



End of Project Report

Project Name: Owentaraglin River EIP

Project Id: LLOC5008

Project Manager: Eileen Linehan



**An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine**



**'The European Agricultural Fund
for Rural Development: Europe
investing in rural areas'.**



IRD Duhallow



**Ireland's European Structural and
Investment Funds Programmes
2014-2020**

**Co-funded by the Irish Government
and the European Union**

Table of Contents

Executive Summary 2

Project Description..... 2

Project Monitoring of Baseline Indicators 4

Key Performance Indicators (KPIs)..... 5

 KPI 1: Implement required standards of project governance 5

 KPI 2: Implementation of an innovative results-based approach..... 5

 KPI 3: Maintain and improve the status of the Owentaraglin River 5

 KPI 4: Farmer Participation, Training, Demonstrations & Project Publicity..... 8

Value for Money (VFM)..... 9

Financial Report 10

Lessons Learned 10

Actions to Carry Forward 11

Dissemination of Project Findings..... 14

Executive Summary

The protection of high ecological status objective (blue dot) water bodies, as defined by the Water Framework Directive (WFD), is a national priority in the implementation of the River Basin Management Plan for Ireland (RBMP). High ecological status waterbodies, referred hereafter as high-status waterbodies, represent natural water in its most near-pristine condition and are important for a range of multiple benefits to wider society (e.g., tourism, angling and natural heritage). However, the number of high-status waterbodies has been declining in recent decades with only 20 sites achieving highest status in 2016-2018 compared to 575 for the 1987- 1990 period. Agriculture exerts a significant pressure on water quality and biodiversity, particularly as it is becoming increasingly intensified in Ireland and at the global scale. Traditional agri-environmental schemes have focused on prescription-based approaches. Agri-environmental schemes need to focus on the delivery of conservation results and, especially where high nature-value farmland exists, may need to focus on local requirements as opposed to a one-size-fits-all nationwide scheme. Results-based agri-environmental schemes will therefore play an important role in restoring, maintaining and enhancing agricultural biodiversity and water quality into the future. The Owentaraglin River EIP worked alongside the farming community through a results-based approach, to reward farmers for farming for water quality, and to help farmers to put the right locally-specific measure in the right place.

Project Description

The River Owentaraglin is a high-status objective waterbody in the Duhallow region and is a tributary of the Upper River Blackwater which is designated as a Special Area of Conservation (Blackwater - Cork/Waterford - Site code 002170 SAC) due to the presence of qualifying species listed as Annex II species under the EU Habitats Directive such as Atlantic Salmon (*Salmo salar*), Freshwater Pearl Mussel (*Margaritifera margaritifera*), and Brook Lamprey (*Lamptera planeri*). The protection of high ecological status water bodies, as defined by the Water Framework Directive (WFD), is a national priority in the implementation of the River Basin Management Plan for Ireland 2018-2021 (RBMP). Agriculture is the second most significant pressure impacting on high status objective waterbodies and measures required to protect and improve water quality go beyond those available under current agri-environmental schemes. This project developed and implemented a results-based strategy for the protection of high-status waterbodies in agricultural areas by focusing on the River Owentaraglin in North Cork which is a Blue Dot River. An application for funding of €198,870 from the Department of Agriculture, Food and the Marine through the European Innovation Partnership for Agricultural

Productivity and Sustainability (EIP-Agri) was deemed successful in May 2021. This 1-year project commenced in January 2022 and was complete in January 2023. A farmer-focused approach was delivered to support local agriculture while enhancing the freshwater environment. The project worked closely with the farming community on the Owentaraglin River supporting townlands including Kiskeam, Knockduff and Cullen. The project objectives were as follows:

- (i) Restore and protect the high-status objective River Owentaraglin
- (ii) Deliver a local-led results-based payment scheme for farmers with land adjacent to the River Owentaraglin or with drains connected to the river
- (iii) Implement green infrastructure and habitat retention measures to achieve the integrated catchment management impact required through knowledge exchange between farmers on target waterbodies
- (iv) Deliver an on-farm citizen science approach with the farmers
- (v) Incorporate biodiversity payments within the measures
- (vi) Carry out catchment visioning on the importance of high-status waters to local farmers through knowledge exchange and the wider community through public engagement
- (vii) Inform national policy and programmes on best practice for the management of high-status waterbodies within Agricultural communities

Project Monitoring of Baseline Indicators

Baseline data collected on biological water quality using macroinvertebrates was conducted at seven points on the River Owentaraglin in September 2021. Samples collected and analysed at the same points in June 2022 demonstrated an improvement at five of the seven sites. However, samples were taken at different times of the year and under different conditions and hence, more monitoring will be required to determine if there was an actual improvement in water quality. Station RS18O091100 (Br SE of Cullen) was monitored for EPA Q-values in 2022 and remained at Q4 (Good Status) (see figure 1).

