

Urban Wastewater Treatment in 2023





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ENVIRONMENTAL PROTECTION AGENCY

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Published by the Environmental Protection Agency, Ireland

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EXECUTIVE SUMMARY

Treating wastewater to make it clean and safe is essential to protect our environment and public health. Investment in treatment infrastructure at priority areas highlighted by the EPA continues to bring improvements and 13 towns and villages that used to discharge raw sewage were connected to treatment plants since the start of 2023.

Although Uisce Éireann is making progress, treatment at many areas is still not as good as it needs to be and wastewater discharges are impacting water quality in rivers, estuaries, lakes and coastal waters. Over half of licensed treatment plants discharge wastewater that does not always meet the standards set in wastewater discharge licences to protect the environment. Furthermore, over 400 storm water overflows on collecting systems (sewers) do not meet national standards set to limit pollution. Some 30 years after Member States had to bring provisions into force to comply with the *Urban Waste Water Treatment Directive* Ireland has not complied with the Directive at all areas.

Wastewater discharge authorisations issued by the EPA specify the standards necessary for safe and reliable wastewater services. Uisce Éireann must ensure discharges from all treatment plants consistently meet these standards and must bring all storm water overflows up to standard. Based on Uisce Éireann's estimates it will take over two decades to achieve this. Uisce Éireann must shorten this timeline and accelerate the delivery of improvements needed to meet the necessary standards. This will require substantial and sustained national investment.

As all the problems cannot be resolved in the short term, it is important to prioritise improvements where they are needed most. Uisce Éireann can deliver significant benefits for the environment by the end of its next investment cycle in 2029 by targeting resources to improve treatment at the priority areas highlighted by the EPA in this report. Prioritising improvements at these areas will restore the quality of surface waters most impacted by wastewater discharges, stop discharges of raw sewage, protect critically endangered freshwater pearl mussels and ensure Ireland complies with EU obligations on the collection and treatment of wastewater.

Priorities and challenges

The priorities for the next investment cycle are summarised below. Uisce Éireann must implement improvements to resolve the environmental issues at each priority area and accelerate the pace at which upgrades for these areas are designed and delivered.

Comply with EU treatment standards. Treatment at 10 large urban areas failed to comply with EU standards set to protect the environment. This is down from 15 areas in 2022. Ireland's largest treatment plant at Ringsend in Dublin has failed the standards for many years. Upgrade works to

address this will be completed next year and the infrastructure in place at Ringsend since the beginning of 2024 is already improving effluent quality.

Eliminate raw sewage discharges. There has been good progress recently addressing areas with no treatment and the number of towns and villages discharging raw sewage every day decreased from 29 at the beginning of 2023 to 16 in mid-2024. Some 12,000 people were connected to treatment during this period. Six more towns and villages are scheduled to receive treatment before the end of 2025 and Uisce Éireann plans to provide treatment for all the remaining areas by 2030.

Improve collecting systems (sewers). Collecting systems at six priority areas must be upgraded to protect the environment and address the findings of a judgement from the Court of Justice of the European Union. Uisce Éireann must also improve the information available on discharges of untreated wastewater from collecting systems and make sure all storm water overflows meet national standards.

Prevent pollution of inland and coastal waters. Poorly treated wastewater is harming the quality of many rivers, estuaries, lakes and coastal waters. All discharges linked with pollution must be addressed but this will take many years. The EPA is prioritising 34 areas where improvements are most urgently needed to restore water quality. Upgrades are in train at one-fifth of these. Uisce Éireann's slow progress designing the improvements needed at the remaining priority areas is prolonging impacts on water quality. In 2023 the EPA prosecuted Uisce Éireann for failing to treat wastewater properly at five priority areas where progress resolving pollution pressures is too slow. Uisce Éireann must also complete upgrade works to address intermittent discharges of untreated sewage from collecting systems which contributed to poor bathing water quality classifications at three beaches in 2023.

Protect vulnerable habitats. Treatment at 12 towns and villages must improve to protect endangered freshwater pearl mussels. Improvements have been carried out at half of these but Uisce Éireann has not given sufficient priority to progressing the upgrades needed at the remaining six areas. Uisce Éireann has already taken several years to assess its options to improve treatment at these areas and has not scheduled the upgrade works to begin until the end of the decade.

Uisce Éireann must also expedite long overdue assessments of the impacts of discharges on designated shellfish waters and implement any mitigation measures needed to protect these waters.

1 INTRODUCTION

This report by the Environmental Protection Agency (EPA) provides a summary of wastewater treatment at cities, towns and villages in Ireland during 2023.

More than a billion litres of wastewater (sewage) is collected in Ireland's public sewers every day and treated at over 1,000 treatment plants. The treated wastewater is then discharged into rivers, estuaries, lakes and coastal waters. Uisce Éireann is the national water utility responsible for providing this important service. The EPA is the environmental regulator of Uisce Éireann. The EPA conducted over 200 inspections of Uisce Éireann's wastewater works during 2023¹.

Why is wastewater treatment important?

Treating wastewater collected in public sewers to make it clean and safe is essential to protect our environment and public health. Untreated and poorly treated wastewater can be contaminated with bacteria and viruses that make people sick. It can cause pollution and damage aquatic ecosystems by depleting oxygen levels in water and releasing nutrients such as nitrogen and phosphorus that lead to excessive growth of algae and aquatic plants.

Priority areas

Wastewater treatment in Ireland has improved in recent years but there is a lot more work to do. Over half of licensed treatment plants discharge wastewater that does not always meet the standards set in EPA licences and more than 400 storm water overflows need to be upgraded because they do not meet national standards. Discharges of inadequately treated wastewater are significant pollution pressures on many rivers and other surface waters.

All deficient wastewater works must be brought up to the standards set to prevent pollution and protect the environment but this is likely to take at least two decades and require substantial investment. It is not possible to fix all the problems during Uisce Éireann's 2025 to 2029 investment cycle and therefore it is important during this period to prioritise improvements and target resources where they are needed most and will bring the greatest benefits.

The EPA has identified the priority areas where Uisce Éireann should direct resources during the 2025 to 2029 investment cycle to protect our environment from the harmful effects of wastewater discharges. These can be grouped into six main categories, as shown in Table 1. You can keep up to

¹ You can view correspondence exchanged between the EPA and Uisce Éireann in relation to the authorisation and enforcement of wastewater discharges through the EPA's Licence and Enforcement Access Portal at <https://leap.epa.ie/>.

date with progress on the priority areas on the EPA’s website². In addition to targeting improvements at these priority areas, Uisce Éireann must continue working to bring discharges from treatment plants and storm water overflows up to the standards specified in licences.

Table 1: Environmental priorities

Environmental priorities for urban wastewater³
Ensure treatment at all large urban areas complies with European Union standards
<ul style="list-style-type: none"> ▲ 10 large urban areas that did not meet European Union treatment standards in 2023 require improvements to comply with these standards and protect the environment.
Stop discharges of raw sewage
<ul style="list-style-type: none"> ▲ 16 towns and villages discharging raw sewage every day must be connected to treatment plants.
Upgrade collecting systems to address a judgement from the Court of Justice of the EU
<ul style="list-style-type: none"> ▲ While all storm water overflows have to meet the national standards, six collecting systems (sewers) were subject to a judgement from the Court of Justice of the European Union and must be prioritised.
Improve treatment to protect inland and coastal waters impacted by wastewater
<ul style="list-style-type: none"> ▲ 34 of the priority areas require improvements to protect and restore rivers, estuaries, lakes and coastal waters adversely impacted by wastewater.
Prevent sewage pollution at bathing waters with poor water quality
<ul style="list-style-type: none"> ▲ 3 collecting systems must be upgraded to prevent sewage pollution at bathing waters that were classified as having poor water quality.
Improve treatment where needed to protect freshwater pearl mussels
<ul style="list-style-type: none"> ▲ 12 areas need improvements in wastewater treatment to protect endangered freshwater pearl mussels.

² <https://www.epa.ie/publications/compliance--enforcement/waste-water/priority-areas-list-current.php>.

³ There is more than one environmental priority at some urban areas. For example, Arklow is one of the 10 areas that did not meet European Union treatment standards in 2023 and is also one of the 16 areas discharging raw sewage.

