Annual Environmental Report

2022

Milford

D0342-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0342-01, Milford, 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.

Milford is on the Irish Water Capital Investment Programme with work to start this year

1.2 TREATMENT SUMMARY

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

- Milford (Donegal) WWTP with a Plant Capacity PE of 920, the treatment type is 2 - Secondary treatment .

1.3 ELV OVERVIEW

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

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF0600D0342SW001	Milford (Donegal) WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceo mg/l COD-Cr mg/l ortho-Phosphate (as P) - unspecified mg/l Suspended Solids mg/l

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report
Small Stream Risk Score Assessment

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 MILFORD (DONEGAL) WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - MILFORD (DONEGAL) 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
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	208	107
Ammonia-Total (as N) mg/l	12	71	27
pH pH units	12	8.10	7.51
ortho-Phosphate (as P) - unspecified mg/l	12	5.64	2.99
COD-Cr mg/l	12	450	201
Total Nitrogen mg/l	12	72	34
Total Phosphorus (as P) mg/l	12	8.94	4.11
Suspended Solids mg/l	12	181	87
Hydraulic Capacity	N/A	3272	1498

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

Significance of Results:

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

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0600D0342SW001

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	2	1	66	Fail
Suspended Solids mg/l	25	62.5	N/A	12	4	N/A	17	Fail
BOD, 5 days with Inhibition (Carbonaceo mg/l	10	20	N/A	12	6	5	18	Fail
pH pH units	9	9	N/A	12	N/A	N/A	7.23	Pass
Ammonia-Total (as N) mg/l	0.65	1.3	N/A	12	11	11	15	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.34	0.68	N/A	12	10	10	1.33	Fail
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	22	

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)
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	492	
Nitrate (as N) mg/l	N/A	N/A	N/A	1	N/A	N/A	0.344	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	1.68	

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):

Plant is over Loaded

Significance of Results:

The Parameters that exceeded are Ammonia, cBOD, COD, orthophosphate and suspended solids

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0600D0342SW001

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	219277, 426509	RS39M010150	No	No	No	No	Poor
Downstream	218606, 424918	RS39M010300	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	RS39M010150	1.18	RS39M010300	2.46	1.50	85.2
Ammonia-Total (as N) mg/l	RS39M010150	0.104	RS39M010300	1.27	0.065	1792.3
ortho-Phosphate (as P) - unspecified mg/l	RS39M010150	0.046	RS39M010300	0.145	0.035	283.1
pH pH units	RS39M010150	7.56	RS39M010300	7.24	N/A	
Nitrate (as N) mg/l	RS39M010150	0.850	RS39M010300	0.592	N/A	
Temperature °C	RS39M010150	11	RS39M010300	11	N/A	
Dissolved Oxygen % Saturation	RS39M010150	92	RS39M010300	62	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 Phosphorus (as P) mg/l	RS39M010150	0.052	RS39M010300	0.192	N/A	
Nitrite (as N) mg/l	RS39M010150	9.00	RS39M010300	N/A	N/A	
Total Nitrogen mg/l	RS39M010150	1.55	RS39M010300	2.95	N/A	
Suspended Solids mg/l	RS39M010150	4.68	RS39M010300	15	N/A	
Conductivity @20°C µS/cm	RS39M010150	285	RS39M010300	289	N/A	

Significance of Results:

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

The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. 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-Total (as N) mg/l, BOD - 5 days (Total) mg/l and ortho-Phosphate (as P) - unspecified mg/l, concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it is 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 - MILFORD (DONEGAL) WWTP

2.1.4.1 Treatment Efficiency Report - Milford (Donegal) WWTP

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

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

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TN	18761	12084	36
COD	109907	36252	67
TP	2248	920	59
cBOD	58725	10013	83
SS	47800	9526	80

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

2.1.4.2 Treatment Capacity Report Summary - Milford (Donegal) 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.

Milford (Donegal) WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	621
DWF to the Treatment Plant (m^3/day)	207
Current Hydraulic Loading - annual max (m^3/day)	3272

Milford (Donegal) WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	1498
Organic Capacity (PE) - As Constructed	920
Organic Capacity (PE) - Collected Load (peak week)[Note1]	1760
Organic Capacity (PE) - Remaining	0
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

