

# Drinking Water Quality in Public Supplies 2020



## ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

### The work of the EPA can be divided into three main areas:

**Regulation:** *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

**Knowledge:** *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

**Advocacy:** *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

## Our Responsibilities

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We regulate the following activities so that they do not endanger human health or harm the environment:

- waste facilities (*e.g. landfills, incinerators, waste transfer stations*);
- large scale industrial activities (*e.g. pharmaceutical, cement manufacturing, power plants*);
- intensive agriculture (*e.g. pigs, poultry*);
- the contained use and controlled release of Genetically Modified Organisms (*GMOs*);
- sources of ionising radiation (*e.g. x-ray and radiotherapy equipment, industrial sources*);
- large petrol storage facilities;
- waste water discharges;
- dumping at sea activities.

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- Conducting an annual programme of audits and inspections of EPA licensed facilities.
- Overseeing local authorities' environmental protection responsibilities.
- Supervising the supply of drinking water by public water suppliers.
- Working with local authorities and other agencies to tackle environmental crime by co-ordinating a national enforcement network, targeting offenders and overseeing remediation.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Prosecuting those who flout environmental law and damage the environment.

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- Monitoring radiation levels, assessing exposure of people in Ireland to ionising radiation.
- Assisting in developing national plans for emergencies arising from nuclear accidents.
- Monitoring developments abroad relating to nuclear installations and radiological safety.
- Providing, or overseeing the provision of, specialist radiation protection services.

### Guidance, Accessible Information and Education

- Providing advice and guidance to industry and the public on environmental and radiological protection topics.
- Providing timely and easily accessible environmental information to encourage public participation in environmental decision-making (*e.g. My Local Environment, Radon Maps*).
- Advising Government on matters relating to radiological safety and emergency response.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

### Awareness Raising and Behavioural Change

- Generating greater environmental awareness and influencing positive behavioural change by supporting businesses, communities and householders to become more resource efficient.
- Promoting radon testing in homes and workplaces and encouraging remediation where necessary.

### Management and structure of the EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.



# Drinking Water Quality in Public Supplies 2020

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*Cover photo: Lough Talt water treatment plant, Sligo. Photo courtesy of Glan Agua Ltd*

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## Contents

Executive Summary.....	1
1 Introduction .....	4
2 Drinking water quality.....	5
3 Priorities for Drinking Water Supplies .....	6
Drinking Water Priority 1: Ensure that water is free of bacteria .....	9
Drinking Water Priority 2: Ensure that water is free of protozoan organisms .....	11
Drinking Water Priority 3: Ensure that water is free of chemical substances (trihalomethanes and pesticides).....	13
Drinking Water Priority 4: Ensure that water treatment plants are operated correctly.....	18
4 Protection of human health.....	19
Boil water notices and water restrictions .....	19
Reducing exposure to lead .....	23
Drinking Water Safety Plans .....	25
5 Concluding Remarks.....	27
Appendix A: Remedial Action List at end of 2020 .....	28
Appendix B: Monitoring and Compliance Summary for public water supplies in 2020 .....	33
Appendix C: Monitoring and Compliance Summary for public group water supplies in 2020..	34
Appendix E: Public Group Schemes with trihalomethane failures in 2020 .....	36
Appendix F: Boil Notices and Water Restriction Notices in place during 2020 .....	37

## Executive Summary

Drinking water is sourced from rivers, lakes, springs, and groundwater and must be treated to make it clean and safe to drink before it is supplied to consumers. Compliance with the microbiological and chemical standards for drinking water remains high at greater than 99.5%, which means the water in our public water supplies is safe to drink. While there has been good progress recently, drinking water treatment in many supplies is still not as robust as it needs to be to ensure the supply is resilient and safe into the future.

The EPA has identified a priority list of “at-risk” drinking water supplies, the Remedial Action List (RAL), that must be improved to ensure that water supplies continue to be safe to drink and are also secure in the future. The list includes supplies such as Cork City (serving over 90,000 people), Longford Central (around 17,000), and Corofin, Co. Clare (around 1,300). Irish Water is making progress in resolving issues and the number of priority supplies has reduced from 77 to 46 over the past four years. Some of the key achievements in 2020 include the completion of upgrades at Staleen (serving over 70,000 people), Lough Talt (over 12,500), and Ballyhooly (around 1,200) water treatment plants.

While Irish Water continue to make progress with a net reduction in supplies on the RAL, the EPA has serious concerns about the time it takes to implement improvements. Of the 46 supplies on the RAL at the end of 2020, almost half will now take longer to complete than was anticipated at the end of 2019, for example, Clonmel-Poulavanogue. At the end of 2018, Irish Water had said this supply was due to be completed in December 2020; it now has a completion date of December 2026. A supply may be placed on the RAL if it cannot consistently be ensured that the drinking water is free from bacteria, protozoan organisms or chemical substances, and that the treatment plant is operated effectively and correctly. People can become ill from drinking inadequately treated water and this can be very severe, particularly in vulnerable people, such as the young and the elderly.

## Drinking Water Priorities and Challenges

**Ensure that water is free from bacteria.** Irish Water continues to undertake upgrades to disinfection systems across the country to ensure the quality of drinking water is safeguarded and free from bacteria. In light of EPA audit findings, Irish Water needs to review all Disinfection Programme assessments to ensure disinfection contact time is adequate to protect public health.

**Ensure that water is free of protozoan organisms.** While the number of detections of *Cryptosporidium/Giardia* have reduced by one third since 2019, the EPA is concerned that protozoan organisms are still being detected in treated water due to a failure to properly manage treatment processes. It is critical that Irish Water put the appropriate control measures in place to ensure the correct operation of treatment processes. An example of where this was achieved is Leixlip Water Treatment Plant, which supplies over 590,000 people. This supply was removed from the RAL in July 2021 following filter upgrades and the installation of UV disinfection.

**Ensure that water is free of chemical substances.** The number of supplies failing to meet the trihalomethane standard continues to decrease each year. However, more work is required to address the remaining sites that continue to have THMs exceedances. In addition, the European Commission has issued a Reasoned Opinion<sup>1</sup> with regard to Ireland's poor record of compliance with the trihalomethane standard. Another cause for concern is the increase in the number of supplies where pesticides were detected. The challenge is to engage with multiple stakeholders in a catchment to prevent this problem at the source.

**Ensure that water treatment plants are operated effectively and correctly.** While it is an essential step to have all required infrastructure in place, a water treatment plant must also be managed and operated effectively and correctly and be able to adapt and respond to changing conditions and incidents. Essential alarms, monitors and staff training are critical prerequisites for a well-run drinking water treatment plant.

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<sup>1</sup> [Infringement case number 2017/4007](#)

Boil notices continued to be a feature of life affecting 74,955 consumers during 2020, with nearly two-thirds of the notices in place for more than 30 days. Assessments and improvements under Irish Water's National Disinfection Programme have not proved sufficiently robust to mitigate the need for boil notices.

There was limited progress by Irish Water in 2020 to replace lead connections with only 1.5% of connections replaced compared to 8% in 2019. At the 2020 replacement rate it will take decades for Irish Water to remove all lead connections. Another cause for concern is that the Department of Housing, Planning and Local Government has not yet published a progress report on the National Lead Strategy. This limited progress is concerning given the forthcoming reduced limit for lead in the new Drinking Water Directive.

Irish Water has begun using Drinking Water Safety Plans to identify the risks on our public water supplies, which will also serve to improve the long-term security of supplies. It will take substantial investment over many years to improve the security of supplies, but adopting the Drinking Water Safety Plan approach should allow Irish Water to target actions to address the greatest risks. The new Drinking Water Directive (EU) 2020/2184 is to be transposed into Irish law by January 2023 and it is anticipated that this will put the requirement for Drinking Water Safety Plans on a statutory footing.

### Summary of key actions recommended for Irish Water

- Complete upgrades to resolve issues with the drinking water supplies on the RAL, without further delays, to ensure risks to drinking water quality are addressed.
- Progress the assessments of disinfection systems, including rechecking of the chlorine contact times, to ensure drinking water is adequately disinfected and free from bacteria. Critical alarms and monitors must be functioning at all times.
- Substantially progress drinking water safety plan assessments to identify risks at drinking water supplies to safeguard the long-term security of water supplies and mitigate the risk.
- Expedite lead connection replacements. The Department of Housing, Planning and Local Government needs to publish the progress report on the national lead strategy.



## 1 Introduction

This report by the Environmental Protection Agency (EPA) provides a summary of our assessment of drinking water quality in public supplies and public group water schemes in Ireland during 2020. Every day, drinking water is supplied to approximately 1.3 million households<sup>2</sup> from public supplies. Irish Water is the national water utility responsible for providing this essential service. Irish Water also provides water from its treatment plants to public group schemes. The EPA is the drinking water quality regulator, responsible for enforcing the Drinking Water Regulations<sup>3</sup>. The Commission for Regulation of Utilities is the economic regulator of Irish Water.

A drinking water supply includes the abstraction, treatment, storage and distribution of water from the water source to the consumer's tap. The raw water sources, which are rivers, lakes, springs and groundwater, can be a source of contaminants if the water is not properly managed and treated at all stages of the process. Irish Water must ensure that the drinking water they supply meets the standards set out in the Drinking Water Regulations and therefore is safe to drink. Failure to meet those standards can put public health at risk. The Health Service Executive must be consulted by Irish Water where there could be a public health risk. In these events, a boil water notice or water restriction may be imposed.

Drinking water must be **safe** for consumers to drink, not just today, but every day. If a supply is meeting the drinking water standards today and is safe to drink, the supply also needs to be **secure** to prevent the risk of water quality failures in the future. The security of a supply is dependent on the risks to the supply, the adequacy of the water treatment infrastructure, and the management and operational controls in place. The EPA has identified a list of at risk supplies called the Remedial Action List (RAL) (*Appendix A*) where either the safety and/or security of the supply is not acceptable and Irish Water are required to put an action plan in place to rectify the issues at each of these supplies. National programmes on improving disinfection and reducing trihalomethanes, pesticides, and exposure to lead are also ongoing. Irish Water have committed to the Drinking Water Safety Plan approach, to identify and mitigate risks at supplies, in order to improve the security of supplies.

