

**WATERFRONT PARK 2024-2025 WATER QUALITY
INVESTIGATION REPORT**

November 2025

Executive Summary

Swim Drink Fish monitored water quality at Waterfront Park in North Vancouver from June to October 2024 and July to October 2025, in accordance with guidelines set out by Health Canada, British Columbia's Ministry of Environment and Climate Change, and Vancouver Coastal Health (VCH). Across both years of monitoring, *Escherichia coli* (*E. coli*), the primary indicator of recreational water quality, consistently remained well below VCH's required thresholds, meaning the water quality met recreational guidelines 100% of the time.

Laboratory analysis was conducted in partnership with the Fowler Lab at Simon Fraser University using standard methodologies, including MI agar and IDEXX Colilert. VCH's pass-fail thresholds require a geometric mean of the most recent five samples to be below 200 *E. coli* per 100 mL, and no single sample to exceed 400 *E. coli* per 100 mL. The geometric mean analysis at Waterfront Park consistently showed low *E. coli* levels, well below the limit of 200 *E. coli* per 100 mL.

These findings indicate that water quality at Waterfront Park met recreational swimming water quality standards during the 2024 and 2025 sampling periods. Swim Drink Fish will continue monitoring until March 2027, after which time the City of North Vancouver (in coordination with Metro Vancouver and Vancouver Coastal Health) will assume responsibility for ongoing water quality monitoring at the site.

Introduction and Site Background

Waterfront Park is located on the unceded, traditional, and ancestral territories of Skwxwú7mesh (Squamish) and səliwətaʔt (Tsleil-Waututh) First Nations. The park is located in the neighbourhood now known as Lower Lonsdale.

Lower Lonsdale is a vibrant, walkable waterfront neighbourhood that blends its historic shipbuilding past with modern commercial and public spaces, including The Shipyards, Lonsdale Quay Market, the SeaBus Terminal, and surrounding shops, restaurants, and residences (North Vancouver's Lower Lonsdale Neighbourhood, 2025). Waterfront Park is located west of this hub, with the British Columbia Institute of Technology Marine Campus and Mosquito Creek Marina (operated by Nch'kay, Squamish Nation) located to the West.

Waterfront Park is an open grassy space with walking paths, a playground, picnic areas and benches, public art, panoramic views of Burrard Inlet, Goldsworthy Pier, and a dock

for temporary moorage (Waterfront Park, 2025). The dock provides the only official access to the water, with the rest of the park having a seawall barrier that impedes water access. In addition, the dock features signage that clearly states that the access point is “use at your own risk” and is only intended for temporary moorage; all swimming and other recreation is not permitted (Appendix A, Figure 8).

North of the shoreline, the Waterfront Park off-leash dog area is frequently used by dog owners, and many locals also enjoy the waterfront views while walking along the Spirit Trail that runs through the park.

Waterfront Park sits within a complex and dynamic marine environment, forming part of the Inner Harbour of Burrard Inlet. The Inner Harbour, one of the six basins of Burrard Inlet, and is a part of the Salish Sea. The Inner Harbour stretches 8.8 km from First Narrows in the west to Second Narrows in the east, a total area of 1540 ha. It is located between the City of Vancouver and North Vancouver, and includes the busy Vancouver Harbour and Port of Vancouver. The catchment area for Burrard Inlet covers 98,000 ha including subalpine meadows to dense mature forest areas to extensive industrial and urban areas.

The Inlet is estuarine due to significant freshwater inputs; including the Capilano, Seymour, and Indian Rivers. Across the catchment areas of Burrard Inlet, approximately 66% of the land is currently protected as parks (provincial, regional and municipal parks), primarily the North Shore mountains and Indian Arm areas. It is well-circulated and flushed regularly by the tides and currents between the Narrows with daily tides ranging an average of 3.1 m, to a maximum of 4.9 m (Tsleil-Waututh Nation, 2024).

Sample Planning and Methodology

Water monitoring during the first sampling season took place from June 11th, 2024 to October 8th, 2024. The second monitoring season occurred between July 16th, 2025 to October 25th, 2025. An investigative sampling plan was developed to assess recreational water quality levels under varying conditions, including both weather and tidal fluctuations.

All of the sampling methodology is in accordance with Health Canada's [Recreational Water Quality Guidelines](#), British Columbia's Ministry of Environment and Climate Change [Recreational Water Quality Guidelines](#), and Vancouver Coastal Health's [Beach Water](#)

[Quality Program](#). The figures below show a map of the sample collection locations and the site's zone of influence (Figure 1).

