BLACKWATER FISH MORTALITIES AUGUST 2025

EPA investigation of discharges to water from EPA-regulated sites in the Blackwater Catchment

July / August 2025

For submission to Inland Fisheries Ireland

23 September 2025

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

EXECUTIVE SUMMARY

Key Messages

- In August and September 2025, the EPA participated in a multi-agency investigation into fish mortalities arising in the River Blackwater in August 2025. The EPA's role was to investigate whether there was any link between the fish mortalities and EPA-regulated sites, and to provide water quality expertise and data to the wider investigation. The findings of this report are intended to support and inform the activities of a multi-agency investigation into the Blackwater fish mortalities.

- The EPA:

    - Completed 41 site inspections,

    - Collected 40 samples,

    - Carried out five macroinvertebrate quality surveys and

    - Assessed operational practices and monitoring data associated from 10 industrial sites, 17 wastewater treatment facilities and four drinking water plants.

- Samples taken during June, July and August 2025 indicate the water in the River Blackwater catchment is predominantly at Good Status, with no detectable changes in water quality. There was no evidence of a chronic water quality problem before or after the fish mortalities. This suggests the cause of the mortalities was a short-term pollution event.

- Four of the 31 EPA-regulated sites investigated had discharges that were not compliant with licence requirements in July and August, and one small wastewater facility with a certificate of authorisation was operating above operational capacity. **The detailed analysis of these sites in July and August 2025 does not support a causal link between these activities and the serious fish mortalities in the River Blackwate**r.

- One of the four sites, North Cork Creameries (NCC) attracted significant public attention throughout the course of the investigation. Non-compliances were detected in the NCC wastewater discharge to the River Allow in the June to August period that were serious and entirely unacceptable. These issues were already the subject of significant ongoing enforcement activity by EPA. However, despite the seriousness and significance of licence breaches at NCC, the EPA's assessment, as set out in this report, does not support a causal link between the NCC's discharges into the River Allow and the fish mortalities in the Blackwater.

Introduction

The extensive fish mortalities that occurred on the Blackwater River in Cork during August 2025 are a serious harm to the local fish stocks and have had an unjust and negative impact on the local communities. The devastation of damaged carcasses of thousands of dead fish floating in the protected waters of the Blackwater or tangled in the weeds of any of our country's rivers or lakes are events that are not to be tolerated.

When such detrimental incidents occur as on the Blackwater and where causation can be established and the wrongdoer identified, then they should be held to account. It is incumbent on all the state agencies with responsibilities in relation to these incidents to do all in their power to identify the cause and the wrongdoer and to bring them to account. This can only be achieved by following and assessing the available evidence, data and science.

The EPA's primary role in the investigation into the fish mortalities on the Blackwater is to assess whether EPA-regulated sites within the region of interest could have been responsible through their water discharge activities, and to take action against any operator found to be at fault.

Investigation Overview

The EPA first became aware of the serious fishkill on the morning of the 12th August 2025, and immediately mobilised resources in the Blackwater catchment to investigate whether any EPA-regulated site could have been a source of polluting material.

EPA has participated in a Multi-Agency group, established at the direction of the Minister and coordinated by Inland Fisheries Ireland (IFI), for the purposes of sharing data and expertise and supporting the investigation into the cause of the fish mortalities.

The EPA's investigation encompassed:

- The deployment of three teams of inspectors to EPA-regulated sites in the Mallow and Kanturk area within an hour of the EPA becoming aware of the fish mortalities. The inspections on August 12th/13th found no evidence of spills or discharges linked to the incident.
- An immediate expansion of the investigation on August 22nd to include a broader timeframe and geographic scope within the Blackwater catchment. This was in response to preliminary fish postmortem results from the Marine Institute, which indicated a pollution source was the likely cause of the fish damage in the week prior to the 12th August.
- The completion of 41 inspections of thirty-one facilities in the catchment, the collection of 40 samples and an assessment of operational practices and monitoring data associated with 10 industrial sites, 17 wastewater treatment facilities and 4 drinking water plants.
- The completion of five invertebrate quality surveys carried out by the EPA in the Kanturk to Mallow area on 12th August and 1st and 2nd September 2025.

Twenty seven of the thirty one EPA-regulated sites investigated had either no discharges or had compliant discharges during the weeks prior to the 12th August. However, four of the thirty-one facilities investigated had discharges that were not compliant with licence requirements in July and August and one small wastewater facility with a certificate of authorisation was operating above operational capacity. These sites were North Cork Creameries (Licence Register No. P1051-01); Millstreet wastewater treatment plant (D0332-02); Bweeng & Environs wastewater treatment plant (D0438-01); Dromahane wastewater treatment plant (D0302-01) and Lombardstown Certificate of Authorisation (A0327-01). The EPA was already aware of the issues at four of these sites, with the breach at Millstreet detected during the investigation. All these issues remain the subject of on-going enforcement action which is separate and distinct from the investigation into the causality of the fish mortalities on the Blackwater.

Detailed Assessment

To determine if there was a causal link between the fish mortalities and EPA-regulated sites, the EPA assessed the relevant monitoring and operational data for the sites and the impact of the non-compliant discharges on receiving water quality in the period 28th July to 12th August.

The EPA, with the assistance of Local Authorities and Inland Fisheries Ireland, collects water quality data from the Blackwater River on an ongoing basis as part of the National Water Monitoring Programmes under the Water Framework Directive. The data include water chemistry, fish and macroinvertebrate samples. The data collected in 2024 in the area of the investigation of the River Blackwater catchment generally indicates the water quality in the catchment is at Good Status. The water chemistry and macroinvertebrate ecological samples taken during June, July and August 2025 indicate no change in water quality in the River Blackwater catchment.

In response to the current incident, the EPA also carried out specific macroinvertebrate ecological water quality sampling in the affected area following the fish mortalities and the results were again indicative of good or better ecological water quality. Overall, there is no evidence from the ecological water quality data that there was a chronic water quality problem in the Blackwater catchment, in advance of, or following the fish mortalities. This suggests that the cause of the fish mortalities was a short-term pollution event, which may have been localised in extent, and wasn't due to an underlying chronic water quality problem.

The detailed analysis and assessment of discharges from all thirty-one EPA-regulated sites, including industrial sites and Uisce Éireann controlled urban wastewater discharges and drinking water plants during July and August 2025, does not support a causal link between these activities and the serious fish mortalities found in the River Blackwater.

North Cork Creameries [Licence No. P1051-01]

One of the thirty-one EPA-regulated sites investigated by EPA in relation to the fish mortalities incident was North Cork Creameries (NCC) situated on the River Allow near Kanturk. While NCC was an important focus of that investigation it is specifically mentioned in this summary as it attracted significant public attention and speculation throughout the course of the current investigation. NCC is a site with a history of failure to consistently achieve compliance with its

licence discharge conditions and was already the subject of significant enforcement activity by EPA prior to the incident, culminating in a prosecution which concluded in April 2025 resulting in convictions and the imposition of fines. EPA continues to monitor the licensed site closely.

Non-compliances were detected in the wastewater treatment plant discharge from NCC in the June to August period and were serious and entirely unacceptable. The licence breaches arose primarily due a lack of organised management or control of wastewater treatment plant activities, a lack of appropriate expertise to resolve significant operational issues, a failure to appropriately generate, manage, maintain and use critical data sets to inform corrective actions and a disregard for licence requirements and licence limits.

These compliance issues have not yet been fully resolved by the licensee, and the EPA is rigorously pursuing the enforcement of the licence breaches arising as a matter of priority and urgency, in line with its Compliance and Enforcement Policy. Offences related to breaches of EPA licences may be prosecuted summarily by the EPA or on indictment by the Director of Public Prosecutions (DPP). The EPA is giving full consideration to all such enforcement options available to it in respect of the non-compliances detected. These pre-existing issues are very serious matters that need to be resolved to restore consistent compliance and for the NCC to entertain the prospect of retaining its licence to operate into the future.

Despite the seriousness of these issues and the significance of licence breaches at NCC, the EPA's assessment as set out in this report, does not support a causal link between the NCC's discharges into the River Allow and the fish mortalities in the Blackwater (see Figure 1, page 12, for location of NCC relative to Blackwater). In summary, this reasoned conclusion is based on the following:

- **Yard Drainage:** The yard drainage on the site is configured to discharge only to the wastewater treatment plant. Therefore, all effluent and spills arising on site are discharged through the wastewater treatment plant.

- **Load to wastewater treatment plant:** An assessment of the plant's operational data demonstrates that while the site's wastewater treatment plant was performing very poorly during the first few weeks of August, it was consistently so. There was no evidence that a sudden catastrophic load to the river was discharged through the wastewater treatment plant in that period, or that any form of chemical discharge occurred. An assessment of the plant's operational data indicates that the occurrence of such an event in that period would be very unlikely.

- **Toxicity of discharge to fish:** Considering the types of material used on site, and the type of damage caused to the fish in the Blackwater (as described by the Marine Institute report), the key parameters of concern in relation to the NCC discharge is un-ionised ammonia and pH. The level of un-ionised ammonia that could have occurred in the river as a result of the NCC discharge in the weeks prior to the fish mortalities were below the threshold of 0.02mg/l NH_3 (i.e. below the level at which toxic effects could occur in fish and other aquatic species if subjected to chronic/longer term exposure). pH levels were stable and in compliance in the period investigated.

- **Proximity of site to dead fish:** No dead or marked fish in River Allow: The IFI also advised the public authorities investigating the fish mortalities that marked and dead fish were not observed in the River Allow, which is the river to which the NCC discharges, before, during or after the fish mortalities in the Blackwater were reported. In addition, there is a stretch of 4 km river water between the NCC discharge point on the Allow and where the Allow enters the Blackwater.

The EPA regulates, through authorisation and enforcement, almost 900 industrial and waste facilities, over 1000 wastewater authorisations and approximately 750 drinking water treatment plants, with 1,773 inspections carried out across these sectors in 2024. All inspection and monitoring reports are available on the EPA website via an online portal called LEAP online. It does so without fear or favour in the interests of the public and in the protection of the environment. It does so by detailed assessment and by drawing reasoned conclusions based on the available evidence, data and science as it has done in this report. To do otherwise would be to draw conclusions based on speculation which would be both environmentally irresponsible and regulatorily negligent.

Conclusion

In conclusion, the detailed analysis and assessment of all thirty-one EPA authorised sites, including industrial sites and Uisce Éireann controlled urban wastewater discharges and drinking water plants during June, July and August 2025, does not support a causal link between these activities and the serious fish mortalities found in the River Blackwater.

Throughout the investigation, the EPA worked closely with IFI, Cork County Council and others, both bilaterally and through an inter-agency group convened by the IFI for the purposes of the wider investigation. The EPA provided expertise and data in relation to discharges from regulated sites, water quality and invertebrate sampling in the Blackwater catchment.

The EPA also received videos and pertinent information from concerned members of the public in relation to discharges from EPA-regulated sites during the investigation period. The EPA acknowledges with gratitude the work and commitment of those concerned groups in contributing to the EPA's investigation. The issues raised by those members of the public have been considered in the EPA's assessment.

The findings of this report are intended to support and inform the activities of a multi-agency investigation into Blackwater fish mortalities.

INTRODUCTION

Context

The Environmental Protection Agency (EPA) is an independent statutory body established under the Environmental Protection Agency Act, 1992. The EPA's purpose is to protect, improve and restore our environment through regulation, scientific knowledge and working with others. This purpose reflects the EPA's three core roles – as an environmental regulator, as a key source of trusted scientific evidence and knowledge, and as a voice for the environment through our leadership and advocacy and our commitment to collaborating and partnering with others to deliver better environmental outcomes. The EPA has a wide range of responsibilities including:

Licensing and Enforcement

- Licensing of large industrial and waste sites and wastewater discharges. Licences issued by the EPA contain conditions that control the operations and limit emissions to protect human health and the environment, including the protection of aquatic habitats and their plant and animal life. Details of all licences issued by the EPA are available on the EPA's website.
- Enforcing the conditions of EPA licences and holding operators who breach their licences to account, using a range of legal powers up to and including prosecution, injunction and, ultimately, suspension or revocation of the licence. The EPA enforces these licences through an annual programme of inspections, monitoring and assessments.
- Enforcing Regulations that apply directly to certain sectors, e.g. drinking water quality is regulated by the European Union (Drinking water) Regulations 2023, S.I. no 99 of 2023.

When a licence application is received, the EPA assesses the potential impact of emissions from the site. The EPA's assessment approach incorporates best scientific principles and techniques, high quality environmental data and national and European legislative requirements. A licence, if granted, contains strict conditions and limits on how an activity must operate so as to protect the environment from pollution that might otherwise arise. Those sites that comply with licence requirements do not cause a negative impact on the environment beyond the site boundary.

The responsibility to comply with an EPA licence or specified Regulation lies solely with the licensee/regulated entity. In accordance with practice across all Member States, licensees must operate in accordance with the best practice and limits set out in the licence/relevant Regulation, report any incidents[1] or non-compliances arising to the EPA without delay and take swift corrective action to return to compliance. The EPA assesses the performance of licensees/regulated entities through an annual programme of inspections, monitoring and assessments.

[1] Incidents are events that are outside the normal range of operations. Regulated sites are required to minimise the risk of incidents occurring through preventative actions, training and incident detection and response practices.

While 97% of incidents rising at regulated sites since 2021 are minor in nature, they can on rare occasions result in releases to the environment where water pollution, and in some cases, fish mortalities occur. The EPA has a strong record in successfully investigating pollution events and holding those that don't comply to account through the legal system: Prosecutions and Penalties | Environmental Protection Agency. The EPA's Compliance and Enforcement Policy sets out the EPA's approach to enforcing environmental legislation to promote compliance and the principles and criteria underpinning enforcement decisions. It takes an approach that is outcomes focused and risk-based; is proportionate to the offence or non-compliance; and applies the polluter pays principle, so that the public can have confidence in the EPA's work to protect the environment.

Water quality monitoring and assessment

Under the Water Framework Directive (WFD), monitoring of Ireland's waterbodies is carried out by several public authorities. The water quality parameters and monitoring frequencies are specified in the WFD. The monitoring roles and responsibilities include:

- Local authorities: water chemistry monitoring
- EPA: ecological sampling including aquatic insects (macroinvertebrates), aquatic plants (macrophytes) and algae
- IFI: fish monitoring
- Waterways Ireland: water monitoring in canals

Information on the Water Framework Directive (WFD) monitoring programme is available on the EPA website and is viewable on EPA maps, with monitoring data published on the EPA data geoportal.

