

Comparison of Bow River Flows within Calgary

The recent Alberta Environment and Parks Bow River Basin High Flow Advisory issued on Tuesday June 18, 2019 and later reinforced by the City of Calgary Boating Advisory was issued when flows within Calgary was averaging 225 cms illustrates a need for river users to understand the flow forecast and act cautiously when interpreting the river flow data that is available on the Government of Alberta's **Alberta Rivers** website.

TransAlta Flow Forecasts

TransAlta's flow forecast for discharge out of Ghost and Bearspaw Reservoirs on Thursday morning June 20, 2019 (Figure 1) indicated the average daily discharge out of Bearspaw Reservoir would drop from 230 cms to 219 cms over a three-day period. The forecast was revised upwards the following day (Figure 2) reflecting the regional weather forecast for high rainfall in and south of Calgary. Rainfall in the range of 50 - 60 mm was expected by the end of the weekend.

Date	Ghost Flow	Bearspaw
	cms	Flow cms
Thursday, June 20, 2019	230	230
Friday, June 21, 2019	227	219
Saturday, June 22, 2019	227	219

Figure 1

Date	Ghost Flow	Bearspaw
	cms	Flow cms
Friday, June 21, 2019	230	252
Saturday, June 22, 2019	227	263
Sunday, June 23, 2019	215	244
Monday, June 24, 2019	180	198

Figure 2

Bearspaw and Calgary Recorded Flows

Bearspaw water discharge (Figure 3) generally aligns closely to the flow forecast but can be significantly lower than what is recorded in Calgary at Reconciliation Bridge (Figure 4) when rainfall covers north-west Calgary.

Bearspaw Reservoir near Calgary | Weekly Graph

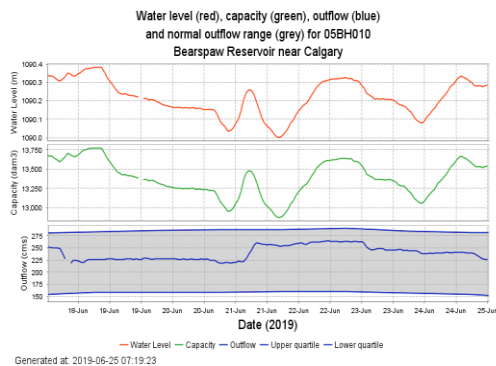


Figure 3

Bow River at Calgary | Weekly Graph

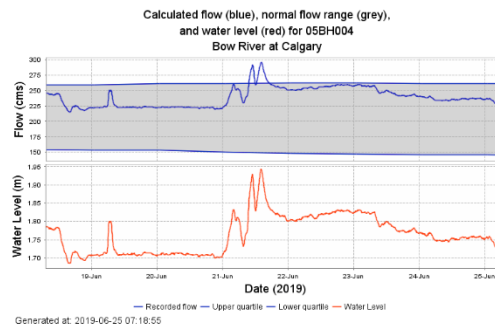


Figure 4

In total more than 50 mm of rain fell in north-west Calgary on Friday morning June 21, 2019 that elevated Bow River flows above the Elbow River to 275 cms, or more than 50 cms higher than the discharge out of Bearspaw Reservoir (Figure 5). In addition, it is possible that an equal amount of rain fell further south in the city as high rainfall moved south-west of Calgary and out into the foothills.

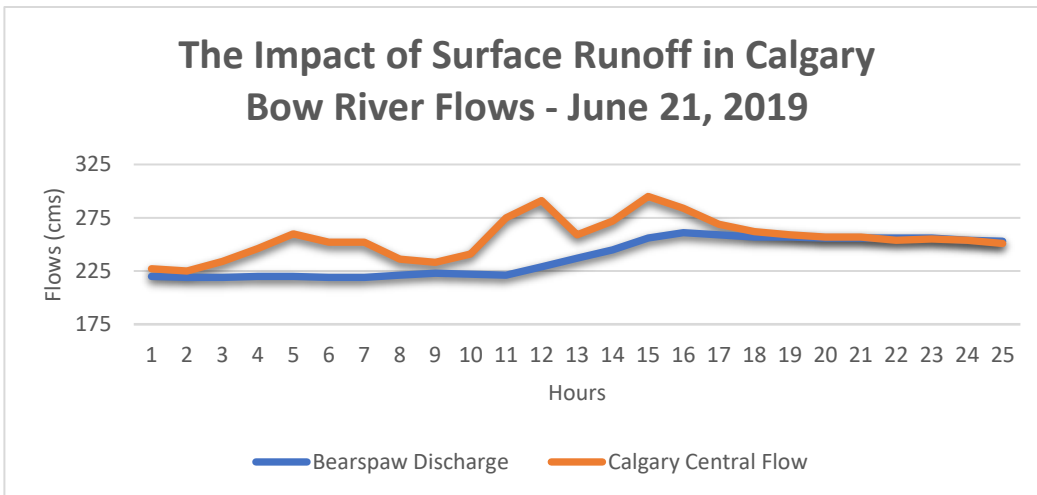


Figure 5

The Elbow River and Fish Creek started to rise, peaking later in the day at 110 cms and 35 cms respectively. In total Bow River flows out of the City of Calgary may well have peaked at above 450 cms before starting to drop on Saturday, June 22, 2019.

Lessons that can be learned from Bow River flows seen over the past week:

- Canada and Alberta precipitation forecasts appear to be very accurate for a 3-5-day period.
- Albert Environment & Parks issued a timely Bow River Basin High Flow Advisory and the City of Calgary followed with a Boating Advisory before the rainfall and river flows increased. This was a very good move on the part of the City of Calgary and to may have been the first-time such an advanced warning for high flows have been issued.
- TransAlta Flow Forecasts are very timely and need to be managed cautiously by organization that release the information to the public. Forecasts released on Thursday June 20, 2019 (Figure 1) and Friday June 21, 2019 (Figure 2) are examples. A dramatic change within 24 hours that may not have been communicated to the river user community until later each day.
- There is a need for caution when reviewing the AEP Rivers database. Taking information from one observation site does not always portray what is happening across the Bow River Basin. This is illustrated with a comparison of flow forecast (Figure 1 & 2) and the measured flows at Bears paw that were close to forecasts and Calgary where local rain had increased flows considerably (Figure 5).
- Although the Government of Alberta’s **Alberta Rivers** website has all the data needed to make informed decisions on recreational river use, there may be a place for a central collection of Bow River Basin flows, forecasts and interpretation of the information to be made available to the public in a concise and timely manner.

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