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<sup>2</sup> CSO, Census 2016

<sup>3</sup> European Union (Drinking Water) Regulations 2014, S.I. 122 of 2014 (as amended)

## 2 Drinking water quality

### Water quality in public supplies

Irish Water monitors drinking water quality in public supplies to ensure that it meets the standards set out in the Drinking Water Regulations and is safe to drink. Compliance remains consistently high year to year, with results for 2020 of:

<b>99.96%</b>	Microbiological parameters
<b>99.71%</b>	Chemical parameters
<b>99.14%</b>	Indicator parameters

The results show that water quality from public supplies remains very good and consumers can be confident that it is safe to drink. A summary of the results can be found in *Appendix B*. Non-regulatory monitoring (investigative and operational monitoring) is also carried out and may find failures, which must also be notified to the EPA and investigated by Irish Water.

Irish Water is also required under the Radioactive Substances in Drinking Water Regulations<sup>4</sup> to monitor for radioactivity parameters. The parametric values for radioactive substances were not exceeded in any of the public water supplies tested in 2020.

### Water quality in public group schemes

Irish Water also provides water to public group schemes. Local authorities regulate these supplies and ensure that monitoring is carried out. Water quality from public group schemes is also very good and compliance remains consistently high year to year, with results for 2020 of:

<b>99.89%</b>	Microbiological parameters
<b>99.24%</b>	Chemical parameters
<b>99.37%</b>	Indicator parameters

A summary of the results can be found in *Appendix C*.

<sup>4</sup> European Union (Radioactive Substances in Drinking Water) Regulations 2016, S.I. 160 of 2016

### 3 Priorities for Drinking Water Supplies

The EPA's Remedial Action List (RAL) is a priority list of at-risk supplies that require significant corrective action, and Irish Water are required to put an action plan in place to rectify the issues at each of these supplies. A supply may be placed on the RAL if it meets any of the criteria set out in Table 1.

**Table 1: Remedial Action List criteria**

<p><b>Drinking Water Criteria 1: Ensure that water is free of bacteria</b></p> <ul style="list-style-type: none"> <li>• Inadequate disinfection</li> <li>• Failure to meet <i>E. coli</i>/<i>Enterococci</i> standard</li> </ul>
<p><b>Drinking Water Criteria 2: Ensure that water is free of protozoan organisms</b></p> <ul style="list-style-type: none"> <li>• Inadequate Treatment for <i>Cryptosporidium</i></li> <li>• Supply identified by the HSE where further investigation or improvement may be required</li> </ul>
<p><b>Drinking Water Criteria 3: Ensure that water is free of chemical substances</b></p> <ul style="list-style-type: none"> <li>• Disinfection by-products (trihalomethanes)</li> <li>• Pesticides</li> </ul>
<p><b>Drinking Water Criteria 4: Ensure that water treatment plants are operated correctly</b></p> <ul style="list-style-type: none"> <li>• Excessive levels of aluminium in the treated water</li> <li>• Poor turbidity removal</li> <li>• EPA Audit Observation / Treatment and Management Issues</li> </ul>

When Irish Water has shown that the issue has been fixed, a supply can be removed from the list. The RAL is updated quarterly, and you can keep up to date with it through the EPA's website at <https://www.epa.ie/publications/compliance--enforcement/drinking-water/>.

### Findings for 2020

At the end of 2020, 46 supplies were on the RAL. Details can be seen in *Appendix A* and also [here](#) on the EPA website. The number of supplies on the RAL has reduced by 40% (from 77) since 2017.

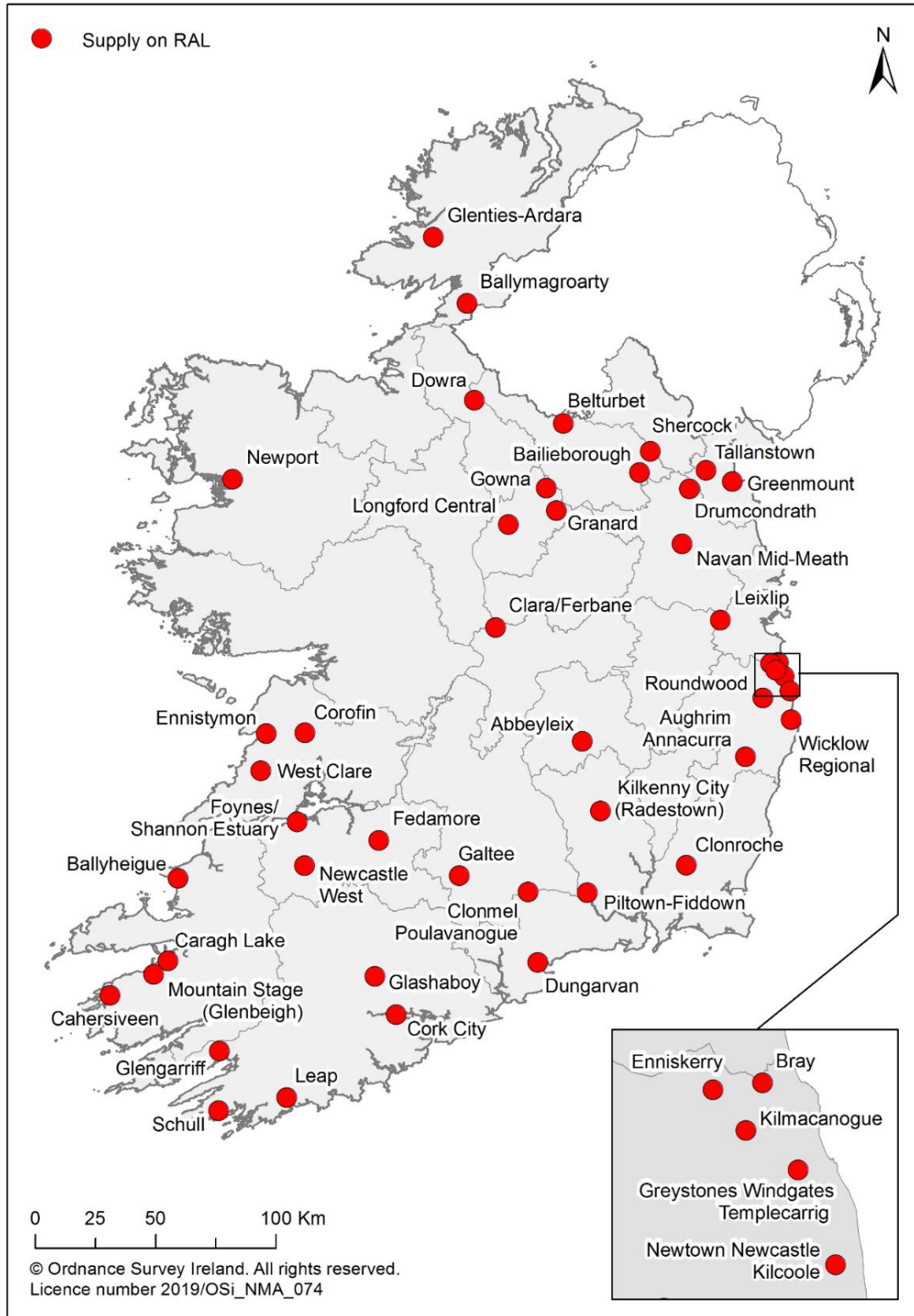
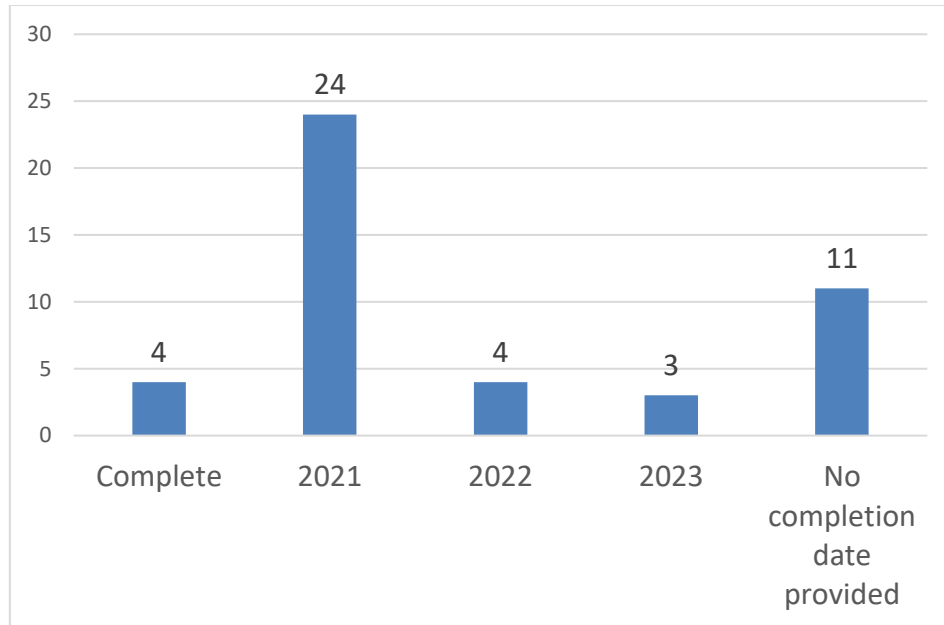


Figure 1: Supplies on RAL at the end of 2020.

While Irish Water continues to make progress with a net reduction in supplies on the RAL, the EPA has serious concerns about the time it takes to implement improvements at supplies. Figure 2 shows the expected completion timeframes for improvement works for the supplies which were on the RAL at the end of 2020.



**Figure 2: Expected timeframes for completion of works for supplies on the RAL at end of 2020**

There continues to be delays in completing action programmes for supplies on the RAL. Of the 46 supplies on the RAL at the end of 2020, almost half will now take longer to complete than was anticipated at the end of 2019, for example, Tallanstown and Pilltown-Fiddown supplies. Other examples include Galtee Regional which has an uncertain completion date, and Clonmel-Poulavanogue, on the RAL since 2008, which will not now be completed until 2026. These delays compound the delays already highlighted in the [2019 report](#).

### Actions required

While Irish Water is making progress on reducing supplies on the RAL at the end of 2020, they must prioritise the remaining supplies for upgrades and take all necessary measures to resolve these issues without any further delays.

## Drinking Water Priority 1: Ensure that water is free of bacteria

Disinfection is the most important step of the water treatment process. It keeps our water supplies safe from pathogens such as bacteria, which can cause illness. Disinfection can be carried out using chlorination and ultra-violet light, to kill or deactivate pathogens.

