

Summary of Blue-Green Algae Monitoring in Northern Ireland Bathing Waters 2025



Department of

**Agriculture, Environment
and Rural Affairs**

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Summary

Blue-green algae (cyanobacteria) monitoring has been undertaken at selected bathing waters in Northern Ireland during 2025 to support the management of public health risks. Cyanobacteria occur naturally in inland, brackish and marine waters but can form harmful blooms under favourable conditions, sometimes producing toxins that pose risks to people and animals. Following significant bloom events since 2023, DAERA and partner organisations implemented the Inter-Agency Blue-Green Algae Monitoring Protocol, providing a coordinated approach to surveillance, laboratory analysis, alert levels and public health actions at identified inland and coastal bathing waters.

Monitoring in 2025 combined visual inspections with laboratory analysis of water samples for cyanobacterial biovolume and microcystins, supported by drone surveys and reactive sampling. The inland bathing water at Rea's Wood, Lough Neagh, experienced a prolonged bloom period from mid July to late September, characterised by sustained Red alerts, very high biovolumes and intermittent toxin detection. As a result, advice against bathing was issued early in the bathing season and remained in place until November 2025. Results confirmed Rea's Wood as a highly susceptible site requiring enhanced monitoring and extended management beyond the formal bathing season.

Coastal monitoring showed more variable and generally short lived impacts. Seaton's Marina, used as a sentinel site for the Lower Bann, recorded prolonged and intense bloom activity, indicating continued downstream transport of cyanobacteria from Lough Neagh. Other north coast bathing waters experienced either isolated bloom events or consistently low levels, with Portrush Mill remaining unaffected throughout the year. Overall, the 2025 programme demonstrated the effectiveness of the Inter-Agency Monitoring Protocol in enabling proportionate, risk based decision making, timely public health advice and improved understanding of bloom behaviour across inland and coastal environments.

1. Background

Blue-green algae (cyanobacteria) are naturally occurring microscopic organisms found in fresh, brackish, and marine waters. These are usually not visible, but under favourable conditions—such as warm weather and high nutrient levels— can multiply rapidly, forming visible blooms or scums that discolour the water. These blooms often produce toxins that can affect the nervous system, liver, skin, and cause inflammation. Blooms can occur at any time of year but are most common between May and October, lasting from days to months. The appearance of blue-green algae and location is unpredictable, as wind and currents can cause blooms to move or concentrate along shorelines, where decaying algae may form scum or foam.

Blue-green algae blooms have become a significant recurring environmental, public health, and economic issue in Northern Ireland, particularly since 2023. To support bathing water monitoring, DAERA has worked in partnership with the Northern Ireland Environment Agency (NIEA), the Agri Food and Biosciences Institute (AFBI), NI Water, the Food Standards Agency, and the Public Health Agency to develop an Inter-Agency Blue-Green Algae Monitoring Protocol. First published in May 2024 and updated in January 2026, the Protocol sets out an agreed approach to the surveillance and monitoring of blue-green algae, clearly defining the roles and responsibilities of participating organisations and individuals, as well as the monitoring arrangements for different types of waterways. The Protocol is available at:

[Inter-Agency Blue-Green Algae Monitoring Protocol | Department of Agriculture, Environment and Rural Affairs.](#)

This report provides a summary of blue-green algae water sample results taken to support management of risk to public health at relevant identified bathing waters in 2025.

2. Monitoring of Bathing Waters

Northern Ireland has 33 identified bathing waters, 1 inland and 32 coastal. Under The Quality of Bathing Water Regulations (Northern Ireland) 2008 identified or candidate bathing waters are monitored by DAERA Marine and Fisheries Division (MFD) through its Bathing Waters Programme during the bathing season (1st June- 15th September) each year.

Bathing waters are routinely monitored for faecal indicator bacteria (*E. coli* and intestinal enterococci) through water sampling and visual checks. Samples are typically collected on 20 occasions per bathing season, with additional testing outside the season and in response to pollution incidents; if bacteria levels exceed set limits, an official advice against bathing notice is issued¹.

Unlike faecal bacteria, there is no fixed regulatory testing method for blue-green algae. Risk is assessed primarily through visual inspection, supported by World Health Organisation (WHO) guidelines and where dense scum is present or likely (e.g. where scum is near the bathing site), advice against bathing is issued. Laboratory analyses (biovolumes and toxin testing) are also used to support health risk assessment and enable DAERA and bathing water operators to meet their statutory duties.

Implementation of the Inter-Agency Blue-Green Algae Monitoring Protocol by DAERA's Bathing Waters Team successfully assisted responses to suspected incidents in 2024 and this approach was therefore continued in 2025. Depending on the monitored values of blue-green algae, each site was given the corresponding alert level and appropriate action taken (Figure 1).

Experience gained from previous seasons has shown that account should be taken of prevailing wind conditions, which can transport blooms and scums into different locations and either concentrate or disperse the bloom.

¹ [The Quality of Bathing Water Regulations \(Northern Ireland\) 2008](#)

	Green level - surveillance mode	Amber level - alert mode	Red level - action mode
Monitoring requirements:	Fortnightly visual assessment*, rapid test kit trialling, water sample ELISA analysis and/or biovolume analysis to establish a baseline.	Weekly visual assessment, rapid test kit trialling, water sample ELISA analysis and/or biovolume analysis. Cyanotoxin concentration corroboration at accredited laboratory.	Weekly visual assessment, rapid test kit trialling, water sample ELISA analysis and/or biovolume analysis. Cyanotoxin concentration corroboration at accredited laboratory.
Results:	No presence of microcystins. Biovolume of all cyanobacteria below 1 mm ³ /L.	Some visual evidence of patchy scum/mats/potential material. AND Presence of microcystins. Microcystin concentration below 10 µg/L. AND/OR Biovolume of all cyanobacteria between 1 and 4 mm ³ /L.	Visible, thick scum covering most of the water surface. AND/OR Microcystin concentration at or above 10 µg/L. AND/OR Biovolume of all cyanobacteria exceeds 4 mm ³ /L.
Advice to bathing water operators:	Bathing water operators informed at surveillance mode.	Bathing water operator and public informed to watch out for scums and when in doubt, stay out (encourage vigilance).	Bathing water operator to issue 'advice against bathing' and public warned of risk to public health.

Figure 1: Summary of the surveillance programme used throughout 2025 to ascertain the severity of blue-green algae presence and accompanying action, established by the Inter-Agency Blue-Green Algae Monitoring Protocol, 2024.

Members of the public are encouraged to take personal responsibility for themselves, children and pets, and heed any signage at water bodies regarding risks of blue-green algae or specific signs with 'advice against bathing'. In addition, the general public health advice from the Public Health Agency is when in doubt, stay out, and do not let pets swim in, play in or drink water that looks discoloured or has scum on the surface.

Members of the public should report any suspected blue-green algal bloom via the Bloomin' Algae App or via the emergency pollution email: emergency-pollution@daera-ni.gov.uk
For further information and guidance on the Bloomin' Algae App scan the QR code.:



3. Water sample analysis

A range of water sample analyses were undertaken to support the assessment of potential public health risks from blue-green algae at bathing water sites. These included biovolume analysis and cyanotoxin analysis, which were used to compare results against established guideline values for safe recreational use. Consistent with 2024, the parameters set out in the Inter-Agency Blue-Green Algae Monitoring Protocol were applied to bathing water monitoring in 2025. Further details are provided in 'Summary of Blue-Green Algae Monitoring in Northern Ireland Bathing Waters 2024', available at: [Summary of Blue-Green Algae Monitoring in NI Bathing Waters 2024](#)

Biovolume analysis of water samples was carried out by DAERA's Marine and Fisheries Division, while cyanotoxin analysis was outsourced to the accredited laboratory, CEFAS Technology Ltd.

In addition to biovolume and toxicity testing, all identified bathing waters were subject to weekly visual assessments during the bathing season (1 June to 15 September) as part of the DAERA bathing waters monitoring programme.

