

# Coille Beith Wind Farm EIA Report

## Technical Appendix 6.4: Fisheries

June 2025



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## 1. Introduction

### 1.1 Overview

- 1.1.1 This Technical Appendix has been prepared to accompany **Chapter 6** (EIA Report Volume 2) and presents detailed methodologies and the results of desk study and field surveys completed to establish baseline conditions with regards to fisheries to inform the design and assessment of the Proposed Development.
- 1.1.2 It should be read with reference to the following Figures, which are included within **Volume 3a** of the EIA Report:
- Figure 6.1a: Statutory Designated Sites for Nature Conservation Ecological Interest; and
  - Figure 6.7: Fish Habitat Survey Plan.
- 1.1.3 The objective of the baseline studies was to establish identify any areas of critical fish habitat (i.e. spawning, nursery areas, juvenile and adult holding areas) which may be impacted by the Proposed Development.
- 1.1.4 The following species of conservation significance are considered:
- European eel - Council Regulation (EC) No 1100/ 2007 establishing measures for the recovery of the stock of European eel; listed by IUCN as Critically Endangered, Scottish Biodiversity List (SBL) (Watching Brief Only);
  - Atlantic salmon– Annex II of Habitats Directive, Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003, SBL (Conservation Action Needed & Avoid Negative Impacts);
  - Brown trout/sea trout - SBL (Conservation Action Needed);
  - Freshwater pearl mussel– Schedule 5 of the Wildlife and Countryside Act (1981) and Annex II of Habitats Directive SBL (Conservation Action Needed);
  - River lamprey - Annex II of Habitats Directive, SBL (Avoid Negative Impacts);
  - Brook lamprey - Annex II of Habitats Directive, SBL (Avoid Negative Impacts); and
  - Sea lamprey - Annex II of Habitats Directive, SBL (Avoid Negative Impacts).
- 1.1.5 Only common species names are referred to within the main text of this Technical Appendix. Scientific names for all species referenced are supplied in **Annex 1**.

## 2. Methodology

### 2.1 Desk Study

- 2.1.1 The desk study has included a review of the following key sources, as summarised in **Table 2.1**.
- 2.1.2 Additional peer reviewed literature and industry guidance has also been reviewed and is referred to where relevant.

**Table 2.1 – Desk Study Key Sources and Information Sought**

Key Source - incl. Date	Information Sought	Search Area
NatureScot's Sitelink (2025) <sup>1</sup>	Proximity to statutory designated sites, with ecological interests.	Within 10 km of the Site, minus access routes (as shown on <b>Figure 6.1</b> , EIA Report Volume 3a).
SEPA's River Basin Management Plan <sup>2</sup>	Information on classified watercourses in the local area.	N/A
JNCC's distribution of the Freshwater Pearl Mussel <sup>3</sup>	Distribution of the Freshwater Pearl Mussel.	N/A
Kyle of Sutherland Fisheries Trust (2023). Fishery Management Plan 2023 – 2028 <sup>4</sup>	Local information with regards to fish fauna.	N/A
Kyle of Sutherland District Salmon Board and Kyle of Sutherland Fisheries Trust	Electrofishing data for 2006, 2007, 2019 and 2020.	In close proximity to the Site, along the Allt a Bhraigh which tributates into the River Oykel.
Highland Biological Recording Group (HBRG) – March 2025	Existing records of protected species. Non-statutory designated sites.	Within 2 km of the Site (minus access routes).

<sup>1</sup> <https://sitelink.nature.scot/home>

<sup>2</sup> <https://www.sepa.org.uk/data-visualisation/water-environment-hub>

<sup>3</sup> <https://sac.jncc.gov.uk/species/S1029/>

<sup>4</sup> <https://storymaps.arcgis.com/stories/f2268b9e017d4269a17e50d31a91ad7b>

