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## **Streamflow regime characteristics of intermittent and perennial streams in the Okanagan Basin, British Columbia.**

Understanding and predicting patterns of streamflow in time and space and the associated ecological consequence of altering patterns of flow variability are fundamental to water resources management. Knowledge of the five streamflow regime components that regulate ecological and physical processes in river ecosystems (magnitude, frequency, duration, timing, and rate of change of hydrologic conditions) also aids in the prediction of streamflow in ungauged basins as streamflow regimes are signatures of the interactions between climate and basin characteristics. This study investigates the differences in streamflow regime characteristics of perennial and intermittent streams in the Okanagan Basin, British Columbia, Canada. Because very few intermittent streams in this semi-arid area are monitored for extended periods, little is known about their streamflow regime or how they differ from neighbouring perennial streams, even though they may provide a significant amount of water to the Okanagan Basin. The analysis of streamflow data from ten Water Survey of Canada gauging stations in the Okanagan Basin showed only subtle differences in streamflow regime characteristics of the intermittent and perennial streams, except for the obvious difference in summer low flows. The intermittent streams tended to have faster recessions after spring freshet, steeper flow duration curves, and a slightly earlier median day of the year of the start of the freshet. Discharge in fall was also more variable for the intermittent streams than for the perennial streams. Furthermore, discharge on August 15<sup>th</sup> was lower or similar to streamflow on March 15<sup>th</sup> for the intermittent streams, whereas it was much higher on August 15<sup>th</sup> for the perennial streams. These subtle differences in streamflow regime characteristics point to differences in flow routing, groundwater-streambed interactions, and residence times between the watersheds with intermittent and perennial streamflow, and may have important ecological implications. Knowledge of these subtle differences is also important for regionalization of streamflow regimes and predicting streamflow regimes of ungauged basins in the area using streamflow records from gauged (perennial) streams and geostatistical or modeling approaches.