



TULLAGHMORE WIND FARM FISH POPULATION ASSESSMENT

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Tait Business Centre, Dominic Street,
Limerick City, Ireland.

t. +353 61 419477, f. +353 61 414315

e. info@ecofact.ie

w. www.ecofact.ie



TABLE OF CONTENTS

1. INTRODUCTION	3
2. METHODOLOGY.....	3
2.1 SELECTION OF WATERCOURSES FOR ASSESSMENT	3
2.2 HABITAT SURVEYS.....	3
2.3 ELECTRICAL FISHING SURVEY.....	3
3. RECEIVING ENVIRONMENT	6
3.1 THE CORRIB CATCHMENT	6
3.2 WATERCOURSES DRAINING THE PROPOSED WIND FARM SITE	7
3.3 RESULTS OF THE AQUATIC SURVEYS.....	14
3.3.1 SITE 1.....	14
3.3.2 SITE 2.....	14
3.3.3 SITE 3.....	14
3.3.4 SITE 4.....	14
3.3.5 SITE 5.....	15
3.3.6 SITE 6.....	15
3.3.7 SITE 7.....	15
3.3.8 SITE 8.....	16
3.3.9 SITE 9.....	16
3.3.10 SITE 10.....	16
3.3.11 Site 11	16
3.3.12 Site 12	17
3.3.13 Site 13	17
REFERENCES.....	21
PLATES.....	22

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1. INTRODUCTION

This report provides a baseline description of the fish populations in the watercourses draining the proposed Tullaghmore wind farm site. The proposed Tullaghmore Wind Farm is located to the northeast of Maam Cross, Co Galway, in the Corrib catchment. The general location and layout of the proposed wind farm in relation to local watercourses is shown in Figure 1. The location of the proposed wind farm in relation to the Corrib catchment is indicated in Figures 2.

The fish populations were assessed with a fish habitat survey and electrofishing survey completed during September 2022. A total of 13 sites were selected for the survey work and assessments. This survey was completed under authorisation from the Department of Communication, Energy and Natural Resources under Section 14 of the Fisheries Act (1980). The location of the aquatic sampling survey sites is indicated in Figures 3 and 4.

2. METHODOLOGY

2.1 Selection of Watercourses for Assessment

All watercourses / water bodies which could be affected directly (i.e. within the site) or indirectly (i.e. drain areas close to the site) were considered as part of the current appraisal. Generally only streams and other watercourses shown on the EPA online maps were examined, as watercourses smaller than this are not normally of fisheries or aquatic ecological significance. A total of 13 sites were selected for the habitat and electrofishing surveys. These sites were located at representative areas and were located both upstream and downstream of proposed wind farm infrastructure. The location and watercourses of the Owenwee catchment are shown in Figures 3 and 4. The location of these sites is given in Table 1 and also indicated in Figures 5 and 6.

The surveys completed at each site were at a level required to make an evaluation of the importance of the site for fish. The surveys included fish habitat assessments and electrofishing surveys.

2.2 Habitat Surveys

2.3 Electrical Fishing Survey

Aquatic surveys were carried out at all of the survey sites in September 2022. The majority of the watercourses were categorised as watercourses of insignificant aquatic ecological importance. Each site was assessed for potential salmon and lamprey habitat. An electrical fishing survey was undertaken during September 2020. This was completed under authorisation from the Department of Communication, Energy and Natural Resources under Section 14 of the Fisheries Act (1980). The survey had regard to the CFB (2008) guidance and Matson *et al* (2018).

A portable electrical fishing unit (Smith Root-LR 24 backpack) was used during the assessments. Fishing was carried out continuously for 10 minutes at each of the sites. Captured fish were collected into a container of river water using dip nets. On completion of the survey fish were then anaesthetised using a solution of 2-phenoxyethanol, identified, and measured to the nearest mm using a measuring board. Subsequent to this the fish were allowed to recover in a container of river water and were released alive and spread evenly over the sampling area. No mortalities were recorded.



Juvenile lamprey surveys generally followed the methodology for ammocoete surveys given in the manual 'Monitoring the River, Brook and Sea Lamprey, *Lampetra fluviatilis*, *L. planeri* and *Petromyzon marinus* by Harvey & Cowx (2003). Electrical fishing for juvenile lampreys was carried out at three 1m² habitat patches where habitat was available. However, no lamprey habitats were recorded at any of the sites.

Table 1 Location of the aquatic ecology sites assessed for the proposed Tullaghmore wind farm site.

Site No.	Catchment	Sub-catchment	Watercourse Name	Watercourse Order	Segment Code	EPA Code
1	Corrib	Corrib_SC_10	Unnamed	1 st	30_1229	-
2	Corrib	Joyce's_SC_10	Owenwee [Corrib]	3 rd	30_1096	30O03
3	Corrib	Joyce's_SC_10	Owenwee [Corrib]	3 rd	30_1095	30O03
4	Corrib	Joyce's_SC_10	Tullaghmore	2 nd	30_2970	30T15
5	Corrib	Joyce's_SC_10	Unnamed	1 st	30_1427	-
6	Corrib	Joyce's_SC_10	Tullaghmore	1 st	30_1428	30T15
7	Corrib	Joyce's_SC_10	Unnamed	2 nd	30_3271	-
8	Corrib	Joyce's_SC_10	Tawnaghbeg 30	1 st	30_3082	30T16
9	Corrib	Joyce's_SC_10	Owenwee [Corrib]	3 rd	30_283	30O03
10	Corrib	Joyce's_SC_10	Owenwee [Corrib]	1 st	30_2420	30O03
11	Corrib	Joyce's_SC_10	Letterkeeghaun 30	2 nd	30_587	30L20
12	Corrib	Joyce's_SC_10	Letterkeeghaun 30	2 nd	30_587	30L20
13	Corrib	Joyce's_SC_10	Letterkeeghaun 30	1 st	30_682	30L20

