

Bryson, Dillsboro, Franklin & Mission Projects
**Historical Streamflow Study
Summary Report**



Methodology:

The summary flow statistics and flow duration curves for the four run-of-river projects were calculated in one of two ways:

(1) The flow at Mission, Franklin and Bryson was calculated by applying simple drainage area ratios to nearby USGS daily streamflow records. The resulting daily time series of flows was then used with SAS programs provided by NC WRC to compute the summary statistics and flow-duration curves presented in this application for these three dam locations.

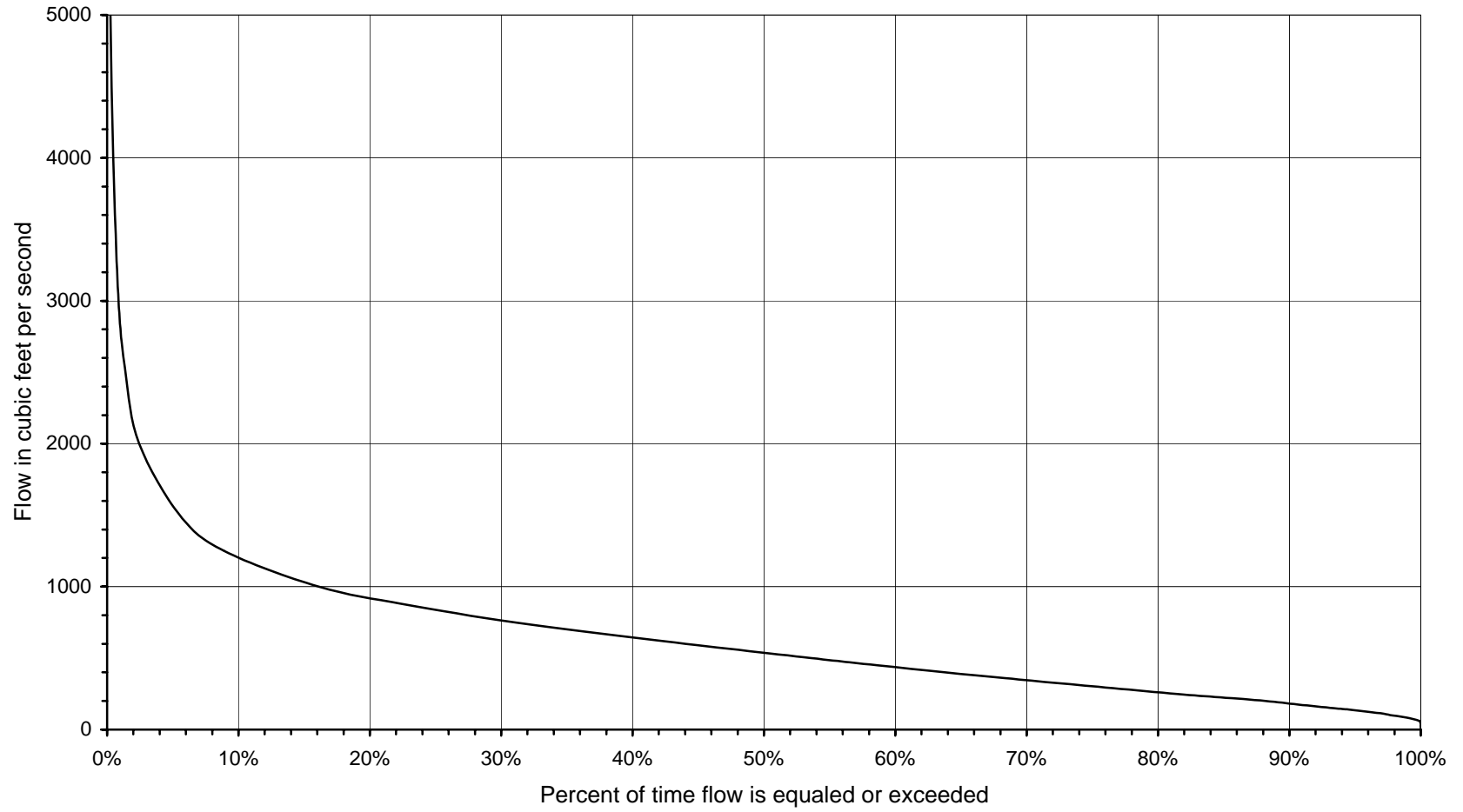
(2) The flow at Dillsboro was calculated by applying the method used to compute the flows used for the IFIM studies on the Tuckasegee River. This method is based on knowing the daily flow series at the three upper-most hydro projects at the top of the basin and the daily flow series at the Bryson City gage at the bottom of the basin. The arithmetic difference between the daily flow at the top and at bottom of the basin is the accretion flow that comes into the river. This accretion flow can be apportioned to any point on the river by using the methods based on the equations presented in USGS WSP 2403 (1993). In addition to the equations, this paper publishes mean annual runoff rates (cfs/sq mi) for the state of North Carolina in map form. Using GIS tools, the average mean annual runoff rate can be computed for any defined area. The relative proportion of the accretion flow can be computed for a drainage area by using the product of the runoff rate and the drainage area (sq mi). This proportion, used in conjunction with the daily time series, produces a daily time series for the intermediate point of interest on the river -- in this case the Dillsboro Dam. This time series for Dillsboro dam was then used with SAS programs provided by NC WRC to compute the summary statistics and flow-duration curves presented in this application for the Dillsboro Dam location.