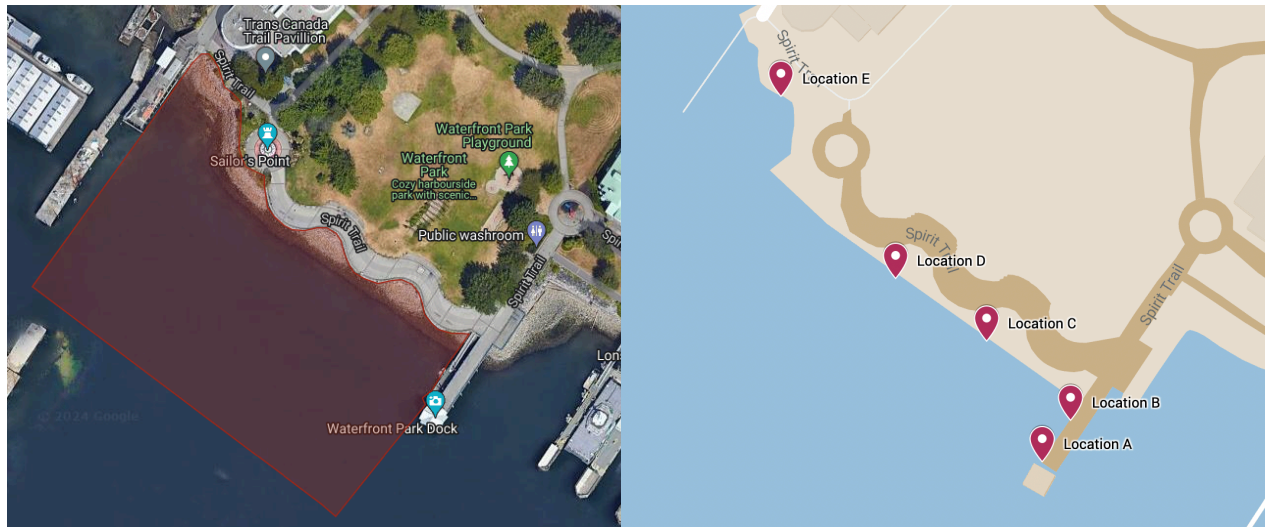


Figure 1: Map of Waterfront Park Zone of Influence. All environmental observations are made within this zone, and a map displaying the sampling locations at Waterfront Park in North Vancouver.

Water samples were processed using MI agar (MI Agar, 2025), methodology for comparison in 2024, and IDEXX methodology (Coliform and *E. coli* water testing with COLILERT*, 2025) for both years. Both laboratory analysis techniques employed the same quality assurance/quality control (QA/QC) samples, including a field blank, a duplicate sample, and a temperature blank. All of the published data passed the QA/QC assurance measures. Full standard operating procedures, utilizing the IDEXX methodology, are available upon request.

The MI Agar methodology follows the same sample collection and fieldwork methodologies as the IDEXX methodology; however, there are differences for sample processing and analysis. When processing the samples, the water sample is first processed through a 42nm pore filter, then placed on a plate and grown on specialized agar media. Individual fluorescence and white colonies were counted on UV light instead of wells on a Quanti-tray and agar plate.

Results

E. coli Data Analysis:

The data assessed and shown in the results only includes data that passed all QA/QC measures throughout the collection and processing phases of the protocol. All the collected data have been transformed into graphs to help visualize the results against various thresholds, including the VCH Beach Action Value (BAV) threshold, as well as the accepted geometric mean and single sample maximum values used to identify recreational water quality passes and failures.

