

Oweninny Wind Farm Phase 3

Environmental Impact Assessment Report

Appendix 7.3 Electronic Fishing Survey Results

Report
on
Electro-fishing at Sites
in the area of a
Proposed Wind Farm
September 2021

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1.2 Species

The species recorded were:

3-spined stickleback (*Gasterosteus aculeatus*)

Trout (*Salmo trutta*)

White clawed crayfish (*Austropotamobius pallipes*)*1

Brook/River Lamprey ammocoete (*Lampetra* sp.)*2

Lengths are given in centimetres (cm). Fork lengths are recorded for salmon and trout and full lengths for other species. The carapace length (cm) is given for crayfish. Fish are designated as (0+) in their first year and (1+) in their second year.

The survey complied with the Certificate of Authorisation provide by the Department of Communications, Climate Action & Environment.

*1 protected under both Irish law (Wildlife Act 1976) and the EU Habitats Directive Annexes II and V. It is classified as endangered in the (IUCN) Red List. It is listed in Appendix III of the Bern Convention

*2 Brook and river Lamprey are listed in Annex II of the Habitats Directive and in Appendix III of the Bern Convention.

2.0 The Cloonaghmore System.

Sites C1 and C2

These sites are located at the top extreme of the proposed location Fig.1, on streams known locally as the Owenmore and the Fiddaunmuig. The Owenmore joins with the Duvowen to become the Cloonaghmore. The Cloonaghmore is an important salmonid river. Stocks are presently below their conservation limit and the river is open for catch and release only.

2.1 Site C1



Photo C1-1. View of site fished



Photo C1-2 Upstream

Start position:	54.137586	-9.418032
End position:	54.137534	-9.418704
Fishing method:	10 minute timed fishing.	
Length Fished:	45m	
Water colour	Dark brown	

This is a small stream with banks of wild grasses and heathers. Downstream Photo C1-1 shows sheer high banks. This section was probably drained and deepened to provide better drainage for turf

Table C1-1	
Trout	Eel
17.3	22.0
15.7	
15.6	
14.6	
13.6	
7.2	
7.0	
6.6	

cutting. There is some instream vegetation but very little cover for fish. The width was 2-3m with a depth 15cm to 50cm with a mostly peat substrate with little or no gravels. Upstream is more natural, Photo C1-2 with wild grasses with occasional stunted trees. Bank grasses overhang the stream providing some cover for fish. This stream despite its barren aspect holds 0+ and 1+ trout, Table C1-1. There was also eel present. It is expected that the more natural upstream areas supports greater numbers. Aerial 1, Appendix 2, shows the extent of bog around this stream but it has good sinuosity upstream suggesting

good trout habitat.

2.1.1 Fishery Value: This stream is an important trout nursery area for the Cloonaghmore system.

2.2 Site C2



C2-1 Upstream view of the site



Photo C2-2 View of the downstream area

Start position: 54.155275 -9.431421
 End position : 54.155516 -9.431613
 Fishing method: 10 minute timed fishing
 Length fished : 34m
 Water: Slightly coloured

The substrate is cobble gravel and occasional boulder with some instream vegetation. The landscape is agricultural grazing land with forestry well separated from the river. There is a good mixture of glide, deep flow pool, pool and riffle. The width varied between 9-10m.

This tributary supports a good population of salmon both 0+ and 1+ and also a population of trout both 0+ 1nd 1+. Minnow and eel were also present, Table 2-1

Table C2-1			
Salmon	Trout	Minnow	Eel
12.0	20.3	5.1	25.0
11.7	16.5	5.0	
11.0	15.2	4.6	
10.4	14.0	4.5	
10.3	13.6	4.2	
9.6	8.3	4.0	
6.5	8.0	2.1	
6.4	7.4	2.0	
6.1	6.4	2.0	
6.1	6.0		
6.0			
6.0			
6.0			
6.0			
5.8			
5.7			
5.6			
5.5			
5.5			
5.5			
5.5			
5.5			
5.0			
4.9			
4.6			
4.5			
4.3			

Aerial 2, Appendix 2, shows the natural sinuosity of the river and the predominance of forestry. There is however a reasonable river margin, free of trees. Photo C2-2

2.2.1 Fishery Value. This is an important tributary particularly for salmon with a good mixture of 0+ and 1+ trout.

3.0 The Owenmore System

The sites on the Muing (M1-M3) and the site OW1, all enter the Oweninny river. The Oweninny is an important tributary of the Owenmore. The Owenmore is a major angling river and is currently meeting its conservation target. The Owenmore River is currently open for “brown tag” salmon fishing.