Irish Water are implementing a National Disinfection Programme<sup>5</sup> to ensure that standard specifications for disinfection systems are met at all 'sites', that is, water treatment plants or other locations such as chlorine booster stations. The Programme is split over two phases:

- **Phase 1 - Site Assessment:** Irish Water assess the condition and performance of the existing disinfection systems. This determines the improvements needed to ensure that the site disinfection process meets the requirements.
- **Phase 2 – Site Upgrade Works:** Irish Water carries out the works identified in Phase 1.

A supply may be placed on the RAL if critical disinfection infrastructure is absent or if there is persistent presence of *E. coli* or *Enterococci* in the treated water.

### Findings for 2020

There are currently no supplies on the RAL under these criteria. This is because all plants have some form of disinfection in place before the water is provided to consumers.

However, in some cases, additional infrastructure is required, or the management and control of existing processes is inadequate. In 2020, the EPA issued four Directions (*Appendix D*) to Irish Water where supplies needed improvements. In addition, the EPA through its audit programme has found issues with inadequate disinfection contact time<sup>6</sup>, which were not properly addressed by Irish Water as part of its disinfection programme. These deficiencies in disinfection processes resulted in the need for boil water notices on over 40 small supplies during 2019 and 2020, to protect the health of around 3,000 people served by those supplies. While the issues were resolved and did not require that the supplies went on the RAL, this did cause inconvenience for members of the public which could have been avoided.

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<sup>5</sup> Available at <https://www.water.ie/projects-plans/national-projects/national-disinfection-programme/>

<sup>6</sup> Where chlorine is used in disinfection, it needs time (known as contact time) to fully kill any bacteria or viruses, before it reaches the first consumer on the distribution network.

In 2020, disinfection upgrade works were concentrated in counties Limerick, Tipperary, Meath, Offaly, and Cork. By the end of 2020, Irish Water reported that based on the assessment of the 866 sites on the Programme, half of the sites were deemed satisfactory and required no further work. Disinfection systems had been upgraded at a total of 284 sites with 51<sup>7</sup> sites delivered in 2020. Irish Water said some delays in commissioning these systems were experienced during 2020 due to Covid-19 restrictions.

### Actions required

The National Disinfection Programme is of fundamental importance in identifying and addressing issues with disinfection in water supplies. Irish Water must continue to undertake improvements to disinfection systems across the country to ensure that the quality of drinking water is safeguarded.

- Where significant issues are found, for example, inadequate contact time, these should be resolved immediately, to protect public health, rather than waiting for Phase 2;
- All sites that either did not undergo a Phase 1 site survey (for example, due to planned rationalisation<sup>8</sup>) or did not progress beyond a Phase 1 site survey must meet the minimum disinfection criteria as outlined in EPA Advice Note 3<sup>9</sup> on *E.coli* in Drinking Water;
- In light of EPA audit findings, Irish Water needs to review all Disinfection Programme assessments to ensure disinfection contact time is adequate to protect public health;
- Where disinfection upgrades are completed, Irish Water should ensure those systems are commissioned and handed over to the local authority, with the appropriate training, in a timely manner.

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<sup>7</sup> Irish Water reported a further two sites as complete under the Disinfection Programme in 2020, however EPA audits during 2021 found that the process monitoring and controls installed under the Disinfection Programme were not operational.

<sup>8</sup> Rationalisation refers to when a supply is taken out of service and consumers are connected to another supply.

<sup>9</sup> [Advice & Guidance | Environmental Protection Agency \(epa.ie\)](#)

## Drinking Water Priority 2: Ensure that water is free of protozoan organisms

While the disinfection step deals with many pathogens, chlorination on its own is insufficient to kill or deactivate protozoan organisms such as *Cryptosporidium* and *Giardia* which can cause serious gastro-intestinal illness. The Drinking Water Regulations do not explicitly require monitoring of these organisms however, Irish Water is required to determine if there is a risk that they could be present in raw water sources. If so, then appropriate treatment processes (referred to as a ‘barrier’) must be put in place. *Cryptosporidium* and *Giardia* may be detected in treated water where:

- there is no treatment barrier in place at the water treatment plant; or
- the treatment barrier is not being properly operated, or maintained, or is inadequate.

A supply may be placed on the RAL if detections are persistent or a barrier is not in place.

### Findings for 2020

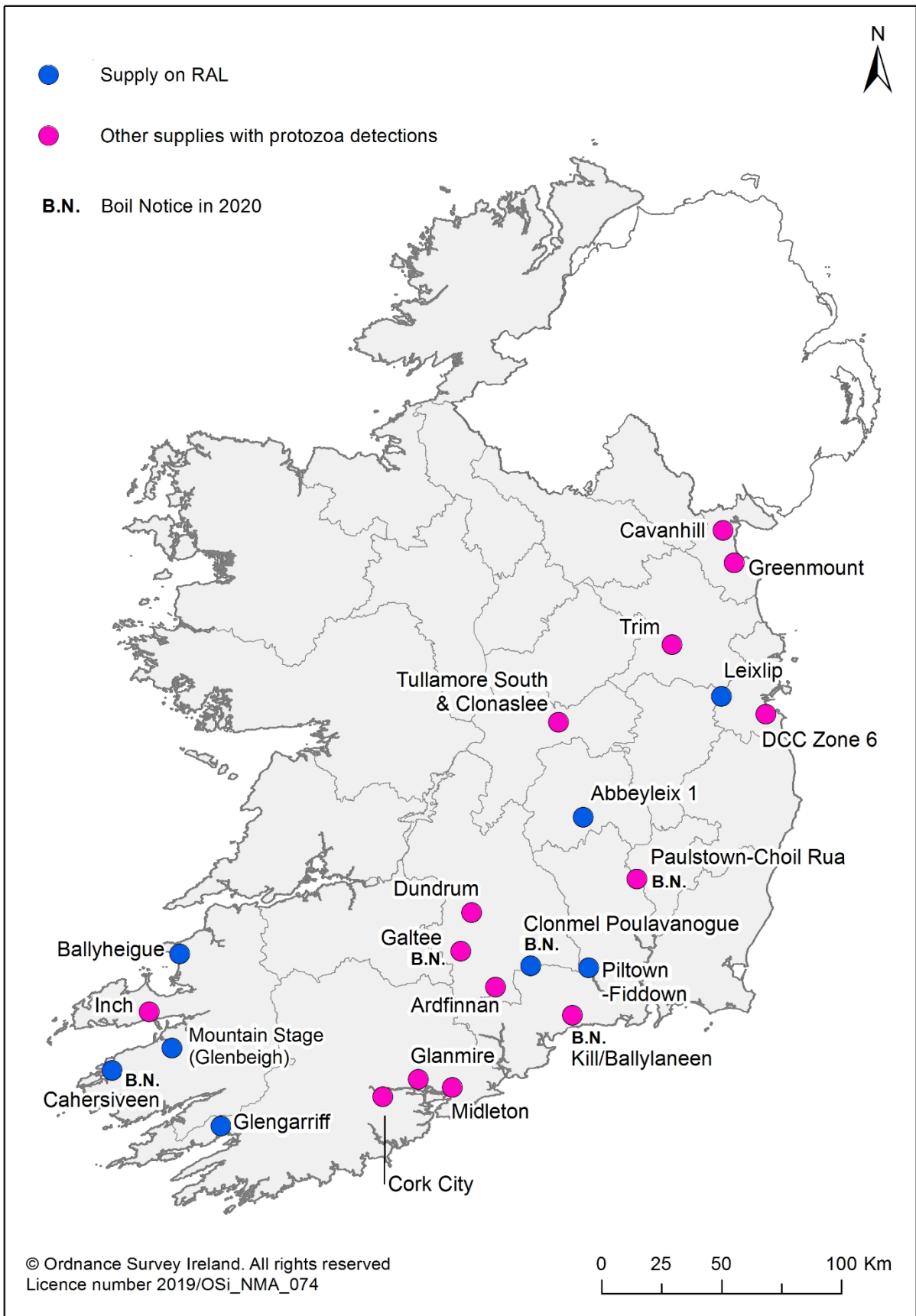
Irish Water detected *Cryptosporidium* or *Giardia* in 18 supplies during 2020, down from 25 supplies in 2019. *Cryptosporidium* was found in 14 public water supplies. *Giardia* was also detected in four of these 14 supplies, plus four others. Of the 18 supplies, five were placed on a boil notice. Two supplies had no barrier, but UV units have since been installed (Mountain Stage, Kerry and Paulstown, Kilkenny).

At the end of 2020 there were seven supplies on the Remedial Action List for inadequate treatment for *Cryptosporidium*, and one (Leixlip) identified by the HSE as requiring further improvement, due to failures at the treatment plant which compromised the barrier. Leixlip, which supplies over 590,000 people, was removed from the RAL in July 2021 following filter upgrades and the installation of UV disinfection.

### Actions required

Whilst the reduction in the number of supplies with protozoa detections in 2020 is welcome, the EPA remains concerned that the failure to properly manage treatment barriers is causing a risk to public health because of possible breakthrough of parasites into treated water. It is critical that Irish Water put the appropriate control measures in place to ensure the correct operation of treatment barriers.





**Figure 3: Supplies on RAL for inadequate treatment for protozoa or with protozoa failures during 2020.**

### Drinking Water Priority 3: Ensure that water is free of chemical substances (trihalomethanes and pesticides)

**Trihalomethanes (THMs)** form when natural organic matter in the water source, such as rotting vegetation, reacts with chlorine used in the disinfection treatment process. For this reason, it is important to remove as much organic matter as possible from the raw water using processes at the water treatment plant. THMs are a particular concern in Ireland where about 80% of our drinking water is abstracted from rivers and lakes. A supply may be placed on the RAL if there is a persistent failure to meet the 100µg/l limit and processes are not sufficiently robust to reliably maintain THM levels below that level.

The European Commission started infringement proceedings against Ireland in 2015 for failure to comply with the THM standard in the Drinking Water Directive. In 2018, the European Commission issued a letter of formal notice to Ireland for failing to comply with the THM standard in 73 public water supplies and 24 group water schemes. The Department of Housing, Planning and Local Government responded to the letter advising on Ireland's actions to achieve THM compliance. In May 2020, the Commission issued a Reasoned Opinion that it considered Ireland had failed to take the measures necessary to ensure THM compliance in 31 public water supplies and 13 private group water schemes (listed in the Annex to the Reasoned Opinion). The Department of Housing, Planning and Local Government responded to the Commission in September 2020, advising on Ireland's actions to achieve THM compliance.