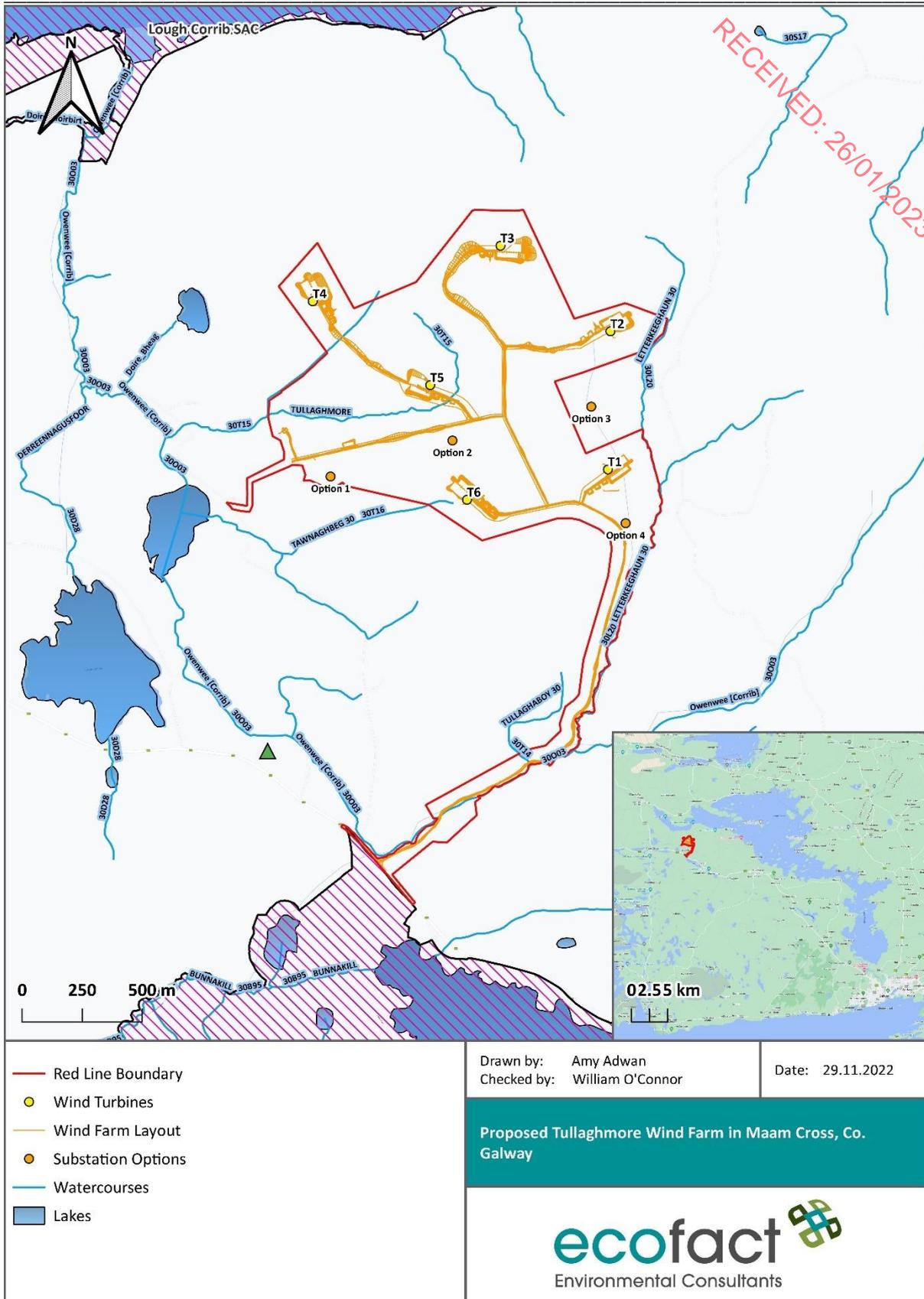


Figure 1 The location of the proposed Tullaghmore Wind Farm and local watercourses.



3. RECEIVING ENVIRONMENT

3.1 The Corrib catchment

The Corrib catchment spans across the counties Galway and Mayo and covers an area of approximately 4,000km² (IFI, 2020). The catchment contains many small lakes, as well as the larger Lough Corrib, Mask and Carra. Lough Corrib is the second largest lake in Ireland after Lough Neagh. The total lake and river area in the Corrib catchment has been estimated to be 277.67km² and 6.87km² respectively (O'Connor, 2007). A total of 469km of main river channels are present in the catchment (Toner *et al.*, 2005). The total population of the catchment is approximately 116,866 with a population density of 38 people per km² (EPA, 2021).

The geology of the catchment in general comprises carboniferous limestone, with the west and north-west areas of Lough Corrib and Lough Mask also comprising silurian quartzite, schists and gneiss with smaller outcrops of granite (O'Connor, 2007).

The majority of the Corrib catchment were subjected to major drainage schemes during the mid 1800's, the 1950s and the 1980s (O'Connor, 2007). These schemes have resulted in the reduction of the sizes of Lough Corrib and Lough Mask, as well as having significant effects on hydrology and fisheries in the catchment. A regulating weir was built on the River Corrib during the scheme from 1848-1858 (O'Connor, 2007). As part of the Corrib-Clare Drainage scheme during the 1950s, extensive blasting and dredging of the River Corrib and the replacement of the Galway regulating weir was undertaken. The Cong salmon hatchery was then set up in the 1970s to attempt to mitigate the impact of past schemes. An EU funded physical rehabilitation programme was then completed in the 1990s to try to offset some of the fisheries impacts that occurred (O'Connor, 2007).

There are a total of 25 Special Areas of Conservation (SAC's) in the catchment, including Lough Corrib SAC (000297), Lough Carra Mask Complex SAC (001774) and the Connemara Bog Complex SAC (002034) (IFI, 2020). There are also 3 Special Protection Areas (SPAs) in the catchment including Lough Carra SPA (004051), Lough Corrib SPA (004042) and Lough Mask SPA (004062). The lakes and rivers in the catchment support numerous protected habitats and species (including salmon, freshwater pearl mussel, white-clawed crayfish, sea lamprey and otter) (IFI, 2020). Lough Corrib is also a designated Ramsar Wetland site, since 1996. IFI (2020) note that Loughs Corrib, Mask and Carra are three of the best brown trout fisheries in Ireland and Lough Corrib and the River Corrib are also renowned for their salmon angling.

The Environmental Protection Agency (EPA) have assessed water quality in the Corrib catchment since 1985 as part of the National Water Quality Monitoring Programme (O'Connor, 2007). The EPA also undertake monitoring as part of the commitments under the EU Water Framework Directive (WFD). The Corrib catchment is divided into 19 sub catchments, with 97 river waterbodies, 30 lake waterbodies, one transitional waterbody, no coastal waterbodies and 31 groundwater bodies (EPA, 2021). As part of the monitoring assessment period 2013-2018, or Cycle 3, the last assessment period for which all data is available, four waterbodies in the catchment achieved 'High' status (EPA, 2021). Of the remainder, 89 waterbodies achieved 'Good' status, 24 achieved 'Moderate' status, 5 achieved 'Poor' status and there are 2 'Bad' status waterbodies. There are at least 35 waterbodies that were not assigned a status for Cycle 3 (EPA, 2021). In comparison with the previous WFD Cycle 2, from 2010-2015, 14% of waterbodies have improved in status, 79% remained unchanged and 7% declined in status. There is noted to be an overall improvement in the status of 8 waterbodies across the catchment since the Cycle 2 assessment (EPA, 2021). For the River Corrib biological water quality rating carried out by the EPA,



there has been no change in water quality for each year sampled since 1985. The River has maintained 'Good' ecological conditions at Q4 since this period.

3.2 Watercourses draining the proposed wind farm site

The proposed Tullaghmore wind farm site is located to the north-western corner of Lough Corrib, south of the lake. Figure 2 shows the location of the proposed wind farm site in relation to the Corrib catchment. It is located north of the Owenriff river and south of Joyce's River. It is also located just north of the Connemara Bog Complex SAC, and south-east of the Maumturk Mountains SAC. The site itself is an upland area on Cappanaurabaun mountain (273m) and surrounds with little access roads. The entire wind farm site is eventually drained by River Owenwee [Corrib] (EPA Code: 30O03). The River Owenwee flows to the east and then west of the proposed wind farm site and is just c. 7.2km in length, also flowing through the Tawnaghbeg Lough on the way. After this it flows into Lough Corrib to the north.