## 2.2 Field Survey

- 2.2.1 A fish habitat survey was completed on 3<sup>rd</sup> and 4<sup>th</sup> November 2021.
- 2.2.2 The survey aimed to identify any areas of critical fish habitat (i.e. spawning, nursery areas, juvenile and adult holding areas and juvenile lamprey habitat). Suitable habitat for supporting freshwater pearl mussel was also considered.
- 2.2.3 All stretches of watercourses with a gradient of  $\geq 6\%$  are considered to be unsuitable or non-productive fish habitat for Atlantic salmon and brown/sea trout. Mills (1973)<sup>5</sup> found that gradients of  $< 3\%$  were favourable for Atlantic salmon; whilst sea trout were found to spawn in streams with gradients up to  $4\%$ . Most populations of lamprey occur where the average stream gradient is  $1.9 - 5.7\text{ m/km}$ , being rarely found where gradients exceed  $7.8\text{ m/km}$  or  $0.78\%$  (Maitland and Campbell, 1992)<sup>6</sup>. Whilst gradients of  $\geq 6\%$  are considered to be typically unsuitable for fish fauna, it is recognised that small, isolated populations of brown trout may occur in locally suitable habitat in stretches with steeper gradients.
- 2.2.4 The watercourses within the Site were systematically walked (including in-stream inspections where required) and the habitats mapped according to the classifications presented in **Table 2.2**.
- 2.2.5 Specifically, the habitat survey focused on the identification of the following:
- Spawning habitat for salmonid and lamprey species;
  - Nursery habitat for lamprey species;
  - Areas of habitat important for juvenile salmonids (fry and parr);
  - Areas of habitat important for adult holding areas; and
  - Areas of suitable substrate and flow conditions for supporting freshwater pearl mussel.
- 2.2.6 The habitat classification used in this study is based on the Scottish Fisheries Co-ordination Centre's (SFCC) Habitat Surveys Training Course Manual (SFCC, 2007)<sup>7</sup>, the Environment Agency's Restoration of Riverine Salmon Habitats Guidance Manual (Hendry and Cragg-Hine, 1997)<sup>8</sup> and a review of key habitat requirements for other species of conservation significance including lamprey, salmonids and freshwater pearl mussel (e.g. Maitland, 2003<sup>9</sup>; Hendry and Cragg-Hine, 2003<sup>10</sup>; Skinner *et al.* 2003)<sup>11</sup>.
- 2.2.7 Each watercourse within the Study Area was visited. Detailed analysis was undertaken at sample points within locations identified as having any diverse geomorphological and hydrological conditions within each watercourse. Samples were taken at each of the representative sections of each watercourse. The following information was collected at each sample location: channel gradient; substrate composition ( $\%$  bedrock, boulders  $> 256\text{ mm}$ , cobbles  $65-256\text{ mm}$ , pebbles  $4-64\text{ mm}$ , gravel  $2-4\text{ mm}$ , coarse sand  $0.5-2\text{ mm}$  and fine sand/silt/peat  $< 0.5\text{ mm}$ ); average wetted channel width (m); average depth (m) and turbidity (1 [clear] – 3 [turbid]). Any potential barriers to fish movement within watercourses were also recorded. A photograph was taken at each sample point.

**Table 2.2 – Fish River Habitat Classifications**

Category	Habitat Type	Description	Species Suitability
1 1a 1b 1c	Unsuitable Steep $> 10\%$ gradient 6-10 % gradient Other – ephemeral, shallow drains, dry beds	Usually 1st – 2nd order watercourses with steep gradient, $\geq 6\%$ slopes (often substantially greater), abundant bedrock, lack of fixed substrates, high velocity (e.g. headwaters/rivulets). Also includes less steep ephemeral stretches (e.g. headwater sources), shallow drains and modified watercourses with dry beds.	No productive fish habitat, although some species may migrate through these areas (also refer to 7. Rapids) depending on whether they represent a migration barrier.
2 2a 2b	Spawning Habitat Salmonids Lamprey	Stable “gravels” of minimum 15-30 cm depth, optimal 20-30 mm, not compacted or with excessive silt/sands ( $< 20\%$ by weight) for salmonids. Lamprey spawning habitat where “gravels” include sands. Often at tail end of pools or upstream ends of riffle-runs ensuring oxygenated substrate. Can also be found at end of weir pools.	Spawning habitat - Atlantic salmon (c. $9\text{ m}^2$ per pair) and sea/brown trout; lamprey.
3	Riffle	Shallow ( $< 20\text{ cm}$ ) and fast flowing, with upstream-facing wavelets which are unbroken (although often some broken water), with substrate dominated by gravel and cobbles.	Fry (0+) habitat – Atlantic salmon/ brown trout/sea trout.