**Pesticides** are found in drinking water due to the incorrect use of such products in the catchment of water bodies used for drinking water abstraction. The term 'Pesticides' includes a wide range of products, but in Ireland, it is herbicides that are most commonly found, in particular, MCPA<sup>10</sup> which is used for rush control in grassland. Where pesticide failures are found, monthly monitoring must be carried out during the spraying season of April to November. A supply is considered to have a persistent pesticide problem if failures are found during four or more of the monthly sampling events. A supply may be placed on the RAL if failures are persistent and initial investigations fail to resolve the issue.

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<sup>10</sup> 2-methyl-4-chlorophenoxyacetic acid

## Findings for 2020

### *Trihalomethanes*

35 **public supplies** failed to meet the standard for THMs. This compares to 46 supplies in 2019, with the number of supplies affected steadily decreasing year on year, due to investment by Irish Water in upgrading water treatment plants. Six supplies were removed from the RAL and one was added. At the end of 2020 there were 20 supplies on the RAL for THMs.

The EPA successfully prosecuted Irish Water over the failure to comply with Directions issued on two supplies - Drimoleague and Kealkill Public Water Supplies, Co. Cork. These supplies were removed from the RAL in Quarter 4 2019 and Quarter 2 2020 respectively, following upgrades which resulted in the supplies complying with the THM standard.

Failure to meet the THM standard for a **public group scheme** may be due to the quality of the water supplied by the parent public supply or it may be that the THMs were formed in the public group scheme network.

In 2020, exceedances of the THM standard were found at 20 public group schemes across six counties (see *Appendix E* for the full list). This is an increase from seven schemes in 2019. In Clare, eight schemes with exceedances are fed by West Clare Regional Water Supply. This supply is on the EPA RAL for THMs and continues to fail to meet the THM standard, thus affecting the group schemes which it supplies. In Sligo, the one scheme with an exceedance is fed by Lough Talt which was on the EPA RAL for THMs. Lough Talt was removed from the RAL in 2020 following the completion of works and the group scheme monitoring is now compliant.

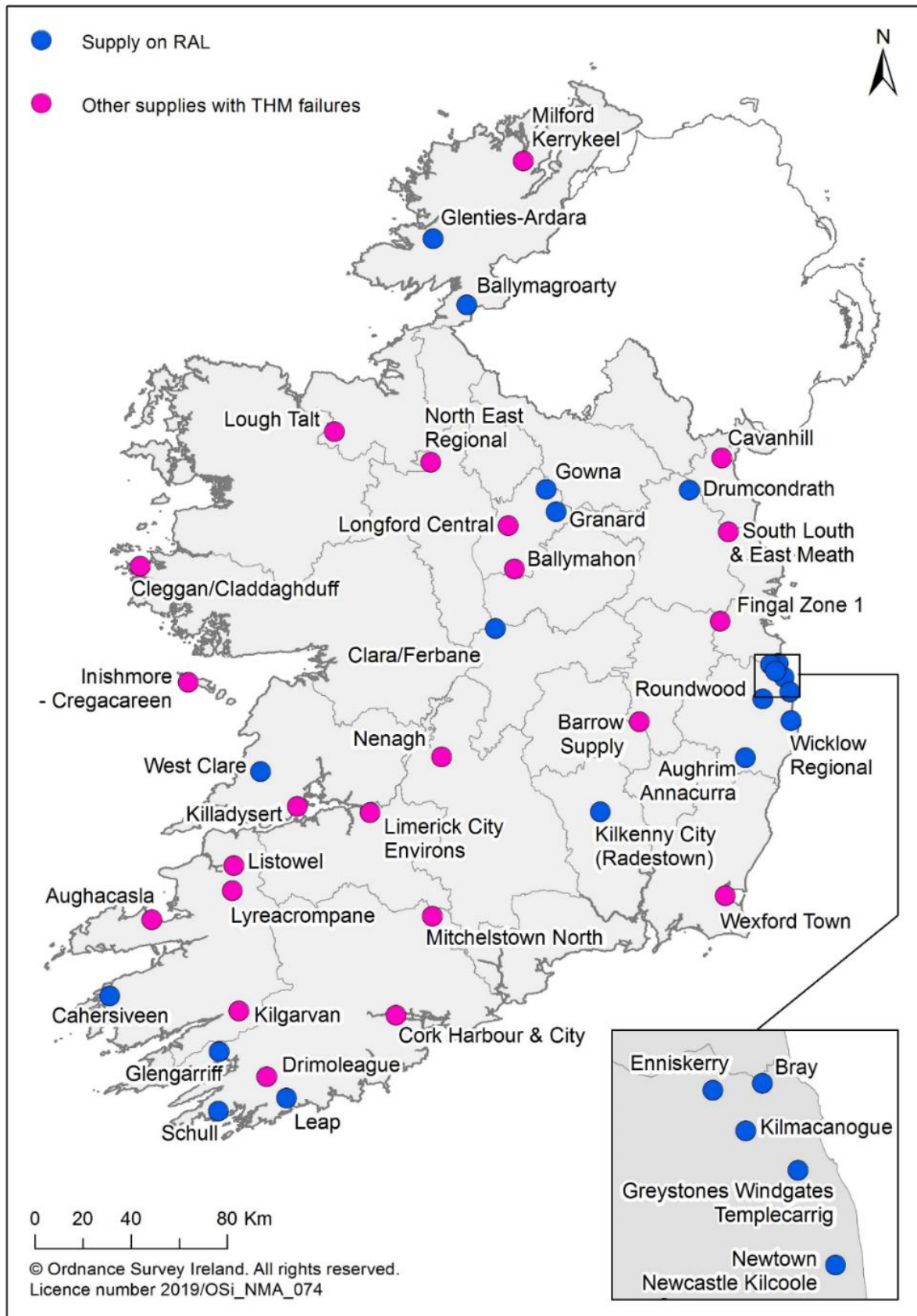
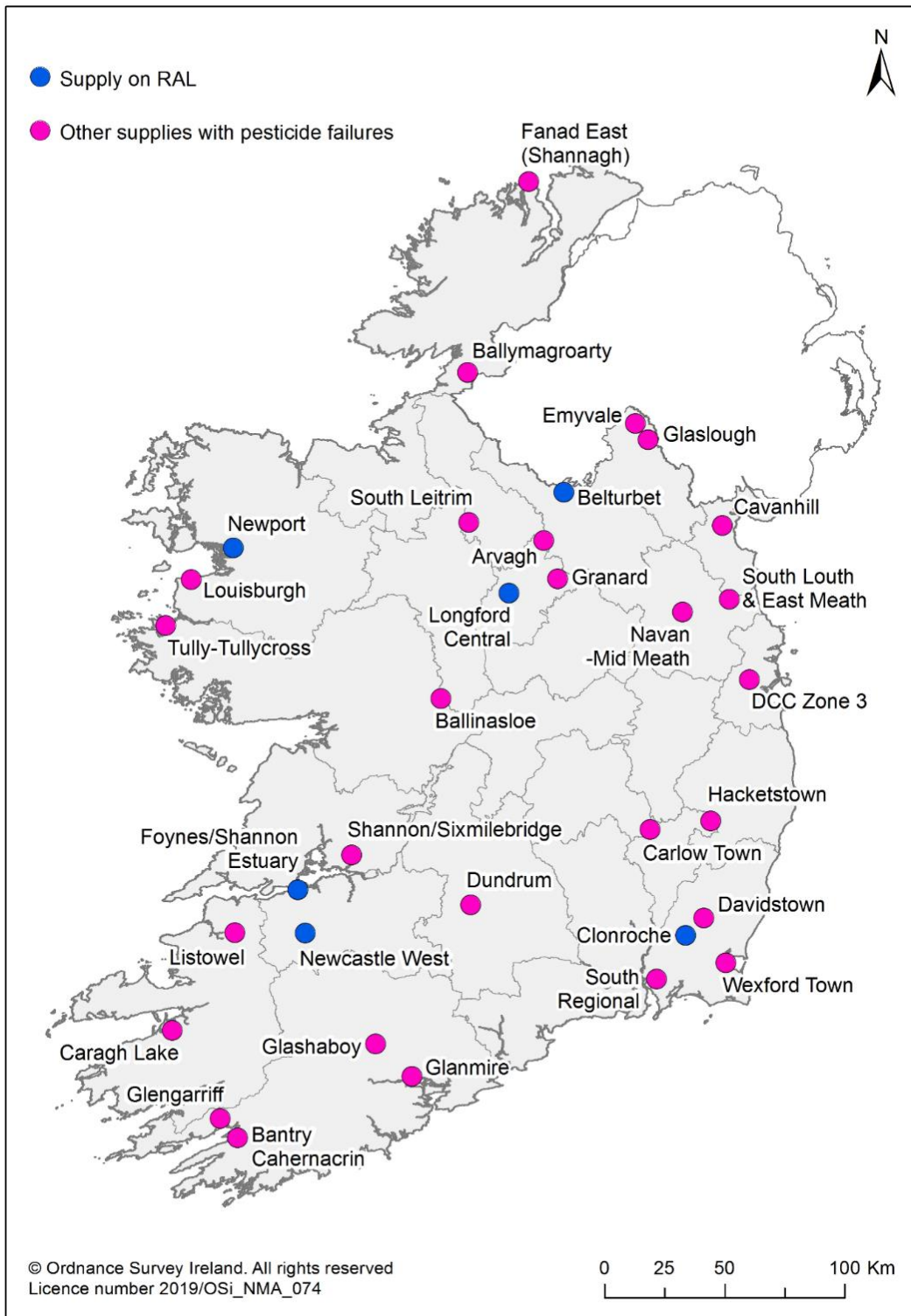


Figure 4: Supplies on RAL for THM or with THM failures during 2020.

**Pesticides**

33 public supplies failed to meet the pesticides standard, an increase from 27 in 2019, which is indicative of the common usage of pesticides. MCPA was found in two-thirds of these supplies. One supply (Foynes/Shannon Estuary in Limerick) had persistent pesticides failures during 2020 and was added to the RAL. At the end of 2020 there were six supplies on the RAL for pesticides.



