Annual Environmental Report

2019

Glenties

D0210-01

CONTENTS

7 APPENDIX

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0210-01, Glenties, in Donegal 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 was no major capital or operational changes undertaken or planned in next 3 years.

1.2 TREATMENT SUMMARY

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

- GLENTIES WWTP with a Plant Capacity PE of 1600, 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
TPEFF0600D0210SW001	GLENTIES WWTP	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
Small Stream Risk Score Assessment	Yes

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 GLENTIES WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - GLENTIES 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	6	250	132.02
Total Phosphorus (as P) mg/l	4	7.32	2.15
Total Nitrogen mg/l	6	60.9	21.24
COD-Cr mg/l	6	378	172.24
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	6	218	82.57
Hydraulic Capacity	N/A	850	228

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 - TPEFF0600D0210SW000

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	6	0	0	10	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	6	0	0	1.38	Pass
Suspended Solids mg/l	25	62.5	N/A	6	0	0	3.85	Pass
pH pH units	9	9	N/A	6	0	0	7.06	Pass
Ammonia-Total (as N) mg/l	3	6	N/A	6	0	0	0.08	Pass
ortho-Phosphate (as P) - unspecified mg/l	1	2	N/A	6	0	0	0.05	Pass
Conductivity 20 C µS/cm	N/A	N/A	N/A	6	N/A	N/A	408.52	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	6	N/A	N/A	1.17	
Total Nitrogen mg/l	N/A	N/A	N/A	6	N/A	N/A	3.13	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

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 TPEFF0600D0210SW000

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 Status
Upstream	181839, 394219	RS38S010170	No	No	Yes	No	Good
Downstream	180444, 393117	RS38O040300	No	No	Yes	No	Good

Ambient results and / or additional monitoring data sets are included in the **Appendix 7.1 - Ambient monitoring summary**

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.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

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 - GLENTIES WWTP

2.1.4.1 Treatment Efficiency Report - GLENTIES 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)
SS	15042	439	97
TP	186	133	28
TN	2420	356	85
COD	19625	1139	94
cBOD	9408	158	98

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

2.1.4.2 Treatment Capacity Report Summary - GLENTIES 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.

GLENTIES WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	1200
DWF to the Treatment Plant (m^3/day)	400
Current Hydraulic Loading - annual max (m^3/day)	850
Average Hydraulic loading to the Treatment Plant (m^3/day)	228
Organic Capacity (PE) - As Constructed	1600
Organic Capacity (PE) - Collected Load (peak week)[Note1]	454
Organic Capacity (PE) - Remaining	1146
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 - GLENTIES 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 is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2019.			

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 Irish Water 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	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
There were no reportable incidents in 2019.				

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	0
Number of Incidents reported to the EPA via EDEN in 2019	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	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
TBC	TBC	No	Low	Meeting	Unknown	Unknown	Not Monitored
SW2	181825, 394173	Yes	Low	Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m^3)?	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?	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 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
There are no Specified Improvement Programmes for this Agglomeration.							

A summary of the status of any improvements identified by under Condition 5.2 is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
There are no Improvement Programmes for this Agglomeration.				

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 Table.

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 list of the various reports required for this agglomeration and a brief summary of their recommendations.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Pearl Mussel Report	Yes	2013	No	
Priority Substances Assessment	Yes	2015	No	
Small Stream Risk Score Assessment	Yes	2016	Yes	5.3

5.1 PEARL MUSSEL REPORT

The Pearl Mussel Report has been included in the 2013 AER.

5.2 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the 2015 AER.

5.3 SMALL STREAM RISK SCORE ASSESSMENT

The Small Stream Risk Score Assessment Report is included in Appendix 7.2 - Small Stream Risk Score Assessment. A summary of the findings of this report is included below.

