2022 Bathing Season Report

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2022 Bathing Water Summary Report

1. Introduction

Dublin City Council (DCC) manages and monitors water quality at six bathing water locations. This function is delivered by the Water Pollution Control Section of the Protection of Water Bodies Office in accordance with the *Bathing Water Regulations, SI 79 of 2008* (Regulations).

Dollymount and Sandymount Strands are designated bathing waters whereas the North Bull Wall, Half Moon, Shelley Banks and Merrion Strand are recognised by the Environmental Protection Agency (EPA) as other monitored waters. Bathing water information cabinets are installed at the entrances to all bathing locations as outlined in Figure 1 below. Statutory and supplementary bathing information are contained therein.

Figure 1 - Map of bathing locations and cabinets

The bathing season is defined by the Regulations as the period between June 1st to September 15th each year.

2. Bathing Water Sampling

2.1. Regulatory sampling requirements

Regulations require four samples to be taken per designated bathing water per season. DCC exceeds this requirement and monitors water quality at six locations on twenty separate occasions during the season. The sampling programme is comprehensive and delivers value for money for the citizens of the capital as well as visitors. The monitoring schedule is agreed with the EPA in advance of the season and is published online by Dublin City Council and the EPA. DCC monitors bathing water quality all year round, with water quality monitored on a fortnightly basis outside of the season.

DCC carries out investigative monitoring to further supplement scheduled sampling events. Investigative monitoring is conducted if a deterioration in bathing water quality is expected or has been confirmed.

Photograph 1 - Water quality sampling at Merrion Strand

2.2. Parameters analysed and methodology

Samples are tested for two types of indicator bacteria namely *Escherichia coli* (also known as *E. coli*) and Intestinal Enterococci. *E.coli* results are available 21-24 hours following receipt of a sample. The exception to this would be where a sample is taken but held over night before being analysed e.g. a Sunday or weekend sample.

The Intestinal Enterococci results are available from 48 hours following receipt of the sample, once the various confirmation tests have been completed. Both results are required for compliance with the 2008 Regulations and HSE Guidelines. Physico-chemical parameters are also assessed on site to determine whether the aesthetic quality of the water is acceptable.

2.3. Assessment and Reporting

Bathing water samples are classified as *Excellent, Good, Sufficient* or *Poor* depending on the quantity of E.coli and Intestinal Enterococci counted therein. Table 1 details the thresholds for each classification group.

🔵	Indicates excellent water quality – Samples should not exceed 250 MPN E. Coli and 100 CFU Intestinal Enterococci per 100 ml.
🟢	Indicates good water quality – Samples should not exceed 500 MPN E. Coli and 200 CFU Intestinal Enterococci per 100 ml.
🟠	Indicates sufficient water quality - samples should not exceed 1,000 MPN E. coli and 250 CFU Intestinal Enterococci per 100 ml
🔴	Indictes poor water quality - samples exceed 1,000 MPN E. coli and 250 CFU Intestinal Enterococci per 100 ml
Date*	Additional Investigative Sampling carried out

MPN = Most Probable Number
CFU = Colony Forming Unit

Table 1 - Single sample assessment criteria

Sampling results are made available both online and in hardcopy format at the entrance to each bathing location. Softcopy results are available on the Dublin City Council website, www.dublincity.ie/bathingwater and on the EPA's National Bathing Water website www.beaches.ie.

3. 2022 Bathing Water Results

A total of 20 scheduled bathing water samples were analysed by the Central Laboratory between 25/05/22 and 13/09/22.

There are provisions for discounting of scheduled samples which occur during a predicted short-term pollution event. Results highlighted for 06/09/22 and 11/09/22 at Sandymount Strand qualified for replacement as a short-term pollution event was raised in accordance with Schedule 2 of the Regulations.

Table 2 below details the results of the single sample assessments conducted during the 2022 season.