Mission

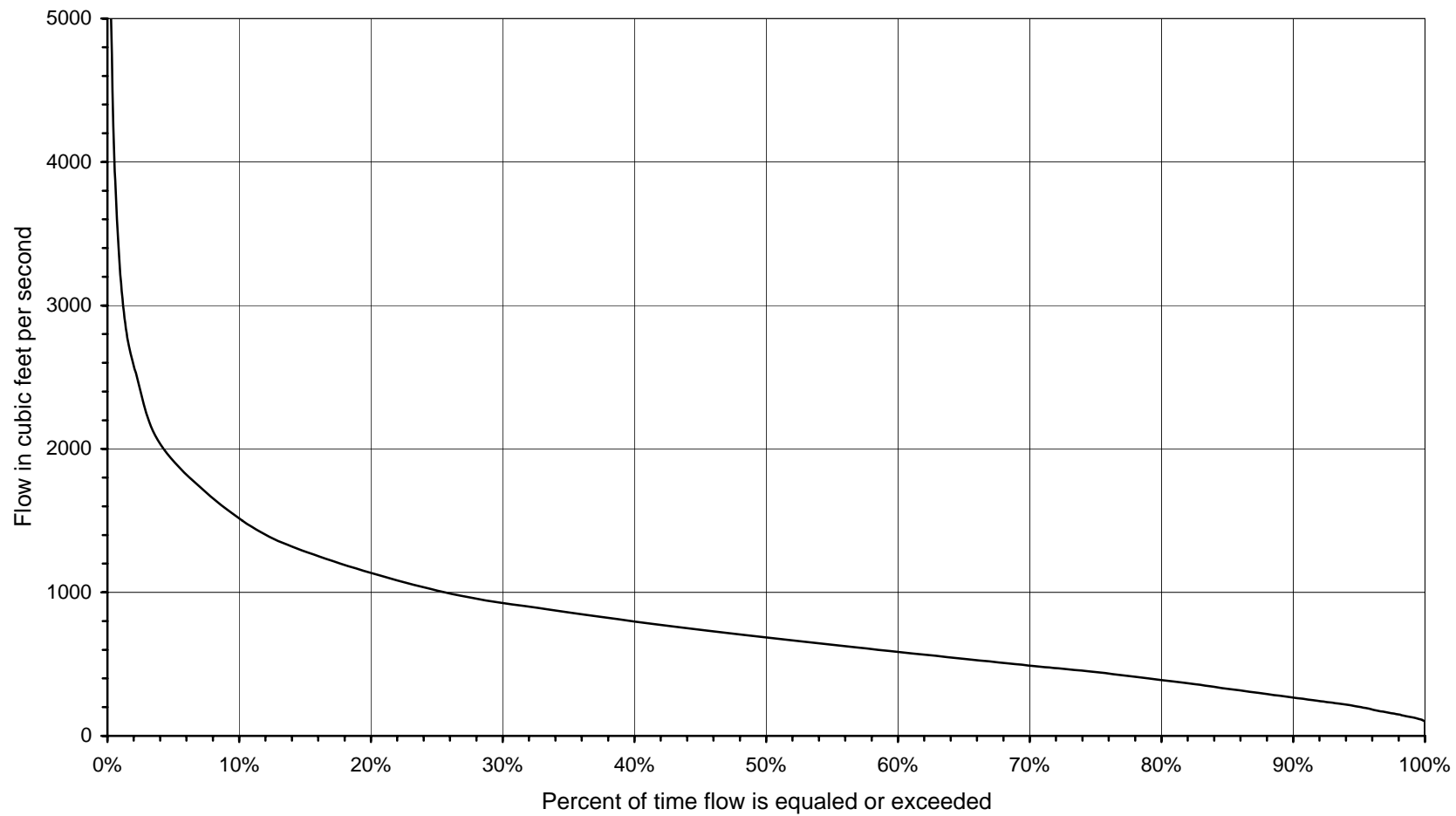
Flow Duration Curves



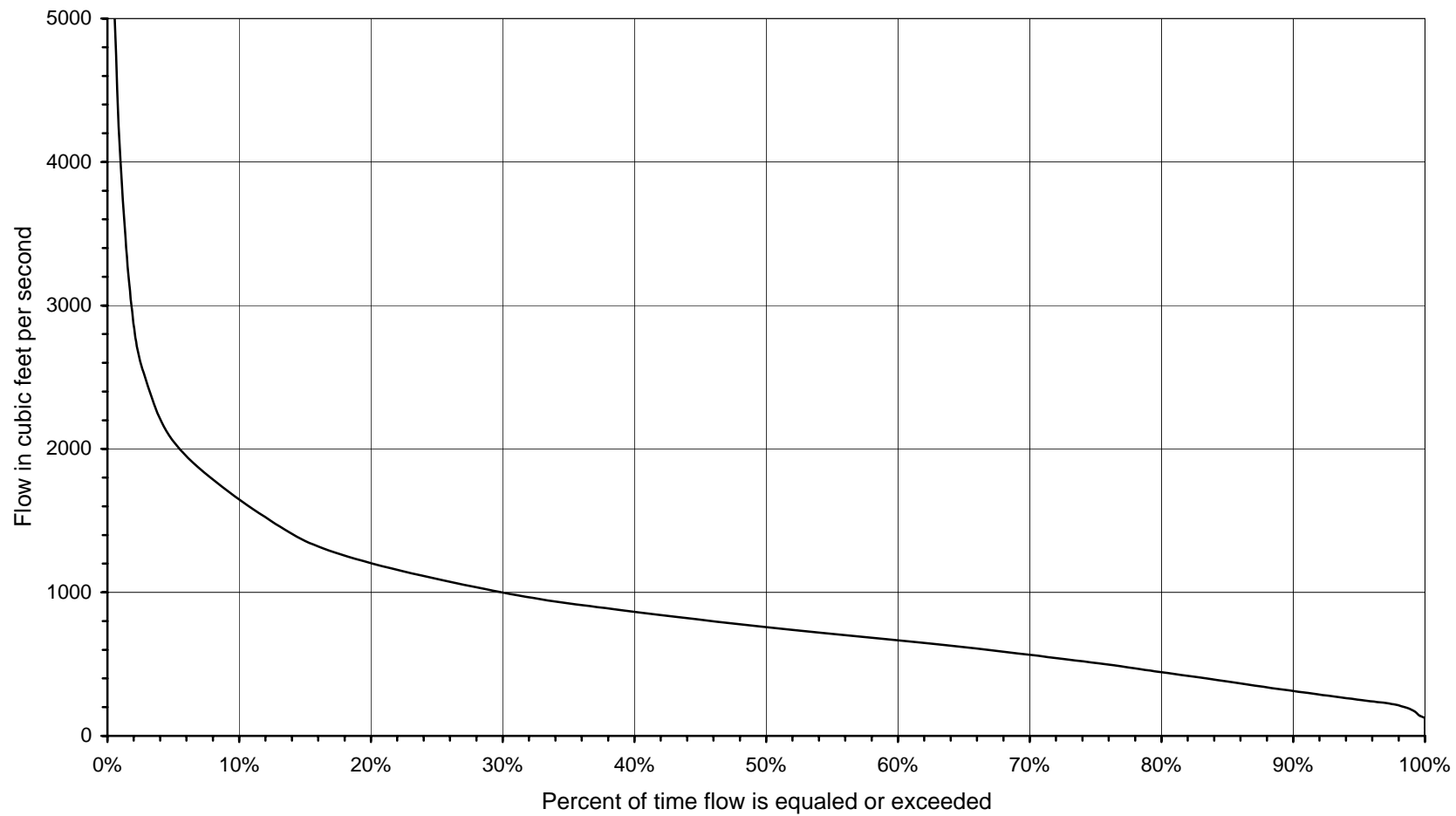
Annual flow-duration curve for Mission



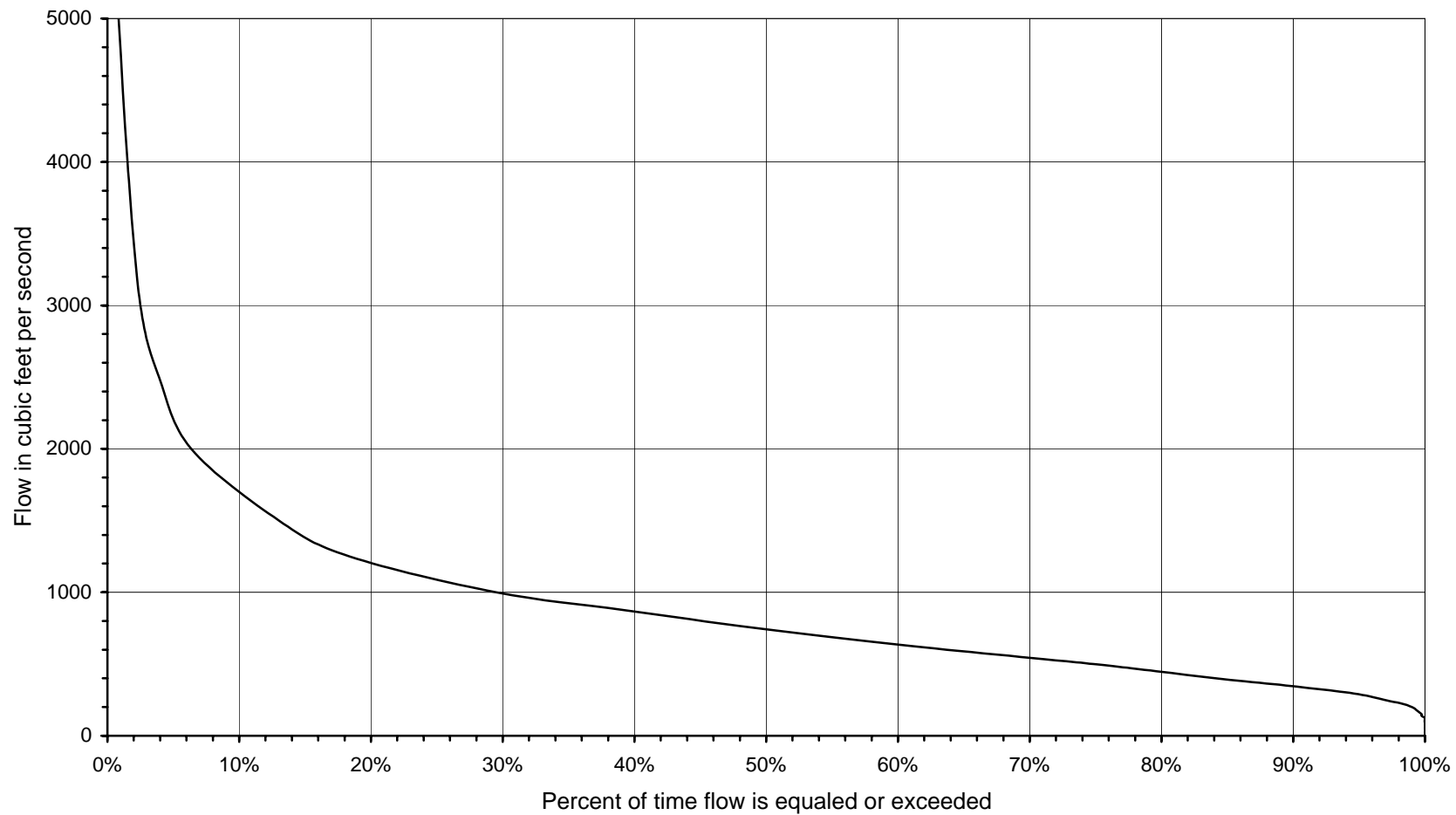
January flow-duration curve for Mission



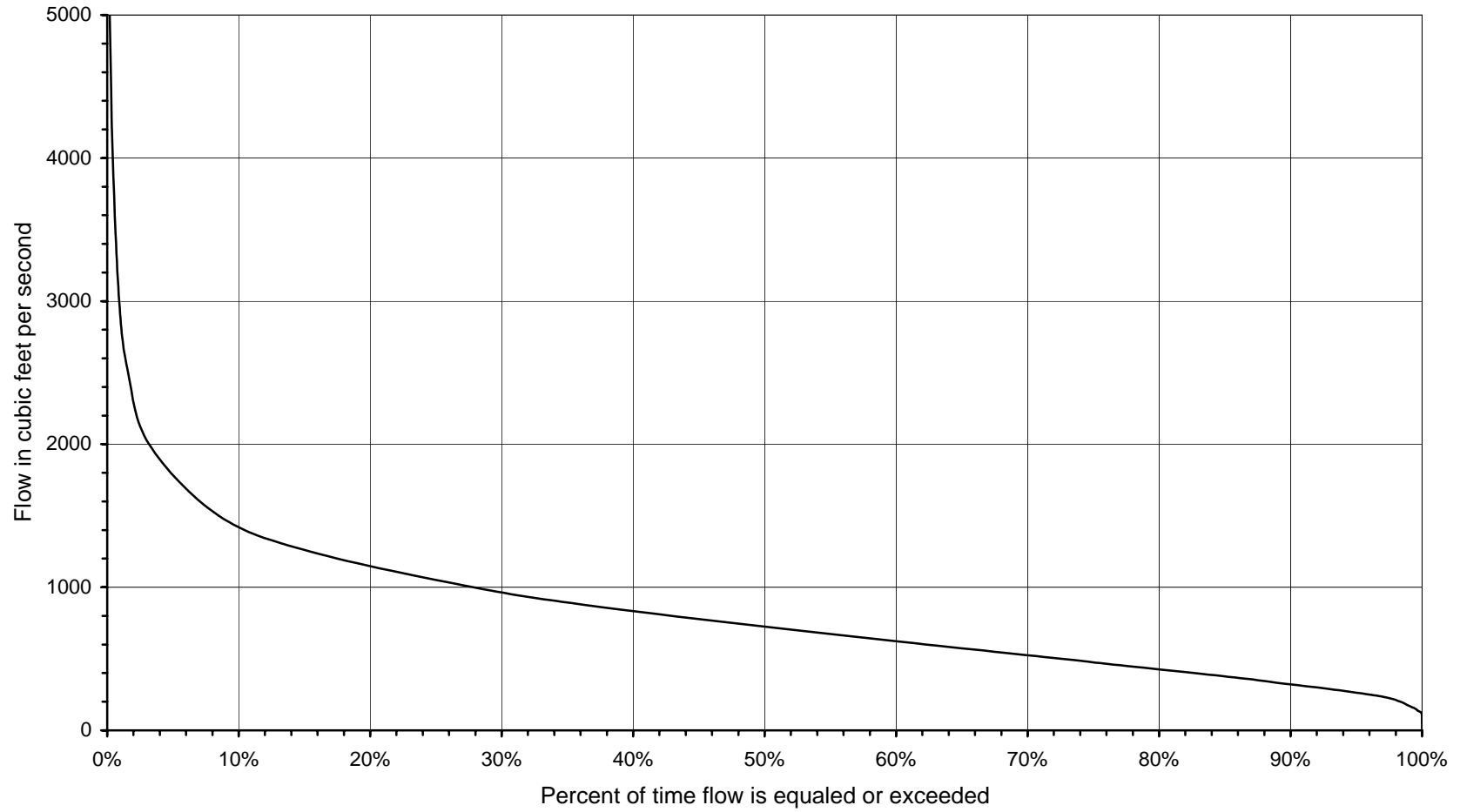
February flow-duration curve for Mission



