

2018 EARLY SEASON REPORT
Columbia Shuswap Regional District
Golden, BC (Area 'A') Mosquito Program

Submitted by Morrow BioScience Ltd.
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Introduction

This report is provided to the Columbia Shuswap Regional District (CSRD) for use as a projection tool in 2018 with regards to the magnitude of potential flooding within Golden (Area 'A'), as it relates to mosquito larval abundance potential. The report will include information on current snow pack data within basins contributing to the Columbia River and Kicking Horse River near Golden, the projected weather outlook for the summer (i.e. El Nino effect, La Nina effect, etc.), and a reminder of sources for up-to-date information regarding Morrow BioScience Ltd. (MBL) early season field work. This report is an estimate of how the summer may develop based on current weather predictions and snow levels; it is possible that conditions could change in late April and early May. The mid-season report will have more thorough explanations of environmental conditions affecting mosquito larval levels. The first report will be provided to the CSRD by the end of May.

Snow Pack

Snow pack can be a good indicator of how much water will come through a river system over the course of the summer. Specifically, the snow pack in the Upper Columbia basin directly relates to regional Columbia River and Kicking Horse River fluctuations. These fluctuations are important to track because they inform the timing and extent of floodwater mosquito hatching.

The percentage reported in Table 1 reflect the most recent snow pack estimate for the Upper Columbia basin¹. The weather through late March resulted in precipitation levels throughout the British Columbia Interior that were well above normal and led to considerably high snow packs across the basins contributing to regional rivers.

High flood levels are expected for rivers associated with basins containing high snow packs. The Upper Columbia basin hasn't had as great a snowpack since 2012. According to the River Forecast Centre, approximately 95% of the snowpack has typically accumulated as of April 1¹. Thus, the April 1 survey is considered largely indicative of the flooding forecast for the season. That said, late season snow accumulation at high elevation stations occurred in 2017 and contributed considerably to the freshet. Thus, additional snow input is typically possible through early May.

Current snowpacks indicate that 2018 will be a high-water year. In preparation for this, MBL field technicians started assessing mosquito development sites throughout the Golden area in mid-April. Snowmelt-associated sites and Columbia River benches have been treated.

¹ https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/river-forecast/2018_apr1.pdf

Table 1. Snow basin indices for basins that directly affect the Columbia River and Kicking Horse River, determined by the April 1, 2018 bulletin (https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/river-forecast/2018_apr1.pdf).

Basin	Percent of Normal Snow Pack
Upper Columbia	111

Weather

La Nina conditions were in place in the equatorial Pacific Ocean throughout the 2017/2018 winter. When this occurs, cooler than normal temperatures dominate the basins contributing to the Columbia River and Kicking Horse River. Higher than normal snowpacks are also associated with winter La Nina conditions. La Nina conditions are still present. While the effects are expected to lessen, the rate at which the reduction occurs may take several months.

In La Nina years, the snow basin indices increase by 2-5% between April and May. Thus, an increase in snow indices into May should be expected. According to the most recent Snow Survey and Water Supply Bulletin¹ via the U.S. National Oceanographic and Atmospheric Administration, neutral El Nino/Southern Oscillation (ENSO) conditions are expected to develop during the summer, likely predicting a relatively more average time frame for the freshet affecting the Golden area (ca. early June).

Updates and Contacts

MBL recognizes the importance of being available to citizens within each of our program areas as well as keeping citizens informed of relevant mosquito abatement activities and information. In an effort to continue to provide these connection opportunities, MBL regional managers check their email and phone messages on a daily basis. Replies to email and phone inquiries are returned within 24 hours.

As per the 2017 final report recommendations, MBL will have a booth at a Farmer's Market event earlier in the mosquito season (e.g. June). Information provided will focus on an overview of the program, including a Golden area-specific map, floodwater and snowmelt mosquito biology, and will offer residents tips specific to mosquito habitat reduction for their properties.

As a reminder, the following people may be contacted directly for any questions from the Columbia Shuswap Regional District.

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If questions from the public arise, please direct citizens to MBL's mosquito hotline (1-877-986-3363) or to the MBL website contact form at www.morrowbioscience.com. Additionally, interested citizens may find helpful information on our Facebook page (Morrow BioScience Ltd.). Subscribe to our Twitter feed (@MorrowMosquito) for interesting and important mosquito facts, as well as updates from our technicians in the field.