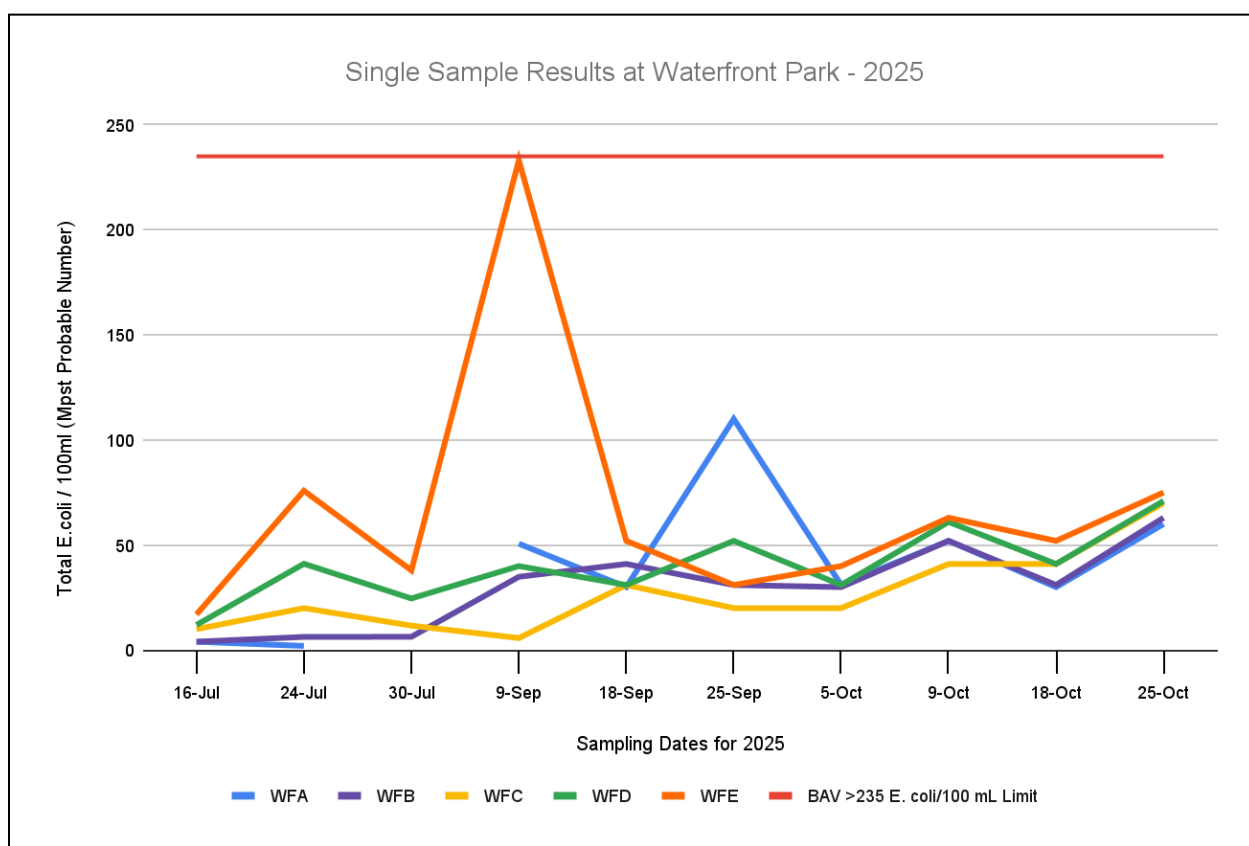


Figure 2: *E. coli* counts during swimming season, 2025. Each line represents the different sites (A, B, C, D, and E) that are quantified throughout the park. The VCH single sample maximum is ≤ 400 *E. coli* (MPN) / 100mL for suitable recreational water. The VCH BAV Limit is 235 *E. coli* (MPN) / 100mL.

The 2025 sample results for each location show that all results were well below the VCH single-sample maximum. One single sample exceeded the VCH BAV limit of 235 *E. coli*/100 mL, however, it did not indicate a sustained water quality concern. Regular monitoring continued as planned, and subsequent results were within the acceptable

range. This confirmed the elevated result was an isolated occurrence for the sampling period in 2025 and did not reflect a risk to recreational users.

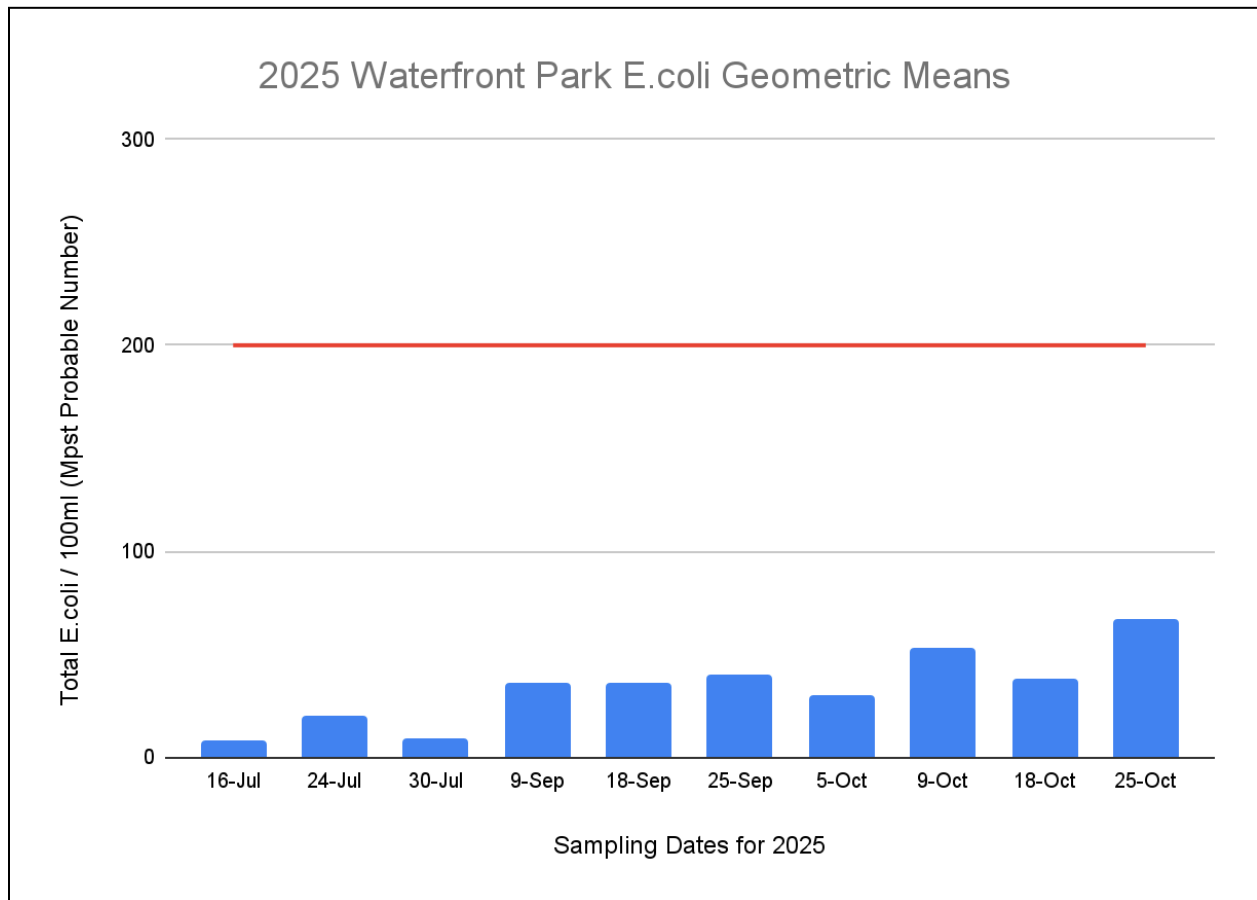


Figure 3: *E. coli* geomean counts during swimming season, 2025. The geomean (average) reflects data from all five test locations at Waterfront Park for each sampling week. All geomeans were below the VCH threshold of 200 *E. coli* /100mL and are deemed suitable for recreation.

