

Site no.	Watercourse	EPA code	Evaluation of importance	Rationale summary
C5	Doolough Stream	33D02	Local importance (higher value)	Brown trout & Red-listed European eel recorded
GCR sites				
D1	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q3 (poor status) water quality (tentative rating)
D2	Goolamore River	33G12	Local importance (higher value)	Atlantic salmon & brown trout recorded
D3	Munhin River	33M03	County importance	Atlantic salmon, brown trout, sea trout & lamprey (<i>Lampetra</i> sp.) recorded; Q4 (good status) water quality
D4	Unnamed river	n/a	Local importance (higher value)	Q4 (good status) water quality
D5	Ballybeg Stream	33B40	Local importance (higher value)	Q4 (good status) water quality
D6	Srahanarry Stream	33S23	Local importance (higher value)	Atlantic salmon & brown trout recorded; Q4 (good status) water quality
D7	Bellanumera Stream	33B38	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q3-4 (moderate status) water quality (tentative rating)
D8	Briska River	33B33	Local importance (higher value)	Atlantic salmon, brown trout & Red-listed European eel recorded
D9	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q3 (poor status) water quality (tentative rating)
D10	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q3 (poor status) water quality (tentative rating)
D11	Unnamed river	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q3 (poor status) water quality (tentative rating)
D12	Unnamed river	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
D13	Unnamed river	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
D14	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
D15	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
D16	Unnamed river	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)

Site no.	Watercourse	EPA code	Evaluation of importance	Rationale summary
D17	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
D18	Unnamed stream	n/a	Local importance (higher value)	Brown trout & Red-listed European eel recorded
D19	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
D20	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q3 (poor status) water quality (tentative rating)
D21	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q3 (poor status) water quality (tentative rating)
D22	Unnamed stream	n/a	Local importance (higher value)	Brown trout recorded; Q4 (good status) water quality
D23	Unnamed stream	n/a	Local importance (higher value)	Brown trout recorded; Q4 (good status) water quality (tentative rating)
D24	Unnamed river	n/a	Local importance (higher value)	Brown trout recorded; Q4 (good status) water quality
D25	Unnamed river	n/a	Local importance (higher value)	Atlantic salmon, brown trout & Red-listed European eel recorded; Q4 (good status) water quality
D26	Unnamed stream	n/a	Local importance (higher value)	Atlantic salmon & brown trout recorded
D27	Kilsallagh Stream	33K13	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
D28	Unnamed stream	n/a	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
D29	Unnamed stream	n/a	Local importance (higher value)	Brown trout recorded
D30	Unnamed stream	n/a	Local importance (higher value)	Brown trout recorded;
TDR sites				
E1	Moneynierin River	33M16	Local importance (higher value)	Atlantic salmon & brown trout recorded; Q4 (good status) water quality
E2	River Deel	34D01	International importance	Located within River Moy SAC (002298)
E3	Ballisodare River	35B05	International importance	Located within the Unshin River SAC (001898)

Site no.	Watercourse	EPA code	Evaluation of importance	Rationale summary
E4	Carrowgobbadagh Stream	35C95	Local importance (higher value)	Red-listed European eel recorded
E5	Abbeylands Stream	36A15	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q2-3 (poor status) water quality (tentative rating)
E6	Drumgowan Stream	37D49	Local importance (lower value)	No aquatic species or habitats of high conservation value (dry ephemeral channel)
E7	Bogside River	37B26	Local importance (lower value)	No aquatic species or habitats of high conservation value; Q3 (poor status) water quality (tentative rating)

Conservation value: Eurasian otter (*Lutra lutra*), Atlantic salmon (*Salmo salar*) & lamprey (*Lampetra* spp.) are listed under Annex II of the Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) ('EU Habitats Directive') and are protected under the Irish Wildlife Acts 1976-2023. European eel are 'critically endangered' according to most recent ICUN red list (Pike et al., 2020) and listed as 'critically engendered' in Ireland (King et al., 2011). Atlantic salmon and sea trout are also protected under the Wild Salmon and Sea Trout Tagging Scheme (Amendment) Regulations. Apart from the Inland Fisheries Acts 1959 to 2017, non-anadromous brown trout and coarse fish species have no legal protection in Ireland.

5. Discussion

The watercourses in the vicinity of the proposed Muingmore wind farm project (inclusive of the GCR & TDR) were typically heavily modified lowland channels (straightened, deepened, realigned) draining blanket bog or higher gradient/higher energy upland channels (prone to spate). Significant siltation (primarily from peat escapement), and less so eutrophication, was evident throughout much of the survey area. This, coupled with low summer flows, reduced the aquatic value of many survey watercourses. Nevertheless, over half of the survey sites were evaluated of at least **local importance (higher value)** in terms of their aquatic ecology given the presence of fish of high conservation value and or Q4 (good status) water quality (**Table 4.4**). Sites P1, P2, P3 and P4 were evaluated as **county importance** given the presence of Annex I aquatic habitats. Sites E2 on the River Deel and E3 on the Ballisodare River were evaluated as **international importance** given their locations within the River Moy SAC (002298) and Unshin River SAC (001898), respectively.

5.1 Fisheries

A fish species assemblage typical of Ireland's north-west – namely Atlantic salmon, brown trout, sea trout, European eel, lamprey (*Lampetra* sp.), three-spined-stickleback, minnow and flounder - were recorded during the electro-fishing survey (**Table 4.2**). Although brown trout were relatively widespread in the survey area inclusive of the GCR (recorded at 23 no. sites), Atlantic salmon were more localised and recorded from a total of 10. no sites on an unnamed Tullaghan Bay tributary (B6), Goolamore River (D2), Munhin River (D3), Srahanarry Stream (D6), Broska River (D8), unnamed Owenmore tributaries (D25, D26), Moneynierin River (E1), River Deel (E2) and the Ballisodare River (E3) (**Appendix A**). Fish populations in vicinity of the site boundary were dominated by brown trout with Atlantic salmon recorded only from the lower reaches of an unnamed Tullaghan Bay tributary (site B6). Sea trout were recorded from a single site on the Munhin River (D3). Lamprey (*Lampetra* sp.) were also recorded from a single site only (Munhin River at site D3) and this restricted distribution reflected the poor habitat suitability in the survey area (i.e. higher energy and heavily silted peat channels; **Appendix A**). European eel were recorded in typically low abundances from a total of 9 no. riverine sites on an unnamed river (A2), an unnamed Tullaghan Bay tributary (B6), Doolough Stream (C2, C4), Briska River (D8), unnamed Owenmore River tributary (D18, D25), Ballisodare River (E3) and the Carrowgobbadagh Stream (E4), in addition to pond sites P1, P2 and P3 (eDNA only) (**Table 3.1**). The restricted distribution of European eel in the survey area was also primarily due sub-optimal habitat (**Appendix A**). Of the riverine survey sites, 27 of 50 in total did not support fish at the time of survey given poor quality fisheries habitats or dry, ephemeral channels.