3.1 Site OW1



Photo OW1-1, Looking upstream



Photo OW1-2, looking downstream

Start position: 54.152677 -9.541471
End position: 54.152739 -9.540769
Fishing method: 10 minute timed fishing.
Length fished: 47m
Water Colour: Brown

Banks are grass and rushes over peat with low bushes and little overhanging cover. The first part of site is deep and slow flowing Photo OW1-1, the upper reach has patches of riffle area Photo OW1-2. There is little instream vegetation. The substrate is a gravel base with peat and silt. The width was between 2m and 3m and the depth varied between 40-60cm. The deeper pool areas have deposits of mud and silt. Historically there were silt traps above the site Photo OW1-3



Photo OW1-3 shows silt trap on the left bank.

Aerial 3, Appendix 2, shows the extent of peatland around this tributary and its junction with the Oweninny.

Table OW1-1			
Salmon	Trout	Stickleback	Minnow
8.6	14.0	x10	6.6
9.2	11.0		
8.7	10.6		
8.2	6.1		
7.1	5.7		
5.8	5.6		
5.3	5.0		
5.2	5.0		
5.2	5.0		
5.2	4.8		
5.1			
5.0			
5.0			
5.0			
5.0			
5.0			
5.0			
4.8			
4.8			
4.8			
4.8			
4.7			
4.7			
4.7			
4.6			
4.5			
4.2			
4.1			
4.0			

Salmon were plentiful with 0+ predominant and possibly some 1+ fish, Table OW1-1. There were 0+ and 1+ trout present. Stickleback and minnow were recorded.

3.1.1 Fishery Value. This is a good salmonid river with salmon the main species. This river despite the presence of silt and obviously traditional problems of siltation is a valuable nursery for the Oweninny.

3.2 Site M1



Start position: 54.130416 -9.531647
 End position : 54.13037 -9.531049
 Fishing method: 10 minute timed fishing.
 Length fished: 42m

Site M1 is little more than a drain, 0.5 to 0.7m wide and 20-40cm deep, Photos M1-1 and M1-2. The substrate is cobble and fines at the start of the stretch and then mud. It is in rough grazing land. It supports both 1+ and 0+ trout, Table M1-1. This is a tributary of the Muing and acts as a nursery area.

Table M1-1
Trout
15.0
9.7
9.2
8.1

Aerial 4, Appendix 2, shows the stream surrounded by forestry , worked peatland and rough pasture.

3.2.1 Fishery Value. Despite its small size this is a valuable nursery area for the Mulng river and possibly contributes to the lake, Lough Dahybaun.

3.3 Site M2



Photo M2-1 Upstream view



Photo M2-2 Downstream view

Start position: 54.129218 -9.548741
 End position : 54.129589 -9.54854
 Fishing method: 10 minute timed fishing.
 Length fished: 43m
 Water Colour: Dark Brown

This is a slow flowing canal like stretch 1.5 to 2m wide. Varying in depth between 40cm and 60cm. There was some instream vegetation. It has open grass banks with thistle before meeting forestry. The left bank was of peat and scrub. Aerial 5, Appendix 2, shows the extent of forestry and peat land. There was Potamagen and starwort instream. The substrate is clay with peat and sand. It supports a population of mainly 1+trout. Salmon were also present. Although Stickleback and

minnow were present the dominant feature of this site was the presence of lamprey. Lamprey, because of their preferred habitat, are difficult to electro-fish and it is assumed that the numbers shown are understated.

Trout	Salmon	Stickleback	Minnow	Lamprey
17.4	13.9	x3	8.3	8.4
16.6	11.0		6.2	9.7
15.6			5.7	9.5
15.0			5.7	9.5
12.4				9.0

one trout missed 3+ (~25cm)

3.3.1 Fishery Value: This is a valuable tributary providing nursery areas for salmon and mainly 1+ trout. A large trout was reported around 25cm but not measured. There were stickleback and minnow present. Lamprey were plentiful in the stretch. Overall this is a productive stream. The presence of a good population of lamprey makes this a sensitive section of river and will require careful monitoring.