<sup>5</sup> Mills, D.H. (1973) Preliminary assessment of the characteristics of spawning tributaries of the River Tweed with a view to management. In: M.W. Smith & W.M. Carter (eds.). International Atlantic Salmon Symposium, St Andrew's, International Atlantic Salmon Special Publication Series 4 (1), 145-55.

<sup>6</sup> Maitland, P.S. and Campbell, R.N. (1992). Freshwater fishes of the British Isles. New Naturalist. HarperCollins, London.

<sup>7</sup> SFCC (2007). Habitat Surveys. Training Course Manual. Revised August 2007.

<sup>8</sup> Hendry, K. and Cragg-Hine, D. (1997). Restoration of riverine salmon habitats: A guidance manual. R&D Technical Report W44. Environment Agency, Bristol.

<sup>9</sup> Maitland, P.S. (2003). Ecology of the river, brook and sea lamprey. Conserving Natura 2000 Rivers Ecology Series No. 5. English Nature, Peterborough.

<sup>10</sup> Hendry, K. and Cragg-Hine, D. (2003). Ecology of the Atlantic salmon. Conserving Natura 2000 Rivers Ecology Series No. 7. English Nature, Peterborough.

<sup>11</sup> Skinner, A., Young, M. and Hastie, L. (2003). Ecology of the freshwater pearl mussel. Conserving Natura 2000 Rivers Ecology Series No. 2 English Nature, Peterborough.

Category	Habitat Type	Description	Species Suitability
4 4a 4b	Run Shallow (< 0.5 m deep) Deep (>0.5 m deep)	Generally deeper (20-40 cm) and less steep bed compared to riffle, with substrate of boulders, cobbles and gravels. Usually disturbed, rippled surface. Often located immediately downstream of riffle.	Mixed salmonid juvenile habitat. Fry (0+) & Par (1+) habitat - Atlantic salmon/ brown trout/sea trout.
5 5a 5b	Glide Shallow (<0.5 m deep) Deep (> 0.5 m deep)	Shallow gradient stretches with smooth laminar flow with little surface turbulence and generally > 30 cm deep; water flow is silent. Often located below pool.	European eel; non-productive salmonid habitat, although may provide some shelter for adults.
6 6a 6b 6c	Pool Plunge/Scour pool Meander pool Weir/bridge pool	No perceptible flow, eddying and usually > 100 cm deep. Substrate with high proportion of sand and silts. Often located on the outside of meanders, but includes natural scour or plunge pools and artificial weir pools.	Adult refugia Atlantic salmon, sea/brown trout, European eel.
7 7a 7b 7c	Rapids Steep - >10% gradient Moderate - 6-10% gradient Low - <6% gradient	Sections of relatively steep gradient with fast currents and turbulence, with mixed flow types, including free-fall, chutes and broken, with obstructions such as large boulders, rock outcrops and falls.	Negative feature for migratory species and may pose a migratory barrier; elvers and eels limited to velocity of <0.5 m/sec and 2.0 m/sec respectively; lamprey to 2 m/sec.
8 8a 8b	Banks of fine sediment of silts and sands Optimal Sub-optimal	Limited flow (sometimes back-flow) allowing deposition of silts/sands, not anoxic, with/without riparian trees. Optimal habitat is stable fine sediment and sand ≥15 cm deep with some organic detritus. Sub-optimal habitat includes small areas of deposited silts/sands behind boulders.	Lamprey ammocoete nursery and adult refuge.
9 9a 9b 9c 9d 9e	Vegetation features Riparian trees (tunnel) Flow constriction Aquatic macrophytes Emergent macrophytes Large woody debris	Closed woodland canopy forming tunnel vegetation In-stream emergent, boulders Stands of aquatic and floating vegetation Stands of emergent (usually marginal) vegetation LWD forming dams, etc.	Tunnel riparian trees may be negative feature for salmonids, although tree roots and fallen trees may provide refugia for Atlantic salmon/ brown trout/sea trout and European eel. Aquatics/emergents provide cover for fish, particularly juveniles.
10	Obstructions to migration	Impassable waterfalls, rapids, flow constrictions, weirs, bridge sills, culverts, shallow braided river sections, pollution preventing upstream migration.	All migratory species; impassability varies between species. Leaping ability: <3.7 m Atlantic salmon; <1.81 m trout; European eel and lamprey none.
11 11a 11b 11c	Other features Side channel Backwater Artificial channel	Includes other channel features, with side channel (connected to main channel) and backwaters. Artificial channels may comprise either man-made banks and/or beds.	Side channel/backwater often important refugia for juveniles. Artificial channels have limited diversity and are often non-productive fish habitat.