**Figure 5: Supplies on RAL for pesticides or with pesticides failures during 2020.**

## Actions required

It is critical that Irish Water take action to address issues with trihalomethanes at water supplies, to protect public health; to ensure compliance with the THM standard in the Drinking Water Regulations; and to address the concerns of the European Commission.

Local authorities must investigate any THM failures in public group schemes to determine whether the cause is the quality of the water from the parent supply or the conditions in the group scheme network, so that the appropriate corrective action is taken.

In July 2021, Irish Water published an Interim Pesticide Strategy<sup>11</sup> for 2021-2024, building on work that has been going on for several years. The Strategy has three pillars: (1) Collaboration with stakeholders; (2) Understanding risk; and (3) Managing risk. It is crucial that Irish Water implement the strategy and consider treatment options where other measures fail to achieve compliance.

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<sup>11</sup> [Interim Pesticide Strategy | Strategic Plans | Irish Water](#)

## **Drinking Water Priority 4: Ensure that water treatment plants are operated correctly**

Persistent aluminium and turbidity failures are indicative of poor control over treatment processes. EPA audits can also identify control and management issues at supplies, such as issues with critical alarms and monitors. These can result in situations where disinfection, protozoal removal/deactivation, or other processes are not optimised.

A supply may be placed on the RAL if aluminium or turbidity failures are persistent or if an EPA audit finds that poor control or management pose a risk to the reliable treatment of the water.

### **Findings for 2020**

During 2020, three supplies were added to the RAL due to turbidity issues or following an audit. These included the Dungarvan supply where treatment plant upgrades are required to manage elevated turbidity levels in the raw water.

At the end of 2020 there were five supplies on the RAL for aluminium, three for turbidity, and 19 for treatment and management failings identified during audits.

### **Actions required**

Irish Water must ensure that consistent and documented operational control and management measures are in place at all supplies, for example;

- Where turbidity in the raw water fluctuates, appropriate monitoring to ensure that treatment is adjusted where necessary;
- Optimisation of aluminium dosing;
- Operational monitoring to assess plant performance on an ongoing basis;
- Monitors and alarms with appropriate set points in place and operational at all times;
- Staff trained and available to respond to alarms and incidents.

## 4 Protection of human health

### Boil water notices and water restrictions

A failure or incident at a supply can put the water quality at risk. The Health Service Executive is responsible for public health and must be consulted by Irish Water where a water quality failure or incident could result in a public health risk. In these events, a boil water notice or water restriction notice may be imposed.

It is critical that such failures or incidents are responded to promptly. Failure to adequately respond and take the appropriate actions up to and including the imposition of a boil water notice or water restriction can have a significant impact on public health. The consequences of consuming inadequately treated water can be very severe, particularly in vulnerable people, such as the young, the elderly, and those with underlying conditions.

While a boil water notice or water restriction causes inconvenience to consumers, they are necessary to ensure that members of the public do not consume water that could be contaminated and make them ill. Irish Water must also take prompt action to ensure that the duration of the notice period is as short as possible.

During 2020, 43 **boil notices** were in place at 37 supplies across 19 counties affecting 74,955 consumers (*Appendix F, Table 1*).

- 27 were in place for more than 30 days, with 18 in place for more than one year;
- Three supplies which had notices in 2019, had notices again in 2020;
- At the end of 2020, 14 boil notices were still in place.

Despite the fact that drinking water quality has remained consistently very good since 2017, Table 2 shows that there has been no overall reduction in boil water notices despite the Irish Water Disinfection Programme having commenced in 2016.



**Table 2: Boil Water Notices from 2017 to 2020**

Year	Number of notices	In place for > 30 days <sup>12</sup>	Total population affected during year
2017	42	19	21,657
2018	44	18	97,204
2019	68 <sup>13</sup>	59	696,864 <sup>14</sup>
2020	43	27	74,955

During 2020, 17 **water restrictions** were in place on 12 supplies across nine counties, affecting 4,118 people (*Appendix F, Table 2*).

- 10 were in place for more than 30 days, with one in place for more than one year;
- At the end of 2020, four water restrictions notices were still in place.

Of the 17 notices, five were due to cast iron mains giving rise to inadequate chlorine in different parts of the Central Regional Lough Guitane supply. Three of these were still in place at the end of 2020, along with the water restriction in Ballydermody, Co. Waterford which is a disputed supply between Irish Water and the Local Authority.

**Table 3: Water Restriction Notices from 2017 to 2020**

Year	Number of notices	In place for > 30 days <sup>15</sup>	Total population affected during year
2017	4	3	233
2018	15	7	14,613
2019	8	4	9,186
2020	17	10	4,118

<sup>12</sup> As of end of 2020.

<sup>13</sup> This figure includes 41 notices issued due to inadequate contact time on parts of supplies; and a notice on Ballany, Westmeath supply, issued on 31/12/2019, not included in 2019 report.

<sup>14</sup> This figure includes the 657,395 people supplied by Leixlip water treatment plant, affected by two notices in 2019.

<sup>15</sup> As of 31/12/2020



**Topic Box: Boil water notices at Lough Talt supply, Co. Sligo**

Lough Talt Public Water Supply, Co. Sligo (as seen on the cover of this report), which serves around 12,500 people, was put on the RAL as there was no *Cryptosporidium* barrier in place, and this posed a risk to public health. A series of refusals of planning permission for the site resulted in significant delay in the provision of suitable treatment to address this deficiency.

Over the period of February to October 2018 and again from January 2019 to November 2020, consumers on the supply had to boil their water following detections of *Cryptosporidium* at the water treatment plant.

Planning permission was finally granted in May 2019 under the *Imperative Reasons of Overriding Public Interest (IROPI)* process. The new plant included the installation of a UV system which provides a *Cryptosporidium* barrier. The boil water notice was lifted in November 2020 after an Irish Water / HSE consultation, and the supply was also taken off the RAL.

The new plant comprises coagulation (to be used when water quality triggers are met), rapid gravity filtration, primary disinfection by way of UV and a virus-targeted dose of chlorine, and secondary disinfection for the distribution network using chloramination. Ortho-phosphate is also used, to reduce the risk of dissolving lead and other metals from distribution pipework. These works have improved the safety and security of the supply for the consumers.



**The old plant (left) and the new *Cryptosporidium* barrier (UV unit) at Lough Talt (right)**  
(photos courtesy of Irish Water)

## Reducing exposure to lead

The Irish Government published a [National Lead Strategy](#)<sup>16</sup> in June 2015. The strategy sets out actions to reduce people's exposure to lead from lead piping or connections in buildings and homes, and these actions are reported on by the Department of Housing, Planning and Local Government.

In May 2017 Irish Water published its [Lead in Drinking Water Mitigation Plan](#)<sup>17</sup> which sets out Irish Water's plan to achieve the removal of all public side lead pipework by 2026. Irish Water estimated that there were 180,000 lead service connections, i.e. 140,000 connections from water mains and 40,000 backyard service connections.

The new Drinking Water Directive (EU) 2020/2184<sup>18</sup> is to be transposed into Irish law by January 2023 and will include a reduction in the lead limit from 10 µg/l to 5 µg/l; to be achieved by January 2036. Compliance with this limit will most likely not be achievable without the replacement of all lead connections.

### Findings for 2020

The Department of Housing, Planning and Local Government has not yet published a report on progress with the National Lead Strategy, so the number and location of public buildings affected; the number of people exposed; and plans to remove lead are still not known.

Just over 3,000 individual lead connections were replaced by Irish Water in 2020, compared to 15,000 in 2019. This brings the total number of connections replaced to 34,500, or just under one-fifth of the total to be replaced by Irish Water. Ortho-phosphate dosing<sup>19</sup> commenced at one additional water supply. If Irish Water continue to replace lead connections at the 2020 rate, it will take half a century to address the risks posed to public health from lead in drinking water.

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<sup>16</sup> Available at <https://www.gov.ie/en/publication/f76ee-national-lead-strategy-june-2015/>

<sup>17</sup> Available at <https://www.water.ie/projects-plans/our-plans/lead-mitigation-plan/>

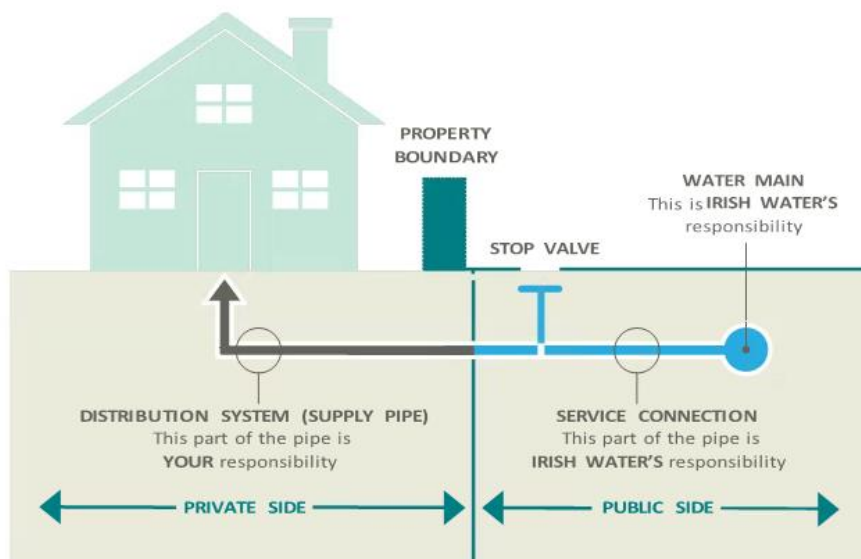
<sup>18</sup> <https://eur-lex.europa.eu/eli/dir/2020/2184/oj>

<sup>19</sup> Ortho-phosphate dosing can create a lining that limits the amount of lead solubilising off the pipe surface.

## Actions required

The EPA is very concerned at the lack of urgency on this issue, both by Irish Water under their Mitigation Plan and the Department of Housing, Planning and Local Government under the National Lead Strategy. It is not acceptable that these works, which would reduce people's exposure to lead in drinking water and deliver such an important public health outcome, are being delayed.