3.3. Monitored sites

Following the lessons learned in previous seasons concerning the movement of blue-green algae from Lough Neagh and the Lower Bann through to the north coast, the following bathing water sites were monitored as potentially impacted areas:

- Rea's Wood, Lough Neagh
- Portrush Mill
- Portstewart Strand
- Castlerock beach
- Downhill beach
- Magilligan (Benone) beach

Samples were also collected within Seaton's Marina (which is 5.7km from the coast on the Lower Bann), as the site is effectively a sentinel site for the flow/risk of blue-green algae material from Lough Neagh onto the north coast.

The Northern Ireland Environment Agency (NIEA) also responds to reports of suspected blue-green algae, liaising with landowners to initiate actions as appropriate. As blooms are intermittent, these are also managed by NIEA as pollution incidents. Confirmed records of blue-green algae both in Lough Neagh and other sites throughout Northern Ireland are available via the DAERA blue-green algae confirmed locations web map available at: [Blue-Green Algae - Confirmed Locations](#). Reports submitted via the 'Bloomin' Algae' app (created by the UK Centre for Hydrology and Ecology) are also available at: [Bloomin' Algae maps | NI | UK Centre for Ecology & Hydrology](#).

4 Results and Discussion

4.1 Rea's Wood Antrim

Rea's Wood is an inland identified bathing water that extends along part of the northeast shore of Lough Neagh (Figure 2).



Inter-agency Blue-Green Algae Monitoring Protocol.

Inland Site Assessed for Cyanobacteria in Bathing Waters.

Earthstar Geographics

Sources: Bathing Waters data, correct as of 2026, Department of Agriculture, Environment and Rural Affairs (DAERA).

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Figure 2: Location of the inland identified bathing water Rea's Wood within Lough Neagh.

Based on reports on blue-green algae blooms in Lough Neagh in 2023 and 2024, surveillance monitoring at Rea's Wood commenced on the 24 March 2025 and continued to 17 November 2025. During this period a total of 47 water samples were lifted for potential biovolume and toxin analysis, along with additional visual assessments and drone surveys.

Table 1 shows all sampling results for biovolume and microcystin concentrations from the 16 June – 10 Nov 2025. Location of samples lifted at Rea's Wood bathing water are illustrated in Figure 3.

Table 1 Blue-green algae biovolume and microcystin concentrations from water sampling results taken at Rea's Wood bathing water between the 16/06/25 – 10/11/25, with the corresponding alert level. <LOR is below the limit of reporting (<1µg/L).

Date	Biovolume mm3/l	Total intracellular microcystin (µg/L)	Total extracellular microcystin (µg/L)	Intracellular microcystin-LR (µg/L)	Extracellular microcystin-LR (µg/L)	Alert level
16/06/25	0.262	<LOR	<LOR	<LOR	<LOR	Green
23/06/25	0.135	<LOR	<LOR	<LOR	<LOR	Green
30/06/25	0	<LOR	<LOR	<LOR	<LOR	Green
07/07/25	0.001	<LOR	<LOR	<LOR	<LOR	Green
11/07/25	11.74	<LOR	<LOR	<LOR	<LOR	Red
12/07/25	1.45	<LOR	<LOR	<LOR	<LOR	Amber
17/07/25	0.31	<LOR	<LOR	<LOR	<LOR	Green
21/07/25	0.137	<LOR	<LOR	<LOR	<LOR	Green
24/07/25	0.282	<LOR	<LOR	<LOR	<LOR	Green
28/07/25	1.071	<LOR	44.3	0	39.2	Red
31/07/25	27.462	<LOR	<LOR	<LOR	<LOR	Red
05/08/25	59	<LOR	<LOR	<LOR	<LOR	Red
11/08/25	116	61.4	52.4	27.5	18.6	Red
18/08/25	220	<LOR	<LOR	<LOR	<LOR	Red
21/08/25	133	<LOR	<LOR	<LOR	<LOR	Red
26/08/25	99	<LOR	<LOR	<LOR	<LOR	Red
01/09/25	8.33	<LOR	<LOR	<LOR	<LOR	Red
08/09/25	28	<LOR	<LOR	<LOR	<LOR	Red
15/09/25	4.17	<LOR	<LOR	<LOR	<LOR	Red
19/09/25	5.72	<LOR	<LOR	<LOR	<LOR	Red
22/09/25	11.67	<LOR	<LOR	<LOR	<LOR	Red
25/09/25	24.09	<LOR	1.2	<LOR	<LOR	Red
29/09/25	4.6	<LOR	<LOR	<LOR	<LOR	Red
06/10/25	1.7	<LOR	<LOR	<LOR	<LOR	Amber
09/10/25	1.38	<LOR	<LOR	<LOR	<LOR	Amber
13/10/25	3.238	<LOR	<LOR	<LOR	<LOR	Amber
20/10/25	32.079	<LOR	<LOR	<LOR	<LOR	Red
27/10/25	0.843	<LOR	<LOR	<LOR	<LOR	Green
29/10/25	0.458	<LOR	<LOR	<LOR	<LOR	Green
03/11/25	0.033	<LOR	<LOR	<LOR	<LOR	Green
10/11/25	0.296	<LOR	<LOR	<LOR	<LOR	Green



Inter-agency Blue-Green Algae Monitoring Protocol

Monitoring Modes 2025 - Rea's Wood

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Sources: Bathing Waters data, correct as of 2026, Department of Agriculture, Environment and Rural Affairs (DAERA).

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Figure 3 Sample locations at Rea's Wood bathing water in 2025.

Blue-green algae levels at Rea's Wood were low throughout early June to early July 2025, with all results remaining at Green alert level.

A sharp increase occurred from mid July. A bloom was evident on the surface of the bathing water and biovolume had increased with biovolume increasing on 11th July (11.74 mm³/L), triggering a Red alert. Biovolume concentrations fluctuated but remained elevated through July, August and September. The highest biovolume was recorded on 18 August (220 mm³/L).

Microcystins were mostly below the limit of reporting (LOR); however, on two occasions, 28th July and 11th August total microcystin concentrations were above the 10 µg/L guideline, as were microcystin-LR values, adopted for Northern Ireland waters. On each occasion high microcystin results were detected just before a further increase in biovolume (Figure 4).

From early October, biovolumes began to decline, with alert levels moving from Red to Amber alert, and by late October through November returning to the Green level.

Overall, the data show a prolonged bloom period from mid July to late September, with occasional toxin detection and sustained Red alert conditions during peak summer months, followed by recovery in autumn.

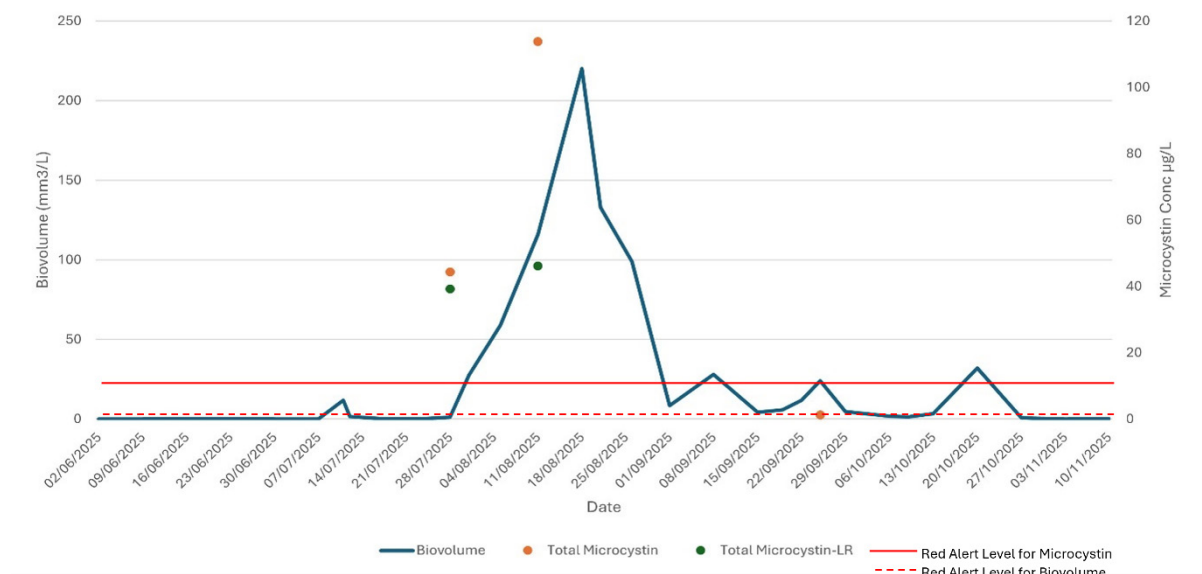


Figure 4 Graph illustrating the fluctuation in biovolume records and toxicity events at Rea’s Wood bathing water in 2025.