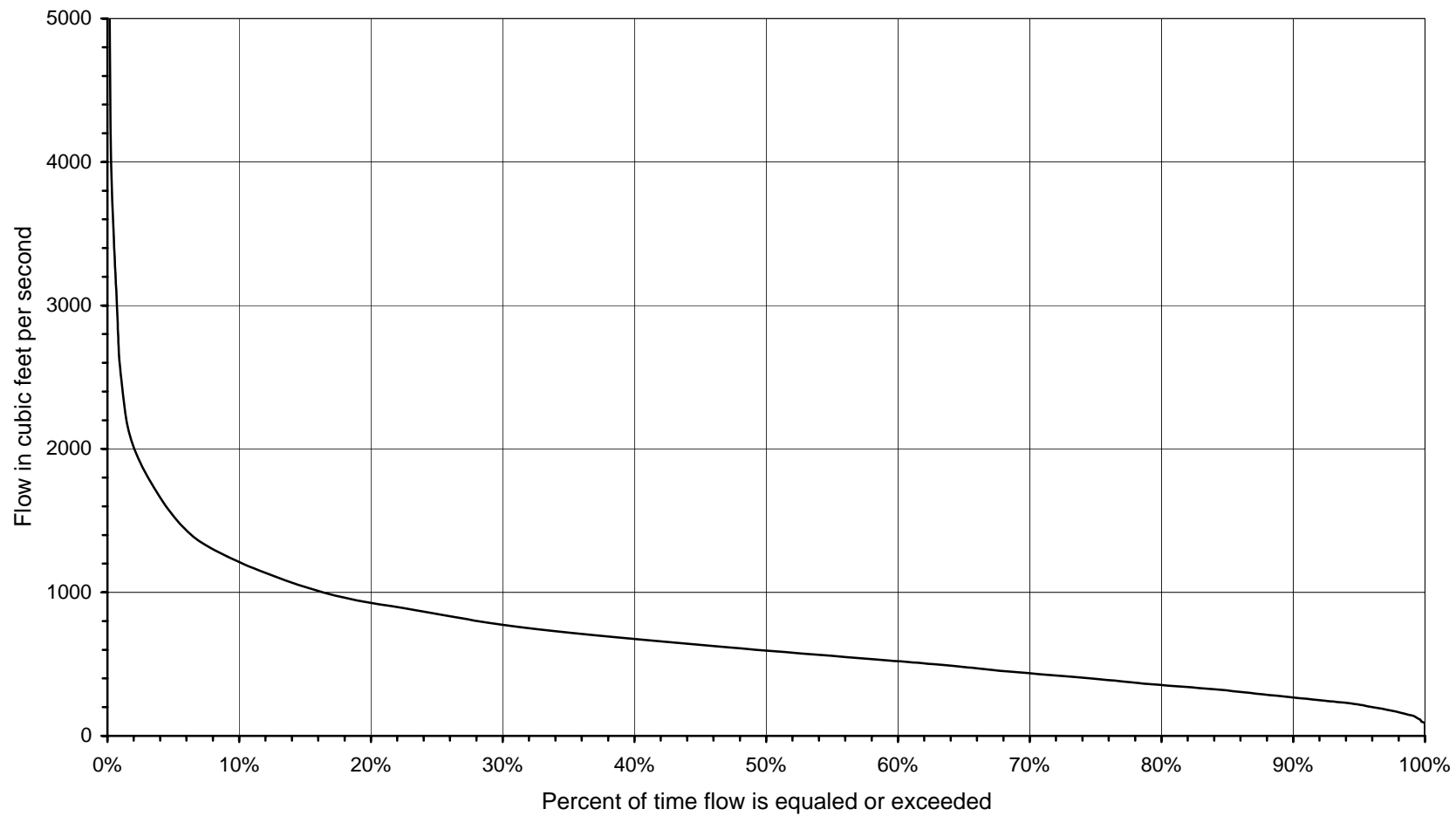
March flow-duration curve for Mission



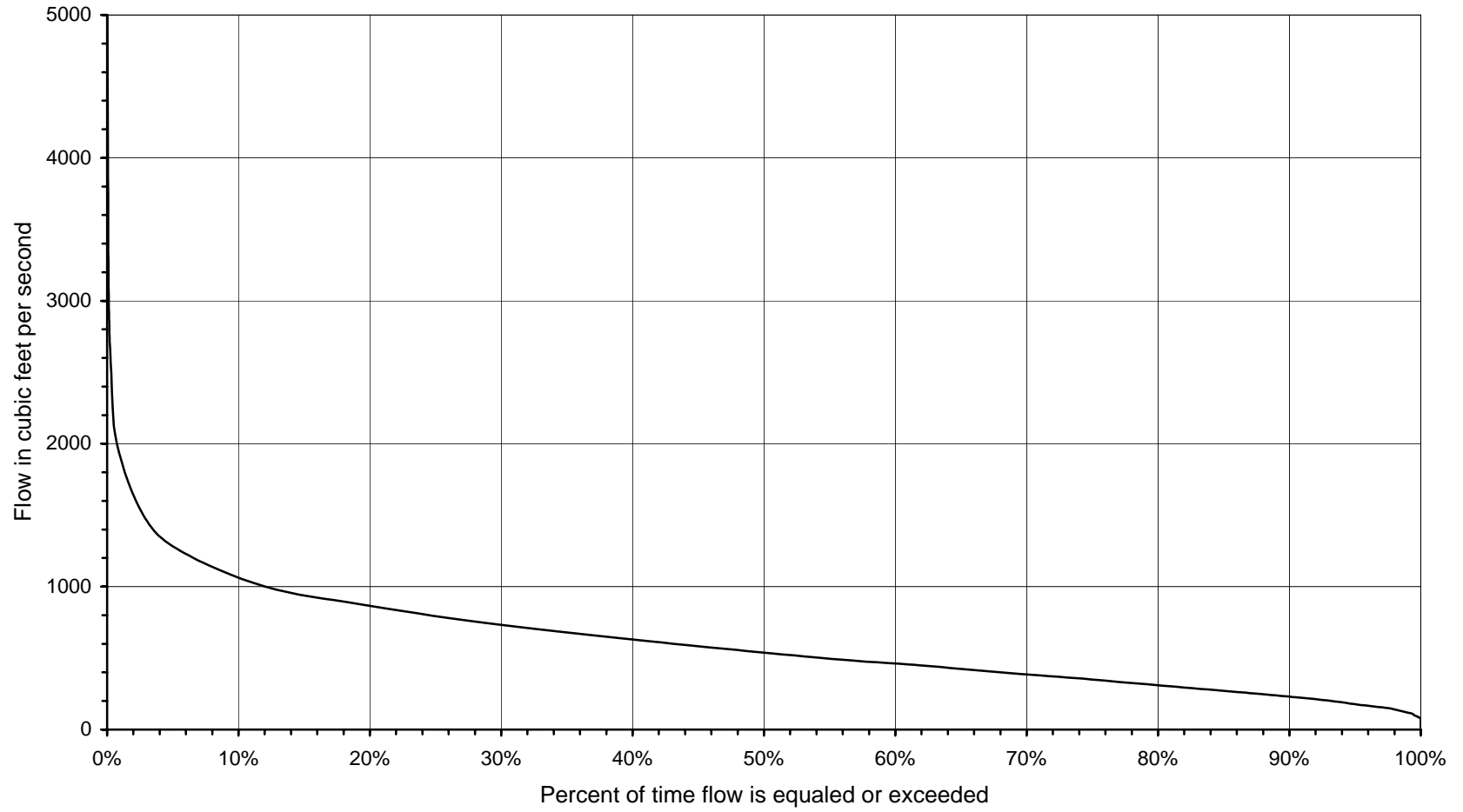
April flow-duration curve for Mission



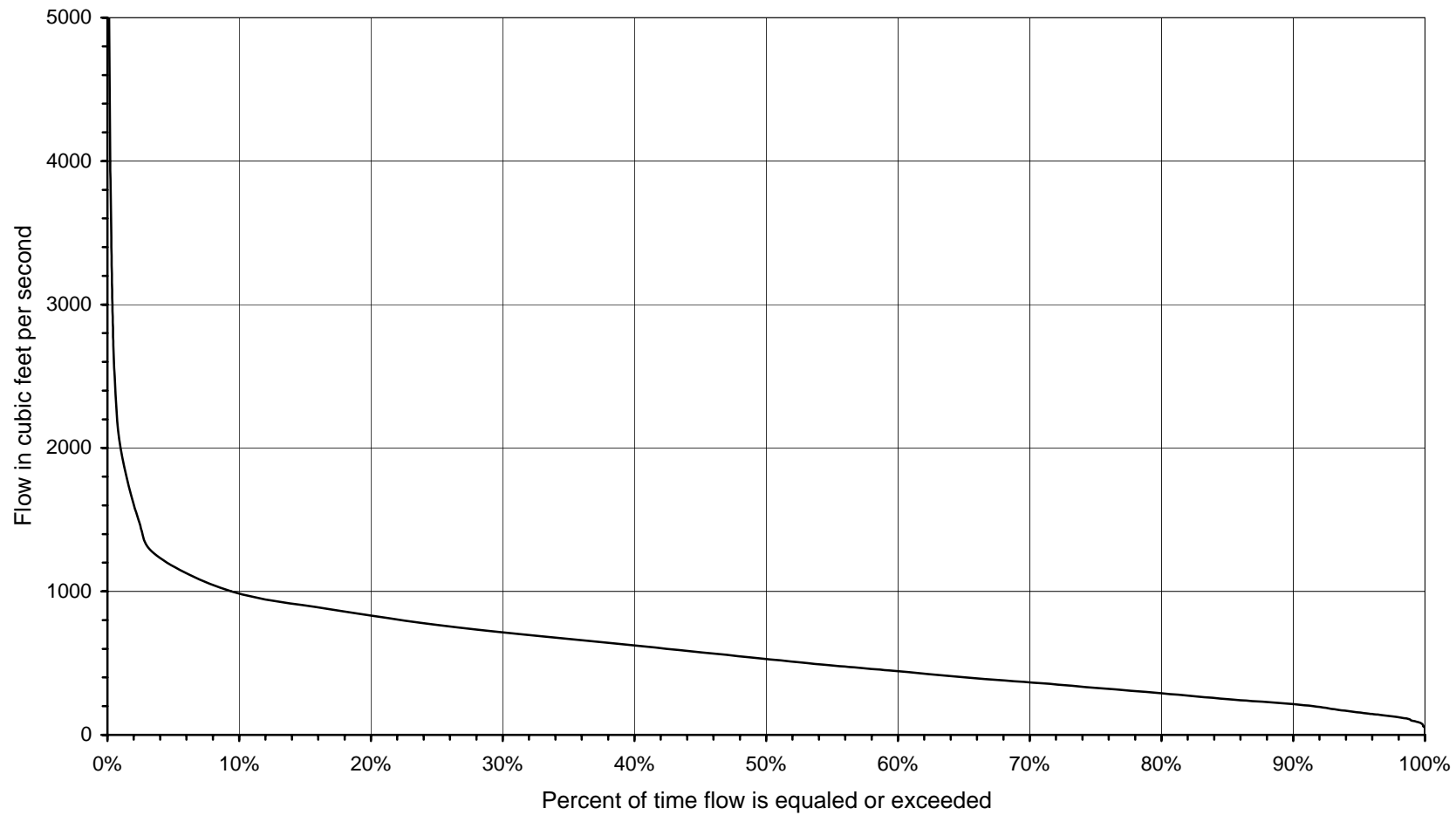
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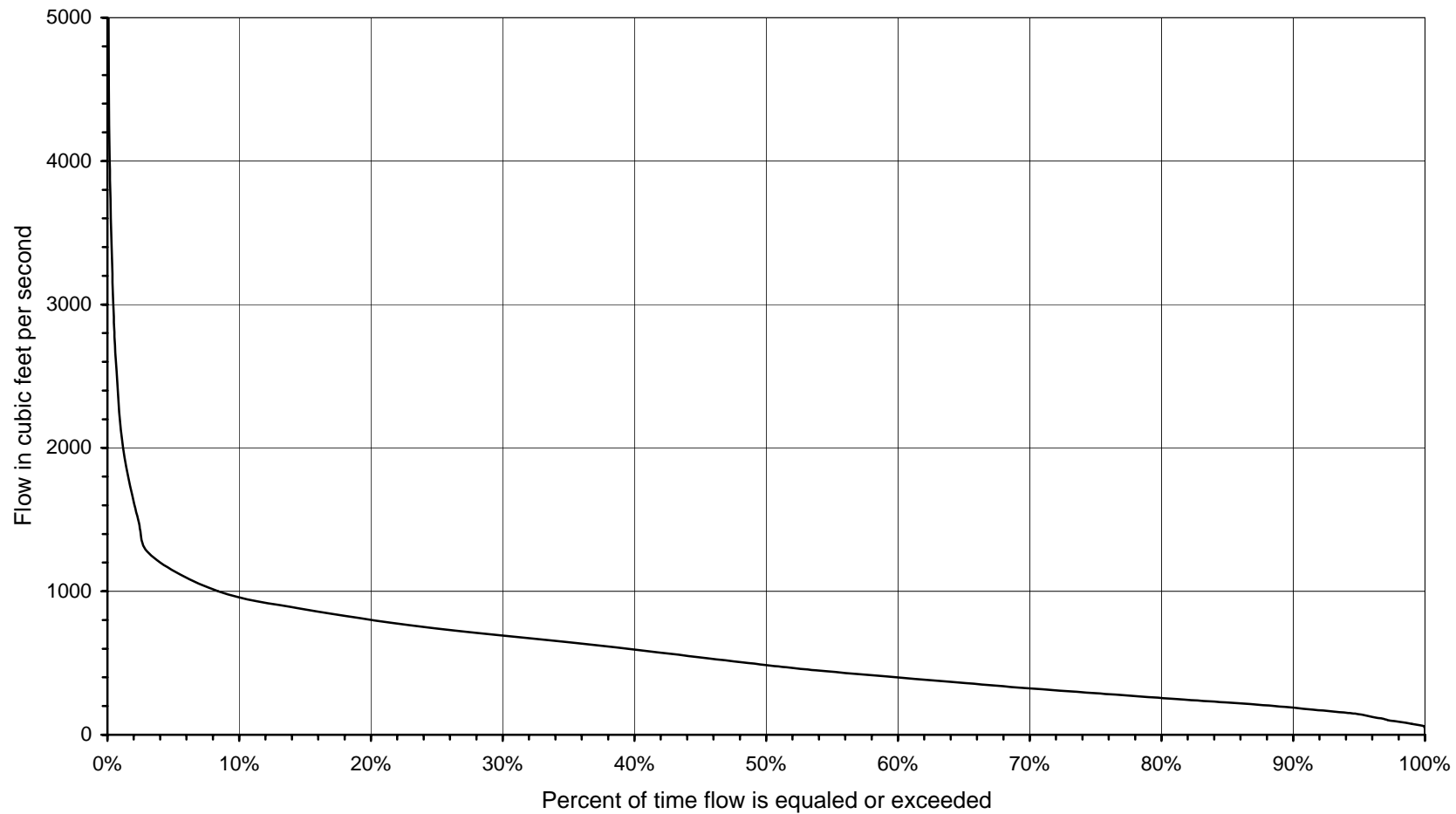
June flow-duration curve for Mission



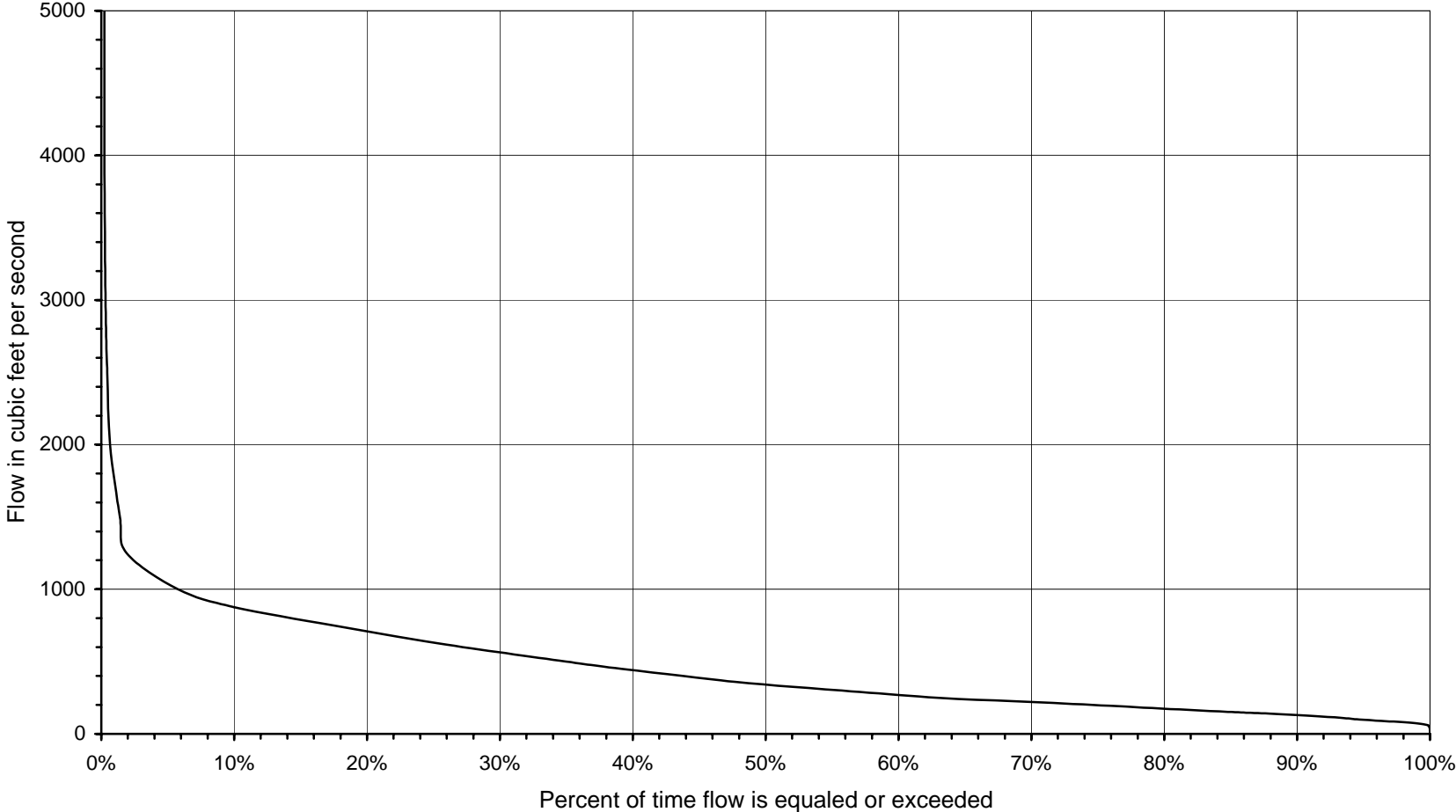
July flow-duration curve for Mission



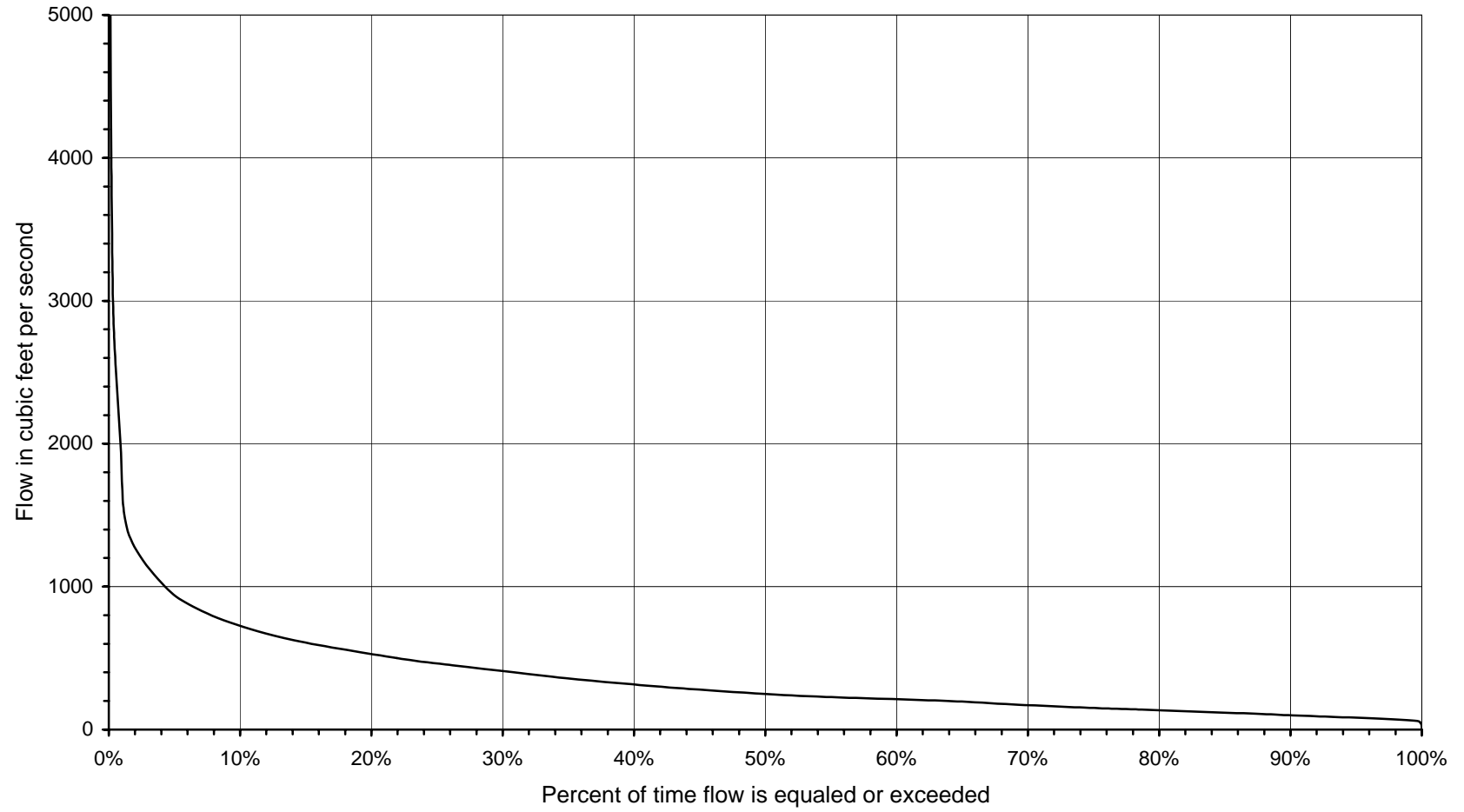
August flow-duration curve for Mission



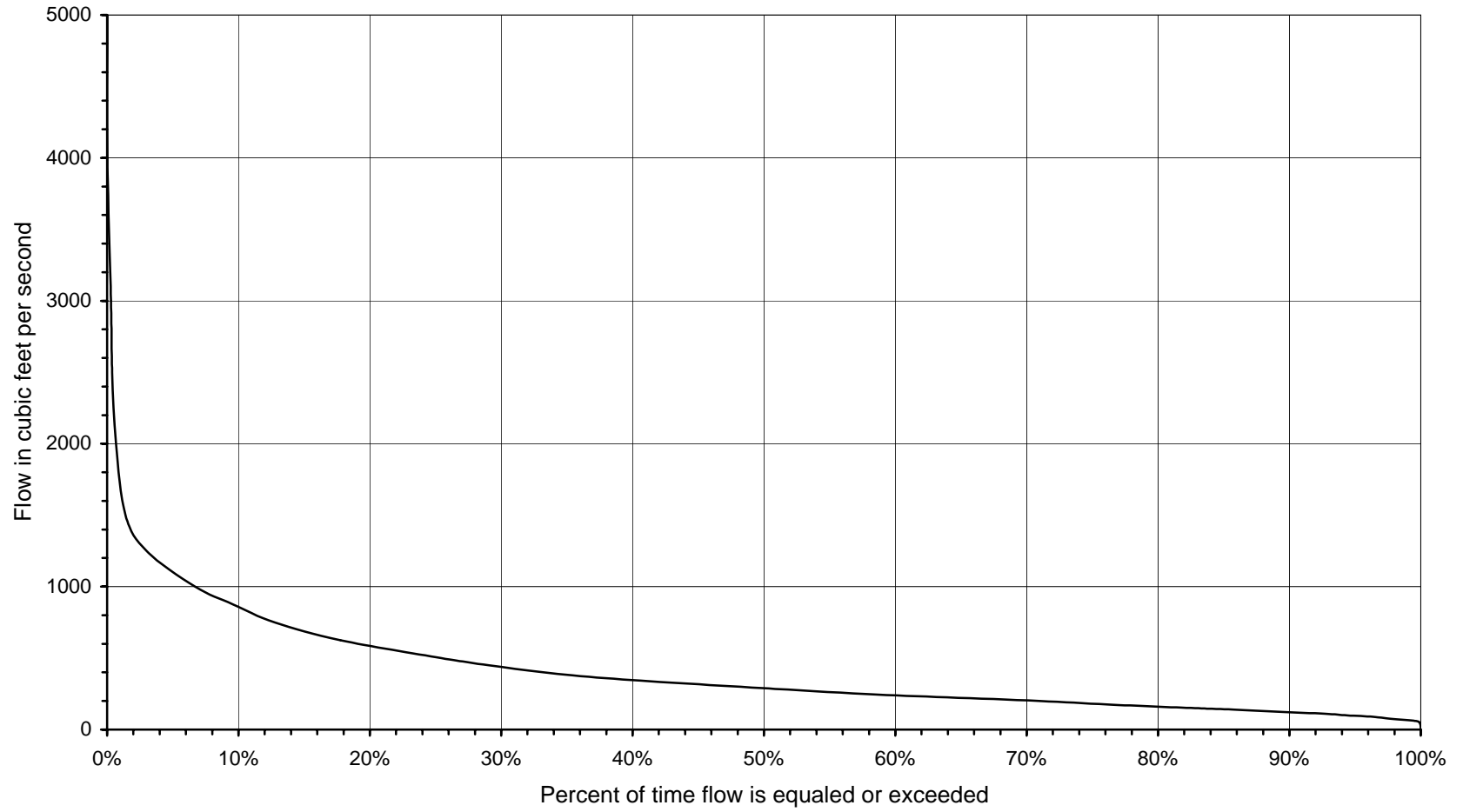
September flow-duration curve for Mission