2 TREATMENT AND EFFLUENT QUALITY

European Union standards

The *Urban Waste Water Treatment Directive* sets standards for treating wastewater at all large urban areas, with the objective of protecting the environment from the harmful effects of wastewater discharges⁴. 177 large urban areas in Ireland were subject to these standards in 2023.

- ▲ 166 areas complied with the Directive's treatment and effluent quality standards.
- ▲ 10 areas did not meet the treatment and effluent quality standards (Figure 2).
- ▲ Uisce Éireann did not take enough effluent samples from one large urban area⁵.

Appendix A has further information on the European Union requirements and the standards breached at each area. Figure 1 charts the number of towns and cities that failed the Directive's treatment and effluent quality standards over the past seven years.

Half (50%) of the wastewater in Ireland's large urban areas was produced in the towns and cities that failed the standards in 2023. Most of this was generated in the greater Dublin area and conveyed to the treatment plant at Ringsend.

Infrastructure upgrades to increase the capacity of the Ringsend plant and bring it up to the required standard are well advanced. While the works are due for completion in 2025, the upgraded infrastructure in place since the beginning of 2024 is already improving effluent quality. When

Ringsend comes into

compliance with the Directive, it

is expected that more than 95

per cent of wastewater

generated in Ireland's large

urban areas will be treated to

the Directive's standards.

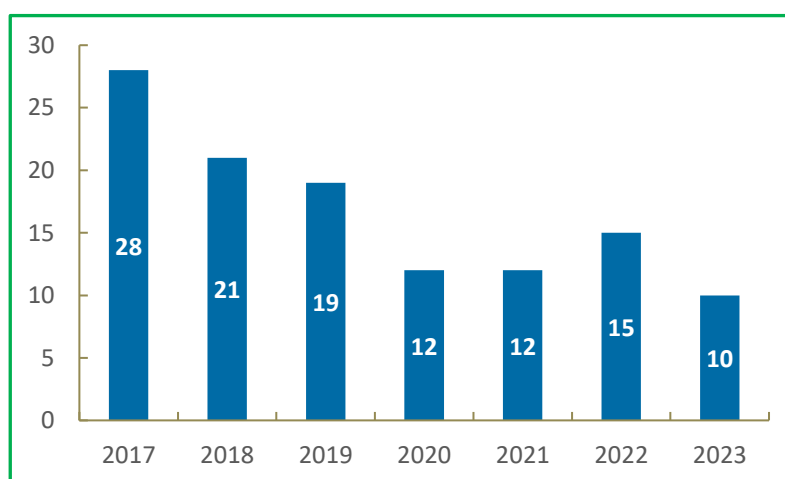


Figure 1: Number of large urban areas failing European Union treatment standards

⁴ Large urban areas are towns and cities with a population equivalent of at least 2,000 that discharge effluent to freshwater or estuaries, and areas with a population equivalent of at least 10,000 that discharge effluent to coastal waters. There is information on large urban areas and other technical terms used in this report in the *Glossary and background information*.

⁵ Uisce Éireann took 11 samples at Listowel, County Kerry but a minimum of 12 were required. The 11 samples met the effluent quality standards in the Directive.

Uisce Éireann is implementing plans to bring six of the areas that failed the Directive into compliance before the end of 2025. Upgrade works required at the final four areas, Lahinch, Cloyne, Merville and Malahide have not started and may take until the end of the decade to complete. Uisce Éireann should accelerate the pace at which this work is being delivered.

The Directive was adopted in 1991 and the final deadline to comply was 2005. In 2019 the Court of Justice of the European Union declared Ireland had failed to fulfil its obligations under the Directive⁶. Ireland is at risk of financial penalties if the State does not resolve and close out this judgement. In 2024 the European Commission opened a new infringement procedure against Ireland alleging further failures to meet the treatment requirements of the Directive⁷. This infringement process is ongoing.

The European Union is due to formally adopt and publish an updated or ‘recast’ Urban Wastewater Treatment Directive, which Ireland must transpose into national legislation by 2027. The Directive will introduce several new and more stringent obligations over a phased basis on all Member States. Ireland must factor these new requirements into the planning and delivery of wastewater services.

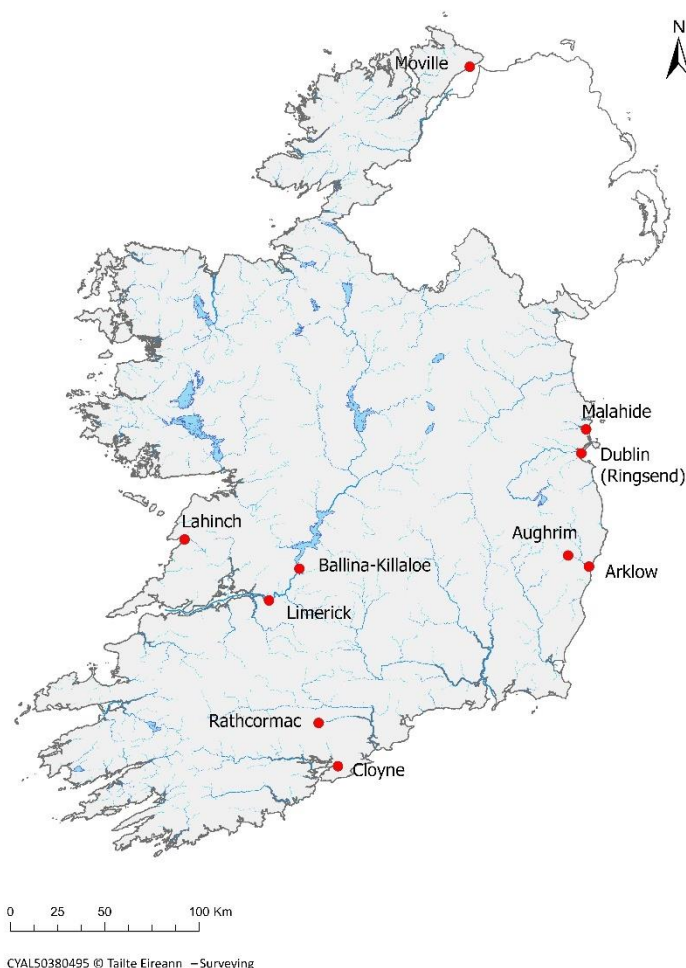


Figure 2: Areas that failed EU treatment standards in 2023

⁶ Case reference C-427/17.

⁷ Infringement number INFR(2023)2178.

EPA licence standards

The Directive's treatment and effluent quality standards are general European wide standards that applied at 177 large urban areas in Ireland in 2023. The EPA sets site-specific effluent quality standards for discharges from over 500 urban areas in wastewater discharge licences issued to Uisce Éireann⁸. These include all the large urban areas discussed in the previous section.

When issuing a licence the EPA takes the local environment into account and sets site-specific effluent quality standards with the aim of preventing and reducing pollution of waters by wastewater discharges, achieving at least good status in the receiving waters and preventing any deterioration in existing status. Licences have the purpose of implementing measures required under the Water Framework Directive and also give effect to measures required under European Directives on wastewater, bathing water, groundwater, drinking water, birds and habitats. Where necessary, the standards in EPA licences are stricter and include a broader range of parameters than those in the Urban Waste Water Treatment Directive. EPA licences also require Uisce Éireann to monitor discharges regularly to determine if they meet the necessary standards.

Uisce Éireann did not always comply with the standards at over half (58%) of the 504 licences that were active at the end of 2023. Many surface waters that are not in satisfactory condition are impacted by wastewater discharges that do not comply with licence standards (refer to Chapter 5). The EPA enforces licences in line with our compliance and enforcement policy⁹.

Compliance with EPA licences is essential to protect and restore the quality of our rivers, estuaries, lakes and coastal waters and prevent pollution. Uisce Éireann must have a clear national plan to bring treatment up to licence standards and to maintain compliance at areas that already meet the standards. Uisce Éireann should implement this plan in a timely manner. Based on Uisce Éireann's estimates, it will take more than two decades to complete all the necessary improvements to treatment plants. There needs to be a greater national effort to shorten this timeline and accelerate the delivery of essential infrastructure.