3.4 Site M3



Photo M3-1



Photo M3-2

Start position: 54.117353 -9.56488
 End position: 54.117397 -9.564255
 Fishing method: 10 minute timed fishing.
 Length fished : 42m
 Water Colour: Dark Brown.

The river Muing is slow flowing and canal like 2m wide at this point. There is a defunct dam before it reaches the Oweninny river, which was designed to trap silt. The stretch has been drained to remove

Salmon 0+	Salmon 1+	Trout	Minnow
7.0	10.3	19.2	7.0
6.6	11.4	14.6	6.6
6.4	10.0	14.3	6.4
6.4		13.1	6.0
6.0		11.8	5.8
6.0		7.4	5.8
6.0		6.3	
5.8		5.8	
5.8			
5.7			
5.7			
5.7			
5.5			
5.5			
5.5			
5.5			
5.4			
5.4			
5.4			
5.0			

silt and improve flow. Waste was deposited on the banks. The banks are steep and sheer and provide little cover for fish. There was a further silt trap (dam) above this point. These dams are not now operating but must have had a negative impact on salmon. There was some instream vegetation mainly (*Sparganium emersum*) and *Callitriche sp.*

The substrate is gravel and cobble with some peat and coarse sand. The upstream end of the site is soft with mud and peat. Aerial 6, Appendix 2, shows the canal like nature of the river.

There are 0+ and 1+ salmon in good numbers. There are also 0+ and 1+ trout, Table C2-1. Minnow and stickleback (16) were also present. One lamprey was recorded (8.0cm).

3.4.1 Fishery Value: Despite traditional turf exploitation, dredging and siltation problems this is a good nursery area for salmon and trout, especially 0+salmon and will contribute to the Oweninny. It also has lamprey present and the river is likely to have pockets of lamprey and must therefore be regarded as sensitive.

4.0 The Moy System.

The small streams that drain this area form the Shanvolahan river that flows to the Deel River and ultimately to the Moy. The Deel river forms part of the River Moy Special Area of Conservation which affords protection to Salmon, Crayfish and Lamprey.

4.1 Site S1



Photo S1-1



Photo S1-2

Start position: 54.110144 -9.470258
 End position: 54.110521 -9.470256
 Fishing method: 10 minute timed fishing.
 Length fished: 44m
 Water: Dark brown

The stream at this point varied between 1.5m and 2.0m, Photo S1-1 and is canal like Photo S1-2. The

Table S1-1	
Trout	Salmon
15.8	11.3
13.0	10.0
7.2	9.3
7.1	6.7
7.1	
7.0	
6.9	
6.8	
6.6	
6.3	
5.9	
5.6	
5.5	
5.5	

water depth was 15cm deepening to 40cm at the upstream end of the site where there was a glide/pool area. A good salmonid substrate with rock and boulder with some fine gravels in moderately good patches of agricultural land Aerial 7, Appendix 2.

Further upstream it reverts to bog and forestry. There was little or no overhanging vegetation to provide cover and little instream vegetation. The downstream section of the site is at the location of an old road bridge which has been knocked down. This has contributed some boulder and stone to this part of the site.

There were trout (0+ and 1+) and salmon present Table S1-1. The fish were very dark in colour reflecting the water colour. The trout were very thin suggesting poor feeding.

Aerial 7, Appendix 2. shows the mixture of peatland and poor agricultural land.

4.1.1 Fishery Value. For its size this is a good salmonid stream providing a nursery area for trout and salmon. The site is sensitive as it produces salmon.

4.2 Site S2



Photo S2-1 Downstream view



Photo S2-2 Upstream view

Start position : 54.117348 -9.463843
 End position : 54.117417 -9.46484
 Fishing method: 10 minute timed fishing.
 Length fished: 72m
 Water: Dark brown difficult to fish.

