

# Annual Environmental Report

2020



Glenties

D0210-01

## **CONTENTS**

### **1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER**

- 1.1 ANNUAL STATEMENT OF MEASURES
- 1.2 TREATMENT SUMMARY
- 1.3 ELV OVERVIEW
- 1.4 LICENSE SPECIFIC REPORT INCLUDED IN AER

### **2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY**

- 2.1 GLENTIES WWTP - 2020 - TREATED DISCHARGE
  - 2.1.1 INFLUENT SUMMARY - GLENTIES WWTP - 2020
  - 2.1.2 EFFLUENT MONITORING SUMMARY - GLENTIES WWTP - 2020 -
  - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
  - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR GLENTIES WWTP - 2020
  - 2.1.5 SLUDGE/OTHER INPUTS TO GLENTIES WWTP - 2020

### **3 COMPLAINTS AND INCIDENTS**

- 3.1 COMPLAINTS SUMMARY
- 3.2 REPORTED INCIDENTS SUMMARY
  - 3.2.1 SUMMARY OF INCIDENTS
  - 3.2.2 SUMMARY OF OVERALL INCIDENTS

### **4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS**

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
  - 4.1.1 SWO IDENTIFICATION AND INSPECTION SUMMARY REPORT
- 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS
  - 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY
  - 4.2.2 IMPROVEMENT PROGRAMME SUMMARY
  - 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

### **5 LICENCE SPECIFIC REPORTS**

- 5.1 PEARL MUSSEL REPORT
- 5.2 PRIORITY SUBSTANCES ASSESSMENT
- 5.3 SMALL STREAM RISK SCORE ASSESSMENT

### **6 CERTIFICATION AND SIGN OFF**

6.1 SUMMARY OF AER CONTENTS

**7 APPENDIX**

7.1 AMBIENT MONITORING SUMMARY

7.2 SMALL STREAM RISK SCORE ASSESSMENT

Rev 1 Note: Section 4.1.1 Question 1 answer changed to "Unknown". Approved 12/07/2021

# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 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.

## 1.2 TREATMENT SUMMARY

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

- GLENTIES WWTP - 2020 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 - 2020	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 - 2020 - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - GLENTIES WWTP - 2020

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
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	6	346	82.54
<b>Total Nitrogen mg/l</b>	6	71.2	19.78
<b>Suspended Solids mg/l</b>	6	244	46.44
<b>Total Phosphorus (as P) mg/l</b>	6	9.02	2.26
<b>COD-Cr mg/l</b>	6	571	163.29
<b>Hydraulic Capacity</b>	N/A	598	282

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'.

## 2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0600D0210SW001

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)
<b>COD-Cr mg/l</b>	125	250	N/A	6	N/A	N/A	2.43	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	25	50	N/A	6	N/A	N/A	1.23	Pass
<b>Suspended Solids mg/l</b>	25	62.5	N/A	6	N/A	N/A	0.34	Pass
<b>pH pH units</b>	9	9	N/A	6	N/A	N/A	7.02	Pass
<b>Ammonia-Total (as N) mg/l</b>	3	6	N/A	6	N/A	N/A	0.18	Pass
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	1	2	N/A	6	N/A	N/A	0.23	Pass
<b>Total Nitrogen mg/l</b>	N/A	N/A	N/A	6	N/A	N/A	8.53	
<b>Conductivity @20°C µS/cm</b>	N/A	N/A	N/A	6	N/A	N/A	406.44	
<b>Total Phosphorus (as P) mg/l</b>	N/A	N/A	N/A	6	N/A	N/A	0.21	

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 TPEFF0600D0210SW001

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

The results for 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 - 2020

### 2.1.4.1 Treatment Efficiency Report - GLENTIES WWTP - 2020

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	2035	923	55
COD	16797	791	95
TP	233	22	90
SS	4777	220	95
cBOD	8491	134	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 - 2020

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 - 2020	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	1200

GLENTIES WWTP - 2020	
DWF to the Treatment Plant (m <sup>3</sup> /day)	400
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	598
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	282
Organic Capacity (PE) - As Constructed	1600
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	459
Organic Capacity (PE) - Remaining	1141
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 - 2020

'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)
<b>There is no Sludge and Other Input data for the Treatment Plant included in the AER.</b>							