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

2.1.5 SLUDGE / OTHER INPUTS - MILFORD (DONEGAL) 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 2022.			

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	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Breach of ELV	WWTP operating above capacity	1	Yes	No
Other	Shock load to the WWTP	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	2
Number of Incidents reported to the EPA via EDEN in 2022	2
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 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
SW2	219194,426466	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW3	219289,426522	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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

SWO Summary	
How much sewage was discharged via monitored 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 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
D0342-SIP:01	Infiltration programme - diversion of storm water from the sewer collection network	C	31/12/2012	Yes	Not Started		No works identified. Infiltraton levels to be reviewed post WWTP upgrade.
D0342-SIP:02	Installation of storm water storage tank	C	31/12/2017	Yes	At Planning Stage	2025	
D0342-SIP:03	Redesign WWTP inlet works for better flow control	C	31/12/2012	Yes	Works Completed		
D0342-SIP:04	Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoECLG 'Procedures and Criteria in relation to Storm Water overflows, 1995'	C	31/12/2017	Yes	At Planning Stage		2024+

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
D0342-SIP:05	WWTP expansion and upgrade to provide tertiary treatment	C	31/12/2017	Yes	At Planning Stage	2025	

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	Year included in AER	Included in this AER
Priority Substances Assessment	Yes	2015	No
Small Stream Risk Score Assessment	Yes	2016	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	Yes

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

Signed: Date: 08/06/2023

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

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Small Stream Risk Score Assessment

LAB No 749

River: Maggies Burn dls **Code:** **Date:** 18/3/2021 **Time:** 10:00

Station no. 212500749 **Location:** Downstream **Grid (6 figure):**

Stream Order:

Field Chemistry	
DO%	80.1
DO mg/l	
Temp (°C)	11.1
Conductivity	252
pH	7.2
Bank width (cm)	100
Wet width (cm)	100
Avg Depth (cm)	60
Staff gauge	

Velocity: Torrential – Fast – (Moderate) – Slow – Very slow

Colour: None – Slight – (Moderate) – High

Clarity: Very clear – Clear – (Slightly turbid) – Highly turbid

Discharge: Flood – (Normal) – Low – 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) – 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: 5

Pond net x 3

Stone wash x 3

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	
Rhithrogena Ab	
Heptagenia Ab	
Ephemerella Ab	
Caenis Ab	
Paraleptophlebia Ab	
Ephemera danica Ab	
Other Ephem Ab	

Total no. of taxa: 0 Total Relative Abundance: 0

Plecoptera:

Leuctra Ab	
Isoperla Ab	
Protonemura Ab	
Amphinemura Ab	
Perla Ab	
Dinocras Ab	
Other Plecop Ab	
Other Plecop Ab	

Total no. of Taxa: 0 Total Relative Abundance: 0

Trichoptera:

Hydropsychidae Ab	
Polycentropodidae Ab	
Rhyacophila Ab	
Philopotamidae Ab	
Limnephilidae Ab	
Sericostomatidae Ab	
Glossosomatidae Ab	1
Lepidostomatidae Ab	
Other Trichoptera Ab	

Total no. of Taxa: 1 Total Relative Abundance: 1

G.OL.D:

Lymnaea (G) Ab	
Potamopyrgus (G) Ab	
Planorbis (G) Ab	
Ancylus (G) Ab	
Physa (G) Ab	
Lumbriculus (Ol) Ab	5
Eiseniella (Ol) Ab	
Tubificidae (Ol) Ab	4