Parameter	Value
Condition 5 Improvement Programme Reference	N/A
Does SSRS indicate discharges are posing a pollution risk?	Yes
Does improvement programme include any procedural and/or infrastructural works?	No
Downstream SSRS Water Quality Risk	Moderately Polluted
SSRS Required?	Yes
Upstream SSRS Water Quality Risk	Moderately Polluted
What is Downstream SSRS?	Q3
What is Upstream SSRS?	Q3-4

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.	No
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	Yes

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

Signed: Date: 23/04/2020

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

Katherine Walshe

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient monitoring summary
Appendix 7.2 - Small Stream Risk Score Assessment

Ambient Monitoring Summary: Glenties

Table 1: Ambient Monitoring Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	***Irish Grid Reference***	**EPA Feature Coding Tool code**	**Receiving Waters Designation (Y/N)**				**WFD Status**
			Bathing Water	**Drinking Water**	**FWPM**	**Shellfish**	
Upstream	181839 394219	RS38S010170	No	No	Yes	No	Good
Downstream	180444 393117	RS38O040300	No	No	Yes	No	Good

Table 2: Ambient Impact Assessment Table

Parameter Name	**Upstream Monitoring Point Location**	**Upstream Monitoring Point Annual Mean**	**Downstream Monitoring Point Location**	**Downstream Monitoring Point Annual Mean**	**EQS (mean)**	**%EQS**
cBOD mg/l	RS38S010170	1	RS38O040300	1.17	1.5	-11.333
Ortho-Phosphate (as P) mg/l	RS38S010170	0.025	RS38O040300	0.023	0.035	3.077
Ammonia (as N) mg/l	RS38S010170	1.019	RS38O040300	0.025	0.065	0

Municiple	Entity Name	Month	Location	Lab Ref	Date	pH	Temperature	Conductivity @ 20°C	DO	BOD	COD	Suspended Solids	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Orthophosphate	Total Nitrogen	TON	Dissolved Inorganic Nitrogen DIN	Total Phosphorus	E coli	Faecal Coliforms (E. coli)	Enterococci	Salinity	SSRS	Chlorophyll
Dungloe	Owenea	February	Glenties - Upstream	192500726	20-Feb-19	6.5	6.7	65	116.7	1	NT	<6	<0.015	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	February	Glenties - Downstream	192500729	20-Feb-19	6.5	6.8	68	116.8	1	NT	<6	0.061	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	April	Glenties - Upstream	192501471	16-Apr-19	6.9	8.1	118	111.6	1	NT	<6	<0.015	NT	NT	<0.05	<1	NT	NT	0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	April	Glenties - Downstream	192501474	16-Apr-19	6.8	8.1	116	114.9	1	NT	<6	<0.015	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	June	Glenties - Upstream	192502371	18-Jun-19	6.8	12.7	72	97.6	1	NT	<6	<0.015	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	June	Glenties - Downstream	192502374	18-Jun-19	6.9	12.8	73	97.6	1	NT	<6	<0.015	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	August	Glenties - Upstream	192503394	21-Aug-19	6.4	13.6	70	101.4	1	NT	<6	0.016	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	August	Glenties - Downstream	192503397	21-Aug-19	6.6	13.7	79	100.5	2	NT	13	0.023	NT	NT	<0.05	<1	NT	NT	0.06	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	October	Glenties - Upstream	192504425	17-Oct-19	6.8	9.5	69	96.6	1	NT	<6	0.035	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	October	Glenties - Downstream	192504428	17-Oct-19	6.8	9.1	73	98.1	1	NT	6	0.026	NT	NT	<0.05	<1	NT	NT	0.18	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	December	Glenties - Upstream	192505353	17-Dec-19	6.4	4.8	84	95.2	1	NT	15	<0.015	NT	NT	<0.05	0.58	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	December	Glenties - Downstream	192505356	17-Dec-19	6.3	4.1	80	96.4	1	NT	<6	<0.015	NT	NT	<0.05	0.98	NT	NT	<0.05	NT	NT	NT	NT	NT	NT

Cl/S' Glenbrien

River: Owenea	Code:	Date: 12/1/19	Time: 12.20
Station no. 19250481 4	**Location:** Davis Stream		**Grid (6 figure):**
	Stream Order:		**Stream flow:** Riffle / Riffle/Glide / Slow flow

Field Chemistry	
DO%	95.7
DO mg/l	
Temp (°C)	5.6
Conductivity	
pH	6.46
Bank width (cm)	700
Wet width (cm)	680
Avg Depth (cm)	50
Staff gauge	

Velocity	Colour
Torrential	None
Fast	Slight
Moderate	Moderate
Slow	High
Very slow	

Clarity	Discharge
Very clear	Flood
Clear	Normal
Slightly turbid	Low
Highly turbid	Very Low
	Dry
	Recent Flood

Modifications: Y/N Canalised-widened-bank erosion-arterial drainage

Dominant Types:
Bedrock
Boulder (>128mm)
Cobble (32-128mm)
Gravel (8-32mm)
Fine Gravel (2-8mm)
Sand (0.25-2mm)
Silt (<0.25mm)

