N/A	N/A	14	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	13	N/A	N/A	0.25	

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):

Not applicable

Significance of Results:

The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF3200D0097SW000

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	218491, 238039	RS25M050100	No	No	No	No	Poor
Downstream	218396, 236055	RS25M050250	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	RS25M050100	0.883	RS25M050250	1.04	1.50	10.2
Ammonia-Total (as N) mg/l	RS25M050100	0.030	RS25M050250	0.028	0.065	-2.9
ortho-Phosphate (as P) - unspecified mg/l	RS25M050100	0.024	RS25M050250	0.014	0.035	-26.7
COD-Cr mg/l	RS25M050100	22	RS25M050250	22	N/A	
Dissolved Oxygen mg/l	RS25M050100	8.78	RS25M050250	8.35	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Temperature °C	RS25M050100	13	RS25M050250	13	N/A	
pH pH units	RS25M050100	7.64	RS25M050250	7.66	N/A	
Total Nitrogen mg/l	RS25M050100	3.63	RS25M050250	2.98	N/A	
Dissolved Oxygen % Saturation	RS25M050100	85	RS25M050250	79	N/A	
Total Phosphorus (as P) mg/l	RS25M050100	0.092	RS25M050250	0.070	N/A	
Dissolved Oxygen % O2	RS25M050100	82	RS25M050250	83	N/A	
Conductivity @20°C µS/cm	RS25M050100	672	RS25M050250	688	N/A	

Significance of Results:

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results meet the required EQS. 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 BOD concentration 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.

As per the 2024 SSRS Assessment Report, the Moate Stream is in poorer condition upstream of the WWTP than it is at the downstream site some 1.5 km downstream of the WWTP. Groundwater issues may be a factor affecting the quality of the upstream site – it is also immediately downstream of the town of Moate and a relatively intensive agricultural catchment.

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 - MOATE WWTP

2.1.4.1 Treatment Efficiency Report - Moate 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)
cBOD	11061	367	97
COD	36578	4453	88
SS	18319	887	95
TN	4476	2129	52
TP	541	38	93

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

2.1.4.2 Treatment Capacity Report Summary - Moate 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.

Moate WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	3375
DWF to the Treatment Plant (m^3/day)	1125
Current Hydraulic Loading - annual max (m^3/day)	912
Average Hydraulic loading to the Treatment Plant (m^3/day)	410
Organic Capacity (PE) - As Constructed	4500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	3960
Organic Capacity (PE) - Remaining	540
Will the capacity be exceeded in the next three years? (Yes/No)	No

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 - MOATE 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)
Waterworks Sludge	1584	Volume (m3)	19.28	1.05	Yes	Yes	Yes

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 2024.			

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)
Uncontrolled release	Blocked Sewer	No	No
Uncontrolled release	Adverse Weather	No	Yes
Breach of ELV *	Plant or equipment maintenance at WWTP	No	Yes

* The above ELV breach relates to a process effluent sample and not an effluent compliance sample.

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2024	3
Number of Incidents reported to the EPA via EDEN in 2024	3
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 2024 (No. of events)	Total volume discharged in 2024 (m^3)	Monitoring Status
SW2	218670, 237766	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	218670, 237766	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	218670, 237766	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

The contents presented in this table include the most up to date information available at the time of writing. 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 (m^3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A

SWO Summary	
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	No

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
D0097-SIP:01	Phase 1 upgrade of WWTP and ancillary works	C	01/01/2015	Yes	Works Completed		
D0097-SIP:02	Re-location of primary discharge to R. Brosna	C	01/01/2015	Yes	Not Started		
D0097-SIP:03	SW000 to Moate stream & any other discharges identified under conditions 4.12 & 5.1 to be discontinued	A	01/01/2015	Yes	Works Completed		

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
D0097-SIP:04	SW003 to Moate stream & any other discharges identified under conditions 4.12 & 5.1 to be discontinued	A	01/01/2015	Yes	Works Completed		
D0097-SIP:05	Upgrade and rehabilitation of sewer network (phase I and phase II)	C	01/01/2015	Yes	Works Completed		
D0097-SIP:06	Upgrade to storm water management system	C	01/01/2015	Yes	Not Started		

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
D0097-01-Priority Substances Assessment	Yes	No
D0097-01-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?	No
List reason e.g. additional SWO identified	N/A
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	Yes

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

Date: 27/04/2025

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: *Moate* Waste Water Treatment Plant 2024

Report to Uisce Éireann

Limnos Consultancy, January 2025

Contents

Moate WWTP

Introduction

Small Streams Risk Score (SSRS) assessments on the Moate Stream upstream and downstream of the Moate waste water treatment plant (WWTP) are outlined in this report. The assessments were made on 11 October 2024. 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 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. Probes were calibrated before use.