Homeowners can also take action when they are informed by Irish Water that they have lead in their water. They can make use of the [Lead Remediation Grant Scheme](#) which is available through local authorities to assist with the costs of replacing lead plumbing. The grant is currently means tested but a review of the eligibility criteria is underway to allow more people to avail of it to replace their lead pipework. The EPA also encourages homeowners who share a backyard connection that contains lead to allow such works to take place, as removing lead pipework is the best way to protect consumers from the health risks associated with lead.



**Figure 7: Responsibility for water distribution systems (graphic courtesy of Irish Water)**

## Drinking Water Safety Plans

Irish Water are undertaking a comprehensive review, known as a Drinking Water Safety Plan, of all public supplies. Drinking Water Safety Plans are a proactive approach to ensuring that a water supply is not only **safe**, but also **secure**, thus providing greater certainty for the consumer that their drinking water supply will remain safe to drink. A Drinking Water Safety Plan identifies:

- all the things that could go wrong (hazards);
- how serious it would be if it did go wrong (severity); and
- how likely it is that it could go wrong (likelihood);

at each step in the water supply process, from the water source to the consumer's tap. The aim is to identify, manage and mitigate risk. Irish Water is carrying out assessments of all public water supplies, by assessing and calculating the risk of any hazards occurring, using the severity and likelihood information. Once risks are identified, actions must be taken to mitigate those risks. A national overview can be taken to ensure that the highest risks are dealt with first, under the relevant Irish Water programmes.

The new Drinking Water Directive (EU) 2020/2184 is to be transposed into Irish law by January 2023 and it is anticipated that this will put the requirement for Drinking Water Safety Plans on a statutory footing.

### Findings for 2020

Irish Water is committed to the Drinking Water Safety Plan approach and have taken action during 2020 to improve the assessment methodology. At the end of 2020, Irish Water report that they have substantially completed a treatment/distribution risk assessment of 72 water supply zones which supply 44% of consumers.

### Actions required

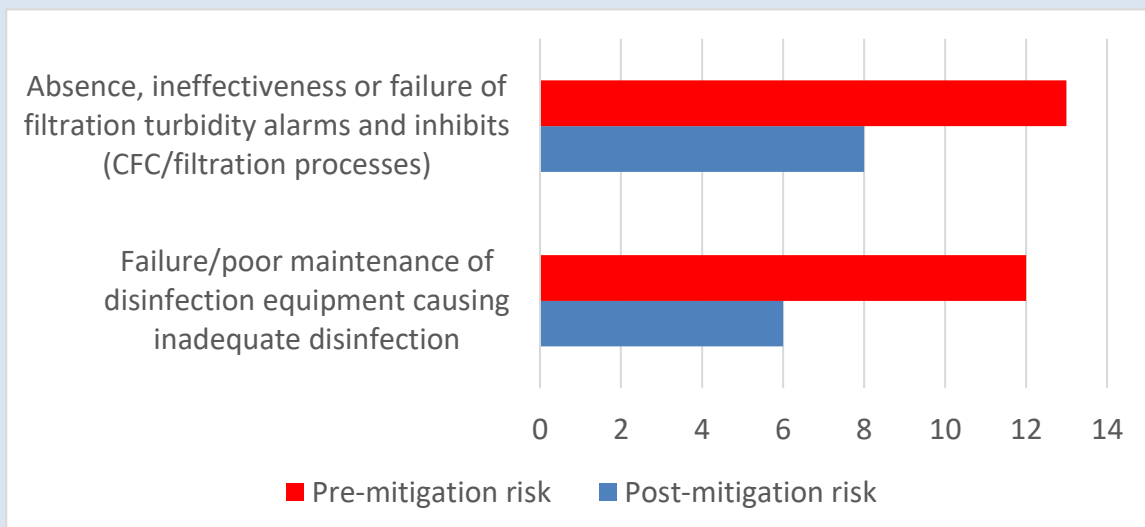
Irish Water needs to substantially progress drinking water safety plan assessments to identify risks at drinking water supplies and to safeguard the long-term security of water supplies. Where assessments have been completed, Irish Water must ensure the highest risks identified are prioritised for action so that they can be addressed in a timely manner.

**Topic Box: Application of Drinking Water Safety Plan at Swanlinbar public water supply**

Swanlinbar supply was placed on the EPA RAL in July 2019 following an audit which identified issues around the management and control of the treatment processes at the supply.

Irish Water carried out a DWSP assessment to systematically identify the risks at the supply. The DWSP identified aspects of primary disinfection and protozoan removal as high risks. The disinfection system was upgraded to an automated process with full controls; and the control of the coagulation/flocculation/clarification (CFC) process and the rapid gravity filtration (RGF) process was improved in accordance with the requirements of the EPA filtration manual.

These works resulted in a reduction in the risk associated with the two barriers. For example:



The supply was removed from the EPA in July 2020.



Disinfection kiosk and chlorine contact tank at Swanlinbar WTP (photo courtesy of Irish Water)

## 5 Concluding Remarks

The quality of drinking water in public supplies and public group water schemes remained very high in 2020. Progress was made on the removal of supplies from the Remedial Action List (RAL) and the number of supplies with protozoa detections and trihalomethane issues also decreased.

However, the EPA has serious concerns about the time it takes to implement improvements at supplies on the RAL. Of the 46 supplies on the RAL at the end of 2020, almost half will now take longer to complete than was anticipated at the end of 2019.

Boil notices and water restrictions continued to impact consumers during 2020, with nearly two-thirds of the notices in place for more than 30 days. Assessments and improvements under the disinfection programme have not proved sufficiently robust to mitigate the need for boil notices.

Thousands of consumers continue to be exposed to lead in their drinking water also, with Irish Water's replacement rates indicating that it will be decades before this issue is resolved. A lack of progress by the government on the National Lead Strategy and the forthcoming reduced limit for lead are of serious concern.

The EPA welcomes the progress made on the identification of key risks at supplies using the Drinking Water Safety Plan approach. Irish Water must also substantially progress the use of drinking water safety plans across their entire portfolio of water treatment infrastructure so as to determine the highest risks. This is essential in targeting actions to address those risks and to ensure a resilient public water supply.

Although the quality of our water is safe to drink today, the EPA currently cannot say that it is **secure into the future**. Irish Water must resolve the priority supplies on the RAL and ensure future actions are targeted where they are most needed to protect public health.



## Appendix A: Remedial Action List at end of 2020

County	Supply	Population	Date supply put on the RAL	Completion date for action plan	Reason
<b>Cavan</b>	Bailieborough	7785	Q4 2019	December 2021	EPA Audit Observation - Treatment and Management Issues
<b>Cavan</b>	Belturbet	1926	Q4 2018	EPA Direction required compliance by December 2020. Monitoring underway to verify effectiveness of the action programme.	Elevated Levels of Pesticides above the standard in the Drinking Water Regulations
<b>Cavan</b>	Shercock	712	Q1 2019	Upgrade works at the treatment plant (which is operated under a private Group Water Scheme) have been approved, but no completion date provided.	Excessive levels of aluminium in the treated water
<b>Cavan</b>	Dowra PWS	92	Q1 2019	Upgrade works at the treatment plant (which is operated under a private Group Water Scheme) have been approved, but no completion date provided.	Excessive levels of aluminium in the treated water
<b>Clare</b>	Corofin	1,276	Q4 2015	June 2022	Excessive levels of aluminium in the treated water / EPA Audit Observation - Treatment and Management Issues
<b>Clare</b>	Ennistymon RWS	6,961	Q4 2015	March 2023	EPA Audit Observation - Treatment and Management Issues
<b>Clare</b>	West Clare RWS (New WTP)	11,236	Q3 2017	EPA Direction requires compliance by December 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Cork</b>	Glashaboy	22,808	Q1 2020	To be submitted by Irish Water	EPA Audit Observation - Treatment and Management Issues
<b>Cork</b>	Glengarriff	353	Q3 2017	September 2021	Inadequate Treatment for Cryptosporidium / Elevated Levels of THMs above the standard in the Drinking Water Regulations

County	Supply	Population	Date supply put on the RAL	Completion date for action plan	Reason
<b>Cork</b>	Leap	497	Q4 2016	March 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Cork</b>	Schull	946	2008	March 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Cork City</b>	Cork City Water Supply	87,114	2008	December 2021	EPA Audit Observation - Treatment and Management Issues
<b>Donegal</b>	Ballymagroarty	756	Q2 2020	To be submitted by Irish Water	Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Donegal</b>	Glenties-Ardara	3,536	2008	To be submitted by Irish Water	Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Dun Laoghaire-Rathdown</b>	Roundwood	42,106	Q2 2010	July 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations / EPA Audit Observation - Treatment and Management Issues
<b>Fingal</b>	Leixlip	590,167	Q3 2019	March 2021	Supply identified by the HSE where further investigation or improvement may be required / EPA Audit Observation - Treatment and Management Issues
<b>Kerry</b>	Ballyheigue	2,466	Q4 2019	September 2021	Inadequate Treatment for Cryptosporidium
<b>Kerry</b>	Cahersiveen	1,370	Q4 2019	To be submitted by Irish Water	Inadequate Treatment for Cryptosporidium / Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Kerry</b>	Caragh Lake	1,899	2008	To be submitted by Irish Water	EPA Audit Observation - Treatment and Management Issues

County	Supply	Population	Date supply put on the RAL	Completion date for action plan	Reason
<b>Kerry</b>	Mountain Stage	840	2008	January 2021	Inadequate Treatment for Cryptosporidium
<b>Kilkenny</b>	Kilkenny City (Radestown) WS	14,441	2008	EPA Direction requires compliance by June 2022	Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Kilkenny</b>	Pilltown-Fiddown	2,955	Q2 2019	December 2022	Inadequate Treatment for Cryptosporidium
<b>Laois</b>	Abbeyleix 1 PWS	1,836	Q2 2019	September 2021	Inadequate Treatment for Cryptosporidium
<b>Limerick</b>	Foynes/Shannon Estuary PWS	7,023	Q4 2020	To be submitted by Irish Water	Elevated Levels of Pesticides above the standard in the Drinking Water Regulations
<b>Limerick</b>	Fedamore	492	Q1 2020	June 2021	Poor turbidity removal / EPA Audit Observation - Treatment and Management Issues
<b>Limerick</b>	Newcastle West	9,448	Q4 2017	EPA Direction required compliance by June 2020. Monitoring underway to verify effectiveness of the action programme.	Elevated Levels of Pesticides above the standard in the Drinking Water Regulations
<b>Longford</b>	Gowna	4,359	Q3 2015	March 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Longford</b>	Granard	2,598	Q3 2015	March 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations
<b>Longford</b>	Longford Central	16,729	Q1 2020	EPA Direction required compliance by December 2019. Monitoring underway to verify effectiveness of the action programme.	Elevated Levels of Pesticides above the standard in the Drinking Water Regulations
<b>Louth</b>	Greenmount	4,814	Q2 2019	To be submitted by Irish Water	EPA Audit Observation - Treatment and Management Issues