Slope: Low – Medium – High – Very High

Geology: Calcareous-Siliceous-Mixed

Substratum Condition: Calcareous-Compacted-Loose - Normal

Substratum: Stoney bottom-Muddy bottom-Mud over stones

Degree of siltation: Clear-Slight-Moderate-Heavy

Depth of mud: None / <1cm: 1-5cm: 5-10cm: >10cm

Litter: None – Present – Moderate - Abundant

Filamentous Algae: None – Present – Moderate - Abundant

Main land use u/s:
Pasture, Bog, Forestry, Urban, Tillage, Other

Sample retained: Y / N

Stream flow: Riffle / Riffle/Glide / Slow flow

Shading: High – Moderate – Low – None

Cattle access Y: upstream – downstream or N

Photo: Y / N

Sewage Fungus: None – Present – Moderate - Abundant

Sampled in Minutes:
Pond net x 10
Stone wash x 10
Weed sweep x

General Comments:

Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:
Group 1 = Ephemeroptera (3-tails) – note that tails may be damaged during sampling
Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling
Group 3 = Trichoptera
Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera)
Group 5 = *Asellus*
Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab)

Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

Ephemeroptera:

Ecdyonurus Ab	1
Rhithrogena Ab	10
Heptagenia Ab	
Ephemerella Ab	
Caenis Ab	
Paraleptophlebia Ab	
Ephemera danica Ab	
Other Ephem Ab	
Total no. of taxa	2
Total Relative Abundance	11

Plecoptera:

Leuctra Ab	1
Isoperla Ab	
Protonemura Ab	
Amphinemura Ab	
Perla Ab	
Dinocras Ab	
Other Plecop Ab	
Other Plecop Ab	
Total no. of Taxa	1
Total Relative Abundance	1

Trichoptera:

Hydropsychidae Ab	1
Polycentropodidae Ab	1
Rhyacophila Ab	
Philopotamidae Ab	
Limnephilidae Ab	
Sericostomatidae Ab	
Glossosomatidae Ab	2
Lepidostomatidae Ab	
Other Trichoptera Ab	
Total no. of Taxa	3
Total Relative Abundance	4

G.OL.D:

Lymnaea (G) Ab	
Potamopyrgus (G) Ab	
Planorbis (G) Ab	
Ancylus (G) Ab	
Physa (G) Ab	
Lumbriculus (Ol) Ab	
Eiseniella (Ol) Ab	
Tubificidae (Ol) Ab	
Total no. of Taxa	1

Chironomidae (D) Ab	
Chironomus (D) Ab	
Simuliidae (D) Ab	6
Dicranota (D) Ab	
Tipulidae (D) Ab	
Ceratopogonidae (D) Ab	
Other GOLD Ab	
Total Relative Abundance	6

