

Another flood year for the Shuswap?

A Shuswap Passion column for the Shuswap Market News

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By Jim Cooperman

Given the daily media reports of flooding throughout North America and the news that the Salmon River near Falkland is now flooding, it is only natural to consider what could happen throughout the Shuswap over the next month. There have certainly been some significant floods here in the past, beginning with the fur trade era when the forts in Kamloops suffered through floods in 1860, 1870, 1876 and 1882, when roads and homes were washed away. The greatest flood in the past 200 years was in 1894, when there was a very late and very rapid thaw and the resulting torrent destroyed bridges, closed the railways, and filled many communities with water.

It was another cold spring that led to the great flood of 1948, which devastated the Fraser Valley, as well as many other B.C. communities. Thousands of people were displaced; highways, railways and airports were under water; dykes collapsed and dams burst; and whereas the 1894 flood lasted just 10 days, in 1948 the high water persisted for nearly a month. The total cost for relief and rehabilitation was approximately \$20 million dollars, which would be equivalent to nearly ten times that amount in today's dollars. Millions more dollars were spent rebuilding and fortifying some 200 km of Fraser Valley dykes.

In the Shuswap, many communities were partially under water in 1948, including Sicamous, Enderby, and Salmon Arm. Along the North Shuswap parts of the road were flooded, forcing residents to depend on the lake for transportation. In Salmon Arm, with many roads under water, Salmon Valley farmers used boats to get around. Denis Marshall was 16 then and he remembers seeing boats tied to the railway embankment and the Ross St. parking lot under water. Despite some sections of the track being under water, the trains kept going, except during the frequent washouts that year.

The Salmon Arm Observer's 1948 flood saga begins with a brief May 20th column on high water worries as the lake was rising three inches per day and that "even on lower hills, considerable snow remains." By June 10th the headline story, "Shuswap Lake Waters Surpass 1928 Level" described how the underwater town wharf had to be chained to trees to keep it from floating away, there was 10 inches on the floor of the Canoe Sawmill machine shop, and the town sewage, which went directly into the lake then, had to be pumped to avoid being backed up.

Monitoring of the lake water level has been in place since 1923 and the details can be found on the Environment Canada Water Survey website. In 1948 the lake level

peaked at 349.640 metres above sea level, which is still below the 200-year flood level of 351 metres that was likely reached in 1894 before measurements were taken. The lake level is not the only factor in flooding here, as it is the level and flow rate of the Shuswap rivers and creeks that causes many of the impacts.

If and when the Salmon River spills over the banks it can flood sections of the community that are above the high lake level. The Eagle River spills into Sicamous forcing residents to use boats instead of cars in town. Elsewhere, creeks have taken out bridges and highways along with structures built on floodplains. In 1972, the third worst flood year, Shuswap Lake peaked at just a few mm below the 1948 level, but damage was less widespread due in part to the river levels.

While snowpack levels are definitely a determining factor, it is actually the weather in the spring that causes flooding. Cold weather in April and May, as we have had this year, delays the mid-elevation melting and then if sudden warm weather hits, the mid-elevation snow melt can combine with the high elevation melt to cause flooding. With automatic measuring systems now in place that provide online reports for two snow stations (Celista Mtn. and Park Mtn. above Sugar Lake) and 11 hydrometric gauge stations (on the Adams, Seymour, Eagle, Salmon, Shuswap and S. Thompson Rivers), it is possible to be an armchair hydrologist, as the data can be graphed and manipulated in many different ways.

It must be human nature that people tend to ignore history and trends and thus end up suffering similar consequences, again and again. The B.C. government downloaded floodplain management in 2003 to municipalities, who then proceeded to ignore what typically happens on floodplains by allowing more development to occur, as we have seen in Salmon Arm. And adding to the mix, we now are seeing the impacts of climate change, including more weather extremes and the loss of forest cover due to the mountain pine beetle, which adds to the snow levels in the mid-elevations. Already, 2011 is shaping up to be another year for the record books and if you live in a floodplain or next to the lake, be prepared!

Armchair hydrology websites:

Automated Snow Pillow Real-Time Data for Celista and Park Mountains:

http://bcrcfc.env.gov.bc.ca/data/asp/realtime/basin_nsthompson.htm

Lake water level data:

<http://www.wsc.ec.gc.ca/applications/H2O/HydromatD-eng.cfm>

(see also: <http://www.shuswaplakewatch.com/>)

Hydrometric stations on Shuswap rivers:

http://www.wateroffice.ec.gc.ca/google_map/google_map_e.html?search_by=p&province=BC

(Zoom into the Shuswap and click on the various station data points. Change the parameters to discharge and change the dates and add min, max and mean)