Annual Environmental Report

2023

Tallow

D0273-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0273-01, Tallow, in Waterford 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)

- Tallow WWTP with a Plant Capacity PE of 2186, 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
TPEFF3100D0273SW001	Tallow WWTP	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report
Small Stream Risk Score Assessment

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 TALLOW WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - TALLOW 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	838	440
ortho-Phosphate (as P) - unspecified mg/l	12	6.97	2.82
Suspended Solids mg/l	12	265	154
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	699	245
pH pH units	12	6.80	6.64
Total Nitrogen mg/l	12	54	34
Total Phosphorus (as P) mg/l	12	7.44	4.48
Ammonia-Total (as N) mg/l	12	59	25
Hydraulic Capacity	N/A	3642	368

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 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 - TPEFF3100D0273SW000

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	N/A	N/A	20	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	5.63	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	25	50	N/A	12	N/A	N/A	2.94	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.41	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	12	N/A	N/A	0.430	Pass
ortho-Phosphate (as P) - unspecified mg/l	1	1.2	N/A	12	N/A	N/A	0.066	Pass

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)
Dissolved Inorganic Nitrogen (as N) mg/l	N/A	N/A	N/A	8	N/A	N/A	3.02	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	2.14	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	3.21	
Faecal coliforms no./100mls	N/A	N/A	N/A	1	N/A	N/A	260	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.159	

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 TPEFF3100D0273SW000

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	199887, 94325	RS18B050800	No	No	No	No	Good
Downstream	208024, 92283	RS18B051000	No	No	No	No	Moderate

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	RS18B050800	0.979	RS18B051000	N/A	1.50	
Ammonia-Total (as N) mg/l	RS18B050800	0.041	RS18B051000	0.054	0.065	20
ortho-Phosphate (as P) - unspecified mg/l	RS18B050800	0.029	RS18B051000	0.050	0.035	60.8
Temperature °C	RS18B050800	14	RS18B051000	15	N/A	
Nitrate (as NO3) mg/l	RS18B050800	20	RS18B051000	18	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
Total Hardness (as CaCO3) mg/l	RS18B050800	130	RS18B051000	N/A	N/A	
Suspended Solids mg/l	RS18B050800	5.16	RS18B051000	N/A	N/A	
pH pH units	RS18B050800	7.87	RS18B051000	7.79	N/A	
True Colour mg/litre Pt Co	RS18B050800	30	RS18B051000	N/A	N/A	
Alkalinity-total (as CaCO3) mg/l	RS18B050800	108	RS18B051000	N/A	N/A	
COD-Cr mg/l	RS18B050800	5.40	RS18B051000	8.95	N/A	
BOD, 5 days with Inhibition (Carbonaceo mg/l	RS18B050800	0.805	RS18B051000	1.19	N/A	
Chloride mg/l	RS18B050800	19	RS18B051000	N/A	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS18B050800	4.17	RS18B051000	4.17	N/A	
Conductivity @25°C µS/cm	RS18B050800	310	RS18B051000	N/A	N/A	
Total Nitrogen mg/l	RS18B050800	4.83	RS18B051000	4.80	N/A	
Dissolved Oxygen % Saturation	RS18B050800	81	RS18B051000	N/A	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
Dissolved Oxygen mg/l	RS18B050800	9.50	RS18B051000	8.60	N/A	
Nitrate (as N) mg/l	RS18B050800	3.85	RS18B051000	3.42	N/A	
Nitrite (as N) mg/l	RS18B050800	0.033	RS18B051000	0.030	N/A	
Dissolved Oxygen % O2	RS18B050800	101	RS18B051000	89	N/A	

Significance of Results:

The WWTP discharge was 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 & 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 - TALLOW WWTP

2.1.4.1 Treatment Efficiency Report - Tallow 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)
COD	102279	3472	97
cBOD	56958	503	99
TN	8003	550	93
TP	1044	27	97
SS	35904	964	97

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

2.1.4.2 Treatment Capacity Report Summary - Tallow 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.

Tallow WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	1476
DWF to the Treatment Plant (m^3/day)	492
Current Hydraulic Loading - annual max (m^3/day)	3642
Average Hydraulic loading to the Treatment Plant (m^3/day)	368
Organic Capacity (PE) - As Constructed	2186
Organic Capacity (PE) - Collected Load (peak week)[Note1]	1962
Organic Capacity (PE) - Remaining	224
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 - TALLOW 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)
There were no reportable incidents in 2023.			