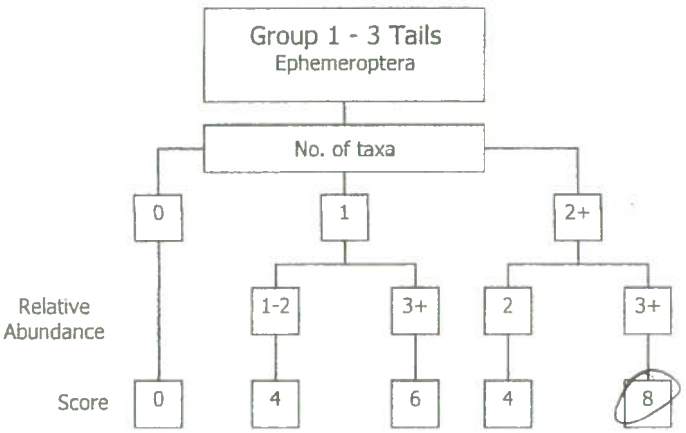
***Asellus*:**

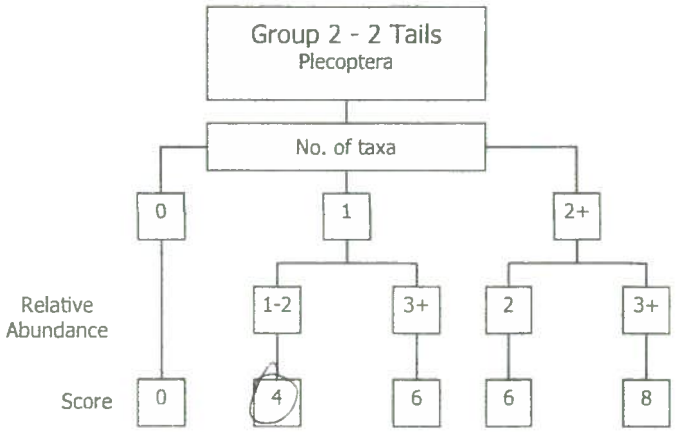
Absent	✓
Few/Low	
Common/ Numerous	

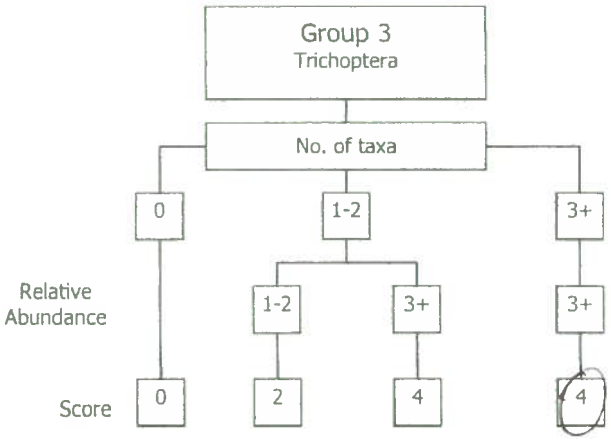
NOTE: *Asellus* must be recorded as absent if none are found

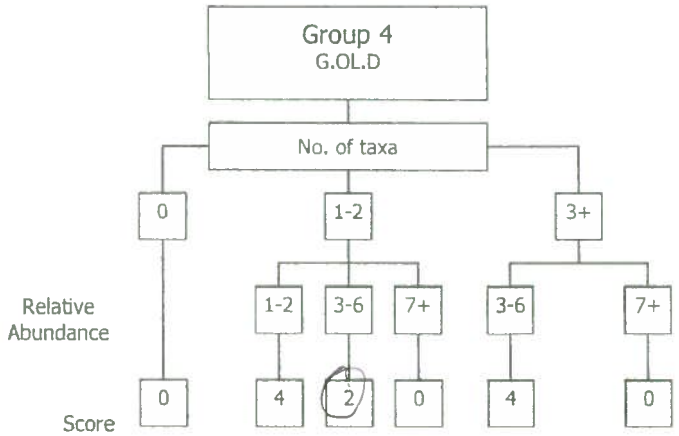
NOTE *Baetis* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Baetis* is not counted in SSRS. See Appendix B for more details on how to identify *Baetis*.

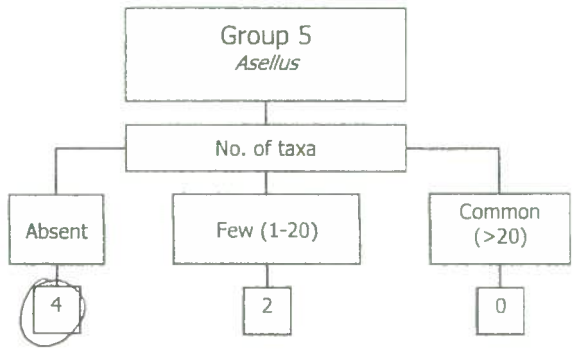
Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from ***each macroinvertebrate group*** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.











Step 2

a) Index Score Group 1	8
b) Index Score Group 2	4
c) Index Score Group 3	4
d) Index Score Group 4	2
e) Index Score Group 5	4

Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) sum (a+b+c+d+e)	22	Average Index Score (AIS) TIS/5 (5 for 5 groups)	4.4	**SSR Score** (AIS x 2)	8.8

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk	✓	> 6.5 – 7.25 Indeterminate Stream may be at risk		<6.5 Stream at risk	

Surveyor (signed): Don Smith Name (print): DON SMITH Date: 12 / 11 / 2019

River:	Code:	Date:	Time:
Station no. 19250481 3	**Location:** Upstream		**Grid (6 figure):**
	Stream Order:		**Stream flow:** Riffle / Riffle/Glide / Slow flow

Field Chemistry	
DO%	96%
DO mg/l	
Temp (°C)	5.6 5.7
Conductivity	6.62
pH	6.46
Bank width (cm)	1000
Wet width (cm)	800
Avg Depth (cm)	75
Staff gauge	