‘Advice against bathing’ was issued to Rea’s Wood bathing water operator on the 10 July 2025 by DAERA staff and remained in place for the rest of the bathing season (Appendix 1). DAERA staff continued to monitor beyond the bathing season at Rea’s Wood bathing water due to its susceptibility to blue-green algae, so to provide any needed water quality advice for the public and bathing water operators, consequently ‘advice against bathing’ was not removed until the 4 November 2025.

4.2 Coastal sites

Lough Neagh drains via the floodgates at Toome (which help control water levels of Lough Neagh), into Lough Beg, past Newferry and into the Lower Bann. The estuarine section of the Lower Bann stretches from the Cutts upstream from Coleraine to the Barmouth, where sea walls separate the north coast beaches and sand dune systems of Portstewart Strand and Castlerock. The adjacent beach shorelines and bathing waters may be impacted by the river water from the Lower Bann, depending on wind and tidal conditions affecting mixing and flow. The coastal sites monitored for blue-green algae are illustrated in Figure 5.



Inter-agency Blue-Green Algae Monitoring Protocol.

Coastal Sites Assessed for Cyanobacteria in Bathing Waters.

Earthstar Geographics

Sources: Bathing Waters data, correct as of 2026, Department of Agriculture, Environment and Rural Affairs (DAERA).

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Figure 5 Location of the coastal sites monitored for blue-green algae (cyanobacteria) in 2025

4.2.1 Seaton's Marina

Experience in both 2023 and 2024 seasons showed that blooms/scums are transported into different locations and consequently either become more concentrated or disperse. As in previous seasons, Seaton's Marina was monitored in 2025 as a sentinel surveillance site, to assist in identifying potential movements of blue-green algae to the north coast.

Between the 31 March and 17 November 2025, fifty water samples were lifted for potential biovolume and toxin analysis, along with additional visual assessments and drone surveys.

The location of samples lifted at Seaton's Marina are highlighted in Figure 6.

Table 2 Blue-green algae biovolume and microcystin concentrations from water sampling results taken at Seaton's Marina between the 12/07/25 – 10/11/25, with the corresponding alert level. <LOR is below the limit of reporting (<1 µg/L).

Date	Biovolume mm3/l	Total intracellular microcystin (µg/L)	Total extracellular microcystin (µg/L)	Intracellular microcystin-LR (µg/L)	Extracellular microcystin-LR (µg/L)	Alert level
12/07/25	0.012	<LOR	<LOR	<LOR	<LOR	Green
16/07/25	0.002	<LOR	<LOR	<LOR	<LOR	Green
21/07/25	13.775	<LOR	1.5	<LOR	<LOR	Red
24/07/25	7.886	<LOR	<LOR	<LOR	<LOR	Red
28/07/25	2.169	18.224	33.4	4.54	11.1	Red
31/07/25	6.763	<LOR	22.8	<LOR	9.4	Red
07/08/25	5.068	5.5	33	2.4	14.1	Red
11/08/25	17	1.2	<LOR	1.200	<LOR	Red
18/08/25	21.9	<LOR	<LOR	<LOR	<LOR	Red
21/08/25	17.3	<LOR	1.7	<LOR	1.7	Red
23/08/25	169	<LOR	<LOR	<LOR	<LOR	Red
26/08/25	5	<LOR	<LOR	<LOR	<LOR	Red
01/09/25	137.46	<LOR	<LOR	<LOR	<LOR	Red
03/09/25	10.16	<LOR	<LOR	<LOR	<LOR	Red
08/09/25	70	<LOR	<LOR	<LOR	<LOR	Red
15/09/25	17.83	<LOR	<LOR	<LOR	<LOR	Red
18/09/25	0.293	<LOR	<LOR	<LOR	<LOR	Green
19/09/25	26.92	<LOR	<LOR	<LOR	<LOR	Red
22/09/25	378	5.1	<LOR	<LOR	<LOR	Red
25/09/25	46	<LOR	<LOR	<LOR	<LOR	Red
29/09/25	6.228	16.7	<LOR	<LOR	<LOR	Red
06/10/25	3.7	1.478	<LOR	<LOR	<LOR	Amber
09/10/25	1.319	<LOR	<LOR	<LOR	<LOR	Amber
13/10/25	1.373	<LOR	<LOR	<LOR	<LOR	Amber
20/10/25	3.586	1.825	<LOR	<LOR	<LOR	Amber
27/10/25	2.185	<LOR	<LOR	<LOR	<LOR	Amber
29/10/25	0.204	<LOR	<LOR	<LOR	<LOR	Green
03/11/25	0.123	<LOR	<LOR	<LOR	<LOR	Green
10/11/25	0.012	<LOR	<LOR	<LOR	<LOR	Green

Blue-green algae levels were well within the Green alert level in early June to mid July. From 21 July 2025, there was a rapid increase, with biovolumes increasing sharply beyond Red alert levels which continued through late July, August and much of September. Several high magnitude peaks were recorded, notably 23 August (169 mm³/L) and 22 September 2025 (378 mm³/L), indicating severe bloom events.

Microcystins were intermittently detected, particularly in late July and early August, with both intracellular and extracellular toxins present on some dates (e.g. 28 July and 7 August 2025). However, microcystin results were frequently below the limit of reporting and when present did not necessarily correspond to the highest elevated biovolumes, indicating potential variability in microcystin production (Figure 7). This is not unexpected given the nature of the Lower Bann at this location, as an estuary that can be stratified or mixed depending on freshwater flows, tidal and wind conditions.

Overall, the data showed a prolonged and intense bloom period from late July to late September, characterised by sustained Red alerts, occasional toxin detection, and gradual recovery in autumn.

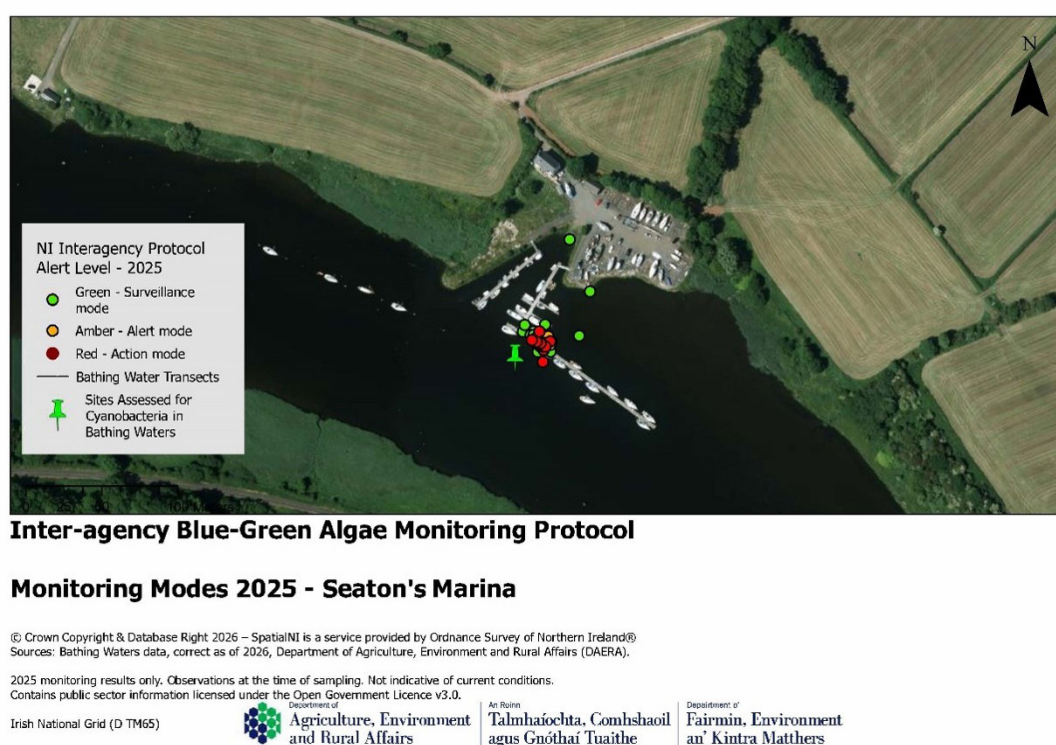


Figure 6 Sample locations at Seaton's Marina in 2025.

