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**To:** "Direct to Mayor and Council - DL" <CCDTMACDL@vancouver.ca>

**Date:** 1/20/2016 3:49:56 PM

**Subject:** Request to Staff - Protecting Vancouver's Recreational Water Quality - RTS 10986

**Attachments:** [CMO - Mayor and Council - RTS #010986 - Protecting Vancouver's Recreational Water Quality.pdf](#)

Dear Mayor and Council,

Please see attached memo from Jerry Dobrovolny, General Manager, Engineering Services on Protecting Vancouver's Recreational Water Quality for information.

A summary of the memo is as follows:

- Summary activities in response to Council's May 2015 motion of zero beach closures and to elevated E. coli levels experienced in False Creek during the summers of 2014 and 2015.
- Sources of E. coli contamination in False Creek are multiple and include both land-based and water-based activities, which cross many jurisdictional boundaries and programs.
- A multi-agency working group was created to identify short-term and long-term issues and opportunities to address water quality in False Creek. Working group participants include Vancouver Coastal Health, Transport Canada, Metro Vancouver, Port Metro Vancouver and City staff from Engineering Services, Parks, and Environmental Protection, which meet regularly to progress on action items.
- The City's Environmental Planning branch in REFM has committed to leading the initiative.

If you have any further questions, please call or email myself or Brian Crowe for any clarification.

Regards,  
Sadhu

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ENGINEERING SERVICES  
Jerry Dobrovolny, P.Eng.  
City Engineer/General Manager

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## MEMORANDUM

January 20, 2016

TO: Mayor & Council

CC: Sadhu Johnston, Acting City Manager  
Paul Mochrie, Acting Deputy City Manager  
Janice MacKenzie, City Clerk  
Lynda Graves, Manager, Administrative Services, City Manager's Office  
Rena Kendall-Craden, Director, Communications  
Mike Magee, Chief of Staff, Mayor's Office  
Kevin Quinlan, Deputy Chief of Staff, Mayor's Office  
Braeden Caley, Director, Policy and Communications, Mayor's Office  
Jane Pickering, Acting General Manager, Planning and Development Services  
Malcolm Bromley, General Manager of Parks & Recreation  
Brian Crowe, Director, Water, Sewers and District Energy  
Bill Aujla, General Manager of Real Estate and Facilities Management  
Jennifer Mayberry, Environmental Protection  
Randy Ash, Vancouver Coastal Health

FROM: Jerry W. Dobrovolny, General Manager, Engineering Services

SUBJECT: Protecting Vancouver's Recreational Water Quality - Council Information Request - RTS 010986

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This memo provides background and an update on staff activities in response to Council's May 2015 motion to:

"Direct staff to address the Park Board objective (to work with interested government agencies and departments, non-government organizations and individuals to achieve a goal of zero beach closures), in staff's ongoing work on the Integrated Stormwater Management Plan."

While the Motion refers specifically to beach closures, Park Board, Council and staff were also responding to elevated E. coli levels in False Creek during the summers of 2014 and 2015. This memo addresses water quality at our swimming beaches and in False Creek.

### Context - 2014 and 2015 Water Quality at Swimming Beaches and in False Creek

E. coli are bacteria that are indicators of all sources of faecal contamination, and are monitored to assess the risk that pathogens are present in the water. Vancouver Coastal Health (VCH) reports water quality based on weekly sampling and testing by Metro Vancouver during the swimming season (April to September) and before the polar bear swim. In accordance with the Guidelines for Canadian

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Recreational Water Quality, VCH requires that beaches be posted “No Swimming” if the 30-day mean E. coli level exceeds 200 organisms/100ml.