The geometric mean analysis at Waterfront Park consistently showed low *E. coli* levels well below the limit of 200 *E. coli*/100 mL. The sampling on September 9th, 2025, at the WFE location had one elevated *E.coli* result; however, it still remained below the limit. The geomean of the same site samples did not show a significant increase for that sampling week. However, a slight increasing trend can be seen in the geometric mean as the fall season approaches with an increase in precipitation events and volume. However, even with the increasing trend, all samples remain well below both the geometric mean and single sample maximum guideline values.

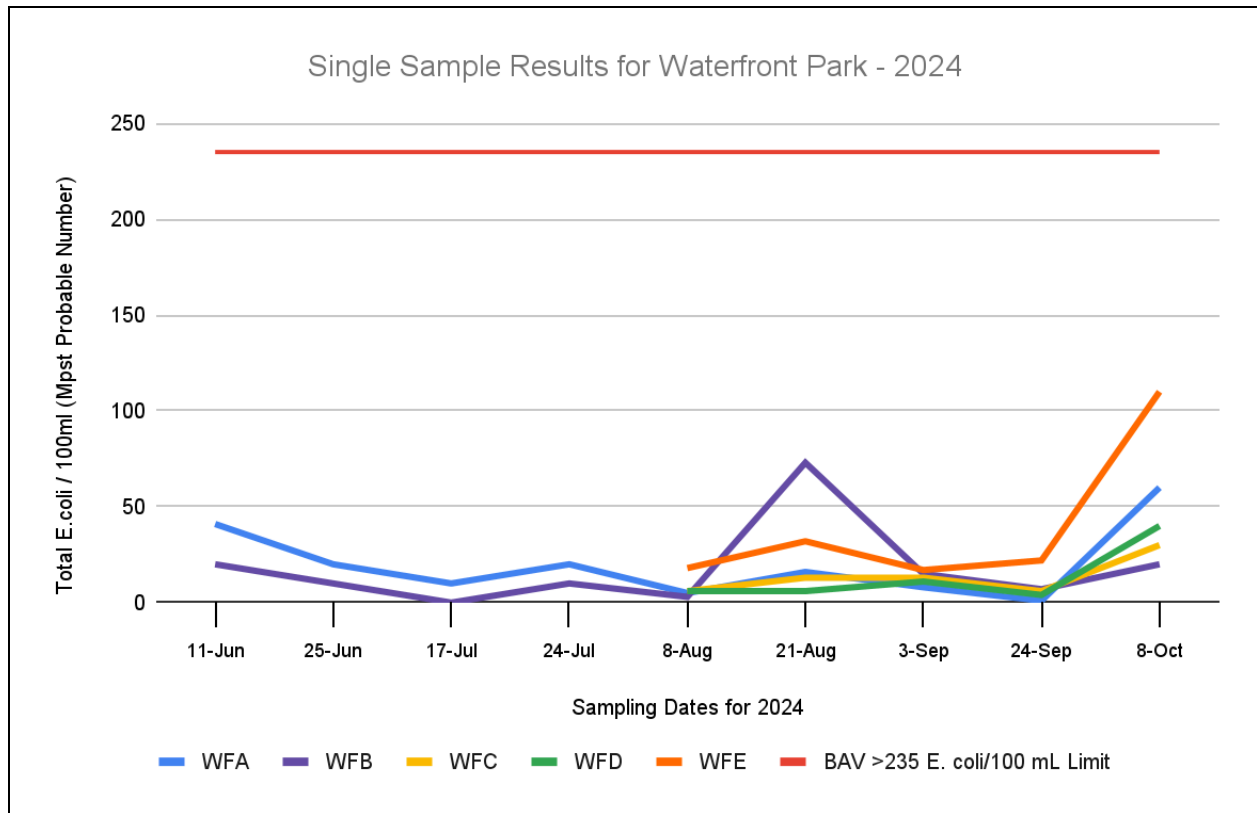


Figure 4: *E. coli* counts in 2024. Each line represents the different sites (A, B, C, D, and E) that are quantified throughout the park. The VCH single sample maximum is ≤ 400 *E. coli* (MPN) / 100mL for suitable recreational water. WFC, WFD, and WFE were not sampled until August 13th due to difficulty accessing the location.