This was a small stream varying in width from 0.5m to 1m, Photo S2-1, flowing through poor

Trout	Salmon	Minnow
16.4	11.0	11 (5-8cm)
12.8	6.8	
12.0	6.6	
9.8		
9.6		
9.0		
8.3		
8.1		
8.0		
7.7		
7.3		
7.2		

overgrown agricultural land with forestry at the outer end. It has been dredged to provide better flow so that the banks are steep Photo S2-1. It had however a hard substrate of gravel and cobble with little peat or muds. It was 20cm deep with some pools 40cm. It had no bank cover except for Carex species and sedges that some times over lapped the stream and some instream vegetation Photo S2-2. The site supported 0+ and 1+ trout, salmon and minnow (11) ranging from 5cm to 8cm. The fish were dark in colour reflecting the water type.

Aerial 8, Appendix 2, shows the mixture of forestry and open peat ground.

4.2.1 Fishery Value: This is a good trout producing stream with some salmon production. The site is sensitive because of the presence of salmon.

4.3 Site S3



Photo S3-1, Downstream view



Photo S3-2, Upstream view

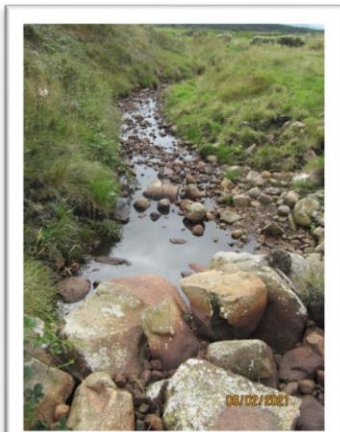


Photo S3-3, The rock armoury



Photo S3-4, Upstream of the site

Start position: 54.128166 -9.475058
 End position: 54.128892 -9.475221
 Fishing method: 10 minute timed fishing.
 Length fished: 83m
 Water Colour: Brown

This stream had a good substrate of cobble gravel and boulder, Photo S3-1 and S3-2. It had a fairly constant width of 1m to 1.5m. It was 10 to 20cm in depth with few pools and no glides. Good agricultural land on right bank, Aerial 9, Appendix 2, with bramble and scrub on the left bank with some overhang.

Trout	Salmon	Crayfish	Stickleback
9.6	12.5	3.5	0+ 1+ 3+
6.0		3.0	

The upstream section of the stream has been blocked to provide a road ford for farm traffic. Photo S3-3. The stream percolates through the rock armoury. There were trout and salmon present but in low numbers, Table S3-1. There were sticklebacks of 3 different age groups. Two crayfish were found.

The upstream section Photo S3-4 did not form part of the 10 minute fishing but casual fishing there revealed no fish.

4.3.1 Fishery Value. This stream has good salmonid substrate but few fish were present. The artificial blockage may be influencing the numbers present as the substrate should support greater numbers. The presence of Crayfish makes this a sensitive tributary.

4.4 Site S4



Start position: 54.119117 -9.455079
 End position: 54.118873 -9.454489
 Fishing method: 10 minute timed fishing.
 Length fished: 47m
 Water colour: Relatively clear.

The site is in poor agricultural grazing land. Low bushes on the left bank provide cover and overhang, Photo S4-1. There are grasses and sedges on left bank. The landscape is flat but there is a reasonable

Trout	Salmon	Stickleback	Minnow	Crayfish
9.5	12.2	x7	x1	6.0
9.0				4.0
8.3				
8.3				
8.3				
8.3				
8.0				
8.0				
8.0				
8.0				
7.6				
7.5				
7.4				
7.3				
7.3				
7.2				
7.1				
7.1				
7.0				
7.0				
6.7				
6.3				
6.0				
6.0				

flow. There is a good clean substrate of cobble and gravel with little peat and silt. It had an even width of 0.75m. Photo S4-2

There was a good population of trout mainly 0+ fish. One salmon was recovered. There were stickleback, minnow and crayfish. Table S4-1.

Aerial 8, Appendix 2, shows the mixture agricultural land and forestry.

4.4.1 Fishery Value: This is a good salmonid stream producing brown trout. The fish were mainly 0+ and were of good size suggesting adequate feeding. There were stickleback, minnow and crayfish present. Only 1 salmon was found but it would be expected that there would be salmon in areas of riffle. The presence of salmon and crawfish make this a sensitive tributary.