The River Owenwee [Corrib] rises to the south-east of Cappanaurabaun from the very small Lough Beg, outside of the proposed wind farm site to the east within Derroura Forest and Kneraunnageeragh mountain (305m). From here it flows in a south-westerly direction, joined by one small unnamed stream (EPA Segment Code: 30_2262). Approximately 350m downstream it is then joined by the Letterkeeghaun 20th order Stream (EPA Code: 30L20). This stream is also joined by another 1st order unnamed stream before joining the River Owenwee [Corrib]. Further downstream along the River Owenwee, there is another 1st order stream called the Tullaghboy 30, joining as a tributary (EPA Code: 30T14), before the river continues in a south-westerly direction. After this it turns to flow north and is joined by another unnamed 1st order stream (EPA Segment Code: 30_3273). The River Owenwee then continues for c. 1km before entering the Tawnaghbeg Lough. The Tawnaghbeg 30 stream (EPA Code: 30T16), which is also joined by an unnamed 1st order stream, enters the lake. The River Owenwee [Corrib] then continues after Tawnaghbeg Lough, where it is joined by the Tullaghmore River (EPA Code: 30T15). The Tullaghmore River rises in Cappanaurabaun mountain within the proposed wind farm site, and is also joined by a 1st order stream c. 720m in length (EPA Segment Code: 30_1427). After this, the River Owenwee [Corrib] continues north. The 1st order Doire Bheag stream (EPA Code: 30D3) joins the river after flowing south-west out of an unnamed lake. Approximately 200m downstream of this confluence, the River Owenwee [Corrib] is joined by the 1st order Derreenagusofoor Stream (EPA Code: 30D28) outside of the wind farm site. The river then flows for a further c. 1km, joined by one small unnamed stream just c. 200m in length (EPA Segment Code: 30_1094). The River Owenwee [Corrib] is then joined by the 4th order Doire Hoirbirt river (EPA Code: 30D14), outside of the proposed wind farm site. The River Owenwee [Corrib] then continues for just c. 380m before entering Lough Corrib.

Went (1942) provides an account of the distribution of salmon and trout in the Owenree catchment. According to this author "*about three miles south-east of the mouth of the Bealanabrack River, a small river, the Owenwee, enters Lough Corrib. This small river drains a series of small lakes in the Maam Cross region, namely, Loughaunierin, Tawnaghbeg Lough, Loughanillaun, and Maamwee Lough*". The location of these lakes is provided in Figures 3 and 4. Went (1942) notes that "*both salmon and trout ascend the Owenwee, the salmon mainly making for the tributary draining Loughanillaun*". Went (1942) goes on to say that "*formerly salmon did not ascend more than a few hundred yards of this tributary and spawned in the gravelly areas below a fairly serious obstruction to their ascent into the upper waters. In consequence of some slight change in the rocks forming the fall, in recent years salmon have been reported to ascend the river beyond the fall, passing through Loughanillaun into Maamwee Lough*".



Went then notes that “*on the other portion of the Owenwee River an impassable fall a short distance below Loughaunierin prevents the passage of fish up into that lake*”.

Went (1942) notes that “*Loughaunierin contains a fair stock of brown trout of small size which descend the river to spawn. The shore and bottom of the lake are rocky and there is very little aquatic vegetation*”.

This author then states that “*Tawnaghbeg lough, or, as it was aptly called by an English tourist, Reedy Lake, is situated on the most extensive portion of the Owenwee itself. As its English name implies, a considerable part of its area is covered with reeds and water lilies, and jointed pipe worts are exceedingly plentiful. It contains numerous small dark brown trout throughout the year, but from August onwards big brown trout from Lough Corrib run up on every flood and lie in this lake, where they are taken by anglers. Most of these large trout are not feeding and have stomachs similar to those of adult salmon. These large Corrib trout are thin, in poor condition, and, according to persons who have eaten them, quite tasteless, as might have been expected from their sexual condition, in that the gonads are very well developed*”.

Went (1942) then notably adds that “*In the spawning season the majority of these fish travel into the small streams flowing down from the comparatively high ground on the east side of the lake*”.

O'Reilly (2007) reports that “*Loughanillaun contains Brown Trout and Salmon from Corrib late in the season*”. O'Reilly (2007) also reported that “*Tawnaghbeg lough contains a good stock of trout to 1.5lbs*”. He does not mention salmon being present in this lake and makes no reference to the large lake run Brown Trout that were noted by Went (1942). O'Reilly (2007) also gives an account for Loughaunierin and states that it gets a run of larger trout from Lough Corrib “*after a good flood in August*”. He again makes no reference to salmon using this lake.