⁸ Discharges from areas with a population equivalent of 500 or more require a licence from the EPA.

⁹ The EPA's compliance and enforcement policy is available on the EPA [website](#) and you can also view the prosecutions in 2023 on our [website](#).

The following are key actions for Uisce Éireann to protect and restore water quality and improve compliance with the Directive and EPA licences.

- ▲ Determine the underlying cause of failure at each area that does not meet the treatment standards and identify site-specific actions to address the failures.
- ▲ Provide the outstanding infrastructure needed to treat wastewater to the standards set in licences and the Directive and upgrade or replace assets no longer fit for purpose.
- ▲ Optimise the operation of all treatment systems to consistently get the best from them and ensure staff in charge of these systems are appropriately trained.
- ▲ Implement effective preventative maintenance and repair programmes to protect treatment systems that are performing well and minimise breakdowns.

3 RAW SEWAGE

There has been good progress recently addressing areas with no treatment and ten towns and villages that previously discharged raw sewage every day were connected to treatment plants during 2023. A further three were connected by mid-2024. These 13 areas are listed in *Appendix B*. Figure 3 charts progress since 2014 in reducing the number of areas with no wastewater treatment.

Despite the recent progress, raw sewage from the equivalent of 40,000 people in 16 towns and villages still discharges into seas and rivers every day because these areas do not have treatment plants (Figure 4)¹⁰. Uisce Éireann is implementing plans to provide treatment by 2025 for six of the towns and villages discharging raw sewage. These include Arklow, which currently generates almost half the raw sewage discharged in Ireland every day. Based on the latest plans, all the remaining areas will have treatment in place by 2030¹¹. *Appendix B* shows when each area is expected to receive treatment.

In the past year Uisce Éireann extended its timeline to deliver treatment for eight towns and villages by between two and five years. Reasons provided for the delays include statutory processes taking longer than expected and legal challenges.

Raw sewage creates an unacceptable risk to the environment and public health. Uisce Éireann should plan for the earliest possible completion of the work needed to provide treatment for towns and villages discharging raw sewage.

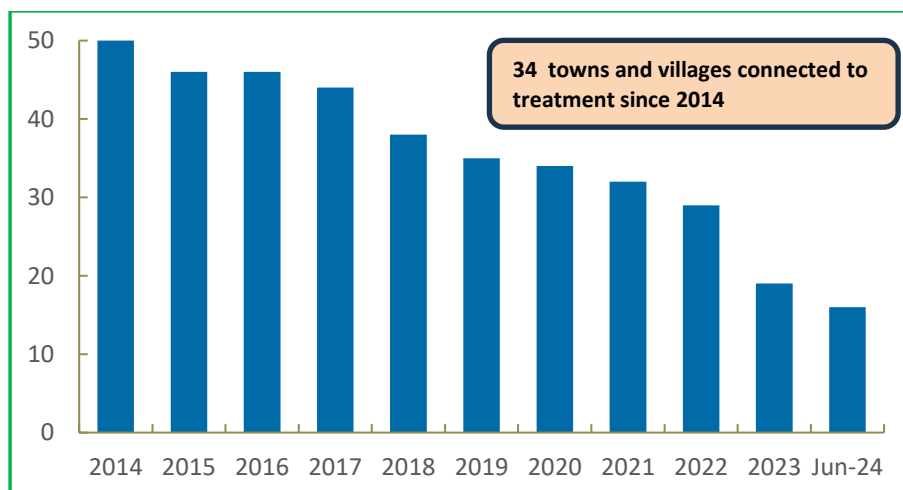


Figure 3: Number of areas with no treatment

¹⁰ This is the situation in mid-2024. Fourteen of these are small towns and villages, which are below the size thresholds for the large urban areas discussed in Chapter 2. Arklow and Moville are the two large urban areas with no treatment.

¹¹ Plans provided by Uisce Éireann in June 2024.

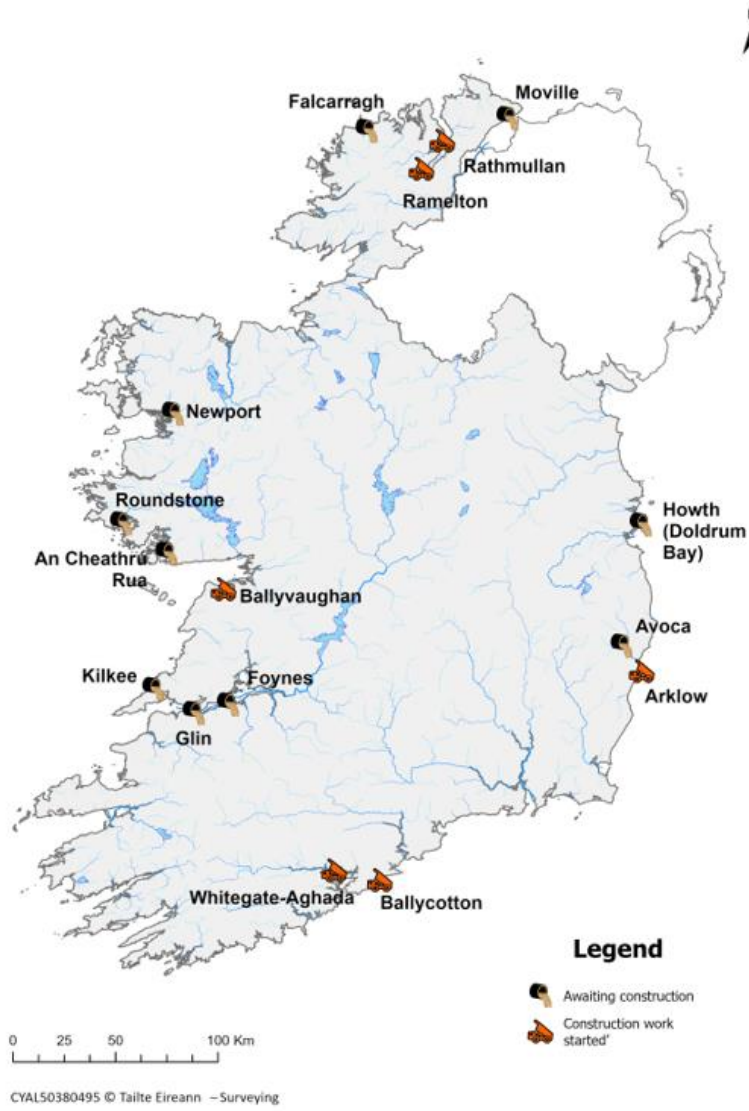


Figure 4: Areas discharging raw sewage in mid-2024

Example: Stopping raw sewage discharges and protecting bathing waters

Prior to 2023 sewage collected in the public sewers serving An Spidéal (Spiddal), County Galway was discharged daily into Galway Bay without treatment. This contributed to poor bathing water quality at nearby Trá na mBan. The EPA highlighted An Spidéal as a national priority area and required Uisce Éireann to build a treatment plant to stop discharges of raw sewage and protect bathing water quality at Trá na mBan.

Uisce Éireann completed a new treatment plant for An Spidéal in late 2023. A new pumping station now pumps sewage collected in the village to the treatment plant, where it is treated to make it clean and safe before it is discharged into the sea. The plant has capacity to treat sewage from 1,000 people and is designed to meet the effluent quality standards set by the EPA.

Eliminating raw sewage discharges from An Spidéal is helping to protect the local environment, including the bathing water at Trá na mBan, and enhancing the amenity value of this seaside village. All bathing water samples taken by Galway County Council at Trá na mBan during the 2024 bathing water season recorded excellent water quality.



Figure 5: New wastewater treatment plant at An Spidéal

4 WASTEWATER COLLECTING SYSTEMS

Ireland has an estimated 25,000 kilometres of underground sewers and around 2,600 public wastewater pumping stations. These collect sewage generated in our homes and communities and carry it to over 1,000 treatment plants. Most sewers are combined systems, meaning they carry a mixture of sewage and rainwater runoff in the same pipes.

Sewers and pumping stations must have enough capacity to collect and retain wastewater during all normal weather conditions and all normal seasonal variations in wastewater loadings. Sewers should be structurally sound to prevent unwanted groundwater ingress. Many collecting systems are not as good as they need to be and sometimes discharge untreated sewage into the environment before it can reach a treatment plant. Uisce Éireann must address this and ensure discharges from wastewater collecting systems do not cause pollution.