DATE OF SAMPLE	25/05	13/06	14/06	19/06	27/06	28/06	03/07	11/07	17/07	25/07	26/07	08/08	09/08	14/08	22/08	23/08	29/08	06/09*	11/09	13/09
DOLLYMOUNT	blue	blue	blue	blue	blue	blue	blue	green	blue	green	blue	blue	blue	blue	blue	green	blue	blue	green	green
SANDYMOUNT	blue	blue	blue	blue	blue	green	blue	blue	blue	blue	blue	green	blue	blue	blue	blue	blue	yellow	yellow	blue
MERRION	blue	blue	blue	blue	blue	blue	blue	blue	blue	orange	blue	blue	blue	orange	orange	blue	blue	red	blue	blue
SHELLEY BANKS	blue	blue	blue	blue	blue	blue	blue	green	green	blue	blue	blue	blue	red	red	orange	green	orange	blue	green
HALF MOON	blue	blue	blue	blue	blue	blue	blue	blue	blue	blue	blue	blue	blue	blue	blue	blue	blue	orange	blue	blue
NORTH BULL WALL CAUSEWAY	blue	blue	blue	blue	red	blue	blue	green	blue	blue	blue	blue	blue	blue	orange	blue	blue	orange	orange	green

Table 2 - 2022 Single sample assessment results

Table 3 below provides an overview of the 2022 single sample assessment results. At designated waters, 90% and 100% of Sandymount and Dollymount Strands results returned as *Excellent* or *Good* respectively. While at other monitored waters, the percentage of results which returned as Excellent or Good was 80% at Merrion Strand and Shelley Banks, 95% at the Half Moon and 80% at the North Bull Wall.
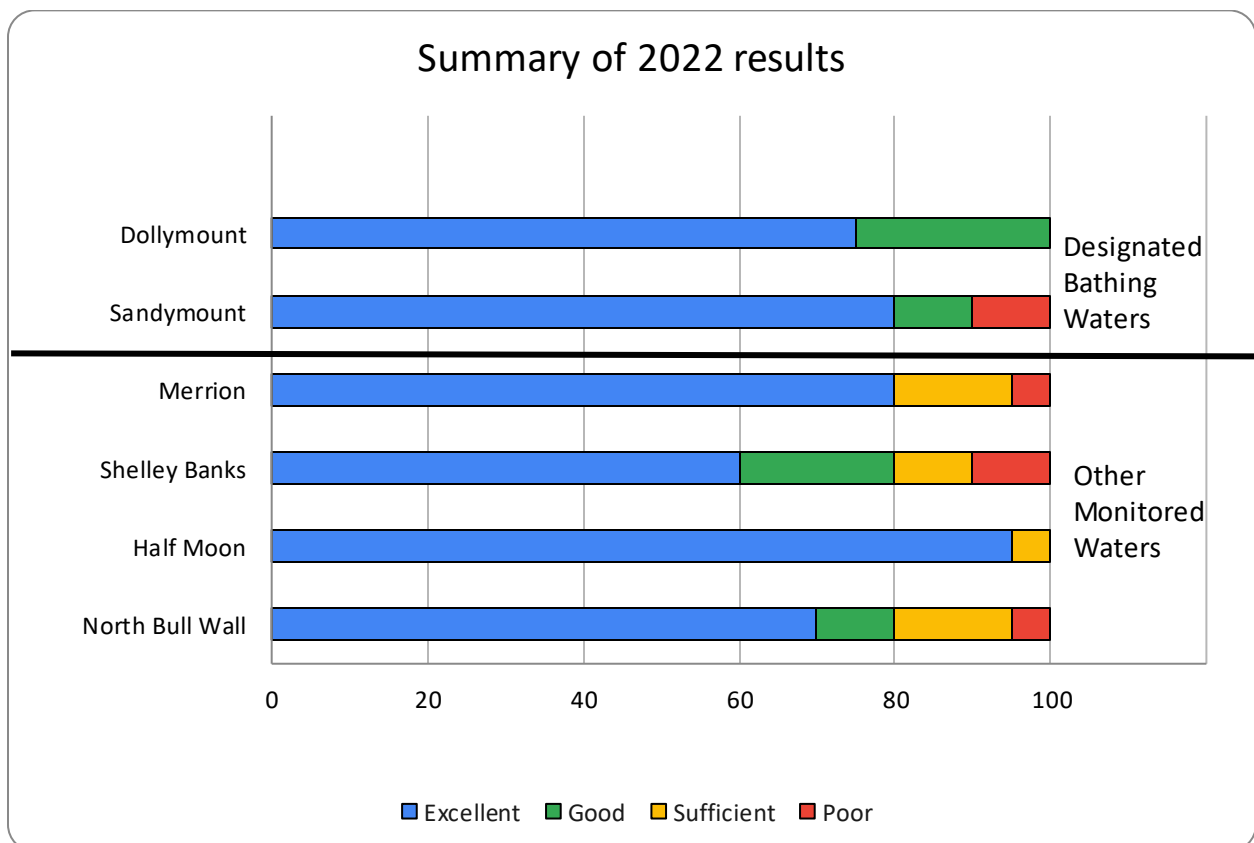

Table 3 - summary of 2022 bathing water results expressed as percentage compliance

4. Summary of warnings raised

DCC raise warnings when a temporary deterioration in bathing water quality has or is expected to occur. Warnings are put in place to prevent or limit bather exposure to suspected poor water quality. Warnings are only raised at designated bathing waters.