## 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
<b>There were no relevant environmental complaints in 2020.</b>			

### 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)
<b>There were no reportable incidents in 2020.</b>				

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	0
Number of Incidents reported to the EPA via EDEN in 2020	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 2020 (No. of events)	Total volume discharged in 2020 (m3)	Monitoring Status
SW2	181815, 394157	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	181829, 394403	No	Unknown	Not yet Assessed	Unknown	0	Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in 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?	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
<b>D0210-SIP:02</b>	Provision of storm water holding tank at proposed main pumping station (location of existing septic tank)	C	31/12/2014	Yes	Works Completed		
<b>D0210-SIP:03</b>	SW000 located at Gortnamucklagh townland (at rear of church) to be discontinued	A	31/12/2014	Yes	Works Completed		
<b>D0210-SIP:01</b>	Provision of new Waste Water Treatment Plant and ancillary works	C	31/12/2014	Yes	Works Completed		

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
<b>There are no Improvements Programme for this Agglomeration.</b>				

## 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.

5.a Licence Specific Reports Summary Table

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

### 5.1 PEARL MUSSEL REPORT

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

### 5.2 PRIORITY SUBSTANCES ASSESSMENT

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



## 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?	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	Yes

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

Signed:   Date: 12/07/2021

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

<b>Appendix</b>
<b>Appendix 7.1 - Ambient monitoring summary</b>
<b>Appendix 7.2 - Small Stream Risk Score Assessment</b>

Municipality	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	Enterococci	Faecal Coliforms	Chlorophyll	Salinity	SSRS
Dungloe	Owenea	February	Glenies - Upstream	202500675	27-Feb-20	6.6	4.7	101	96	1	NT	<6	0.022	NT	NT	<0.05	1.02	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	February	Glenies - Downstream	202500678	27-Feb-20	6.6	3.5	105	96.4	1	NT	<6	0.006	NT	NT	<0.05	1.19	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	March	Glenies - Upstream	202501015	23-Mar-20	6.9	6.6	107	101.8	<1	NT	<6	<0.015	NT	NT	<0.05	0.22	NT	NT	0.02	NT	NT	NT	NT	NT	10.4 >7.25 Probably not at risk
Dungloe	Owenea	March	Glenies - Downstream	202501016	23-Mar-20	6.8	6.9	115	102.4	<1	NT	<6	<0.015	NT	NT	<0.05	0.64	NT	NT	0.02	NT	NT	NT	NT	NT	9.6 >7.25 Probably not at risk
Dungloe	Owenea	May	Glenies - Upstream	202501239	20-May-20	7.2	15.1	127	104.3	1	NT	<6	<0.015	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	May	Glenies - Downstream	202501242	20-May-20	7.2	14.9	133	109.3	1	NT	<6	<0.015	NT	NT	<0.05	<1	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	June	Glenies - Upstream	202501536	18-Jun-20	7.1	15.1	119	93.9	1	NT	<6	<0.015	NT	NT	0.093	0.67	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	June	Glenies - Downstream	202501539	18-Jun-20	7	95.6	126	95.6	2	NT	<6	<0.015	NT	NT	<0.05	0.33	NT	NT	0.02	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	August	Glenies - Upstream	202502531	27-Aug-20	6.7	14.3	75	90.3	1	NT	<6	0.022	NT	NT	<0.05	1.21	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	August	Glenies - Downstream	202502534	27-Aug-20	6.8	14	68	90.7	1	1	<6	<0.015	NT	NT	<0.05	1.13	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	October	Glenies - Upstream	202503194	20-Oct-20	6.7	10.7	45	93.2	2	NT	<6	<0.015	NT	NT	<0.05	0.78	NT	NT	<0.05	NT	NT	NT	NT	NT	NT
Dungloe	Owenea	October	Glenies - Downstream	202503197	20-Oct-20	6.7	10.6	48	92.9	1	NT	<6	0.015	NT	NT	<0.05	0.59	NT	NT	<0.05	NT	NT	NT	NT	NT	NT