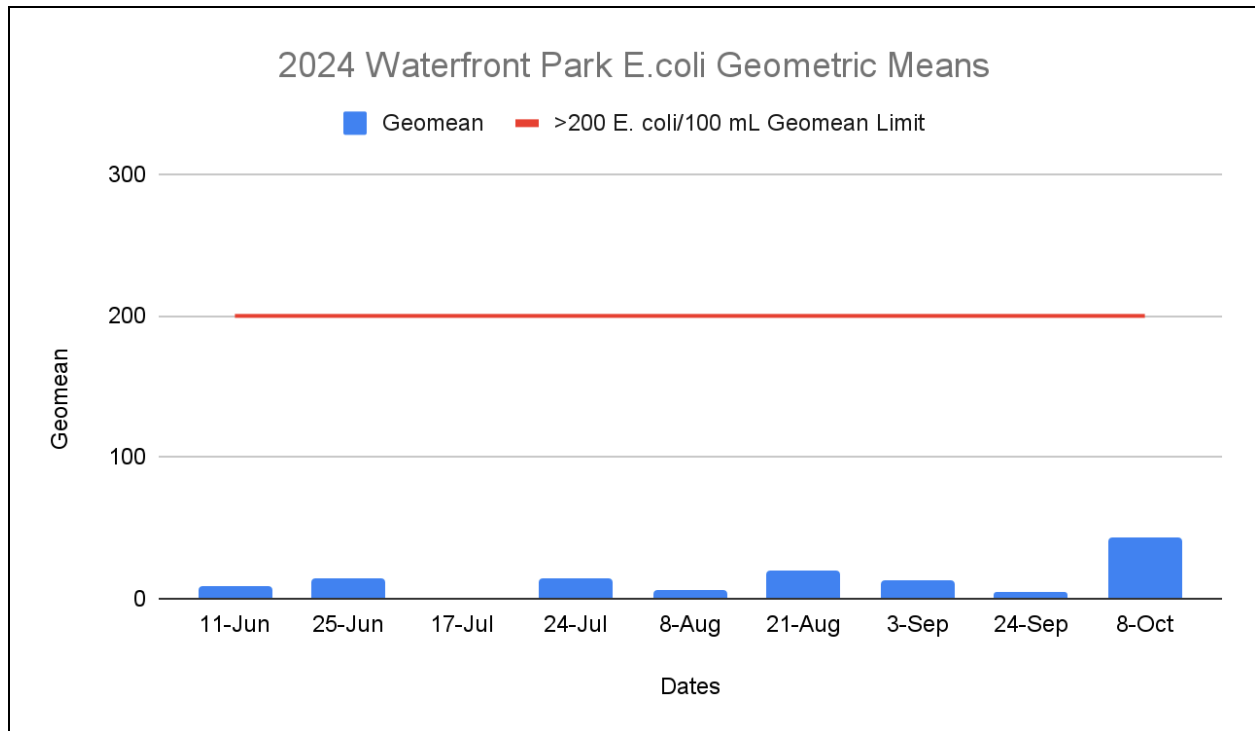


Figure 5: *E. coli* geomean counts during swimming season, 2024. The geomean (average) reflects data from all five test locations at Waterfront Park for each sampling week. All geomeans were below the VCH threshold of 200 *E. coli* /100mL and are deemed suitable for recreation.

The data from both individual sample locations and the geometric means of Waterfront Park in 2024 show results well below the Vancouver Coastal Health limit for *E. coli* for recreational waters. The geometric mean increased slightly during the fall season, especially in October. This trend is also evident in the 2025 samples. Due to the unstable rocky access to the water, sampling access was not possible at Locations C-E prior to August 13, 2025 (Figures 11 and 12). Results prior to that date are based on two samples collected at locations A and B. Personal protective equipment and additional monitoring equipment have been acquired to ensure all sites will be accessible and tested during all future monitoring.

Precipitation Analysis:

An assessment of precipitation data, weighted against the *E. coli* results, was conducted to determine if a correlation existed between the two. The results below show the *E. coli* data summarized into the geometric mean results compared against the precipitation data for the entirety of the sampling season for each respective year.

