River Allow
Aquatic Survey
SAC 002170 Qualifying Interests Report
2023

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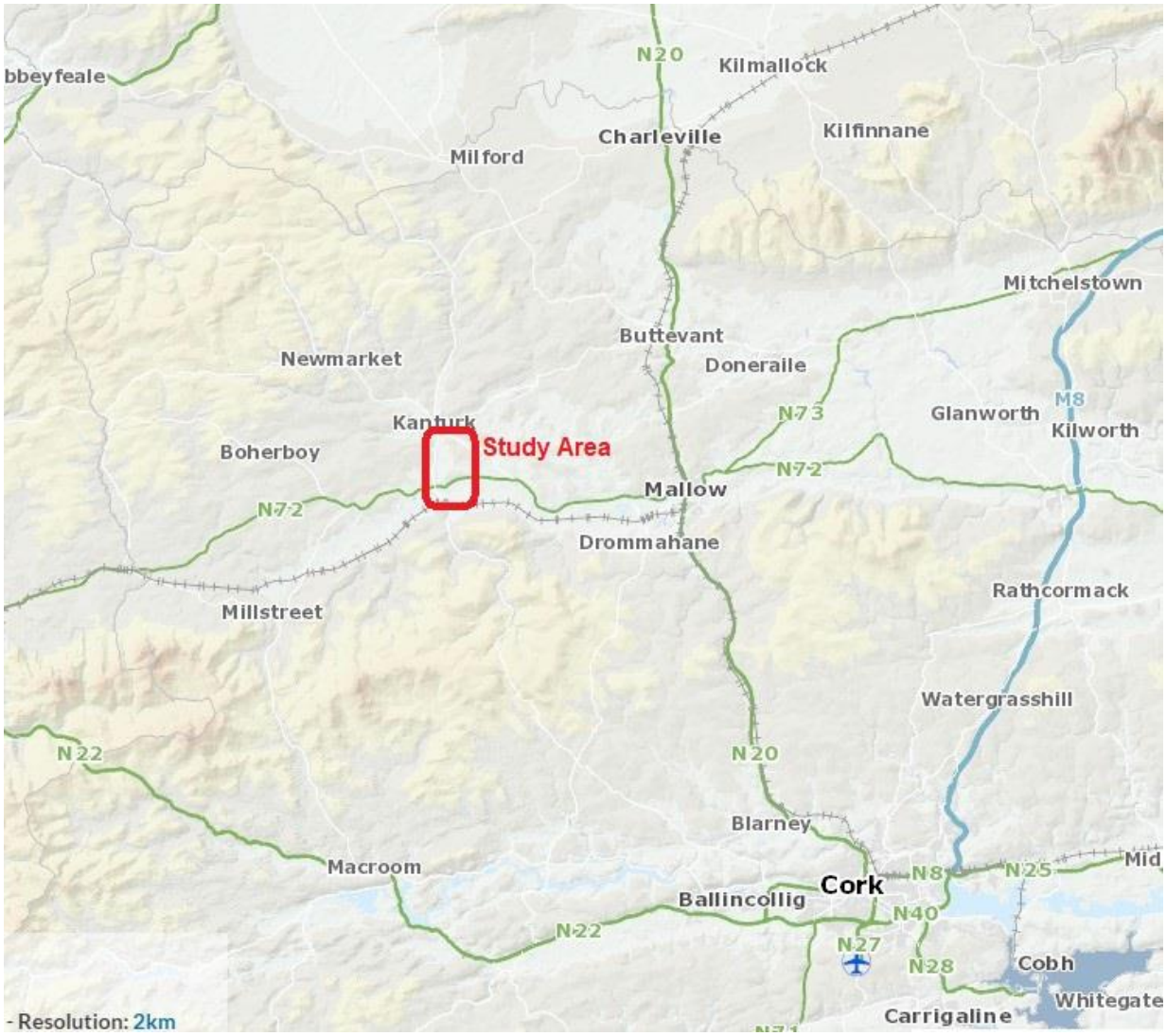
TABLE OF CONTENTS

1. INTRODUCTION

1.1 OBJECTIVES

This report, prepared by Pascal Sweeney of Sweeney Consultancy, is a biological assessment of a section of the Rivers Allow (EPA Code 18A02) and the Munster Blackwater (EPA Code 18B02), downstream of a proposed development at North Cork Creameries, Kanturk, Co. Cork. (Location Map, Figure 1).