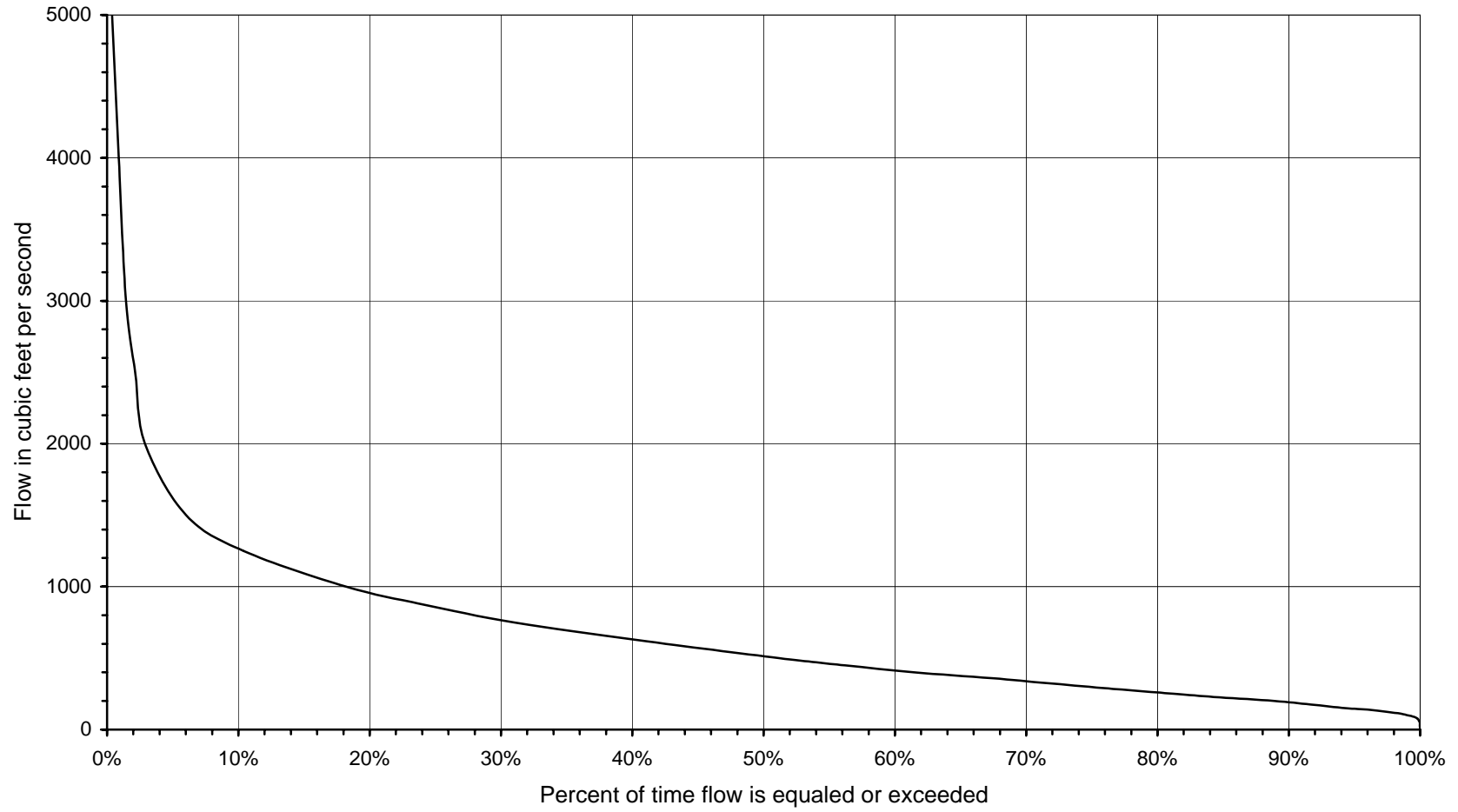
October flow-duration curve for Mission



November flow-duration curve for Mission



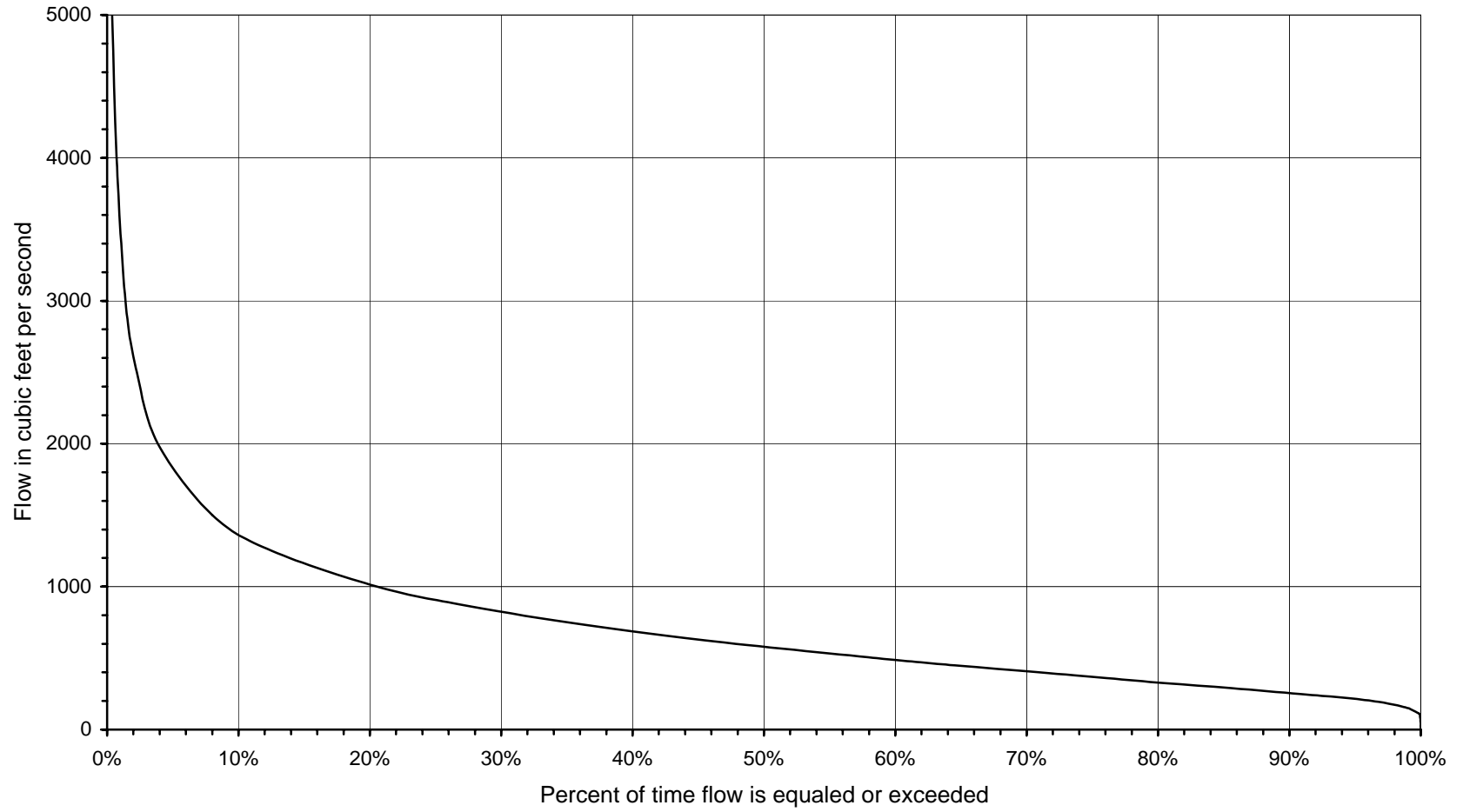
December flow-duration curve for Mission