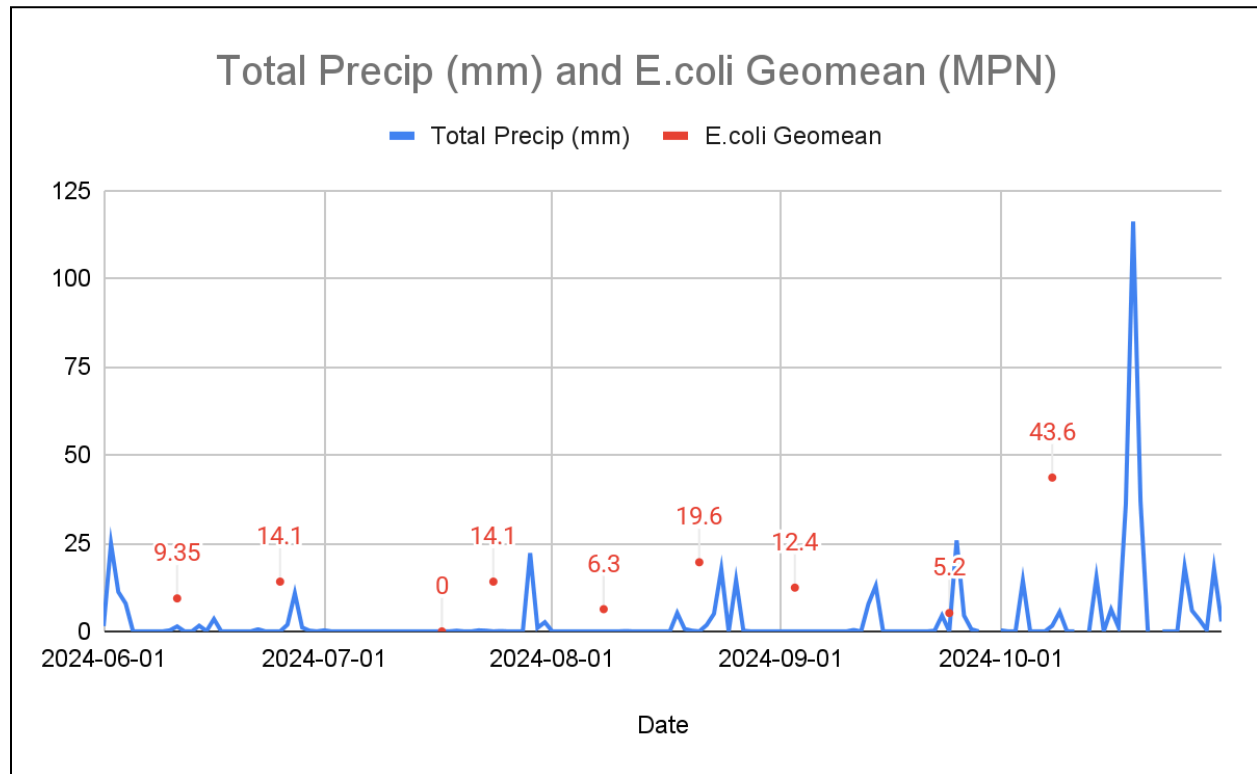


Figure 6: Total daily precipitation (mm) in the 2024 sampling period and the *E. coli* geometric mean results. The daily total was taken retrospectively using the Government of Canada's Environment and Natural Resources website. The World Meteorological Organization ID is 71201.

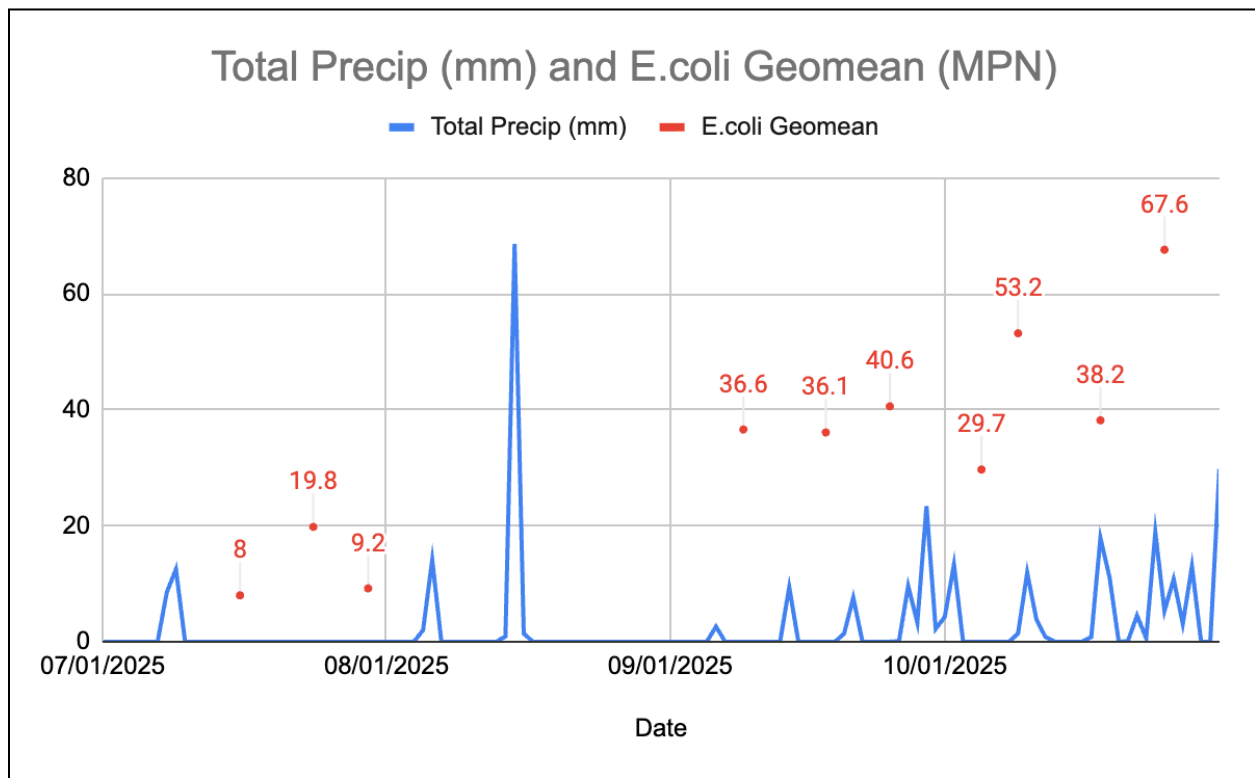


Figure 7: Total daily precipitation (mm) in the 2025 sampling period and the *E.coli* geometric mean results. The daily total was taken retrospectively using the Government of Canada’s Environment and Natural Resources website. The World Meteorological Organization ID is 71201.

Discussion

The results of the investigative sampling over the last two years indicate a 100% pass rate of the *E. coli* values when compared to the standards outlined by VCH for suitable recreation. Sampling efforts were conducted under various weather conditions to assess whether factors such as precipitation or cloud cover had an impact on the levels of *E. coli* at the site. A minimal trend is evident between the levels of precipitation that occurred in North Vancouver in the days leading up to and during the sampling events and the *E.coli* geometric mean, indicating that rain may contribute slightly to increased *E.coli* in the water. Despite this trend, the presence of precipitation during or in close proximity to the sampling events did not elevate *E.coli* above the VCH standards. This trend also has no statistical significance, indicating that this relationship could also be due to random chance.

An additional assessment of Combined Sewer Outlets (CSOs) within the Vancouver region showed that there are no close-by CSOs to Waterfront Park. CSOs are often a major source of fecal contamination in waterbodies, and tend to overflow during major

precipitation events, releasing untreated wastewater and stormwater directly into the waterbody. It can be hypothesized that any overflows occurring within the same waterbody are sufficiently distant from Waterfront Park to have no measurable impact on water quality. Attached in Appendix B is a map of all of the CSOs in the inner harbour of Burrard Inlet; the distance from Waterfront Park to the nearest CSO is drawn on the map (2.48 km).