River: <u>Owenea (Glenties)</u>		Code:	Date: <u>23/03/2020</u>	Time: <u>12:20</u>
Station no. <u>202501015</u>		Location: <u>Upstream</u>		Grid (6 figure):
Field Chemistry		Stream Order:		Stream flow:
DO%	<u>101.8</u>	Modifications: Y/N Canalised-widened-bank erosion-arterial drainage		<u>Riffle</u>
DO mg/l	<u>12.55</u>	Dominant Types:		Riffle/Glide
Temp (°C)	<u>6.6°C</u>	Bedrock		Slow flow
Conductivity	<u>107.4</u>	Boulder (>128mm)		
pH	<u>6.87</u>	<u>Cobble</u> (32-128mm)		
Bank width (cm)	<u>1000</u>	<u>Gravel</u> (8-32mm)		
Wet width (cm)	<u>800</u>	Fine Gravel (2-8mm)		
Avg Depth (cm)	<u>750</u>	Sand (0.25-2mm)		
Staff gauge		Silt (<0.25mm)		
Velocity	Colour	Slope: Low - <u>Medium</u> - High - Very High		Shading: High - Moderate - <u>Low</u> - None
Torrential	<u>None</u>	Geology: Calcareous - <u>Siliceous</u> - Mixed		Cattle access Y: upstream - downstream of <u>N</u>
Fast	<u>Slight</u>	Substratum Condition: Calcareous-Compacted		Photo: Y / <u>N</u>
<u>Moderate</u>	Moderate	Loose <u>Normal</u>		
Slow	High	Substratum:		
Very slow		<u>Stoney bottom</u> - Muddy bottom - Mud over stones		
Clarity	Discharge	Degree of siltation: <u>Clean</u> - Slight - Moderate - Heavy		
Very clear	Flood	Depth of mud: <u>None</u> < 1cm 1-5cm: 5-10m. > 10cm		
<u>Clear</u>	<u>Normal</u>	Litter: <u>None</u> - Present - Moderate - Abundant		
Slightly turbid	Low	Filamentous Algae:		
Highly turbid	Very Low	None - Present - Moderate - Abundant		Sewage Fungus:
	Dry	Main land use u/s:		None - Present - Moderate - Abundant
	Recent Flood	<u>Pasture</u>	Urban	Sample retained:
		Bog	Tillage	Y / N
		Forestry	Other	
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.O.L.D (Gastropoda, Oligochaeta and Diptera)
- Group 5 = *Asellus*

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

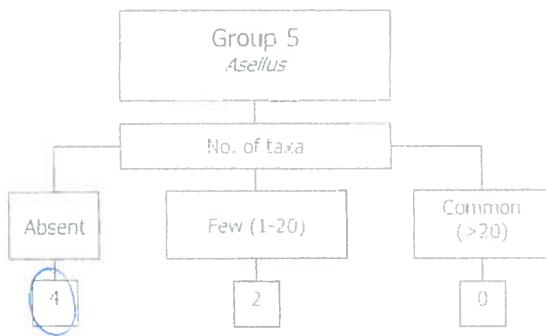
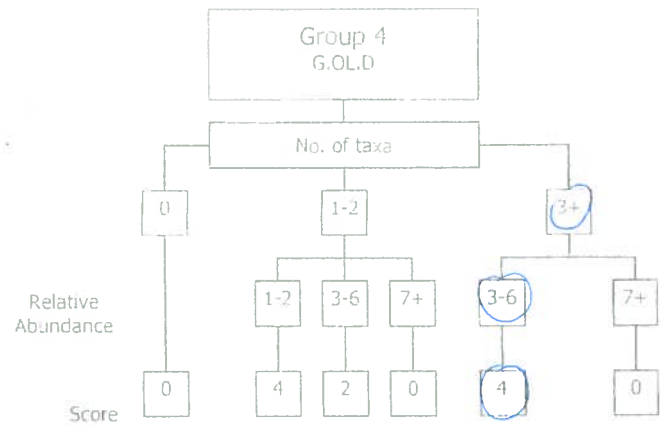
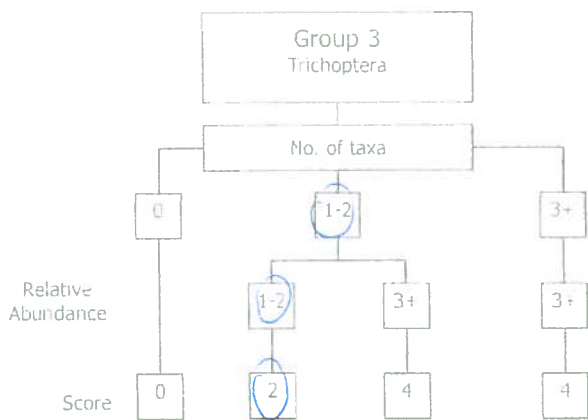
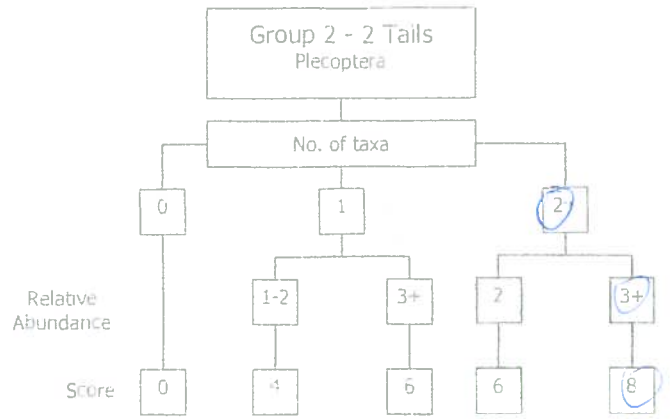
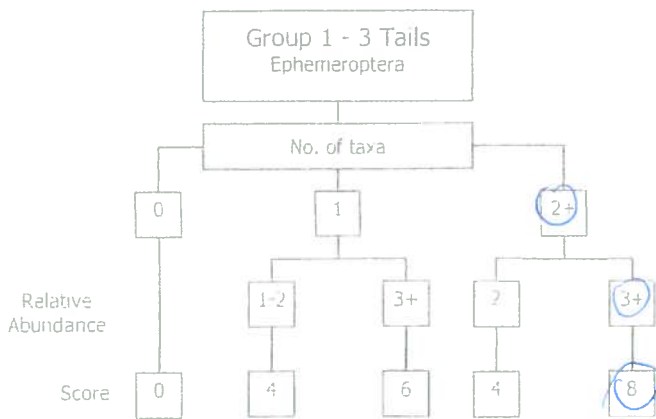
Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