5.0 Assessment

All the tributaries draining this area, even very minor ones have populations of salmonids. They all ultimately feed important salmon angling rivers.

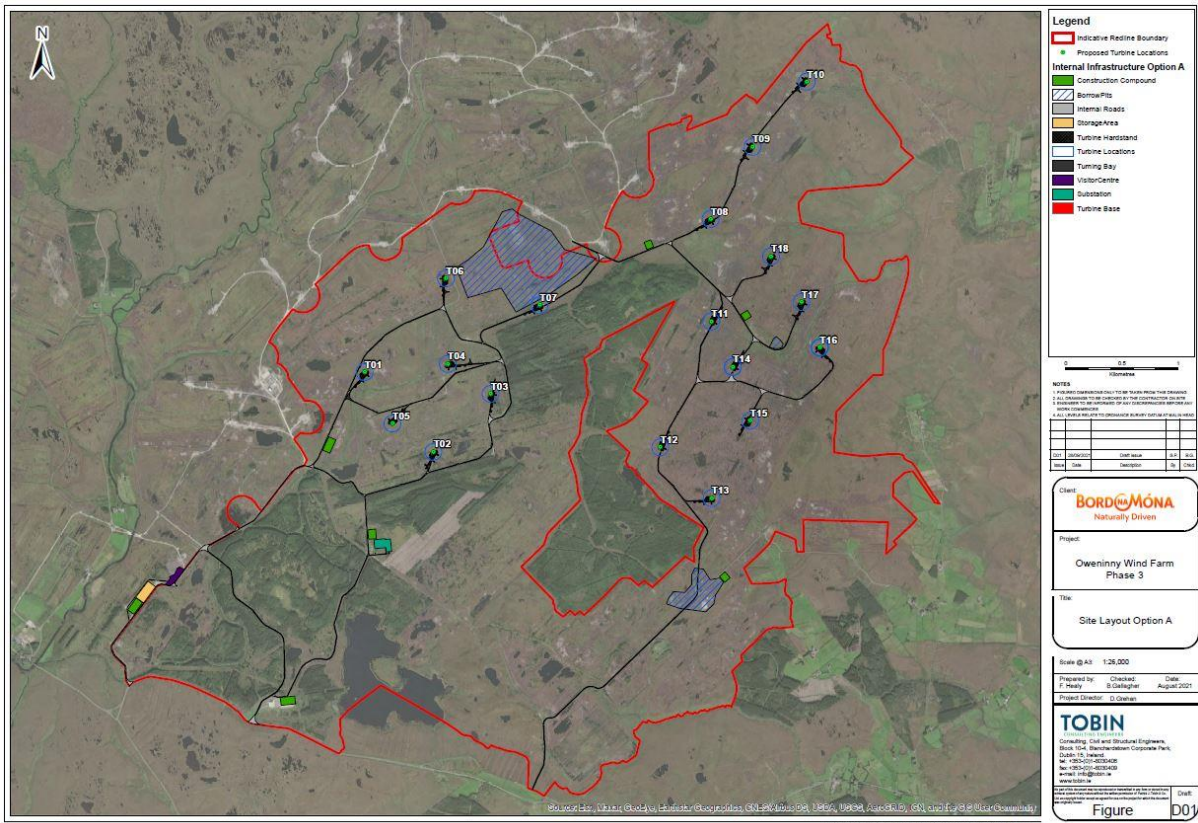
The sites feeding the Cloonaghmore system are at the northern end of the proposed area. C1 is a good producer of trout while C2 is a very productive stream and an important contributor of salmon to the system. The tributaries however are well removed from proposed developments.

The Owenmore system has tributaries contributing to the Owenmore. The sites M1 to M3 are in an area where service roads will provide possible interaction. These tributaries are producing salmon for the Owenmore system and are therefore important to the Catchment.

The Tributaries draining to the Deel, (Sites S1 to S4) and ultimately the Moy, which has a Special Area of Conservation, status, are outside the proposed area of activity however they must be regarded as sensitive as they all produce salmon. Crayfish were found on two of the tributaries and will have to be afforded protection.