Location of Sites Sampled

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

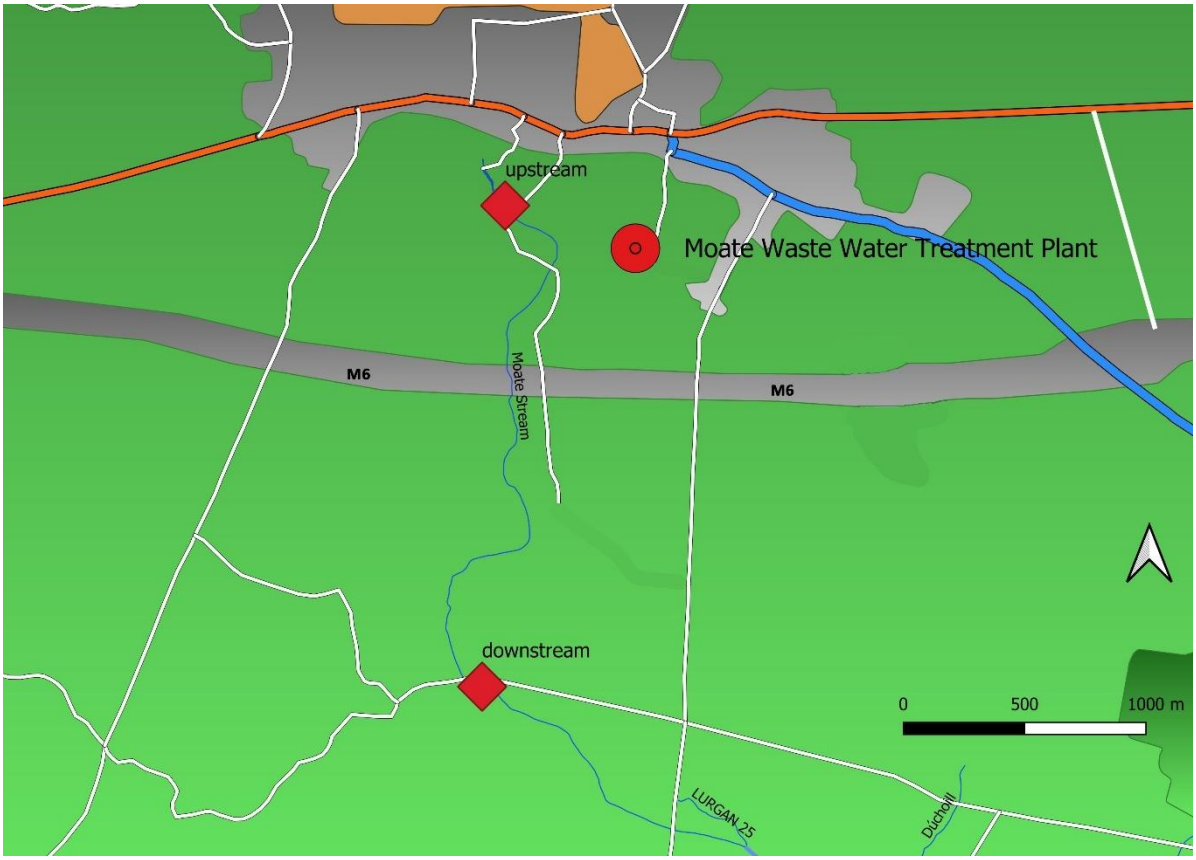

Figure 1. Location of upstream and downstream monitoring sites for Moate WWTP. The river flows southwards.

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

Location	Moate WWTP Upstream	Moate WWTP Downstream
EPA Code	RS25M050100	RS25M050250
Station	Upstream Moate WWTP	Br W Boston Crossroads
River	Moate Stream	Moate Stream
Easting	218491	218396
Northing	238039	236055

Results

Site Photographs

Figure 2 shows photographs for the upstream and downstream of the Moate WWTP taken on 11 October 2024.