Every three years, the EPA assesses the condition of the water body status for our waters and publishes this information. The most recent assessment was the Water Quality in Ireland 2016-21 report. The next three year assessment and report will be published in Q4 2025.

The EPA also works with local authorities, government departments and other public agencies and bodies such as the Local Authority Waters Programme, to understand the pressures impacting on our waterways, inform policy and target the right measure in the right place. Further information is available at: Catchment science and management | Environmental Protection Agency

The EPA's role in relation to the Blackwater fish mortalities

As part of its enforcement activities, the EPA investigates EPA-regulated sites that may be implicated in water pollution incidents. There are a range of industrial sites, wastewater treatment plants and drinking water plants regulated by the EPA across the Blackwater Catchment. When the EPA became aware of fish mortalities in the River Blackwater and Clyda River around the Mallow area on the morning of August 12th, its initial focus was to determine if any of the EPA Regulated sites in the Mallow and Kanturk area could have contributed to the incident. On August 22nd, the EPA expanded its investigation to a greater number of EPA regulated

sites and over a wider date range on foot of the Marine Institutes report that a waterborne irritant was likely to have caused or contributed to the fish mortalities in the days previous to August 12th.

The investigation encompassed site inspections, sampling of discharges and of river water upstream and downstream of discharges, data analysis and verification activities, supported by extensive expertise from across environmental disciplines in the EPA.

Ongoing engagement was maintained between the EPA, IFI, Cork County Council and others, both bilaterally and through the interagency group convened by the IFI for the purposes of the wider investigation, to share knowledge and expertise throughout the investigation. The EPA provided expertise and data in relation to discharges from regulated sites, water quality and invertebrate sampling in the Blackwater catchment.

This report outlines the scope and findings of the EPA's investigation into discharges from EPA regulated sites in the Blackwater catchment for the period 28th July 2025 to 12th August 2025. The assessment and conclusions as set out are intended to inform the wider multi-agency investigation, being led by the IFI, into the cause of fish mortalities in the Blackwater in August 2025.

Where non-compliant activities were detected at EPA-regulated sites, the EPA is rigorously pursuing these issues through appropriate enforcement actions and in accordance with the EPA's Compliance and Enforcement Policy.

EPA ACTIONS

Focus of the investigation

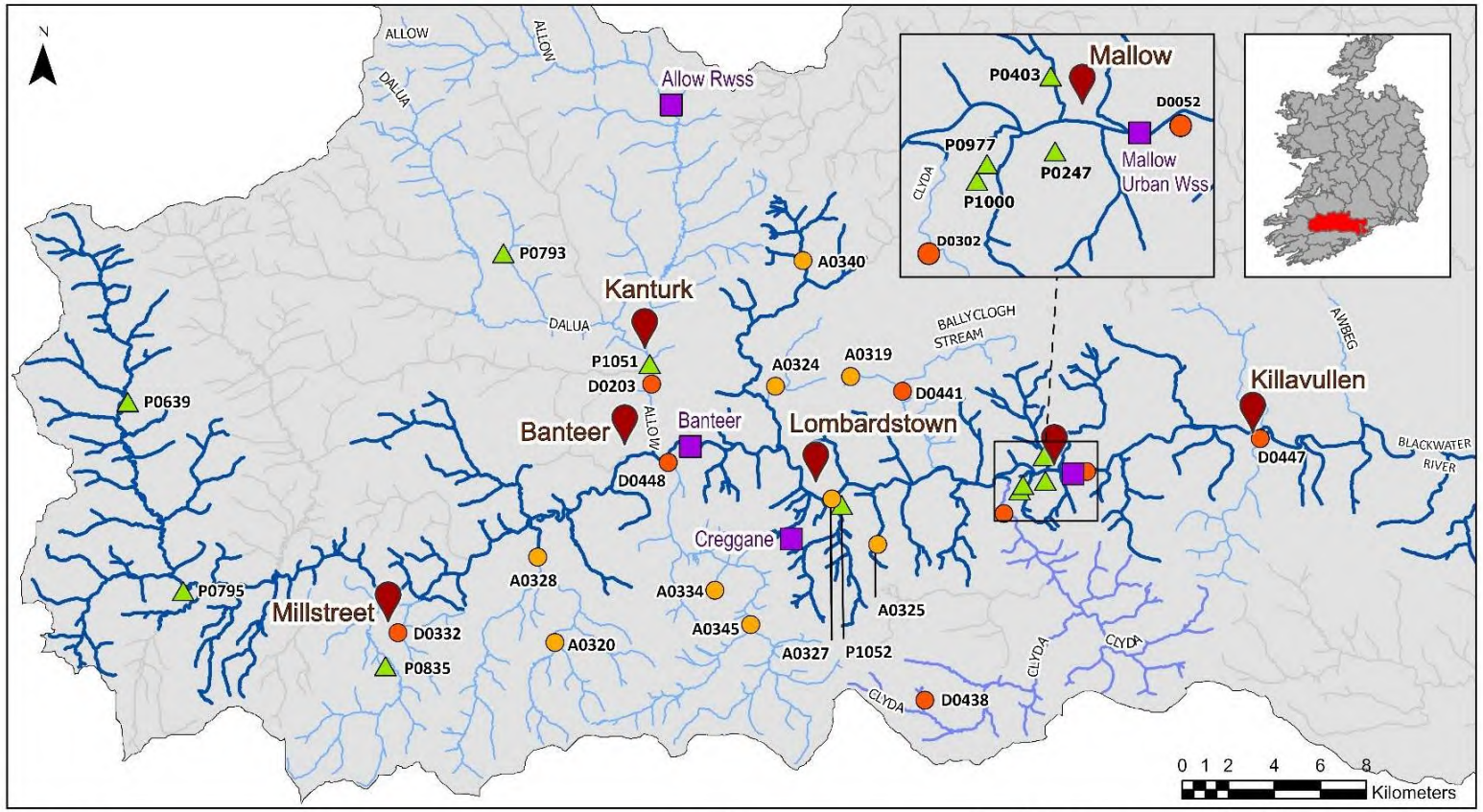
The EPA became aware of the fish mortalities in the River Blackwater and Clyda River around the Mallow area on the morning of August 12th. Three inspector teams were deployed to inspect EPA regulated facilities around Mallow and Kanturk, that could have contributed to the serious incident.

On August 22nd, preliminary findings of the postmortem carried out by the Marine Institute on fish, signalled that a waterborne irritant was likely to have caused or contributed to the fish mortalities, and that exposure may have occurred in the days before August 12th. The EPA immediately expanded the investigation to include discharges from EPA-regulated sites that may have occurred over a wider date range and wider area in the Blackwater Catchment. The EPA focused their investigation in the upper Blackwater catchment on the following EPA regulated facilities (see Figure 1):

- 10 licensed industrial sites
- 17 wastewater discharges (eight of which hold wastewater discharge licences and nine which are smaller plants <500 population equivalent that hold certificates of authorisation)
- Two drinking water plants that use chemicals for coagulation and flocculation. A further two drinking water plants that abstract from tributaries of the Blackwater were inspected.

The list of these facilities is provided in appendix 1. A map of the location of the facilities is provided in Figure 1.

Figure 1: Location of EPA Regulated Facilities Inspected



Legend

- Towns
- Blackwater River
- All other rivers
- Blackwater Catchment
- Certs of Authorisations
- Waste Water Discharge Authorisations
- Industrial Facilities
- Drinking Water Treatment Plants

RegCD	Name
P0835	ALPS Electric (Ireland) Limited
P0403	Dairygold Co-Operative Society Limited (Mallow)
P0793	Newmarket Co-Operative Creameries Limited
P0795	Mondelez Ireland Production Limited (Rathmore)
P0639	Gairdini
P0247	Micam Limited
P1000	Magh nAla Limited
P0977	Magh nAla Limited (Quartertown)
P1051	North Cork Co-Op Creameries Limited
P1052	Dairygold Agri Business Limited

RegCD	Name
A0345	Nad
D0332	Millstreet & Environs
D0438	Bweeng and Environs
D0441	Ballyclough
A0319	Cecilstown & Environs
A0320	Kilcorney
D0203	Kanturk
D0302	Dromahane and Environs
A0324	Castlemaginer

RegCD	Name
A0325	Glantane
A0327	Lombardstown & Environs
A0328	Rathcoole
A0334	Lyre
A0340	Kilbrin
D0447	Killavullen and Environs
D0448	Banteer and Environs
D0052	Mallow

Inspections, monitoring and assessment

The EPA enforces regulated facilities through site inspections, monitoring of licensed discharges and assessment of monitoring data. As part of the investigation, the EPA conducted 41 inspections at regulated facilities. As of September 11th, there were 19 inspections to 10 industrial facilities, 18 inspections to 17 wastewater treatment facilities and 4 to drinking water treatment plants. The list of the facilities inspected is provided in appendix 1. These inspections primarily focused on the operations of the facility and any discharges to water during the period of the fish mortalities. These inspection reports will be made available to the public via EPA's LEAP (Licence and Enforcement Access) online portal in due course.

As part of the initial investigation, samples were taken of discharges from two industrial sites on August 12th: Magh nAla Limited P1000-01 and NCC P1051-01. The EPA also sampled wastewater discharges from the Lombardstown urban wastewater discharge and downstream (d/s) of the Dromahane urban wastewater discharge on the Clyda River on August 12th and the discharge from Dromahane wastewater treatment plant on August 13th. The findings from these samples are summarised in Appendix 2. Full laboratory reports will be available on LEAP online in due course. Non-compliant results are discussed in more detail later in this report.

Additional EPA samples of discharges and receiving waters were taken at sites since August 13th (see Appendix 3). These samples are for the purpose of verifying compliance or pursuing compliance issues further. Enforcement action will be taken on any non-compliances detected, in line with normal enforcement procedures.

In addition to the EPA samples, the EPA regulated facilities were required to provide all monitoring data relevant to the time of the fish mortalities. The EPA assessed this monitoring data to determine compliance with licence requirements and to assess the significance of the discharges. Details of monitoring data from regulated facilities is provided in Appendix 4 and the assessment of the significance of the discharges in relation to the fish mortalities is provided in the *EPA Assessment of Water Quality* section below.

Regard was also had to the results of a fish postmortem analysis from the Marine Institute and fish tissue analysis arranged by the IFI, which did not highlight any chemical or substance of concern in the fish tissue.

Industrial

Ten EPA-licensed industrial sites were examined as part of the investigation as outlined in Appendix 1. Nine of the industrial sites either had no process effluent discharges during the period 28th July 2025 to 12th August 2025 or had compliant discharges to water. No evidence of spills or unauthorised emissions were found in relation to these sites.

One of the sites, NCC (Licence Register P1051-01) in Kanturk, had persistent non-compliances across the period investigated 28th July 2025 to 12th August 2025. The monitoring data for the period, and an assessment of that data is tabulated in the *EPA Assessment of Water Quality* section below.

North Cork Creameries

The NCC licence, P1051-01, and the associated Technical Amendment A of that licence, permits the licensee to discharge treated effluent to the River Allow via emission point SW1, provided that the discharge meets the emission limits set out in Schedule B.2 of the licence and other related conditions. The licensee is required to comply with the licence at all times, to monitor the discharge for the parameters and at the frequencies set out in the licence and to notify the EPA of any breaches of licence requirements.

Enforcement Record up to June 2025

The National Priority Sites (NPS) system allows the EPA to identify which industrial and waste-licensed sites should be prioritised for enforcement based on their environmental performance. It is used to target the EPA's enforcement effort at the poorest performing sites to drive improvements in environmental compliance. The list is published quarterly on a retrospective basis. National priority sites list | Environmental Protection Agency.

NCC was on the EPA's National Priority Sites (NPS) list in Q3 2021, Q2, Q3 and Q4 of 2022, all of 2023 and all of 2024. A range of compliance issues contributed to the licensee's compliance scores over time, including breaches in Emission Limit Values in the wastewater discharge and emissions to air, stormwater management and material containment. NCC was not on the NPS in Q1 or Q2 of 2025 as the compliance issues were progressed to an extent that the site's scores reduced to below the NPS threshold. These improvements included resolution of wastewater treatment issues so that compliant discharges were achieved; changes to storm water management, where containment of material storage and transfer areas was significantly improved; and the achievement of compliant emissions to air. The NPS list for Q3 2025 will be published in October 2025 and based on the issues found at NCC in recent months, it will feature on the Q3 NPS list.

Since NCC was granted it's licence, the EPA has carried out 46 inspections, with samples taken on 23 of those visits. EPA brought a case against NCC to the District Court where, on 22nd February 2024, NCC pleaded guilty to eight charges of breaching conditions in 2022 related to ammonia and total nitrogen emission limit value exceedances in wastewater discharges, the unauthorised release of contaminated stormwater, non-compliant material containment, and exceedances of air-related emission limit values. Total fines of €11,000 were awarded during sentencing on the 29th of April 2025.

Wastewater treatment plant incident June 2025

Ten complaints were received in 2025 to date related to discharges to water from NCC, beginning on 21st June 2025 when reports were received of a sludgy discharge into the River Allow from the site. IFI were also notified at the time. The incident was caused when, during cleaning of the whey silo, a plug of whey material was discharged to the wastewater treatment plant. The volume and concentration of the whey shocked the biological system in the treatment plant, reducing the effectiveness of the plant and giving rise to non-compliant discharges. While the discharge was shut off on the morning of the 22nd June, EPA inspectors, who visited the site on the 23rd June, noted sewage fungus on plants and rocks in the River Allow around the discharge point, and a strong foul odour in the area at the time.

Since then, the EPA has inspected the site 20 times and held five compliance meetings with the licensee. The EPA opened Compliance Investigation CI002209 on 24/06/2025 to track and enforce the corrective actions required to resolve the problems identified. NCC took measures to bring discharges back into compliance, including an increase in aeration capabilities and the diversion of effluent to landspreading[2].

The licensee monitors the wastewater treatment plant and its discharges, in a number of different ways:

- An online SCADA[3] system provides continuous data on flow, pH and temperature at the discharge, and dissolved oxygen in the aeration tank point on a 24-hour basis.