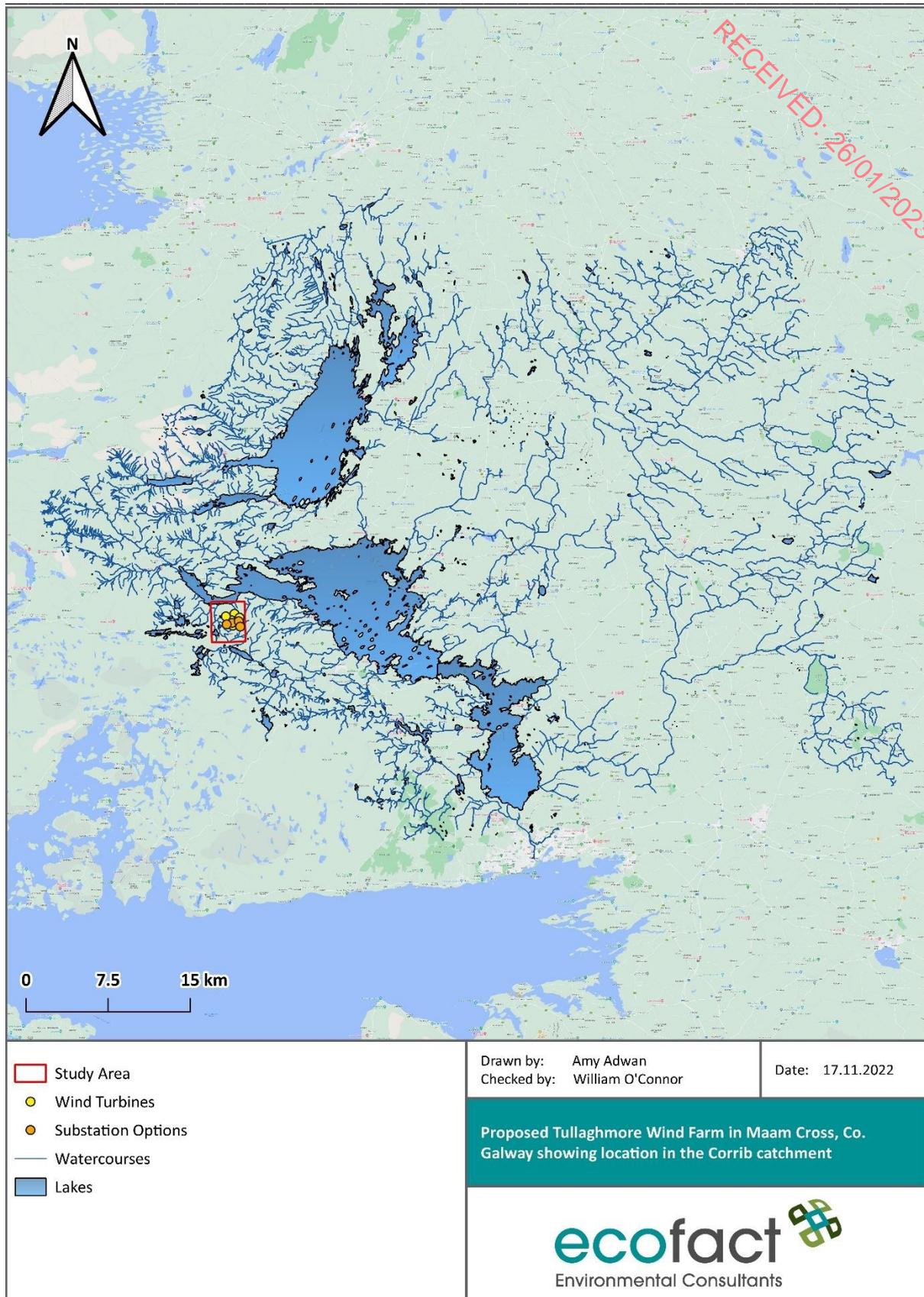


Figure 2 Location of the proposed Tullaghmore Wind within the Lough Corrib catchment.

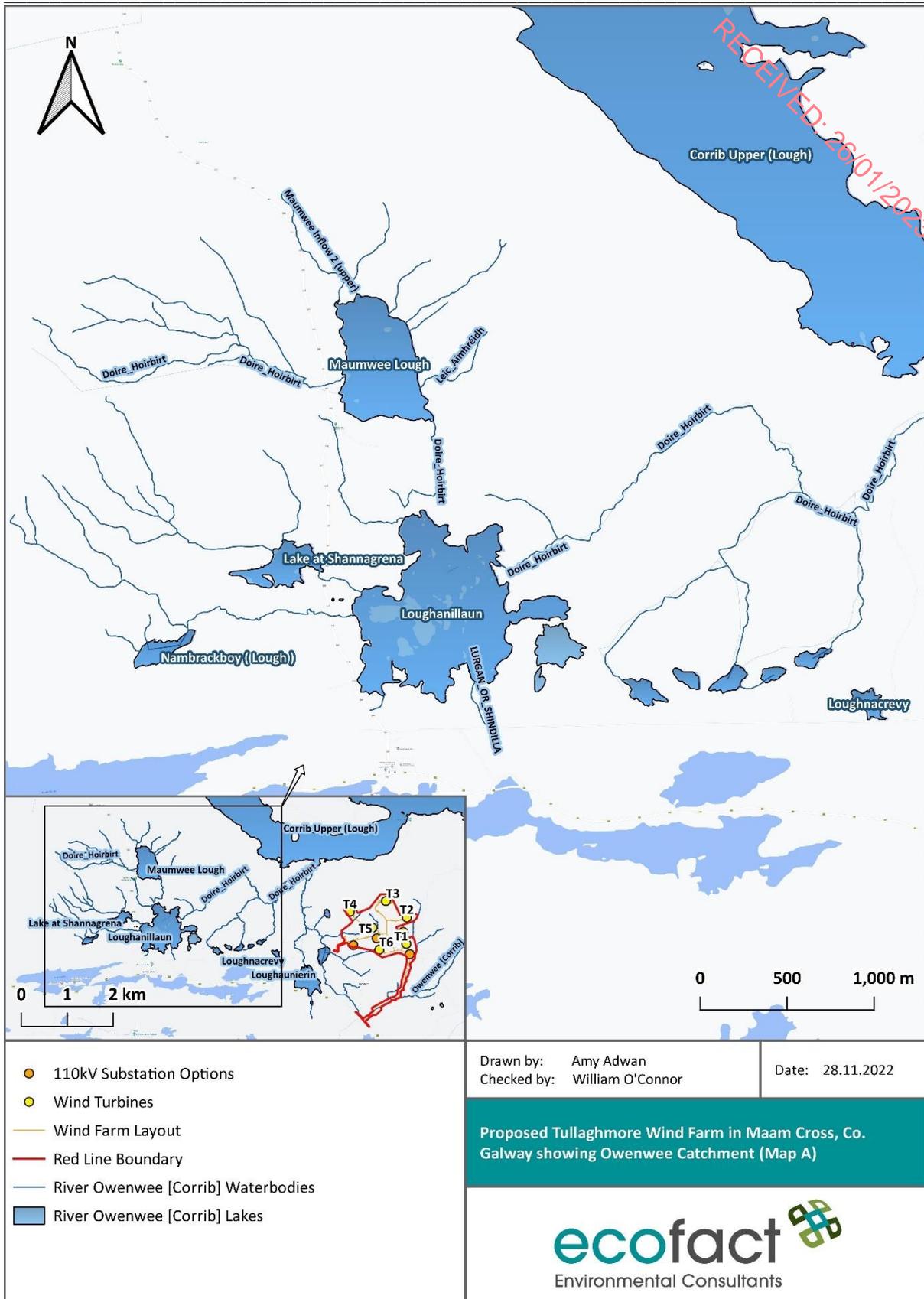


Figure 3 The proposed Tullaghmore Wind Farm site showing the Owenwee catchment (Map A).