### Personnel

- 2.2.8 The survey was undertaken by C. Nisbet. C. Nisbet is a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and is fully trained on fish habitat survey as part of his Level 3 Management of Electrofishing Operations qualification as accredited by the SFCC. He has been undertaking fish habitat surveys for 16 years.

### Limitations

- 2.2.9 Water levels were elevated following recent rains. However, it is considered the fish habitat survey provides a representative picture of the suitability and value of the Site watercourses for fish fauna. The survey is therefore considered not to be subject to any significant limitations.
- 2.2.10 Although the survey was undertaken in 2021, it is considered that habitats within the Fisheries Study Area have not materially changed during this time and therefore it is reasonably assumed that 2021 surveys are representative of current likely species status with respect to habitats present. Subsequently the age of survey data is not considered a limitation to the assessment.

### Western Access Route Walkover

- 2.2.11 Note, although a formal fish habitat survey was not undertaken of the River Einig (which tributaries into the River Oykel), the watercourse was appraised during the western access route walkover survey on 19<sup>th</sup> and 20<sup>th</sup> May 2025. The western access route crosses over the River Einig at any existing watercourse crossing.

## 3. Results

### 3.1 Desk Study

- 3.1.1 The Site abuts the River Oykel Special Area of Conservation (SAC), with the western access route passing over an existing watercourse crossing over the River Einig which is part of the SAC. The SAC is internationally designated on account of its Atlantic salmon and freshwater pearl mussel populations.
- 3.1.2 JNCC<sup>3</sup> note that the River Oykel supports an excellent, high-quality freshwater pearl mussel population with high densities recorded in some areas, and high percentages of juveniles within the population, indicating recent successful recruitment.
- 3.1.3 The European Water Framework Directive (WFD) requires that surface waterbodies in member states are classified according to ecological status. SEPA's River Basin Management Plan website<sup>2</sup> confirms there are two classified watercourses within the Fisheries Study Area: the River Oykel (Dornoch Firth to Loch Craggie) and the Allt a Bhraigh. The River Oykel (Dornoch Firth to Loch Craggie) is currently classified as having moderate overall ecological status (predicted to improve to 'good' by 2027) and high access for fish migration. Allt a Bhraigh is classified as having good overall ecological status at present and high access for fish migration.
- 3.1.4 Data returned by the Kyle of Sutherland District Salmon Board and Kyle of Sutherland Fisheries Trust identified two sites within the Fisheries Study Area that have been subject to electrofishing surveys, with both comprising quantitative three run sites. The two sites are approximately 100 m apart and situated outside the Site boundary along the Allt a Bhraigh, which tributes into the River Oykel. One of the sites was surveyed in 2006 and 2007, whilst the other site was surveyed in 2019 and 2020. Data recorded in all four years identified juvenile Atlantic salmon (age class: 0+ and 1+) within the watercourse. Here the age class 0+ was recorded to have a respective total of 96, 84, 22, and 39 Atlantic salmon recorded in the years 2006, 2007, 2019, and 2020. The age class 1+ was however recorded less frequently for this species, with 11, 5, 4, and 19 individuals counted in the same respective years of survey. Juvenile brown trout (age class: 0+ and 1+) was also recorded in years 2006, 2007, and 2020; however the species was less abundant than Atlantic salmon. The age class 0+ recorded 8, 11, and 7 individual brown trout in the years 2006, 2007, and 2020, whilst only a single brown trout of the age class 1+ was recorded in 2007.

### 3.2 Field Survey

- 3.2.1 Environmental data from all surveyed watercourses (W1-W32) including channel dimensions, gradient, and substrate composition is provided in **Annex 2**. Photographs from the sample points within each watercourse are given in **Annex 3**.
- 3.2.2 There are a series of unnamed minor tributaries of the River Oykel in Creag Langwell Wood in the north of the Site, which were excluded from survey as they lay over very steep terrain (c. 30 % slope) which are considered to be impassable to fish.