With thousands of kilometres of underground sewers, some of which are more than a century old, Ireland faces a significant challenge in bringing all collecting systems up to standard. This will take many years and, based on Uisce Éireann's estimates, it will cost several billion. Uisce Éireann must complete assessments to improve information on the condition, capacity and performance of all collecting systems. The outputs from these assessments are essential to inform and prioritise upgrades.

Priority collecting systems

Collecting systems at six large urban areas must be upgraded as a priority to protect the environment and address the findings of a judgement from the Court of Justice of the European Union. In 2019 the Court declared Ireland had failed to ensure wastewater collected in sewers at these areas was retained and conveyed for treatment. *Appendix C* lists the six areas and the estimated timeline to deliver the upgrade works at each area.

- ▲ Uisce Éireann upgraded two of these collecting systems in 2023 but must provide evidence to demonstrate these systems now meet national and European Union standards.
- ▲ Upgrades to a further two collecting systems are scheduled for completion between 2024 and 2025.
- ▲ Uisce Éireann estimates the improvement works at the final two areas, Midleton and Cork, will be completed in 2029 and 2035 respectively. These lengthy delays put Ireland at risk of fines for not resolving the Court's 2019 judgement.

Storm water overflows

There are an estimated 2,609 storm water overflow structures on Ireland's public sewers¹². These can discharge untreated wastewater into rivers and seas but should only activate in extreme rainfall when sewers and treatment plants are at risk of being overwhelmed. They should not operate in normal conditions to compensate for a lack of sewer capacity.

In order to limit pollution, storm water overflows must meet certain national standards¹³. The EPA requires Uisce Éireann to assess each storm water overflow against these standards and upgrade overflows that do not meet the standards. The status of assessments at the end of 2023 is summarised below.

- ▲ 1,484 storm water overflows meet the national standards.
- ▲ 421 storm water overflows do not meet the national standards and must be upgraded.
- ▲ Assessments of the remaining 704 storm water overflows are overdue and must be completed promptly.

Uisce Éireann needs to collect better information about discharges of untreated wastewater through storm water overflows and is installing monitoring equipment to measure how often overflows activate and how long they discharge for. Details on overflow activations should be included in Uisce Éireann's annual environmental reports for each urban area from 2024 onwards. The annual environmental reports are publicly available on the EPA's [Licence and Enforcement Access Portal](#).

Uisce Éireann must expedite the outstanding assessments of storm water overflows, ensure they all meet national standards and take appropriate corrective action to mitigate risks and prevent pollution from overflows.

¹² The number of storm water overflows reported has increased since 2022 because Uisce Éireann identified additional overflows, that were not known about previously, through its assessments of collecting systems. There is more information about storm water overflows in the *Glossary and background information* and on the EPA's website at <https://www.epa.ie/our-services/compliance--enforcement/waste-water/urban-waste-water/>.

¹³ The standards are in the *Procedures and criteria in relation to storm water overflows* on the EPA's website at <https://www.epa.ie/publications/licensing--permitting/waste-water/UrbanWasteWater2.pdf>.

5 RISKS TO SURFACE WATERS

Inland and coastal waters

Clean rivers, estuaries, lakes and coastal waters support a rich diversity of species and habitats. They are essential to the natural environment and our wellbeing. If sewage is discharged without proper treatment, it can cause pollution and harm ecosystems by depleting oxygen levels in the water and increasing the concentration of nutrients, leading to excessive growth of algae and aquatic plants. Complying with licences issued by the EPA is a key step in protecting and restoring water quality.

Wastewater discharges from 164 urban areas have been identified as significant pollution pressures on the quality of surface waters that are not in a satisfactory condition¹⁴. The majority of the affected waters are sections of rivers. In most cases wastewater is not the only pressure and there are additional pollution pressures on the same water bodies from other activities such as agriculture and forestry.

Uisce Éireann should develop a national plan to improve treatment and help restore all surface waters adversely impacted by wastewater discharges. This should identify the underlying causes of wastewater pressures at each area, site-specific actions needed to address these and timelines for delivery. The plan should also include protection measures to ensure no additional water bodies are put at risk from discharges in the future.

The pollution pressures from all 164 urban areas must be addressed. However, based on current estimates of investment needed and the scale of the challenges, it will take many years to complete the necessary improvements at every area. It is important therefore to prioritise areas where improvements are needed most and will have the greatest benefits for water quality and the environment.

The EPA has identified 34 of the 164 urban areas as priority areas (Figure 6). These are considered priorities because discharges from these areas were identified as the main or sole significant source of pollution impacting water quality in local rivers, estuaries, lakes and coastal waters¹⁵. This means, in the absence of other significant pressures, water quality at these areas should improve when impacts from wastewater discharges are resolved.

¹⁴ This refers to the situation in June 2024. These areas were identified during the characterisation process for Ireland's third cycle River Basin Management Plan. Characterisation involves finding out where the problems are, what is causing them and how they can be fixed. Discharges from the 164 areas were identified as pressures on almost 200 water bodies.

¹⁵ These were identified as the main or sole significant pressure during the characterisation process for Ireland's River Basin Management Plans.

Action plans to restore surface water quality

The status of action plans to address wastewater pollution pressures from the 34 priority areas are summarised below and in *Appendix D*.

- ▲ Treatment plants serving two priority areas were recently upgraded and monitoring is ongoing to assess if the upgrades have resolved the risk of pollution.
- ▲ Upgrades to treatment infrastructure at a further five priority areas are either ongoing or due to start before the end of 2025.
- ▲ Uisce Éireann is still in the preliminary stages of identifying its preferred options to resolve pollution pressures from the remaining 27 priority areas and either proposes to start improvement works in 2029 or 2030 or has no clear timeline to start the works.

The pace at which Uisce Éireann is progressing works at the final 27 areas is far too slow. Uisce Éireann has been aware since 2017 of the importance of improving treatment at these areas but is still considering its options on how to do this. Excessive delays in designing the improvements needed and then delivering them are prolonging risks to water quality in local rivers, estuaries, lakes and coastal waters.

Due to the slow progress addressing significant pollution pressures, the EPA prosecuted Uisce Éireann in 2023 for failing to treat wastewater properly at five priority areas. These are Abbeydorney, Co. Kerry, Dunleer, Co. Louth, Kilmacrennan, Co. Donegal, Mullagh, Co. Cavan and Mullinahone, Co. Tipperary¹⁶.

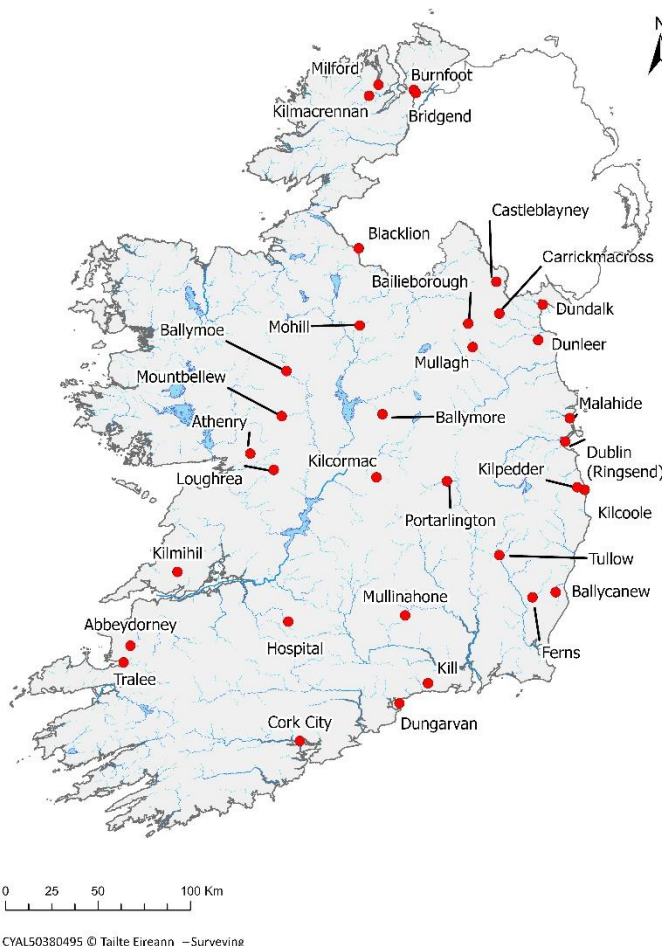


Figure 6: Areas prioritised to protect surface waters

¹⁶ There is more information about the prosecutions on the EPA [website](#).