Figure 1. Location Map

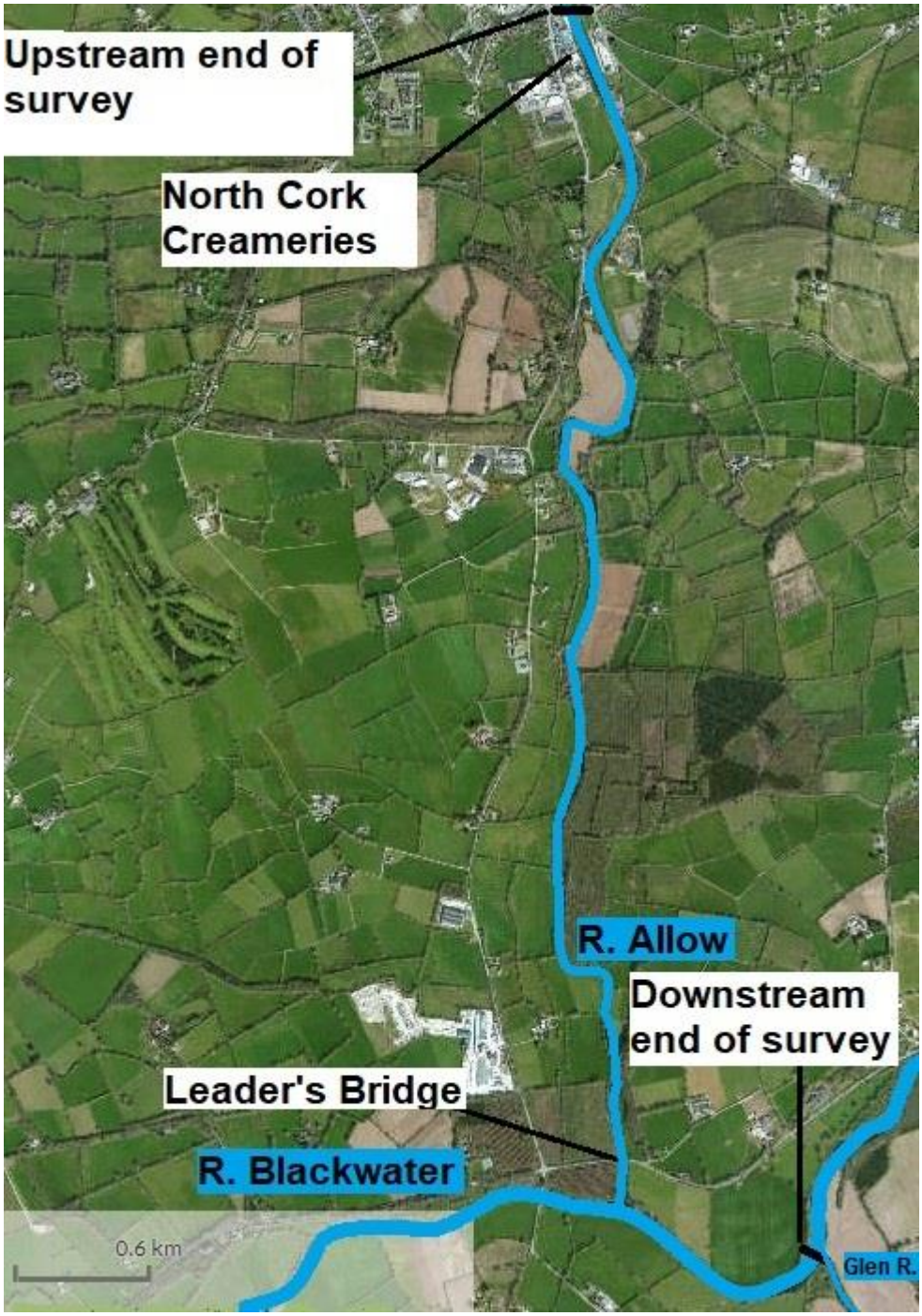


The purpose of the survey undertaken is to establish biological data on instream habitat types and quality, water quality and the presence of legally protected species, in order that possible impacts of the proposed works can be properly assessed.

1.2 STUDY AREA

The study area is from the North Cork Creameries Site at ITM 538235 603074, to ITM 538235 603074, at the confluence of the Munster Blackeater River with the Glen River (Figure 2). As the zone of highest impact from silt generated by instream works is within 5km downstream (Escauriaza *et. al.*, 2017), this is the section of river that is considered in detail.