#### **W1- W4 and W30: Allt a Bhraigh and Tributaries**

- 3.2.3 Watercourse W1 (Sample Points 1a – 1c) is Allt a Bhraigh which tributes into the River Oykel. Allt a Bhraigh is a SEPA classified watercourse and is assessed as having good overall ecological status and high access for fish migration. The lower 350 m of Allt a Bhraigh down to its confluence with the River Oykel is also included in the River Oykel SAC.
- 3.2.4 W1 lies within open moorland at its origin and there are areas of riparian woodland present as the watercourse becomes more established downstream. Watercourse W1 lies on a relatively shallow gradient, which is itself considered to be passable by migratory fish. The substrates present in W1 contain elements of finer stone (pebble and sandy gravels), particularly in its lower reaches which have some suitability for freshwater pearl mussel, salmonid fry and parr.
- 3.2.5 W2 is the larger of the four tributaries of Allt a Bhraigh, but is still largely a peaty headwater, it widens out occasionally along its reach and has areas of gravel and pebble substrate which has some suitability for spawning, but this is limited by its shallow and likely ephemeral nature. W3, W4 and W30, the smaller tributaries of W1, comprise peaty headwaters and are of limited suitability for fish fauna.

#### **W5 and W6: Allt an Sgeireach and Tributary**

- 3.2.6 Watercourse W5 is a tributary of Allt an Sgeireach (W6). They are unclassified watercourses which lie on moderately steep to steep wooded terrain, the gradient reducing their suitability for fish fauna. Substrate within these watercourses is dominated by large boulders and flow conditions comprise Category 7 rapids with turbulent areas and chutes.

#### **W7 and W8: Allt Badam Uilleim and Tributary**

- 3.2.7 Watercourse W7 is an ephemeral, peaty headwater (choked with marginal soft rush, which has encroached the channel), and tributary of Allt Badam Uilleim (W8). Both watercourses lie on moderately steep terrain. W7 possesses little suitability for fish fauna. W8 has some suitability for low numbers of juvenile fish, due to sections of Category 3 riffle and Category 4 flow conditions within the channel. However, suitability is limited due to the moderately steep channel gradient and its minor nature. W7 and W8 originate from springs on open heather moorland, overlain with commercial forestry and tribute, in a northerly direction, eventually into the River Oykel.

#### **W9: Allt Fliuch Bhadain**

- 3.2.8 W9 is a very minor watercourse which originates from a spring in the north of the Site. It is largely a peaty headwater and is likely to be ephemeral in nature. It is encroached with soft rush, purple moor grass and heather vegetation and is of little suitability for fish fauna.

#### **W10 and W11 Allt Lon a Bhadain Bhig**

- 3.2.9 Watercourse W10 is the main headwater of W11 the Allt Lon a Bhadain Bhig. Allt Lon a Bhadain Bhig, is fed by several peaty headwaters, which are all likely to be ephemeral in nature and are considered to have negligible suitability for fish. W10 is also very minor and had a very shallow depth (average of <5 cm over the Fisheries Study Area). W11 is a little more substantial in nature than W10. Both watercourses have high proportions of pebble and cobble within the stream bed and largely run riffle flow conditions on a moderately steep gradient. They are both limited in terms of suitability for fish fauna, but may support low numbers, when there is sufficient water in the channels.

#### **W12: Allt a Choire Bhuidhe**

- 3.2.10 Watercourse W12 is a minor watercourse and with a depth of 10-15 cm throughout the Fisheries Study Area. It has Category 3 riffle and Category 4 flow conditions over a predominantly cobble and pebble substrate, with some boulders also present. It originates, as the majority of watercourses within the Site do, from a springhead in the south of the Site and flows in a northerly direction towards Allt a Bhraigh and the River Oykel. It has some suitability for supporting low numbers of fish.

#### **W13 – W15 and W31: Meoir Leathan and Tributaries**

- 3.2.11 W13 – W15 are tributaries of Meoir Leathan. They are minor in nature and had a very shallow depth (average of <5 cm over the Fisheries Study Area). W15 is more substantial in nature and held a greater depth of water in the channel (10-20 cm). All three watercourses have high proportions of pebble and cobble within the stream bed and largely run riffle flow conditions on moderately steep gradients. They are considered likely to support low numbers of fish fauna but limited due to their minor nature. Meoir Leathan (W31) is a moderately substantial watercourse in its lower reaches prior to where it joins Allt a Bhraigh (W1). It contains a range of flow conditions and comprises a predominantly boulder cobble substrate. It has some suitability for fish fauna, but this is reduced due to its moderately steep gradient (6-10 %).