Total no. of Taxa: 3 Total Relative Abundance: 13

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

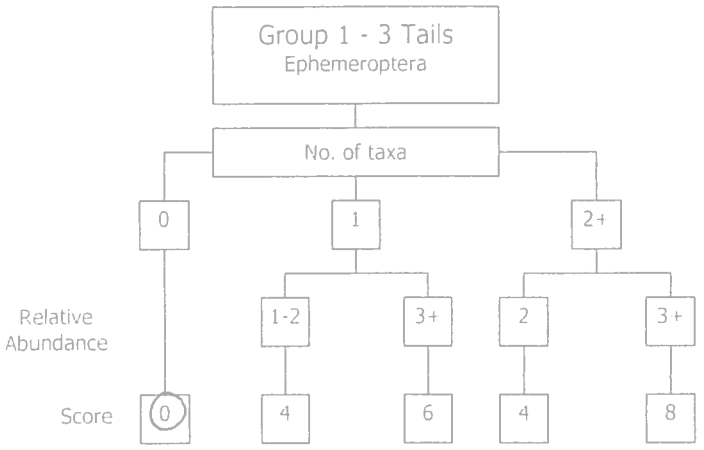
***Asellus*:** Absent – Few/Low – Common/Numerous ✓

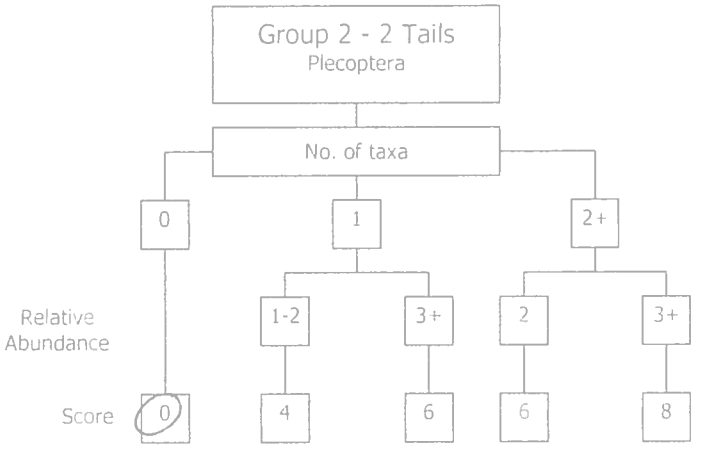
NOTE: *Asellus* must be recorded as absent if none are found

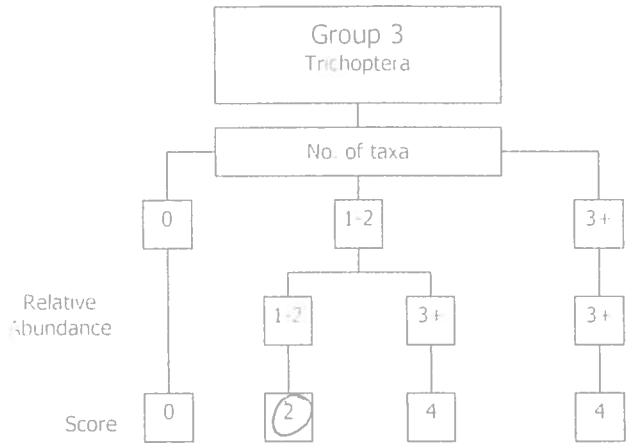
NOTE *Baetis* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Baetis* is not counted in SSRS. See Appendix B for more details on how to identify *Baetis*.

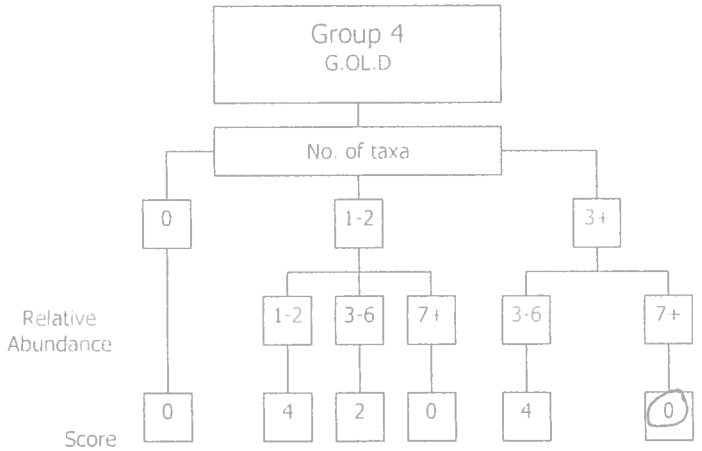
dlS Millford 181314

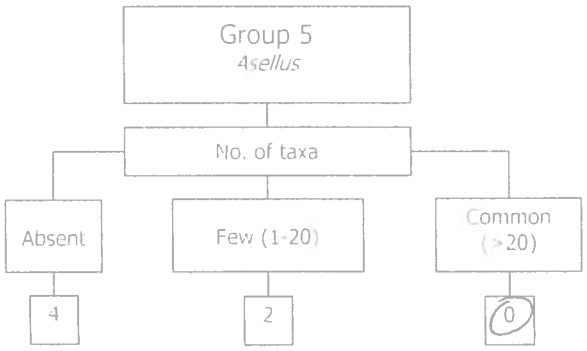
Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from ***each macroinvertebrate group*** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.