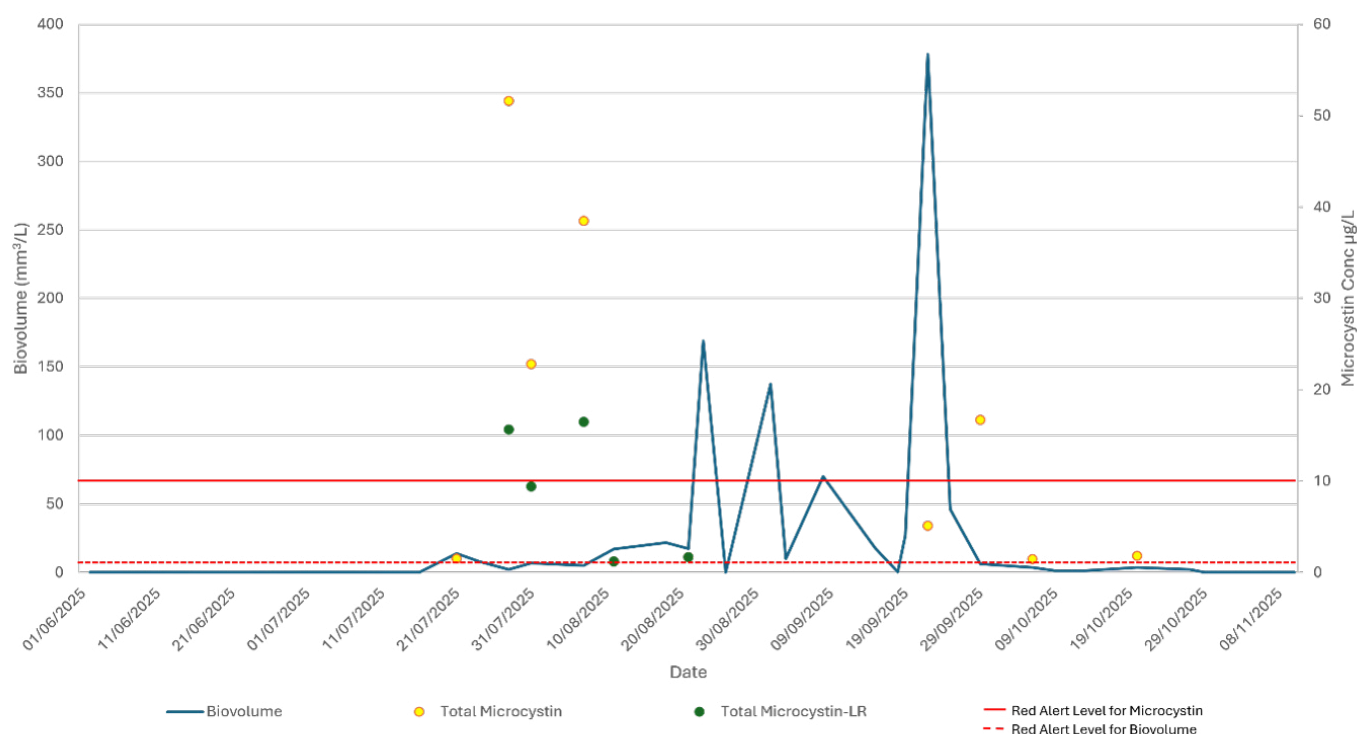


Figure 7 Graph illustrating the fluctuation in biovolume and toxicity events that occurred at Seaton's Marina in 2025.

4.2.2 Portrush Mill

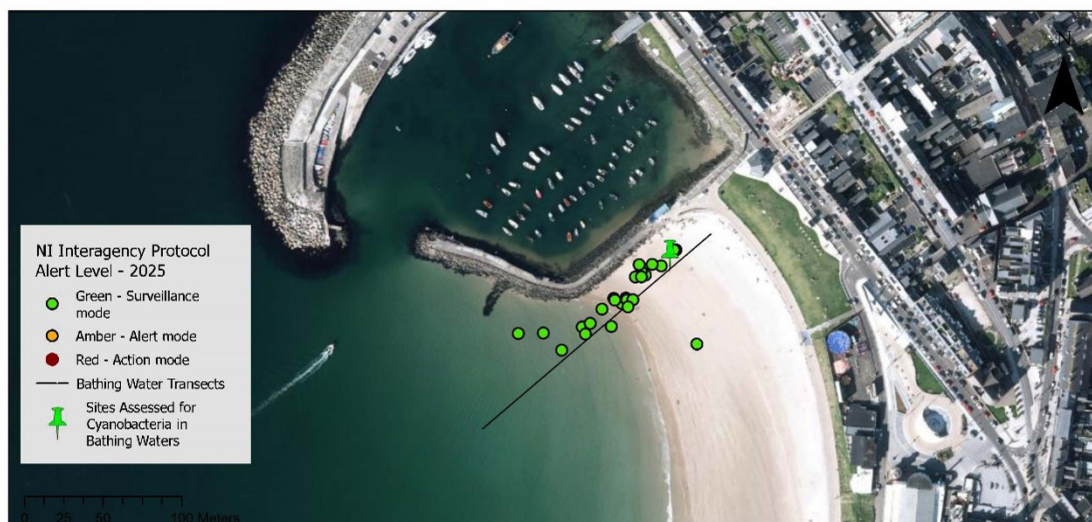
Between the 29 April – 17 November 2025, at Portrush bathing water 25 water samples were lifted for potential biovolume and toxin analysis (Table 3), along with additional visual assessments and drone surveys. The location of samples lifted at Portrush Mill bathing water are highlighted in Figure 8.

Table 3 Blue-green algae biovolume and microcystin concentrations from water sampling results taken at Portrush Mill bathing water between the 29/04/25 – 17/11/25, with the corresponding alert level. <LOR is below the limit of reporting (<1 µg/L).

Date	Biovolume mm ³ /l	Total intracellular microcystin (µg/L)	Total extracellular microcystin (µg/L)	Intracellular microcystin-LR (µg/L)	Extracellular microcystin-LR (µg/L)	Alert level
29/04/25	0	<LOR	<LOR	<LOR	<LOR	Green
12/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
16/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
18/07/25	0.005	<LOR	<LOR	<LOR	<LOR	Green
21/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
23/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
26/08/25	0.003	<LOR	<LOR	<LOR	<LOR	Green
01/09/25	0.006	<LOR	<LOR	<LOR	<LOR	Green

Table 3 continued

Date	Biovolume mm ³ /l	Total intracellu- lar microcys- tin (µg/L)	Total extracellu- lar microcys- tin (µg/L)	Intracellu- lar microcys- tin-LR (µg/L)	Extracellu- lar micro- cystin-LR (µg/L)	Alert level
03/09/25	0.002	<LOR	<LOR	<LOR	<LOR	Green
08/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
15/09/25	0.001	<LOR	<LOR	<LOR	<LOR	Green
18/09/25	0.01	<LOR	<LOR	<LOR	<LOR	Green
19/09/25	0.197	<LOR	<LOR	<LOR	<LOR	Green
22/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
25/09/25	0.001	<LOR	<LOR	<LOR	<LOR	Green
29/09/25	0.007	<LOR	<LOR	<LOR	<LOR	Green
06/10/25	0.003	<LOR	<LOR	<LOR	<LOR	Green
09/10/25	0.002	<LOR	<LOR	<LOR	<LOR	Green
13/10/25	0	<LOR	<LOR	<LOR	<LOR	Green
20/10/25	0.04	<LOR	<LOR	<LOR	<LOR	Green
27/10/25	0.006	<LOR	<LOR	<LOR	<LOR	Green
29/10/25	0	<LOR	<LOR	<LOR	<LOR	Green
03/11/25	0	<LOR	<LOR	<LOR	<LOR	Green
10/11/25	0	<LOR	<LOR	<LOR	<LOR	Green



Inter-agency Blue-Green Algae Monitoring Protocol

Monitoring Modes 2025 - Portrush Mill

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Figure 8 Samples locations at Portrush Mill bathing water in 2025.