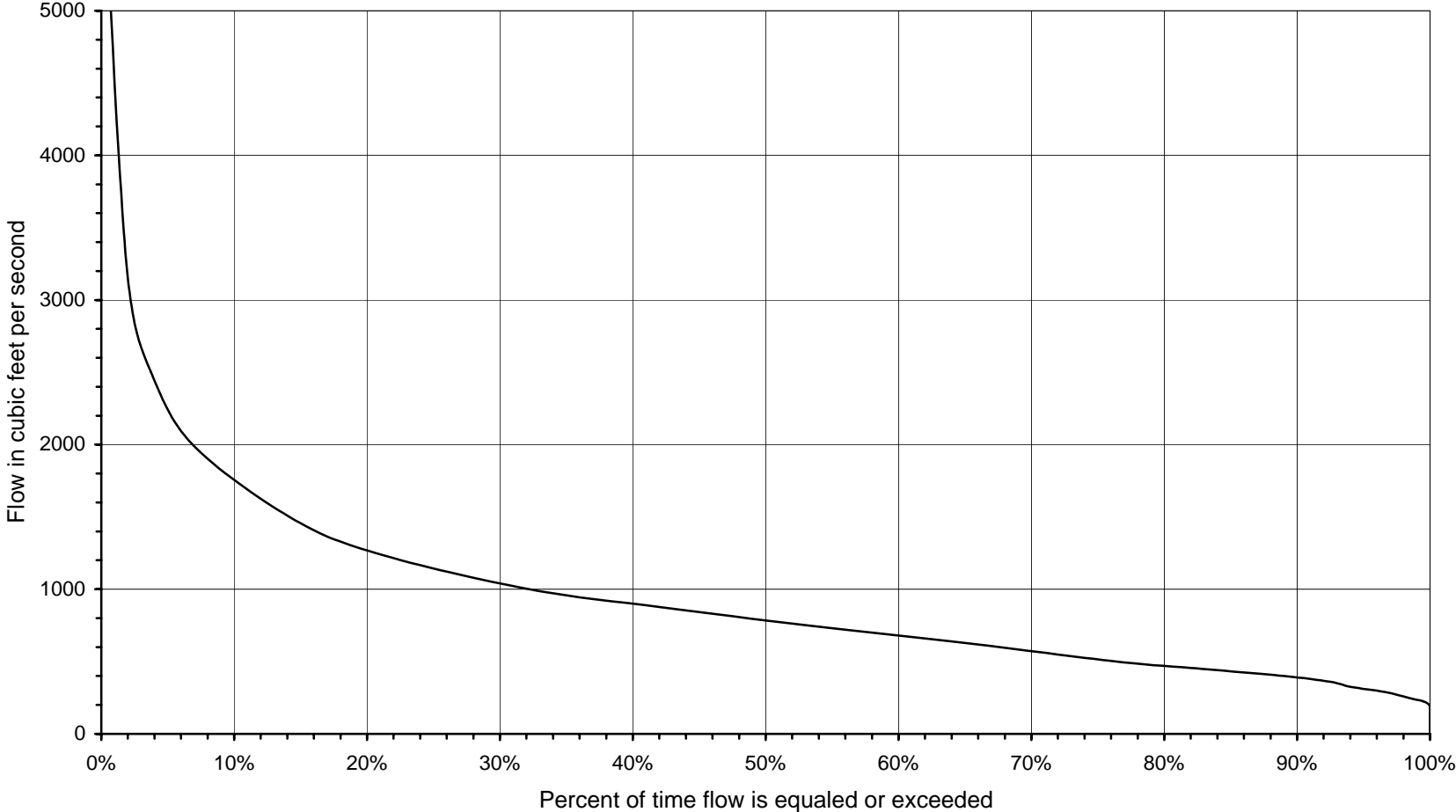
Franklin Flow Duration Curves



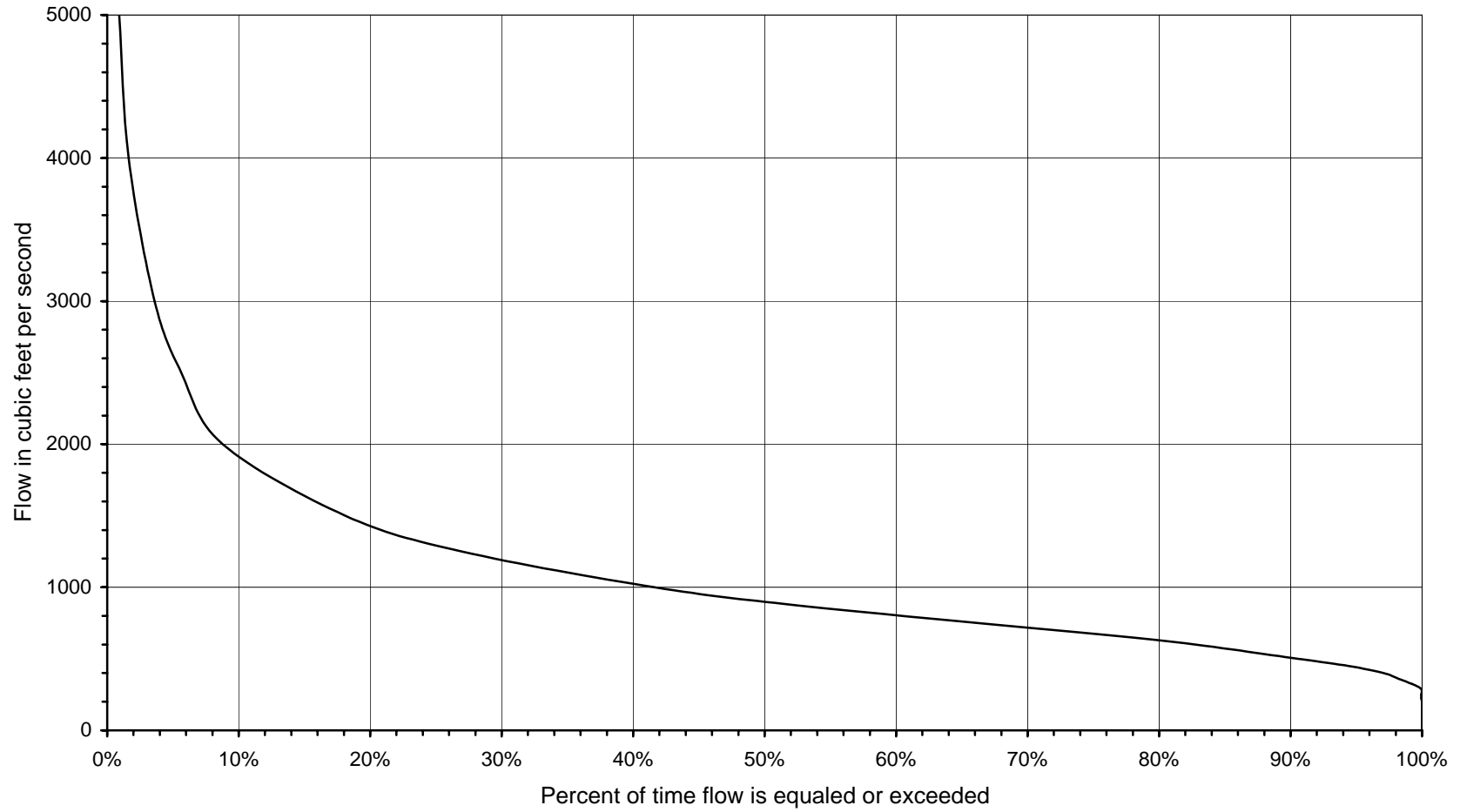
Annual flow-duration curve for Franklin



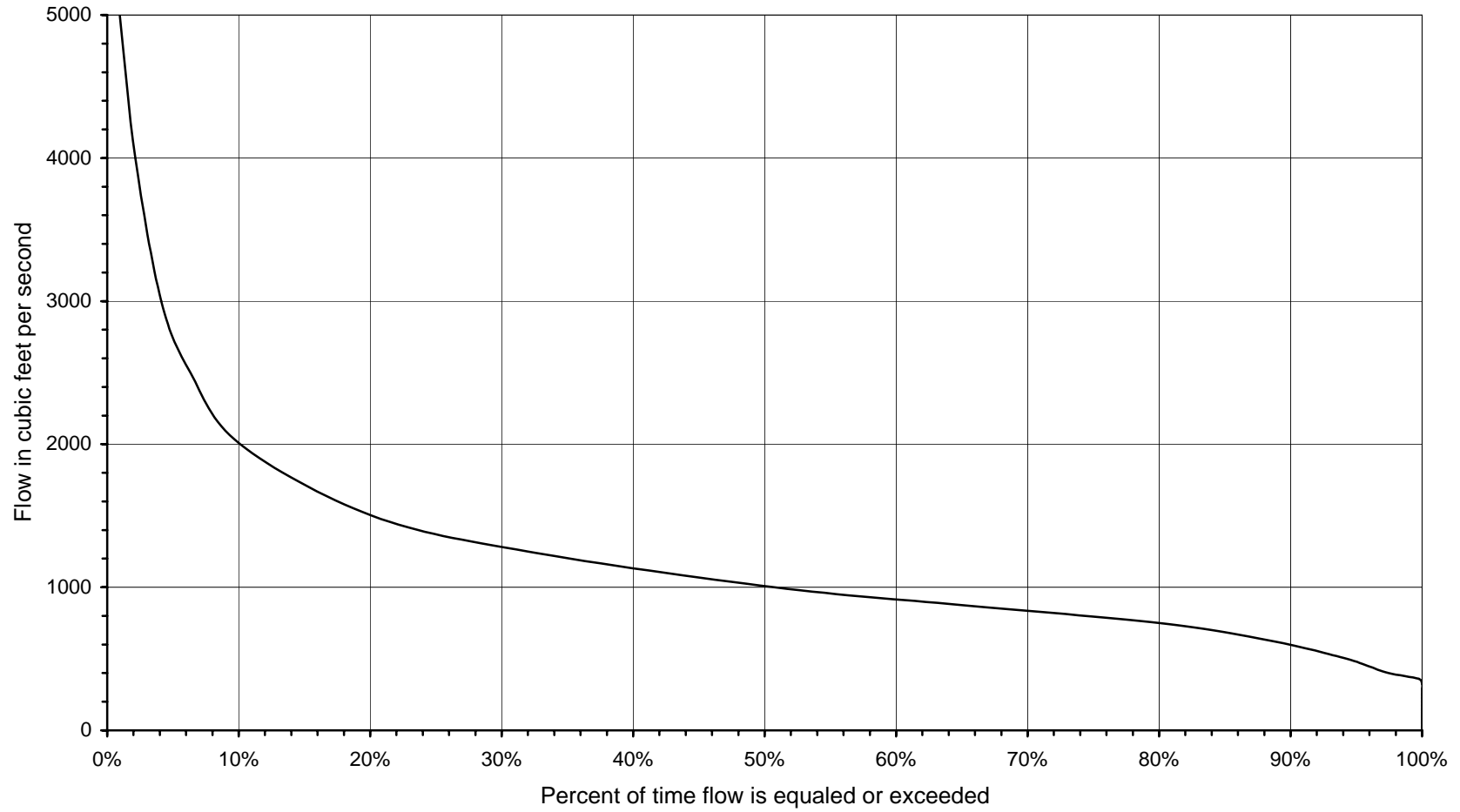
January flow-duration curve for Franklin



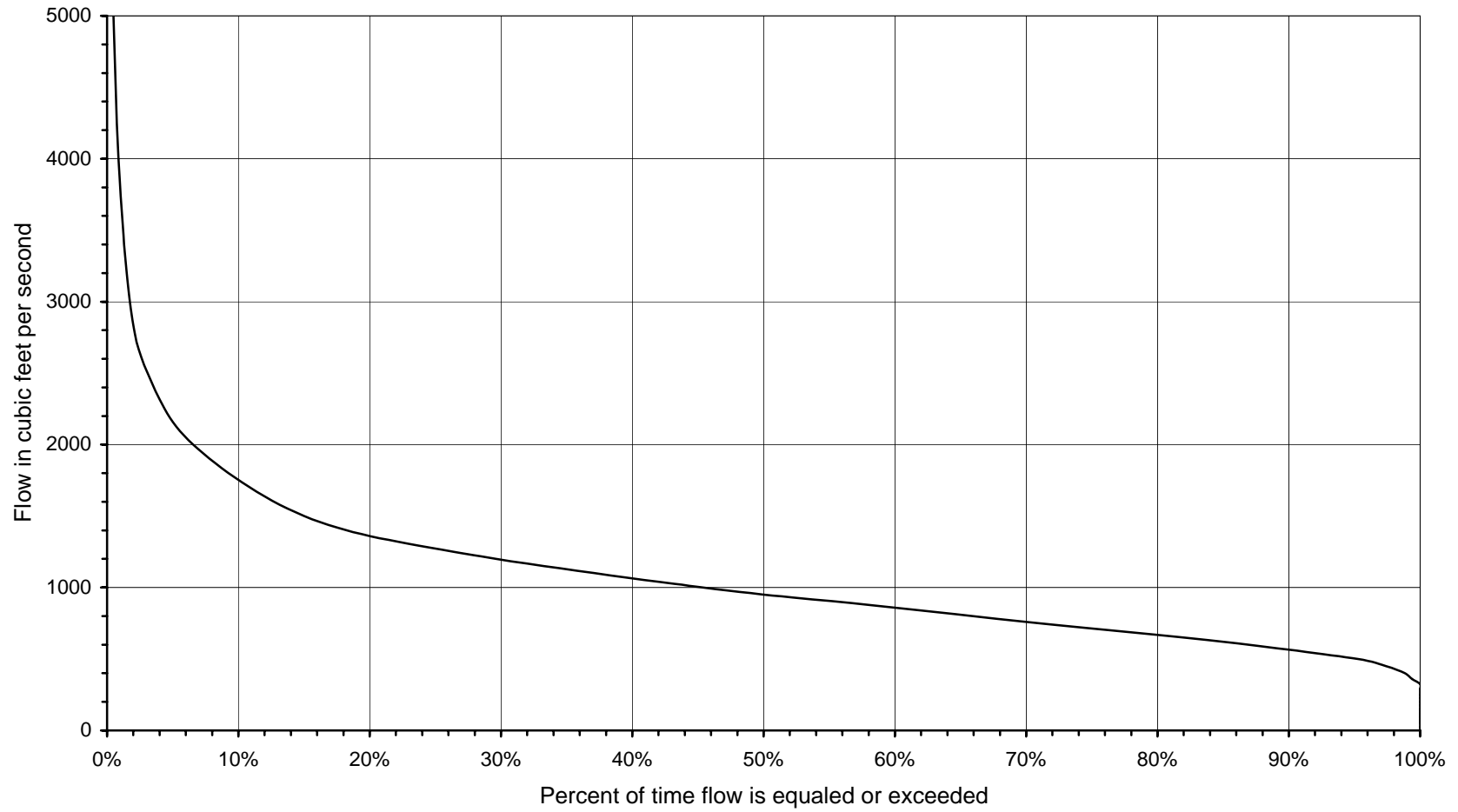
February flow-duration curve for Franklin