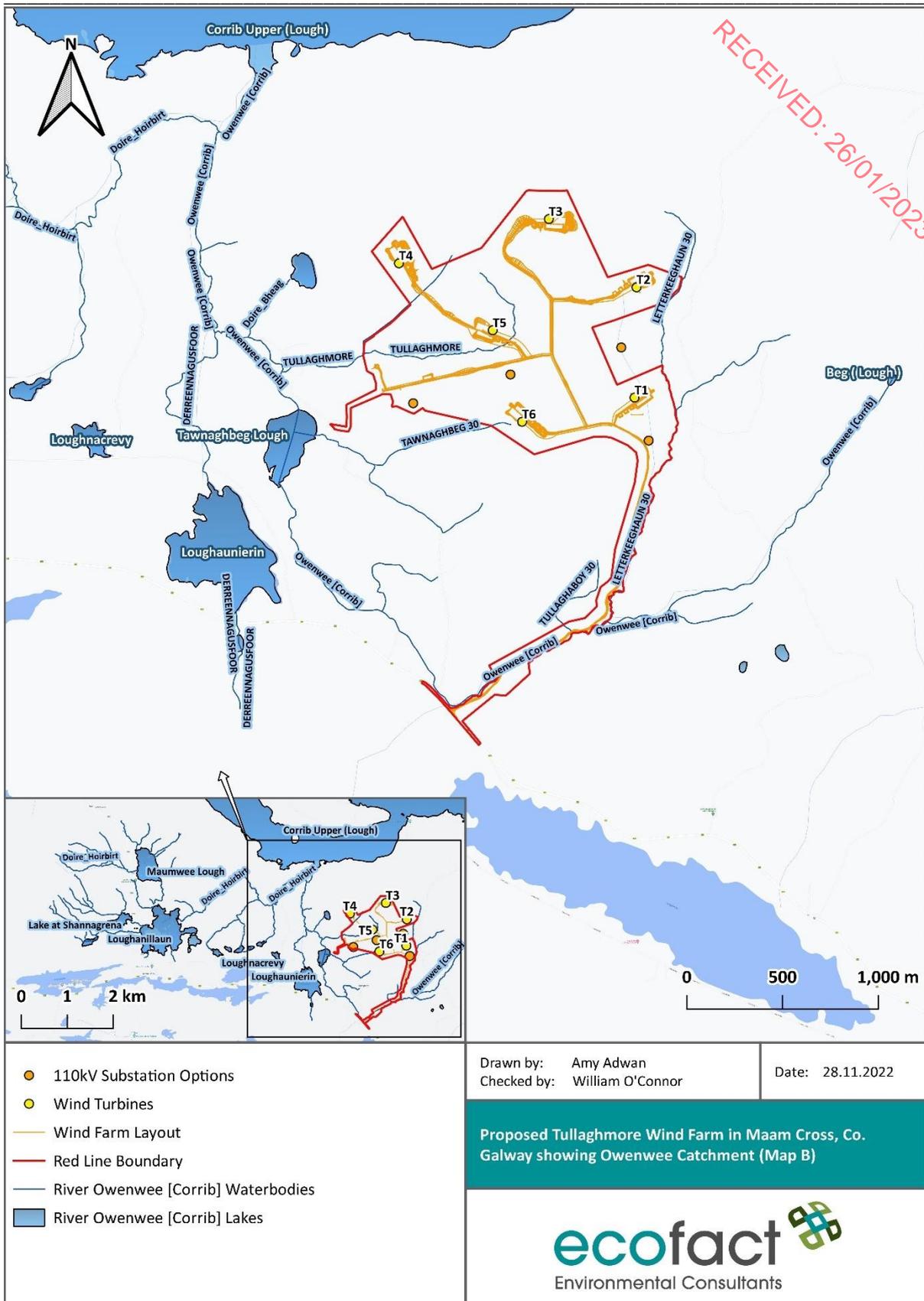


Figure 4 The proposed Tullaghmore Wind Farm site showing the Owenwee catchment (Map B).

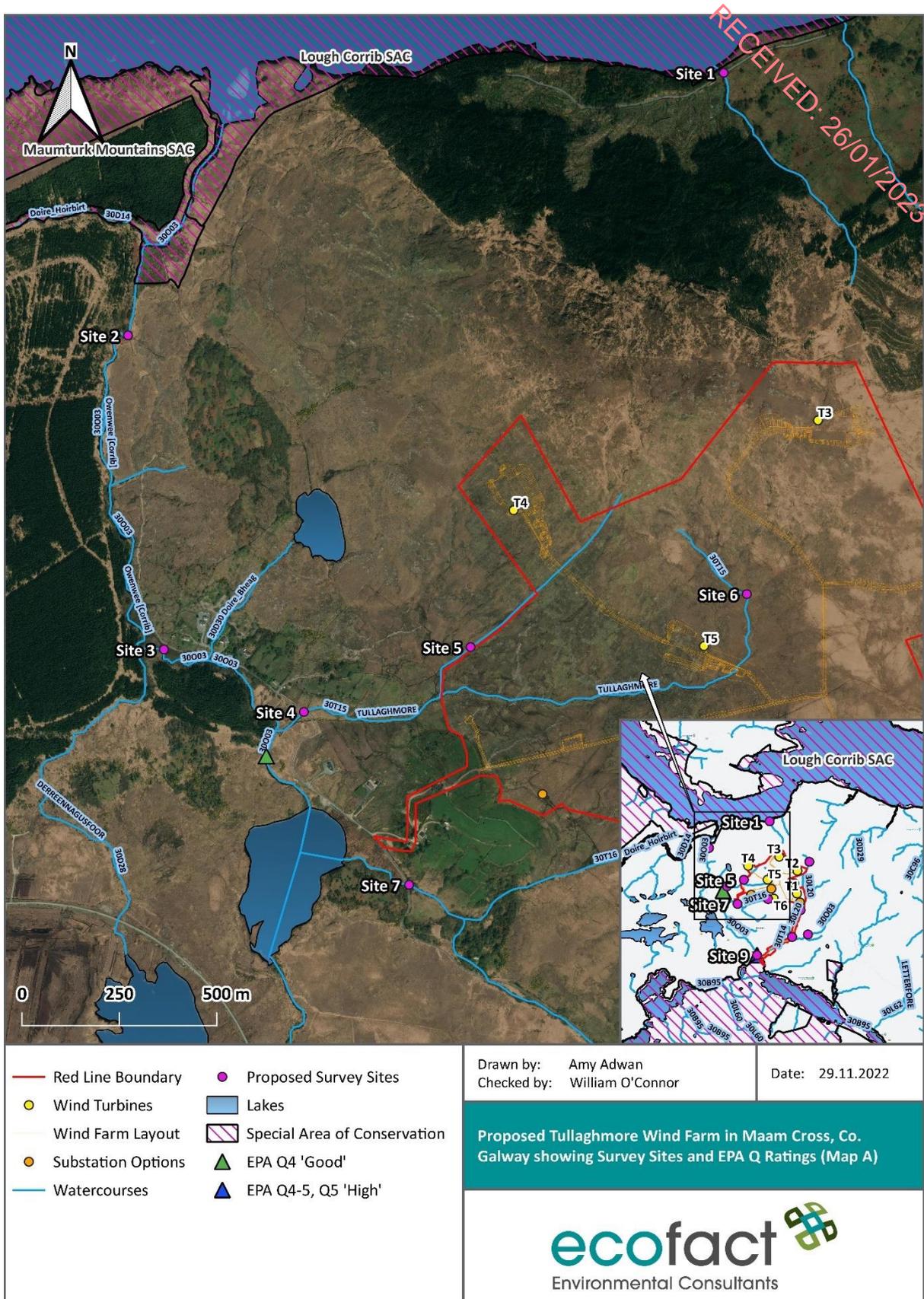


Figure 5 The proposed Tullaghmore Wind Farm site showing the location of the current survey sites (Map A). The location of local EPA biological water quality monitoring sites is also shown.