Uisce Éireann must finalise the outstanding action plans to prevent pollution at the priority areas and accelerate the delivery of these plans. The funding to implement these plans should get priority in Uisce Éireann's upcoming investment plan, which runs from 2025 to 2029.

Bathing waters

Most (97%) of Ireland's bathing waters met or exceeded the minimum required quality standards in 2023¹⁷. However, wastewater is a key pressure on bathing water quality in some areas.

The collecting systems (sewers and pump stations) that convey sewage to treatment plants at Ringsend and Balbriggan, Co. Dublin and Bunrana, Co. Donegal require improvements to address intermittent discharges of untreated sewage which contributed to poor bathing water quality classifications at three beaches in 2023¹⁸. When a bathing water is classified as poor it means there is a risk of periodic pollution, which could make people sick.

Uisce Éireann is upgrading the collecting systems at Balbriggan and Bunrana to reduce the risk of sewage overflows and protect bathing waters but is still in the process of identifying the scope of works needed on the Ringsend collecting system.

¹⁷ EPA report on Bathing Water Quality in Ireland in 2023, available on the EPA [website](#).

¹⁸ The Bathing Water Quality in Ireland in 2023 report identifies two further bathing waters that were classified as poor quality in 2023. Uisce Éireann has completed improvements at An Spidéal, Co. Galway and Loughshinny, Co. Dublin to mitigate the risk of wastewater impacting these waters.

Example: Delays in taking action to protect a river

The treatment plant at Abbeydorney, Co Kerry, which was constructed more than 60 years ago, is overloaded and unable to treat wastewater properly. The River Brick downstream of the plant is in an unsatisfactory condition and poorly treated wastewater from Abbeydorney has been identified as a significant pollution pressure on water quality in the river. The wastewater discharge licence issued by the EPA for Abbeydorney required Uisce Éireann to upgrade the plant by 2015 to improve effluent quality and protect the river.

Uisce Éireann did not upgrade the plant by the due date and in 2017 the EPA escalated Abbeydorney to a national priority area where Uisce Éireann must prioritise improvements to prevent pollution. In 2019 the EPA initiated a district court prosecution against Uisce Éireann in response to the lack of progress addressing this issue and the continued discharge of poorly treated wastewater into the environment. The case concluded in 2020 with Uisce Éireann convicted and fined (see EPA [website](#)).

Following the court case Uisce Éireann still failed to provide a clear action plan and timeline to upgrade the plant and prevent pollution. Due to the continued failure to resolve this issue, the EPA initiated another district court prosecution in 2021. This case concluded in 2023 when Uisce Éireann was again convicted and fined for discharging inadequately treated wastewater that failed to meet the effluent quality standards in the licence (see EPA [website](#)). Uisce Éireann indicated to the court that Abbeydorney would be included in the 2025 to 2029 investment plan.

The plant has not been upgraded yet and continues to discharge poorly treated wastewater. In 2023 the average concentration of ammonia in discharges from the plant was over 25 times the limit set in the discharge licence. Elevated concentrations of ammonia can harm the ecological health of a river.

This example of Uisce Éireann's poor performance in preventing pollution highlights the need for the utility to resolve the underlying causes of its delays in bringing infrastructure upgrades at priority areas to construction and to expedite the delivery of these upgrades.

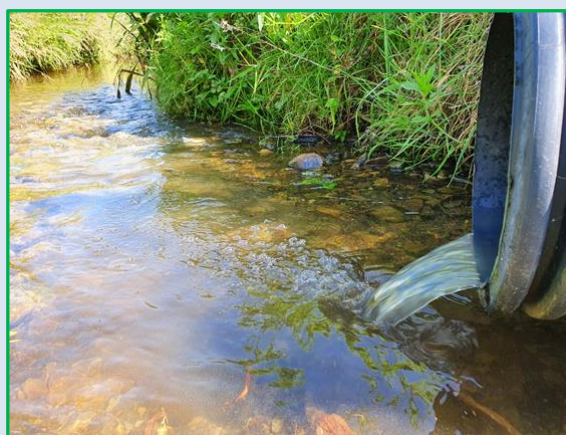


Figure 7: Discharge from Abbeydorney, Co. Kerry

6 PROTECTING FRESHWATER PEARL MUSSELS

Freshwater pearl mussels are critically endangered molluscs that need clean, free flowing, well oxygenated rivers and a clean river bed. They are very sensitive to changes in their environment and are declining nationally and internationally due to deteriorating river quality. Pollution from inadequately treated wastewater can be detrimental to the survival of juvenile mussels and urgent action is needed to halt the decline of this endangered species.

The EPA has identified 12 towns and villages where wastewater treatment must improve to protect freshwater pearl mussel habitats (Figure 8 and *Appendix E*). Improvements have been completed at six of these areas. Uisce Éireann must promptly collect and compile all the information, such as monitoring results, needed to confirm the improvements have resolved the risks to freshwater pearl mussels and submit this information to the EPA. The EPA prosecuted Uisce Éireann in 2023 for discharging poorly treated wastewater from one of these areas, Boherbue, Co. Cork¹⁹.

Uisce Éireann is still assessing options to improve treatment at the remaining six towns and villages and indicates it will take until 2029 or 2030 to start the upgrade works. Uisce Éireann has known for at least six years that treatment at these areas must improve to protect freshwater pearl mussel habitats but has not given sufficient priority to advancing the necessary works.

Uisce Éireann must increase the pace of delivery of improvements at the latter six areas and should also provide the EPA with the outstanding information needed to demonstrate if the improvements made at the other six areas have satisfactorily resolved the risks to freshwater pearl mussel habitats.

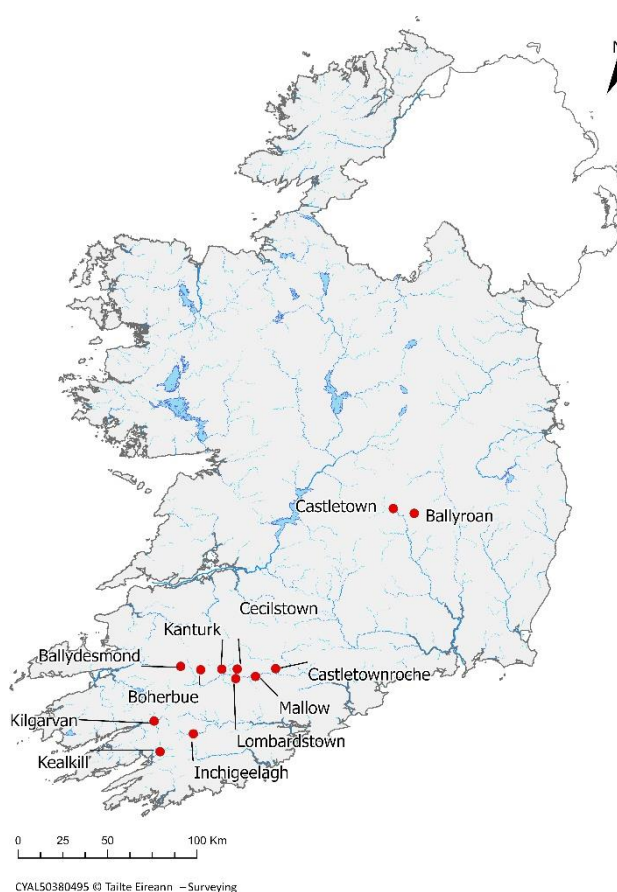


Figure 8: Areas prioritised to protect freshwater pearl mussel habitats

¹⁹ The case concluded in 2023 but was before the courts since 2019 and related to discharges prior to the commencement of upgrade works on the treatment plant. There is further information about the prosecution on the EPA [website](#).