- Each morning, flow meter readings are taken directly by the licensee for flow (at the inlet to the balance tank and at the discharge point), pH and temperature in the discharge and dissolved oxygen at the aeration tank. A daily record is maintained. The sludge settlement rate is also recorded.

- A composite sampler takes a proportionate sample from the discharge flow throughout the day. This sample therefore provides a representation of the quality of the effluent across a 24 hour period.

- Grab samples of the discharge provides data on the quality of the effluent at a given point in time.

The wastewater treatment plant operational data assessed on site confirms that the plant has operated poorly across July and August, with below optimal conditions being achieved through the various stages of treatment e.g. low dissolved oxygen in the aeration basin; poor sludge settlement rates in the clarifier.

The monitoring data (as summarised in Appendix 4), demonstrates that while compliance was restored by 2nd July 2025, breaches of the licence occurred for several parameters on various dates throughout the rest of July and into August. The most frequent exceedances were for BOD and total ammonia:

- Exceedances of the BOD Emission Limit Value (ELV) of 6mg/l occurred on twenty dates with levels ranging between 7.5mg/l and 33.2 mg/l.
- The total ammonia ELV of 0.5mg/l was breached on 22 dates, with levels ranging between 0.56mg/l and 26mg/l.

[2] The NCC licence permits the licensee to send organic fertiliser off-site for landspreading, subject to conditions. The recovery of organic material by landspreading is regulated under the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022 (as amended) by the Department of Agriculture, Food and the Marine (DAFM) and Local Authorities.

[3]SCADA (Supervisor Control and Data Acquisition) is an online graphical interface that shows conditions across the wastewater treatment plant on a continuous basis on any given day. It provides real-time data collection and control and is used for managing and monitoring the waste water treatment processes.

It is noted that no evidence of a chemical spill or chemical discharge at NCC was identified during the investigation. The main chemicals of concern at the site are cleaning products and the potential for petroleum products to leak from vehicles. There was no visible evidence or reports of petroleum/oil spills on or from the site. pH levels in the discharge were within licence limits across all of July and up to 12th August (indicating that nothing caustic or acidic was discharged). In addition, COD levels were largely compliant with the ELV of 75mg/l across July and early August, except for:

- 1st August, where COD concentrations reached 101mg/l
- 12th August, where COD levels reached 120 mg/l

These COD levels, while not in compliance with the licence limits, are within the expected range for treated effluent from dairies[4]. Considering the other parameters that were elevated on those same dates, e.g. suspended solids and nutrients, the elevated COD more likely represents excess organic material due to the poor treatment process, rather than strong chemicals being in the discharge.

A spill of sludge from the site to the riverbank, upstream of SW1, was reported by complainants on the 1st August to the EPA, having been first noted by the complainants on the 30th July. EPA inspectors investigated the report and found evidence of the sludge on the grass on the riverbank. After thorough investigation of the area affected, the inspectors noted that while this area floods when river levels are high, the river levels had been low over that period and the bank was above the water level at the time of the inspection. Inspectors noted the sludge texture, its patterns in the grass and the topography of the river bank in that area (slightly bowl shaped). They found no evidence of a pathway whereby the sludge might have reached the water. The release of sludge onto the riverbank, and the lack of report from the licensee that a release occurred, breached licence requirements. The licensee was instructed to investigate the cause and remediate the area. The cause was identified as being due to spills occurring during the process of transferring sludge to tankers. The affected area has been cleaned up and the sludge transfer practices have been changed to prevent further spills from occurring.

The monitoring data from the licensee also demonstrates that a composite sample for the 5th August (9am of 5th to 9am on 6th August) was not tested by the licensee in accordance with licence requirements. This is a further breach of the licence. To ascertain conditions in the waste water treatment plant on that date and whether a significant or unusual discharge is likely to have occurred on that date, the EPA examined the SCADA[5] data for the 5th August, wastewater treatment plant operational records, the discharge monitoring data for the 4th and 6th August and

[4] COMMISSION IMPLEMENTING DECISION (EU) 2019/2031 of 12 November 2019 establishing best available techniques (BAT) conclusions for the food, drink and milk industries, under Directive 2010/75/EU of the European Parliament and of the Council, specifies typical ranges for COD in food and drink effluent discharges are 25-100mg/l, with the upper end of the range being 125 mg/l for dairy plants eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2031

[5] SCADA (Supervisor Control and Data Acquisition) is an online graphical interface that shows conditions across the wastewater treatment plant on a continuous basis on any given day. It provides real-time data collection and control and is us used for managing and monitoring the waste water treatment processes.

ambient monitoring data in the river upstream and downstream of the treatment plant from the 6th August.

The wastewater treatment plant, while not operating optimally, showed no unusual activity on the 5th compared to the days before and shortly after. pH levels remained steady and within range, demonstrating no unusual caustic or acidic discharges in that period. Flow through the discharge point during that period was sporadic (stopped and started on various occasions, as it had for much of the days previously) but was at relatively normal levels compared to the days and weeks around that period and was in compliance with licence flow limits.

Wastewater treatment plants rely on a biological process to treat effluent. By its nature, and based on extensive experience of dairy wastewater treatment plants, sudden peaks in parameters like ammonia in a wastewater which could occur due to shock loads to the plant, take several days to reduce to previous levels, even in modern plants where significant intervention is made. Ammonium on the 4th August was measured at 16.8mg/l. This is equivalent to approximately 13mg/l total ammonia. On the 6th August, total ammonia in the discharge was 5.2mg/l. If a peak significantly above 13mg/l occurred on the 5th August, it is highly unlikely that the concentration could have dropped to 5.2mg/l in the space of one day, especially in a plant like that at NCC, where the infrastructure is old. Based on experience of other dairy plants where wastewater treatment plants have failed, ammonia levels in the discharge in worst case scenario circumstances, rarely exceed 25mg/l. Therefore it is considered that any peak in ammonia in the discharge that could have arisen on the 5th was highly unlikely to have exceeded the maximum ammonia peak detected in the plant to date (i.e. 26mg/l, 12th August 2025). The impact of this maximum total ammonia peak is discussed further later in this report.

The drainage on the site is currently configured so that all effluent, spills and storm water arising on site can only discharge from the site via the wastewater treatment plant. COD levels in the discharge on the 4th and 6th were both at 44mg/l. As noted for ammonia, given the biological processes in the plant, any sudden peak in COD on the 5th August would take several days to return to levels of 44mg/l.

Videos submitted by complainants for that period, showing the flow from the discharge points over a range of dates, including the 5th, 6th, and 9th August, were also examined as part of this assessment. These complainants did not flag dead or distressed fish in the River Allow in the period before, during or after that period. IFI have also confirmed not receiving reports or seeing evidence of dead or distressed fish in the Allow.

In addition, EPA grab samples were taken from the River Allow on the 6 August between 12:45 and 13:10, at a time when NCC wasn't discharging. These samples indicate total ammonia concentrations were < 0.02 mg/l N upstream and downstream of the plant, and that there was overall good water quality in the River Allow. By way of comparison, this concentration in the river is below the 95%ile[6] Environmental Quality Standard for total ammonia of 0.14 mg/l N in good

[6] To maintain good water quality in relation to Total Ammonia, the Good Status EQS requires the annual average concentration to be less than 0.065 mg/l N and the concentration should be lower than 0.14 mg/l N 95% of the time. The 95%ile EQS is particularly relevant when considering acute impacts on rivers, complimenting the annual average EQS, which identifies chronic long term water quality issues.

status waters. The concrete outfall pipe structure traverses the River Allow at a diagonal, creating a bay area on the downstream side of the pipe. Discharged effluent can backwash into this bay as a result of flow dynamics caused by the outfall structure. Samples taken in the bay on the 6th August had 0.077mg/l total ammonia, which is below the 95%ile good status Environmental Quality Standard for total ammonia of 0.14 mg/l N.

When the EPA attended site on the 12th August at 13:13, the licensee had already ceased the discharge at SW1 at 10am due to elevated ammonia levels in the discharge. The EPA took samples at 13:38 and 13:48, one of which, a grab sample from the v-notch weir, where effluent was trickling out, had an ammonia level of 26mg/l. It is unlikely that this is representative of the discharge across the whole day, but has been assumed so for the purposes of the assessment set out later in this report. A split of the sites composite sample on that day (covering a sample period of 9am 11th August to 9am 12th August) was also taken, and was found to have ammonia levels of 15mg/l. While the licensee resumed discharging from the plant periodically since that date, a consistently compliant discharge under normal operating conditions has not yet been demonstrated due to continued problems in the wastewater treatment plant process. Discharges from SW1 are being monitored by the EPA.

Significant non-compliances have been detected in relation to the discharges from the NCC wastewater treatment plant. The licensee's progress in resolving the issues arising has been wholly unsatisfactory due to disorganised management and oversight of the operation of the treatment plant, a lack of expertise to appropriately bring the plant back on line and a lack of regard for compliance with licence requirements. The EPA is actively taking enforcement actions in relation to the non-compliant discharges that have occurred and ongoing environmental management issues, in line with its Compliance and Enforcement Policy. Offences related to breaches of EPA licences may be prosecuted summarily by the EPA or on indictment by the DPP. The EPA is giving full consideration to all such enforcement options available to it in respect of the non-compliances detected.

While some improvements have been made with regard to the oversight of the plant since the 1st September, consistent control and operation of the plant has not yet been demonstrated. The Compliance Investigation CI002209 into effluent quality at NCC will remain open until compliance is fully restored.

Wastewater

Seventeen of Uisce Éireann's Wastewater Treatment Plants (WWTPs) around the Blackwater River and tributaries were the focus of the EPA's investigations. These are identified in Figure 1 above. Eight of the seventeen treatment plants are licensed as their treatment capacities are from areas with population equivalents of greater than 500. The remaining nine were much smaller plants and had certificates of authorisations, as their treatment capacities are from areas with population equivalents of less than 500. Discharges from certificates of authorisation are relatively low volume discharges compared to larger treatment plants due to the volume of wastewater treated.

Uisce Éireann informed the EPA that here were no spillages during the period associated with the fish mortalities. EPA inspections at the time of the fish mortalities and after then, found no evidence of spillages at wastewater treatment facilities. Details of the plants inspected are in appendix 1.

From the effluent monitoring data completed by Uisce Éireann in July and August for the 8 licensed facilities, 5 complied with licence limits and three (Bweeng WWTP, Dromahane WWTP and Millstreet WWTP) had discharges that were not in compliance with their emission limit values (ELVs). The EPA has ongoing enforcement activities in relation to these facilities.

- **Bweeng WWTP**
  The wastewater discharge from Bweeng WWTP is to a tributary which flows into the Clyda River, a tributary of the Blackwater River. The discharge from the WWTP is approximately 14.5 km upstream from the confluence with the Blackwater River. Uisce Éireann provided the EPA with their latest analysis of wastewater effluent from Bweeng WWTP, taken on July 8th 2025. Suspended solids and total ammonia were non-compliant with the WWDL(Wastewater discharge licence) ELVs. The EPA inspected Bweeng wastewater treatment plant on September 4th and samples were taken of the discharge and upstream and downstream of the discharge. The plant was found to be non-compliant with Ammonia on this date. The downstream ambient results indicate that the receiving water quality met good surface water quality standards for rivers. The results of this analysis are provided in appendix 4. Bweeng needs infrastructural improvements to ensure the WWTP can meet the ELVs in their licence. The EPA opened a Compliance Investigation in November 2018 in relation to recurring non compliances at the plant and the need for infrastructural upgrades. Uisce Éireann has been requested to confirm timelines for the plant improvement works.

- **Dromahane WWTP**,
  The wastewater discharge from Dromahane WWTP is to the Clyda River a tributary of the Blackwater River which is located approximately 2.25km upstream of its confluence with the River Blackwater. The latest treated wastewater samples from Dromahane WWTP taken by Uisce Éireann for analysis were taken on the 8th July 2025, 13th August 2025, 14th August 2025 and the 18th August 2025. All samples taken show exceedances of ELVs, excluding Ammonia. In addition to sampling the final discharge, Uisce Éireann sampled the Clyda River upstream and downstream of the wastewater discharge from the WWTP on August 14th, 2025. The downstream results indicate that the receiving water quality met the environmental surface water quality standards for rivers. The EPA has inspected the site three times between 2024 and 2025. The EPA sampled the discharge on August 13th and September 3rd 2025 and discharges show exceedances of ELVs, excluding Ammonia. The EPA sampled downstream of the discharge on August 12th and upstream and downstream on September 3rd. The downstream results indicate that the receiving water quality met the environmental surface water quality standards for rivers. The results of this analysis are provided in appendix 4. The EPA opened a Compliance

Investigation in relation to this issue on 22/09/2025. Operational improvements need to be implemented at the plant by Uisce Éireann to ensure the WWTP can meet the ELVs.

- **Millstreet WWTP**
  The wastewater discharge from Millstreet WWTP is to the Finnow River, a tributary of the Blackwater River which is located approximately 2km u/s of is confluence with the River Blackwater. The latest treated wastewater samples from Millstreet WWTP taken by Uisce Éireann for analysis were taken on July 22nd 2025 and August 19th 2025. The sample taken in July was compliant. The sample from August for Total Ammonia exceeded the WWDL ELVs. In addition to sampling the final discharge, Uisce Éireann sampled the Finnow River upstream and downstream (1.5km) of the wastewater discharge from the WWTP on the August 19th 2025. The downstream results indicate that the receiving water quality met the environmental surface water quality standards for rivers. The results of this analysis are provided in appendix 4. Millstreet WWTP has a generally good compliance record but the August breach of an ELV is currently being investigated. The EPA inspected the plant on September 9th. Uisce Éireann sampled the primary discharge on September 9th. The EPA took ambient samples upstream and downstream of the discharge location on that date. The downstream results indicate that the receiving water quality met the environmental surface water quality standards for rivers.

Certs of Authorisations

Eight of the nine Certificate of Authorisations discharge to tributaries of the Blackwater River at distances of 2km+ upstream of the Blackwater River main channel. No dead fish were reported in these tributaries' u/s of their confluence with the Blackwater River. No incidents were reported by Uisce Éireann at these eight Certificate of Authorisation WWTPs plants in 2025. The EPA inspected these eight certificates of authorisation and no issues of concern in relation to the fish mortalities were identified. One of the nine certificates of authorisation (Lombardstown) discharges to the main Blackwater river and is operating above its design capacity.