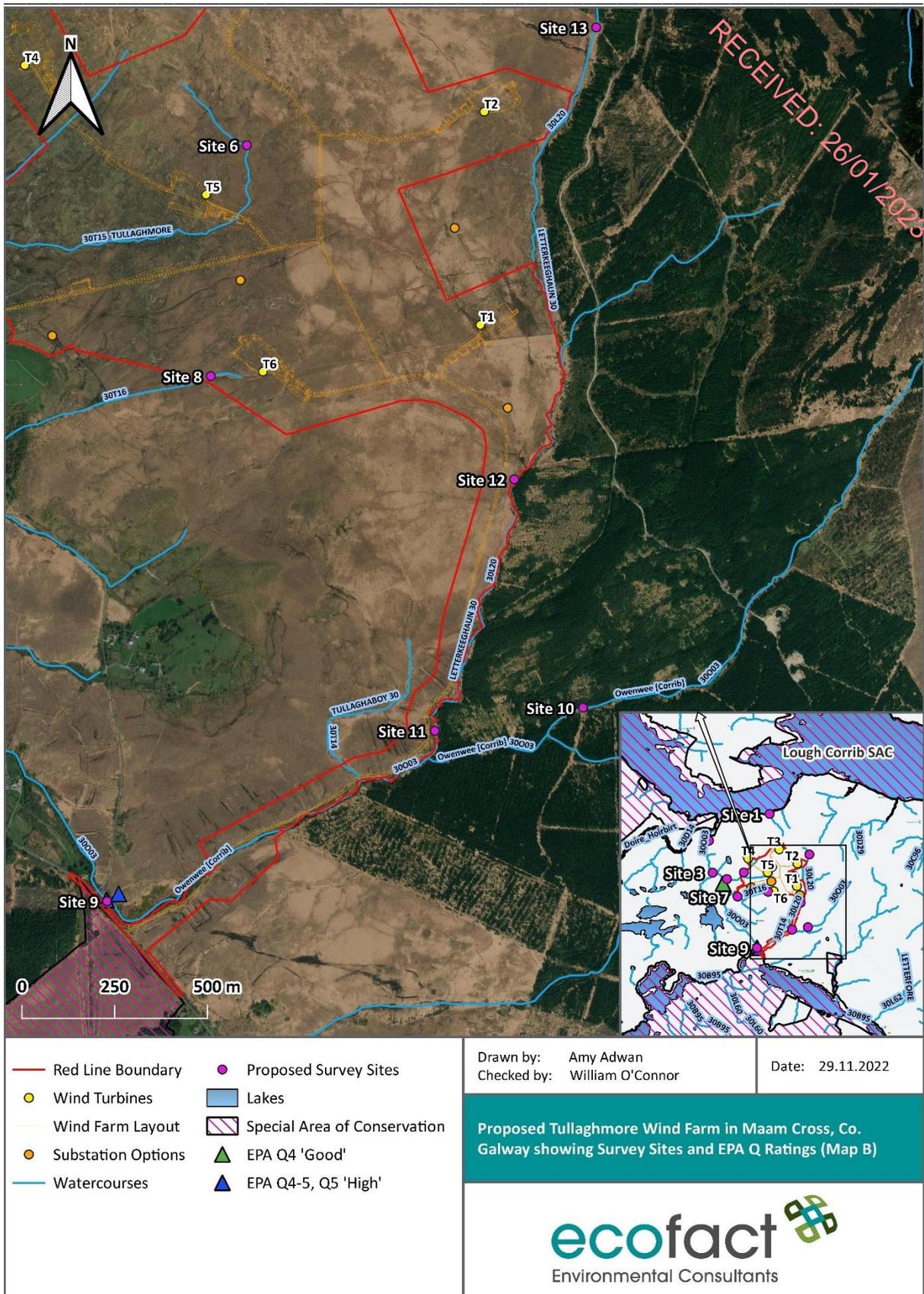


Figure 6 The proposed Tullaghmore Wind Farm site showing the location of the current survey sites (Map B). The location of local EPA biological water quality monitoring sites is also shown.



3.3 Results of the aquatic surveys

3.3.1 Site 1

Site 1 is located on a small 1st order unnamed stream which is just c. 720m in length (EPA Segment Code: 30_1229). This stream is located to the north-western corner of Lough Corrib. This stream rises to the northern extent of Capanalaurabaun mountain just outside of the proposed wind farm site boundary. The stream flows in a northerly direction straight into Lough Corrib. The stream is not joined by any other streams or rivers before flowing into the lake.

This stream is very small and was almost dry at the time of the survey. This stream does not provide any habitat for fish. It is too small and the gradient is too high – apart from the very lower section. The main importance of this stream is that it provides a potential pathway to convey pollutants into the Lough Corrib SAC. Overall, this stream is too small to provide a habitat for any fish species.

3.3.2 Site 2

Site 2 is located on the River Owenwee [Corrib] which is the main watercourse that drains the proposed wind farm site (EPA Code: 30O03). This site is located c. 630m upstream of where the river flows into Lough Corrib, and c. 240m upstream of the River Doire Hoirbirt confluence. This site is located adjacent to a commercial forestry plantation located to the west of the river. It is located outside and downstream of the proposed wind farm site boundary.

This site was very difficult to access and could not be electrofished during the current survey. This is an important salmonid watercourse with both Brown Trout and juvenile salmon likely to be present. There is a falls on this river upstream of this site which may block the ascent of migratory trout and salmon.

This is a salmonid spawning and nurse channel, and is evaluated as being of Local Importance, Higher Value. Both Atlantic salmon and Brown Trout are likely to be present in this watercourse. This river also flows directly into Lough Corrib SAC.

3.3.3 Site 3

Site 3 is located is also located on the River Owenwee [Corrib], c. 990m upstream of Survey Site 2. This site is also located adjacent to commercial forestry plantations. This survey site is located just c. 70m upstream of the Derreennagusfoor Stream confluence, and c. 150m downstream of the Doire Bheag stream confluence, west of the proposed wind farm site.

Access was difficult at this site due to the overgrown banks. The survey confirmed that Brown trout present in reasonable numbers, and no other fish species was recorded. Water levels were very low at the time of the survey. This is an important salmonid spawning and nurse channel, and is evaluated as being of Local Importance, Higher Value.

3.3.4 Site 4

Site 4 is located on the 2nd order Tullaghmore Stream (EPA Code: 30T15). The site is located just c. 90m upstream of where it flows into the River Owenwee [Corrib]. The site is also situated at the bridge



crossing for an unnamed access road in the area. This site is just outside the proposed wind farm site boundary to the west.

This is a very small watercourse and water levels were very low at the time of the survey. However, reasonable numbers of Brown trout were present considering the small size of the channel. No other fish species was recorded. This stream is considered to be too small to support salmon and none were recorded.

This is a salmonid spawning and nursery channel, and is evaluated as being of Local Importance, Higher Value. Only Brown Trout are present in this watercourse.

3.3.5 Site 5

Survey site 5 is situated on the boundary of the proposed wind farm site, on an unnamed 1st order stream (EPA Segment Code: 30_1427). This stream flows into the Tullaghmore Stream, on which site 4 is located, just c. 150m downstream of site 5. Site 5 is also located at the base and the beginning of the ascent up Capanalaurabaun mountain. Turbine T4 is located c. 370m north of this site (upstream), and this unnamed stream drains this area.

This stream is very small and was almost dry at the time of the survey. This stream does not provide any habitat for fish. It is too small and the gradient is too high.

This stream is too small to provide a habitat for any fish species. Brown Trout are present in the downstream Tullaghmore Stream, and this stream provides a potential pathway for conveying pollutants to the Lough Corrib SAC via the Owenwee River.