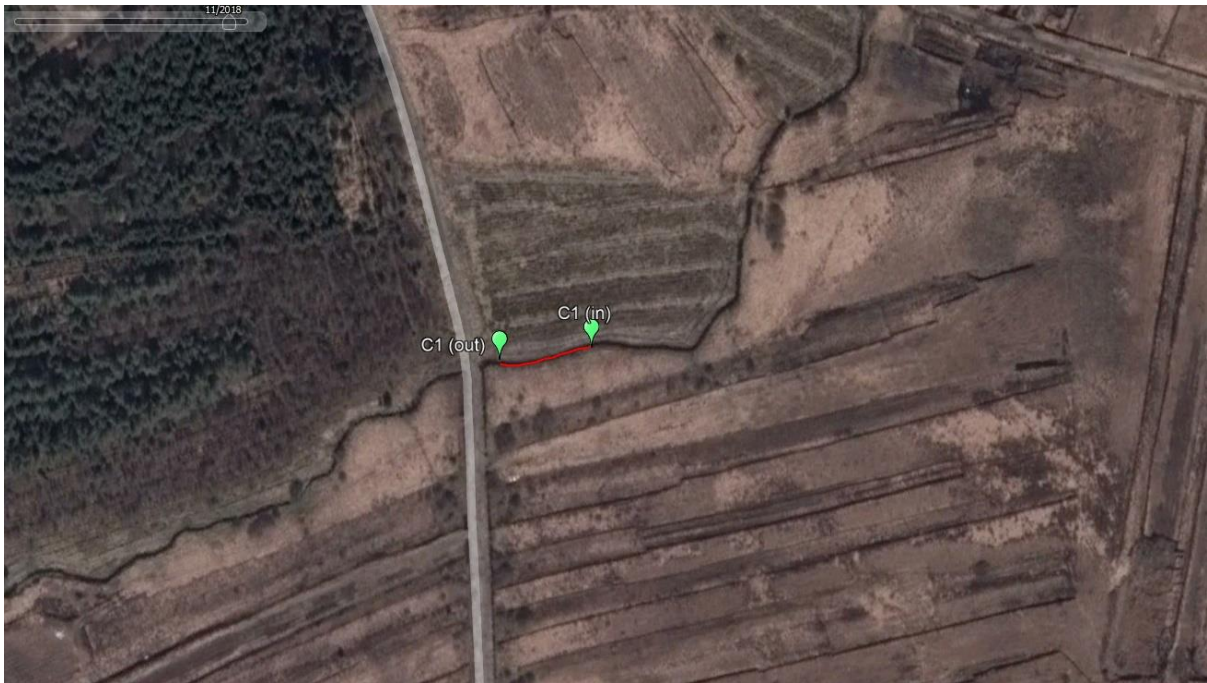
Appendix 1

Proposed location of Turbines and Service roads

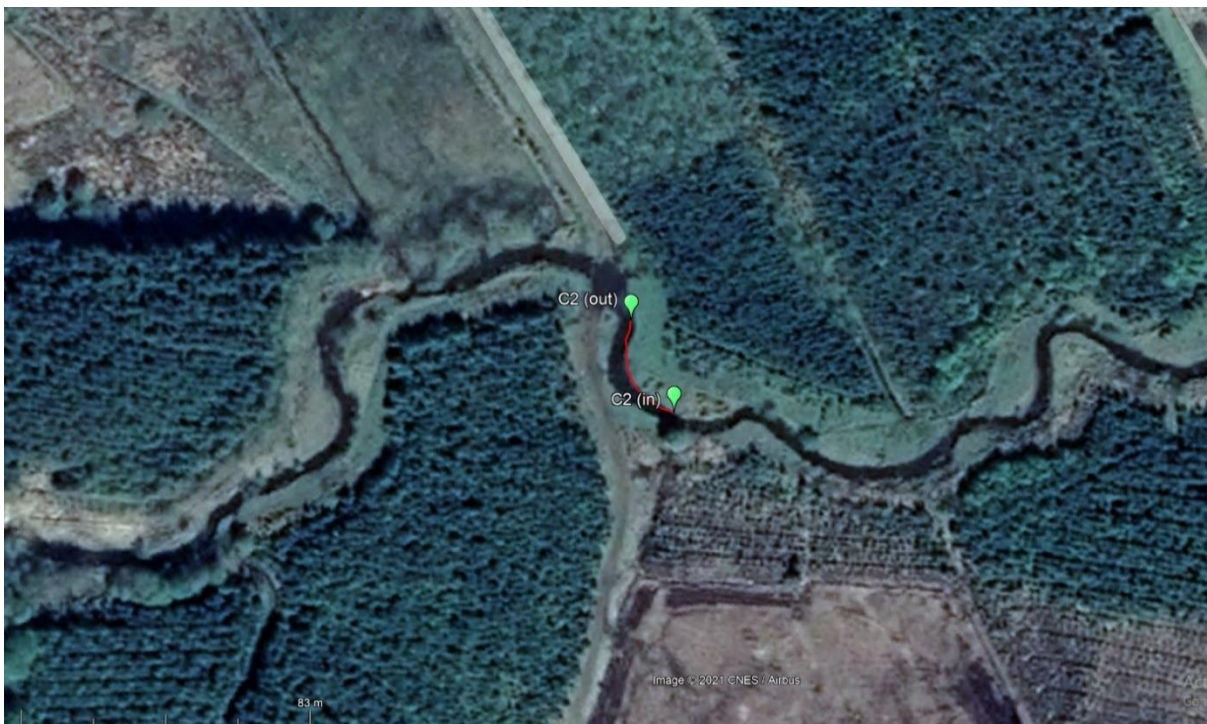


Appendix 2