5.2 Annex I aquatic habitats

The Annex I habitat 'Water courses of plain to montane levels, with submerged or floating vegetation of the *Ranunculon fluitantis* and *Callitricho-Batrachion* (low water level during summer) or aquatic mosses [3260]' (commonly referred to as floating river vegetation, FRV) was recorded at sites E3 on the Ballisodare River and E4 on the Carrowgobbadagh Stream (adjacent to proposed TDR works). Whilst not representing a diverse example of the habitat, the tidal reaches of the heavily modified Carrowgobbadagh Stream (E4) supported abundant macrophytes including several FRV indicators such as *Callitriche stagnalis*, *Potamogeton* sp. & *Ranunculus* sp. (EC, 2013). The Ballisodare River (E4)

supported floating river vegetation primarily due to the presence of indicator *Ranunculus* sp. and *Fontanalis antipyretica*.

Three pond sites (P1, P2, P3 & P4) (in vicinity of the site boundary) corresponded the Annex I habitat ‘Natural dystrophic lakes and ponds [3160]’. Annex I acid oligotrophic lakes are typically associated with small lakes and ponds in Atlantic and upland blanket bog, and wet heath (Gray et al., 2022; O’Connor, 2015) and are considered species-poor botanically with a community characterised by bryophytes of the genus *Sphagnum* and sustain the *Utricularietalia* phytosociological order (EC, 2013). In Ireland, this lake habitat has been broadly interpreted as ‘species poor lake and pond systems dominated by *Sphagnum* mosses and restricted to blanket bogs and wet heaths’ (O’Connor, 2015). Whilst the margins of sites P1, P2 and P3 were dominated by *Sphagnum* species such as *S. cuspidatum*, site P4 was more representative of the Annex I oligotrophic isoetid lake habitat [3110] with species including bog pondweed, bladderwort (*Utricularia* sp.), bulbous rush and locally abundant Red-listed pipewort, a Red-listed, near-threatened species in Ireland with a limited distribution (Wyse-Jackson et al., 2016). However, the co-occurrence of both habitats is common in Ireland (Evans, 2006).

5.3 Crayfish plague detection

No white-clawed crayfish were recorded through hand searching of instream refugia during the surveys, or via eDNA sampling, thus supporting the absence of historical and contemporary records from the Blacksod-Broadhaven hydrometric area (33) and much of the survey area (with the exception of the River Deel & Ballisodare River; NPWS & NCPSP⁴ data). This absence is primarily due to low alkalinities and unsuitable geologies for the species (Demers et al., 2005; Lucy & McGarrigle, 1987).

However, the invasive pathogen crayfish plague was detected via eDNA sampling at all 3 no. sampling riverine locations in vicinity of the proposed wind farm site boundary despite the absence of crayfish (**Table 4.1**). Crayfish plague had previously been detected in hydrometric area 33 by Triturus using eDNA sampling in the Owenmore River (near Bellacorick) and Ballinglen River catchments in 2022. Crayfish plague is listed at one of the world’s 100 worst invasive species (GISD, 2022; Lowe et al., 2000) and is becoming highly prevalent across Ireland.

5.4 Otter

Although suitable foraging habitat was widespread, otter signs were only recorded (within 150m of the survey sites) at a single site on the Ballisodare River (E3), where 2 no. spraint sites (and anal jelly) were recorded under the N59 road bridge. The paucity of signs throughout the survey area, inclusive of the site boundary and GCR, was considered to mainly reflect the smaller, higher-energy, high gradient nature of most survey watercourses which generally provide more restricted, stochastic prey resources and reduced foraging opportunities for otter compared with lower-gradient, larger watercourses (Scorpio et al., 2016; Remonti et al., 2009). Furthermore, predation by otter (and hence habitat utilisation) in small salmonid tributaries is highly seasonal and closely linked to adult migrations in the autumn and winter periods (Sittenthaler et al., 2019; Carss et al., 1990). No breeding (holt) or couch (resting) areas were identified in the vicinity of the survey sites in September 2023.

⁴ National Crayfish Plague Surveillance Programme

5.5 Macro-invertebrates

No rare or protected macro-invertebrate species (according to national red lists) were recorded in the samples taken from 50 no. riverine or 4 no. pond sites (**Appendix C**). Whilst a low number of sites (11 no. but none within vicinity of the proposed site boundary or turbine array; **Figure 4.1**) achieved **Q4 (good status)**, the majority of sampling sites failed to meet the target good status ($\geq Q4$) requirements of the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 and the Water Framework Directive (2000/60/EC). Siltation and less so eutrophication of the watercourses (primarily from peat escapement but also agriculture & forestry) was noted during the surveys and is known to be the primary threat to water quality in the survey area (EPA data), in addition to hydromorphological modifications.

6. References

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7. Appendix A – fisheries assessment report

Please see accompanying fisheries assessment report

8. Appendix B – eDNA analysis lab report

Folio No: E19345
Report No: 1
Client: Triturus Environmental Ltd
Contact: Bill Brazier

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN WATER FOR AQUATIC SPECIES DETECTION

SUMMARY

When aquatic organisms inhabit a waterbody such as a pond, lake or river they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm the presence or absence of the target species within the waterbody.

RESULTS

Date sample received in laboratory: 20/10/2023
Date results reported: 26/10/2023
Matters affecting result: None

TARGET SPECIES: Brown (Sea) Trout
(Salmo trutta)

Lab ID	Site Name	OS Reference	SIC	DC	IC	Result	Positive Replicates
FK1692	P1 – Pond, Muingmore WF	-	Pass	Pass	Pass	Positive	1/12
FK1691	P3 - Pond, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1687	P4 - Pond, Muingmore WF	-	Pass	Pass	Pass	Positive	1/12
FK1695	P5 – Pond, Muingmore WF	-	Pass	Pass	Pass	Positive	1/12



Forensic Scientists and Consultant Engineers
 SureScreen Scientifics Division Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE, UK
 Tel: +44 (0)1332 292003 Email: scientifics@suresscreen.com
 Company Registration No. 08950940

Crayfish plague (*Aphanomyces astaci*)

Lab ID	Site Name	OS Reference	SIC	DC	IC	Result	Positive Replicates
FK1608	A2 – Unnamed river, Muingmore WF	-	Pass	Pass	Pass	Positive	12/12
FK1611	B6 – Unnamed river, Muingmore WF	-	Pass	Pass	Pass	Positive	11/12
FK1615	C5 – Doolough Stream, Muingmore WF	-	Pass	Pass	Pass	Positive	11/12

European eel (*Anguilla anguilla*)