Velocity	Colour
Torrential	None
Fast	Slight
Moderate	Moderate
Slow	High
Very slow	

Clarity	Discharge
Very clear	Flood
Clear	Normal
Slightly turbid	Low
Highly turbid	Very Low
	Dry
	Recent Flood

Modifications: Y/N Canalised-widened-bank erosion-arterial drainage

Dominant Types:
Bedrock
Boulder (>128mm)
Cobble (32-128mm)
Gravel (8-32mm)
Fine Gravel (2-8mm)
Sand (0.25-2mm)
Silt (<0.25mm)

Slope: Low – Medium – High – Very High

Geology: Calcareous-Siliceous-Mixed

Substratum Condition: Calcareous-Compacted-Loose - Normal

Substratum: Stoney bottom-Muddy bottom-Mud over stones

Degree of siltation: Clean-Slight-Moderate-Heavy

Depth of mud: None: <1cm: 1-5cm: 5-10cm: >10cm

Litter: None – Present – Moderate - Abundant

Filamentous Algae:
None – Present – Moderate - Abundant

Main land use u/s:

Pasture	Urban
Bog	Tillage
Forestry	Other

Sample retained: Y / N

Shading: High – Moderate – Low - None

Cattle access Y: upstream – downstream or N

Photo: Y / N

Sewage Fungus:
None – Present – Moderate - Abundant

Sampled in Minutes:
Pond net x 10
Stone wash x 10
Weed sweep x

General Comments:

Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:
- Group 1 = Ephemeroptera (3-tails) – note that tails may be damaged during sampling
- Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling
- Group 3 = Trichoptera
- Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera)
- Group 5 = *Asellus*

Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab)

Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

Ephemeroptera:

Ecdyonurus Ab	1
Rhithrogena Ab	3 6
Heptagenia Ab	
Ephemerella Ab	
Caenis Ab	
Paraleptophlebia Ab	
Ephemera danica Ab	
Other Ephem Ab	
Total no. of taxa	2
Total Relative Abundance	7

Plecoptera:

Leuctra Ab	
Isoperla Ab	
Protonemura Ab	1
Amphinemura Ab	
Perla Ab	
Dinocras Ab	
Other Plecop Ab	
Other Plecop Ab	
Total no. of Taxa	1
Total Relative Abundance	1

Trichoptera:

Hydropsychidae Ab	
Polycentropodidae Ab	
Rhyacophila Ab	1
Philopotamidae Ab	
Limnephilidae Ab	
Sericostomatidae Ab	
Glossosomatidae Ab	2
Lepidostomatidae Ab	
Other Trichoptera Ab	
Total no. of Taxa	2
Total Relative Abundance	3

G.OL.D:

Lymnaea (G) Ab	
Potamopyrgus (G) Ab	1
Planorbis (G) Ab	
Ancylus (G) Ab	
Physa (G) Ab	
Lumbriculus (Ol) Ab	
Eiseniella (Ol) Ab	1
Tubificidae (Ol) Ab	
Total no. of Taxa	4
Total Relative Abundance	7

Chironomidae (D) Ab	
Chironomus (D) Ab	
Simuliidae (D) Ab	1
Dicranota (D) Ab	
Tipulidae (D) Ab	4
Ceratopogonidae (D) Ab	
Other GOLD Ab	