Although Health Canada's [Recreational Water Quality Guidelines](#) do not regard chemical contamination as a risk for recreators, Swim Drink Fish staff reviewed the [Water Quality Objectives for Burrard Inlet](#) developed by the Tsleil-Waututh Nation and the Province of British Columbia. The results of that assessment showed that none of the contaminants exceeded established screening benchmarks in the water column (the vertical profile of the water from the surface to the bottom). Although these contaminants may pose potential health risks to humans through the consumption of fish and shellfish, they do not pose any acute health risk to people recreating in the water.

It is recommended that regular monitoring efforts continue during the swimming season to continue assessing what factors may be impacting *E. coli* at the site and if *E. coli* levels stay consistently below the regional thresholds. The continuation of the dataset will allow for clearer trends and greater confidence in the average water quality and factors affecting it as the dataset grows larger. In addition to this, it is recommended that the sampling period be extended into the fall and winter months to assess if the slight trend of elevated *E. coli* levels we observed in October continues. A further assessment of the impact of the tide on *E. coli* is also recommended to continue understanding the various factors that could impact water quality at the site. Swim Drink Fish will meet this recommendation by continuing our investigative sampling of *E. coli* until approximately March 2027, or the site no longer becomes accessible due to construction.

Conclusion

Upon completion of two years of investigative sampling, the data consistently show low *E. coli* results, with 100% of the results falling below the recreational water quality limit (geometric mean of five samples ≥ 200 *E. coli* /100mL, and single sample maximum ≥ 400 *E. coli* / 100mL to fail). With sampling conducted in various conditions and consistent with both municipal and regional protocols for recreational water quality testing, the results of this investigation indicate that the site is suitable for recreational use in terms of its water quality.

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Appendix A: Site Relevant Photos and Maps



Figure 8: Sign at the Waterfront Park dock.

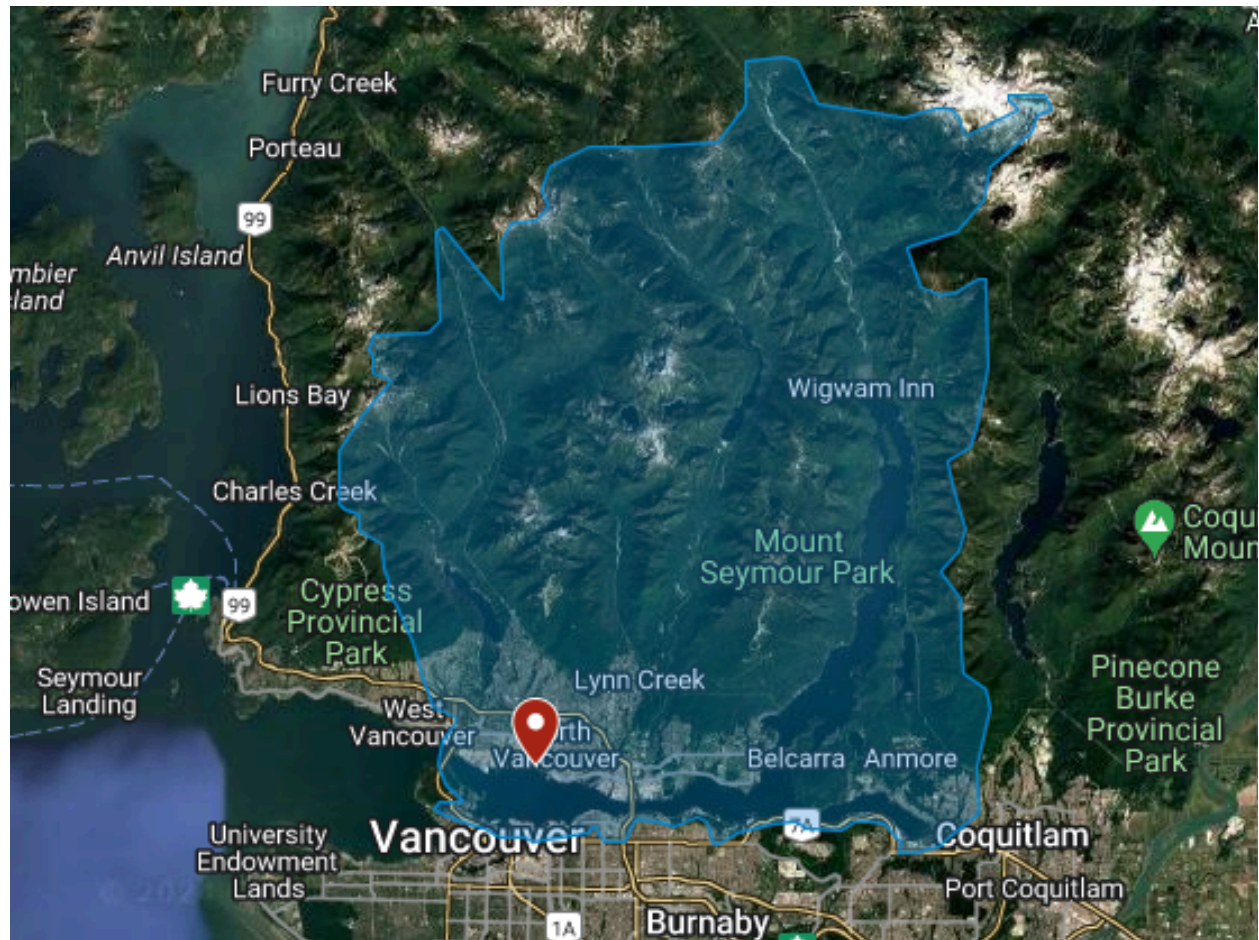


Figure 9: Map of the Watersheds for the Burrard Inlet. Image taken using GoogleMyMaps. Waterfront Park is marked with red pin.