Lab ID	Site Name	OS Reference	SIC	DC	IC	Result	Positive Replicates
FK1692	P1 – Pond, Muingmore WF	-	Pass	Pass	Pass	Positive	12/12
FK1691	P3 - Pond, Muingmore WF	-	Pass	Pass	Pass	Positive	12/12
FK1687	P4 - Pond, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1695	P5 – Pond, Muingmore WF	-	Pass	Pass	Pass	Positive	2/12

Freshwater pearl mussel (*Margaritifera margaritifera*)

Lab ID	Site Name	OS Reference	SIC	DC	IC	Result	Positive Replicates
FK1608	A2 – Unnamed river, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1611	B6 – Unnamed river, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1615	C5 – Doolough Stream, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12



Forensic Scientists and Consultant Engineers
SureScreen Scientifics Division Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE, UK
Tel: +44 (0)1332 292003 Email: scientifics@suresscreen.com
Company Registration No. 08950940

Smooth Newt (*Lissotriton vulgaris*)

Lab ID	Site Name	OS Reference	SIC	DC	IC	Result	Positive Replicates
FK1692	P1 – Pond, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1691	P3 - Pond, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1687	P4 - Pond, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1695	P5 – Pond, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12

White-clawed crayfish (*Austropotamobius pallipes*)

Lab ID	Site Name	OS Reference	SIC	DC	IC	Result	Positive Replicates
FK1608	A2 – Unnamed river, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1611	B6 – Unnamed river, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12
FK1615	C5 – Doolough Stream, Muingmore WF	-	Pass	Pass	Pass	Negative	0/12

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Jennifer Higginbottom

Approved by: Lauryn Jewkes



Forensic Scientists and Consultant Engineers
SureScreen Scientifics Division Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE, UK
Tel: +44 (0)1332 292003 Email: scientifics@surescreen.com
Company Registration No. 08950940

METHODOLOGY

The samples detailed above have been analysed for the presence of target species eDNA following scientifically published eDNA assays and protocols which have been thoroughly tested, developed and verified for use by SureScreen Scientifics.

The analysis is conducted in two phases. The sample first goes through an extraction process where the filter is incubated in order to obtain any DNA within the sample. The extracted sample is then tested via real time PCR (also called q-PCR) for each of the selected target species. This process uses species-specific molecular markers (known as primers) to amplify a select part of the DNA, allowing it to be detected and measured in 'real time' as the analytical process develops. qPCR combines amplification and detection of target DNA into a single step. With qPCR, fluorescent dyes specific to the target sequence are used to label targeted PCR products during thermal cycling. The accumulation of fluorescent signals during this reaction is measured for fast and objective data analysis. The primers used in this process are specific to a part of mitochondrial DNA only found in each individual species. Separate primers are used for each of the species, ensuring no DNA from any other species present in the water is amplified.

If target species DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If target species DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.



Forensic Scientists and Consultant Engineers
SureScreen Scientifics Division Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE, UK
Tel: +44 (0)1332 292003 Email: scientifics@suresscreen.com
Company Registration No. 08950940

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INTERPRETATION OF RESULTS

SIC: Sample Integrity Check [Pass/Fail]

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

DC: Degradation Check [Pass/Fail]

Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample, between the date it was made to the date of analysis. Degradation of the spiked DNA marker may indicate a risk of false negative results.

IC: Inhibition Check [Pass/Fail]

The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result: Presence of eDNA [Positive/Negative/Inconclusive]

Positive: DNA was identified within the sample, indicative of species presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for species presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. Even a score as low as 1/12 is declared positive. 0/12 indicates negative species presence.

Negative: eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of species absence, however, does not exclude the potential for species presence below the limit of detection.

Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for species presence or absence.



9. Appendix C – Macro-invertebrates (biological water quality)

Table 8.1 Macro-invertebrate Q-sampling results for riverine sites in the vicinity of the proposed wind farm site boundary, September 2023 (* = tentative rating)

Group	Family	Species	A1	A2	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	EPA class
Plecoptera	Nemouridae	<i>Nemoura cinerea</i>					1							1		A
Plecoptera	Leuctridae	<i>Leuctra fusca</i>												1	1	B
Plecoptera	Leuctridae	<i>Leuctra hippopus</i>						1	4	7				3	4	B
Trichoptera	Goeridae	<i>Silo pallipes</i>													1	B
Trichoptera	Limnephilidae	<i>Potamophylax cingulatus</i>					1									B
Trichoptera	Limnephilidae	sp. indet. (early instar)								2						B
Trichoptera	Rhyacophilidae	<i>Rhyacophila dorsalis</i>							2							B
Odonata	Coenagrionidae	sp. indet.	6			6							2			B
Odonata	Libellulidae	<i>Sympetrum</i> sp.	2			1										B
Ephemeroptera	Baetidae	<i>Baetis rhodani</i>		1				1	29	45		18		17	10	C
Trichoptera	Polycentropodidae	<i>Plectrocnemia conspersa</i>			1	1										C
Trichoptera	Polycentropodidae	<i>Polycentropus kingi</i>						3								C
Crustacea	Gammaridae	<i>Gammarus duebeni</i>		17	1			3					1	1	8	C
Coleoptera	Dytiscidae	Dytiscidae larva		1	18			1	1				2			C
Coleoptera	Dytiscidae	<i>Dytiscus dimidiatus</i>					1									C
Coleoptera	Dytiscidae	<i>Hygrotus inaequalis</i>				1										C
Coleoptera	Dytiscidae	<i>Ilybius fuliginosus</i>			1											C
Coleoptera	Dytiscidae	<i>Oreodytes sanmarkii</i>												1	1	C
Coleoptera	Dytiscidae	<i>Oreodytes septentrionalis</i>												1		C
Coleoptera	Dytiscidae	<i>Stictotarsus duodecimpustulatus</i>								2		1				C
Coleoptera	Elmidae	<i>Elmis aenea</i>								1						C
Coleoptera	Elmidae	<i>Limnius volckmari</i>						1					1		1	C
Coleoptera	Elmidae	<i>Oulimnius tuberculatus</i>					1					1				C
Coleoptera	Gyrinidae	Gyrinidae larva													2	C
Coleoptera	Gyrinidae	<i>Gyrinus substriatus</i>	2		1	1	1									C