- **Lombardstown**

  Lombardstown WWTP consists of a septic tank system providing primary treatment and it is operating above its treatment capacity. It discharges directly to the Blackwater channel. The EPA inspected Lombardstown in April and August 2025. The plant has been identified by the EPA on its Priority Action List. The EPA Priority Action List is a list of priority urban areas where improvements in treatment are needed most and will bring the greatest benefits. Uisce Éireann has reported that it proposes to upgrade the WWTP. The latest treated wastewater samples from Lombardstown WWTP were taken by the EPA and are provided in appendix 4.

A full assessment of the discharges from wastewater treatment facilities in relation to the fish mortalities is provided in in the *EPA Assessment of Water Quality* section below.

Drinking water

The EPA considered all the drinking water treatment plants in the Blackwater catchment and their potential to have contributed to fish mortalities. There were 38 drinking water abstractions in the Blackwater catchment. Only two of these drinking water treatment plants, Freemount (Allow Regional) and Mallow, abstract from the river and use chemicals for coagulation, flocculation and clarification (CFC), and discharge supernatant to the receiving waters as part of their treatment processes. These two plants were the focus of the EPA investigation in relation to drinking water. The remainder of the sites don't use CFC processes, don't have the associated chemicals and don't discharge supernatant to rivers. There were no environmental incidents reported at these 38 plants in 2025.

- **Freemount (Allow Regional)**
  There was a chemical spill at the Freemount plant in June 2024 which resulted in ~~a~~ fish mortalities. The spillage occurred due to a break in the pipework resulting in approximately 3,000 litres of polyaluminium chloride (PAC) entering the storm water drain and discharging to the River Allow. Post this incident, the EPA requested Uisce Éireann to complete assessments of the risk of chemical spillages to receiving water bodies from all their drinking water plants. Detailed risk assessments were completed at all sites by the end of 2024 and risk mitigations, such as bunded storage of chemicals, are being implemented at these sites, prioritising plants considered to be of higher risks.

  Uisce Éireann confirmed that there were no incidents at the plant in 2025. The raw water monitoring data was within normal ranges and treated drinking water complied with the drinking water standards. The EPA inspected the plant on August 27th and no issues were identified that could have contributed to the fish mortalities. Upgrade works have been completed at the plant in relation to removing the risk of any chemical spill to the environment, post the incident in 2024. There is an inhibit on the supernatant discharge at Freemount water treatment plant, if it reaches 10 NTU (Nephelometric Turbidity units i.e. its level of cloudiness), which means that only clear supernatant is allowed to discharge. The supernatant discharge was clear on the day of the inspection.

- **Mallow**
  Uisce Éireann confirmed that there were no incidents at the plant in 2025. The raw water monitoring data was within normal ranges and treated drinking water complied with the drinking water standards. The EPA inspected the plant on August 27th and no issues were identified that could have contributed to the fish mortalities. The supernatant is discharged manually into the River Blackwater, but only after staff check that it's below the turbidity limit of 10 NTU. Daily records from 1st August show all readings were within this limit. No discharge was happening during the EPA visit.

The EPA completed two further inspections on September 4th to two smaller drinking water plants (Banteer and Cregane/Glantane) and no issues of concern were identified.

EPA ASSESSMENT OF WATER QUALITY

Catchment Context

On the morning of 12th August 2025, the EPA became aware that marked and dead fish were observed on the main channel of the River Blackwater between Blackwater (Munster)_090 and Blackwater (Munster)_160. Marked and dead fish were also observed along the reach of Clyda_030. Inland Fisheries Ireland (IFI) have advised the public authorities investigating the fish mortalities that observations of marked and dead fish in the other tributaries to the River Blackwater are thought to be the result of fish trying to escape from the main channel of the River Blackwater. This may also be the case with the Clyda River, although the IFI have indicated marked fish were observed further up the Clyda River (@~2.5km from the confluence with the River Blackwater).

No marked or dead fish were reported to have been observed in the main River Blackwater upstream of Blackwater (Munster)_090, or in the Glen River or River Allow tributaries to Blackwater (Munster)_090. However, it is possible that the cause of the fish mortalities was further upstream than the location where the marked and dead fish were observed and occurred prior to when notifications were made about the fish mortalities.

Therefore, this water quality assessment has focused on collation of available water quality data for the months of June-August 2025 for the River Blackwater, from Blackwater (Munster)__070 through to Blackwater (Munster)_160 which includes the reaches from Millstreet to Killavullen, the Glen River, the River Allow and the Clyda River.

Water quality and flow conditions

Background Water Quality

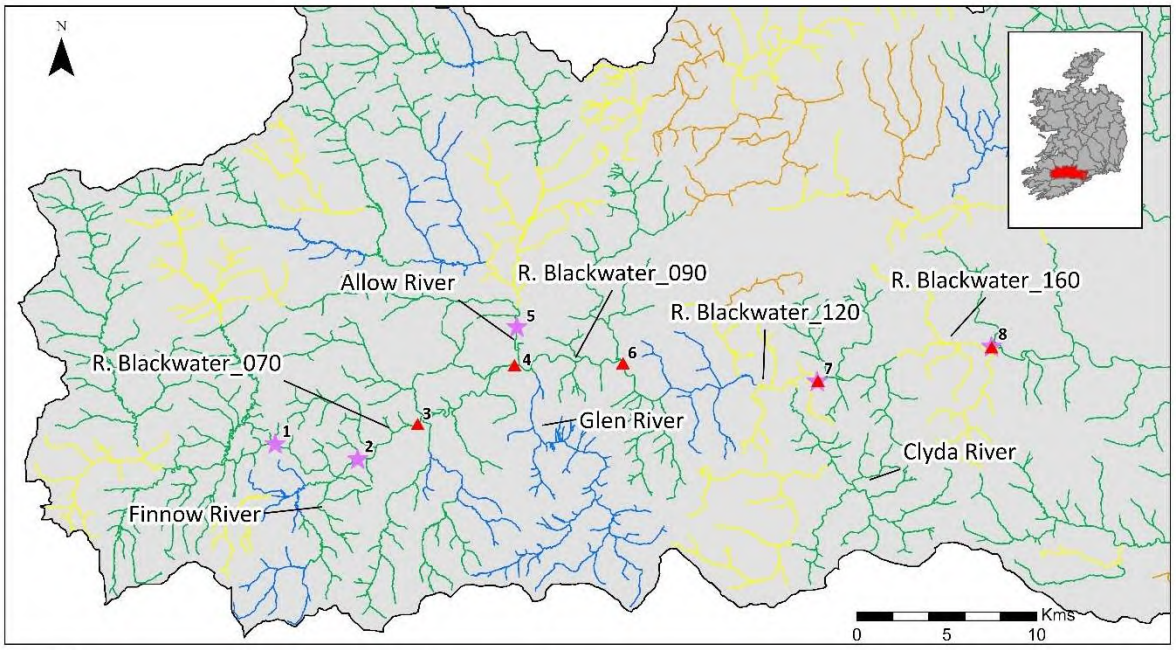
Existing EPA water quality data from the Water Framework Directive (WFD) National Water Quality Monitoring Programme for 2024 in the area of focus on the River Blackwater has been reviewed. The WFD water quality classification scheme is used to assign each waterbody into one of five water quality classes ranging from High Ecological Status, through Good, Moderate and Poor, to Bad Ecological Status[7]. The data for the Blackwater, as shown in Figure 2, indicates that:

- Blackwater (Munster)_070 to Blackwater (Munster)_100 has Good Ecological Status
- Blackwater (Munster)_110 has High Ecological Status
- Blackwater (Munster)_120 has Moderate Ecological Status.
- Blackwater (Munster)_130 to Blackwater (Munster)_160 has Good Ecological Status
- Blackwater (Munster)_160 has Moderate Ecological Status
- Glen (Banteer)_030 has High Ecological Status

[7] https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/assessing-river-water-quality---epa-fact-sheet.php

- Allow_070 has Good Ecological Status
- Clyda_030 has Good Ecological Status

Figure 2: Water Quality and WFD Monitoring Locations in the Blackwater Catchment



Legend

Water Quality Status (2016-2021)

- High
- Good
- Moderate
- Poor
- Bad

Monitoring Stations

Hydrometric Gauges

Map ID	Monitoring Location
1	Duarrigle
2	Keale Br
3	Colthurst Br
4	Ballymaquirk Br
5	Riverview
6	Roskeen Br
7	Mallow Railway Br
8	Killavullen Br

2025 EPA Ecological Monitoring

As part of the national WFD monitoring programme, ecological macroinvertebrate[8] monitoring was carried out in July and August 2025 in the Blackwater catchment. In September, the IFI requested additional ecological macroinvertebrate monitoring at certain locations on the River Allow and River Blackwater. In summary, ecological macroinvertebrate monitoring and assessment was carried out in 2025 as follows:

- Allow_070 (sampled September)
- Blackwater (Munster)__090 (sampled September)
- Blackwater (Munster)__120 (sampled August)
- Blackwater (Munster)__140 (sampled July)

[8] Aquatic invertebrates assist in demonstrating the quality of the river water. The aquatic invertebrates in a sample are divided into 5 'Indicator Groups' based on their sensitivity to pollution. The greater the abundance of sensitive species in the sample, the better the water quality.

- Blackwater (Munster)__150 (sampled July)

While these data have not been fully processed to date, an initial review of this data confirms no change in water quality in these river stretches from that observed in 2024.

2025 WFD Water Chemistry Monitoring

Annually, between 4 and 8 river chemistry samples are taken from monitored waterbodies by local authorities and subsequently analysed by the EPA to meet the requirements of the WFD. Between June and August 2025, chemistry samples were taken at the following locations in the area of focus.

- Colthurst Br (Blackwater (Munster)__070) - July
- Ballymaquirk Br (Blackwater (Munster)__080) - July
- Roskeen Br (Blackwater (Munster)__090) - July
- Rly Br, Mallow (Blackwater (Munster)__120) - July
- Killavullen Br (Blackwater (Munster)__160) – June and August

The available chemistry analysis data are for parameters that are indicators of the general physical condition of a river (e.g. temperature, pH, oxygen state and nutrient enrichment). Slightly elevated BOD is noted for all waterbodies in the River Blackwater upstream of Mallow in July, although all other parameters were within the typical range for the parameter and were indicative of Good water quality. There was no discernible change in water quality for Blackwater (Munster)__160 between the June and August sample.

Table 1: WFD River Chemistry Data for June, July and August in the River Blackwater Catchment

Location	Colthurst Br	Ballymaquirk Br	Roskeen Br	Rly Br, Mallow	Killavullen Br	Killavullen Br
Station Code	RS18B020900	RS18B021000	RS18B021200	RS18B021500	RS18B021900	RS18B021900
Waterbody name	Blackwater (Munster)_070	Blackwater (Munster)_080	Blackwater (Munster)_090	Blackwater (Munster)_120	Blackwater (Munster)_160	Blackwater (Munster)_160
Date	16-Jul-25	16-Jul-25	16-Jul-25	16-Jul-25	25-Jun-25	20-Aug-25
Alkalinity (mg/l)	17	19	33	47	107	108
Ammonia (mg/l)	0.033	0.033	0.036	<0.02	<0.02	0.02
BOD (mg/l)	3.7	3.6	3.6	3.3	1.6	<1
Chloride (mg/l)	14.5	14.4	17.1	19.4	26.7	27.5
Conductivity @25'C (uS/cm)	93	97	131	170	323	332
Dissolved Oxygen (mg/l)	9	9.5	9.2	8.8	10.1	9.4
Dissolved Oxygen (%Sat)	93	93	92	88	108	95
Hardness (mg/l)	22	25	37	51	121	123
o-Phosphate (mg/l)	0.024	0.02	0.019	0.013	0.016	0.012
pH (pH unit)	6.6	6.5	6.9	7.2	7.8	7.6
Suspended Solids (mg/l)	not analysed	not analysed	not analysed	not analysed	<4	<4
Temperature (°C)	16.5	14.5	14.9	15.6	18.4	15.6

Location	Colthurst Br	Ballymaquirk Br	Roskeen Br	Rly Br, Mallow	Killavullen Br	Killavullen Br
Total Oxidised Nitrogen (mg/l)	0.49	0.57	0.81	1.1	2.4	2
True Colour (mg/l)	213	216	182	106	21	16

Cork County Council has indicated that the analysis from the additional water samples they took on 12 / 13 August on the River Blackwater in Mallow and on the Clyda River had water quality parameter concentrations that were comparable to samples taken previously and were indicative of good water quality.

Rainfall, river flow and water level

Met Éireann data for Moore Park (approx. 40 km downstream of the area of focus) indicates that rainfall in July and August was below the long-term average. During the first two weeks in August there were only two days with more than 0.5mm of rainfall at Moore Park.

The low rainfall resulted in lower water levels and flows in the River Blackwater catchment, with the Local Authority-EPA Duarrigle hydrometric gauge (Blackwater (Munster)__060) and the OPWs Keale Bridge (Blackwater (Munster)__070), Mallow Railway Bridge (Blackwater (Munster)__120) and Killavullen Bridge (Blackwater (Munster)__160) hydrometric gauges experiencing low flow 95%ile conditions during the second week of August. Several water level gauges on the River Blackwater also had corresponding low water levels.

The Local Authority-EPA Riverview hydrometric gauge on the River Allow (Allow_070) recorded 90%ile flow conditions during the second week of August.

OPW hydrometric gauge water temperature data at Keale Bridge had daily mean water temperatures above 18 degrees during the second week of August, with daily mean water temperatures exceeding 19 degrees at Lombardstown Bridge (Blackwater (Munster)__100), Mallow Railway Bridge and Killavullen Bridge on some days during the second week of August. OPW hydrometric gauge water temperature data for the Glen River indicated daily mean temperatures of ~15 degrees, whereas the River Allow and Clyda River both had daily mean temperatures of ~18 degrees during the second week of August.