#### **W16 – W18: Meur an da Sgoiltein and Tributaries**

- 3.2.12 Watercourses W16 and W17 originate from springs in the south of the Site and come together to form W18. They are all minor, shallow watercourses that flow over moderately steep terrain and are bounded by commercial forestry. They all have predominantly run and riffle flow conditions and contain predominantly cobble sized rock substrates. They have some suitability for low numbers of fish fauna.

#### **W19 – W25: Allt a Phris Mhoir and Tributaries**

- 3.2.13 Watercourses W19 – W25 all come together to form Allt a Phris Mhoir. W20, W21 and W23 – W25 are all peaty headwaters, which are largely choked with soft rush and are likely to be ephemeral. They have negligible suitability for supporting fish. W19 and W22 are more substantial, however both contain localised steep sections with Category 7 rapids and have a lack of smaller substrates, being comprised of largely boulder and cobble channels, thus reducing their suitability for fish.

#### **W26: Allt a Ghuail Headwater**

- 3.2.14 Watercourse W26 comprises the head of Allt a Ghuail and originates just outwith the southwestern boundary of the Site. It is a minor peaty headwater and is likely ephemeral with negligible fish suitability. It flows away from the Site in a southerly direction and is the only watercourse in the Fisheries Study Area that does not from part of the River Oykel catchment, ultimately flowing instead into the River Carron.

#### **W27 – W29: Allt Mor and Tributaries**

- 3.2.15 Watercourses W27 and W28 are both peaty, ephemeral headwaters of the Allt Mor and are considered to have little to no suitability for fish fauna. W29 Allt Mor is a little more substantial but remains a very

minor watercourse. The Allt Mor is approximately 0.5 m in width and has a depth of 7-10 cm across its survey reach. It flows down a moderately steep gradient, over a largely cobble/boulder substrate. It is sub-optimal at best for fish but may support low numbers.

### **W32: River Oykel**

- 3.2.16 The River Oykel (Sample Points 32a – 32c) is a substantial watercourse and one of the most important rivers in the Kyle of Sutherland. It supports internationally important Atlantic salmon and freshwater pearl mussel populations, designated under the River Oykel SAC. The River Oykel supports a range of flow conditions along the survey reach from shallower, faster flowing run and riffle sections to deep pools. There are large depositional gravel beds present on meanders and a high proportion of gravel substrates favoured by freshwater pearl mussel within the channel.
- 3.2.17 The surrounding habitats adjacent to the stretch of the River Oykel that lies within the Fisheries Study Area largely comprise farmland, but there are also areas of riparian broad-leaved woodland, commercial forestry and heathland present. This section of the river lies on a shallow gradient and is highly suitable for salmonids of all ages. Atlantic salmon were observed in the River Oykel during the survey and although no freshwater pearl mussels were observed, there is plenty of suitable habitat present for the species.
- 3.2.18 Note, although no formal fish habitat survey of the River Einig was undertaken. The watercourse was appraised from the existing watercourse crossing, where the western access route will pass over the River Einig. The watercourse has potential to support fish fauna including Atlantic salmon, and the potential for the watercourse to support freshwater pearl mussel cannot be discounted. Both of these are qualifying features of the River Oykel SAC, which the River Einig tributaries into. A photograph of the River Einig from the watercourse crossing is provided in **Annex 3**.