3.3.6 Site 6

Survey Site 6 is located on the Tullaghmore Stream (EPA Code: 30T15), where it is a 1st order watercourse, within the proposed wind farm site. This site is located c. 250m downstream of where the Tullaghmore stream rises on Capanalaurabaun mountain. This survey site is also located c. 160m from Turbine T5 (upstream). This is an upland survey site.

This stream is very small and was accessed downstream of the site where it was almost dry at the time of the survey. This stream does not provide any habitat for fish and was not fished. It is too small and the gradient is too high.

This stream is too small to provide a habitat for any fish species. Brown Trout are present in the lower reaches of this stream.

3.3.7 Site 7

Site 7 is located on an unnamed 2nd order watercourse (EPA Segment Code: 30_3271), c. 200m upstream of where it flows into Tawnaghbeg Lough. This is located just c. 160m downstream of the Tawnaghbeg 30 Stream confluence with another 1st order stream. This survey site is located at a bridge on an unnamed access road. This site is located just outside the proposed wind farm site.

This is a very small watercourse and water levels were very low at the time of the survey. However, Brown Trout were present in nominal numbers. No other fish species was recorded. This stream is



considered to be too small to support salmon and none were recorded. However, it is a confirmed salmonid spawning and nursery area.

This is a salmonid spawning and nurse channel, and is evaluated as being of Local Importance, Higher Value. Only Brown Trout are present in this watercourse.

3.3.8 Site 8

Site 8 is located on the Tawnaghbeg 30 Stream (EPA Code: 30T16) within the proposed wind farm site. It is situated just c. 80m downstream of where this stream rises. This site is also located c. 140m from Turbine T6 (downstream) and this watercourse drains this area. The Tawnaghbeg 30 stream is just c. 750m in total length, before it joins another 1st order stream, to form an unnamed 2nd order stream, on which survey site 7 is located.

This stream is very small and was almost dry at a downstream viewing point the time of the survey. This stream does not provide any habitat for fish. It is too small and the gradient is too high.

This overall evaluation is that stream is too small to provide a habitat for any fish species. Brown Trout are present in the lower reaches of this stream.

3.3.9 Site 9

Site 9 is located on the River Owenwee [Corrib] just outside the proposed wind farm site boundary along the proposed access road from the south. This site is located c. 560m upstream of the confluence with a small unnamed 1st order stream (EPA Segment Code: 30_3273). This site is located c. 8.1km upstream of where the River Owenwee [Corrib] flows into Lough Corrib.

This site was affected by drought flows at the time of the survey. However, Brown trout were present in good numbers and this is confirmed as an important spawning and nurse channel for salmonids. No salmon were recorded but they are likely to be present downstream of this site. This is a salmonid spawning and nurse channel, and is evaluated as being of Local Importance, Higher Value.

3.3.10 Site 10

Site 10 is also located on the River Owenwee [Corrib], further upstream of Site 9. This site is located in an area surrounded by commercial forestry plantations, and upstream of the confluence with another 1st order unnamed stream. This River Owenwee [Corrib] at this point is a 1st order watercourse, after rising in Derroura forest near Kneraunnageeragh mountain. This site is located outside of the proposed wind farm site boundary.

This stream is very small and water levels were very low at the time of the survey. However, small numbers of Brown Trout were recorded here confirming its status as a salmonid nurse area.

3.3.11 Site 11

Survey site 11 is located on the Letterkeeghaun 30 stream (EPA Code: 30L20). This site is situated just c. 80m upstream of where it flows into the River Owenwee [Corrib]. The site is adjacent to the Derroura forest plantation to the east. It is located along the proposed access road to the proposed wind farm site from the south, within the boundary. Survey site 9 is located just c. 150m from this site, but downstream on the River Owenwee [Corrib].



This stream is very small and the entire channel was almost dry at the time of the survey. This stream does not provide any habitat for fish. It is too small and the gradient is too high.

This stream is too small to provide a habitat for any fish species. Brown Trout are present downstream of this site.

3.3.12 Site 12

Survey site 12 is also located on the Letterkeeghaun 30 stream (EPA Code: 30L20), upstream of site 11. This site is also located along the proposed southern access road, with Derroura forest to the east. This site is c. 750m upstream of site 11, along the same watercourse segment. This watercourse drains much of the eastern site of the proposed wind farm site.

This stream is again very small and was affected by drought flows at the time of the site. The site could not be accessed during the current survey – however the stream was viewed downstream from this site and water levels were very low. This site is assessed as being too small to provide a habitat for any fish species. However, Brown Trout are present in downstream areas and this has to be considered to be a salmonid feeder watercourse.

3.3.13 Site 13

Site 13 is also located on the Letterkeeghaun 30 stream (EPA Code: 30L20), further upstream than site 12. This site is located just c. 240m downstream of where this stream rises in Derroura forest, just north of the proposed wind farm site boundary. This site is located c. 370m from Turbine T2. Site 13 is c. 1.3km upstream of survey site 12, but where the Letterkeeghaun stream is a 1st order watercourse.

This stream does not provide any habitat for fish due to its small size. It is too small and the gradient is too high. However, Brown Trout are present in downstream areas and this has to be considered to be a salmonid feeder watercourse.



Table 2 Description and evaluation of the aquatic sites assessed for the proposed Tullaghmore Wind Farm.

Site No.	Watercourse Name	Description	Fish present	Overall evaluation
1	Unnamed	This is a tiny high gradient 1 st order stream that does not provide any habitat for fish. Substrate consists of rocks and cobble.	None	This stream is too small to support any fish species. However, it flows directly into Lough Corrib SAC.
2	Owenwee [Corrib]	This 3 rd order river is known to hold both resident and migratory Brown Trout, and Salmon. Deep holding areas and a falls/cascade are present near this site.	Brown trout Atlantic salmon	The lower reaches of the Owenwee River is a 'Locally Important, Higher Value' salmonid spawning and nursery area.
3	Owenwee [Corrib]	This section is also a 3 rd order river and it is a spawning and nursery area for Brown Trout. Salmon were not recorded but could be present. This site is overgrown and contains holding and spawning/nursery areas.	Brown trout	
4	Tullaghmore	This small 2 nd order stream has a cobble/gravel substrate and a high gradient. It is very overgrown but is a nursery/spawning habitat for trout.	Brown trout	The Tullaghmore River is a small but locally important spawning stream for Brown Trout.
5	Unnamed	Tiny 1 st order stream with cobble/gravel substrate.	None	Too small and no fish present.
6	Tullaghmore	This section is a 1 st order stream with high gradient and is too small for fish.	None	The Tullaghmore River is a small but locally important spawning stream for Brown Trout. However, it is too small in its upper reaches to hold fish.
7	Unnamed	Small overgrown 2 nd order stream with cobble/gravel substrate.	Brown trout	Tiny stream providing marginal spawning and nursery habitat for Brown Trout.
8	Tawnaghbeg 30	Tiny 1 st order high gradient stream.	None	Tiny stream, no fish present.
9	Owenwee [Corrib]	This section is again a 3 rd order river and provides spawning and nursery habitat for Brown Trout.	Brown trout	The upper Owenwee River is a small but locally important spawning stream for Brown Trout. Salmon occur downstream.
10	Owenwee [Corrib]	Tiny 1 st order stream – very small and water levels extremely low at the time of the survey.	Brown trout	
11	Letterkeeghaun 30	Small 2 nd order stream – almost dry at the time of the survey.	None	Tiny stream, no fish present.
12	Letterkeeghaun 30	Small 2 nd order stream – too small for fish at the time of the survey.	None	Tiny stream, no fish present.
13	Letterkeeghaun 30	Tiny 1 st order stream.	None	Tiny stream, no fish present.