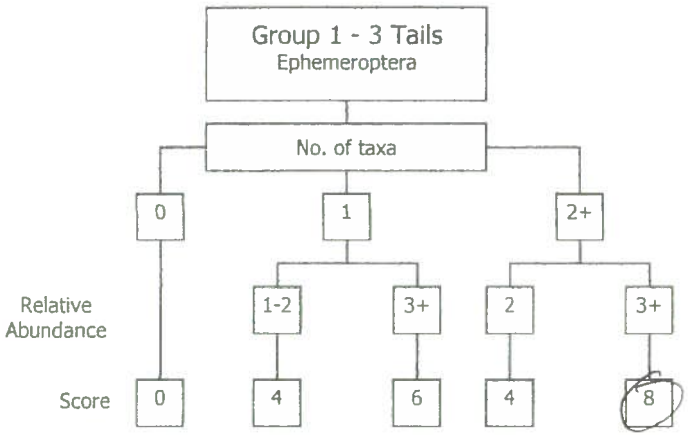
***Asellus*:**

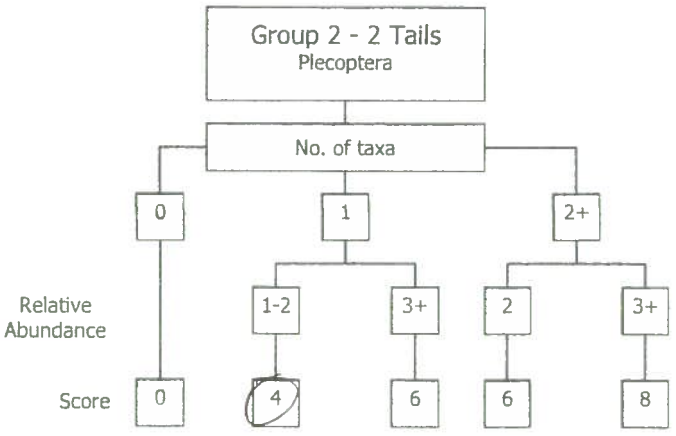
Absent	✓
Few/Low	
Common/ Numerous	

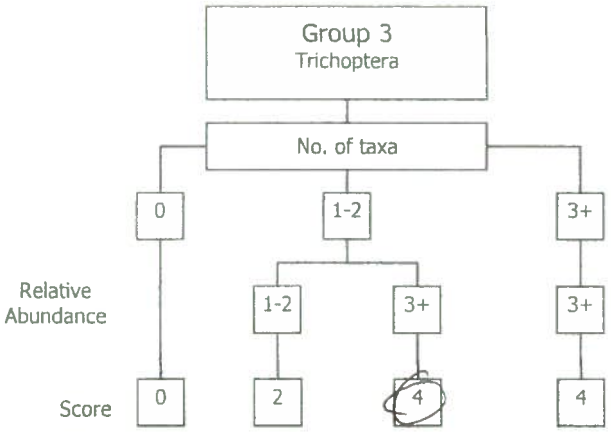
NOTE: *Asellus* must be recorded as absent if none are found

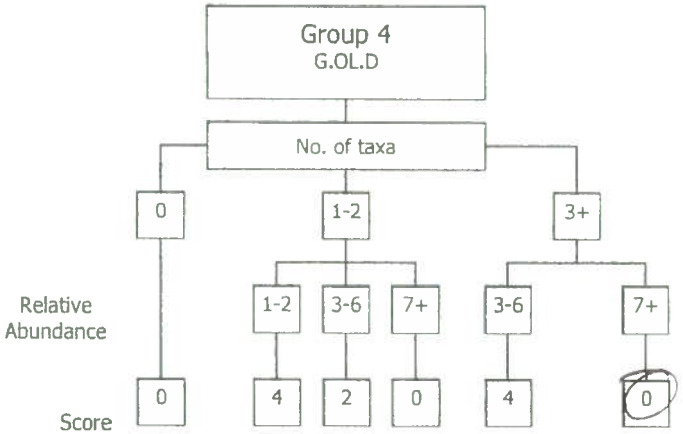
NOTE *Baetis* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Baetis* is not counted in SSRS. See Appendix B for more details on how to identify *Baetis*.

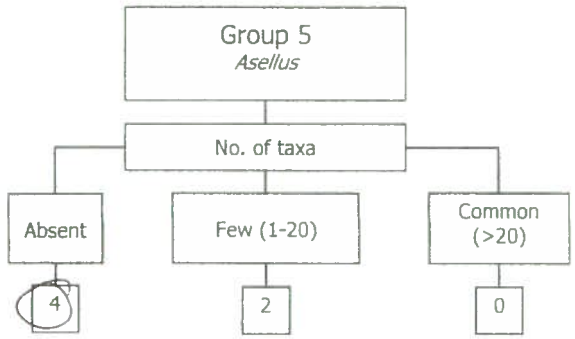
Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from ***each macroinvertebrate group*** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.











Step 2

a) Index Score Group 1	8
b) Index Score Group 2	4
c) Index Score Group 3	4
d) Index Score Group 4	0
e) Index Score Group 5	4

Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) sum (a+b+c+d+e)	20	Average Index Score (AIS) TIS/5 (5 for 5 groups)	4	**SSR Score** (AIS x 2)	8

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk	✓	> 6.5 – 7.25 Indeterminate Stream may be at risk		<6.5 Stream at risk	

Surveyor (signed): Don Smith Name (print): Don Smith Date: 12 / 11 / 19.