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	0
Number of Incidents reported to the EPA via EDEN in 2023	0
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
SW003	199991,94246	Yes	Low Significance	Meeting Criteria	Unknown	31617	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)?	31617
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?	Yes
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
D0273-SIP:01	Completion of Waste Water collection system	C	30/06/2014	Yes	Works Completed		
D0273-SIP:02	Secondary waste water discharge (SW2) to be discontinued	C	30/06/2014	Yes	Works Completed		
D0273-SIP:03	Storm Water Overflows shall comply with the criteria outlined in the DoECLG "Procedures and Criteria in relation to Storm Water Overflows, 1995".	C	30/06/2014	Yes	Works Completed		
D0273-SIP:04	SW000 Primary discharge from Village septic tank, at Convent field, Townsparks East to be discontinued	A	30/06/2014	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
D0273-SIP:05	SW002 Secondary Discharge from septic tank and reedbed, serving Woodview Estate, Townparks East to be discontinued.	A	30/06/2014	Yes	Works Completed		
D0273-SIP:06	Waste Water Treatment plant to include secondary treatment, nutrient removal and ancillary works	C	30/06/2014	Yes	Works Completed		

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
D0273-01-Priority Substances Assessment	Yes	No
D0273-01-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?	N/A
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	N/A
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
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: 20/03/2024

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: *Tallow* Waste Water Treatment Plant 2023

Report to Uisce Éireann

Limnos Consultancy, January 2024

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Tallow WWTP

Introduction

Small Streams Risk Score (SSRS) assessments on the Tallow Stream upstream and downstream of the Tallow waste water treatment plant (WWTP) are outlined in this report. The assessments were made in 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.

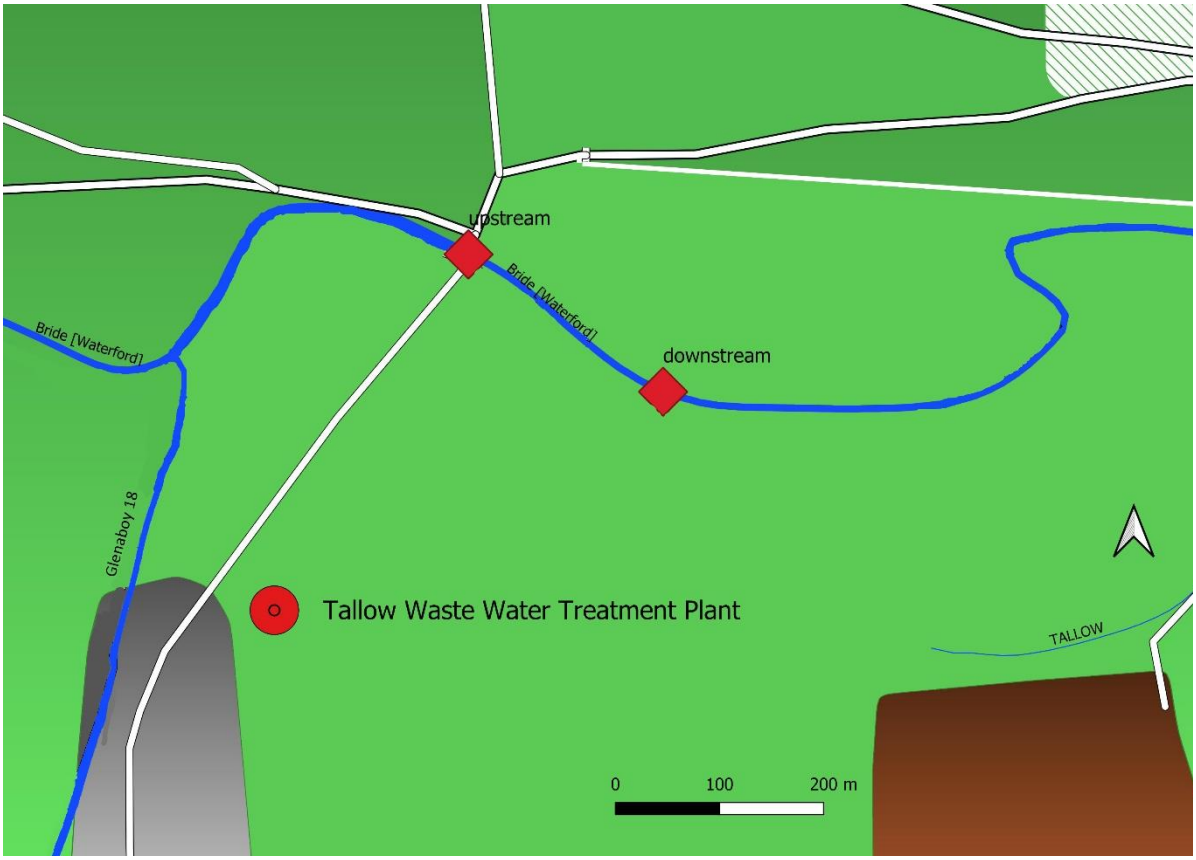

Figure 1. Location of upstream and downstream monitoring sites for Tallow WWTP. The river flows to the East.