Blue-green algae biovolumes were consistently very low throughout the monitoring period. The highest biovolume recorded was 0.197 mm³/L on 19 September 2025. All microcystin results were below the limit of reporting.

As a result, the alert level remained Green for all samples, indicating no bloom events and no microcystin detection within the bathing water during 2025.

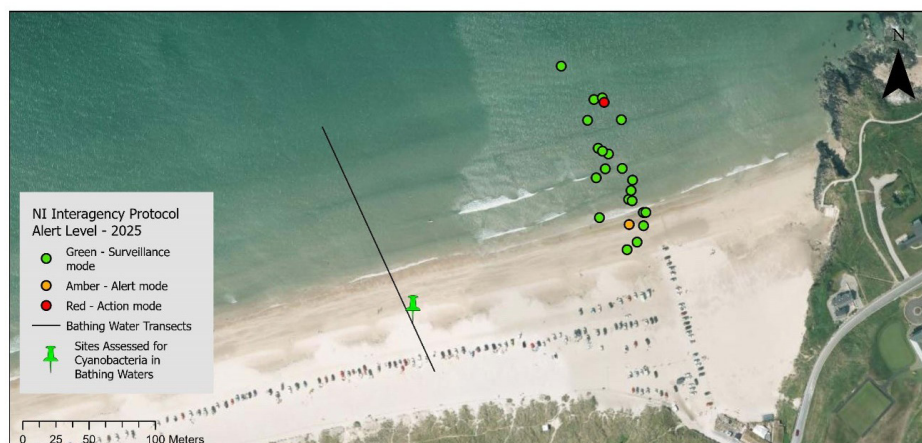
DAERA staff continued to monitor beyond the bathing season at Portrush Mill bathing water due to its susceptibility to blue-green algae, so to provide any needed water quality advice for the public and bathing water operators. No 'advice against bathing' was issued for Portrush Mill bathing waters in 2025.

4.2.3 Portstewart Strand

Between the 29 April – 17 November 2025, at Portstewart bathing water 25 water samples were lifted for potential biovolume and toxin analysis (Table 4), along with additional visual assessments and drone surveys. The location of samples at Portstewart bathing water are highlighted in Figure 9.

Table 4 Blue-green algae biovolume and microcystin concentrations from water sampling results taken at Portstewart bathing water between the 29/04/25 – 17/11/25, with the corresponding alert level. <LOR is below the limit of reporting (<1 µg/L).

Date	Biovolume mm3/l	Total intracellular microcystin (µg/L)	Total extracellular microcystin (µg/L)	Intracellular microcystin-LR (µg/L)	Extracellular microcystin-LR (µg/L)	Alert level
29/04/25	0	<LOR	<LOR	<LOR	<LOR	Green
12/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
16/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
18/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
21/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
23/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
26/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
01/09/25	0.025	<LOR	<LOR	<LOR	<LOR	Green
03/09/25	0.008	<LOR	<LOR	<LOR	<LOR	Green
08/09/2025	0.001	<LOR	<LOR	<LOR	<LOR	Green
15/09/2025	0	<LOR	<LOR	<LOR	<LOR	Green
18/09/2025	0.056	<LOR	<LOR	<LOR	<LOR	Green
19/09/2025	0.01	<LOR	<LOR	<LOR	<LOR	Green
22/09/2025	8.042	2.658	5.3	2.658	5.3	Red
25/09/2025	0	<LOR	<LOR	<LOR	<LOR	Green
29/09/2025	0.001	<LOR	<LOR	<LOR	<LOR	Green
06/10/2025	0.003	<LOR	<LOR	<LOR	<LOR	Green
09/10/025	0.049	<LOR	<LOR	<LOR	<LOR	Green
13/10/2025	0.005	<LOR	<LOR	<LOR	<LOR	Green
20/10/2025	0	<LOR	<LOR	<LOR	<LOR	Green
27/10/2025	2.35	<LOR	<LOR	<LOR	<LOR	Amber
29/10/2025	0.207	<LOR	<LOR	<LOR	<LOR	Green
03/11/2025	0	<LOR	<LOR	<LOR	<LOR	Green
10/11/2025	0	<LOR	<LOR	<LOR	<LOR	Green



Inter-agency Blue-Green Algae Monitoring Protocol

Monitoring Modes 2025 - Portstewart

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Figure 9 Sample locations at Portstewart bathing water in 2025.

A single significant bloom event occurred on 22 September 2025 at Portstewart bathing water, when biovolume increased to 8.042 mm³/L, triggering a Red alert and coinciding with detectable microcystins, including microcystin LR (Figure 10).

Aside from this isolated event, no other microcystin events were detected (all results <LOR), and biovolumes returned rapidly to low levels. A minor biovolume increase in late October (27 October, 2.35 mm³/L) resulted in an Amber alert.

Overall, results indicated that blue-green algae presence was confined to a small number of short lived events.

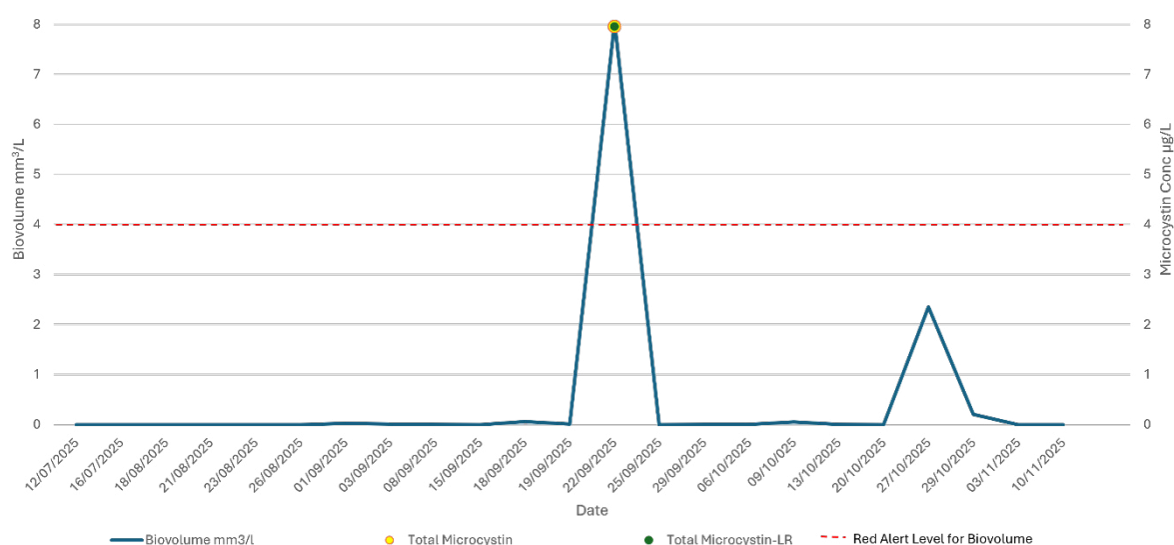


Figure 10 Graph illustrating biovolume records and the recorded toxicity event at Portstewart Bathing Water in 2025.

DAERA staff continued to monitor beyond the bathing season at Portstewart Strand bathing water due to its susceptibility to blue-green algae, so to provide any needed water quality advice for the public and bathing water operators. 'Advice against bathing' was issued to Portstewart bathing water operators on two occasions by DAERA staff. The first occurred on the 23 September (Red alert for biovolume and an Amber alert for toxins) and was removed on the 1 October 2025.