7 PROTECTING SHELLFISH WATERS

Shellfish waters are protected areas designated to support the life and growth of shellfish such as oysters and mussels. If wastewater is discharged into these waters without adequate treatment it has the potential to contaminate shellfish with bacteria and viruses. This can create a public health risk as people can get sick from eating contaminated shellfish. A common way to protect shellfish waters is to disinfect treated wastewater prior to discharge using ultraviolet lamps which kill or inactivate bacteria and viruses (Figure 9).

Uisce Éireann is required to assess the impacts of wastewater discharges on shellfish waters and implement any improvements necessary to resolve adverse impacts identified through the assessments. Uisce Éireann did not comply with these requirements and the commitments it gave to complete the assessments. Impact assessments for 23 shellfish waters, listed in *Appendix F*, have not been completed and are long overdue. The utility completed no assessments during 2023.

Furthermore, four of the impact assessments completed in previous years identified the need for mitigation measures to protect shellfish waters but Uisce Éireann has still not provided clear delivery plans and timelines for the necessary works²⁰.

The EPA requires Uisce Éireann to expedite the overdue impact assessments, identify any site-specific interventions needed to protect shellfish waters and then implement these improvements in a timely manner. The resources needed to complete this work should be factored into Uisce Éireann's 2025 to 2029 investment plan. Uisce Éireann must also continue to engage with key shellfish water stakeholders that could be affected by wastewater discharges.



Figure 9: Ultraviolet disinfection system

²⁰ The four shellfish waters are Donegal Bay, Drumcliffe Bay, Dungarvan Harbour and Killary Harbour.

8 IMPROVING WASTEWATER TREATMENT

Infrastructure

Wastewater discharge licences issued by the EPA require Uisce Éireann to upgrade treatment infrastructure within specified time frames, where such works are needed to protect the environment and public health. The pace at which these upgrades are being delivered falls far short of licence requirements. Uisce Éireann has completed just 63 per cent of the improvement works due up to the end of 2023 (Figure 10).

Approximately 330 individual works are more than three years overdue with over 100 of these at priority areas.

Key improvements completed during 2023 in response to EPA licence requirements include an upgrade of the collecting system in Roscommon to prevent sewer overflows and a new treatment plant at Kilmore Quay, Co. Wexford to stop the daily discharge of raw sewage into the Eastern Celtic Sea.

The Government provides significant funding to

Uisce Éireann for wastewater services and this needs to continue. Uisce Éireann must use this funding efficiently and effectively to bring treatment systems up to the standards set in EPA licences and ensure discharges do not cause pollution or harm public health. Uisce Éireann should have plans and timelines in place to deliver the outstanding works and use a clear, consistent, risk-based approach to plan and prioritise improvements. Infrastructure upgrades required to resolve key issues identified in this report should be given priority and, if not currently funded, must be included for delivery during Uisce Éireann’s next investment plan, which runs from 2025 to 2029.

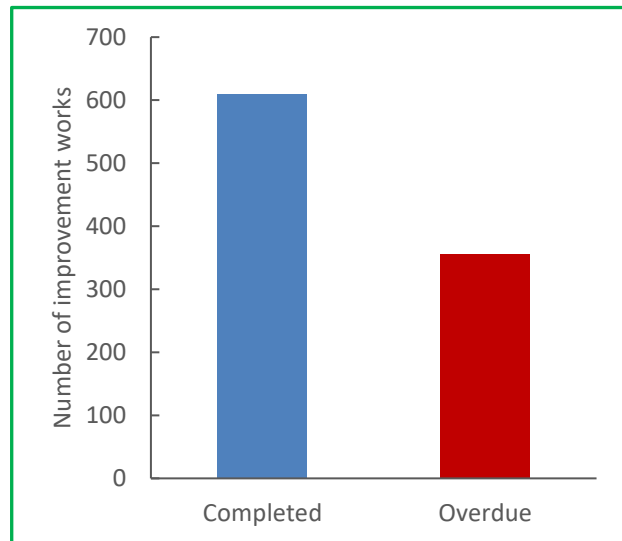


Figure 10: Status of improvement works due up to the end of 2023

Operation, management and maintenance

In 2023 more than 500 environmental incidents at treatment plants were caused by equipment breakdowns and issues with the management and maintenance of plants²¹. A common example of an environmental incident is when part of a treatment plant such as a pump breaks down preventing the plant from operating properly and resulting in the discharge of poorly treated wastewater into the environment.

It is important that Uisce Éireann implements effective preventative maintenance and repair programmes to keep treatment systems in optimum condition and minimise breakdowns. Operation and maintenance must be properly resourced to avoid treatment systems deteriorating, which can lead to pollution and costly repairs.

When equipment breaks down, Uisce Éireann should take prompt action to mitigate any risks to the environment. This did not happen at some areas in 2023. As an example, equipment malfunctions at a pump station in Cavan resulted in pumps failing to work for over a week causing an estimated 4.7 million litres of untreated sewage to discharge into the Cavan River. Uisce Éireann could have prevented this discharge through better management and oversight²².

EPA licences require Uisce Éireann to monitor discharges from treatment plants regularly to assess how well the plants are performing and determine if the treated wastewater meets the necessary standards. While Uisce Éireann has a comprehensive monitoring programme in place, it did not carry out enough monitoring at some plants in 2023, including Belturbet, Co. Cavan. Furthermore, Uisce Éireann did not monitor discharges from some areas at regular enough intervals, for example discharges from Castlebar, Co. Mayo were not monitored during a three-month period in 2023, despite the licence requiring such monitoring every two weeks. Uisce Éireann must ensure that monitoring is carried out in accordance with EPA licence requirements.

Direct involvement of local authorities working under agreement with Uisce Éireann to deliver wastewater services is being phased out as these services become fully integrated within Uisce Éireann. It is essential there is a smooth continuity of service throughout this process, particularly when there are any personnel changes. Uisce Éireann must ensure all staff responsible for operating,

²¹ This is based on the environmental incidents reported to the EPA by Uisce Éireann. There is further information on environmental incidents in *Appendix G*.

²² In response to EPA requirements to improve management and oversight following this incident Uisce Éireann implemented revised procedures in relation to pump station inspections, critical spare parts and incident reporting in Cavan and provided refresher training to staff to avoid similar incidents in future.

managing and maintaining treatment systems and responding to environmental incidents are appropriately trained.

Uisce Éireann is required to report on the tonnage of sewage sludge removed from treatment plants each year and the information for 2023 is summarised in *Appendix H*.

Complaints

In 2023 the EPA received over 150 complaints about discharges and odours from Uisce Éireann's wastewater works. In some cases people were dissatisfied with how Uisce Éireann dealt with their complaints, particularly in relation to ongoing odours. The area subject to the most complaints was Drogheda, where people reported frequent foul odours²³.

It is the responsibility of Uisce Éireann to investigate all complaints thoroughly and promptly, identify the underlying cause of the issue raised in the complaint and take action to resolve the complaint. Uisce Éireann must respond to each complainant advising them clearly of the outcome of investigations and the actions taken to resolve the underlying cause of the complaint and to prevent its recurrence. If the corrective and preventative actions will take some time to implement, it is important that Uisce Éireann advises the complainant of the timeline to implement these actions and keeps them informed about progress through regular, proactive communications.

The contact details for Uisce Éireann to make a complaint about a wastewater works are operations@water.ie or 1800 278 278.

²³ In response to the odour issues at Drogheda the EPA issued legally binding directions under the Environmental Protection Agency Act 1992 and 2003 requiring Uisce Éireann to take specified actions at the site to avoid causing nuisance through odours. Uisce Éireann is progressing these actions and complaints of odours in Drogheda have reduced in 2024.

9 CONCLUDING REMARKS

Uisce Éireann provides a valuable service in collecting and treating wastewater generated in our homes and communities. However, treatment at many areas is not as good as it needs to be and wastewater discharges are impacting the quality of rivers, estuaries, lakes and coastal waters. Over half of licensed treatment plants discharge wastewater that does not always meet the standards set in licences issued to Uisce Éireann. Meeting these standards is a key step in protecting and restoring surface water quality. It will require significant and sustained national investment in the years ahead to bring all treatment systems up to the necessary standards.