Date Report Generated: 18/07/2023

OWENTARAGLIN

18009

Date Surveyed (last survey year only): 07/09/22

Biological Quality Rating (Q Values)

Station Code	1990	1994	1997	2000	2003	2006	2009	2012	2015	2018	2019	2020	2021	2022
RS18O090400	4	3-4	4	4	3-4	4	4	3-4	4	4		4		
RS18O090600	4	3-4	4	4	4									
RS18O090800	4													
RS18O090900	4	3-4	4	4	4	4	4	4	4	3-4		3-4		
RS18O091000	4	4-5	4-5	4	4									
RS18O091100	4	4	4	4	4	4-5	4-5	4-5	4		4-5	4	4	4
RS18O091200	4-5	4-5	4-5	4-5	4-5	4	4-5		4-5	4-5		4	4	

Most Recent Assessment:

Two stations were surveyed on the Owentaraglin in 2021 - 1100 & 1200. Both were found to be satisfactory with continuing Good ecological quality.

In 2022 station 1100 was sampled again and continues to be satisfactory with good ecological status.

Station Details

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS18O090400	Br N of Clamper Cross	IE_SW_18O090400	119142	107132	Cork County Council
RS18O090600	OWENTARAGLIN - (Br) Ford W of Rascalstreet	IE_SW_18O090900	119657	105582	Cork County Council
RS18O090800	OWENTARAGLIN - Kishkeam Br (WNW of Kishkeam)	IE_SW_18O090900	120255	103416	Cork County Council

page 83 of 90

Figure 1. Latest River Q Values for the River Owentaraglin. Source: EPA

Key Performance Indicators (KPIs)

KPI 1: Implement required standards of project governance

Regular management meetings were held in line with the Gantt Chart provided in the project proposal (see Appendix 1). Financial control and oversight was also maintained in line with the Gantt Chart provided in the project proposal. Through an annual review, the control mechanisms were refined.

KPI 2: Implementation of an innovative results-based approach

A target was set to recruit up to 25 farmers into the project with at least one farm to be designated as a demonstration farm. The project recruited 24 farmers with three demonstration farms designated.

All farms were walked by the project team and farmers were given a farm plan.

Scorecards were developed for results-based payments for measures to reduce pollutants at the source, interception of mobilised pollutants, restore watercourses and biodiversity were developed and implemented (see Appendix 2). Citizen Science scorecards were also developed.

KPI 3: Maintain and improve the status of the Owentaraglin River

No upward trend in the target nutrient (P) was recorded between samples taken by the project team in 2021 and 2022. No negative change in trend of biotic indexes was recorded from biological water quality samples taken by the project team. Station RS18O091100 (Br SE of Cullen) was monitored for EPA Q-values in 2022 and remained at Q4 (Good Status). The project increased the amount of wetlands and riparian habitat by creating a 0.13ha biodiversity pond (see figure 2) and planting 2,500 trees in riparian buffers, nutrient flow pathways and in groves (see figure 3).



Figure 2. A 0.13ha pond installed under the project



Figure 3. Riparian tree planting

KPI 4: Farmer Participation, Training, Demonstrations & Project Publicity

Four farm knowledge transfer events were held on topics relevant to management of farms for river catchments and a booklet of measures resource was published to disseminate the importance of project measures for high-status objective catchments (see figure 4). Three demonstration farms were designated for farm visits where several measures can be viewed by visitors. Farm biodiversity maps were created for each farm including a farm biodiversity percentage. One open day was held for farmers where they could see farm roadway upgrades and a water attenuation pond created by another farmer. Industry representatives from a dairy co-operative visited the project in October. While no policymakers visited project farms, the project team met with several policymakers during the project. The team presented to the public at well over the minimum target of 4 presentations set out in the KPIs (e.g., presenting at the Irish Freshwater Sciences Annual Meeting, a presentation at HomeTree HQ, presenting to the local community at Newmarket Library, presenting to DAFM EIP Steering Group). Nine school visits were completed by the project team as well as two third level field trips (UCC, MTU). Three third level students completed work placement on the project. Quarterly press releases were published.