Figure 2. Study Area



1.3 PROTECTED AREAS

The channel surveyed is within the Munster Blackwater (Cork-Waterford) Special Area of Conservation (SAC Code 002170) designated for the protection of following freshwater aquatic Qualifying Interests: Freshwater Pearl Mussel (*Margaritifera margaritifera*), Lamprey species, Atlantic Salmon (*Salmo salar*), White-clawed Crayfish (*Austropotamodius pallipes*), Otter (*Lutra lutra*) and *Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation* (hereafter referred to as Annex I Floating River Vegetation.

2. FIELD SURVEYS

2.1 DATES

Field surveys were carried out on September 12th and 13th, 2023.

2.2 AQUATIC HABITATS AND SPECIES

Grid references of sites locations were recorded using a hand-held GPS device and photographs were taken with a digital camera.

Biological Water Quality: The biological water quality was assessed following the most recent EPA Standard Operational Procedure for the Q-scheme methodology, which is based primarily on analysis of the aquatic invertebrate fauna (EPA 2021). Pond-net samples were taken at three comparable locations, one upstream and two downstream of possible impacts from the proposed works. Invertebrates were identified on the bankside to the lowest taxonomic level possible with the naked eye.

Freshwater pearl mussel (*Margaritifera margaritifera*) (FPM): Initial visual assessment of the habitat quality is based on the criteria outlined by Skinner et al. (2003). Where the habitat was assessed as being possibly suitable for mussels, a licensed survey (Licence No C13/2023) was carried out in accordance with the standard methodology (Anon 2004).

Atlantic Salmon (*Salmo salar*): The habitat quality for salmon was assessed, based on the criteria outlined by Kennedy (1984), Crisp (1996), Bardonnet and Baglinière (2000) and by Hendry and Cragg-Hine (2003) for the physical instream requirements of this species for spawning, nursery and adult habitat.

Lampreys (*Lampetra planeri*, *Lampetra fluviatilis* and *Petromyzon marinus*): The habitat quality for the three species of lamprey, the brook lamprey, river lamprey, and sea lamprey was assessed, based on the criteria outlined by Maitland (1980) and by Johns (2002) for the physical instream requirements of these species for spawning, nursery and adult habitat. Available records on the distribution of these species were also checked,

White-clawed Crayfish (*Austropotamobius pallipes*) (WCC): The habitat quality was assessed, based on the criteria outlined by Holdich (2003) and available records on the distribution of this species were checked. A licensed survey (Licence No C14/2023) was carried out in shallow areas accordance with the standard methodology described by Peay (2003). In deeper water, downstream of the Allow-Blackwater confluence, a Skanemjarden crayfish trap was set overnight on 12th September, 2023 under Licence No C14/2023.

Otter (*Lutra lutra*): The presence of the was checked for by a survey of the riverbank for holts or couching sites and an examination of hard bankside surfaces for the presence of spraints and bankside mud/sand for imprints. The habitat quality for this species was assessed, based on the criteria outlined by Chanin (2003).

Annex I Floating River Vegetation (FRV): Direct observations of aquatic vegetation were made and species were identified

3. RESULTS

3.1. Biological Water Quality

Data on the relevant physical conditions at the biological water quality sampling sites are presented in Appendix 2 and lists of macroinvertebrate taxa identified to the level required for the Q-scheme and the relative abundance of each taxon are presented in Appendix 3. EPA biological water quality monitoring data for the nearest sites upstream and downstream of Kanturk are presented in Appendix 4.

The fauna at Sites 1 and 2 are indicative of Good Ecological Conditions, with Q4 ascribed, while Site 3 is in Moderate Ecological Condition (Q3-4). This is consistent with recent EPA results.

3.2. Freshwater Pearl Mussel (*Margaritifera margaritifera*) **(Species Code 1029)**.

No live FPM and no empty shells were found in the present survey.

The Draft Allow River Sub-Basin Management Plan (DEHLG, 2009) states that pearl mussels have been long known to occur in this river, but that none were found in a survey in 2007 of the lowest 3km, upstream of the confluence with the Blackwater River.

While much of the riverbed in the 5km section surveyed appears suitable for FPM, with cobble, gravel some sand, there is a considerable degree of siltation in the lower stretch of the Allow, from Leader's Bridge to the Blackwater confluence (Photo 4, Appendix 1). This could be due to the ongoing roadworks immediately to the west of Leader's Bridge.

3.3. Atlantic Salmon (*Salmo salar*) **(Species Code 1106)**.

The main channel of the River Blackwater is a designated Salmonid Water designated under the European Communities (Quality of Salmonid Waters) Regulations of 1988 (S.I. No. 293 of 1988). Many trout were observed in the Allow during the fieldwork, but no salmon. Some good salmon spawning habitat was identified adjacent to the North Cork Creameries site (Figure 3), where the water quality is suitable for salmon, which need EPA Class A water: Q4 to Q5 (Curtis *et al.*, 2009). Alult salmon, migrating upstream and smolts, migrating downstream, must also pass through this stretch of river.