Table 3 Summary of the electrofishing surveys at the aquatic sites assessed for the proposed Tullaghmore Wind Farm.

Site No.	Watercourse Name	Fishing time (mins)	Brown Trout (N)	CPIE
1	Unnamed	0	n/a	-
2	Owenwee [Corrib]	0	n/a	-
3	Owenwee [Corrib]	10	15	0.67
4	Tullaghmore	5	6	0.83
5	Unnamed	0	n/a	-
6	Tullaghmore	5	3	1.67
7	Unnamed	5	4	1.25
8	Tawnaghbeg 30	0	n/a	-
9	Owenwee [Corrib]	10	21	0.48
10	Owenwee [Corrib]	5	8	0.63
11	Letterkeeghaun 30	0	5	0.00
12	Letterkeeghaun 30	0	n/a	-
13	Letterkeeghaun 30	0	n/a	-

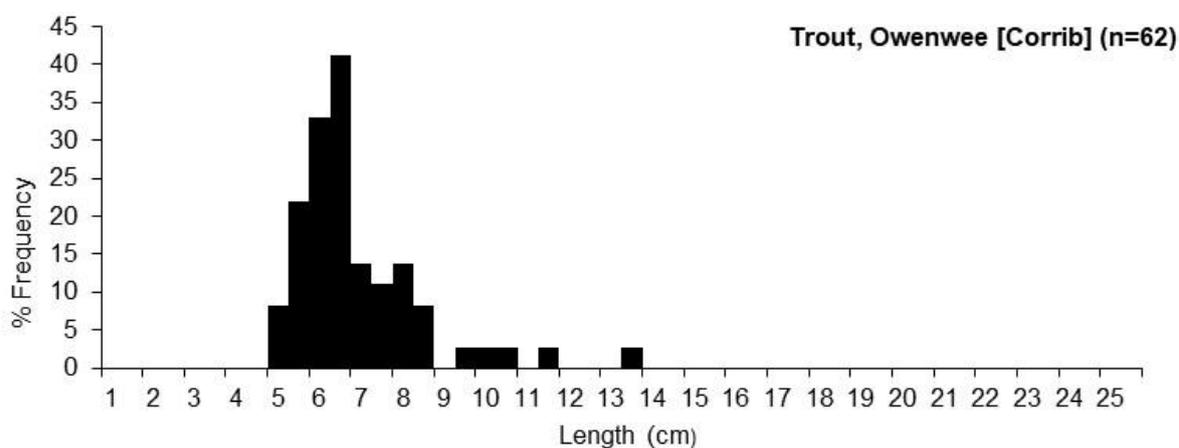


Figure 7 Length percentage frequency distribution of n=60 Brown Trout from the Owenwee [Corrib] catchment recorded during the September 2022 electrofishing survey.



5. CONCLUSIONS

This report outlines the findings of a baseline fish population survey and assessment of the watercourses draining the proposed Tullaghmore Wind Farm site near Maam Cross, Co. Galway. The assessment included a desk study and fish habitat / electrofishing fishing survey. This study provides a baseline description and evaluation of all the watercourses draining the proposed wind farm site.

The current survey was undertaken during September 2022. A total of 13 sites were initially selected for evaluation and field surveys were completed at 10 of these sites. Habitat surveys were completed at all sites, and electrofishing surveys were completed at 7 of the sites. Not all of the sites selected were suitable for electrofishing, and three of the sites could not be accessed directly at the time of the survey. This is typical of surveys like this and a larger number of sites is normally selected than will be actually be sampled.

The current survey was undertaken following a drought summer and water levels at all of the sites were considered to be very low. The conditions for the electrofishing surveys were ideal. However, some of the smaller streams were extremely low and could not support fish at the time of the survey.

Brown Trout was the only fish species recorded during the current survey. This is a common and widespread species and is typically a dominant species in oligotrophic streams in Co Galway. It is known that salmon are also present in the Owenree River but they were not detected in the current survey. Site 2 on the lower reaches of the river could not be accessed for practical reasons (heavy electrofishing gear). Salmon are likely to be present at this site. There appears to be a falls between Sites 2 and 3 and this may explain the absence of salmon at Site 3. It is noted that neither Went (1942) or O'Reilly (2007) reported salmon accessing Tawnaghbeg lough. However, it is also possible that they are present here and were not detected.

No lamprey habitats were present at any of the sites surveyed and lampreys are likely to be absent from this catchment.

The low flows may also have affected the distribution of juvenile salmon at the time of the assessment. However, it is clear that most of the salmon in the Owenwee catchment seem to run up the Doire_Hoirbirt sub-catchment. This part of the catchment is not affected by the proposed wind farm development. All the streams draining the proposed wind farm site are too small to be used by salmon - even during a very wet year. Salmon are generally very unlikely to be found in 1st or 2nd streams. The statement in Went (1942) that Brown trout migrating up from Lough Corrib "*travel into the small streams flowing down from the comparatively high ground on the east side of [Tawnaghbeg] lake*" is very notable. These streams are the ones that drain the proposed wind farm site, and include the Tawnaghbeg and Tullaghmore Rivers. It is not known how accurate this account is but it is clear that the upper Owenwee catchment is used extensively by Brown Trout and this sub-catchment is only one of only a few potentially spawning tributaries of the north-western side of Lough Corrib. All the watercourses draining the proposed wind farm site must therefore be considered to be either sensitive salmonid nursery habitats, or small streams which could potentially convey pollutants downstream to sensitive salmonid nursery habitats. It is also noted that all streams on the proposed wind farm site ultimately drain into Lough Corrib SAC. It is almost certain that Atlantic salmon (which is a Qualifying Interest of the SAC) use at least part of the Owenwee catchment.



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PLATES

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Plate 1 The Smith-Root LR-24 back pack electrofishing unit used during the current survey.



Plate 2 Cornamona Bay on Lough Corrib. The streams on the proposed wind farm site drain into this bay via the Owenwee River.



Plate 3 Survey Site 1 (an unnamed stream).



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Plate 4 Site 3 Owenwee River



Plate 5 Brown trout from Site 3 on the Owenree River.



Plate 6 Brown Trout (2+) with interesting dark colouration (Site 3).



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Plate 7 Survey Site 4 on the Tullaghmore River.



Plate 8 Tullaghmore River.



Plate 9 Juvenile Brown trout from Site 4 on the Tullaghmore River.



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Plate 10 Tawnaghbeg lough.



Plate 11 Survey Site 9 on the River Owenwee.



Plate 12 Brown trout catch from Site 9 on the Owenwee River.