Table 2: River Flow Data for July and August in the River Blackwater Catchment

Date	Daily mean flow (m^3/s)				
	Measured flow on R. Blackwater u/s R. Finnow confluence @ Duarrigle hydrometric gauge	Measured flow on R. Blackwater d/s R. Finnow confluence @ Keale Br hydrometric gauge	Measured flow on R. Blackwater in Mallow @ Mallow Railway Br hydrometric gauge	Measured flow on R. Blackwater d/s Mallow @ Killavullen hydrometric gauge[9]	Measured flow on R. Allow d/s Kanturk @ Riverview hydrometric gauge
	Blackwater	Blackwater	Blackwater	Blackwater	Allow
	Catchment Area - 250 km^2	Catchment Area - 322 km^2	Catchment Area - 1178 km^2	Catchment Area - 1258 km^2	Catchment Area - 307 km^2
95%ile flow	0.921	1.279	4.888	4.797	0.697
21-Jul	7.94	10.02	52.45	50.76	33.32
22-Jul	4.26	4.72	19.25	23.39	9.43
23-Jul	3.5	3.90	14.6	16.53	7.39
24-Jul	2.52	2.90	11.08	12.98	5.16
25-Jul	1.96	2.31	8.95	9.70	3.89
26-Jul	1.66	2.01	7.89	8.01	3.26
27-Jul	1.42	1.78	7.13	6.96	2.79
28-Jul	1.34	1.67	6.65	6.31	2.48
29-Jul	1.59	1.82	6.42	6.00	2.3
30-Jul	1.69	2.02	6.51	6.02	2.12
31-Jul	1.72	1.90	6.16	5.72	1.96
01-Aug	1.63	1.93	6.11	5.65	1.80
02-Aug	1.23	1.53	5.58	5.23	1.63
03-Aug	1.12	1.40	5.21	4.77	1.53
04-Aug	2.17	2.17	5.18	4.65	1.66
05-Aug	1.88	2.21	6.49	5.95	1.64
06-Aug	1.20	1.48	5.25	5.07	1.35
07-Aug	1.09	1.36	4.84	4.44	1.29
08-Aug	0.97	1.24	4.58	4.13	1.19
09-Aug	0.88	1.14	4.28	3.86	1.10
10-Aug	0.86	1.12	4.15	3.71	1.05
11-Aug	0.82	1.08	4.07	3.63	0.99
12-Aug	0.76	1.00	3.86	3.44	0.92
13-Aug	0.70	0.95	3.69	3.31	0.86

[9] Daily mean estimated based on mid-point between the measured daily min and daily max flow.

Water Quality and Flow Summary

The water chemistry and macroinvertebrate ecological samples taken during June, July and August 2025 indicate that the water quality of main channel of the River Blackwater was generally Good during these months.

The lower flows and water levels and elevated water temperatures experienced during the first two weeks of August provided environmental conditions that can be undesirable for supporting good ecological health of aquatic species.

However, the lower flows were not at such a low level or duration to reduce the capacity of the rivers to assimilate licensed industrial/wastewater discharges.

Overall, the water quality data does not indicate that there was an enduring substantial water quality problem prior to the fish mortalities occurring. The water quality data gathered after the fish mortalities indicate no overall change in water quality.

Review of the implications of the Industrial and Wastewater discharges regulated by the EPA on water quality

As summarised in the previous sections and detailed in the appendices, within the focused area of the Blackwater (Munster)__070 through to Blackwater (Munster)_160, the Glen River, the River Allow and the Clyda River, there are 17 EPA authorised urban wastewater discharges (consisting of 8 Wastewater Discharge Licences (WWDL) and 9 Certificate of Authorisations (COA)) and 10 EPA licensed industrial facilities (IEL-IPC). The discharges from each plant have been reviewed in the context of the flow conditions at the time of the fish mortalities to assess the likely implications of those discharges on water quality at the time.

Table 3: Summary of EPA Regulated Facilities in the River Blackwater Catchment

Region	EPA Licensed Activity	Non-compliance or Incident	Review
River Blackwater upstream of Banteer	D0332 (WWDL) D0448 (WWDL) A0320 (COA) A0328 (COA) P0639 (IPC) P0835 (IPC) P0795 (IEL)	D0332 (Millstreet) – Total Ammonia	Millstreet was compliant in July but Uisce Éireann notified the EPA of an ELV exceedance on August 19th. An assimilative capacity assessment indicates that the Total Ammonia concentration at the bottom of Finnow_040 would not have exceeded the EQS and the low flow hydrometric data (Duarrigle) for the River Blackwater indicates further dilution would have taken place after the confluence with the River Blackwater.
River Allow	D0203 (WWDL) P0793 (IEL) P1051 (IEL)	P1051 (North Cork Creameries) – Total Ammonia, Total Phosphorus, Orthophosphate, Total Nitrogen, BOD, Suspended Solids	NCC had multiple ELV exceedances on multiple days. Of these, the Total Ammonia breaches in the wastewater were of sufficient magnitude that warranted further investigation to determine if good status EQS for Total Ammonia in the River Allow had been exceeded.

Region	EPA Licensed Activity	Non-compliance or Incident	Review
Glen River	A0334 (COA) A0345 (COA)	None	
River Blackwater from Banteer to Mallow	D0441 (WWDL) A0327 (COA) A0340 (COA) A0324 (COA) A0325 (COA) A0319 (COA) P1000 (IPC) P0977 (IEL) P1052 (IEL)	A0327 (Lombardstown) – Plant overloaded	The Lombardstown wastewater plant is a septic tank system with discharge and has been operating above capacity. It is on the EPA priority action list for remedial action. The plant is small, with a discharge of ~20 m^3/day, which is <0.01% of the 95%ile flow (i.e. low flow) in the River Blackwater and therefore had limited potential to impact on the water quality of the River Blackwater.
Clyda River	D0302 (WWDL) D0438 (WWDL)	D0302 (Dromahane) – Orthophosphate, Suspended Solids, BOD, COD D0438 (Bweeng) – Total Ammonia, Suspended Solids	Dromahane had multiple ELV exceedances in July, with further exceedances in August and September. The discharge is located in Clyda_30, close to the confluence with the River Blackwater. An assimilative load assessment indicates that, despite these exceedances, the good status EQS for Orthophosphate would not have been exceeded in Clyda_30, and this was validated in river samples taken downstream. Bweeng had ELV exceedances in July and an assimilative capacity assessment indicates that the river concentration would have achieved the good status EQS for Total Ammonia by the time it reached Clyda_20.
River Blackwater downstream of Mallow Rail Br	D0052 (WWDL) D0447 (WWDL) P0247 (IPC) P0403 (IEL)	None	

The nine COA plants have relatively small discharge volumes, with the discharges typically contributing < 2 % of the river flow during 95%ile flows. Consequently, the wastewater load from these COA plants has limited potential to significantly impact on the water quality of the River Blackwater.

Although ELVs were exceeded at three WWDL plants, assimilative capacity assessments and downstream sampling confirm that it is unlikely the discharges had a significant impact on the Ecological status in the River Blackwater.

Additionally, Uisce Éireann did not report any incidents, spillages or issues at their water treatment plants in the focused area of investigation and the EPA inspections did not find evidence of spillages at the plants.

Overall, the evidence does not support a causal link between these COA and WWDL wastewater discharges, or the operations at Uisce Éireann drinking water plants, and the fish mortalities in the River Blackwater.

As summarised in the previous sections and detailed in the appendices, there were no wastewater discharges / ELV breaches reported for 9 of the 10 EPA licensed industrial facilities

(IEL-IPC) in the area of focus at the end of July and in early August. Therefore, the 9 facilities had limited potential to significantly impact on the water quality of the River Blackwater and there is no evidence to support a causal link between these facilities and the fish mortalities in the River Blackwater.

The one remaining industrial facility, NCC, reported multiple breaches of its ELVs during July and in early August. The Total Ammonia ELV breaches at NCC on the River Allow were of sufficient magnitude that had the potential to cause the Total Ammonia concentration in the River Allow to exceed the 95%ile environmental quality standard (EQS) for good water quality. A further assessment was carried out to assess the significance of this breach for water quality, which is discussed further below.

Review of Total Ammonia concentrations in the River Allow following North Cork Creameries non-compliance with its licence conditions

Wastewater discharge values from NCC indicates the discharge was non-compliant with its ELVs for several parameters and on several days in July and August. The most significant exceedances related to Total Ammonia, with effluent concentrations exceeding the Total Ammonia ELV on all but one day when the plant was discharging wastewater to the River Allow.

Table 4: Wastewater Discharge Data for North Cork Creameries in July and August

Date	COD (mg/L)	BOD (mg/L)	Suspended Solids (mg/L)	Ammonia N (mg/L)	Total P (mg/L)	Ortho phosphate (mg/L)	Total Nitrogen (mg/L)	pH	Flow[10] (m^3/day)
ELV	**75**	**6.0**	**20**	**0.5**	**1.00**	**1.00**	**15.0**	**6.0-9.0**	**1000**
2025-07-27	38	2.2	5	9.8	0.13	0.12	12.8	8.1	702
2025-07-28	35	3.5	11	9.06	0.11	0.1	11	8.0	781
2025-07-29	23	7.5	12	6.4	1.22	0.5	9.5	7.7	761
2025-07-30	27	6.8	15	6.61	0.14	0.04	10.3	7.7	592
2025-07-31[11]	77	33.2	28	0.19*	0.35	0.05	5.0	8.4	362
2025-08-01	56	6.1	26	18.0*	0.43	0.21	27.3	8.3	603
2025-08-02	37	9.1	22	13.15*	0.35	0.20	21.8	8.3	688
2025-08-03	40	5.1	12	10.64*	0.29	0.11	16.0	8.4	716
2025-08-04	44	11.6	21	13.01*	0.35	0.11	22.2	8.4	659
2025-08-05	Composite sample not tested by NCC[12]							7.3[13]	678

[10] Flow data taken from NCC hand written log book

[11] Sample reported as coming from SW1, but NCC have indicated its a composite sample

* Samples were reported as Ammonium NH_4 and have been converted to Ammonia N for this analysis by multiplying by 0.7767

[12] The licensee did not test a composite sample for the 5th August (covering 9am of 5th to 9am on 6th August) in accordance with licence requirements. Other monitoring and operational data was available for this date, e.g. wastewater plant logs and SCADA data, but total ammonia was not part of those data sets. This is discussed further in the *EPA Actions* section of this report.

[13] pH value taken from NCC hand written log book. NCC SCADA data confirms pH remained close to this figure across the day

Date	COD (mg/L)	BOD (mg/L)	Suspended Solids (mg/L)	Ammonia N (mg/L)	Total P (mg/L)	Ortho phosphate (mg/L)	Total Nitrogen (mg/L)	pH	Flow[10] (m^3/day)
2025-08-06	44	24.4	5	5.2	0.11	0.02	8.0	7.6	347
2025-08-07	40	11.9	3	10.12	1.84	1.79	14.5	7.9	665
2025-08-08	43	5.1	4	11.41	1.37	1.05	16.2	7.9	651
2025-08-09	37	6.0	4	10.19	1.24	0.95	14.5	7.9	662
2025-08-10	44	8.6	3	11.8	1.44	1.04	17.0	8.0	826
2025-08-11	40	6.5	< 4	10.25	1.73	1.60	14.4	8.0	702

Taking account of the corresponding NCC discharge volume on each day, which ranged from 347-826 m^3/d during this period, and the daily mean river flow (derived from the measured river flow at the Riverview hydrometric gauge downstream on the River Allow), an assessment has been completed to estimate the Total Ammonia concentration in the River Allow at the point of discharge from NCC.

This assessment concludes that the consequence of the NCC discharge is a maximum projected Total Ammonia concentration of 0.1253 mg/l N in the River Allow on 10 August. All projected concentrations in the River Allow were below the 95%ile limit of 0.14 mg/l N for Total Ammonia i.e., the concentration that should not be exceeded 95% of the time to maintain good water quality.

Further dilution and nitrification are expected to have led to lower Total Ammonia concentrations in the River Allow before it reached the confluence with the River Blackwater, approximately 4km downstream.

Table 5: Projected Ammonia concentrations in the River Allow Downstream of North Cork Creameries from 31 July to 11 August

Date	Total Ammonia Conc. In wastewater (mg/l N)	Wastewater Discharge Volume (m^3/day)	Wastewater Discharge Volume Conversion (m^3/s)	Estimated River Flow at wastewater discharge point (m^3/s)[14]	Dilution factor	Equivalent Conc. of Ammonia (mg/l N) in River after dilution	Un-ionised Ammonia mg/l NH_3 in river estimation (calculated based on temp of 19 degrees and pH of 8.4)
31-Jul	0.2	362	0.00419	*1.69*	403.36	0.0005	0.0001
01-Aug	18.0	603	0.00698	*1.55*	222.09	0.0810	0.0084
02-Aug	13.2	688	0.00796	*1.4*	175.81	0.0748	0.0077
03-Aug	10.6	716	0.00829	*1.32*	159.28	0.0668	0.0069
04-Aug	13.0	659	0.00763	*1.43*	187.48	0.0694	0.0072
05-Aug	Sample not tested by NCC[15]	678	0.00785	*1.41*	179.68	No reported Ammonia Concentration	

[14] Flow estimates are based on the proportional catchment area approach, whereby the River Allow catchment at coordinates 138506, 102458 is 86% of the catchment area at the Riverview hydrometric monitoring gauge.

[15] The licensee did not test a composite sample for the 5th August (covering 9am of 5th to 9am on 6th August) in accordance with licence requirements. Other monitoring and operational data was available for this date, e.g. wastewater plant logs and SCADA data, but total ammonia was not part of those data sets. This is discussed further in the *EPA Actions* section of this report.

Date	Total Ammonia Conc. In wastewater (mg/l N)	Wastewater Discharge Volume (m^3/day)	Wastewater Discharge Volume Conversion (m^3/s)	Estimated River Flow at wastewater discharge point (m^3/s)[14]	Dilution factor	Equivalent Conc. of Ammonia (mg/l N) in River after dilution	Un-ionised Ammonia mg/l NH_3 in river estimation (calculated based on temp of 19 degrees and pH of 8.4)
06-Aug	5.2	347	0.00402	*1.16*	288.83	0.0180	0.0019
07-Aug	10.1	665	0.00770	*1.11*	144.22	0.0702	0.0072
08-Aug	11.4	651	0.00753	*1.02*	135.37	0.0843	0.0087
09-Aug	10.2	662	0.00766	*0.95*	123.99	0.0822	0.0085
10-Aug	11.8	826	0.00956	*0.9*	94.14	0.1253	0.0129
11-Aug	10.3	702	0.00813	*0.85*	104.62	0.0980	0.0101

Total Ammonia is present in fresh water as ionised Ammonia and un-ionised Ammonia. Un-ionised Ammonia is more harmful to freshwater aquatic life, including fish, and especially salmonids (including salmon and trout species). The concentrations of ionised Ammonia and un-ionised Ammonia in freshwaters are influenced by pH and water temperature, with higher temperatures and pH levels increasing the portion of Total Ammonia present as un-ionised Ammonia.