Depending on the type of incident, warnings can include prior warning notices or temporary bathing prohibitions. A prior warning notifies the public of a suspected deterioration in bathing water quality, typically prompted by poor weather. A temporary bathing prohibition advises swimmers of a confirmed or highly likely deterioration in bathing water quality. Bathers should pay head to such warnings which have been raised to protect their health.

Both notices remain in place until the quality of water can be verified by investigative sampling. DCC are required to consult with the Health Service Executive prior to raising or lifting a prior warning or temporary bathing prohibition.

A total of 8 warnings were raised during the 2022 bathing season. The warnings were raised in response to incidents which may or had caused a deterioration in bathing water quality. Table 4 summarises the type, duration and likely cause of warnings raised in 2022.

Start date	End date	Type of warning	Likely cause	Affected Bathing Water	Quantity
25/06/22	01/07/22	Prior Warning	Weather warning issued by Met Eireann	Sandymount Strand	1
				Dollymount Strand	1
30/07/22	05/08/22	Temporary bathing prohibition	Storm Water Overflow	Sandymount Strand	1
				Dollymount Strand	1
03/09/22	08/09/22	Prior Warning, escalated to temporary bathing prohibition	Weather warning issued by Met Eireann, Storm Water Overflow	Dollymount Strand	2
03/09/22	17/09/22	Prior Warning, escalated to temporary bathing prohibition	Weather warning issued by Met Eireann, Storm Water Overflow	Sandymount Strand	2

Table 4 - Summary of warnings raised at designated bathing waters

5. PCR analysis

Since 2020, Dublin City Council, in collaboration with the UCD School of Biomolecular and Biomedical Science, has included new testing methodologies as part of its investigative monitoring programme to differentiate between faecal contamination of human and animal origin. This information has been particularly useful in identifying possible sources of pollution not attributable to the drainage infrastructure system.

Both humans and animals, including marine birds, have gut bacteria which are specific to the species. By identifying and quantifying these bacteria it is possible to determine whether the source of faecal contamination might be attributable to human or non-human sources (or a combination of both). It is not yet possible to determine extent of contribution when a combination of markers are found in a sample.

Polymerase Chain Reaction (PCR) analysis looks for a species specific genetic marker. During the bathing season, additional samples were taken by DCC and analysed by UCD to identify human, canine and marine bird markers. This work was investigative and complemented the scheduled monitoring programme. This valuable additional information has allowed DCC to identify the likely source or contributing factors to a poor bathing water sample.

A total of 21 samples were analysed using qPCR during the 2022 bathing season. Figure 4 provides a summary of results received by UCD.
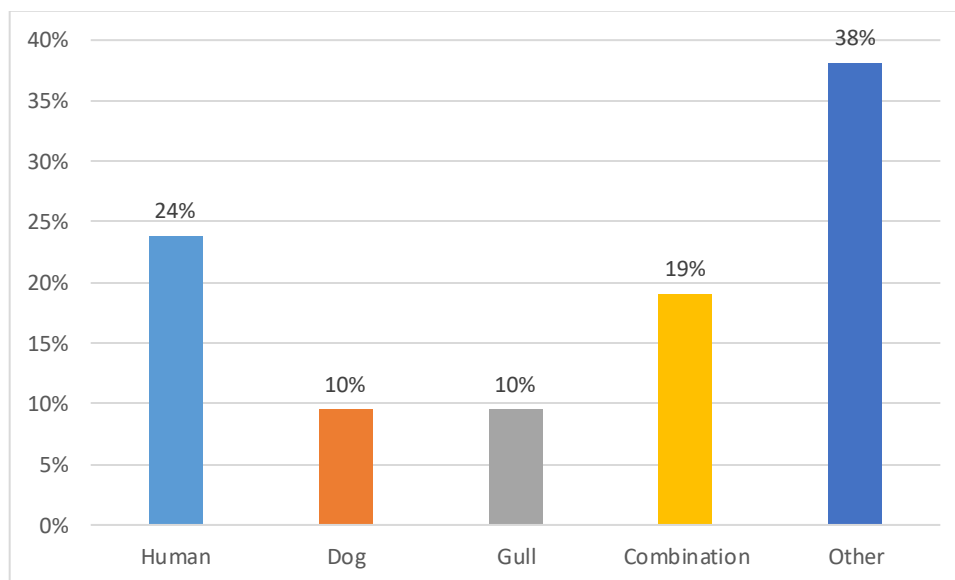