County	Supply	Population	Date supply put on the RAL	Completion date for action plan	Reason
Louth	Tallanstown	1,978	Q3 2019	June 2022	Excessive levels of aluminium in the treated water / EPA Audit Observation - Treatment and Management Issues
Mayo	Newport PWS	684	Q3 2019	EPA Direction requires compliance by December 2021	Elevated Levels of Pesticides above the standard in the Drinking Water Regulations
Meath	Drumcondrath	1,182	Q3 2015	June 2023	Elevated Levels of THMs above the standard in the Drinking Water Regulations
Meath	Navan & Mid-Meath PWS	38,985	2008	January 2021	EPA Audit Observation - Treatment and Management Issues
Offaly	Clara/Ferbane RWSS	7,467	Q2 2019	To be submitted by Irish Water	Elevated Levels of THMs above the standard in the Drinking Water Regulations
Tipperary	Clonmel-Poulavanogue	2,596	2008	To be submitted by Irish Water	Inadequate Treatment for Cryptosporidium
Tipperary	Galtee Regional	11,436	Q3 2019	June 2021	Excessive levels of aluminium in the treated water/ Poor turbidity removal / EPA Audit Observation - Treatment and Management Issues
Waterford	Dungarvan	11,472	Q3 2020	June 2021	Poor turbidity removal
Wexford	Clonroche	522	Q4 2018	EPA Direction required compliance by January 2021. Monitoring underway to verify the effectiveness of the action programme.	Elevated Levels of Pesticides above the standard in the Drinking Water Regulations
Wicklow	Aughrim / Annacurra	1,594	2008	December 2023	Elevated Levels of THMs above the standard in the Drinking Water Regulations
Wicklow	Enniskerry Public Supply	2,667	2008	July 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations / EPA Audit Observation - Treatment and Management Issues

County	Supply	Population	Date supply put on the RAL	Completion date for action plan	Reason
<b>Wicklow</b>	Wicklow Regional Public Supply	15,598	2008	July 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations / EPA Audit Observation - Treatment and Management Issues
<b>Wicklow</b>	Bray	28,934	Q2 2010	July 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations / EPA Audit Observation - Treatment and Management Issues
<b>Wicklow</b>	Greystones/Windgates/ Templecarraig	16,380	Q2 2010	July 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations / EPA Audit Observation - Treatment and Management Issues
<b>Wicklow</b>	Kilmacanogue	1,237	Q2 2010	July 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations / EPA Audit Observation - Treatment and Management Issues
<b>Wicklow</b>	Newtown Newcastle Kilcoole	12,724	Q2 2010	July 2021	Elevated Levels of THMs above the standard in the Drinking Water Regulations / EPA Audit Observation - Treatment and Management Issues

## Appendix B: Monitoring and Compliance Summary for public water supplies in 2020

Parameter	No. of Zones Monitored	No of Zones with Exceedances	% of Zones Complying	No. of Samples Analysed	No. of Samples Exceeding	% of Samples Complying
<b>Microbiological</b>						
<i>E. coli</i>	759	3	99.60	8456	3	99.96
<i>Enterococci</i>	665	1	99.85	1158	1	99.91
<b>Chemical</b>						
1,2-dichloroethane	658	0	100.00	1192	0	100.00
Antimony	666	0	100.00	1221	0	100.00
Arsenic	666	1	99.85	1226	1	99.92
Benzene	666	0	100.00	1199	0	100.00
Benzo(a)pyrene	658	0	100.00	1164	0	100.00
Boron	666	0	100.00	1218	0	100.00
Bromate	666	0	100.00	1218	0	100.00
Cadmium	666	0	100.00	1221	0	100.00
Chromium	665	0	100.00	1220	0	100.00
Copper	669	1	99.85	1156	1	99.91
Cyanide	665	0	100.00	1222	0	100.00
Fluoride	663	22	96.68	1155	22	98.10
Lead	670	15	97.76	1225	17	98.61
Mercury	666	0	100.00	1220	0	100.00
Nickel	671	3	99.55	1226	3	99.76
Nitrate	677	1	99.85	1186	1	99.92
Nitrite (at tap)	665	0	100.00	1166	0	100.00
PAH	660	0	100.00	1146	0	100.00
Pesticides - Total	664	4	99.40	1167	4	99.66
Selenium	666	0	100.00	1221	0	100.00
Tetrachloroethene & Trichloroethene	665	0	100.00	1199	0	100.00
Total Trihalomethanes	665	23	96.55	1202	32	97.34
<b>Indicator</b>						
Aluminium	669	32	95.22	6276	48	99.24
Ammonium	665	3	99.55	1179	6	99.49
Chloride	666	0	100.00	1157	0	100.00
<i>Clostridium perfringens</i>	657	6	99.09	1147	6	99.48
Coliform Bacteria	759	42	94.47	8460	57	99.33
Colony Count @ 22°C	757	117	84.54	7223	177	97.55
Colour	759	64	91.57	8469	86	98.98
Conductivity	759	0	100.00	8472	0	100.00
Iron	759	58	92.36	8449	94	98.89
Manganese	676	19	97.19	1264	20	98.42
Odour	757	0	100.00	7477	0	100.00
pH	759	110	85.51	8471	215	97.46
Sodium	666	2	99.70	1223	3	99.75
Sulphate	666	0	100.00	1157	0	100.00
Taste	712	0	100.00	7018	0	100.00
Total Organic Carbon	665	1	99.85	1148	1	99.91
Turbidity (at tap)	759	28	96.31	8467	33	99.61

## Appendix C: Monitoring and Compliance Summary for public group water supplies in 2020

Parameter	No. of Zones Monitored	No of Zones with Exceedances	% of Zones Complying	No. of Samples Analysed	No. of Samples Exceeding	% of Samples Complying
<b>Microbiological</b>						
<i>E. coli</i>	358	1	99.72	753	1	99.87
<i>Enterococci</i>	178	0	100.00	181	0	100.00
<b>Chemical</b>						
1,2-dichloroethane	148	0	100.00	151	0	100.00
Antimony	149	0	100.00	151	0	100.00
Arsenic	149	0	100.00	151	0	100.00
Benzene	148	0	100.00	151	0	100.00
Benzo(a)pyrene	140	0	100.00	142	0	100.00
Boron	149	0	100.00	151	0	100.00
Bromate	145	0	100.00	147	0	100.00
Cadmium	147	0	100.00	149	0	100.00
Chromium	149	0	100.00	151	0	100.00
Copper	149	0	100.00	151	0	100.00
Cyanide	145	0	100.00	147	0	100.00
Fluoride	113	7	93.81	115	7	93.91
Lead	167	0	100.00	183	0	100.00
Mercury	145	0	100.00	147	0	100.00
Nickel	147	0	100.00	149	0	100.00
Nitrate	194	0	100.00	222	0	100.00
Nitrite (at tap)	218	0	100.00	351	0	100.00
PAH	140	0	100.00	142	0	100.00
Pesticides - Total	134	0	100.00	136	0	100.00
Selenium	149	0	100.00	151	0	100.00
Tetrachloroethene & Trichloroethene	115	0	100.00	118	0	100.00
Total Trihalomethanes	178	20	88.76	189	20	89.42
<b>Indicator</b>						
Aluminium	308	5	98.38	607	5	99.18
Ammonium	206	0	100.00	321	0	100.00
Chloride	148	0	100.00	158	0	100.00
<i>Clostridium perfringens</i>	179	0	100.00	182	0	100.00
Coliform Bacteria	358	8	97.77	753	8	98.94
Colony Count @ 22°C	351	12	96.58	729	15	97.94
Colour	358	4	98.88	749	4	99.47
Conductivity	357	0	100.00	748	0	100.00
Iron	346	9	97.40	712	9	98.74
Manganese	196	4	97.96	220	4	98.18
Odour	353	0	100.00	736	0	100.00
pH	357	5	98.60	748	5	99.33
Sodium	165	0	100.00	186	0	100.00
Sulphate	148	0	100.00	158	0	100.00
Taste	351	0	100.00	719	0	100.00
Total Organic Carbon	145	1	99.31	147	1	99.32
Turbidity (at tap)	358	3	99.16	753	3	99.60

## Appendix D: Directions issued in 2020

County	Supply	Issue	Date Direction was issued	Date by which Direction is to be complied with	Status at end of 2020	Status in Q4 2021
Westmeath	Ballany	Requires installation, operation and validation of new UV system	15/01/2020	31/03/2020	Deadline passed - enforcement action under consideration	Direction closed
Cork	Knockadoon	Inadequate disinfection	03/07/2020	30/09/2020	Deadline passed - further enforcement action not currently being pursued	Deadline passed - further enforcement action not currently being pursued due to verified progress with works
Limerick	Carrigmore PWS	Nitrate failures	18/05/2020	30/06/2020	Deadline passed - further enforcement action not currently being pursued	Deadline passed - further enforcement action not currently being pursued due to verified progress with works
Limerick	Fedamore PWS	Inadequate disinfection	12/10/2020	30/06/2021	Date in the direction has not yet been reached	Direction closed
Kerry	Aughacasla PWS 005D	Submit action programme to address inadequate disinfection.	16/10/2020	13/11/2020	Direction complied with	Direction closed



## Appendix E: Public Group Schemes with trihalomethane failures in 2020

County	Public group scheme name	Supplied by public scheme
Cavan	Derryvoney	Belturbet
Clare	Carnanes/Leadmore	West Clare RWS New WTP
Clare	Clohanes	West Clare RWS New WTP
Clare	Killimer	West Clare RWS New WTP
Clare	Leitrim/Shyan	West Clare RWS New WTP
Clare	Manusmore	Ennis
Clare	Moyarts West	West Clare RWS New WTP
Clare	Noughaval	Ennistymon
Clare	Querrin	West Clare RWS New WTP
Clare	Rahone	West Clare RWS New WTP
Clare	Seafield	West Clare RWS New WTP
Leitrim	Aughawillan	South Leitrim Regional
Mayo	Doohoma/Derrycorrib	Erris
Mayo	Moyrahan	Erris
Mayo	Carne	Erris
Mayo	Tullaghbawn	Erris
Mayo	Keenaghbeg (Keenagh)	Erris
Mayo	Emlybeg Common/Carne	Erris
Sligo	Ougham	Lough Talt
Tipperary	ElmHill /Ballymackey	Nenagh Regional