Aerial Views of Electro-fishing Sites



Aerial 1 Site C1



Aerial 2 Site C2



Aerial 3 Site OW1



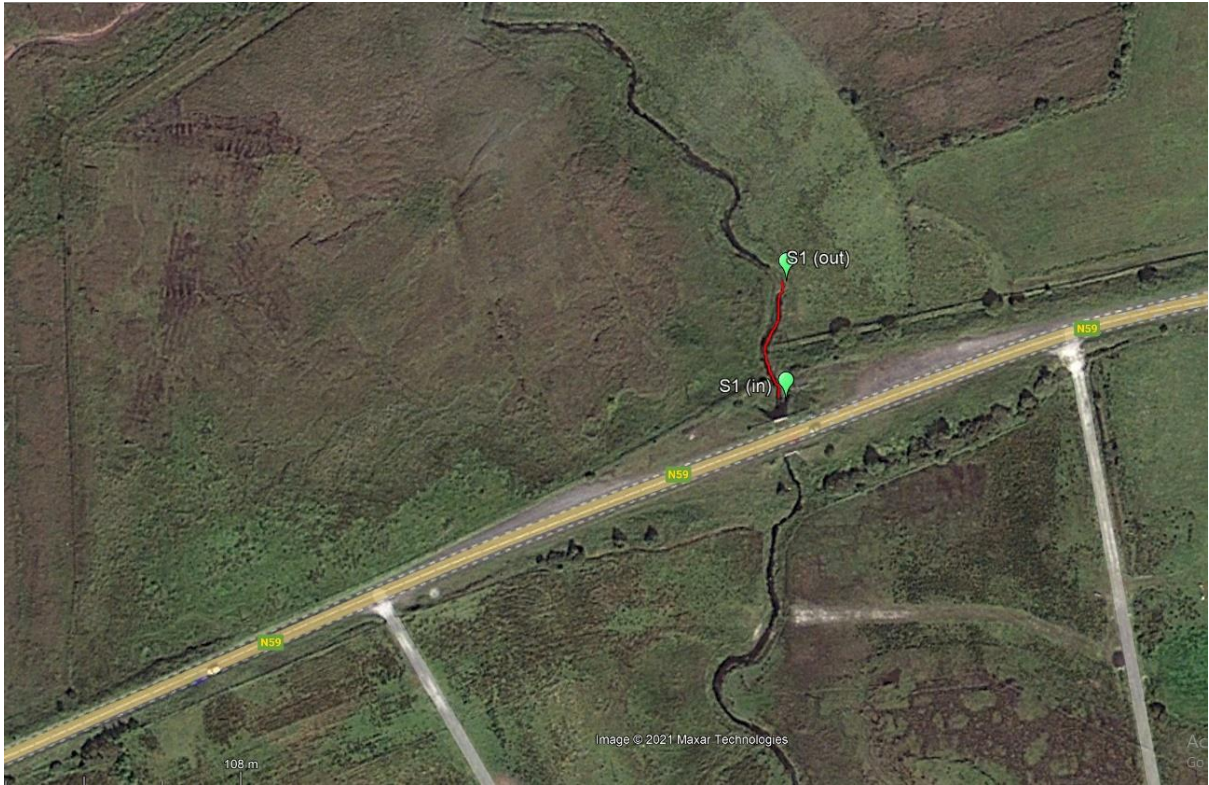
Aerial 4 Site M1



Aerial 5 Site M2