Table 5 - Summary of 2022 PCR analysis and attributable likely cause

In summary, human faecal contamination is likely to have contributed to the elevated bacteria found in two samples taken at Sandymount & Merrion Strand on 08/08/22.

Gull was detectable at low concentrations (below limit of quantification) in most samples analysed and was determined as the likely source of contamination in two samples taken at Merrion Strand on 22/08/22 and Shelley Banks on 23/08/22.

Like Gull, the Dog marker was present in nearly all samples analysed and dog fouling was identified as the likely contributor to elevated results at Sandymount Strand on 28/06/22 and Dollymount Strand on 25/07/22.

A combination of markers were found to be the likely source of contamination on four separate occasions at Merrion, Shelley Banks and the Half Moon. Eight samples returned below the limit of quantification and/or detection for the three markers at Sandymount, Merrion Strand and Shelley Banks. The additional marker of horse was used however it yielded non-detectable results also. Additional analyses and further markers would be required to establish the likely source of contamination.

6. Dog fouling and Public Information

In 2022, the UCD Acclimatize project sought to determine the impact of dog fouling on bathing water quality. Dog faeces contains many dangerous pathogens that can pose a significant threat to public health. Their studies found that one dog poo has the potential to pollute a volume of water the size of a tennis court.

Figure 2 - Acclimatize dog fouling campaign still

Acclimatize in conjunction with Dublin City Council produced a short animation to highlight the impact of dog fouling on water quality. The campaign was supported and shared by DCC across various social media platforms. Further information can be found here - https://www.acclimatize.eu/dogs/.

While dog fouling is not the only pressure on bathing water quality, it is a significant contributor. Unlike other sources of pollution, dog foul can be easily removed by the pet owner to prevent contamination of a nearby waterbody. In an effort to encourage responsible dog management, Dublin City Council has installed poo bag dispensers on bathing water cabinets located at bathing water entrances.

7. Communications with stakeholders

Dublin City Council continues to regularly update its dedicated bathing water webpage. An FAQ section was introduced in 2021 which has proved very popular and addresses most commonly received queries.