The next was on the 27 October 2025, despite biovolumes being at Amber alert levels in the water column, excessive blue-green algae deposits were present on the shoreline and was removed on the 4 November 2025.

4.2.4 Castlerock

Between the 16 July – 16 Sept, at Castlerock bathing water 25 water samples were lifted for potential biovolume and toxin analysis (Table 5), along with additional visual assessments and drone surveys. The location of samples lifted at Castlerock bathing water are highlighted in Figure 11.

Table 5 Blue-green algae biovolume and microcystin concentrations from water sampling results taken at Castlerock bathing water between the 12/07/25 – 10/11/25, with the corresponding alert level. <LOR is below the limit of reporting (<1 µg/L)

Date	Biovolume mm3/l	Total intracellular microcystin (µg/L)	Total extracellular microcystin (µg/L)	Intracellular microcystin-LR (µg/L)	Extracellular microcystin-LR (µg/L)	Alert level
12/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
16/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
18/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
21/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
23/08/25	0.016	<LOR	<LOR	<LOR	<LOR	Green
26/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
01/09/25	0.003	<LOR	<LOR	<LOR	<LOR	Green
03/09/25	0.14	<LOR	<LOR	<LOR	<LOR	Green
08/09/25	0.001	<LOR	<LOR	<LOR	<LOR	Green
15/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
18/09/25	0.009	<LOR	<LOR	<LOR	<LOR	Green
19/09/25	1.11	<LOR	<LOR	<LOR	<LOR	Amber
22/09/25	1.26	<LOR	8.800	<LOR	7.700	Amber
25/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
29/09/25	0.004	<LOR	<LOR	<LOR	<LOR	Green
06/10/25	0	<LOR	<LOR	<LOR	<LOR	Green
09/10/25	0.062	<LOR	<LOR	<LOR	<LOR	Green
13/10/25	0.006	<LOR	<LOR	<LOR	<LOR	Green
20/10/25	0.017	<LOR	<LOR	<LOR	<LOR	Green
27/10/25	0.188	<LOR	<LOR	<LOR	<LOR	Green

Table 5 continued

Date	Biovolume mm ³ /l	Total intracellu- lar microcys- tin (µg/L)	Total extracellu- lar microcys- tin (µg/L)	Intracellu- lar microcys- tin-LR (µg/L)	Extracellu- lar micro- cystin-LR (µg/L)	Alert level
29/10/25	0.009	<LOR	<LOR	<LOR	<LOR	Green
03/11/25	0.033	<LOR	<LOR	<LOR	<LOR	Green
10/11/25	0	<LOR	<LOR	<LOR	<LOR	Green



Inter-agency Blue-Green Algae Monitoring Protocol

Monitoring Modes 2025 - Castlerock

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Figure 11 Sample locations during at Castlerock bathing water in 2025.

Blue-green algae levels were consistently low throughout the monitoring period, with biovolumes mostly at or near zero and results predominantly at Green alert level.

A brief increase in mid September (19–22 September) raised alert levels to Amber, with low biovolumes (maximum 1.26 mm³/L) and one detection of extracellular microcystins on 22 September 2025. All samples before and after this period returned to Green status.

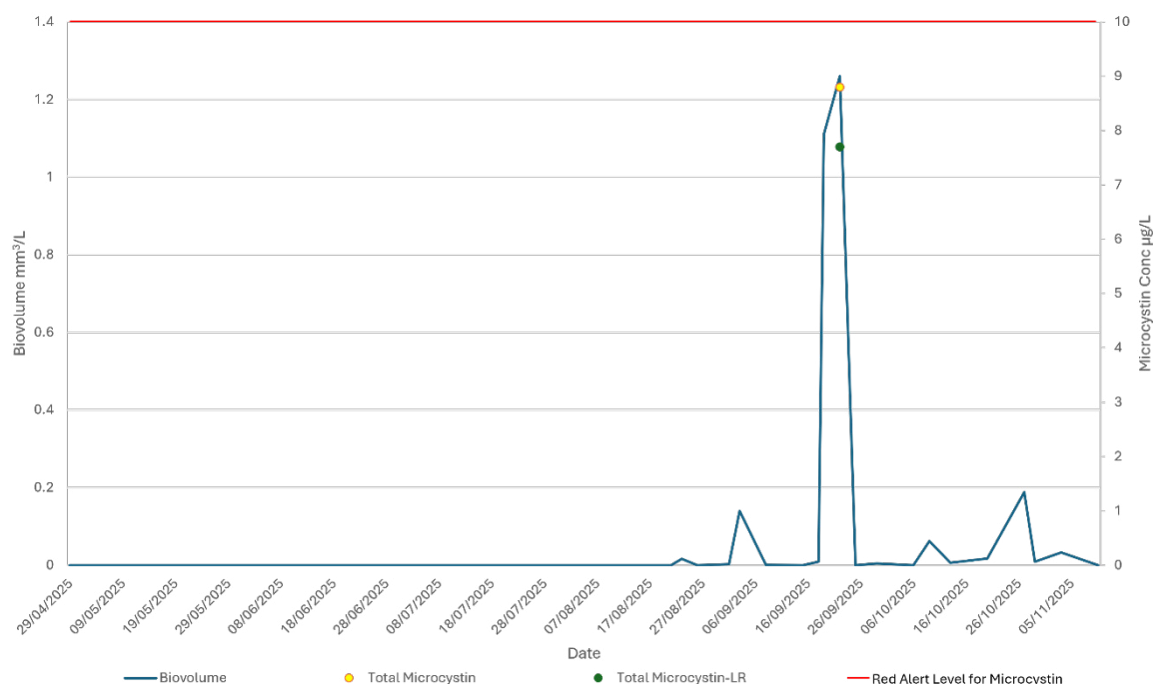


Figure 12 Graph illustrating biovolume records at Castlerock Bathing Water in 2025.

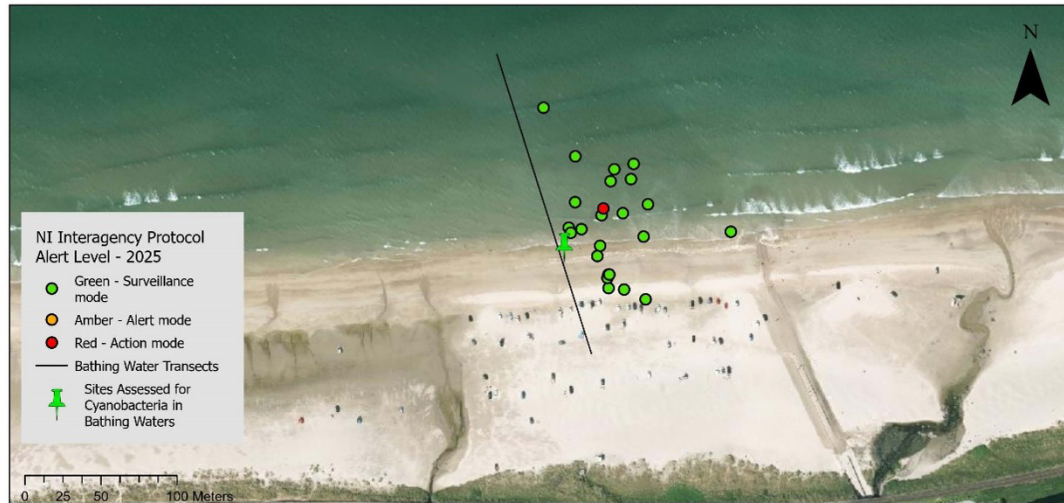
DAERA staff continued to monitor beyond the bathing season at Castlerock bathing water due to its susceptibility to blue-green algae. No 'advice against bathing' was issued for Castlerock bathing waters in 2025, however vigilance was encouraged to the Bathing Water Operator following the Amber alert levels on 19 and 22 September 2025.

4.2.5 Downhill

Between the 16 July – 16 Sept, at Downhill bathing water 25 water samples were lifted for biovolume and toxin analysis (Table 6), along with additional visual assessments and drone surveys. The location of samples lifted at Downhill bathing water are highlighted in Figure 13.