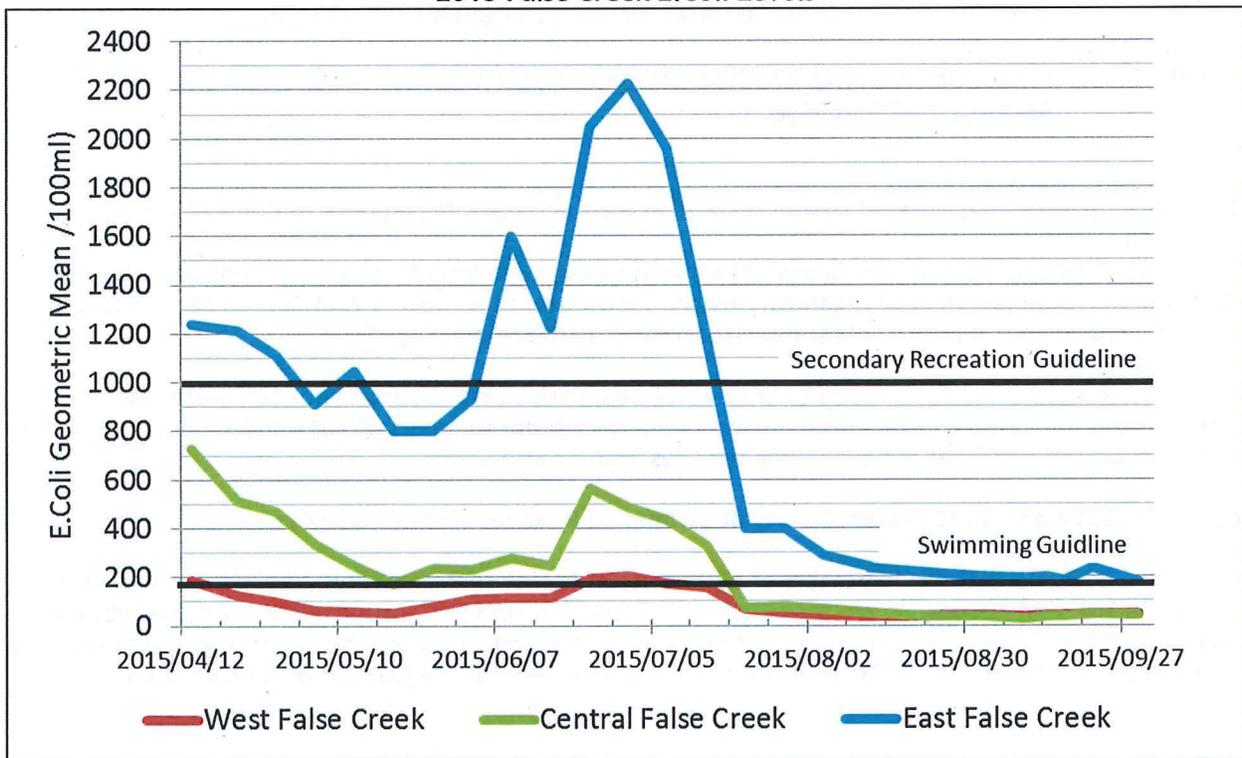
False Creek is not intended for swimming, and is not subject to a specific water quality regulatory limit. However, VCH reports average E. coli results and notes that Health Canada guidelines recommend no more than 1000 E. coli/100ml (30-day mean) for recreation such as paddling. When levels exceed 1000 E. Coli/100 ml, paddlers are advised to take extra precautions such as hand washing and showering after their water-based activity.

Beach closures are rare in Vancouver. In 2014, for the first time in over a decade, a swimming closure was required at Sunset Beach for 5 weeks. No other Vancouver beaches were closed for swimming, but several beaches on the North Shore were posted for a similar duration. The elevated E. coli levels were believed to be due to a hot and dry summer combined with increased boating activity.

No beach closures were required in Vancouver during 2015. E. coli levels briefly spiked at Locarno Beach following the Celebration of Light in late July, but the incident was short-lived and did not require a beach closure.

False Creek had unusually high coliform counts in August 2014, and from April to mid-July 2015. The basin east of Cambie Bridge traditionally has the poorest water quality due to limited tidal flushing in that area. The sewer system in the east basin has been separated since 2010, which has eliminated nearly all combined sewer overflows into the basin, but periodic high E. coli counts persist. It has also been observed that E. coli counts climb significantly when water temperatures are warm and nutrients are abundant, such as during Spring and Summer algae blooms. E. coli counts remain low during the Fall and Winter, regardless of CSO events or other contaminant inputs.

2015 False Creek E.Coli Levels



## Sources of E. coli Contamination

The sources of E. coli contamination in False Creek are not fully understood but are believed to be multiple. Land-based E. coli concerns include sewer system overflows (including occasional CSOs in the central and west basins) and cross-connections, animal waste, urban agriculture, and runoff from streets. Other contaminants such as heavy metals and hydrocarbons are also carried by runoff, especially during the “first flush” of rain after extended dry periods. Water-based coliform sources can include anchored and transient boats, docked vessels at marinas and both private watercraft and commercial charter boats. Wildlife are considered a minor source of E. coli in False Creek.

## 2015 Mitigation Efforts

Over the last three decades False Creek has transformed from an area of heavy industry to a mixed-use residential neighbourhood. The return of spawning herring, seals, otters and whales are indicative of the recovery of the False Creek ecosystem. Kayaking and dragon boating are increasingly popular in False Creek. In this context, when E. coli levels were elevated earlier and higher than usual this spring, staff in all involved agencies worked to address the problem and manage the impacts. These efforts focussed mainly within three streams of work:

### Park Board, Corporate Communications, and Coastal Health Public Information Campaigns

On June 19<sup>th</sup> the Park Board launched its “Keep Our Waters Clean” campaign encouraging boat owners to “pump, don’t dump” with free pump-outs at Burrard and Heather civic marinas; dog owners to “scoop the poop”; and beach-goers to “put waste in its place”. A joint social media campaign reinforced these messages during events such as Celebration of Light and periodically throughout the summer. False Creek anchoring permits were also updated to ensure that permit-holders were aware of the free pump-outs and reminded that swimming is not recommended in False Creek.