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

Location	Tallow WWTP Upstream	Tallow WWTP Downstream
EPA Code	RS18B050800	RS18B050810
Station	Tallowbridge	250 m d/s Tallowbridge (LHS)
River	Bride (Waterford)	Bride (Waterford)
Easting	199887	200074
Northing	94325	94193

Results

Site Photographs

Figure 2 shows photographs for the upstream and downstream of the Tallow WWTP taken on 5 December 2023.

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

Figure 2. Upstream (U/S) and downstream (D/S) of Tallow 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 Tallow WWTP discharge point.

		Bride/ Tallow	**Bride/ Tallow**
		Upstream	**Downstream**
		Date of Sampling	
SSRS Group	**Taxon**	**05/12/2023**	**05/12/2023**
1, Ephem	*Ecdyonurus*	-	Few
1, Ephem	*Heptagenia*	Few	Few
1, Ephem	*Rhithrogena*	Few	Few
2, Plec	*Perla*	-	Few
3, Trich	*Hydropsyche*	Few	Common
3, Trich	*Rhyacophila*	Few	-
3, Trich	*Sericostoma personatum*	Few	-
4, GOlD	Ancylidae	-	Few
4, GOlD	*Eiseniella*	Few	Few
4, GOlD	*Limnophora*	-	Few
4, GOlD	*Lymnaea peregra*	Common	Common
4, GOlD	*Potamopyrgus antipodarum*	Few	-
4, GOlD	Simuliidae	Dominant	Few
4, GOlD	Tipulidae	Few	-
4, GOlD	Tubificidae	Few	-
5, Asellus	*Asellus*	Few	Few
n/a	*Baetis rhodani*	Common	Numerous
n/a	*Elmis aenea*	-	Few
n/a	*Gammarus*	Numerous	Dominant
n/a	Gyrinidae	-	Few
	Number Taxa	**14**	**15**
	SSRS	**4**	**8.0**
		At Risk!	**Probably not at Risk**
	Q-Value	**Q3-4**	**Q4**

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 River Bride (Waterford) is some 20 m wide at the sampling locations and is a large fifth-order river at Tallowbridge. The upstream site at Tallowbridge had 14 taxa in the sample and the downstream site had 15. These are lower than the numbers recorded at these sites in 2022 but this is thought to be due to the flood conditions in the river on the day of sampling which restricted sampling to the margins – due to the fast flow rather than a material change in the macroinvertebrate composition.

The upstream site had two Ephemeroptera taxa, *Heptagenia* and *Rhithrogena.* These are good indicators of quality. There were also three Group 3 Trichoptera present but no stoneflies. These were counterbalanced by the dominance of blackfly larvae, Simuliidae and relatively high abundance of the snail, *Radix balthica* and *Asellus* (Group 5) was also present in small numbers. These latter are indicators of poorer conditions. The resulting SSRS of 4.0 and a Q-Value of Q3-4 reflect the overall balance in the macroinvertebrate community.

The downstream site had three Group 1 Ephemeroptera taxa, *Ecdyonurus, Heptagenia* and *Rhithrogena* plus a single specimen of the Group 2 stonefly, *Perla,* which is perhaps the most pollution-sensitive macroinvertebrate of them all. *Hydropsyche* was the only representative of Group 3 Trichoptera – while it is in this pollution-sensitive group when present in high numbers it may be an indicator of poorer conditions because it is a filter feeder and large numbers indicate particulate matter in the water column. The overall balance was better than upstream with an SSRS of 8.0, i.e. “Probably not at risk”. A Q-Value of Q4 or Good Status was assigned to this downstream site.

Physico-Chemical Results

The physico-chemical measurements made in the field on the day of sampling (Table 4) showed both sites to be well-oxygenated. Conductivities and pH values are typical for the catchment geology.

Table 4. Physico-chemical results for Tallow River, December 2023.

Station	Dissolved Oxygen (DO) % Saturation	DO mg/l	Temp. °C	Conductivity µS/cm	pH
Upstream Tallow WWTP	**98.0**	**11.75**	**7.4**	**315**	**7.38**
Downstream Tallow WWTP	**97.4**	**12.09**	**6.1**	**323**	**7.31**

Summary

The condition of the Bride River at Tallowbridge had improved somewhat compared with the results in December 2022. This site has been rated Q4 or Good status on every one of 12 biological monitoring cycles from 1986 to 2021. The Tallow WWTP does not appear to have a major impact on the river based on these samples taken in December 2023.

Reference

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