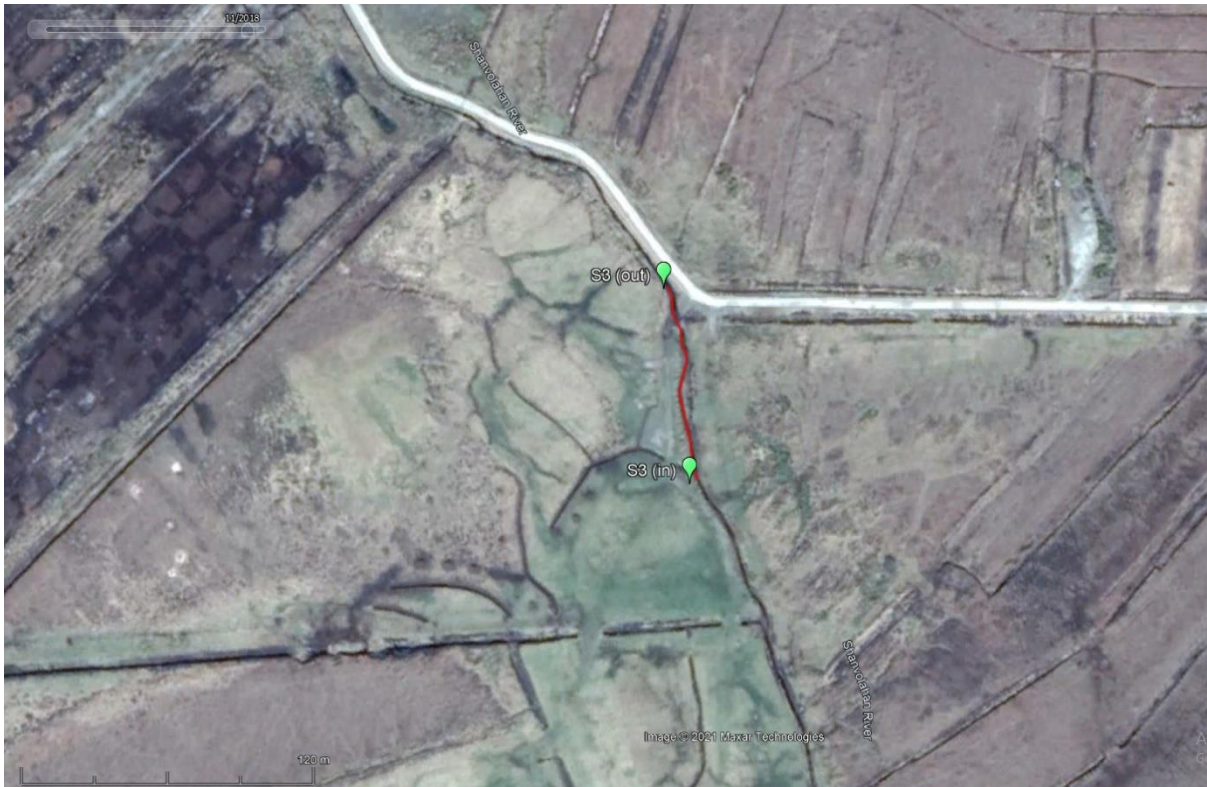
Aerial 6 Site M3



Aerial 7 Site S1



Aerial 8 Site S2



Aerial 9 Site S3



Aerial 10 Site S4 . The figure also shows Site S2