Ephemeroptera:		Plecoptera:	
	<i>Ecdyonurus</i> Ab <u>2</u>		<i>Leuctra</i> Ab <u>1</u>
	<i>Rhythrogena</i> Ab <u>3</u>		<i>Isoperla</i> Ab
	<i>Heptagenia</i> Ab		<i>Protonemura</i> Ab <u>2</u>
	<i>Ephemerella</i> Ab		<i>Aniphnemura</i> Ab
	<i>Caenis</i> Ab		<i>Perla</i> Ab
	<i>Paraleptophlebia</i> Ab		<i>Dinocras</i> Ab <u>1</u>
	<i>Ephemerella danica</i> Ab		Other Plecop Ab
	Other Ephem Ab		Other Plecop Ab
Total no. of taxa <u>2</u>	Total Relative Abundance <u>5</u>	Total no. of Taxa <u>3</u>	Total Relative Abundance <u>4</u>
Trichoptera:		G.O.L.D:	
	Hydropsychidae Ab	<i>Lynnaea</i> (G) Ab	Chironomidae (D) Ab
	Polycentropodidae Ab	<i>Potamopyrgus</i> (G) Ab	<i>Chironomus</i> (D) Ab
	<i>Rhyacophila</i> Ab <u>1</u>	<i>Planorbis</i> (G) Ab	Simuliidae (D) Ab <u>2</u>
	Philopotamidae Ab	<i>Ancylus</i> (G) Ab	<i>Dicranota</i> (D) Ab
	Limnephilidae Ab	<i>Physa</i> (G) Ab	Tipulidae (D) Ab
	Sericostomatidae Ab	<i>Lumbriculus</i> (OI) Ab	Ceratopogonidae (D) Ab <u>2</u>
	Glossosomatidae Ab	<i>Eiseniella</i> (OI) Ab	Other GOLD Ab
	Lepidostomatidae Ab	Tubificidae (OI) Ab <u>2</u>	
	Other Trichoptera Ab		
Total no. of Taxa <u>1</u>	Total Relative Abundance <u>1</u>	Total no. of Taxa <u>3</u>	Total Relative Abundance <u>6</u>

**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	8
c) Index Score Group 3	2
d) Index Score Group 4	4
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) **26**