Table 6 Blue-green algae biovolume and microcystin concentrations from water sampling results taken at Downhill bathing water between the 29/04/25 – 10/11/25, with the corresponding alert level. <LOR is below the limit of reporting (<1 µg/L).

Date	Biovolume mm3/l	Total intracellular microcystin (µg/L)	Total extracellular microcystin (µg/L)	Intracellular microcystin-LR (µg/L)	Extracellular microcystin-LR (µg/L)	Alert level
29/04/25	0	<LOR	<LOR	<LOR	<LOR	Green
12/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
16/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
18/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
21/08/25	0.004	<LOR	<LOR	<LOR	<LOR	Green
23/08/25	0.065	<LOR	<LOR	<LOR	<LOR	Green
26/08/25	0.01	<LOR	<LOR	<LOR	<LOR	Green
01/09/25	0.003	<LOR	<LOR	<LOR	<LOR	Green
03/09/25	0.003	<LOR	<LOR	<LOR	<LOR	Green
08/09/25	0.008	<LOR	<LOR	<LOR	<LOR	Green
15/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
18/09/25	0.004	<LOR	<LOR	<LOR	<LOR	Green
19/09/25	0.01	<LOR	<LOR	<LOR	<LOR	Green
22/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
22/09/25	5.81	<LOR	<LOR	<LOR	<LOR	Red
25/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
29/09/25	0.006	<LOR	<LOR	<LOR	<LOR	Green
06/10/25	0	<LOR	<LOR	<LOR	<LOR	Green
09/10/25	0.039	<LOR	<LOR	<LOR	<LOR	Green
13/10/25	0.013	<LOR	<LOR	<LOR	<LOR	Green
20/10/25	0	<LOR	<LOR	<LOR	<LOR	Green
27/10/25	0	<LOR	<LOR	<LOR	<LOR	Green
29/10/25	0	<LOR	<LOR	<LOR	<LOR	Green
03/11/25	0	<LOR	<LOR	<LOR	<LOR	Green
10/11/25	0	<LOR	<LOR	<LOR	<LOR	Green



Inter-agency Blue-Green Algae Monitoring Protocol

Monitoring Modes 2025 - Downhill

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Figure 13 Sample locations during at Downhill bathing water in 2025.

A single short lived increase in blue-green algae occurred on 22 September 2025, when biovolume rose to 5.81 mm³/L, triggering a Red alert. Aside from this one isolated elevation in late September all other samples were at Green alert levels for biovolume (Figure 14).

No microcystins were detected throughout the sampling period, with all measurements reported as below the limit of reporting.

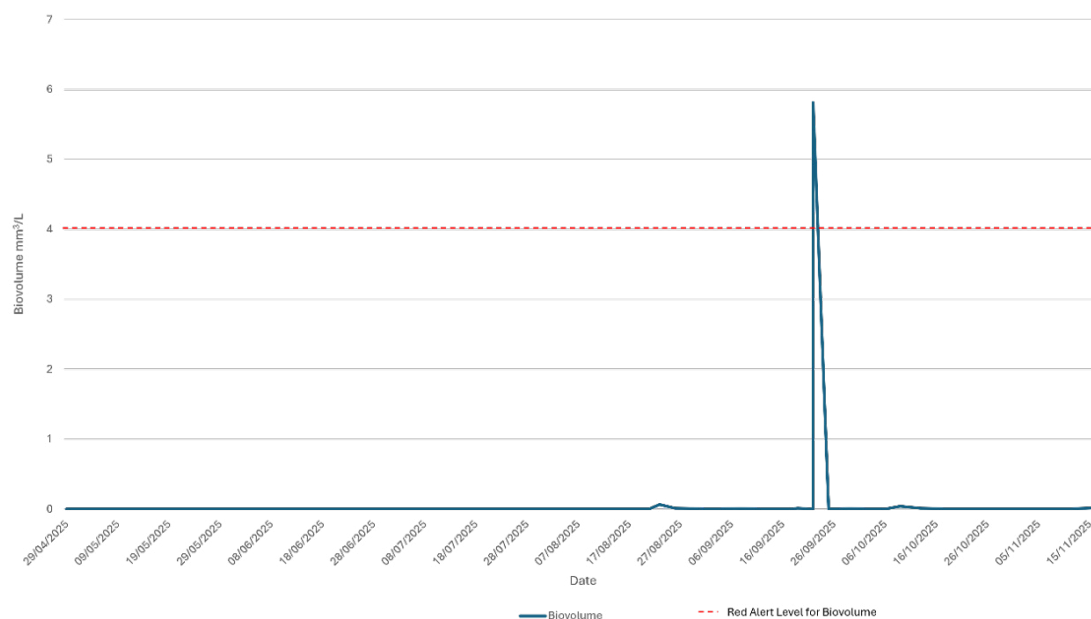


Figure 14 Graph illustrating biovolume records at Downhill Bathing Water in 2025.

DAERA staff continued to monitor beyond the bathing season at Downhill bathing water due to its susceptibility to blue-green algae, so to provide any needed water quality advice for the public and bathing water operators. 'Advice against bathing' was issued to Downhill bathing water operators on the 23 September and removed on the 1 October 2025.

4.2.6 Magilligan (Benone)

Between the 29 April – 11 November, at Magilligan bathing water 22 water samples were lifted for potential biovolume and toxin analysis (Table 7), along with additional visual assessments and drone surveys. The location of samples lifted at Downhill bathing water are highlighted in Figure 15.

Table 7 Blue-green algae biovolume and microcystin concentrations from water sampling results taken at Magilligan (Benone) bathing waters between the 29/04/25 – 11/10/25, with the corresponding alert level. <LOR is below the limit of reporting (<1 µg/L).

Date	Biovolume mm ³ /l	Total intracellular microcystin (µg/L)	Total extracellular microcystin (µg/L)	Intracellular microcystin-LR (µg/L)	Extracellular microcystin-LR (µg/L)	Alert level
29/04/25	0	<LOR	<LOR	<LOR	<LOR	Green
12/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
16/07/25	0	<LOR	<LOR	<LOR	<LOR	Green
18/07/25	0.004	<LOR	<LOR	<LOR	<LOR	Green
21/08/25	6.105	<LOR	<LOR	<LOR	<LOR	Red

Table 7 continued

Date	Biovolume mm ³ /l	Total intracellu- lar microcys- tin (µg/L)	Total extracellu- lar microcys- tin (µg/L)	Intracellu- lar microcys- tin-LR (µg/L)	Extracellu- lar micro- cystin-LR (µg/L)	Alert level
23/08/25	0	<LOR	<LOR	<LOR	<LOR	Green
26/08/25	0.15	<LOR	<LOR	<LOR	<LOR	Green
01/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
03/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
08/09/25	0.008	<LOR	<LOR	<LOR	<LOR	Green
15/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
18/09/25	0.014	<LOR	<LOR	<LOR	<LOR	Green
19/09/25	0.01	<LOR	<LOR	<LOR	<LOR	Green
22/09/25	0.69	<LOR	<LOR	<LOR	<LOR	Green
25/09/25	0	<LOR	<LOR	<LOR	<LOR	Green
09/10/25	0.004	<LOR	<LOR	<LOR	<LOR	Green
13/10/25	0	<LOR	<LOR	<LOR	<LOR	Green
10/20/25	0	<LOR	<LOR	<LOR	<LOR	Green
10/27/25	0	<LOR	<LOR	<LOR	<LOR	Green
10/29/25	0	<LOR	<LOR	<LOR	<LOR	Green
11/3/25	0	<LOR	<LOR	<LOR	<LOR	Green
11/10/25	0.001	<LOR	<LOR	<LOR	<LOR	Green



Inter-agency Blue-Green Algae Monitoring Protocol

Monitoring Modes 2025 - Magilligan (Benone)

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Figure 15 Sample locations during at Magilligan (Benone) bathing water in 2025.

Only one elevated result was recorded for biovolume on 21 August (6.105 mm³/L), which triggered a Red alert; all other samples remained at Green alert level. No microcystins were detected in any sample, with all toxin results reported as below the limit of reporting.