Step 2

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

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)	2	Average Index Score (AIS) TIS/5 (5 for 5 groups)	0.4	**SSR Score** (AIS x 2)	0.8

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: 18 / 3 2021

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River: Maggers Burn u/s | **Code:** | **Date:** 18/3/2021 | **Time:** 9:30

Station no. 212500748

Location: Upstream

Grid (6 figure):

Stream Order:

Field Chemistry	
DO%	91.2
DO mg/l	
Temp (°C)	10.4
Conductivity	248
pH	7.3
Bank width (cm)	200
Wet width (cm)	200
Avg Depth (cm)	30
Staff gauge	

Velocity: Torrential / Fast / (Moderate) / Slow / Very slow

Colour: None / (Slight) / Moderate / High

Clarity: Very clear / (Clear) / Slightly turbid / Highly turbid

Discharge: Flood / (Normal) / Low / 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 / 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: 5

Pond net x 3

Stone wash x 3

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	
Rhithrogena Ab	
Heptagenia Ab	
Ephemerella Ab	
Caenis Ab	
Paraleptophlebia Ab	
Ephemera danica Ab	
Other Ephem Ab	
Total no. of taxa	0
Total Relative Abundance	0

Plecoptera:

Leuctra Ab	
Isoperla Ab	
Protonemura Ab	
Amphinemura Ab	
Perla Ab	
Dinocras Ab	
Other Plecop Ab	
Other Plecop Ab	
Total no. of Taxa	0
Total Relative Abundance	0

Trichoptera:

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

G.OL.D:

Lymnaea (G) Ab	
Potamopyrgus (G Ab	1
Planorbis (G) Ab	
Ancylus (G) Ab	
Physa (G) Ab	
Lumbriculus (Ol) Ab	1
Eiseniella (Ol) Ab	1
Tubificidae (Ol) Ab	
Chironomidae (D) Ab	
Chironomus (D) Ab	1
Simuliidae (D) Ab	2
Dicranota (D) Ab	
Tipulidae (D) Ab	1
Ceratopogonidae D Ab	1
Other GOLD Ab	
Total no. of Taxa	7
Total Relative Abundance	8

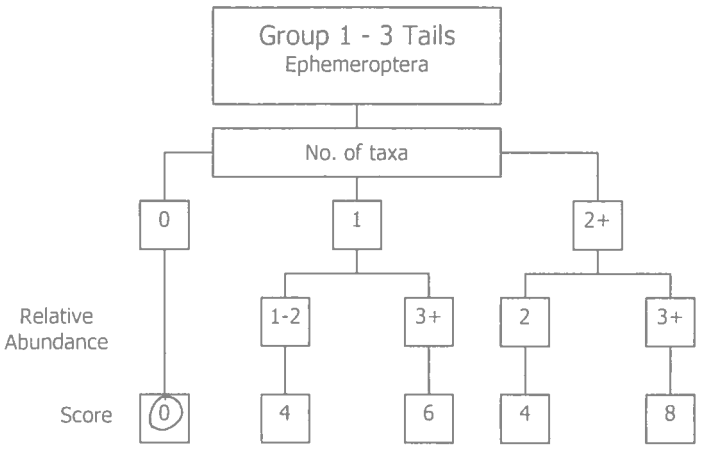
***Asellus*:** Absent ✓ / Few/Low / Common/Numerous