In conjunction with the DCC webpage, bathers are encouraged to visit the EPA's National Bathing Water webpage www.beaches.ie. The page contains most recent warnings and bathing water results for bathing waters across Ireland. The section liaised with the following stakeholders throughout the 2022 bathing season.
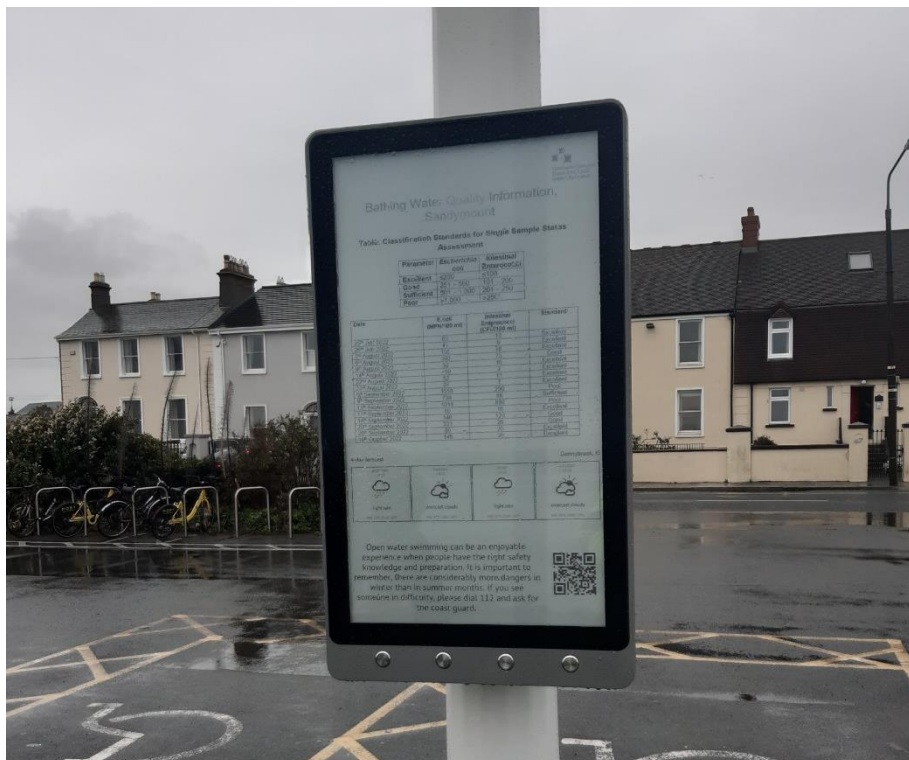
Stakeholder	Communication
Irish Water	Wastewater reportable incidents
HSE	Consultation throughout bathing season
EPA	Reporting of bathing water incidents via BWIS which populates information for the EPA national bathing water website www.beaches.ie
Councillors	7 x Councillor questions responded to, to date 1 x presentation given to members of Climate Action, Environment & Energy Strategic Policy Committee (April 22')
Public	Statutory information provided in designated bathing water cabinets. Bathing water results available online at www.dublincity.ie/bathingwaters
Public	13 correspondences received during the season. It is believed the improved website and additional resources reduced the need for the public to contact the section directly.
Public participation	The 2022 public participation period was held between 09/05/22 and 09/06/22. Details of the participation were published on DCC's dedicated webpage and across social media platforms. Furthermore, a newspaper notice was published in the Irish Independent on the 09/05/22. DCC engaged with Water Safety Ireland to conduct a risk assessment at areas identified for designation.

Table 6 = Breakdown of communications by stakeholder

8. Service Improvements

Each year DCC aims to make improve processes and engagement with the public. This year, DCC initiated a pilot during the bathing season, trialling two digital screens at Sandymount and Dollymount Strands. The screens are self-sustainable and powered by renewable energy generated by a turbine and solar panel installed on the installation.

They utilise e-ink technology (similar to a kindle) and are updated remotely by DCC staff (see photograph 1 below). Statutory information including bathing water results and warnings are published on the screens and supplemented by water safety campaigns, weather forecasts and tides. The pilot has been extended for a further 6 months with minor adjustments to establish the feasibility of their operation during winter months.

Photograph 2 - E-ink screen at Sandymount Strand

In addition, DCC set up an alert service including bathing water alerts which sends subscribers bathing water quality results and warning notifications when raised. Further information can be found on DCC's website.

9. Bathing Water Task Force

In November 2019, Dublin City Council (DCC) set up a Task Force including representatives from Irish Water, Department of Housing, Planning and Local Government (DHPLG), Dun Laoghaire Rathdown County Council (DLRCC) and Fingal County Council (FCC).

The mission of the BWTF is to identify, assess, remediate or eliminate sources of pollution entering Dublin Bay. Sources that specifically affect bathing water quality and ultimately public health. The BWTF holds monthly meetings chaired by Dublin City Council.

The meetings provide stakeholders with an opportunity to report on progress made, challenges faced, review progress and coordinate activities. It is also a platform for local authorities and the Department to discuss current bathing water management issues and knowledge sharing.

The BWTF engages in high-level meetings with the Environmental Protection Agency, Health Service Executive, the National Bathing Water Expert Group and the Department of Housing, Local Government & Heritage, including participation and contributions to the National Bathing Waters Expert Group.

10. Forecasted designated bathing water classification

The EPA provide bathing water classifications to designated locations before the 31st December each year. The classification is based on water quality results over the previous four bathing seasons.

The bathing water can receive a classification as *Excellent, Good, Sufficient* or *Poor*. The below table details the current and predicted 2022 classification as set out in Schedule 4 of the bathing water regulations, https://www.irishstatutebook.ie/eli/2008/si/79/made/en/print.

Designated Bathing Water	Current Classification	Predicted 2022 classification
Sandymount Strand	Sufficient	Sufficient
Dollymount Strand	Good	Good

Table 7 - Current and predicated classification