Group	Family	Species	A1	A2	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	EPA class
Coleoptera	Hydrophilidae	<i>Anacaena globulus</i>	1													C
Diptera	Chironomidae	<i>Non-Chironomus</i> spp.			2		1				8		15	1	4	C
Diptera	Culicidae	sp. indet.			1		1						2			C
Diptera	Dixidae	sp. indet.	1		1											C
Diptera	Pediciidae	<i>Dicranota</i> sp.							1						2	C
Diptera	Simuliidae	sp. indet.							2	1		26		4	16	C
Diptera	Tipuliidae	sp. indet.	1													C
Hemiptera	Corixidae	<i>Hesperocorixa linnaei</i>											3			C
Hemiptera	Corixidae	<i>Hesperocorixa sahlbergi</i>	1			1										C
Hemiptera	Hydrometridae	<i>Hydrometra stagnorum</i>	1												1	C
Hemiptera	Gerridae	<i>Gerris</i> sp.									8					C
Hemiptera	Notonectidae	Notonectidae nymph			1											C
Hemiptera	Veliidae	<i>Velia caprai</i>	1													C
Hemiptera	Veliidae	Veliidae nymph			1		1						1			C
Gastropoda	Tateidae	<i>Potamopyrgus antipodarum</i>					2			10		4	4		4	C
Arachnida	Hydrachnidiae	sp. indet.													1	C
Gastropoda	Lymnaeidae	<i>Ampullacaena balthica</i>										4	1	1	18	D
Mollusca	Sphaeriidae	sp. indet.	4		4								2			D
Crustacea	Asellidae	<i>Asellus aquaticus</i>			8		1									D
Hirudinidae	Glossiphoniidae	<i>Glossiphonia complanata</i>								3		1			1	D
Diptera	Chironomidae	<i>Chironomus</i> spp.		1	8			8			2				1	E
Annelidae	Oligochaeta	sp. indet.							1						2	n/a
Malacostraca	Crangonidae	<i>Crangon crangon</i>		1												n/a
Abundance			20	21	48	11	11	18	40	71	18	55	34	31	78	
Q-rating			*Q3	*Q3	*Q3	*Q3	*Q3-4	Q2-3	Q3	Q3	*Q3	Q3	*Q3	Q3-4	Q3	
WFD status			Poor	Poor	Poor	Poor	Mod	Poor	Poor	Poor	Poor	Poor	Poor	Mod	Poor	

Table 8.2a Macro-invertebrate Q-sampling results for riverine sites in the vicinity of the proposed wind farm GCR, September 2023 (* = tentative rating)

Group	Family	Species	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D18	D20	EPA class
Ephemeroptera	Heptageniidae	<i>Heptagenia sulphurea</i>			6					1						A
Plecoptera	Chloroperlidae	<i>Siphonoperla torrentium</i>						1								A
Plecoptera	Nemouridae	<i>Protonemura meyeri</i>					5	16	2				4	1		A
Plecoptera	Nemouridae	<i>Nemoura cinerea</i>				7										A
Plecoptera	Perlodidae	<i>Isoperla grammatica</i>											1			A
Ephemeroptera	Baetidae	<i>Alainites muticus</i>									1					B
Plecoptera	Leuctridae	<i>Leuctra fusca</i>							1	1		1				B
Plecoptera	Leuctridae	<i>Leuctra hippopus</i>	1					5			4	12	3	1		B
Trichoptera	Goeridae	<i>Silo pallipes</i>		1										1		B
Trichoptera	Limnephilidae	<i>Potamophylax cingulatus</i>								1						B
Trichoptera	Limnephilidae	sp. indet. (early instar)												1		B
Trichoptera	Psychomyiidae	<i>Tinodes waeneri</i>										1				B
Trichoptera	Rhyacophilidae	<i>Rhyacophila dorsalis</i>		1									1			B
Hemiptera	Aphelocheiridae	<i>Aphelocheirus aestivalis</i>			11	1										B
Odonata	Coenagrionidae	sp. indet.				11										B
Odonata	Libellulidae	<i>Sympetrum</i> sp.				1										B
Ephemeroptera	Baetidae	<i>Baetis rhodani</i>	1	5	3		40	1	3	10		23	2			C
Trichoptera	Hydropsychidae	<i>Diplectrona felix</i>	3					1			1		2	1		C
Trichoptera	Hydropsychidae	<i>Hydropsyche instabilis</i>			10	2	1									C
Trichoptera	Philopotamidae	<i>Philopotamus montanus</i>									24	2				C
Trichoptera	Philopotamidae	<i>Wormaldia occipitalis</i>					2	3					4			C
Trichoptera	Polycentropodidae	<i>Plectrocnemia conspersa</i>						2			4		2	1		C
Trichoptera	Polycentropodidae	<i>Polycentropus kingi</i>													2	C
Crustacea	Gammaridae	<i>Gammarus duebeni</i>	7	11	4	10			2	2	7	3		6	11	C
Coleoptera	Dytiscidae	<i>Stictotarsus duodecimpustulatus</i>				1										C

Group	Family	Species	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D18	D20	EPA class
Coleoptera	Elmidae	<i>Elmis aenea</i>		1					1					1		C
Coleoptera	Elmidae	<i>Limnius volckmari</i>	2	11	7			1								C
Coleoptera	Elmidae	<i>Oulimnius tuberculatus</i>						1								C
Coleoptera	Scirtidae	Scirtidae larva										1				C
Diptera	Chironomidae	Non- <i>Chironomus</i> spp.				3	1	2	4		1				2	C
Diptera	Culicidae	sp. indet.				1	1									C
Diptera	Pediciidae	<i>Dicranota</i> sp.	2	1		1	2		1							C
Diptera	Simuliidae	sp. indet.		7		1	5	3			3	7	2	1		C
Diptera	Tipuliidae	sp. indet.									1				1	C
Hemiptera	Gerridae	<i>Gerris</i> sp.													8	C
Hemiptera	Veliidae	Veliidae nymph		2							1					C
Gastropoda	Tateidae	<i>Potamopyrgus antipodarum</i>	9	9	6	4	2	1	1	6				11		C
Arachnida	Hydrachnidiae	sp. indet.					1									C
Hirudinidae	Piscicolidae	<i>Piscicola</i> sp.												1		C
Gastropoda	Lymnaeidae	<i>Ampullacaena balthica</i>			4	1										D
Hirudinidae	Glossiphoniidae	<i>Glossiphonia complanata</i>			4											D
Diptera	Chironomidae	<i>Chironomus</i> spp.				1			1							E
Annelidae	Oligochaeta	sp. indet.	3	1	1		1	1						2		n/a
Abundance			28	50	56	45	61	38	16	21	47	50	21	28	24	
Q-rating			Q3	Q3	Q4	Q4	Q4	Q4	*Q3-4	Q3-4	*Q3	*Q3	Q4	Q3-4	*Q3	
WFD status			Poor	Poor	Good	Good	Good	Good	Mod	Mod	Poor	Poor	Good	Mod	Poor	

Table 8.2b Macro-invertebrate Q-sampling results for riverine sites in the vicinity of the proposed wind farm GCR, September 2023 (* = tentative rating)