While the current Surface Water Regulations do not include an EQS for un-ionised Ammonia, a previous salmonid water quality standard of 0.02 mg/l NH_3 exists (S.I. No. 293/1988). The un-ionised Ammonia standard in these Regulations include the caveat that it is allowable for the standard to be exceeded in the form of minor peaks, but it should be complied with 95% of the time throughout the year[16]. Fish and other aquatic species can suffer adverse effects from toxic impacts if they are subject to chronic / longer term exposure to concentrations of un-ionised Ammonia above 0.02 mg/l NH_3.

Given the elevated river temperature (and assuming a worse case temperature of 19 degrees[17]) and a pH of 8.4 (the highest pH of the wastewater being discharged), the fraction of Total Ammonia present as un-ionised Ammonia is 8.5%, with the result converted from N to NH_3 to allow comparison with the previous salmonid water quality standard of 0.02 mg/l NH_3.

Based on the discharge data reported by NCC, the estimated maximum un-ionised Ammonia concentration was 0.0129 mg/l NH_3, occurring on 10 August. The concentration is lower than the 0.02 mg/l NH_3 threshold where long term exposure can have a toxic impact on fish and other aquatic species.

EPA samples were taken from the wastewater discharge at NCC on the 06 August and 12 August.

[16] The footnote in the Regulations states the "*standard may be exceeded in the form of minor peaks in daytime and, subject to this, be conformed with by 95% of samples over a period of 12 months where sampling is carried out at least once per month; where sampling is less frequent the standard shall be conformed with by all samples*".

[17] Upstream OPW hydrometric gauges on the River Allow indicate river temperatures recorded a maximum daily mean temperature of 17.8 degrees.

The EPA grab samples taken from the River Allow on the 6 August, indicate Total Ammonia concentrations were < 0.02 mg/l N upstream and downstream of the plant, which are indicative of good water quality in the River Allow.

Analysis of the wastewater samples taken by the EPA on August 12th indicate a worst-case[18] Total Ammonia concentration of 26 mg/l N in the wastewater discharge. The projected concentration in the River Allow, based on these EPA sample results, are a Total Ammonia concentration of 0.1764 mg/l N, and an un-ionised Ammonia concentration of 0.0182 mg/l NH_3.

The worst-case projected river concentrations arising in the River Allow, based on EPA sample results for the wastewater discharge on the 12 August, are slightly higher than the 0.14 mg/l N Total Ammonia 95%ile. The data indicate a projected breach of the standard on a single day and therefore this does not indicate that the Total Ammonia 95%ile threshold was being exceeded more than 95% of the time. The worst-case projected river concentrations arising from the EPA samples indicate the 0.02 mg/l NH_3 un-ionised Ammonia threshold was not exceeded.

Table 6: Projected Ammonia concentrations in the River Allow Downstream of North Cork Creameries on 12 August

Date	Total Ammonia Conc. In wastewater (mg/l N)	Wastewater Discharge Volume (m^3/day)	Wastewater Discharge Volume Conversion (m^3/s)	Estimated River Flow at wastewater discharge point (m^3/s)	Dilution factor	Equivalent Conc. of Ammonia (mg/l N) in River after dilution	Un-ionised Ammonia mg/l NH_3 in river estimation (calculated based on temp of 19 degrees and pH of 8.4)
12-Aug (Composite Sample)	15	463	0.005358796	*0.79*	147.42	0.1017	0.0105
12-Aug (Grab Sample)	26	463	0.005358796	*0.79*	147.42	0.1764	0.0182

Based on the available data, the lines of evidence indicate that it is unlikely that the Total Ammonia and un-ionised Ammonia levels associated with the NCC discharge were at a level or duration that caused the significant fish mortalities on the River Blackwater. The IFI also advised the public authorities investigating the fish mortalities that marked and dead fish were not observed in the River Allow. Therefore, there is no causal link to show that the NCC discharge was the cause of the fish mortalities in the River Blackwater.

[18] The grab sample on the 12th August was taken from a trickle of wastewater at the discharge point after the discharge was ceased. It had a higher concentration of total ammonia than the composite wastewater sample taken at the same time, with the composite sample representing the discharge over the previous 24 hour period.

CONCLUSION

Since it became aware of the fish mortalities on August 12th, the EPA has investigated potential pollution sources from EPA regulated facilities across the Blackwater catchment. Over the course of the investigation, the EPA conducted 41 inspections, took 40 samples and assessed operational practices and monitoring data associated with industrial, wastewater and drinking water facilities within the Blackwater catchment. The EPA's assessment had regard to water quality data for the Blackwater catchment (chemical and ecological) and the results of fish pathology and tissue analysis arising from the incident.

Four sites inspected had non-compliances and one certificate of authorisation was operating above capacity, all of which are subject to on-going enforcement by the EPA.

Wastewater and Drinking water

Although ELVs were exceeded at three plants that hold a waste water discharge licence from the EPA, assimilative capacity assessments and downstream sampling confirm that it is unlikely the discharges had a significant impact on the water quality of the River Blackwater. There was no evidence of spillages or incidents at the plants investigated. Overall, there is no evidence to show a causal link between these EPA-regulated wastewater discharges, or the operations at Uisce Éireann drinking water plants, and the fish mortalities in the River Blackwater.

Industry

There were no wastewater discharges / ELV breaches reported for 9 of the 10 EPA licensed industrial facilities in the area of focus at the end of July and in early August. There was no evidence of spillages or incidents at the plants investigated. Therefore, the 9 facilities had limited potential to significantly impact on the water quality of the River Blackwater and there is no evidence to show a causal link between these facilities and the fish mortalities in the River Blackwater.

North Cork Creameries

The one remaining industrial facility, NCC, reported multiple breaches of its licence limits during July and in early August. The non-compliances detected at NCC, were significant and entirely unacceptable. The licence breaches arose following an incident at the end of June whereby a sudden load of whey was discharged to the plant which destabilised the biological processes in the plant so it could no longer adequately treat the effluent.

The EPA has reviewed, in detail, monitoring and operational data related to the wastewater treatment plant in the June/July/August period. The licensee has, to date, failed to resolve the issues in the wastewater treatment plant and it currently cannot adequately or consistently treat effluent under normal operation. This is due to the licensee's lack of organised management or control of wastewater treatment plant activities, their lack of appropriate expertise to resolve significant operational issues, their failure to appropriately generate, manage, maintain and use critical data sets to inform corrective actions and their disregard for licence requirements and licence limits.

The EPA has assessed the impact of the discharges from NCC on the River Allow. The primary parameter of concern in the NCC discharge is total ammonia, which is present in fresh water as ionised ammonia and un-ionised ammonia. Un-ionised ammonia is more harmful to freshwater aquatic life, including fish, and especially salmonids (including salmon and trout species).

The assessment demonstrates that total ammonia levels in the river as a result of the NCC discharge in early August had the potential to cause the total ammonia concentration in the River Allow to exceed the environmental quality standard (EQS) for good water quality. The EPA calculated the level of un-ionised ammonia that could have occurred in the river as a result of the NCC discharge in the weeks prior to the fish mortalities occurring. The concentration of un-ionised ammonia in the river across early August was below the threshold of 0.02mg/l NH_3 at which fish and other aquatic species can suffer adverse effects from toxic impacts, when subject to chronic/longer term exposure.

Therefore, based on the available data, the lines of evidence indicate that it is unlikely that the total ammonia levels in the River Allow downstream of the NCC discharge were at a level that would have resulted in the environmental quality standards for good status not being met and the levels were lower than the un-ionised ammonia standard that would impact on fish. A detailed review of the wastewater treatment plant‘s operation in the weeks prior to the fish mortalities being detected indicate that while the plant was performing very poorly, and discharges were significantly non-compliant across many parameters, there was no evidence that a sudden catastrophic load to the river was discharged in that period, or that any form of chemical discharge occurred. The data indicates that the likelihood of such an event occurring in that period is low. The IFI also advised the public authorities investigating the fish mortalities that marked and dead fish were not observed in the River Allow before, during or after the fish mortalities in the Blackwater were reported. Therefore, notwithstanding the seriousness of the licence breaches at NCC, the EPA’s assessments do not support a causal link between the NCC discharges into the River Allow and the fish mortalities in the Blackwater.

NCC has significant and ongoing compliance challenges to resolve. The EPA is rigorously pursuing the enforcement of the licence breaches arising as a matter of priority and urgency, in line with its Compliance and Enforcement Policy. Offences related to breaches of EPA licences may be prosecuted summarily by the EPA or on indictment by the DPP. The EPA is giving full consideration to all such enforcement options available to it in respect of the non-compliances detected.

Next steps

The EPA submits this report to the multi-agency group investigating into the Blackwater fish mortalities and will continue to support the work of the group as the investigation concludes.

APPENDIX

Appendix 1: Details of EPA inspections

Industrial facilities

Reg No	Licensee	Location	Site activities	Discharges between 28 July 2025 and 12 August 2025	Site visits since 12th August
P0247-02	Micam Limited	Sean Moylan Park, Mallow, Cork.	Manufacturer of industrial laminates and plastic machined components	**No process emissions to sewer or water.** Summer shutdown period between 28 July and 11th August. No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	12th August
P0403-03	Dairygold Co-Operative Society Limited (Mallow)	Annabella, Westend, Mallow, Cork.	Milk processing plant	Process effluent treated at site WWTP and discharged into River Blackwater **No ELV breaches** No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	4th September
P0639-03	Gairdini *(also known as Munster Joinery)*	Lacka Cross, Lackanastooka, Ballydesmond, Mallow, Cork	Manufacturer of windows and doors	Sanitary effluent is treated at site WWTP and discharged into River Blackwater **No ELV breaches**	28th August

				No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	
P0793-03	Newmarket Co-Operative Creameries Limited	Scarteen Lower, Newmarket, Cork	Milk processing plant	Process effluent treated at site WWTP and discharged into River Dalua (joins the River Allow, which feeds into the Munster Blackwater) **No ELV breaches** No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	28th August
P0795-02	Mondelez Ireland Production Limited	Shinnagh, Rathmore, Kerry	Milk processing plant	Process effluent and sanitary effluent are treated at site WWTP and discharged to River Blackwater. **No ELV breaches.** Site was on summer shutdown from 1st to 11th of August 2025. No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	28th August
P0835-01	ALPS Electric (Ireland) Limited	Clara Road, Millstreet, Cork.	Manufacturer of electronic parts	All sanitary effluent is emitted to sewer. There are no process effluent discharges to water.	4th September

				No process effluent discharge during defined period. Summer shutdown period between 21st July to 11th August 2025. No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	
P0977-01	Magh nAla Limited	IDA Industrial Estate, Quartertown, Mallow, Cork, Cork	Manufacturer of zinc pigment and organometallic compound (resin)	**No process emission to sewer or water.** No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	12th August
P1000-01	Magh nAla Limited	Quartertown Industrial Estate, Mallow, Cork.	Manufacturer of solvent based coatings and zinc pigment	**No process emission to sewer or water** No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	12th August
P1051-01	North Cork Creameries	Strand Street, Kanturk, Cork.	Milk processing plant	Site effluent water is treated at site WWTP and discharged into River Allow (which feeds into the Munster Blackwater). **ELV breaches within the defined period**	12th 18th , 22nd August 1st, 4th , 5th , 8th , 10th , 11th September

P1052-01	Dairygold Agri Business Limited	Lombardstown, Mallow, Cork	Feed manufacturing mill and grain drying	**No treated process effluent discharge to Blackwater.** Effluent is tankered off site. No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	28th August 2nd September

Wastewater treatment

Reg No	Licensee	Location	Site activities	Discharges between 28 July 2025 and 12 August 2025	Site visits since 12th August
A0327-01	Uisce Éireann	Lombardstown and Environs.	Wastewater treatment	No evidence of spillages or unauthorised discharges. No incidents reported in this time period. Plant is overloaded.	12th August
D0302-01	Uisce Éireann	Dromahane and Environs	Wastewater treatment	No evidence of spillages. ELV breaches in July, August and September. Operational issues at the plant.	13th August 3rd September
D0447-01	Uisce Éireann	Killavullen and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No ELV breaches in July and August.	3rd September

				No incidents reported in this time period.	
D0448-01	Uisce Éireann	Banteer and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No ELV breaches in July and August. No incidents reported in this time period.	4th September
D0438-01	Uisce Éireann	Bweeng and Environs	Wastewater treatment	No evidence of spillages. ELV breaches in July and September. Infrastructural upgrade needed at the plant	4th September
A0324-01	Uisce Éireann	Castlemagnier and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	4th September
A0319-01	Uisce Éireann	Cecilstown and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	4th September
A0325-01	Uisce Éireann	Glantane and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	4th September
A0340-01	Uisce Éireann	Kilbrin and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges.	4th September

				No incidents reported in this time period.	
D0441-01	Uisce Éireann	Ballyclough	Wastewater treatment	No evidence of spillages or unauthorised discharges. No ELV breaches in July and August. There was an ELV breach of Ammonia in September which is currently being investigated. No incidents reported in this time period.	5th September
D0052-01	Uisce Éireann	Mallow	Wastewater treatment	No evidence of spillages or unauthorised discharges. No ELV breaches in July and August. No incidents reported in this time period.	5th September
A0320-01	Uisce Éireann	Kilcorney and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	8th September
A0328-01	Uisce Éireann	Rathcoole and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	8th September
A0345-01	Uisce Éireann	Nad and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No incidents reported in this time period.	8th September

A0334-01	Uisce Éireann	Lyre and Environs	Wastewater treatment	No evidence of spillages or unauthorised discharges. No incidents reported in this time period	8th September
D0203-01	Uisce Éireann	Kanturk	Wastewater treatment	No evidence of spillages or unauthorised discharges from the plant. No ELV breaches in July and August. No incidents reported in this time period.	9h September
D0332-02	Uisce Éireann	Millstreet and Environs	Wastewater treatment	No evidence of spillages. No ELV breaches in July. ELV breaches in August.	9th September

Drinking Water treatment

Reg No	Licensee	Location	Site activities	Discharges between 28 July 2025 and 12 August 2025	Site visits since 12th August
0500PUB1101	Uisce Éireann	Allow Regional	Drinking Water Treatment	The water treatment plant was operating normally. No evidence of chemical spillages on the site.	27/08/2025
0500PUB1313	Uisce Éireann	Mallow	Drinking Water Treatment	The water treatment plant was operating normally. No evidence of chemical spillages on the site.	27/08/2025

0500PUB1401	Uisce Éireann	Banteer	Drinking Water Treatment	No discharges to surface water. No evidence of chemical spillages on the site.	04/09/2025
0500PUB1307	Uisce Éireann	Cregane/Glantane	Drinking Water Treatment	No discharges to surface water. No evidence of chemical spillages on the site.	04/09/2025

Appendix 2: EPA sampling activities for August 12th /13th

EPA took the following samples on the 12th/13th August as part of its initial response to the Blackwater fish mortality investigation.
Lab reports for these sampling visits will be available on LEAP online in due course. Details of non-compliances detected are summarised in the main body of this report.