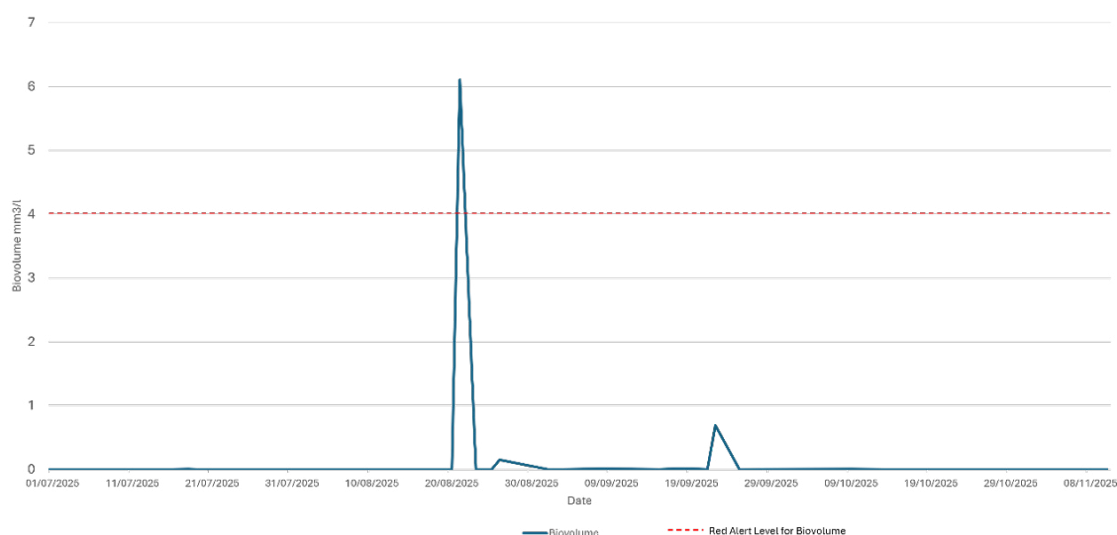


Figure 16 Graph illustrating biovolume records at Magilligan (Benone) Bathing Water in 2025.

DAERA staff continued to monitor beyond the bathing season at Benone bathing water due to its susceptibility to blue-green algae, so to provide any needed water quality advice for the public and bathing water operators. 'Advice against bathing' was issued to Benone bathing water operators on the 22 August and removed on the 27 August.

5. Conclusions

- Monitoring in 2025 confirmed that Rea's Wood bathing water remains a very susceptible inland bathing water, experiencing prolonged and severe blue-green algae blooms with sustained Red alert conditions, very high biovolumes and intermittent toxin detection.
- Extended monitoring beyond the bathing season is necessary at bathing waters vulnerable to blue-green algae. The persistence of elevated biovolumes into autumn at Rea's Wood, and the need to issue 'advice against bathing' at some coastal sites, highlights the importance of monitoring and risk management beyond the formal bathing season at susceptible waters.
- Results from Seaton's Marina illustrate the continued downstream transport of cyanobacteria from Lough Neagh through the Lower Bann, with potential implications for adjacent coastal bathing waters under suitable environmental conditions.
- While several north coast bathing waters recorded isolated bloom events or brief Alert escalations, the majority of coastal bathing waters remained at Green levels for most of monitoring period, indicating lower overall threat at these sites.
- Microcystins were detected intermittently and not always during the highest biovolume recordings, particularly at Seaton's Marina. This highlights variability in toxin production and reinforces the need for combined visual, biovolume and toxin based assessments.
- The Inter-Agency Blue-Green Algae Monitoring Protocol proved effective, enabling timely public health advice, proportionate management actions and improved understanding of bloom behaviour across inland and coastal waters.

6. Next Steps

DAERA is continuing to develop and refine the enzyme-linked immunosorbent assay (ELISA) techniques to enable inhouse determination of microcystin concentrations, and hence the potential toxicity of blooms. DAERA has commissioned AFBI to develop Liquid Chromatography-Mass Spectrometry technique for blue-green algae toxicity detection. It is hoped that the in-house accreditation of these techniques will not only reduce the cost of analysis but enable quicker turnaround and response times for advice.

The Inter-Agency Blue-Green Algae Monitoring Protocol has served as a useful guide in unifying the approach to blue-green algae monitoring and alerts throughout Northern Ireland. The lessons learned from previous seasons have been reviewed and the Protocol has been updated and is available at: [Inter-Agency Blue-Green Algae Monitoring Protocol | Department of Agriculture, Environment and Rural Affairs](#).

The Inter-agency Blue-Green Algae Working Group will continue to meet through 2026 to reflect on the increasing knowledge and our understanding of blue-green algae blooms in Northern Ireland.

Lough Neagh Water Quality / Blue-Green Algae Data Platform is an online data platform that publishes near real time scientific information on Lough Neagh's water quality, including blue-green algae indicators. It is envisioned the Platform will further enable early warning and situational awareness for blue-green algae activity, scientific research and evidence for public health decision making around bathing waters in 2026.

7. Appendices



Appendix 1 ‘Advice against bathing’ was issued to Rea’s Wood bathing from early July and remained throughout the season.



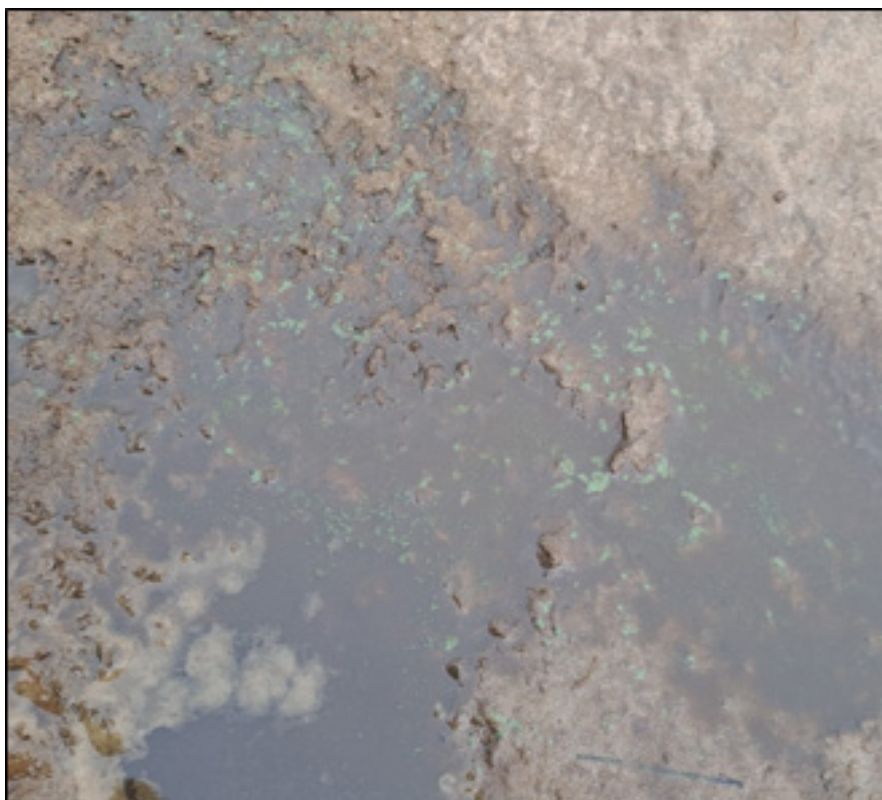
Appendix 2 Blue-green algae at Rea’s Wood bathing water 11 Aug 25



Appendix 3 Drone footage of Seaton's Marina 01 Sept 2025



Appendix 4 Blue-green algae clumps sitting on the seabed at Benone bathing water 21 Aug 2025



Appendix 5 Blue-green algae in shoreline pools at Portstewart bathing water 27 Oct 25



Appendix 6 Blue-green algae clumps within the bathing water at Downhill bathing water 23 Sept 25

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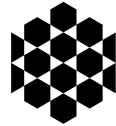
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