Average Index Score (AIS) TIS/5 (5 for 5 groups) **5.2**

SSR Score (AIS x 2) **10.4**

**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): B. Gault Name (print): Bernadette Gault Date: 23 / 03 / 2020

River: <u>Owena (Glenferus)</u>	Code:	Date: <u>23/03/2020</u>	Time: <u>12.45</u>
Station no. <u>202501016</u>	Location: <u>Downstream</u>	Grid (6 figure):	
Field Chemistry		Stream Order:	
DO%	<u>102.4</u>	Stream flow:	
DO mg/l	<u>12.54</u>	<u>Riffle</u>	
Temp (°C)	<u>6.9°C</u>	<u>Riffle/Glide</u>	
Conductivity	<u>115.0</u>	<u>Slow flow</u>	
pH	<u>6.77</u>		
Bank width (cm)	<u>700</u>		
Wet width (cm)	<u>680</u>		
Avg Depth (cm)	<u>50</u>		
Staff gauge			
Velocity	Colour	Shading: High - Moderate - <u>Low</u> - None	
Torrential	<u>None</u>	Cattle access Y: upstream - downstream or <u>N</u>	
Fast	<u>Slight</u>	Photo: Y / <u>N</u>	
<u>Moderate</u>	Moderate	Sewage Fungus:	
Slow	High	<u>None</u> , Present - Moderate - Abundant	
Very slow		Sampled in Minutes: <u>10 mins</u>	
Clarity	Discharge	Pond net x <u>3</u>	
Very clear	Flood	Stone wash x <u>3</u>	
<u>Clear</u>	<u>Normal</u>	Weed sweep x	
Slightly turbid	Low		
Highly turbid	Very Low		
	Dry		
	Recent Flood		
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.O.L.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

<b>Ephemeroptera:</b>	<i>Ecdyonurus</i> Ab <u>2</u>	<b>Plecoptera:</b>	<i>Leuctra</i> Ab <u>2</u>
	<i>Rhythrogena</i> Ab <u>3</u>		<i>Isoperla</i> Ab
	<i>Heptagenia</i> Ab		<i>Protonemura</i> Ab <u>3</u>
	<i>Ephemarelia</i> Ab		<i>Amphinemura</i> Ab
	<i>Caenis</i> Ab		<i>Perla</i> Ab
	<i>Paraleptophlebia</i> Ab		<i>Dinocras</i> Ab
	<i>Ephemera danica</i> Ab		Other Plecop Ab
	Other Ephem Ab		Other Plecop Ab

Total no. of taxa <u>2</u>	Total Relative Abundance <u>5</u>	Total no. of Taxa <u>2</u>	Total Relative Abundance <u>5</u>
<b>Trichoptera:</b>	<b>G.O.L.D:</b>	<b>Chironomidae (D) Ab</b>	<b>Asellus</b>
<i>Hydropsychidae</i> Ab <u>1</u>	<i>Lymnaea</i> (G) Ab	<i>Chironomus</i> (D) Ab	Absent
<i>Polycentropodidae</i> Ab	<i>Potamopyrgus</i> (G) Ab	<i>Simuliidae</i> (D) Ab	Few/Low
<i>Rhyacophila</i> Ab	<i>Planorbis</i> (G) Ab	<i>Dicranota</i> (D) Ab <u>2</u>	Common/ Numerous
<i>Philopotamidae</i> Ab	<i>Ancyclus</i> (G) Ab	<i>Tipulidae</i> (D) Ab	
<i>Limnephilidae</i> Ab	<i>Physa</i> (G) Ab	<i>Ceratopogonidae</i> (D) Ab	
<i>Sericostomatidae</i> Ab	<i>Lumbriculus</i> (O) Ab	Other GOLD Ab	
<i>Glossosomatidae</i> Ab <u>1</u>	<i>Eiseniella</i> (O) Ab		
<i>Lepidostomatidae</i> Ab	<i>Tubificidae</i> (O) Ab <u>1</u>		
Other Trichoptera Ab			