3.4. Sea Lamprey (*Petromyzon marinus*) **(Species Code 1095), Brook Lamprey** (*Lampetra planeri*) **(Species Code 1096)** and **River Lamprey** (*Lampetra fluviatilis*) **(Species Code 1099)**.

In a survey of the Blackwater River catchment, King and Linnane (2004) found juvenile lamprey in all three sites on the River Allow that were fished. As there is suitable lamprey spawning habitat downstream of the North Cork Creameries site, it can be presumed that lamprey species are present here, it can be presumed that these species are present.

Riffle areas are suitable for lamprey spawning, while the depositions of finer material are suitable for burrowing ammocoetes (juveniles).

As there is suitable spawning and nursery habitat for river and brook lamprey, it can be presumed that these species are present.

3.5. White-Clawed Crayfish (*Austropotamobius pallipes*) **(Species Code 1092)**.

No WCC were recorded, either by the Peay search method or in the crayfish trap.

There are no records of crayfish in the River Allow. The nearest record of live crayfish farther downstream is in the Munster Blackwater at Roskeen Bridge (Sweeney and Sweeney, 2017), over 7km downstream of the Allow confluence. In June 2023, there were large numbers of dead and dying crayfish in the Blackwater upstream of Mallow (*pers. obs.*). Samples of these were sent to the Marine Institute, where crayfish plague was confirmed. Water samples taken in the Allow by the Marine Institute at Leader' Bridge in September 2023 did not indicate either the presence of WCC or crayfish plague (Bogna Griffin, *pers. comm.*). It can therefore be concluded that WCC are not present in the survey stretch.

3.6. Otter (*Lutra lutra*) **(Species Code 1355)**.

Otters are widespread in the River Blackwater catchment (O'Sullivan, 1991). Baily and Rochford (2006) found no significant difference in the occurrence of otters between polluted and unpolluted sites (their data appears to show a slight preference for slightly polluted sites over both extremes). The national Biodiversity Data Centre shows three records of otter in the Allow from Kanturk to the Blackwater confluence.

Otter imprints were found in bankside mud (Photo 5) during fieldwork and a possible otter holt was identified (Photo 6; Figure 3).

3.7. Floating River Vegetation (Habitat Code 3260).

The Allow and the Blackwater contain several patches of water crowfoot, which, in combination with other macrophytes, can be classified as the Annex I habitat type "*Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation*" (Photo 7).