## **3.3 Summary**

- 3.3.1 The watercourses within the Site all drain to the north into the River Oykel catchment, except for W26 which flows to the south forming Allt a Ghuail. The River Oykel (and the lower reach of Allt a Bhraigh) are internationally designated as an SAC on account of their freshwater pearl mussel and Atlantic salmon populations.
- 3.3.2 Of the watercourses surveyed the most suitable habitat for supporting fish fauna (including freshwater pearl mussel) was the River Oykel and the Allt a Bhraigh which tributaries into the River Oykel south of Brae. These watercourses are north/ northeast of the Site. The watercourses which flow through the Site itself, offer limited (if any) habitat for low numbers of fish (and not considered suitable for supporting freshwater pearl mussel).
- 3.3.3 There are two SEPA classified watercourses within the Fisheries Study Area – The River Oykel and the main tributary of the River Oykel, the Allt a Bhraigh. The Oykel has an overall ecological status of moderate, but this is forecast to improve to 'good' by 2027. Allt a Bhraigh is currently assessed as having good overall ecological status. There are no known barriers to fish migration within the Fisheries Study Area. However, the majority of the watercourses, on the Site, lie on moderately steep to steep gradients and many are peaty headwaters with low-negligible suitability for fish.
- 3.3.4 Specific freshwater pearl mussel surveys have not been undertaken, and no freshwater pearl mussels were recorded during the survey. However, it was considered that the River Oykel and Allt a Bhraigh were suitable for the species.

## Annex 1 – Scientific Names

Table A1.1 – Common and Scientific Names

Common Name	Scientific Name
European eel	<i>Anguilla anguilla</i>
Atlantic salmon	<i>Salmo salar</i>
Brown trout/sea trout	<i>Salmo trutta</i>
Freshwater pearl mussel	<i>Margaritifera margaritifera</i>
River lamprey	<i>Lampetra fluviatilis</i>
Brook lamprey	<i>Lampetra planeri</i>
Sea lamprey	<i>Petromyzon marinus</i>

## Annex 2 – Environmental Data

Table A2-1 – Environmental Data from W1 to W32

Location		Substrate Composition (%)							Channel Information				Habitat Type
Co-ordinates	Sample No/ Photo	Bed-rock	Boulders >256 mm	Cobbles 65–256 mm	Pebbles 4 – 64 mm	Gravel 2 – 4 mm	Coarse sand 0.5 –2 mm	Peat/fine sand/ silt <0.5 mm	Av. Wetted Width (m)	Av. Depth (m)	Turbidity (1 [clear]-3[turbid])	Channel Gradient (%)	
243562 900966	W1a	0	10	30	30	20	10	0	3	0.15	1	3-4	2a, 3, 4
242205 899487	W1b	0	15	35	35	10	15	0	2.5	0.2	1	2-3	3, 4
240524 899029	W1c	0	10	30	25	10	5	20	1.2	0.15	1	2-3	3, 4
243886 900707	W2	0	10	20	30	30	5	5	1.5	0.1	1	5-6	2a, 3, 4
244221 900549	W3	0	0	0	0	0	0	100	0.25	<0.1	1	5-6	1c
244221 900549	W4	0	0	20	10	0	0	70	0.3	0.1	1	5-6	1c
243739 900065	W5	0	80	20	0	0	0	0	1.25	0.3	1	6-10	7b
243714 900038	W6	0	60	30	10	0	0	0	0.80	0.25	1	6-10	7b
243700 899501	W7	0	0	0	0	0	0	100	0.75	0.15	1	6-10	1c
243458 899628	W8	0	25	45	20	10	0	0	0.8	0.15	1	6-10	3, 4
243070 899560	W9	0	20	20	0	0	0	60	0.6	0.10	1	5	1c
242995 898265	W10	0	10	20	30	30	10	0	0.8	0.10	1	6-10	3, 4
242716 898945	W11	0	10	70	10	10	0	0	0.9	<0.10	1	6-10	3, 4
242303 898186	W12	0	30	50	10	10	0	0	0.8	0.15	1	4-5	3, 4
242205 898124	W13	0	10	40	20	10	10	10	0.8	<0.10	1	6-10	3, 4
241994 898116	W14	0	20	50	10	10	10	0	0.7	<0.10	1	6-10	3, 4
242047 898499	W15	0	20	40	20	20	0	0	1	0.15	1	6-10	3, 4
241865 898093	W16	0	20	60	10	10	0	0	0.8	<0.10	1	6-10	3, 4
241836 898205	W17	0	30	55	10	5	0	0	0.8	<0.10	1	6-10	3, 4
241842 898467	W18	0	15	50	15	10	5	5	0.6	0.10	1	6-10	3, 4
241584 898253	W19	0	40	40	20	0	0	0	1	0.25	1	>10	3, 4, 7a
241491 898225	W20	0	20	20	0	0	0	60	0.6	0.10	1	6-10	1c
241252 898065	W21	0	20	50	10	10	0	10	0.6	0.10	1	6-10	1c
241179 898026	W22	0	30	40	15	15	0	0	0.9	0.10	1	>10	3, 4, 7a
241106 897756	W23	0	0	0	0	0	0	0	100	0.10	1	6-10	1c
240940 897646	W24	0	0	0	0	0	0	0	100	0.10	1	6-10	1c
241156 898200	W25	0	0	0	0	0	0	0	100	0.10	1	6-10	1c
239456 898071	W26	0	0	0	0	0	0	0	100	0.10	1	4-5	1c
239984 898633	W27	0	0	0	0	0	0	0	100	0.10	1	6-10	1c
240355 898610	W28	0	0	0	0	0	0	0	100	0.10	1	6-10	1c
240558 898759	W29	0	25	40	10	0	0	25	0.6	0.15	1	6-10	3, 4
241634 899355	W30	0	10	0	0	0	0	90	0.85	0.10	1	2-3	1c
242452 899434	W31	0	40	40	10	10	0	0	2.5	0.35	1	6-10	3, 4
243412 900917	W32a	0	10	20	30	30	10	0	10	0.35	1	1-2	2a, 3, 4, 5
243043 900783	W32b	0	15	15	30	30	10	0	10	0.5	1	1-2	2a, 3, 4, 5
242713 900887	W32c	0	20	20	30	20	10	0	0	>1m	1	1-2	5, 6