Figure 4. Project farmers at a project knowledge transfer event in October 2022

Value for Money (VFM)

The Owentaraglin River EIP was co-ordinated by IRD Duhallow, a company with significant experience of working on large-scale agri-environment projects (Duhallow SAMOK LIFE, RaptorLIFE, Duhallow Farming for Blue Dot Catchments EIP) and working with industry and environmental agencies. IRD Duhallow has an ongoing EIP project, Duhallow Farming for Blue Dot Catchments EIP, with an existing team of qualified staff and an existing steering group of experts. This meant that there was less need for recruitment of new staff and relevant training, demonstrating value for money. This also meant that economies of scale were availed of for purchase of equipment, consumables and trees, monitoring and printing of materials.

IRD Duhallow also has a positive reputation and relationship with farmers in the catchment from decades of working alongside the farming community on schemes such as EIP, LIFE, LEADER and RSS. This meant that less staff hours were required for recruitment of farmers into the project. The project allowed crossover between existing schemes at IRD Duhallow. For example, a farmer training event was held in October by the EIP team that was shared with IRD Duhallow's Community Rural Health Scheme (targeting farmer health). Again, this allowed for economies of scale and reduced costs for room hire and food.

The project team found that it was essential to work closely with the farmer's contractor when measures were being installed. While significant farmer training is required to change perspectives on matters such as riverbank stabilisation (e.g., from a hard engineering approach to a nature-based approach), training may also be required for contractors, to whom installing measures for the benefit of water quality is often a new concept.

The short timeline for a project of this scale was difficult. Installing measures on farm roads, re-seeding for multi-species swards, planting trees and all works on a farm are dependent on the weather, time of the year and availability of contractors. In many cases there is a very short window to get works complete.

Actions to Carry Forward

As the River Owentaraglin is a high-status objective, designated *Margaritifera* habitat that experiences high-levels of riverbank erosion, nature-based riverbank stabilisation measures such as riparian tree planting must be promoted. Although traditionally a hard engineering approach has been taken in attempt to stabilise riverbanks, the project team found most project farmers receptive to buffer establishment through tree planting as a nature-based solution. Similarly, farmers must be rewarded fairly for habitats and farmland features that slow the flow of water (with several other benefits) such as wet grasslands, in-stream woody habitat, and vegetated drains.

Much of Owentaraglin_020, Owentaraglin_030 and Owentaraglin_040 are high PIP-P (see figure 6). This is due to a combination of heavy soils and intensifying agriculture. Spatially targeted buffers (planting trees or hedgerows in nutrient flow pathways or installing ponds or berms) must be encouraged to intercept the overland flow of Phosphorous in these waterbodies.



Figure 6. PIP-P map of the catchment. Source: EPA

Owentaraglin_040, as a high-status objective waterbody, with the bulk of the river's population of Freshwater Pearl Mussel (EPA, see figure 7), requires additional measures for restoration to high-status and protection of this species. In this waterbody, efforts should be made to ensure that all drinking points and livestock access points are removed from waterbodies through fencing and provision of alternative drinking sources.