Group	Family	Species	D21	D22	D23	D24	D25	D26	D29	D30	EPA class
Ephemeroptera	Ephemeridae	<i>Ephemera danica</i>		9	15	10	26	14	11	19	A
Ephemeroptera	Heptageniidae	<i>Ecdyonurus dispar</i>				1					A
Ephemeroptera	Heptageniidae	<i>Rhithrogena semicolorata</i>					3				A
Plecoptera	Chloroperlidae	<i>Siphonoperla torrentium</i>					1				A
Plecoptera	Perlodidae	<i>Isoperla grammatica</i>				1				8	A
Ephemeroptera	Baetidae	<i>Alainites muticus</i>		1	1	1				3	B
Plecoptera	Leuctridae	<i>Leuctra hippopus</i>	2	9	9	16	10	2	12	9	B
Trichoptera	Sericostomatidae	<i>Sericostoma personatum</i>			4	7	5		2	3	B
Hemiptera	Aphelocheiridae	<i>Aphelocheirus aestivalis</i>			2			1	5	1	B
Ephemeroptera	Ephemerellidae	<i>Serratella ignita</i>					1				C
Trichoptera	Hydropsychidae	<i>Hydropsyche instabilis</i>							1	1	C
Trichoptera	Hydropsychidae	<i>Hydropsyche siltalai</i>	4	1			2			2	C
Trichoptera	Philopotamidae	<i>Wormaldia occipitalis</i>					1				C
Trichoptera	Polycentropodidae	<i>Plectrocnemia conspersa</i>	1	2					3		C
Trichoptera	Polycentropodidae	<i>Polycentropus kingi</i>		1			1		2	2	C
Coleoptera	Dytiscidae	<i>Oreodytes septentrionalis</i>						1			C
Coleoptera	Elmidae	<i>Elmis aenea</i>		8		8		16	6	5	C
Coleoptera	Gyrinidae	<i>Gyrinus substriatus</i>								1	C
Coleoptera	Scirtidae	Scirtidae larva							1		C
Diptera	Chironomidae	Non- <i>Chironomus</i> spp.	1				1			1	C
Diptera	Culicidae	sp. indet.		1					1		C
Diptera	Limoniidae	<i>Antocha</i> sp.		9	15	10	26	14	11	19	C
Diptera	Pediciidae	<i>Dicranota</i> sp.				1					C
Diptera	Tipuliidae	sp. indet.					3				C
Hemiptera	Corixidae	<i>Hesperocorixa linnaei</i>					1				C

Group	Family	Species	D21	D22	D23	D24	D25	D26	D29	D30	EPA class
Hemiptera	Gerridae	<i>Gerris</i> sp.				1				8	C
Hemiptera	Notonectidae	Notonectidae nymph		1	1	1				3	C
Hemiptera	Veliidae	Veliidae nymph	2	9	9	16	10	2	12	9	C
Hirudinidae	Glossiphoniidae	<i>Glossiphonia complanata</i>			4	7	5		2	3	D
Diptera	Chironomidae	<i>Chironomus</i> spp.			2			1	5	1	E
Abundance			8	40	37	56	85	36	47	58	
Q-rating			*Q3	Q4	Q4	Q4	Q4	Q3-4	Q3-4	Q3-4	
WFD status			Poor	Good	Good	Good	Good	Mod	Mod	Mod	

Table 8.3 Macro-invertebrate Q-sampling results for riverine sites in the vicinity of the proposed wind farm TDR, September 2023 (* = tentative rating)

Group	Family	Species	E1	E2	E3	E4	E5	E7	EPA class
Ephemeroptera	Ephemeridae	<i>Ephemera danica</i>			3				A
Ephemeroptera	Heptageniidae	<i>Ecdyonurus dispar</i>	6		2				A
Ephemeroptera	Heptageniidae	<i>Heptagenia sulphurea</i>	2	1	3				A
Plecoptera	Nemouridae	<i>Protonemura meyeri</i>	5						A
Ephemeroptera	Baetidae	<i>Alainites muticus</i>	1					1	B
Plecoptera	Leuctridae	<i>Leuctra fusca</i>	5					1	B
Trichoptera	Hydroptilidae	<i>Ithytrichia</i> sp.			1				B
Trichoptera	Odontoceridae	<i>Odontocerum albicorne</i>	1						B
Trichoptera	Rhyacophilidae	<i>Rhyacophila dorsalis</i>		1	3			1	B
Trichoptera	Sericostomatidae	<i>Sericostoma personatum</i>						1	B
Ephemeroptera	Baetidae	<i>Baetis rhodani</i>	18		5				C
Ephemeroptera	Ephemerellidae	<i>Serratella ignita</i>	1		1				C
Trichoptera	Hydropsychidae	<i>Hydropsyche instabilis</i>	1						C
Trichoptera	Hydropsychidae	<i>Hydropsyche siltalai</i>	1		1				C
Trichoptera	Philopotamidae	<i>Chimarra marginata</i>			17				C

Group	Family	Species	E1	E2	E3	E4	E5	E7	EPA class
Trichoptera	Philopotamidae	<i>Wormaldia occipitalis</i>						3	C
Trichoptera	Polycentropodidae	<i>Plectrocnemia conspersa</i>						1	C
Trichoptera	Polycentropodidae	<i>Polycentropus kingi</i>					1	1	C
Crustacea	Gammaridae	<i>Gammarus duebeni</i>	2		3			19	C
Coleoptera	Dytiscidae	<i>Nebrioporus depressus</i>		1					C
Coleoptera	Elmidae	<i>Elmis aenea</i>	2		2			2	C
Coleoptera	Elmidae	<i>Limnius volckmari</i>	1						C
Diptera	Chironomidae	<i>Non-Chironomus</i> spp.					2		C
Diptera	Pediciidae	<i>Dicranota</i> sp.	1						C
Diptera	Simuliidae	sp. indet.	5		3				C
Diptera	Tipuliidae	sp. indet.					5		C
Hemiptera	Veliidae	Veliidae nymph						2	C
Gastropoda	Bithyniidae	<i>Bithynia tentaculata</i>			3				C
Gastropoda	Tateidae	<i>Potamopyrgus antipodarum</i>	1	8					C
Gastropoda	Planorbidae	<i>Planorbis planorbis</i>			1				C
Gastropoda	Lymnaeidae	<i>Ampullacaena balthica</i>		1		277			D
Crustacea	Asellidae	<i>Asellus aquaticus</i>		2	1	4	4		D
Hirudinidae	Glossiphoniidae	<i>Glossiphonia complanata</i>					2		D
Diptera	Chironomidae	<i>Chironomus</i> spp.				8		1	E
Abundance			53	14	49	289	14	33	
Q-rating			Q4	Q3-4	Q4	*Q2	Q2-3	Q3	
WFD status			Good	Mod	Good	Bad	Poor	Poor	

