

The majority of the Blackmud Creek flood peaks have occurred in spring, with the earliest peak recorded on March 12 and the latest peak recorded on August 28. Approximately 60 percent of the peaks occurred in March, April, and the first few days of May, with the remaining 40 percent occurring in June, July and August. Based on the timing of the flood peaks, it is likely that the spring events were due to rainfall on snowmelt, while the summer events were due to rainfall.

2.3 Recent Floods

The most significant recent flood occurred in 2011, with a maximum instantaneous discharge of 18.8 m³/s recorded on July 27 at the WSC gauge. Like the 1983 event, this is less than a 5-year event. There are no highwater mark data available for this event.

2.4 Ice Jam Floods

There has been no historical documentation of ice jams being a significant issue. In this light, the current study does not examine ice-related water levels.

2.5 Frequency Analysis and Flood Risks

Appendix A contains a description of the hydrologic analysis that was undertaken to assess the Blackmud Creek flood risks. The analysis contains a description of the regional hydrologic characteristics and summarizes the regional flood events (Table A4 and Figure A10), including an assessment of the significance of the 1974 flood event. The effects of lake storage on the runoff patterns in the Blackmud Creek catchment are rationalized, as well as the subsequent spatial distribution of flood peaks along Blackmud Creek between Saunders Lake and the WSC gauge near Ellerslie. The resulting Blackmud Creek flood frequency curves are shown in Figure 2-2 and the flood frequencies, ranging for the 2-year to the 1000-year event, are summarized in Table 2-1.

Table 2-1 Flood frequencies for salient reaches of Blackmud Creek

Return Period (years)	Probability of Exceedence (%)	Peak Instantaneous Discharge (m ³ /s)		
		Saunders Lake to Clearwater Creek	Clearwater Creek to Irvine Creek	Irvine Creek to WSC Gauge at Ellerslie
1000	0.1	25.7	76.8	124
500	0.2	22.7	68.0	110
200	0.5	18.9	56.6	91.5
100	1	16.1	48.2	78.0
50	2	13.4	40.0	64.8
20	5	9.89	29.6	47.9
10	10	7.37	22.1	35.7
5	20	4.94	14.8	23.9