The EPA has identified the national priority areas where improvements are needed most and where Uisce Éireann should target available resources. Investment in treatment infrastructure at these areas is bringing benefits and the number of towns and villages discharging raw sewage every day has reduced by 45 per cent since the start of 2023. Uisce Éireann is progressing works at some priority areas to prevent wastewater from harming surface waters at risk of pollution, stop discharges of raw sewage, protect freshwater pearl mussels and comply with requirements in the *Urban Waste Water Treatment Directive*. However, Uisce Éireann is still assessing options on how to resolve key issues at almost half the priority areas and this is prolonging the risks to the environment. The pace at which the essential improvements needed at these priority areas are being designed and delivered needs to accelerate.

Uisce Éireann can make significant progress in protecting and restoring our environment during its next investment cycle, which runs from 2025 to 2029, by targeting improvements at the priority areas and using the information and recommendations in this report to inform management and investment decisions.

GLOSSARY AND BACKGROUND INFORMATION

<p>Directive</p>	<p>The Urban Waste Water Treatment Directive. The EPA assesses compliance with the Directive’s treatment and effluent quality standards using effluent monitoring results and information on the type of treatment, the size of the urban area and the type of receiving water the effluent discharges into. Uisce Éireann provides this information to the EPA and is responsible for ensuring it is true and accurate.</p>
<p>Effluent</p>	<p>Wastewater discharged from a wastewater collecting and treatment system.</p>
<p>Effluent quality standards</p>	<p>Standards for secondary treatment</p> <p>The Directive sets mandatory standards for two parameters used to assess polluting potential, namely biochemical oxygen demand and chemical oxygen demand. These measure the amount of oxygen used up (demanded) to break down polluting matter in the effluent. If effluent does not meet these quality standards it may lead to a drop in oxygen levels within the receiving waters, which could harm aquatic life and biodiversity. Effluent discharged from all 177 large urban areas must meet these basic standards.</p> <p>Standards for more stringent treatment</p> <p>Effluent discharged to sensitive areas requires a higher level of treatment to remove nutrients that could lead to pollution. Phosphorus and nitrogen are the main nutrients that drive pollution in sensitive areas. The Directive sets maximum limits on the concentration of phosphorus and nitrogen in effluent discharged to sensitive areas from towns and cities with a population equivalent of at least 10,000. A total of 36 towns and cities were subject to these standards in 2023.</p> <p>Uisce Éireann must regularly monitor effluent to determine if it is properly treated and meets the necessary quality standards.</p>
<p>Large urban area</p>	<p>Towns and cities with a population equivalent of at least 2,000 that discharge effluent to freshwater or estuaries, and areas with a population equivalent of at least 10,000 that discharge effluent to coastal waters.</p> <p>92 per cent of Ireland’s urban wastewater is generated in large urban areas. The remaining 8 per cent is generated in almost 900 smaller towns and villages.</p>
<p>Population equivalent</p>	<p>A term used to indicate how much wastewater is generated in an urban area. It includes wastewater generated by the resident population, the non-resident population (for example, tourists) and industries. A population equivalent of one is defined as the organic biodegradable load having a five-day biochemical oxygen demand of 60 grams of oxygen per day.</p>

<p>Sensitive area</p>	<p>A water body is classified as a sensitive area if it is eutrophic; may become eutrophic if protective action is not taken; or is intended for abstraction of drinking water and contains more than 50 milligrams per litre of nitrates. Ireland’s sensitive areas are listed in the Urban Waste Water Treatment (Amendment) Regulations, 2010 (Statutory Instrument number 48 of 2010).</p> <p>Eutrophic refers to the enrichment of waters by nutrients, leading to an accelerated and unwanted growth of algae and aquatic plants. Phosphorus enrichment tends to drive eutrophication in rivers and lakes, whereas nitrogen enrichment tends to drive eutrophication in estuaries and coastal waters.</p>
<p>Shellfish waters</p>	<p>Protected areas designated to support shellfish life and growth. They are identified in the following national regulations: Statutory Instrument (S.I.) 268 of 2006, S.I. 55 of 2009 and S.I. 464 of 2009.</p>
<p>Storm water overflow</p>	<p>Outlets from collecting systems designed to relieve sewers of excess flows caused by unusually heavy rainfall. They act as emergency safety valves when the capacity of the sewer is exceeded and discharge excess flow from the sewer directly into receiving waters such as rivers. Without these releases there could be a greater risk to the environment and people’s health because the sewer and treatment plant could become inundated, and homes and streets flooded by sewage.</p>
<p>Urban wastewater</p>	<p>Domestic wastewater, or domestic wastewater mixed with non-domestic wastewater and/or urban runoff.</p> <ul style="list-style-type: none"> ▲ Domestic wastewater is wastewater from residential settlements and services which originates mainly from human metabolism and/or from household activities. ▲ Non-domestic wastewater is wastewater from premises used to carry on a trade or for industrial or economic activities. ▲ Urban runoff means precipitation collected by sewers. <p>Urban wastewater is commonly referred to as ‘sewage’.</p>
<p>Wastewater discharge authorisation</p>	<p>An authorisation issued by the EPA to Uisce Éireann which sets out the conditions under which Uisce Éireann must control and manage wastewater discharges from an urban area.</p> <p>A wastewater discharge licence is required for discharges from areas with a population equivalent of 500 or more. A certificate of authorisation is required for discharges from areas with a population equivalent of fewer than 500. You can view each authorisation on the EPA’s website at https://epawebapp.epa.ie/terminalfour/wwda/index.jsp.</p>

APPENDIX A: EU TREATMENT STANDARDS

Treatment at the following 10 large urban areas did not meet the mandatory treatment and effluent quality standards in the *Urban Waste Water Treatment Directive* in 2023.

County	Urban area	Failed the secondary treatment standards	Failed the more stringent treatment standards
Clare	Lahinch	x	
Cork	Cloyne	x	
	Rathcormac	x	
Donegal	Moville	x	
Dublin	Dublin (Ringsend)	x	x
	Malahide		x ²⁴
Limerick	Limerick City	x	
Tipperary	Ballina-Killaloe	x	
Wicklow	Arklow	x	
	Aughrim	x	

Uisce Éireann also failed to take enough samples of the treated wastewater at Listowel, County Kerry to assess compliance. The samples that were taken met the effluent quality standards in the Directive.

What are the Directive's treatment standards for large urban areas in Ireland?

1. Wastewater from all 177 large urban areas must receive secondary treatment to remove organic matter and the treated wastewater must meet basic effluent quality standards used to assess polluting potential.
2. 36 of the 177 large urban areas require an additional, more stringent level of treatment to remove nutrients (nitrogen and/or phosphorus) and the concentration of nutrients in the treated wastewater must be below specified limits. These additional standards apply at towns and cities with a population equivalent of 10,000 or more discharging to sensitive areas.

²⁴ Effluent discharged from Malahide treatment plant met the Directive's effluent quality standards in 2023. However, the plant does not provide the more stringent level of treatment required to remove nitrogen.

APPENDIX B: AREAS DISCHARGING RAW SEWAGE

In mid-2024 the following 16 towns and villages were discharging raw sewage daily because their public sewers were not connected to treatment plants.

County	Urban area	Date for treatment ²⁵
Clare	Ballyvaughan	2027 ²⁶
	Kilkee	2027 ²⁶
Cork	Ballycotton	2024
	Whitegate - Aghada	2024
Donegal	An Fál Carrach - Falcarragh	2030 ²⁶
	Moville	2030 ²⁷
	Ramelton	2025
	Rathmullan	2025
Dublin	Howth (Doldrum Bay)	2027 ²⁷
Galway	An Cheathrú Rua - Carraroe	2030 ²⁷
	Roundstone	2029 ²⁸
Limerick	Foynes	2028
	Glin	2028
Mayo	Newport	2030 ²⁶
Wicklow	Arklow	2025
	Avoca	2025

Uisce Éireann connected the following 13 towns and villages to treatment plants between the beginning of 2023 and mid-2024. Those in italics were connected in 2024.