Table 8.4 Macro-invertebrate Q-sampling results for pond sites P1, P2, P3 & P4, September 2023 (listed in order of abundance)

Group	Family	Species	P1	P2	P3	P4
Odonata	Coenagrionidae	sp. indet.	23	22	44	15
Diptera	Chaoboridae	sp. indet.	9	9		1
Hemiptera	Corixidae	<i>Corixa punctata</i>	7			
Hemiptera	Notonectidae	<i>Notonecta viridis</i>	7	6		
Diptera	Chironomidae	<i>Chironomus</i> spp.	4	3	9	2
Mollusca	Lymnaeidae	<i>Ampullacaena balthica</i>	4	3		
Diptera	Dixidae	sp. indet.	2			
Trichoptera	Polycentropodidae	<i>Plectrocnemia conspersa</i>	2	1		1
Diptera	Chironomidae	Non- <i>Chironomus</i> spp.	1		3	
Hemiptera	Corixidae	<i>Callicorixa praeusta</i>	1	1		
Hemiptera	Corixidae	<i>Sigara</i> sp.	1			
Odonata	Libellulidae	<i>Sympetrum</i> sp.	1		7	
Coleoptera	Dytiscidae	<i>Hygrotus inaequalis</i>		1		
Coleoptera	Dytiscidae	<i>Ilybius fuliginosus</i>		1		
Coleoptera	Gyrinidae	<i>Gyrinus aeratus</i>			1	
Coleoptera	Gyrinidae	<i>Gyrinus substriatus</i>				1
Diptera	Ceratopogonidae	sp. indet.			3	
Diptera	Culicidae	sp. indet.		1		
Ephemeroptera	Leptophlebiidae	<i>Paraleptophlebia</i> sp.			1	1
Hemiptera	Corixidae	<i>Hesperocorixa moesta</i>			2	
Mollusca	Sphaeriidae	sp. indet.		7		
Trichoptera	Leptoceridae	<i>Triaenodes bicolor</i>			1	
Abundance			62	55	71	21