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

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

Macroinvertebrates – SSRS

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

The taxa are ordered from top to bottom in terms of their SSRS Group and general sensitivity to pollution with the mayfly *Seratella* at the top and Tubificidae and *Asellus* at the bottom. Note that not all taxa recorded are included in the SSRS scheme.

The upper site was in poor condition The number of taxa at 11 was one greater than the 2023 result. On the more pollution-sensitive side no Ephemeroptera or Plecoptera were recorded but one Trichoptera, *Sericostoma*, was recorded. In the GOlD group there were six types with the highly tolerant blood worm *Chironomus* common and the gastropod *Planorbis* was also common. The Group 5 taxon *Asellus* dominated the fauna with excessive numbers. The SSRS value was 0.8, indicating that the site is very much at risk. A Q-Value of Q2 was assigned to the upstream site. There is an old quarry in the immediate upstream vicinity and it may be that the stream is fed by groundwater at this point with low oxygen saturation values.

The downstream site had a similar number of taxa (16) as in 2023. One member of the Ephemeroptera Group 1, *Seratella*, was present and there were three Trichoptera taxa. No stoneflies were found. In the GOlD group there were five taxa but all at low density. *Asellus* was common, however, brining the SSRS to 5.6 – the same as in 2023. The Q-Value assigned was also the same as in 2023 Q3-4. The downstream site hasn't been sampled by the EPA in a number of years – last EPA Q-Value here is Q3 in 2005. And the next downstream site sampled by the EPA (RS25M050400) approximately 5 km downstream of the WWTP was at Q3-4 in 2023.

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

			Upstream Moate WWTP	**Downstream Moate WWTP**
		River	**Moate Stream**	
		Code	**25M050100**	**25M050250**
		Location	**U/s Moate WWTP**	**Br S Lurgan Cross-Roads**
		Date of Sample	**11/10/2024**	**11/10/2024**
SSRS Group		**Taxon**		
1	Ephem	*Serratella ignita*	-	Few
3	Trich	*Hydropsyche*	-	Common
3	Trich	Limnephilidae	-	Few
3	Trich	*Sericostoma personatum*	Few	Few
4	GOlD	Ancylidae	-	Few
4	GOlD	Chironomidae	Few	-
4	GOlD	*Chironomus*	Common	-
4	GOlD	Culicidae	Few	-
4	GOlD	*Lymnaea peregra*	Few	-
4	GOlD	*Planorbis*	Common	-
4	GOlD	*Potamopyrgus antipodarum*	-	Few
4	GOlD	Simuliidae	-	Few
4	GOlD	Tipulidae	-	Few
4	GOlD	Tubificidae	Few	Few
5	Asellus	*Asellus aquaticus*	Excessive	Common
	n/a	*Baetis rhodani*	-	Numerous
	n/a	*Elmis aenea*	-	Few
	n/a	*Gammarus*	Numerous	Dominant
	n/a	Hydrachnidae	Few	-
	n/a	*Hydroporus*	Few	-
	n/a	*Limnius volckmari*	-	Few
	n/a	*Oulimnius tuberculatus*	-	Few
	n/a	Planaria	-	Few
		Number Taxa	**11**	**16**
		SSRS	**0.8**	**5.6**
		Q-Value	**Q2**	**Q3**

Physico-Chemical Results

The physico-chemical measurements made in the field on the day of sampling (Table 4) show low dissolved oxygen – 76.7% at the upstream and 81.3% at the downstream site which border on the oxygen EQS of 80% set out in S.I. No. 77 of 2019. Conductivity values were once again greater than 700 µS/cm, which is probably an indication of catchment geology – classified as Waulsortian Limestones by the Geological Survey of Ireland.

Table 4. Physico-chemical results for Moate River, 11 October 2024.

Station	Dissolved Oxygen (DO) % Saturation	DO mg/l	Temp. °C	Conductivity µS/cm	pH
Upstream Moate WWTP	76.7	9.16	7.60	731	7.82
Downstream Moate WWTP	81.3	8.60	12.70	731	7.58

Summary

The Moate Stream is in poorer condition upstream of the WWTP than it is at the downstream site some 1.5 km downstream of the WWTP. Groundwater issues may be a factor affecting the quality of the upstream site – it is also immediately downstream of the town of Moate and a relatively intensive agricultural catchment.

Reference

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