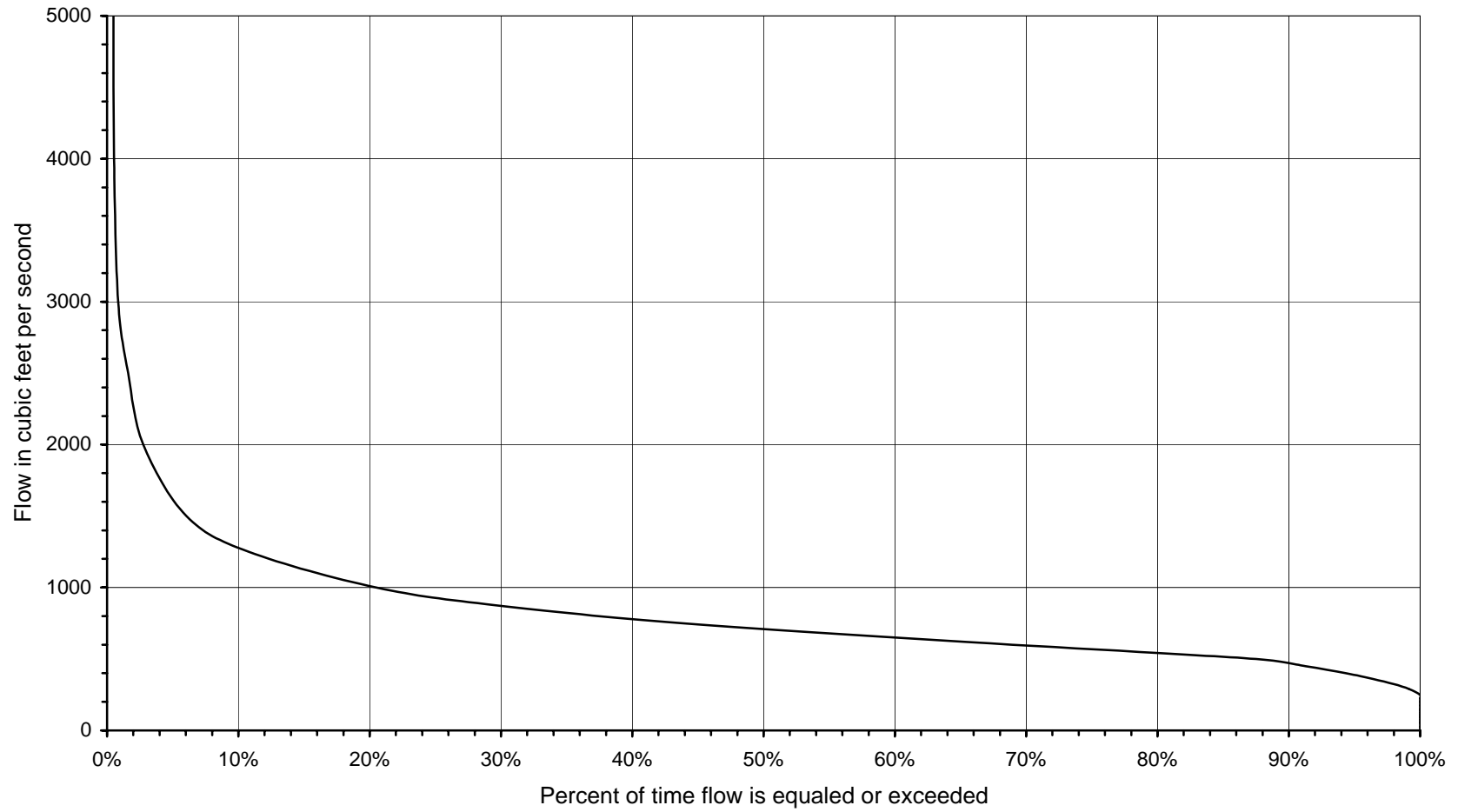
March flow-duration curve for Franklin



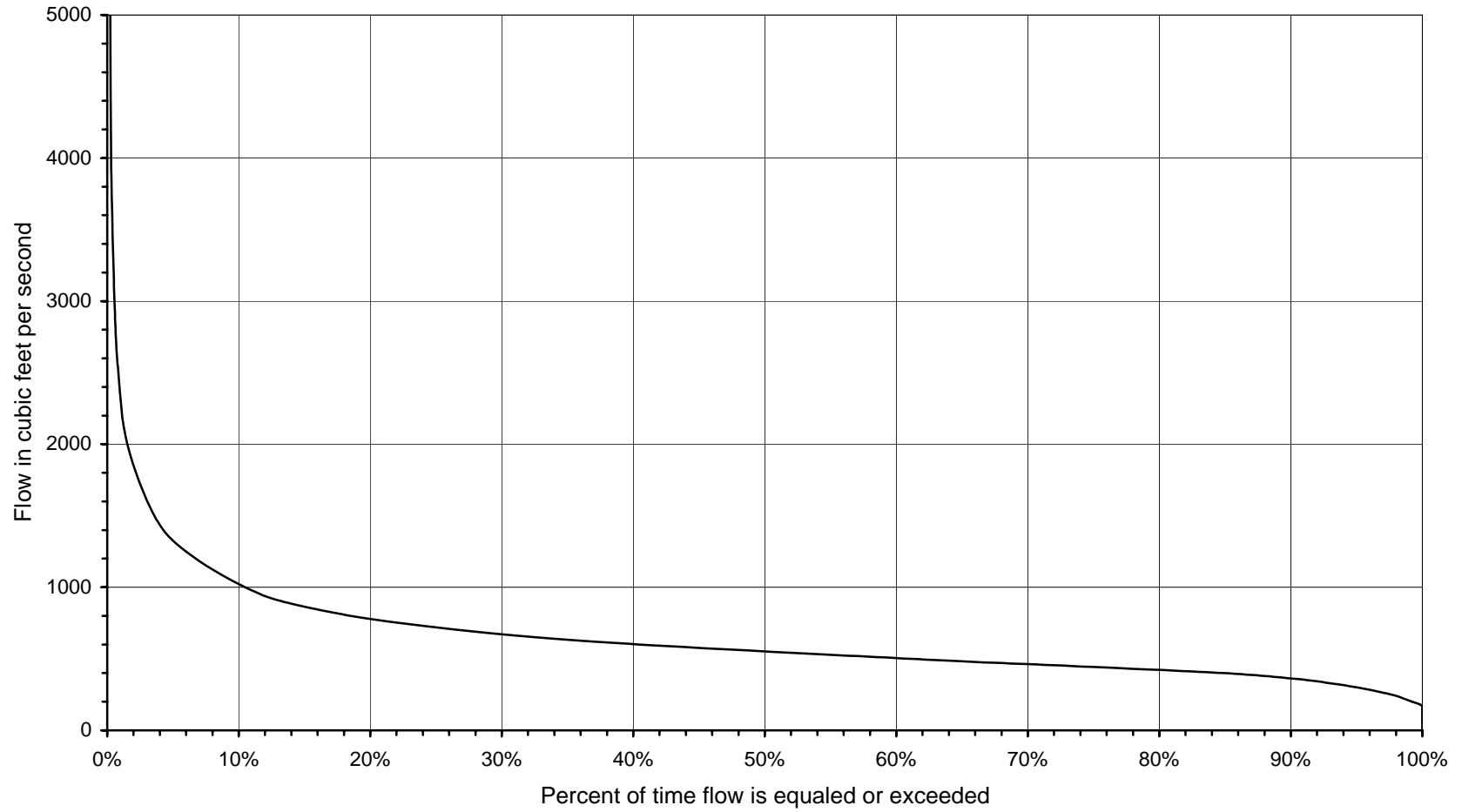
April flow-duration curve for Franklin



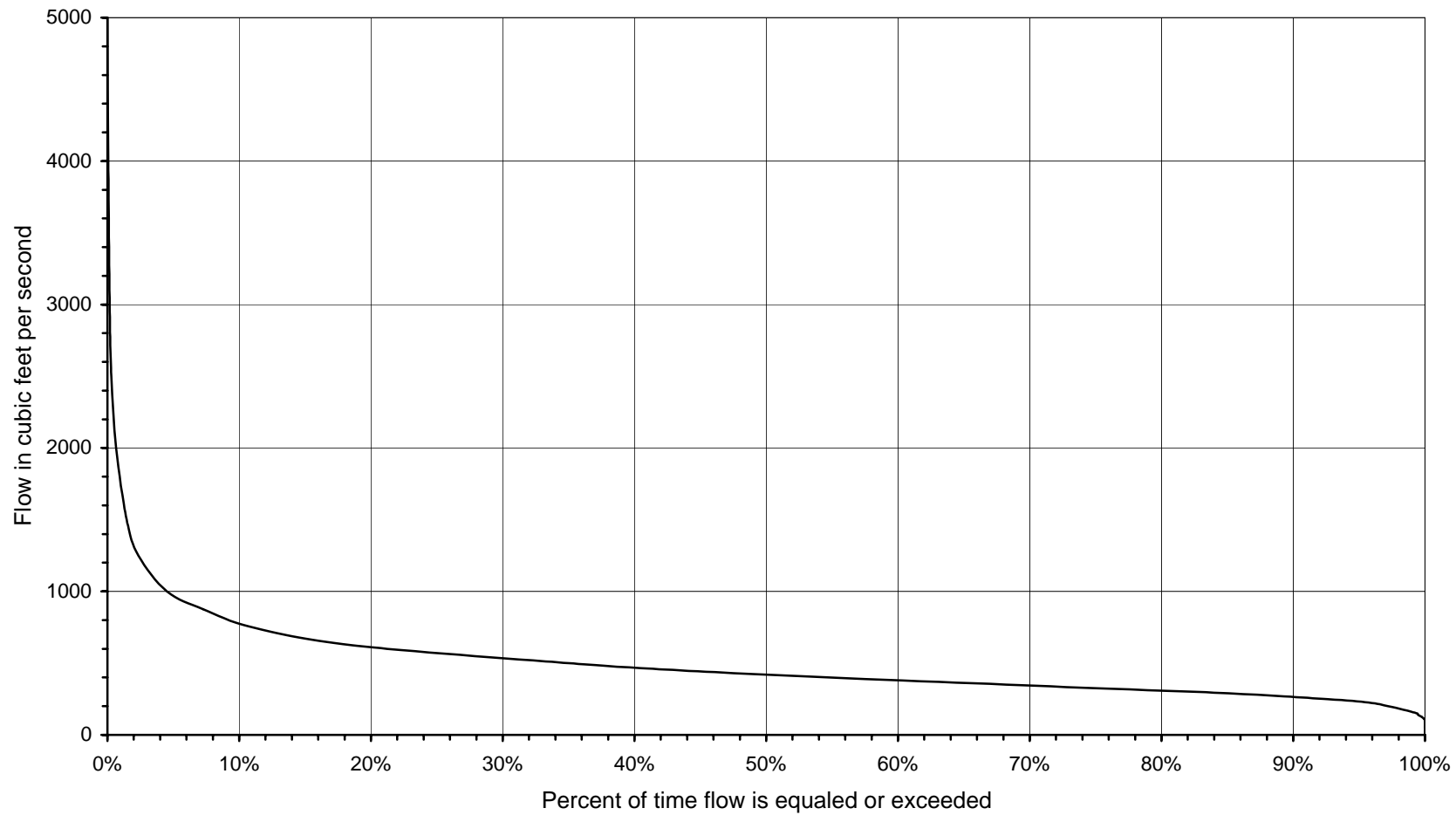
May flow-duration curve for Franklin



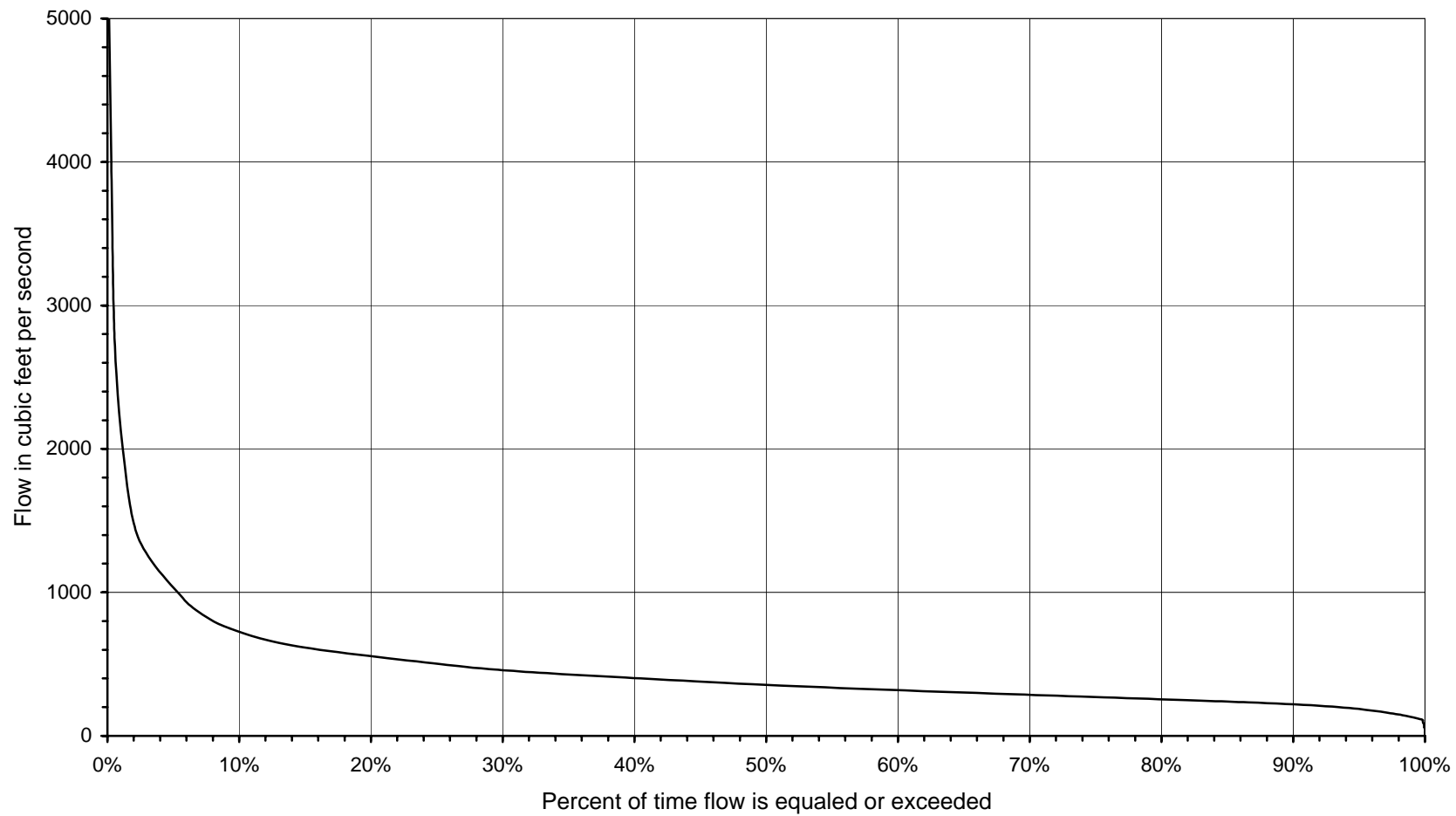
June flow-duration curve for Franklin



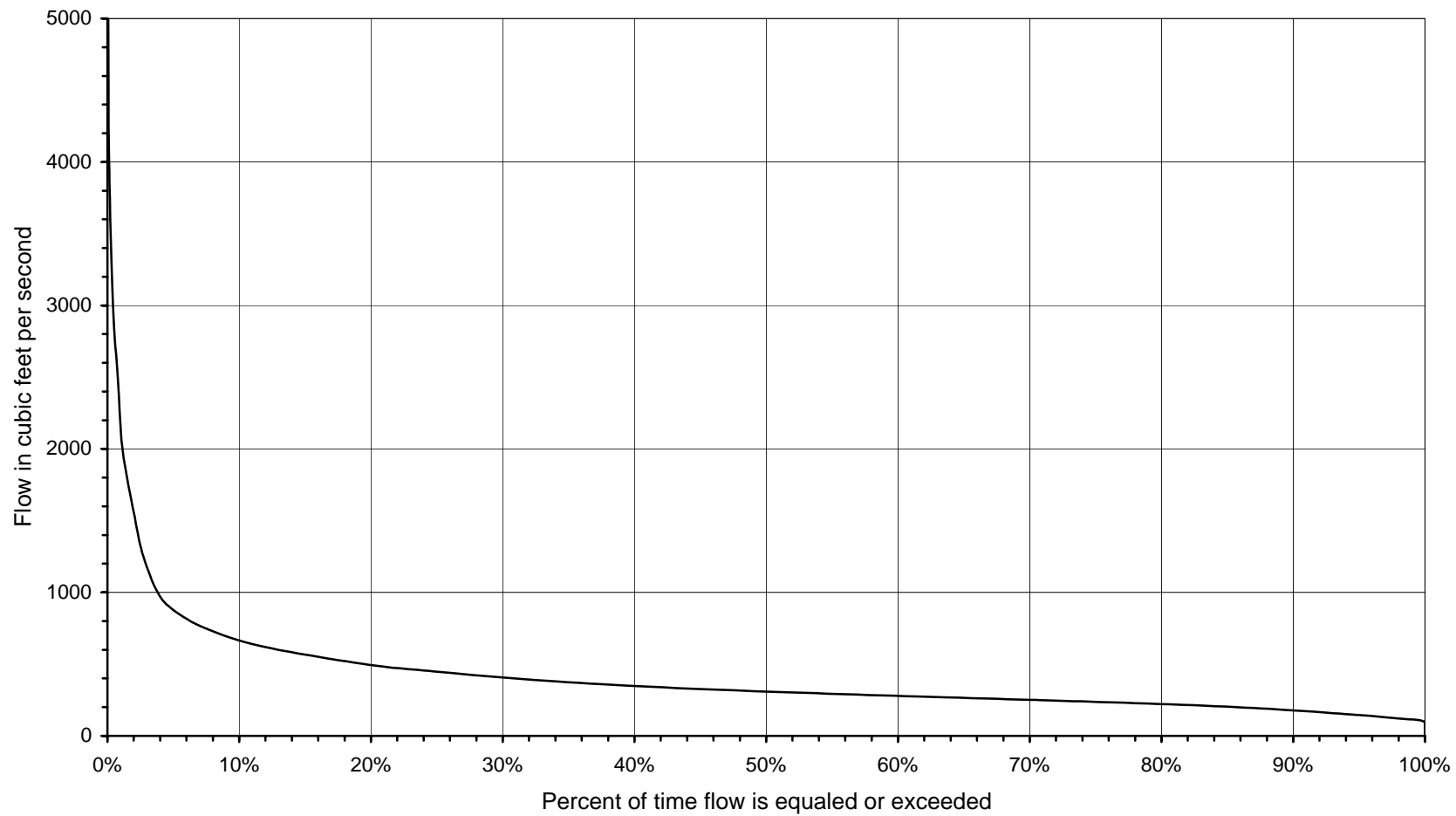
July flow-duration curve for Franklin