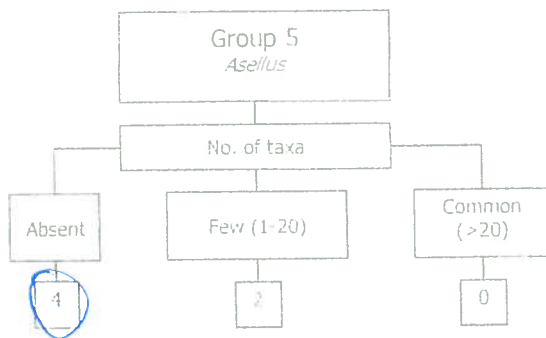
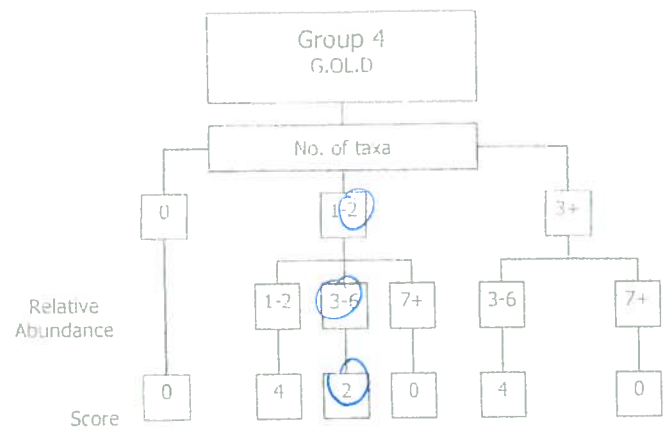
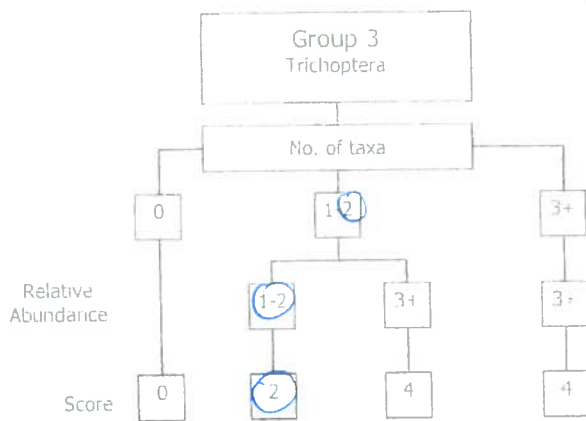
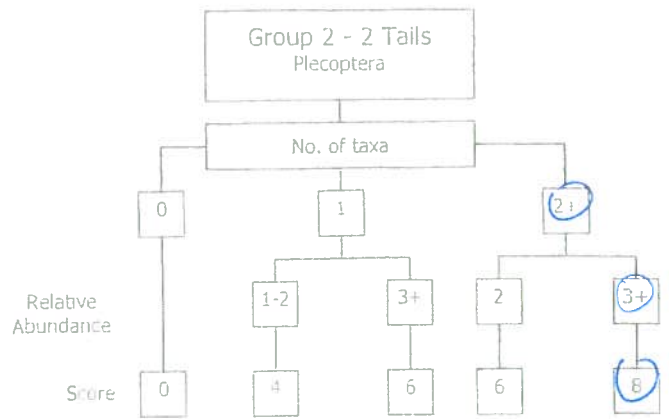
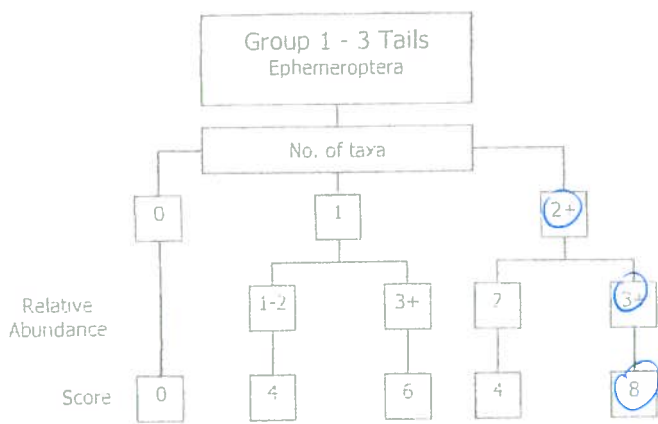
Total no. of Taxa <u>2</u>	Total Relative Abundance <u>2</u>	Total no. of Taxa <u>2</u>	Total Relative Abundance <u>3</u>
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SSR Score (AIS x 2)

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

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< 6.5  Stream at risk

Surveyor (signed): B. Gault Name (print): BERWADETTE GAULT Date: 23 / 03 / 2020