APPENDIX 1
PHOTOGRAPHS

Photo 1: Q Sample Site 1

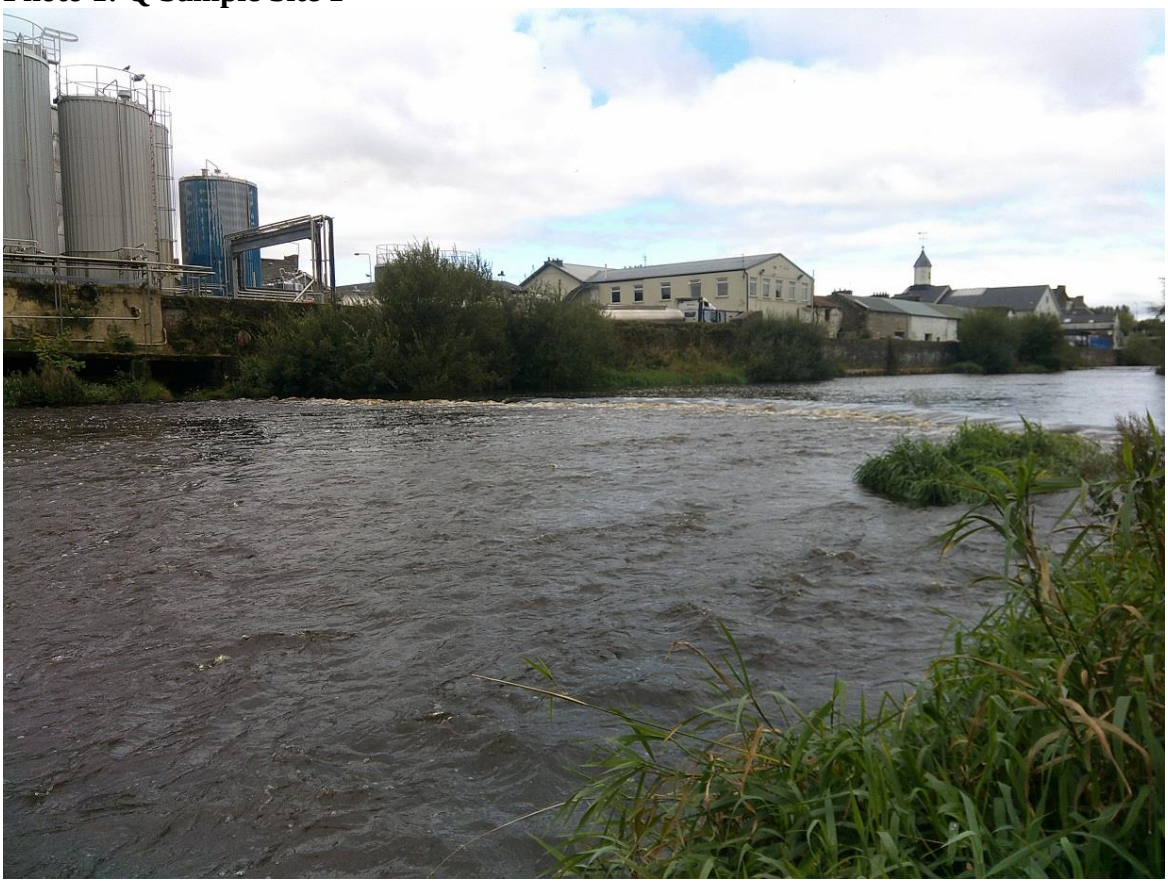


Photo 2: Q Sample Site 2

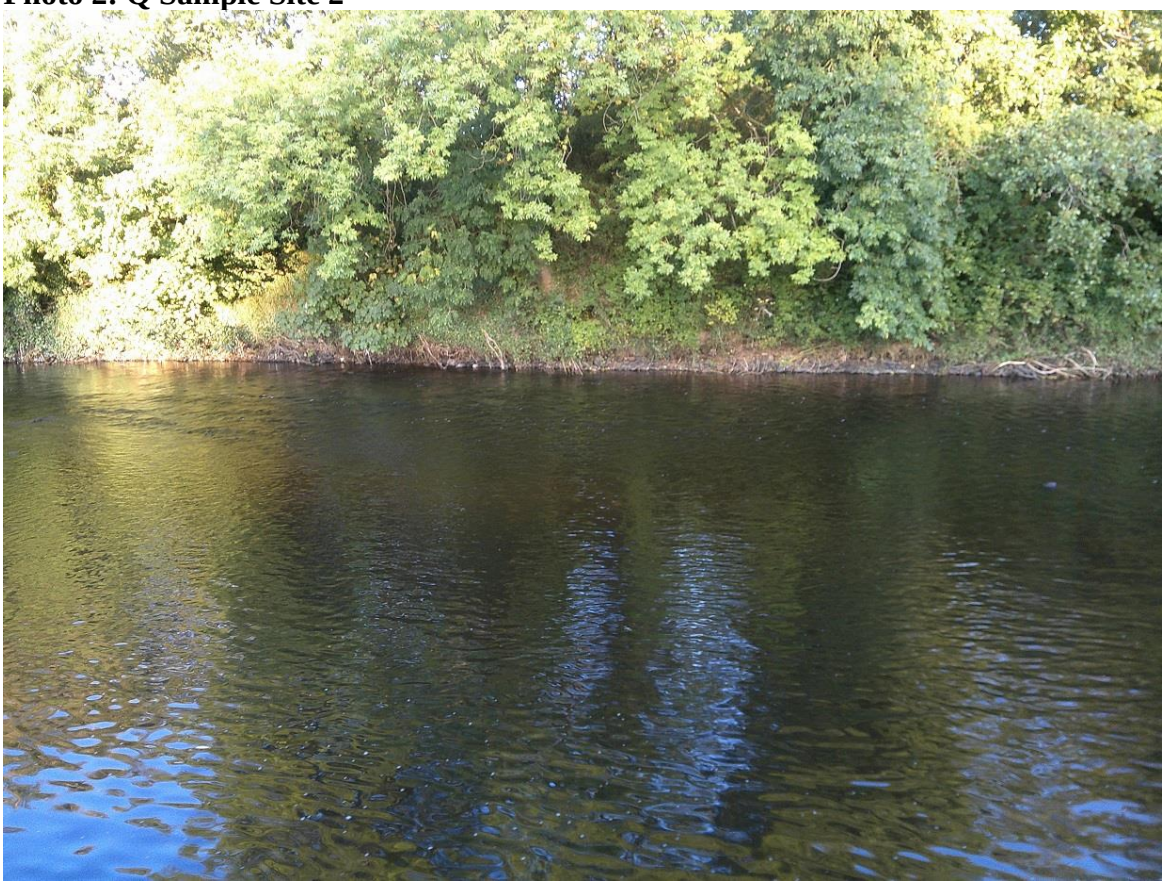


Photo 3: Q Sample Site 3

Photo 4: Silted riverbed

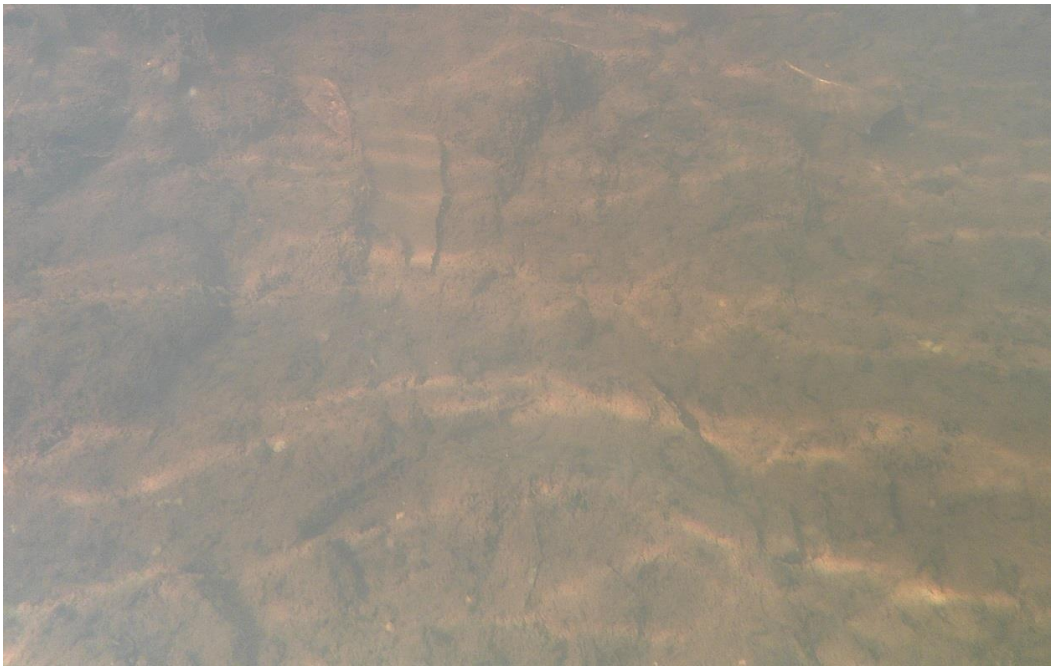


Photo 5: Otter print

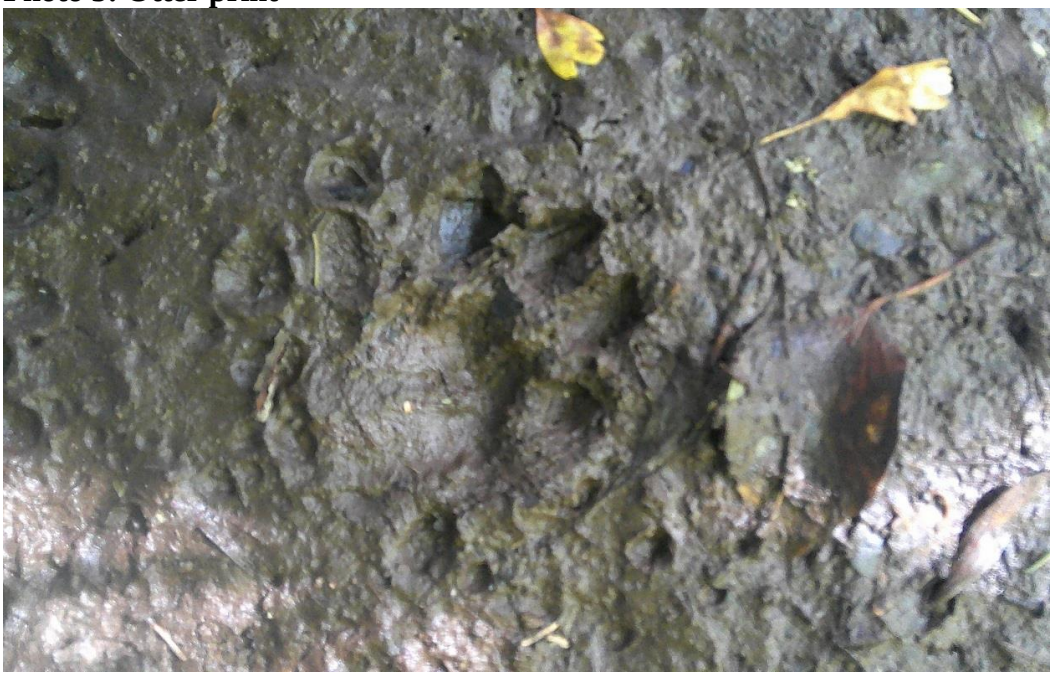
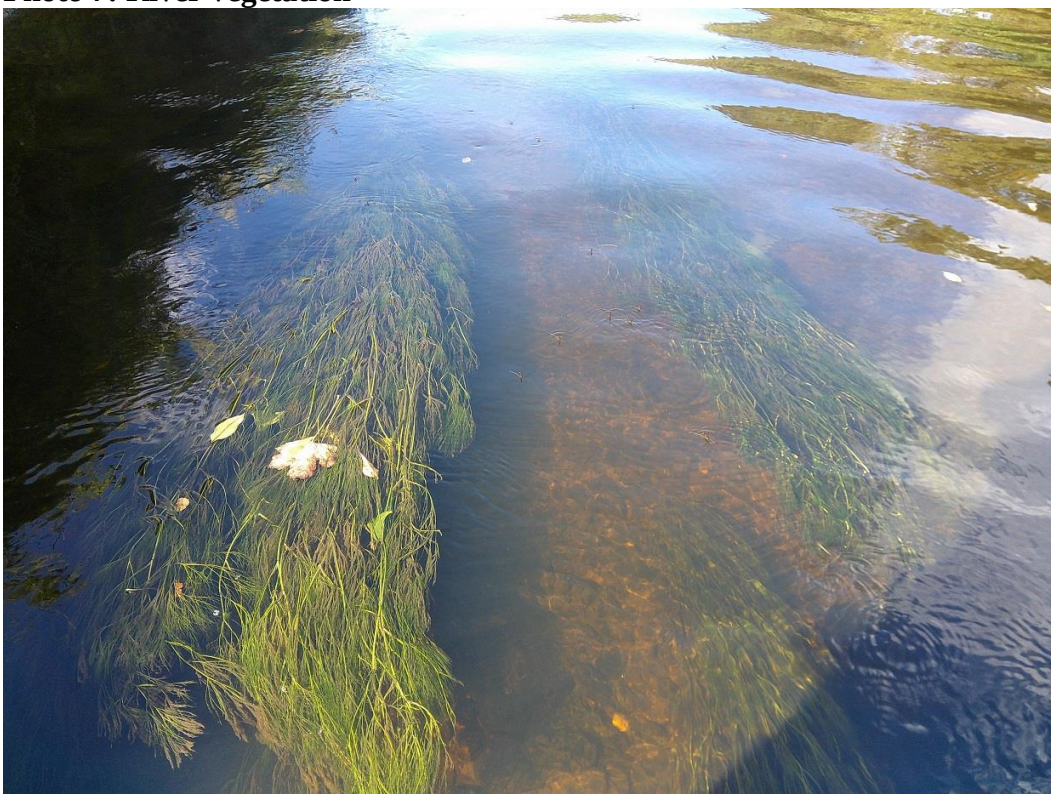


Photo 6: Probable otter holt

Photo 7: River vegetation



APPENDIX 2
MACROINVERTEBRATE SAMPLING SITE DETAILS

Watercourse	River Allow
Site Code	1
Exact Sample Location	ING 138280 103040 Immediately upstream and downstream of rock weir at MS1.
Photograph	1
Wet Width (m)	40
Sampling depth (m)	0.5
Flow Type	Riffle 100%
Velocity	Fast
Substratum	Cobble 60% Large Gravel 30% Small Gravel 5% Sand 2% Silt 3%
Instream Vegetation	*Fontinalis antipyretica.* 5% *Ranunculus sp.* 25%
Shade	None

Watercourse	River Allow
Site Code	2
Exact Sample Location	ING 138511 102266 Downstream of MS2, upstream of Kanturk Urban WWTP outfall.
Photograph	2
Wet Width (m)	30
Sampling depth (m)	0.5
Flow Type	Riffle 100%
Velocity	Fast
Substratum	Cobble 60% Large Gravel 20% Small Gravel 10% Sand 5% Silt 5%
Instream Vegetation	*Ranunculus sp.* 15% *Fontinalis antipyretica.* 10% *Oenanthe crocata* <5%
Shade	Partial