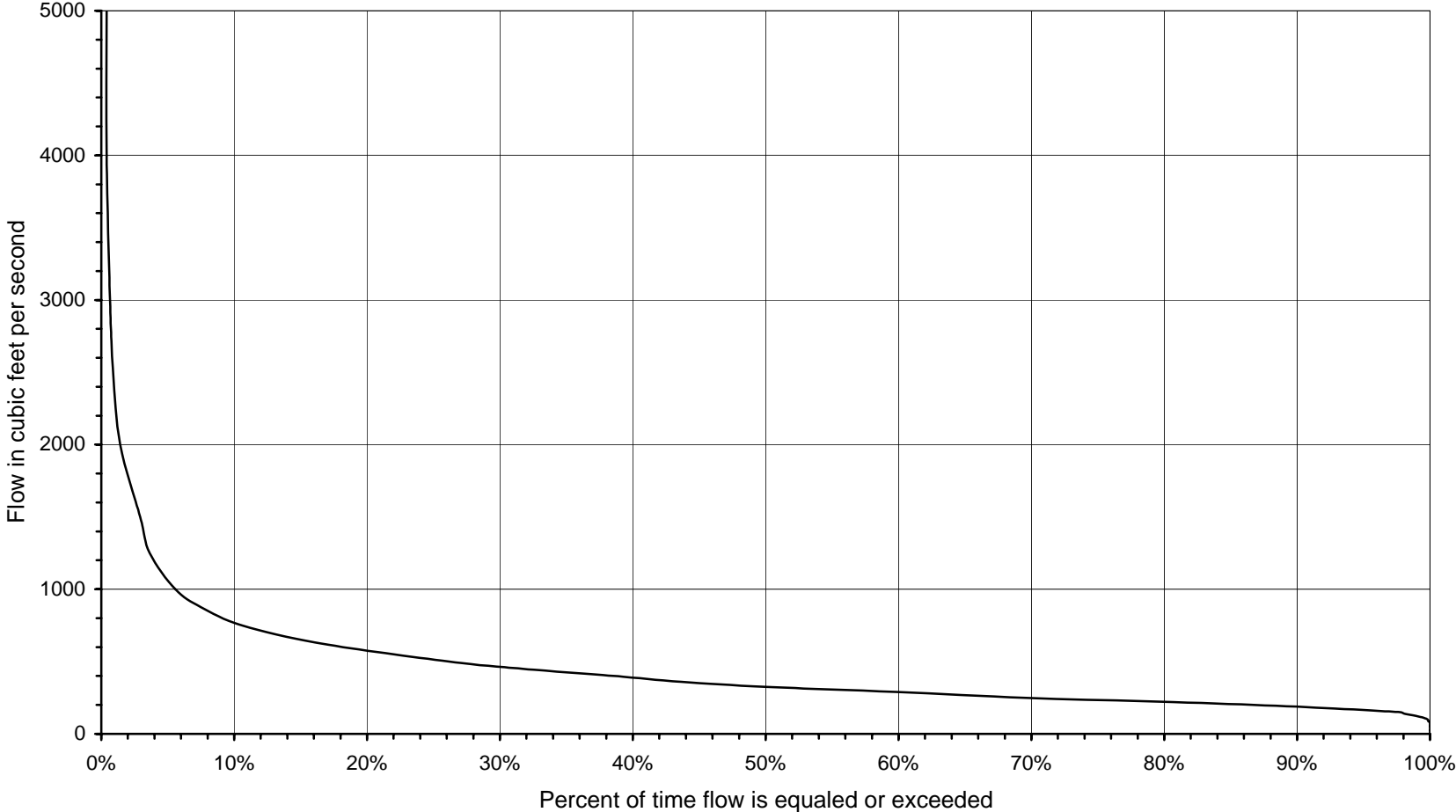
August flow-duration curve for Franklin



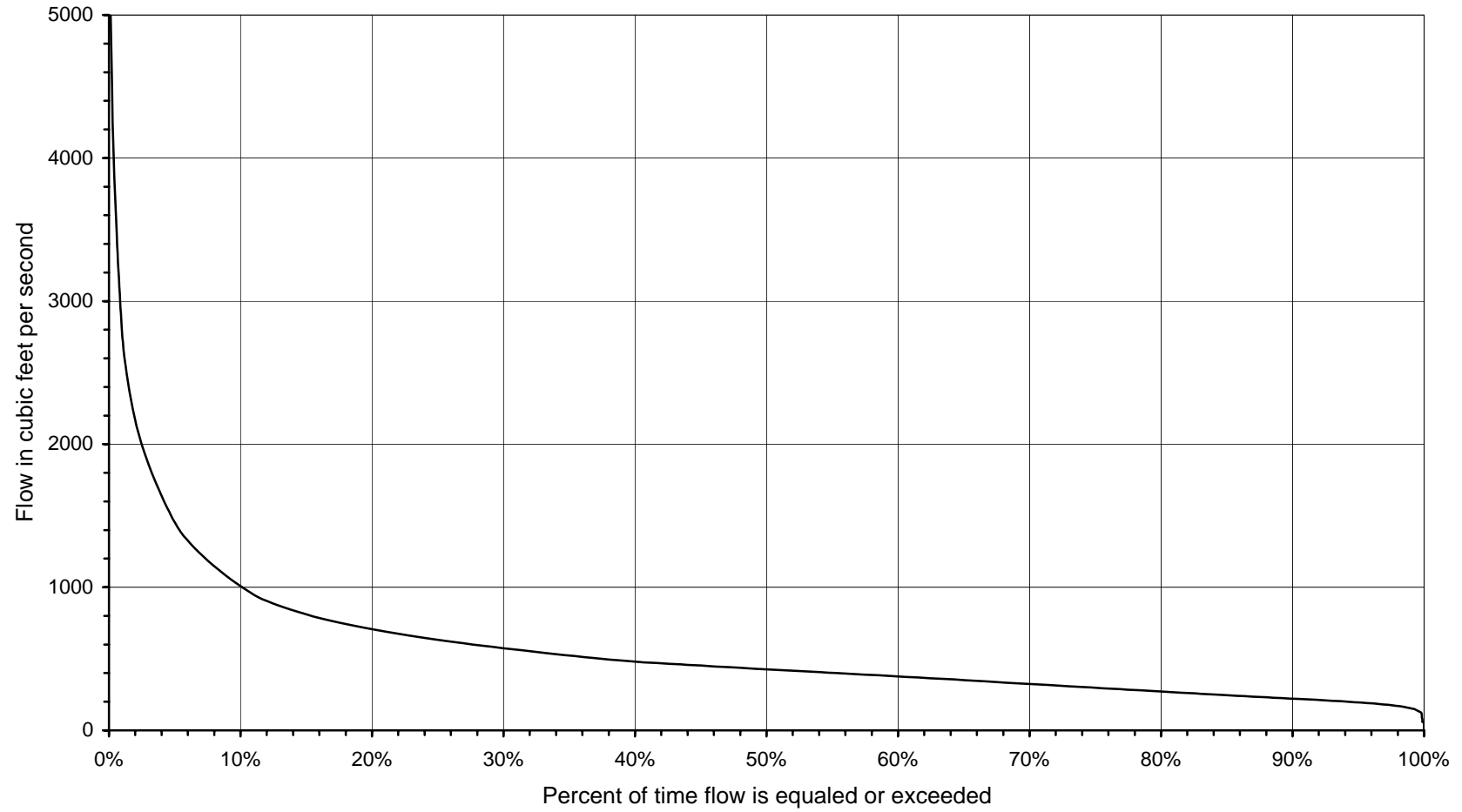
September flow-duration curve for Franklin



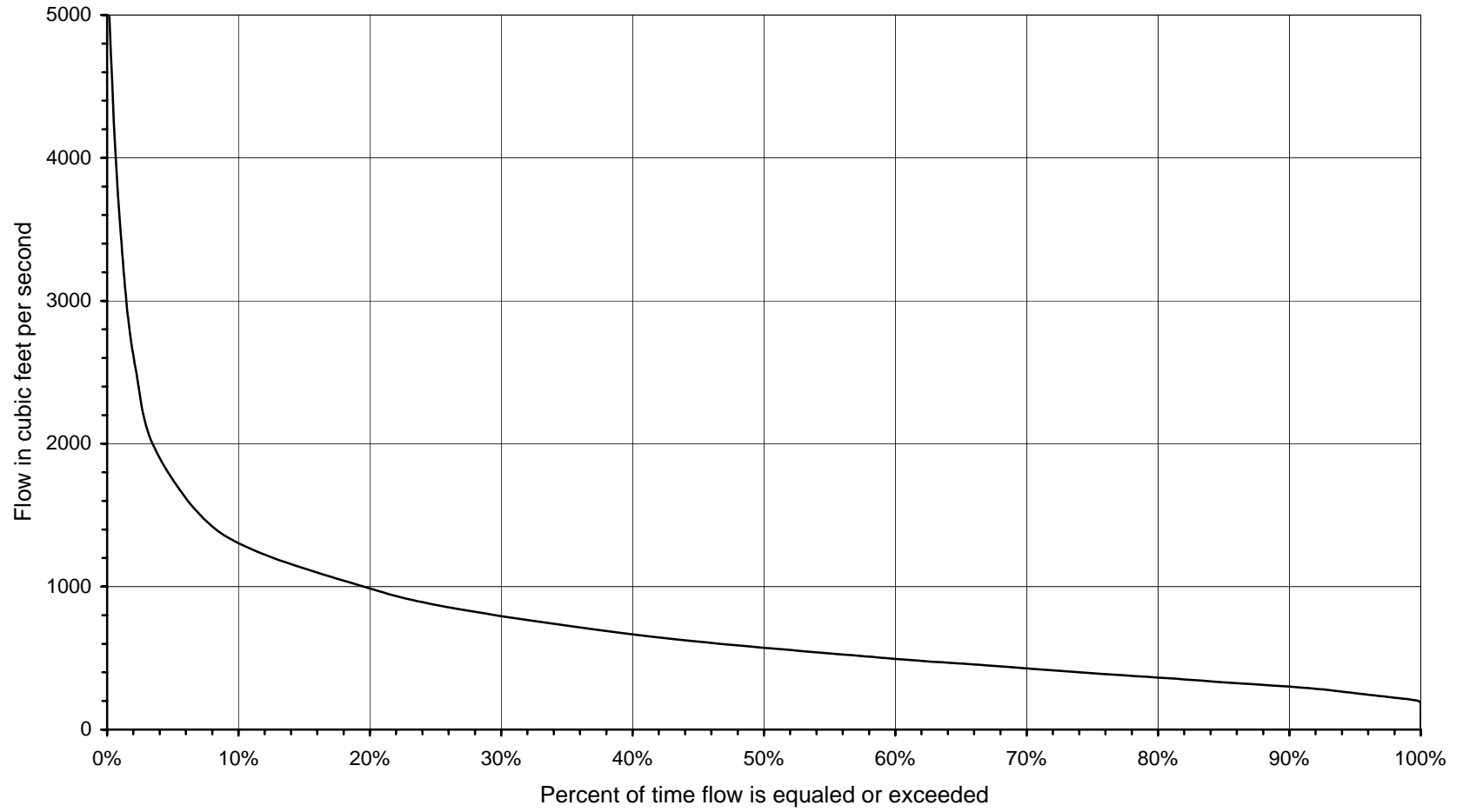
October flow-duration curve for Franklin



November flow-duration curve for Franklin



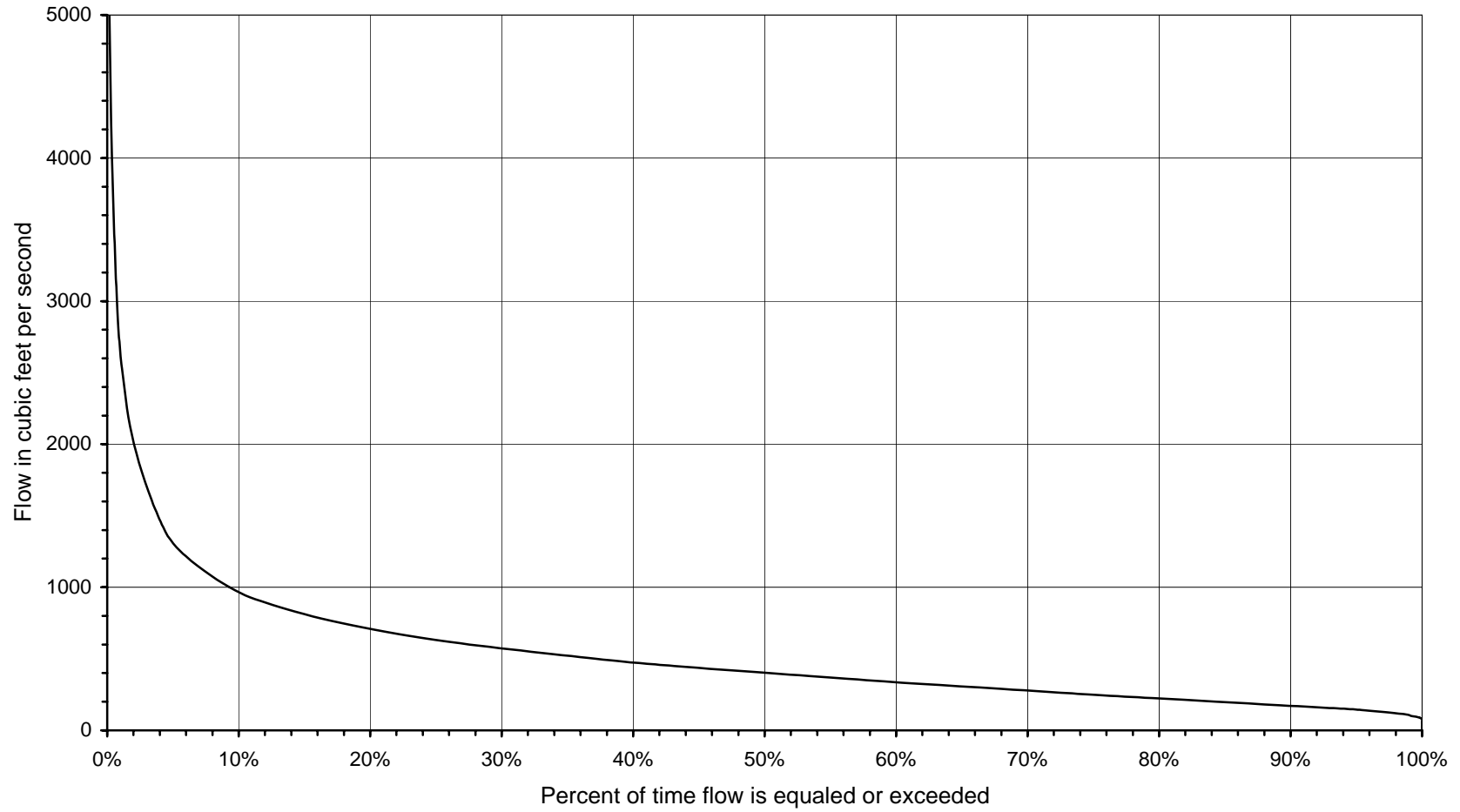
December flow-duration curve for Franklin