10. Appendix D – aquatic survey site summaries for GCR & TDR sites

Table 10.1 Summary of GCR and TDR aquatic survey sites, September 2023

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
GCR crossings						
D1	Unnamed stream	Historically deepened & realigned stream (FW2). 0.5m wide, 0.1-0.2m deep. Slow-flowing glide & riffle with no pool. Bedded boulder, cobble & mixed gravels with moderate siltation. No macrophytes due to shading with occasional <i>Rhynchostegium riparioides</i> . Bordered by GA1 habitat.	Not of fisheries value due to small size & depths. No fish recorded.	Q3 (poor status)	Local importance (lower value)	
D2	Goolamore River (33G12)	Historically deepened lowland river (FW2) with semi-natural profile of slow-flowing glide & pool. 3m wide & 0.1-0.4m deep. Heavily silted boulder, cobble & mixed gravels. No macrophytes due to shading with abundant <i>Fontinalis antipyretica</i> & <i>Rhynchostegium riparioides</i> . Bordered by wet GA1 habitat.	Atlantic salmon, brown trout & minnow recorded. Moderate quality salmonid spawning, nursery & holding habitat.	Q3 (poor status)	Local importance (higher value)	
D3	Munhin River (33M03)	Large semi-natural lowland tributary of Owenmore River. 8-10m wide and 0.2-1.6m deep with profile of riffle, glide & pool. Abundant mixed gravels & sand with small boulder & cobble. Moderate siltation. Occasional <i>Potamogeton</i> sp., <i>Myriophyllum alterniflorum</i> , <i>Callitriche hamulata</i> & <i>Sparganium erectum</i> with frequent <i>Fontinalis antipyretica</i> . Bordered by wet GA1 habitat.	Atlantic salmon, brown trout, sea trout, lamprey (<i>Lampetra</i> sp.), minnow & flounder recorded. Good quality salmonid habitat with sub-optimal lamprey habitat.	Q4 (good status)	Local importance (higher value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
D4	Unnamed river	Historically straightened & deepened lowland tributary (FW2) of Owenmore River. 1m wide & 0.05-0.1m deep with poor flows. Riffle & stagnant pools. Small boulder with cobble & heavily silted gravels. No macrophytes or aquatic bryophytes. Bordered by GA1 and WD4 habitat.	Not of fisheries value due to small size, shallow depths & poor flows. No fish recorded.	Q4 (poor status)	Local importance (higher value)	
D5	Ballybeg Stream (33B40)	Historically realigned lowland tributary (FW2) of Owenmore River. 1.5m wide & 0.05m deep with poor flows & much of bed exposed (dry). Small boulder & cobble with mixed gravels. No macrophytes or aquatic bryophytes. Bordered by BL3 habitat (Bangor Erris).	Not of fisheries value due to small size, shallow depths & poor flows. No fish recorded.	Q4 (poor status)	Local importance (higher value)	
D6	Srahanarry Stream (33S23)	Semi-natural upland spate tributary (FW1) of Owenmore River. 1.5-3m wide & 0.1-0.5m deep with boulder cascades. Boulder & cobble with localised mixed gravels. Moderate siltation. No macrophytes but occasional <i>Fontinalis antipyretica</i> , <i>Scapania undulata</i> & <i>Brachythecium rivulare</i> . Bordered by GA1 habitat.	Atlantic salmon & brown trout recorded. Good quality salmonid nursery & spawning habitat. Culvert was a significant barrier to fish passage.	Q4 (poor status)	Local importance (higher value)	
D7	Bellanumera Stream (33B38)	Historically realigned upland stream (FW1) with low summer flows. 0.5m wide & 0.05m deep. Exposed small boulder & cobble with coarse gravels, moderate siltation. No macrophytes or aquatic bryophytes. Bordered by wet GA1 habitat.	Not of fisheries value due to small size, depths & poor flows. No fish recorded.	Q3-4 (moderate status) (tentative rating)	Local importance (lower value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
D8	Briska River	Semi-natural, high-energy upland spate tributary (FW1) of Owenmore River. 2.5-3m wide & 0.1-0.4m deep. Boulder cascades with boulder, cobble & mixed gravels with moderate siltation. No macrophytes but occasional <i>Fontinalis antipyretica</i> & <i>Rhynchostegium riparioides</i> . Bordered by GA1 habitat.	Atlantic salmon, brown trout & European eel recorded. Very good quality salmonid nursery & good quality spawning habitat. High value eel nursery.	Q3-4 (moderate status)	Local importance (higher value)	
D9	Unnamed stream	Historically deepened & realigned upland tributary (FW1) of Owenmore River. 0.5m wide & 0.05m with poor flows. Small boulder & cobble with localised coarse gravels. Moderate siltation. No macrophytes or aquatic bryophytes. Bordered by GA1 habitat.	Not of fisheries value due to small size, depths & poor flows. No fish recorded.	Q3 (poor status) (tentative rating)	Local importance (lower value)	
D10	Unnamed stream	Historically deepened upland tributary (FW1) of Owenmore River. 0.5m wide & 0.05-0.2m deep. Boulder cascades with low flows & shallow glide. Semi-dry bed with cobble & localised coarse gravels, moderate siltation. No macrophytes but occasional <i>Brachythecium rivulare</i> . Bordered by GA1 habitat.	Not of fisheries value due to small size, depths & poor flows. No fish recorded.	Q3 (poor status) (tentative rating)	Local importance (lower value)	
D11	Unnamed river	High gradient, seasonal upland tributary (FW1) of Owenmore River. 1-1.5m wide & 0.05m deep. Sinuous profile with cascades & localised pool with angular cobble & boulder. No macrophytes or aquatic bryophytes. Bordered by GA1 habitat.	Not of fisheries value due to small size, depths & poor flows. No fish recorded.	Q3 (poor status) (tentative rating)	Local importance (lower value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
D12	Unnamed river	Very high gradient, ephemeral upland tributary (FW1) of Owenmore River. 2m wide & dry at the time of survey. Large boulder & cobble bed. No macrophytes or aquatic bryophytes. Bordered by GA1 habitat.	Not of fisheries value due to ephemeral (dry) nature.	n/a (dry channel)	Local importance (lower value)	
D13	Unnamed river	Very high gradient, ephemeral upland tributary (FW1) of Owenmore River. 1m wide & dry at the time of survey. Large boulder & cobble bed. No macrophytes or aquatic bryophytes.	Not of fisheries value due to ephemeral (dry) nature.	n/a (dry channel)	Local importance (lower value)	
D14	Unnamed stream	Very high gradient, ephemeral upland tributary (FW1) of Owenmore River. 1m wide & dry at the time of survey. Large boulder & cobble bed. No macrophytes or aquatic bryophytes.	Not of fisheries value due to ephemeral (dry) nature.	n/a (dry channel)	Local importance (lower value)	
D15	Unnamed stream	Very high gradient, ephemeral upland tributary (FW1) of Owenmore River. 1m wide & dry at the time of survey. Large boulder & cobble bed. No macrophytes or aquatic bryophytes.	Not of fisheries value due to ephemeral (dry) nature.	n/a (dry channel)	Local importance (lower value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
D16	Unnamed river	Very high gradient, ephemeral upland tributary (FW1) of Owenmore River. 2m wide & dry at the time of survey. Large boulder & cobble bed. No macrophytes or aquatic bryophytes.	Not of fisheries value due to ephemeral (dry) nature.	n/a (dry channel)	Local importance (lower value)	
D17	Unnamed stream	Very high gradient, ephemeral upland tributary (FW1) of Owenmore River. 1m wide & dry at the time of survey. Large boulder & cobble bed. No macrophytes or aquatic bryophytes.	Not of fisheries value due to ephemeral (dry) nature.	n/a (dry channel)	Local importance (lower value)	
D18	Unnamed stream	High gradient, upland tributary (FW1) of Owenmore River in incised valley. 1.5-2m wide & 0.1-0.3m deep. Boulder cascades with boulder, cobble & mixed gravels with light siltation. No macrophytes or aquatic bryophytes. Bordered by WN2 habitat.	Brown trout & European eel recorded. Moderate quality salmonid & eel nursery.	Q3-4 (moderate status)	Local importance (higher value)	
D19	Unnamed stream	Ephemeral U-shaped, 2m wide drainage channel (FW4) tributary of Owenmore River, dry at the time of survey. No macrophytes or aquatic bryophytes. Bordered by GA1 habitat.	Not of fisheries value due to ephemeral (dry) nature.	n/a (dry channel)	Local importance (lower value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
D20	Unnamed stream	U-shaped drainage channel (FW4) tributary of Owenmore River, 0.5m wide with no flows & stagnant pools of peaty water. Peat bed (no hard substrata). No macrophytes or aquatic bryophytes. Bordered by GA1 habitat.	Not of fisheries value due to small size, depths & poor flows. No fish recorded.	Q3 (poor status) (tentative rating)	Local importance (lower value)	
D21	Unnamed stream	Historically straightened & deepened upland tributary (FW1) of Owenmore River. 0.5m wide with stagnant shallow water (no flows). Boulder & cobble bed with iron-oxidising bacteria. No macrophytes but <i>Scapania undulata</i> locally. Bordered by wet GA1 habitat.	Not of fisheries value due to small size, depths & poor flows. No fish recorded.	Q3 (poor status) (tentative rating)	Local importance (lower value)	
D22	Unnamed stream	Meandering upland tributary (FW1) of Owenmore River. 1-1.5m wide & 0.05-0.15m deep. Riffle & glide with boulder, cobble & bedded, heavily silted mixed gravels. <i>Veronica beccabunga</i> along margins with <i>Rhynchostegium riparioides</i> & <i>Hygrohypnum ochraceum</i> . Bordered by wet GA1 & WD4.	Brown trout recorded. Moderate quality salmonid nursery & spawning habitat, no holding.	Q4 (good status)	Local importance (higher value)	
D23	Unnamed stream	High gradient upland tributary (FW1) of Owenmore River. 1-1.5m wide & 0.1-0.3m deep with low flows. Boulder cascades with glide & pool. Boulder, cobble & bedded, heavily silted mixed gravels. No macrophytes but <i>Rhynchostegium riparioides</i> on boulders. Bordered by wet GA1.	Brown trout recorded. Moderate quality salmonid nursery, spawning & holding habitat.	Q4 (good status) (tentative rating)	Local importance (higher value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
D24	Unnamed river	High gradient upland tributary (FW1) of Owenmore River. 2m wide & 0.1-0.4m deep with low flows. Boulder cascades with cobble & bedded, heavily silted mixed gravels. No macrophytes but <i>Chiloscyphus polyanthos</i> & <i>Rhynchostegium riparioides</i> on boulders. Bordered by wet GA1 & WS1.	Brown trout recorded. Moderate quality salmonid nursery & spawning habitat with good quality holding.	Q4 (good status)	Local importance (higher value)	
D25	Unnamed river	Moderate gradient upland tributary (FW1) of the Owenmore River. 2-4m wide and 0.2-0.4m deep. Boulder cascades with local riffle-glide-pool sequences. Boulder, cobble & silted mixed gravels. No macrophytes but frequent <i>Rhynchostegium riparioides</i> . Bordered by wet GA1 & WS1.	Atlantic salmon, brown trout & European eel recorded. Excellent quality salmonid nursery with good quality spawning & moderate quality holding habitat. Moderate value for eel.	Q4 (good status)	Local importance (higher value)	
D26	Unnamed stream	Historically deepened & straightened upland tributary (FW1) of Owenmore River. 1.5m wide & 0.1-0.2m deep. Shallow glide with riffle & localised pool. Boulder, cobble & mixed gravels with high filamentous algal cover & moderate siltation. No macrophytes but abundant <i>Rhynchostegium riparioides</i> & <i>Fontinalis antipyretica</i> . Bordered by GA1.	Atlantic salmon, brown trout & minnow recorded. Moderate quality salmonid nursery & spawning with poor holding habitat.	Q3-4 (moderate status)	Local importance (higher value)	
D27	Kilsallagh Stream (33K13)	Ephemeral U-shaped, 0.5m wide drainage channel (FW4) tributary of Owenmore River, dry at the time of survey. No macrophytes or aquatic bryophytes. Bordered by GA1 habitat.	Not of fisheries value due to ephemeral (dry) nature	n/a (dry channel)	Local importance (lower value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
D28	Unnamed stream	Ephemeral U-shaped, 2m wide drainage channel (FW4) tributary of Owenmore River, dry at the time of survey. No macrophytes or aquatic bryophytes. Bordered by GA1 habitat.	Not of fisheries value due to ephemeral (dry) nature	n/a (dry channel)	Local importance (lower value)	
D29	Unnamed stream	Historically deepened & straightened upland tributary (FW1) of Owenmore River. 1-1.5m wide & 0.1-0.2m deep. Shallow glide with riffle & localised pool. Boulder, cobble & coarse gravels with moderate siltation. No macrophytes but abundant <i>Rhynchostegium riparioides</i> . Bordered by GA1.	Brown trout recorded. Poor to moderate quality salmonid nursery & spawning with poor holding habitat.	Q3-4 (moderate status)	Local importance (higher value)	
D30	Unnamed stream	Historically deepened & straightened upland tributary (FW1) of Owenmore River. 1m wide & 0.1-0.2m deep. Shallow glide with riffle & localised pool. Boulder, cobble & heavily bedded coarse gravels with moderate siltation. <i>Veronica beccabunga</i> , <i>Apium nodiflorum</i> & <i>Iris psuedacorus</i> with but abundant <i>Brachythecium rivulare</i> . Bordered by GA1.	Brown trout, minnow & three-spined stickleback recorded. Poor quality salmonid habitat overall.	Q3-4 (moderate status)	Local importance (higher value)	
TDR nodes						
E1	Moneynerin River (33M16)	Upland eroding river (FW1), 2-3m wide & 0.1-0.4m deep. Riffle, glide & pool with boulder, cobble & mixed gravels. High filamentous algal cover. <i>Sparganium erectum</i> , <i>Myriophyllum alterniflorum</i> & <i>Juncus bulbosus</i> instream with <i>Carex rostrata</i> . Bordered by PB2.	Atlantic salmon, brown trout & three-spined stickleback recorded. Moderate quality salmonid spawning, nursery & holding habitat.	Q4 (good status)	Local importance (higher value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
E2	River Deel (34D01)	Large, semi-natural lowland karstic limestone river (FW1) with low seasonal flows at time of survey. 35m wide & 0.2-0.5m deep with frequent stagnant pools (no flows). Boulder & cobble bed with locally frequent <i>Fontinalis antipyretica</i> and <i>Cinclidotus fontinaloides</i> . Bordered by BL3 habitat (Crossmolina)	Atlantic salmon, roach, minnow & three-spined stickleback recorded. Good quality salmonid nursery & spawning habitat, moderate quality holding (under normal flows). Unsuitable for lamprey. Freshwater pearl mussel known upstream.	Q3-4 (moderate status)	International importance (located within River Moy SAC)	
E3	Ballisodare River (35B05)	Large, semi-natural lowland river (FW2), 30m wide & 0.2-1.5m deep. Riffle, glide & pool with boulder, cobble & mixed gravels. Moderate siltation. Occasional <i>Ranunculus</i> sp., <i>Schoenoplectus lacustris</i> , <i>Sparganium erectum</i> & <i>Apium nodiflorum</i> with frequent <i>Fontinalis antipyretica</i> , <i>Rhynchostegium riparioides</i> and occasional <i>Chiloscyphus polyanthos</i> & <i>Cinclidotus fontinaloides</i> . Bordered by BL3 habitat.	Atlantic salmon, brown trout & European eel recorded. Very good quality salmonid nursery & holding habitat with good quality spawning. High value for eel. 2 no. otter spraint sites	Q4 (good status)	International importance (located within Unshin River SAC)	
E4	Carrowgobbadagh Stream (35C95)	Historically deepened & straightened tidal channel (CW3) downstream of attenuation pond. 3m wide & 1-2m deep. Soft silt bed with abundant macrophytes, <i>Callitriche stagnalis</i> , <i>Potamogeton</i> sp. & <i>Ranunculus</i> sp. (Annex I 3260). Abundant filamentous algae. Bordered by BL3 habitat.	European eel & three-spined stickleback recorded. Poor quality salmonid habitat but of high value as an eel nursery.	Q2 (bad status) (tentative rating)	Local importance (higher value)	