## Appendix F: Boil Notices and Water Restriction Notices in place during 2020

**Table 1: Boil Water Notices in place during 2020**

County	Scheme Name	Reason	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Cavan	Killeshandra PWS	E. Coli	1	Part	10/07/2020	17/07/2020
Cork	Whitegate Regional	Turbidity (at WTW)	6,500	Part	16/02/2020	05/03/2020
Cork	Monanig	Inadequate Disinfection	6	Part	03/01/2020	11/02/2020
Cork	Knockadoon	Inadequate Disinfection	27	Part	31/07/2019	---
Dublin	Fingal Zone 3	Inadequate Disinfection	6	Part	07/02/2020	18/03/2020
Galway	Teeranea/Lettermore PWS	Turbidity (at WTW)	911	Full	15/01/2020	06/03/2020
Galway	Kinvara PWS	Precautionary- scheduled works being carried out at WTW	2,199	Full	25/05/2020	29/05/2020
Galway	Cleggan/Claddaghduff	Precautionary- following WTW auto-shutdown	507	Full	01/02/2020	10/02/2020
Kerry	Aughacsla PWS 005D	Inadequate Disinfection	42	Part	09/06/2020	29/06/2021
Kerry	Cahersiveen PWS 017H	Cryptosporidium	1,370	Full	09/07/2020	31/07/2020
Kildare	Rathangan	Disinfection failure	6,558	Full	16/07/2020	31/07/2020
Kilkenny	Paulstown-Choill Rua PWS	Cryptosporidium	205	Full	17/12/2020	15/07/2021

County	Scheme Name	Reason	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Kilkenny	Ballyragget PWS	Turbidity (at WTW)	1,282	Full	11/02/2020	05/03/2020
Laois	The Strand PWS	Inadequate contact time	6	Full	13/11/2020	03/09/2021
Limerick	Fedamore PWS	Turbidity (at WTW)	492	Full	02/12/2019	---
Longford	Lanesboro	UV failure – replacement part required	4,876	Full	02/10/2020	16/10/2020
Louth	Tallanstown	Free Chlorine	588	Part	07/10/2019	24/04/2020
Meath	Slane	Inadequate Disinfection	3	Part	05/07/2019	12/08/2021
Meath	Longwood	Inadequate Disinfection	6	Part	05/07/2019	12/08/2021
Meath	Baltrasna <sup>Note 1</sup>	E. Coli	9	Full	22/12/2014	---
Offaly	Clonbullogue PWS	Inadequate contact time	868	Full	25/11/2020	23/12/2020
Offaly	Dunkerrin PWS	UV failure – replacement part required	1,213	Full	22/09/2020	06/10/2020
Sligo	Lough Talt Regional WS	Coliform Bacteria	12,576	Full	11/01/2019	26/11/2020
Tipperary	Glenary	Inadequate chlorine level due to cast iron mains	72	Part	22/10/2019	12/11/2020
Tipperary	Glenary	Inadequate chlorine level due to cast iron mains	45	Part	16/09/2019	28/04/2021

County	Scheme Name	Reason	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Tipperary	Glenary	Inadequate chlorine level due to cast iron mains	1	Part	21/11/2019	10/07/2020
Tipperary	Glenary	Inadequate Disinfection	24	Part	18/01/2019	04/03/2020
Tipperary	Galtee Regional	Inadequate chlorine level due to cast iron mains	402	Part	30/10/2019	---
Tipperary	Clonmel Poulavanogue	Inadequate Disinfection	96	Part	11/10/2018	---
Waterford	Kill/Ballylaneen	Cryptosporidium	1,156	Full	09/11/2020	25/11/2020
Waterford	Grallagh	Fire at plant	30	Full	27/07/2020	27/10/2020
Waterford	Kilgobnet	Inadequate Disinfection	99	Part	21/01/2019	27/02/2020
Waterford	Scrothea	Coliform Bacteria	3	Part	16/10/2014	09/06/2020
Westmeath	Ballany	UV failure	1,444	Part	01/09/2020	09/09/2020
Westmeath	Ballany	UV failure	1,444	Part	31/12/2019	08/01/2020
Wexford	Wexford Town	Turbidity (at Plant)	21,760	Full	10/12/2020	14/12/2020
Wexford	Sow Regional	Turbidity (at Plant)	9,383	Part	13/11/2020	24/11/2020
Wexford	South Regional - Taylorstown	Inadequate Disinfection	54	Part	26/03/2019	31/03/2020
Wexford	Kilmyshall	Inadequate Disinfection	90	Part	18/01/2019	27/02/2020

County	Scheme Name	Reason	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Wexford	South Regional - Horeswood	Inadequate Disinfection	12	Part	11/03/2019	23/01/2020
Wexford	Ballinavarry <sup>Note 1</sup>	E. Coli and Coliform Bacteria	10	Full	06/03/2019	---
Wicklow	Ballymorris Public Supply	Turbidity (at Plant)	17	Full	18/07/2019	---
Wicklow	Johnstown South (Arklow) Public Supply <sup>Note1</sup>	Coliform Bacteria	6	Full	04/06/2015	---

Note 1: This is a disputed supply.

**Table 2: Water Restrictions in place during 2020**

County	Scheme Name	Reason	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Carlow	Carlow Town	Arsenic (do not consume)	18	Part	22/07/2020	08/12/2020
Galway	Inishmore-Cregacareen	<i>E. coli</i> and coliforms at National School (sampling error)	22	Part	15/01/2020	21/01/2020
Kerry	Central Regional-Lough Guitane (H) 400F	Inadequate chlorine level & high iron due to cast iron mains	6	Part	18/11/2020	05/11/2021
Kerry	Central Regional-Lough Guitane (H) 400F	Inadequate chlorine level & high iron due to cast iron mains	27	Part	31/07/2020	21/12/2020
Kerry	Central Regional-Lough Guitane (H) 400F	Inadequate chlorine level & high iron due to cast iron mains	6	Part	16/10/2020	05/11/2021
Kerry	Central Regional-Lough Guitane (H) 400F	Inadequate chlorine level & high iron due to cast iron mains	4	Part	13/10/2020	05/11/2021
Kerry	Central Regional-Lough Guitane (H) 400F	Inadequate chlorine level & high iron due to cast iron mains	30	Part	12/03/2020	21/12/2020
Kerry	Central Regional-Lough Guitane (H) 400F	Hydrocarbon contamination – private side issue	5	Part	23/12/2019 Note 1	30/04/2020
Limerick	Carrigmore PWS	Nitrate	370	Full	09/05/2020	20/05/2020
Mayo	Achill RWSS	Aluminium	2,373	Full	07/08/2020	04/09/2020
Monaghan	Three Mile House and Togan	Manganese (Do not consume)	290	Full	29/07/2020	05/08/2020
Tipperary	Templetuohy	Nitrate	819	Full	31/01/2020	30/10/2020
Waterford	Grallagh	Fire at plant	30	Part	21/07/2020	27/07/2020
Waterford	Ballydermody <sup>Note 2</sup>	Nitrate	2	Full	12/12/2013	---

County	Scheme Name	Reason	Population Affected	Affecting Full/Part Of Supply	Date Notice Issued	Date Notice Lifted
Wicklow	Kilballyowen (Aughrim) Public Supply	Manganese	18	Full	09/11/2020	21/12/2020
Wicklow	Ballingate	Arsenic	12	Full	09/10/2020	23/10/2020
Wicklow	Kirikee	Flooding incident	86	Full	25/08/2020	10/09/2020

Note 1: Verbal advice provided to householder 25/11/2019

Note 2: This is a disputed supply.





## AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL

Tá an Gníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaoil a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaoil a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

## Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

**Rialú:** Déanaimid córais éifeachtacha rialaithe agus comhlionta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.

**Eolas:** Soláthraimid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírithé agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.

**Tacaíocht:** Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaoil atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaoil inbhuanaithe.

## Ár bhFreagrachtaí

### Ceadúnú

Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaoil:

- saoráidí dramhaíola (*m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola*);
- gníomhaíochtaí tionsclaíoch ar scála mór (*m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta*);
- an dionalmhaíocht (*m.sh. muca, éanlaith*);
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe (*OGM*);
- foinsí radaíochta ianúcháin (*m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíochta*);
- áiseanna móra stórála peitрил;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

### Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdarás áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhírú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúcháin.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídíonn an ciseal ózón.
- An dlí a chur orthu siúd a bhreiseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaoil.

### Bainistíocht Uisce

- Monatóireacht agus tuairiscí a dhéanamh ar cháilíocht aibhneacha, lochanna, uisce idirchriosacha agus cósta na hÉireann, agus screamhuiscí; leibhéil uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairiscí a dhéanamh ar Cháilíocht an Uisce Snámha.

## Monatóireacht, Anailís agus Tuairiscí ar an gComhshaoil

- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairiscí neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil (*m.sh. tuairiscíu tréimhsiúil ar staid Chomhshaoil na hÉireann agus Tuarascálacha ar Tháscairí*).

## Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn

- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

## Taighde agus Forbairt Comhshaoil

- Taighde comhshaoil a chistiú chun brúnna a shainiú, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeraíde, an uisce agus na hinbhuanaitheachta.

## Measúnacht Straitéiseach Timpeallachta

- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaoil in Éirinn (*m.sh. mórphleananna forbartha*).

## Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéil radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

## Treoir, Faisnéis Inrochtana agus Oideachas

- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaoil ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaoil (*m.sh. Timpeall an Tí, léarscáileanna radóin*).
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

## Múscailt Feasachta agus Athrú Iompraíochta

- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

## Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil

Tá an gníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig um Inmharthanacht Comhshaoil
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Fianaise is Measúnú
- Oifig um Chosaint Radaíochta agus Monatóireachta Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair inní agus le comhairle a chur ar an mBord.



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