Watercourse	River Allow
Site Code	3
Exact Sample Location	ING 138389 102002 Downstream of Kanturk Urban WWTP outfall. Just upstream of a surface water discharge entering on left bank.
Photograph	3
Wet Width (m)	20
Sampling depth (m)	0.5
Flow Type	Riffle 30% Fast Glide 70%
Velocity	Fast
Substratum	Cobble 30% Large Gravel 40% Small Gravel 20% Sand 5% Silt 5%
Instream Vegetation	*Ranunculus sp.* 25%
Shade	Partial

APPENDIX 3
Q-VALUE ASSESSMENT RESULTS

Relative abundance expressed as D: Dominant; N: Numerous; C: Common; F: Few; SS: Single Specimen

SITE TAXON	1	2	3
Group A (Pollution Sensitive)			
Ecdyonurus sp.	N	C	F
Heptagenia sp.	F	SS	
Rhithrogena sp.	N	C	F
Group B (Less Pollution Sensitive)			
Leuctra sp.	SS		
Sericostomatidae	F	F	
Group C (Relatively Pollution Tolerant)			
Lumbriculidae	F	F	F
Ancylus fluviatilis	F	F	F
Potamopyrgus antipodarum	F	C	
Hydrachnidae	SS		SS
Gammarus sp.	C	C	N
Caenis sp.		SS	
Baetis rhodani	N	N	C
Hydropsychidae	C	C	C
Polycentropodidae	SS	SS	C
Rhyacophila sp.	F	F	F
Dicranota sp.	SS		SS
Simuliidae	F	C	N
Chironomidae	F	F	C
Elmis aenea	SS		
Limnius volckmari	SS		
Group D (Very Pollution Tolerant)			
Erpobdella sp.		SS	F
Glossiphonia sp.			F
Group E (Most Pollution Tolerant) – None Recorded			
Tubificidae		SS	F
Q-value	**Q4**	**Q4**	**Q3-4**

APPENDIX 4

EPA Q-values Upstream and Downstream of Subject Site

Date Report Generated: 07/11/2023

ALLOW 18A02

Date Surveyed (last survey year only): 13/07/20, 15/07/20

Biological Quality Rating (Q Values)

Station Code	1971	1974	1975	1978	1980	1982	1986	1990	1994	1997	2000	2003	2006	2009	2012	2015	2018	2019	2020
RS18A020020								4-5	4-5	4-5	4-5	4-5	4	4	4	4	4		4
RS18A020100	5		5	5	5		4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4	4-5	4-5
RS18A020200	3-4	3-4	4	3	4		4	3	4	4	4	4							4
RS18A020220								3											
RS18A020300	4-5	3	4	3-4	4	4	4	4	4	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4	4	
RS18A020400					3-4	3-4	3-4	5	4-5	4-5	4-5	4							
RS18A020490						3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	4	4	3	3		3-4
RS18A020600	2	3	2-3	3-4	3-4	3-4	3-4	3-4	4-5	4	4	4	4	4	4	4	4		4

Most Recent Assessment:

Four of the five stations sampled the River Allow were deemed satisfactory with no change in ecological quality since the previous surveys. The station at Raheen bridge (0100) remains at High quality while the river at Allow Bridge in Freemount, was assessed as being at Good quality. This location was last sampled in 2003. The river remains unsatisfactory downstream of Kanturk although it has improved from Poor to Moderate quality. The lower station at Leaders bridge maintains Good ecological quality

Station Details

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS18A020020	Br S of Langford's Lodge	IE_SW_18A020020	131311	116429	Cork County Council
RS18A020100	Raheen Br	IE_SW_18A020100	136531	115606	Cork County Council
RS18A020200	Allow Br, Freemount	IE_SW_18A020200	139304	113771	Cork County Council
RS18A020220	ALLOW - 1km d/s Allow Br	IE_SW_18A020300	139609	113201	Cork County Council
RS18A020300	John's Br	IE_SW_18A020300	139479	109793	Cork County Council
RS18A020400	ALLOW - 0.5km u/s Kanturk Br	IE_SW_18A020490	138185	103663	Cork County Council
RS18A020490	1.3 km d/s Kanturk Br	IE_SW_18A020490	138398	101927	Cork County Council
RS18A020600	Leader's Br	IE_SW_18A020600	138493	98893	Cork County Council

APPENDIX 5
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