Site no.	Watercourse (EPA code)	Site characteristics	Fisheries summary	Biological water quality	Ecological evaluation	Representative site image
E5	Abbeylands Stream (36A15)	U-shaped drainage channel tributary (FW4) of Abbey River. 0.5m wide & 0.1-0.2m deep with very low flows at time of survey. Deep silt bed with marginal <i>Apium nodiflorum</i> . Bordered by WS1 & WL2 habitat.	Not of fisheries value due to small size, depths & poor flows. No fish recorded.	Q2-3 (poor status)	Local importance (lower value)	
E6	Drumgowan Stream (37D49)	Ephemeral U-shaped, 0.5m wide drainage channel (FW4) tributary of Owenmore River, dry at the time of survey. No macrophytes or aquatic bryophytes. Bordered by BL3 & GA2 habitat.	Not of fisheries value due to ephemeral (dry) nature	n/a (dry channel)	Local importance (lower value)	
E7	Bogside River (37B26)	Historically deepened & realigned lowland river (FW2). 1-1.5m wide & 0.1-0.2m deep with slow-flowing glide & occasional pool. Heavily bedded boulder, cobble & coarse gravels with high siltation. <i>Apium nodiflorum</i> in margins with occasional <i>Fontinalis antipyretica</i> & <i>Chiloscyphus polyanthos</i> . Bordered by GS4 habitat.	Not of fisheries value due to small size, depths & poor flows. No fish recorded.	Q3 (poor status)	Local importance (lower value)	



Triturus Environmental Ltd.

42 Norwood Court,

Rochestown,

Co. Mayo,

T12 ECF3.