

To: Regional and Corporate Services Committee
 From: Lance Lilley, Manager of Environmental Services

Date: 2025-12-04

Subject: 2025 Floodwater Mosquito Control Season Year-End Report

Reviewed by: David Urban, Deputy Director of Regional Services
 Stacey Barker, Director of Regional Services/Deputy CAO
 Jennifer Kinneman, Chief Administrative Officer

RECOMMENDATION

This report is being brought forward for the Board’s information and there is no staff recommendation.

BACKGROUND

The Fraser Valley Regional District (FVRD) conducts treatments each year for floodwater mosquitoes as part of the regional Mosquito Control Program. Floodwater mosquitoes, which are the most common type of mosquito found within the region, emerge each year from riverbanks and low-lying areas that get wetted each spring and early summer when river levels rise with snowmelt. The program focusses on monitoring water levels, sampling for mosquito larvae, and applying a bacterial larvicide (*Bacillus thuringiensis* var. *israelensis*, or Bti) to the wetted areas at the appropriate time (Figure 1). Bti treatments are expected to reduce the total abundance of adult floodwater mosquitoes by 85-90%.

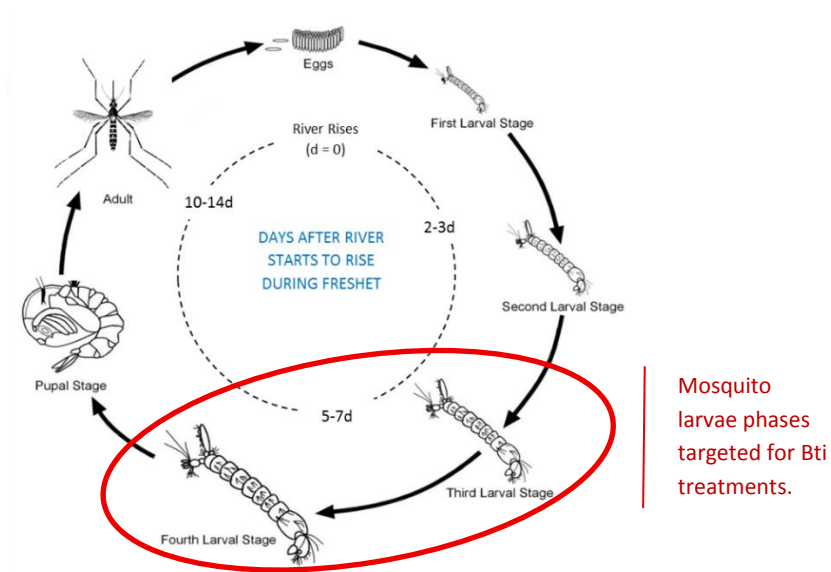


Figure 1. Mosquito life history and treatment timing for floodwater mosquito larvae, highlighting the importance of thorough sampling and monitoring to allow for precise treatment timing (source: FVRD’s 2024-2029 Mosquito Control Pest Management Plan). Note that timing shown is approximate and may vary based on local conditions.

Morrow BioScience Ltd. (MBL) provides mosquito control services on behalf of the FVRD. MBL has submitted a 2025 Year-End Report (attached) summarizing their efforts during the 2025 season.

DISCUSSION

The abundance of adult floodwater mosquitoes in the region each summer is highly correlated to the height of the Fraser River during peak flows. In 2025, the Fraser River peaked at 4.003 metres (as measured at the Mission gauge). This was almost a metre higher, and a month earlier, than the peak in 2024 (Figure 2). The 2025 peak was still considered quite low however and resulted in significantly less mosquito breeding habitat becoming active compared to most years. The exception to this was 2024, which was the lowest Fraser River peak observed in at least the past nineteen years. River levels in 2025 peaked at just over 4 metres – higher than in 2024 but considerably lower than other years. Although mosquitoes start to emerge when the Fraser River rises past 3 metres, one of the greatest predictors of high mosquito abundance is the duration of time the Fraser River is above 5 metres. Fortunately, the Fraser River remained below 5 metres in 2025.