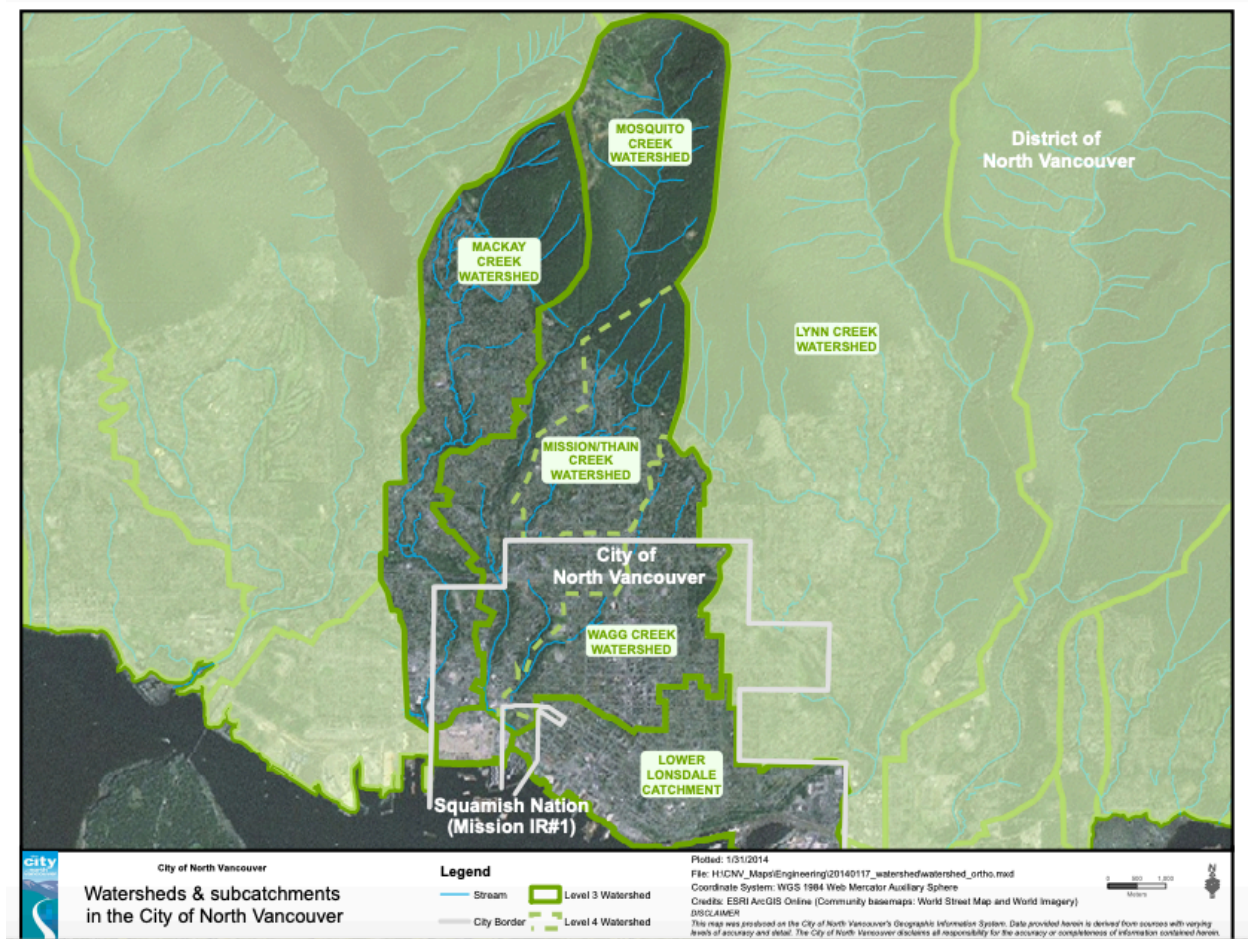


Figure 10: Watersheds within the City of North Vancouver. Image taken directly from the city website (Watersheds: City of North Vancouver, 2025).



Figure 11: A Picture of the rocks that support the seawall shows the gradual decline towards the water surface.



Figure 12: Additional photo of the rocks supporting the seawall that is submerged under water during high tide and presents with seaweed and barnacle growth.

Appendix B: Combined Sewer Overflows (CSOs) in the Burrard Inlet

Below is a map of the CSOs that may have an influence on the bacteriological water quality at Waterfront Park. The green pin indicates the park on this map. The Mackay Avenue pin is a dark orange to represent a sanitary sewer overflow, rather than a combined sewer overflow. The combined sewer overflows on this map are in light orange and include: Brockton Point CSO, Burrard St. CSO, Columbia St. CSO, Hawke Ave CSO, Vernon Dr CSOEHS, Clark Dr. CSO #1 and Clark Dr. CSO #2. Also demonstrated is the distance from Waterfront Park to the nearest CSO across the inlet (2.47km).