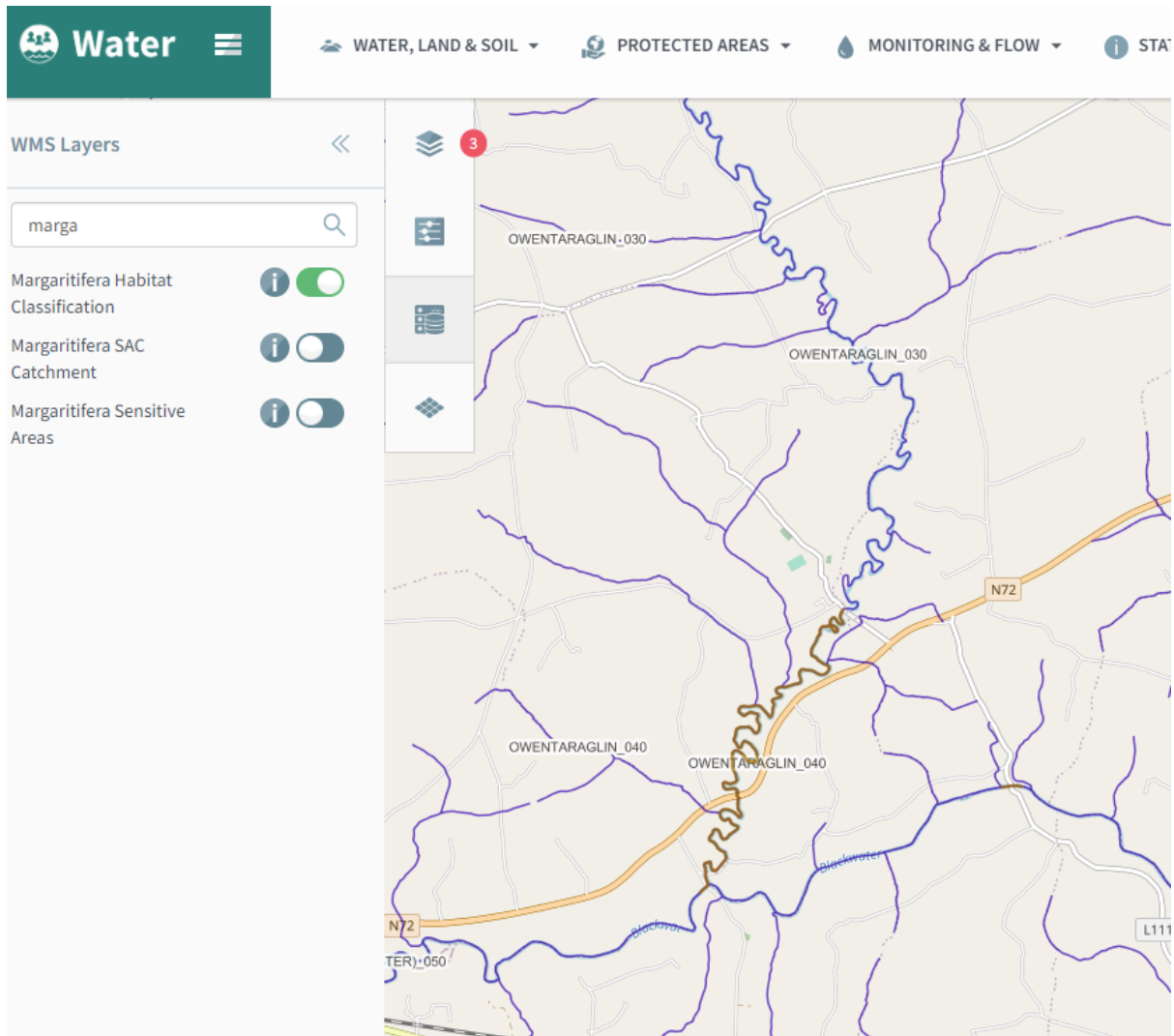


Figure 7. Margaritifera Habitat on the River Owentaraglin (Source: EPA)

Dissemination of Project Findings

Project findings were regularly disseminated to the IRD Duhallow Environment Working Group and the project's steering group.

The project was also presented by the team on several occasions, including at the European Symposium for Freshwater Sciences (SEFS13) in Newcastle, UK in June. Case studies and lessons learned have been presented to representatives of several relevant organizations at the LAWPRO Blue Dot Steering Group meeting and at the EPA/LAWPROs Catchment Science and Management Course. Both of these events were held at the project team's offices in Newmarket where the project team presented lessons learned and case studies. Field visits were also delivered by the project team.

Findings from the project have attracted interest not only from the agricultural community but also forestry and in June 2023 members of the forest service visited two project farms to see farm roadway upgrades that were installed under the project.

The project team have also produced a booklet of measures to disseminate the importance of many of the measures implemented under the project for blue dot waterbodies. An online interactive is available at: [Booklet-of-Measures-Interactive.pdf \(irdduhallow.com\)](http://irdduhallow.com/Booklet-of-Measures-Interactive.pdf)

Appendices

Appendix 1

Gantt Chart of Timelines and Milestones



Appendix 2

Example of a results-based scorecard developed for the project: Wet Grassland/Species-rich Scorecard

Participant:	
Herd Number:	
Survey Date:	
Plot Number:	
Surveyor:	
Habitat Type:	
Total Proposed Payment	€
Plot Score	/100 % (marks)
Total Plot Area	Hectares
Total Measure Payment	€