Reg No	Licensee	Type of sample	Note
12/08/2025	North Cork Creameries	Location: Final discharge point SW1 Sample type: Grab and composite	Both samples relate to discharges on the 12th August and were non-compliant with the Emission Limit Values of the licence
12/08/2025	Magh-nAla	Location: Storm water discharge Sample type: Grab.	Sample from small storm water discharge on the 12th August. Laboratory results indicated no issues of concern
12/08/2025	Lombardstown WWTP	Location: Final discharge point. Sample type: Grab.	Sample taken from the wastewater discharge from the primary treatment system to the Blackwater River on the 12th August 2025. This certified site does not have ELVs; Requirement of certificate of Authorisation is not to cause environmental pollution . Downstream water quality within surface water quality standards.
12/08/2025	Ambient monitoring of the Clyda River	Location: d/s of the wastewater discharge point. Sample type: Grab.	Sample taken from the Clyda River d/s of the wastewater discharge from Dromahane WWTP on August 12th 2025. Laboratory results indicate the sample meets the EQS.
13/08/2025	Dromahane WWTP	Location: Final monitoring point. Sample type: Grab and composite (dated 12/08/2025) Note 1.	Sample taken of the wastewater discharge at the final monitoring point prior to discharge to the Clyda River on August 13th 2025. Laboratory results indicate the discharge exceeds Emission Limit Values of the licence.

Appendix 3: Additional EPA sites sampled post August 13th

These samples are for the purpose of verifying compliance or pursuing compliance issues further. Enforcement action will be taken on any non-compliances detected, in line with normal enforcement procedures.

Reg No	Licensee	Note
01/09/2025	North Cork Creameries	Location: No discharge occurring but a sample was taken of the treated effluent in the final discharge basin at SW1. Sample type: Grab
01/09/2025	Ambient monitoring of the Allow River	Location: u/s and d/s of North Cork Creameries ambient discharge pipe Sample type: Grab
02/09/2025	Dairygold Agri Business Limited	Location: Storm water (No discharges occuring but sample taken to confirm integrity of shut-off valve.) Sample Type: Grab
04/09/2025	Dairygold Co-Operative Society Limited (Mallow)	Location: Final discharge point Sample type: Composite and grab from 4/9/25, also split composite samples from 31/8 and 1/9
04/09/2025	Ambient Monitoring of Blackwater River	Location: u/s and d/s of Dairygold (Mallow) effluent discharge pipe Sample type: Grab
04/09/2025	ALPS Electric (Ireland) Limited	Location: Storm water discharge. Sample type: Grab
04/09/2025	North Cork Creameries	Location: Final discharge point Sample type: Grab
04/09/2025	Ambient monitoring of the Allow River	Location: u/s and d/s of North Cork Creameries ambient discharge pipe Sample type: Grab
03/09/2025	Dromahane WWTP	Location: Final discharge point. Sample type: Grab and composite.
03/09/2025	Ambient monitoring of the Clyda River.	Location: u/s and d/s of the Dromahane final discharge point. Sample type: Grab.
04/09/2025	Cecilstown WWTP	Location: Final discharge point. Sample type: Grab.
04/09/2025	Ambient monitoring of the East Lohort River.	Location: u/s and d/s of the Cecilstown final discharge point. Sample type: Grab.
04/09/2025	Glantane WWTP	Location: Final discharge point. Sample type: Grab.
04/09/2025	Ambient monitoring of the Skarragh Hill River.	Location: u/s and d/s of the Glantane final discharge point. Sample type: Grab.
04/09/2025	Bweeng WWTP	Location: Final discharge point. Sample type: Grab.

04/09/2025	Ambient monitoring of a tributary to the Clyda River.	Location: u/s and d/s of the Bweeng final discharge point. Sample type: Grab.
04/09/2025	Castlemaginer WWTP	Location: Final discharge point. Sample type: Grab.
04/09/2025	Ambient monitoring of Lisduggan North River.	Location: u/s of the Castlemaginer final discharge point. No safe access d/s. Sample type: Grab.
04/09/2025	Kilbrin WWTP	Location: Final discharge point. Sample type: Grab.
04/09/2025	Ambient monitoring of the Awbeg River.	Location: u/s and d/s of the Kilbrin final discharge point. Sample type: Grab. Note: 2 u/s samples taken (two joining rivers).
05/09/2025	Ballyclough WWTP	Location: Final discharge point. Sample type: Grab
08/09/2025	North Cork Creameries	Location: Final discharge point. Sample type: Composite
08/09/2025	Ambient monitoring of the Allow River	Location: u/s and d/s of North Cork Creameries ambient discharge pipe Sample type: Grab
09/09/2025	Ambient monitoring of the Finnow River.	Location: u/s and d/s of the Millstreet final discharge point. Sample type: Grab.
09/09/2025	Kanturk WWTP	Location: Final discharge point. Sample type: Grab

Appendix 4: Licensee Monitoring data

Industrial

On examination of monitoring data provided by licensees, 9 of the 10 EPA-licensed industrial sites investigated either had compliant discharges to water or no discharges during the period 28th July to 12th August 2025.

Discharges from the NCC effluent treatment plant at SW1 exceeded the emission limit values set out in licence P1051-01 on various occasions between 25th June 2025 and 12th August 2025 (see Table A). These exceedances were detected by the licensees own onsite laboratory (NCC internal monitoring), an external accredited laboratory contracted by the licensee (NCC external) and EPA sample results (EPA ORM). Ambient samples were taken on the 6th August as presented in Table B below.

Table A: Monitoring results for emission point SW1 from North Cork Creameries and from EPA samples over the period 25th June 2025 to 12th August 2025

ELV Breach

Data Source**	Date	Grab/ Composite	Emission Limit Values (ELV)*										
			COD (mg/L)	BOD (mg/L)	SS (mg/L)	Ammonia (mg/L)	o-Phosphate (mg/L))	Temp (°C)	pH	Total Phosphorous (mg/L)	Total Nitrogen (mg/L)	Conductivity (S/m)	Flow (m^3/d)
			75	6	20	0.5	0.5	25	>6 <9	2	15	N/A	1000
NCC internal	25/06/2025	Grab	279	-	-	4.72	0.63	-	7.22	3.7	6.4	-	567
NCC internal	28/06/2025	Grab	238	-	-	>3.5	1.03	-	7.92	4.03	5.6	-	520
NCC internal	29/06/2025	Grab	96	-	-	0.08	0.23	-	7.92	1.59	8.6	-	140
NCC internal	30/06/2025	Grab	90	-	-	0.29	0.14	-	7.98	1.11	6.9	-	599
NCC internal	01/07/2025	Grab	90	-	-	1.6	0.19	-	7.65	1.97	8.5	-	427
NCC internal	02/07/2025	Grab	73	-	-	0.34	0.12	-	7.32	1.85	1.3	-	599
NCC internal	03/07/2025	Grab	74	-	-	0.32	0.28	-	7.33	1.7	1.4	-	577
NCC external	04/07/2025	Grab	20	2.2	6	0.21	0.02	-	7.2	0.07	14.4	-	530
EPA ORM	04/07/2025	Grab	97	20	66	0.15	0.026	-	7.8	0.11	1.7	1106	-
NCC external	05/07/2025	Grab	32	5.6	8	0.5	0.02	-	7.3	0.07	15.6	-	511
NCC internal	06/07/2025	Grab	24	-	-	0.3	0.04	-	7.42	0.6	1.3	-	411
NCC external	07/07/2025	Grab	<10	2.9	<2	0.3	0.04	-	7.4	<0.04	5.4		514

Data Source**	Date	Grab/ Composite	Emission Limit Values (ELV)*										
			COD (mg/L)	BOD (mg/L)	SS (mg/L)	Ammonia (mg/L)	o-Phosphate (mg/L))	Temp (°C)	pH	Total Phosphorous (mg/L)	Total Nitrogen (mg/L)	Conductivity (S/m)	Flow (m^3/d)
			75	6	20	0.5	0.5	25	>6 <9	2	15	N/A	1000
NCC external	08/07/2025	Grab	<10	8.9	<4	0.07	0.03	-	7.5	0.05	5.4	-	473
NCC external	09/07/2025	Grab	39	23.3	9	0.62	0.05	-	7.4	0.14	3.5	-	519
EPA ORM	10/07/2025	Grab	125	25	11	0.55	0.067	-	7.7	0.19	4.6	1743	28.27 (m3/hr)
NCC external	10/07/2025	Grab	83	20	18	0.91	0.03	-	7.5	0.21	5.2	-	550
NCC external	11/07/2025	Grab	36	17.7	16	0.27	0.04	-	7.6	-	2.4	-	559
NCC external	12/07/2025	Grab	13	3.7	6	0.18	0.03	-	7.5	-	1.8	-	629
NCC external	13/07/2025	Grab	28	8.1	13	0.22	0.03	-	7.5	-	2.7	-	618
NCC external	14/07/2025	Grab	16	7.9	9	0.13	0.04	-	7.5	-	1.9	-	595
NCC external	15/07/2025	Grab	19	10.3	6	0.13	0.03	-	7.6	-	2	-	600
NCC external	16/07/2025	Grab	18	11.6	7	0.1	0.01	-	7.4	0.12	2.2	-	552
EPA ORM	16/07/2025	Grab	49	4.8	8	0.036	<0.01	-	7.8	0.1	1.6	1561	-
NCC external	16/07/2025	Comp	13	5.9	6	0.31	0.02	-	7.5	0.21	2.3	-	723
NCC external	17/07/2025	Comp	17	7.1	31	0.21	0.03	-	7.5	0.08	7.7	-	665
NCC external	18/07/2025	Comp	34	6.3	22	0.43	0.01	-	7.6	0.08	11.7	-	-
NCC external	19/07/2025	Comp	37	5.3	10	0.34	0.02	-	7.7	0.07	11.2	-	623
NCC external	20/07/2025	Comp	16	5.7	12	0.41	0.03	-	7.7	0.11	12.1	-	530
NCC external	21/07/2025	Comp	32	4.9	4	0.97	0.26	-	7.7	0.05	7.6	-	534
NCC external	22/07/2025	Comp	93	16	19	0.82	-	-	7.5	0.15	-	-	443
NCC external	23/07/2025	Comp	89	17.6	20	0.56	0.05	-	7.5	0.16	3.8	-	504
NCC external	24/07/2025	Comp	52	10	10	7.29	0.2	-	7.9	0.17	10	-	515
NCC external	25/07/2025	Comp	60	4.4	14	9.74	0.05	-	8.1	0.22	13.1	-	458
NCC external	26/07/2025	Comp	36	1.7	<4	9.47	0.05	-	8.2	0.11	11.6	-	596
NCC external	27/07/2025	Comp	38	2.2	5	9.8	0.12	-	8.1	0.13	12.8	-	702

Data Source**	Date	Grab/ Composite	Emission Limit Values (ELV)*										
			COD (mg/L)	BOD (mg/L)	SS (mg/L)	Ammonia (mg/L)	o-Phosphate (mg/L))	Temp (°C)	pH	Total Phosphorous (mg/L)	Total Nitrogen (mg/L)	Conductivity (S/m)	Flow (m^3/d)
			75	6	20	0.5	0.5	25	>6 <9	2	15	N/A	1000
NCC external	28/07/2025	Comp	35	3.5	11	9.1	0.1	-	8	0.11	11	-	781
NCC external	29/07/2025	Comp	23	7.5	12	6.4	0.5	-	7.7	1.22	9.5	-	761
NCC external	30/07/2025	Comp	27	6.8	15	6.6	0.14	-	7.7	0.14	10.3	-	592
NCC external	31/07/2025	Grab	77	33.2	28	0.3	0.05	-	8.4	0.35	5	-	362
EPA ORM	01/08/2025	Grab (V-notch)	101	16	82	0.27	0.039	-	7.9	0.28	4.3	1984	
EPA ORM	01/08/2025	Grab (outfall)	72	15	72	0.27	0.051	-	7.9	0.26	4.1	1899	-
NCC external#	01/08/2025	Grab (Outfall)	72	23.7	18	0.19^	0.04	-	8.4	0.3	4.9	-	
NCC external	01/08/2025	Comp	56	6.1	26	18^	0.21	-	8.3	0.43	27.3	-	603
NCC external	02/08/2025	Comp	37	9.1	22	13.15^	0.2	-	8.3	9.35	21.8	-	688
NCC external	03/08/2025	Comp	40	5.1	12	10.64^	0.11	-	8.4	0.29	16	-	716
NCC external	04/08/2025	Comp	44	11.6	21	13.01^	0.11	-	8.4	0.35	22.2	-	659
NCC external	05/08/2025	**No sample taken**											678
NCC external	06/08/2025	Comp	44	24.4	5	5.2	0.02	-	7.6	0.11	8	-	347
NCC external	07/08/2025	Comp	40	11.9	3	10.1	1.79	-	7.9	1.84	14.5	-	665
NCC external	08/08/2025	Comp	43	5.1	4	11.4	1.05	-	7.9	1.37	16.2	-	651
NCC external	09/08/2025	Comp	37	6	4	10.2	0.95	-	7.9	1.24	14.5	-	622
NCC external	10/08/2025	Comp	44	8.6	3	11.8	1.04	-	8	1.44	17	-	826
NCC external	11/08/2025	Comp	40	6.5	<4	10.25	1.6	-	8	1.73	14.4	-	702
EPA ORM	12/08/2025	Grab	120	13	18	26	3.6	26	8.1	4.3	34	2230	-
EPA ORM	12/08/2025	Comp	56	5.9	26	15	1.2	26	8.5	1.4	19	1586	-
NCC External#	12/08/2025	Grab	95	19.2	22	24.6	3.36		8	4.18	32.8		-

Data Source**	Date	Grab/ Composite	Emission Limit Values (ELV)*										
			COD (mg/L)	BOD (mg/L)	SS (mg/L)	Ammonia (mg/L)	o-Phosphate (mg/L))	Temp (°C)	pH	Total Phosphorous (mg/L)	Total Nitrogen (mg/L)	Conductivity (S/m)	Flow (m^3/d)
			75	6	20	0.5	0.5	25	>6 <9	2	15	N/A	1000
NCC external#	12/08/2025	Comp	51	9.7	13	14.16	1.17	-	8.1	1.67	20.9	-	465

* **Composite Samples:** In accordance with Condition 4.3.2 of the licence, no pH value shall deviate from the specified range. For parameters other than pH and flow, eight out of ten consecutive composite results, based on flow proportional composite sampling, shall not exceed the emission limit value. No individual results similarly calculated shall exceed 1.2 times the emission limit value. **Grab samples:** In accordance with Condition 4.3.3, for parameters other than pH and temperature, no grab sample value shall exceed 1.2 times the emission limit value.