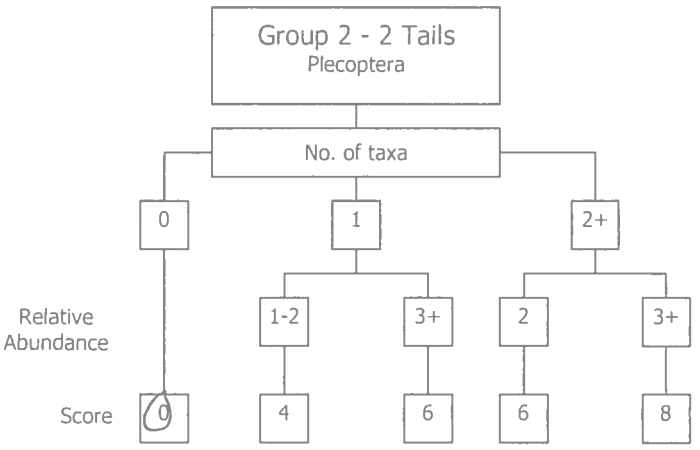
NOTE: *Asellus* must be recorded as absent if none are found

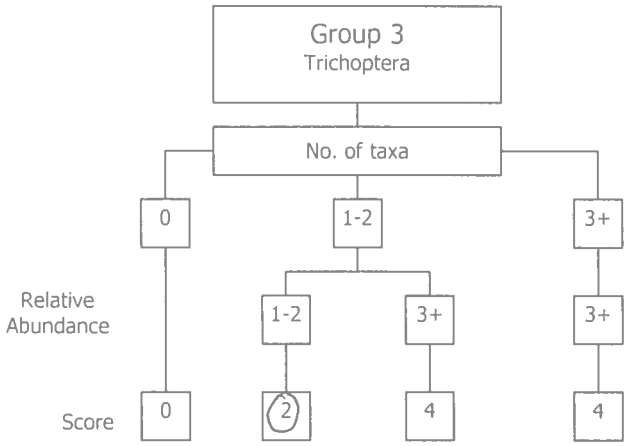
NOTE *Baetis* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Baetis* is not counted in SSRS. See Appendix B for more details on how to identify *Baetis*.

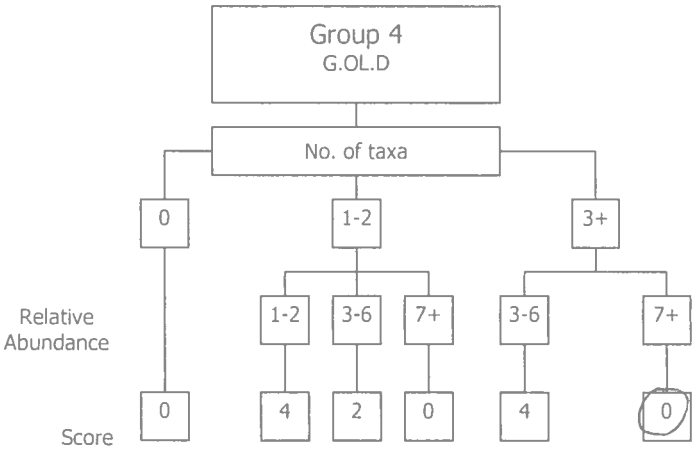
Millar u/s 18/3/2021

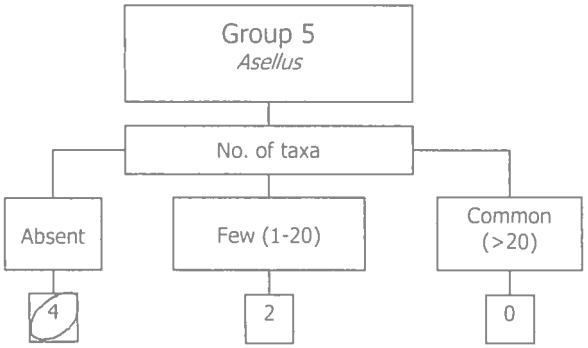
Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from ***each macroinvertebrate group*** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.











Step 2

a) Index Score Group 1	0
b) Index Score Group 2	0
c) Index Score Group 3	2
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)	6	Average Index Score (AIS) TIS/5 (5 for 5 groups)	1.2	**SSR Score** (AIS x 2)	2.4

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): Don Smith Name (print): DON SMITH Date: 18 / 3 / 2021