County	Urban area
Clare	Clarecastle, <i>Kilrush</i> and Liscannor
Cork	Castletownshend and Inchigeelagh
Donegal	Burtonport, <i>Coolatee</i> , Kerrykeel and Kilcar
Galway	Ahascragh and Spiddal
Louth	<i>Omeath</i>
Wexford	Kilmore Quay

²⁵ Dates provided by Uisce Éireann in June 2024.

²⁶ In 2023 Uisce Éireann extended the date to provide treatment at this area by two years.

²⁷ In 2023 Uisce Éireann extended the date to provide treatment at this area by three years.

²⁸ In 2023 Uisce Éireann extended the date to provide treatment at this area by five years.

APPENDIX C: PRIORITY COLLECTING SYSTEMS

Collecting systems at the following six urban areas must be upgraded to protect the environment and address the findings of a 2019 judgement from the Court of Justice of the European Union.

County	Urban area	Date for completion ²⁹
Cork	Cork City	2035
	Fermoy	2024
	Mallow	2023 ^{Note 1}
	Midleton	2029
Roscommon	Roscommon	2023 ^{Note 1}
Westmeath	Athlone	2025

Note 1. Improvements have been carried out on the collecting systems at Mallow and Roscommon. Uisce Éireann must provide supporting information to demonstrate the improvements have resolved the risks to the environment and the collecting systems meet national and European Union standards.

In 2019 the Court also found the collecting systems at Ringaskiddy-Crosshaven-Carrigaline, Co.Cork and Enniscorthy, Co. Wexford did not meet the necessary standards. Improvement works to address the concerns raised by the Court were completed prior to 2023.

²⁹ Dates provided by Uisce Éireann in June 2024.

APPENDIX D: PRESSURES ON SURFACE WATERS

Improvement measures are required at the 34 priority areas listed below to prevent wastewater discharges from harming rivers, estuaries, lakes and coastal waters.

County	Urban area
Treatment plant has been upgraded and monitoring is ongoing to assess if the upgrade has resolved the risk of pollution ³⁰	
Carlow	Tullow
Monaghan	Castleblayney
Improvement works are ongoing or due to start in 2024 or 2025	
Cavan	Bailieborough
Donegal	Kilmacrennan
	Milford
Galway	Mountbellew
Monaghan	Carrickmacross
Uisce Éireann has not scheduled upgrade works until at least 2029 or has provided no clear timeline for the works	
Cavan	Blacklion
	Mullagh
Clare	Kilmihil
Cork	Cork City
Donegal	Bridgend
	Burnfoot
Dublin	Dublin / Ringsend
	Malahide
Galway	Athenry
	Ballymoe
	Loughrea
Kerry	Abbeydorney
	Tralee
Laois	Portarlinton
Leitrim	Mohill
Limerick	Hospital

³⁰ The status of works is based on information provided by Uisce Éireann in June 2024.

County	Urban area
Louth	Dundalk
	Dunleer
Offaly	Kilcormac
Tipperary	Mullinahone
Waterford	Dungarvan
	Kill
Westmeath	Ballymore
Wexford	Ballycanew
	Ferns
Wicklow	Kilcoole
	Kilpedder

Environmental objectives

The European Union’s *Water Framework Directive* is a key piece of legislation aimed at protecting and enhancing waters across Europe. The Directive requires Ireland to protect and restore our waters to meet the following environmental objectives:

- ▲ achieve at least good status; and
- ▲ prevent any deterioration in existing status.

When we refer to wastewater as a pollution pressure in this report, we mean it is putting part of a river, estuary, lake or coastal water at risk of not meeting the specific environmental objective set for that water body.

APPENDIX E: PROTECTING FRESHWATER PEARL MUSSELS

Wastewater treatment must improve at the following 12 towns and villages to protect freshwater pearl mussel habitats.

County	Urban area
Improvements carried out and monitoring is ongoing to assess if these improvements have satisfactorily resolved the risks to freshwater pearl mussels	
Cork	Boherbue
	Castletownroche
	Cecilstown
	Inchigeelagh
	Mallow
Laois	Castletown
Uisce Éireann proposes to start upgrade works in 2029 or 2030	
Cork	Ballydesmond
	Kanturk
	Kealkill
	Lombardstown
Kerry	Kilgarvan
Laois	Ballyroan

APPENDIX F: SHELLFISH ASSESSMENTS

Uisce Éireann must expedite the overdue assessments of the impacts of wastewater discharges on the following 23 designated shellfish waters and implement any improvements needed to mitigate impacts identified during the assessments.

County	Shellfish waters
Cork	Baltimore Harbour / Sherkin
	Cork Great Island North Channel
	Glengarriff
	Oysterhaven
	Rostellan North
	Rostellan South
	Rostellan West
Donegal	Lough Swilly
	McSwynes Bay
	Sheephaven
Kerry	Cromane
	Maherees
	Tralee Bay
	Valentia Harbour
Kerry and Cork	Kenmare River
Louth	Carlingford Lough
	Dundalk Bay
Mayo	Blacksod Bay
Sligo	Sligo Bay
Waterford and Wexford	Waterford Harbour
Wexford	Bannow Bay
	Wexford Harbour Inner
	Wexford Harbour Outer

APPENDIX G: ENVIRONMENTAL INCIDENTS

An environmental incident is:

- ▲ any discharge that does not comply with the requirements of a wastewater discharge licence; or
- ▲ any discharge or occurrence with the potential for environmental contamination or requiring an emergency response.

The most common type of incident is the discharge of inadequately treated wastewater into the environment.

Uisce Éireann reported 1,141 short duration or once-off incidents during 2023. Almost half were caused by equipment breakdowns and issues with the operation and maintenance of treatment plants. Other common causes of short duration incidents included blocked and broken sewers and problems at pumping stations. You can view the incidents reported for each site on the EPA's website³¹.

At the end of 2023 there were also an additional 230 incidents that were either ongoing for some time or were likely to recur because Uisce Éireann had not fixed the underlying problem that caused the incident. We refer to these as open recurring incidents. Most are related to treatment plants repeatedly failing to meet the effluent quality standards set in EPA licences. The number of open recurring incidents has decreased over the past two years from a high of 249 in 2021 (Figure 11).

Infrastructure upgrades are needed to resolve most of the open recurring incidents and protect the environment. The upgrades are likely to take considerable time and resources to complete and Uisce Éireann must have clear plans to deliver all this work. Approximately one-fifth of the open recurring incidents can be fixed in a shorter time frame through improved management and maintenance of treatment plants. Uisce Éireann should resolve these promptly.

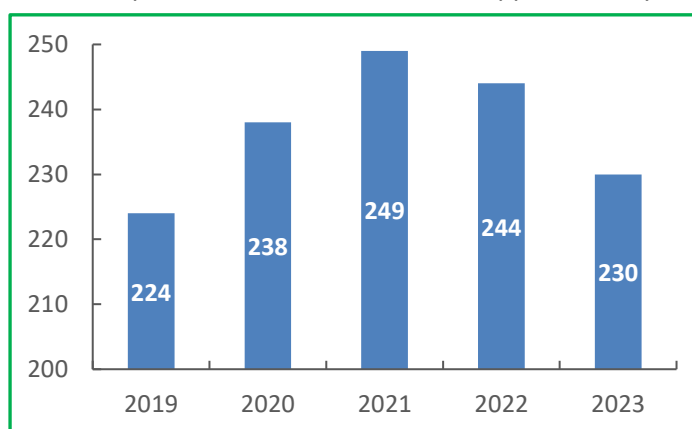


Figure 11: Number of recurring incidents at the end of each year

³¹ <https://leap.epa.ie/>

APPENDIX H: SEWAGE SLUDGE

Sewage sludge is a residue of the wastewater treatment process. It is rich in nutrients such as nitrogen and phosphorus. The sludge generated during 2023 was treated and then used as a fertiliser on soil and agricultural land. The table shows how much sewage sludge was produced during 2023. All sludge sent for composting was subsequently used in soil / agriculture.

Sewage sludge produced in 2023 and destination routes

	Agriculture	Compost	Total
Tonnes dry solids	53,244	5,720	58,964

Sludge must be treated to make it stable and free from odours, harmful bacteria and viruses before it is used on land. The treated sludge should only be used on suitable land and must be applied during appropriate conditions, in a way that makes sure the nutrients are effectively used for plant growth or assimilated into the soil.



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