POSITIVE INDICATORS

Bird's Foot Trefoil	<i>Marsh Pennywort</i>	<i>Mosses</i>
Devil's Bit Scabious	<i>Marsh Thistle</i>	Selfheal & Bugle
Eyebrights	<i>Meadow Thistle</i>	Sheep Sorrel
Forget-me-nots	<i>Meadow Sweet</i>	Small Bedstraws/Stitchwort's
Heathers	<i>Mints</i>	Small Rushes
Knapweeds	<i>Orchids</i>	Small Umbels
Lady's Smock	<i>Ox-eye Daisy</i>	Tormentil
Large Umbels	<i>Ragged Robin</i>	Vetches
Lesser Spearwort	<i>Sedges</i>	Vetchling
Violets	<i>Yellow Composites</i>	Yellow Flag Iris
Yellow Rattle	<i>Yorkshire Fog</i>	Creeping Bent
Red Fescue	<i>Marsh Cinquifol</i>	

A. COMPOSITION OF POSITIVE INDICATOR SPECIES					15 MARKS
	*Low	Medium	Med-High	High	Very High
No. Plants	0-4	5-8	9-12	13-15	16+
	5 marks	8 marks	10 marks	15 marks	15 marks

*Use Semi-Natural Grassland Scorecard

**Species Rich Grassland Payment

B. COVER OF POSITIVE INDICATOR SPECIES					20 MARKS
Cover %	Rare	Occasional	Frequent	Abundant	Dominant
	0-5%	6-10%	11-25%	25-50%	>50%
	0 marks	5 marks	10 marks	15 marks	20 marks

C. COMPOSITION OF NEGATIVE INDICATOR SPECIES 5 MARKS

***Negative species including Nettles, Docks, Ragwort, Perennial Ryegrass, Creeping/Spear Thistle**

Cover %	Dominant >50%	Abundant 25-50%	Frequent 11-25%	Occasional 6-10%	Rare 0-5%
	-15 marks	-10 marks	-5 marks	0 marks	5 marks

D. VEGETATION STRUCTURE

10 MARKS

Poor	Moderate	Good
Vast majority of the plot has either tall or short vegetation with lodging or overgrazing evident. Little or no flowering plants.	25-50% of plot has a variety of tall and/or short vegetation throughout with occasional to frequent patches.	>50% of the plot with a diverse sward of tall and short vegetation mosaics
-5 marks	5 marks	10 marks

E. CONTRIBUTION TO WATERCOURSES

15 MARKS

LOW	MODERATE	HIGH
Plot is a dry site with no natural wet features	Natural wet features/natural seepage areas/critical source areas present.	Natural wet features/natural seepage areas/critical source areas discharging to natural watercourse.
0 marks	5 marks	15 marks

F. ARTIFICIAL DRAINAGE FEATURES

15 MARKS

HIGH	MODERATE	LOW	NONE
Newly maintained and/or free flowing drains throughout the plot	Minimal or <10% of the plot with free flowing or recently maintained drains	Well vegetated historic drains present with flow slowed and impeded significantly	No artificial drainage within the plot
-15 marks	-5 marks	5 marks	15 marks

G. THREATS TO SITE INTEGRITY

20 MARKS

HIGH	MEDIUM	LOW	NONE
Evidence of severe Poaching, areas of encroaching scrub,	Some evidence of Poaching, areas of encroaching scrub,	Minimal evidence of Poaching, areas of encroaching scrub,	



abundance of bracken, presence of invasive species, dumping of material, or the application of organic/inorganic manures or pesticides. -20 MARKS	abundance of bracken, presence of invasive species, dumping of material, or the application of organic/inorganic manures or pesticides -10 MARKS	abundance of bracken, presence of invasive species, dumping of material, or the application of organic/inorganic manures or pesticides 10 MARKS	No evidence of any damaging activity at the site. 20 MARKS
--	---	--	---

COMMENTS:

Appendix 3

Additional photos:

A. Multi-species Sward



B. Low bund in-drain silt traps/sediment ponds



C. Water bar through bank of treeline



D. Stone sump receiving soiled water from water bar (through bank of treeline)



E. 2-chamber sediment pond receiving soiled water from water bar (through bank of treeline)



F. Cross drain diverting soiled water into narrow stone sump



G. Solar-powered Pump and Water Trough