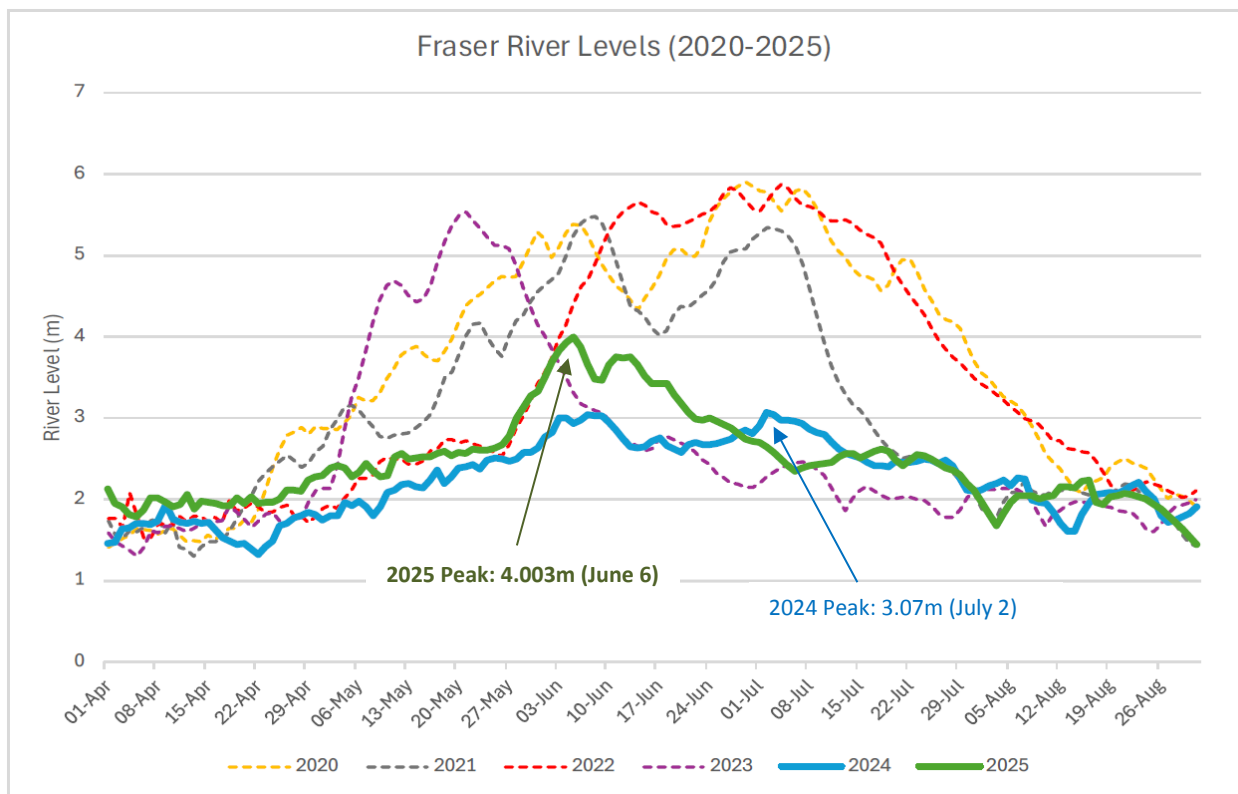


Figure 2. Fraser River water levels recorded from the Mission gauge (08MH024) from 2020-2025.

MBL began monitoring for mosquito larvae activity on May 1, 2025, and continued through August. Although less mosquito larvae breeding habitat became active compared to average years, low-lying areas near the Fraser River still experienced larvae development requiring treatments. According to the MBL report, the areas with the highest larval abundances in 2025 included Crescent Island, Island 22, Laidlaw, near Matsqui Trail Regional Park, near Hope, and the south end of Stave Lake.

Larvae treatments, by ground applications or by helicopter, were conducted between May 8 and July 18. The total amount of larvae habitat treated in 2025 was 359 hectares, up from 200 hectares in 2024. By comparison, more than 3,000 hectares were treated in 2022 when the river peaked at 5.9 metres. Following each treatment, all sites were checked within two days to determine effectiveness and touch-up treatments were provided when necessary.

MBL received only three complaints related to mosquito abundance in 2025.

2026 Forecast

Current forecasts suggest wetter and colder conditions are to be expected for this winter and spring. While this does not necessarily mean higher snowpacks and higher river levels for next year, those conditions are likely. Since mosquito eggs laid previously can remain viable for multiple years, if river levels are elevated in 2026, they **“could activate previously dormant eggs above the 4 m mark, resulting in significantly higher larval densities”** (p23).

As experienced last year, these forecasts do not always materialize. Other than just relative river height, mosquito abundance and nuisance levels in any given season are ultimately determined by a combination of factors, including absolute river height, duration of high water, local precipitation, timing of snow melt, and ambient air temperatures, which creates challenges in attempting forecasts. Historical trends however suggest that the river levels during freshet the past two years were unusually low and that a return to normal should be expected.

MBL crews will begin monitoring for larvae development in early spring in 2026 and will be providing ongoing and thorough treatments as needed throughout the season to keep mosquito abundance within tolerable levels.

COST

Costs for the 2025 floodwater mosquito control treatments were within budget. Funds not spent in 2025 will be moved into appropriated surplus to be used in future above average treatment years.

CONCLUSION

Monitoring, sampling, and treatments associated with the FVRD’s Mosquito Control Program have concluded for the year and a 2025 Year-End Report has been submitted by Morrow BioScience Ltd. Larvae treatments, along foreshore areas of the Fraser River and Stave Lake were conducted between May and July. The overall abundance of floodwater mosquitoes in the region remained relatively low in 2025 but is expected to be higher in 2026.