**NCC internal testing carried out in on-site laboratory at licensees installation. NCC external testing conducted by accredited laboratory. EPA ORM testing conducted in accredited EPA laboratory. Where both NCC internal and NCC external results are available for a sample on a given date, only NCC external results are reported in table as they are accredited results.

^ Samples for the period 31/7/2025 to 4/8/2025 were incorrectly analysed for ammonium rather than total ammonia. Results displayed in the table are the calculated equivalent total ammonia levels based on the ammonium results reported (i.e. 0.3mg/l on 31/7; 23.2mg/l on 01/08; 16.9mg/l on 02/08; 13.7mg/l on 03/08; 16.8mg/l on 04/08).

Duplicate of EPA sample take on same day

Table B: Ambient Monitoring in the vicinity of North Cork Creameries SW1 discharge location on 6th August 2025 (no discharge at SW1 occurring at time of sampling)

Data Source	Date	Grab/ Composite	Parameters										
			COD (mg/L)	BOD (mg/L)	SS (mg/L)	Ammonia (mg/L)	o-Phosphate (mg/L))	Temp. (°C)	pH	Total Phosphorous (mg/L)	Total Nitrogen (mg/L)	Conductivity (S/m)	Flow (m^3/d)
EPA ORM	06/08/2025	Uptream	21	1.1	<4	<0.02	0.014	-	8.4	0.034	1.2	220	-
EPA ORM	06/08/2025	Downstream	<20	1.2	<4	<0.02	0.013	-	8.4	0.039	1.2	218	-
EPA ORM	06/08/2025	Bay at outfall	51	6.3	70	0.077	0.012	-	8.1	0.091	2	431	-

Wastewater

Wastewater licences

Uisce Éireann monitoring data for discharges from Kanturk, Banteer, Ballyclough, Mallow and Killavulllen wastewater were compliant with their licence in July and August. Uisce Éireann wastewater monitoring data from Millstreet, Bweeng and Dromahane exceeded the ELVs required by their respective wastewater discharge licence.

Wastewater discharge from **Millstreet WWTP** to the Finnow River:

The wastewater discharge from Millstreet WWTP is to the Finnow River, a tributary of the Blackwater River which is located approximately 2km u/s of is confluence with the River Blackwater. The latest treated wastewater samples from Millstreet WWTP taken by Uisce Éireann for analysis were taken on the 22nd July 2025 and the 19th August 2025 respectively are shown in Table C below. The sample taken in July does not exceed the emission limit values. The sample from August exceeded the total ammonia emission limit values.

Table C: Monitoring of treated effluent from Millstreet WWTP.

Parameter Tested	pH (pH unit)	BOD (mg/L)	COD (mg/L)	Suspended Solids (mg/L)	Total Ammonia (mg/L)	Ortho-P (mg/L)
ELV	6-9	25	125	25	0.8	0.5
Uisce Éireann 22/07/2025	7.3	4.3	7.07	2.83	0.03	0.18
Uisce Eireann 19/08/2025	7.1	2.8	22	<4	4.44	0.6

Samples that exceed the upward deviation tolerance provided by Condition 2.1.2 of the WWDL are highlighted in salmon colour.

In addition to sampling the final discharge, Uisce Éireann sampled the Finnow River u/s and d/s (1.5km d/s) of the wastewater discharge from the WWTP on the 19th August 2025. As shown in Table D below, the d/s results for the parameters BOD, Ammonia and Orthophosphate indicate that the receiving water quality met the environmental surface water quality standards for rivers. The EPA took ambient samples upstream and downstream of the discharge September 9th. The downstream results indicate that the receiving water quality met the environmental surface water quality standards for rivers.

Table D: Uisce Éireann's u/s and d/s of the discharge from Millstreet WWTP.

Parameter Tested	pH (pH unit)	BOD (mg/L)	Total Ammonia (mg/L)	Ortho-P (mg/L)
EQS[19] – River Good Status	Soft Water: 4.5 – 9.0 Hard Water: 6.0 – 9.0	≤1.5 (mean) and ≤2.6 (95%tile)	≤0.065 (mean) and ≤0.140 (95%tile)	MRP ≤0.035 (mean) and ≤0.075 (95%tile)
Uisce Éireann upstream 19/08/2025	7.3	3.5	0.06	0.18
Uisce Éireann downstream 19/08/2025	7.7	1.1	<0.02	0.01
EPA upstream 9/09/2025		1.1	0.02	0.021
EPA downstream 9/09/2025		1.0	0.023	0.025

Wastewater discharge from Bweeng and Environs WWTP to the Clyda River:

The wastewater discharge from Bweeng WWTP is to a tributary which flows into the Clyda River, a tributary of the Blackwater River. The discharge from the WWTP is approximately 14.5 km upstream from the confluence with the Blackwater River. Uisce Éireann provided the EPA with their last analysis of wastewater effluent from Bweeng WWTP. These results of this analysis is described in Table E below. Treated wastewater effluent was sampled on the 8th July 2025. The parameters BOD, suspended solids and Total ammonia exceeded the WWDL Emission Limit Values. The BOD result exceeded the ELV by 28% which does not exceed the upward deviation tolerance provided by Condition 2.1.2 of the licence. The EPA inspected Bweeng wastewater treatment plant on September 4th and samples were taken of the discharge and upstream and downstream of the discharge. The plant was found to be non-compliant with Ammonia on this date. Ambient data for the plant is provided in Table F below. The downstream results indicate that the receiving water quality met the environmental surface water quality standards for rivers.

Table E: Monitoring of treated effluent from Bweeng WWTP.

Parameter Tested	pH (pH unit)	BOD (mg/L)	COD (mg/L)	Suspended Solids (mg/L)	Total Ammonia (mg/L)	Ortho-P (mg/L)
ELV	6-9	10	100	35	1	0.5
Uisce Éireann 08/07/2025	7	12.8	17	90	3.7	0.24
EPA 04/09/2025	7	4	30		8.4	0.11

Samples that exceed the upward deviation tolerance provided by Condition 2 of the WWDL are highlighted in salmon colour.

[19] Environmental Quality Standard (EQS) - European Communities Environmental Objectives (Surface Water) Regulations 2009, as amended (Irish Statute Book).

Further occurrences of ELV breaches for Ammonia, BOD, COD, Orthophosphate and Suspended Solids have been reported earlier in 2025.

Table F: Ambient monitoring u/s and d/s for Bweeng WWTP.

Parameter Tested	pH (pH unit)	BOD (mg/L)	Total Ammonia (mg/L)	Ortho-P (mg/L)
Uisce Éireann upstream 12/03/2025	7.2	1.3	<0.02	0.02
Uisce Éireann downstream 12/03/2025	7.5	1.1	<0.02	0.03
Uisce Éireann upstream 14/05/2025	7.2	<1.0	<0.02	0.01
Uisce Éireann downstream 14/05/2025	7.4	<1.0	0.03	0.02
Uisce Éireann upstream 08/07/2025	7.4	<1.0	<0.02	0.02
Uisce Éireann downstream 08/07/2025	7.5	<1.0	0.08	0.04
EPA upstream 04/09/2025	7.3	<1.0	<0.02	<0.01
EPA downstream 04/09/2025	7.3	<1.0	<0.02	0.037
Mean downstream*	n.a.	0.65	0.033	0.032

*Results below Limit of Detection taken at half the Limit of Detection.

Wastewater discharge from Dromahane WWTP to the Clyda River:

The wastewater discharge from Dromahane WWTP is to the Clyda River a tributary of the Blackwater River which is located approximately 2.25km u/s of its confluence with the River Blackwater. The latest treated wastewater samples from Dromahane WWTP taken by Uisce Éireann for analysis were taken on the 8th July 2025, 13th August 2025, 14th August 2025 and the 18th August 2025; results are shown in Table G below. All samples taken show exceedances of emission limit values. The EPA sampled the discharge on August 13th and September 3rd and discharges show exceedances of emission limit values, excluding Ammonia.

Table G: Monitoring of the treated effluent from Dromahane WWTP.

Parameter Tested	pH (pH unit)	BOD (mg/L)	COD (mg/L)	Suspended Solids (mg/L)	Total Ammonia (mg/L)	Ortho-P (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)
ELV	6-9	15	125	25	3	1	N/A	N/A
Uisce Éireann 8/07/2025	7.1	516	1050	1036	0.74	1.27	20.4	64.2
Uisce Éireann 13/08/2025	7.2	53.1	255	244	0.15	2.03	5.35	42.1
EPA 13/08/2025 Grab	7.4	21	127	109	0.79	2.2		

Parameter Tested	pH (pH unit)	BOD (mg/L)	COD (mg/L)	Suspended Solids (mg/L)	Total Ammonia (mg/L)	Ortho-P (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)
EPA 13/08/2025 composite	7.3	110	533	450	0.56	2.2		
Uisce Éireann 14/08/2025	7.1	16.9	70	76	0.05	2.03	2.36	36.8
Uisce Éireann 18/08/2025	7.0	88.2	175	132	0.25	2.54	3.93	39.4
EPA 03/09/2025 grab	6.6	44	360		0.1	1		
EPA 03/09/2025 composite	6.4	63	481		0.085	0.99		

Samples that exceed the upward deviation tolerance provided by Condition 2.1.2 of the WWDL are highlighted in salmon colour.

In addition to sampling the final discharge, Uisce Éireann sampled the Clyda River u/s and d/s of the wastewater discharge from the WWTP on the 14th August 2025. Uisce Éireann have provided the EPA with the analysis of these samples. The EPA took ambient samples of the Clyda River on 12/08 and the 03/09. As shown in Table H below, the d/s results for the parameters BOD, Ammonia and Orthophosphate indicate that the receiving water quality met the environmental surface water quality standards for rivers.

Table H: Ambient Monitoring u/s and d/s of the discharge from Dromahane WWTP to the Clyda River.

Parameter Tested	pH (pH unit)	BOD (mg/L)	Total Ammonia (mg/L)	Ortho-P (mg/L)
EQS[20] – River Good Status	Soft Water: 4.5 – 9.0 Hard Water: 6.0 – 9.0	≤1.5 (mean) and ≤2.6 (95%tile)	≤0.065 (mean) and ≤0.140 (95%tile)	MRP ≤0.035 (mean) and ≤0.075 (95%tile)
EPA downstream 12/08/2025	7.9	1.1	<0.02	
Uisce Éireann upstream 14/08/2025	7.8	<1	<0.02	0.03
Uisce Éireann downstream 14/08/2025	7.8	2.1	0.03	<0.01
EPA upstream 03/09/2025	7.5	<1	<0.02	0.019
EPA downstream 03/09/2025	7.3	<1	<0.02	0.025

Wastewater certificates of authorisation

Eight of the nine Certificate of Authorisations discharge to tributaries of the Blackwater River at distances of 2km+ upstream of the Blackwater River main channel. No dead fish were reported in these tributaries' u/s of their confluence with the Blackwater River. No incidents were reported by Uisce Éireann at these eight

[20] Environmental Quality Standard (EQS) - European Communities Environmental Objectives (Surface Water) Regulations 2009, as amended (Irish Statute Book).

Certificate of Authorisation WWTPs plants in 2025. No issues of concern in relation to the fish mortalities were identified at the eight Certificate of Authorisations on inspection by the EPA.

Wastewater discharge from Lombardstown WWTP to the Blackwater River:

Lombardstown WWTP, which consists of a septic tank system providing primary treatment, discharges directly to the Blackwater River main channel. This WWTP is operating above capacity and is listed on the EPA's Wastewater Priority Areas List. Uisce Éireann has reported that it proposes to upgrade the WWTP and that the plant is currently progressing through the workshop stage. The latest treated wastewater samples from Lombardstown WWTP were taken by the EPA. The results of analysis are shown in Table I below.

Table I: EPA sample analysis of the Lombardstown final effluent.

Parameter Tested	BOD (mg/L)	COD (mg/L)	Suspended Solids (mg/L)	Total Ammonia (mg/L)	Ortho-P (mg/L)	Total Nitrogen (mg/L)
Result 12/08/2025	270	662	117	54	6.9	63

The plant is small, with a discharge of ~20 m3/day, which is <0.01% of the 95%ile flow (i.e. low flow) in the River Blackwater. There was no visible plume from the discharge in the Blackwater River. The most recent ambient monitoring by Uisce Éireann in April and May 2025 and by Cork County Council d/s of the WWTP on the 12th August 2025, were within environmental surface water quality standards21.

Drinking water

Drinking water plants were in compliance with Drinking water quality standards

[21] European Communities Environmental Objectives (Surface Water) Regulations 2009, as amended (Irish Statute Book).