In cooperation with Vancouver Coastal Health, the City upgraded signage at all water entry points around False Creek to remind paddlers that they should take extra precautions while bacterial counts are high. Staff also worked with the non-motorized boating community and organizers of the Dragon Boat Festival to ensure that participants were well informed and had easy access to hand-washing stations during the event.

### False Creek Investigations

City staff were deployed within the East False Creek sewer catchment to search for any problems in the sewer system, such as cross-connections between sanitary fixtures and the storm sewer system. The catchment area extends north into Chinatown, and east to Clark Drive, making this a major undertaking. New buildings connected since 2014 were systematically dye-tested and inspected for possible cross-connections. As well, the City’s sewer maintenance records were searched for possible recurring problems.

These investigations uncovered a maintenance problem in the City system: a nearly-clogged sanitary “siphon” pipe crossing Terminal Avenue that serves several new buildings in the neighbourhood. Although the pipe was functioning and the buildings were unaffected, staff believe the sanitary sewer pipe was occasionally surcharging enough to cause an unintended overflow into the storm sewer system. This problem was, of course, corrected once it was identified.

### False Creek Water Quality Working Group

While the investigations and remedial work were important to protect False Creek water quality, the historical water quality patterns indicate that many factors are in play, and these actions will not entirely remedy the problem. Therefore, a multi-agency working group was established to look at short and long-term issues and opportunities to better manage False Creek water quality. Participants in the

group include Vancouver Coastal Health, Transport Canada, Metro Vancouver, Port Metro Vancouver, and City staff from Engineering Services, Parks, and Environmental Protection.

Numerous staff and agencies have roles in protecting False Creek water quality: Engineering Services maintains the City's sewers and drainage systems, while the Park Board administers the anchoring permit system and operate civic marinas and pump-outs, as well as the swimming beaches. Vancouver Coastal Health regulates swimming beaches and provides water quality information based on sampling and testing by Metro Vancouver. Metro Vancouver operates larger components of the sewer system including some of the combined sewer outfalls within Vancouver. Regulatory roles are also complex: Transport Canada regulates boating activity, and Port Metro Vancouver has a regulatory role in English Bay (but not False Creek). Coastal Health regulates sanitary practises on charter boats serving food, and uses that opportunity to advocate for proper pump-out practises.

The City of Vancouver has limited abilities to regulate boating activity within False Creek and English Bay. While the City has authority to issue anchoring permits and limit how long boaters stay in False Creek (max. 2 weeks followed by 16 days absence), we do not have authority to limit the number of boats or to mandate where they anchor. Approximately four boats are removed per year, but up to 70 are anchored during busy summer weeks. Illegal sewage discharges are also very difficult to control, because infractions must be witnessed and enforced through prosecution; neither the City nor Transport Canada has ticketing authority.

### Next Steps

All agencies agree that the issue is complex and sometimes perplexing, and ongoing inter-agency work is required to consistently achieve zero beach closures and improve False Creek water quality. The next steps being pursued by the group include:

- Detailed analysis of water quality data in relation to other variables such as weather, tides, special events, boating activity, etc.
- Exploration of changes in wording or interpretation of existing regulations, such as the definition of sea-worthy boats and how it is applied to anchorage enforcement in False Creek.
- Advocacy opportunities such as requesting that permit-holders not anchor in the east basin.
- Identifying "dinner cruise" operators who frequent False Creek and partner with Port Metro to access GPS data which could suggest illegal sewage dumping within the 3-mile limit.
- Following up with urban agriculture operations in the catchment area to ensure best practises to control runoff from manure.
- Completing remedial work on the sewer system within the tributary area.
- Tracking CSO events that could influence False Creek water quality to look for correlations with bacterial results.
- Assessing sources of E. coli from stormwater outflows.
- Improving outreach to the boating community with regard to best practises for pollution prevention.
- Completing the City-wide Integrated Rainwater Management Plan, and developing an implementation strategy to improve the quality of urban rainwater runoff.

To sustain the multi-faceted focus of the working group, the City's Environmental Planning Branch in REFM has committed to leading the initiative. Staff will periodically update Council on the progress of the group.

If you have any further questions, please call or email myself or Brian Crowe for any clarification.



Jerry W. Dobrovolny, P.Eng. MBA  
General Manager of Engineering Services