## Annex 3 – Photographic Plates

W1a



W1b



W1c



W2



W3

W4



W5



W6



W7



W8



W9



W10



W11



W12



W13



W14



W15



W16



W17



W18



W19



W20



W21



W22



W23



W24



W25



W26



W27



W28



W29



W30



W31



W32a



W32b



W32c



Note, the River Einig where the western access route crosses<sup>12</sup>.

<sup>12</sup> Photograph taken from Google Maps (Street View), [https://www.google.com/maps/place/River+Oykel/@57.961604,-4.7299052,3a,75y,99.8h,82.15t/data=!3m7!1e1!3m5!1sm6naOL\\_T4loA4V5HxotYpq!2e0!6shttps:%2F%2Fstreetviewpixels-pa.googleapis.com%2Fv1%2Fthumbnail%3Fcb\\_client%3Dmaps\\_sv.tactile%26w%3D900%26h%3D600%26pitch%3D7.848913238620483%26panoid%3Dm6naOL\\_T4loA4V5HxotYpq%26yaw%3D99.79864116995257!7i13312!8i6656!4m15!1m8!3m7!1s0x488fc8ae923cc6ff:0x3a960f44ce74e6be12sRiver+Oykel!8m2!3d57.9724775!4d-4.7429836!10e5!16s%2Fm%2F026dp5\\_!3m5!1s0x488fc8ae923cc6ff:0x3a960f44ce74e6be12!3d57.9724775!4d-4.7429836!16s%2Fm%2F026dp5\\_?entry=ttu&g\\_ep=EgovMDI1MDYwMS4wKXMDSoASAFQAw%3D%3D](https://www.google.com/maps/place/River+Oykel/@57.961604,-4.7299052,3a,75y,99.8h,82.15t/data=!3m7!1e1!3m5!1sm6naOL_T4loA4V5HxotYpq!2e0!6shttps:%2F%2Fstreetviewpixels-pa.googleapis.com%2Fv1%2Fthumbnail%3Fcb_client%3Dmaps_sv.tactile%26w%3D900%26h%3D600%26pitch%3D7.848913238620483%26panoid%3Dm6naOL_T4loA4V5HxotYpq%26yaw%3D99.79864116995257!7i13312!8i6656!4m15!1m8!3m7!1s0x488fc8ae923cc6ff:0x3a960f44ce74e6be12sRiver+Oykel!8m2!3d57.9724775!4d-4.7429836!10e5!16s%2Fm%2F026dp5_!3m5!1s0x488fc8ae923cc6ff:0x3a960f44ce74e6be12!3d57.9724775!4d-4.7429836!16s%2Fm%2F026dp5_?entry=ttu&g_ep=EgovMDI1MDYwMS4wKXMDSoASAFQAw%3D%3D)