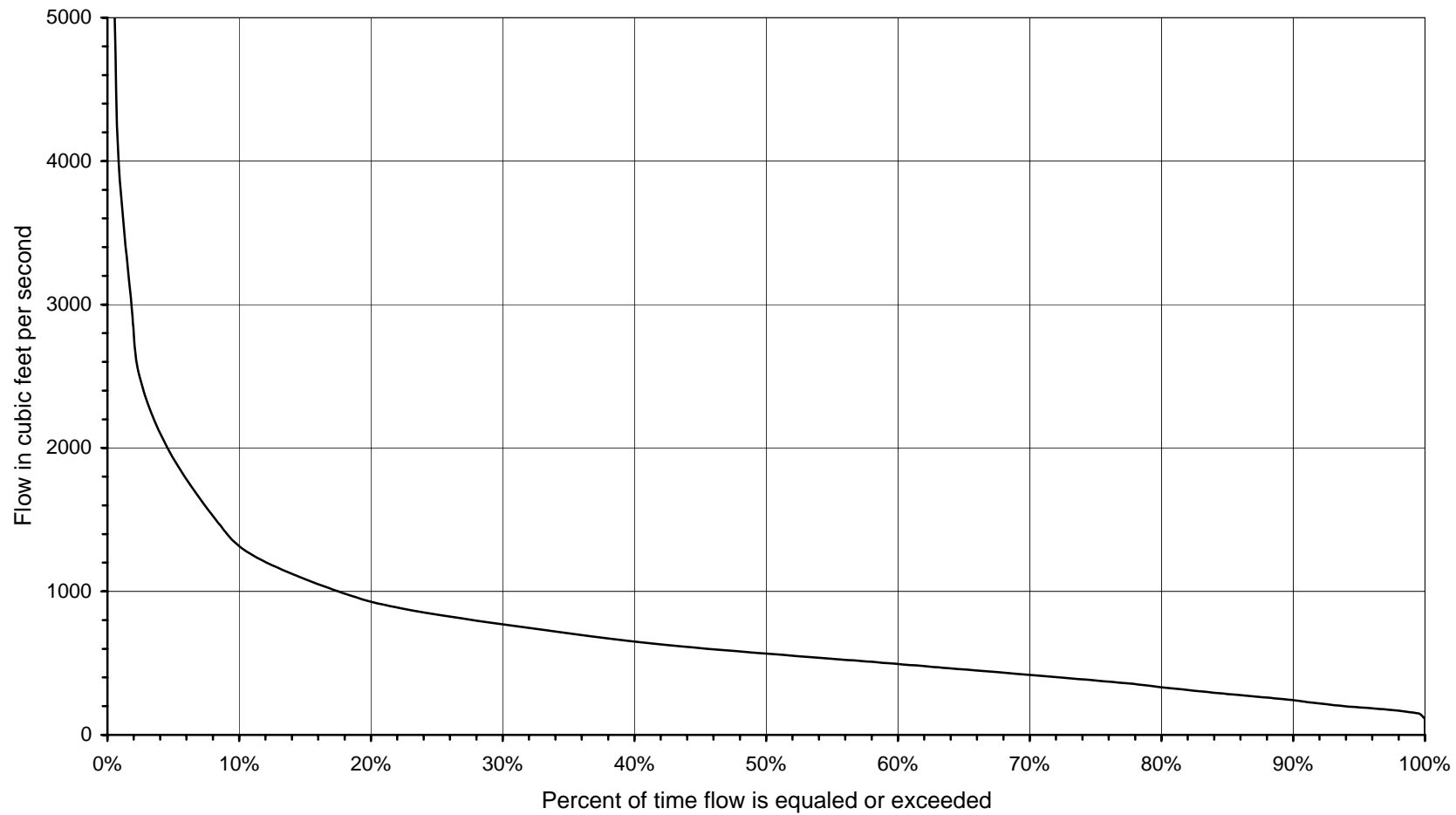
Bryson Flow Duration Curves



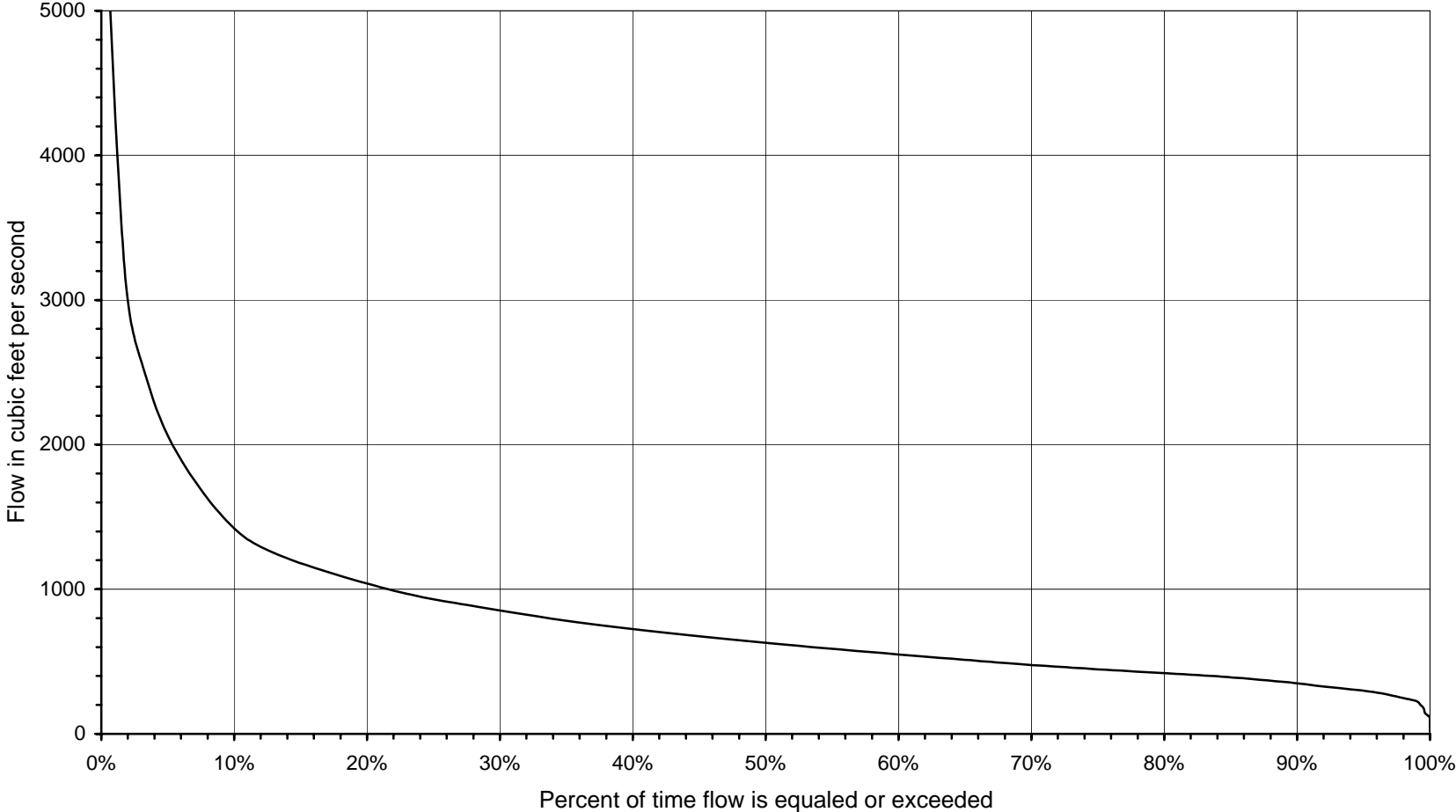
Annual flow-duration curve for Bryson



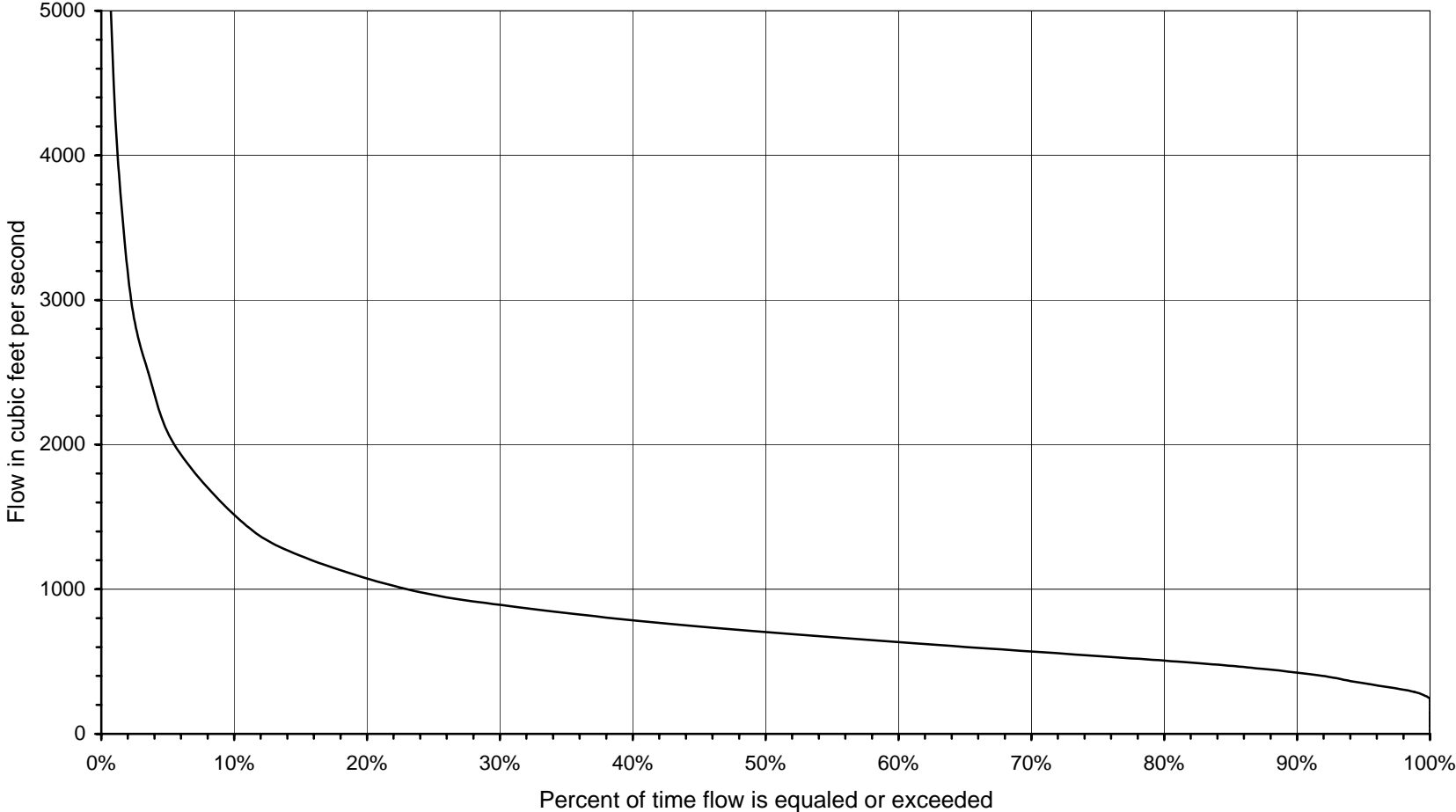
January flow-duration curve for Bryson



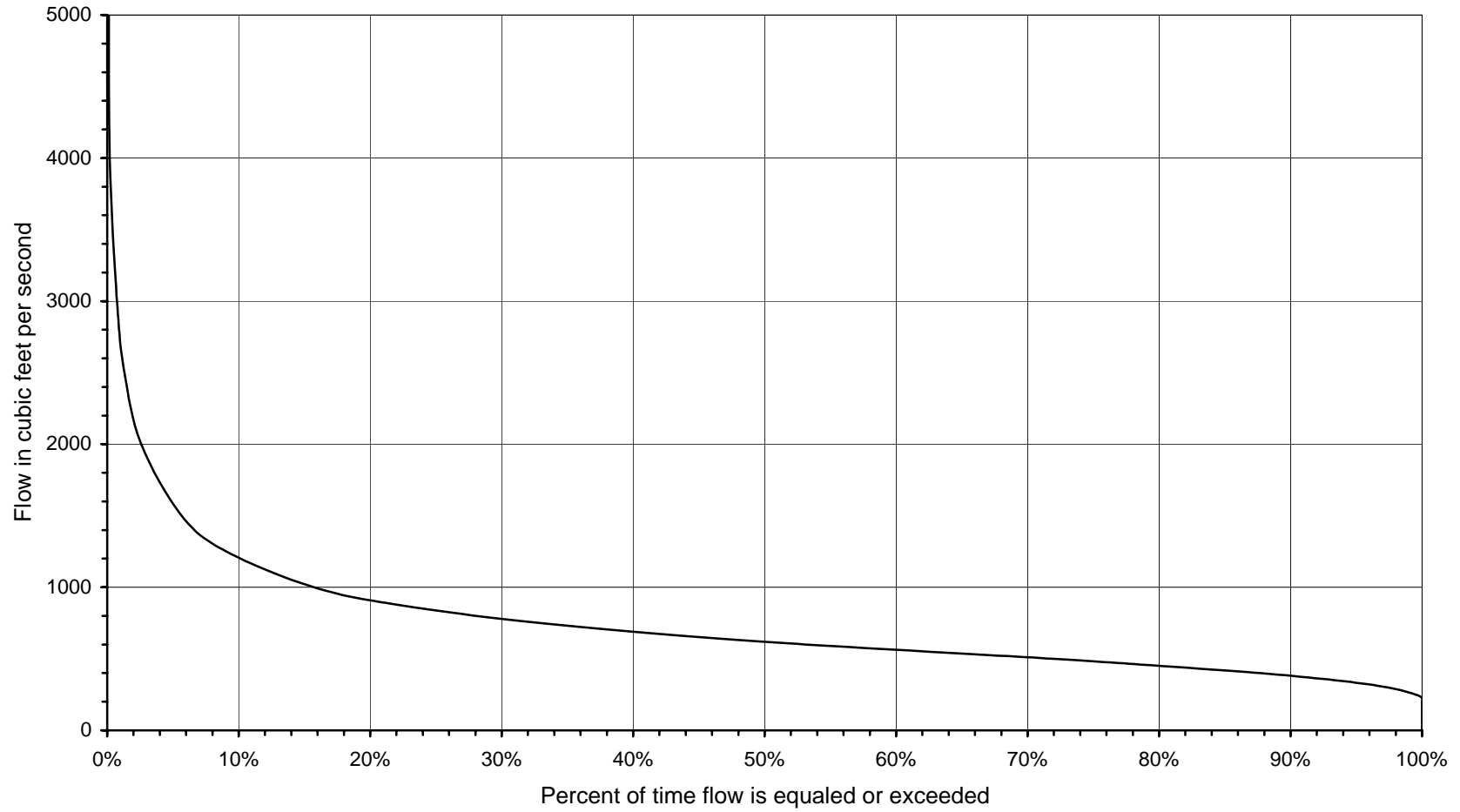
February flow-duration curve for Bryson



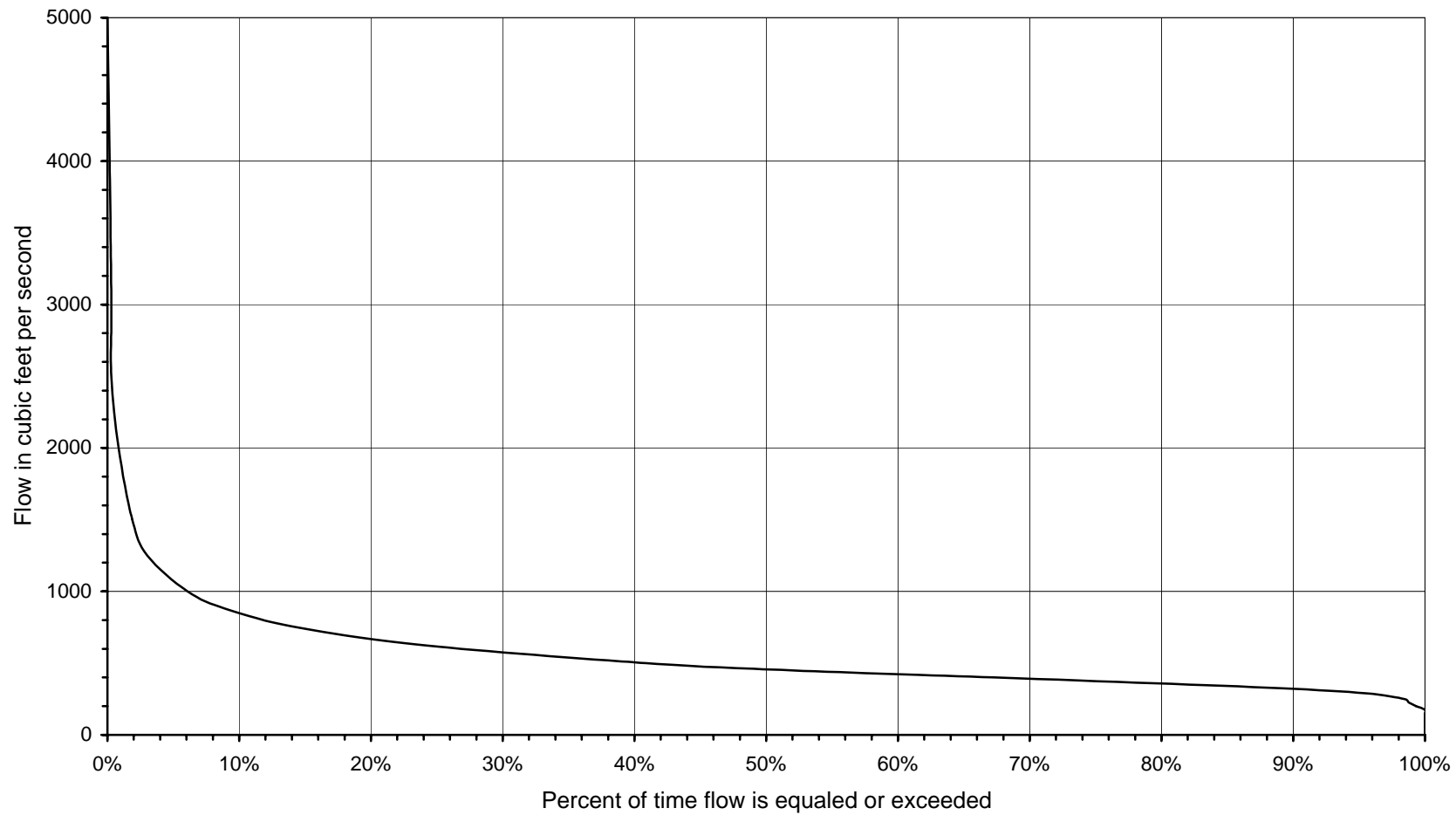
March flow-duration curve for Bryson



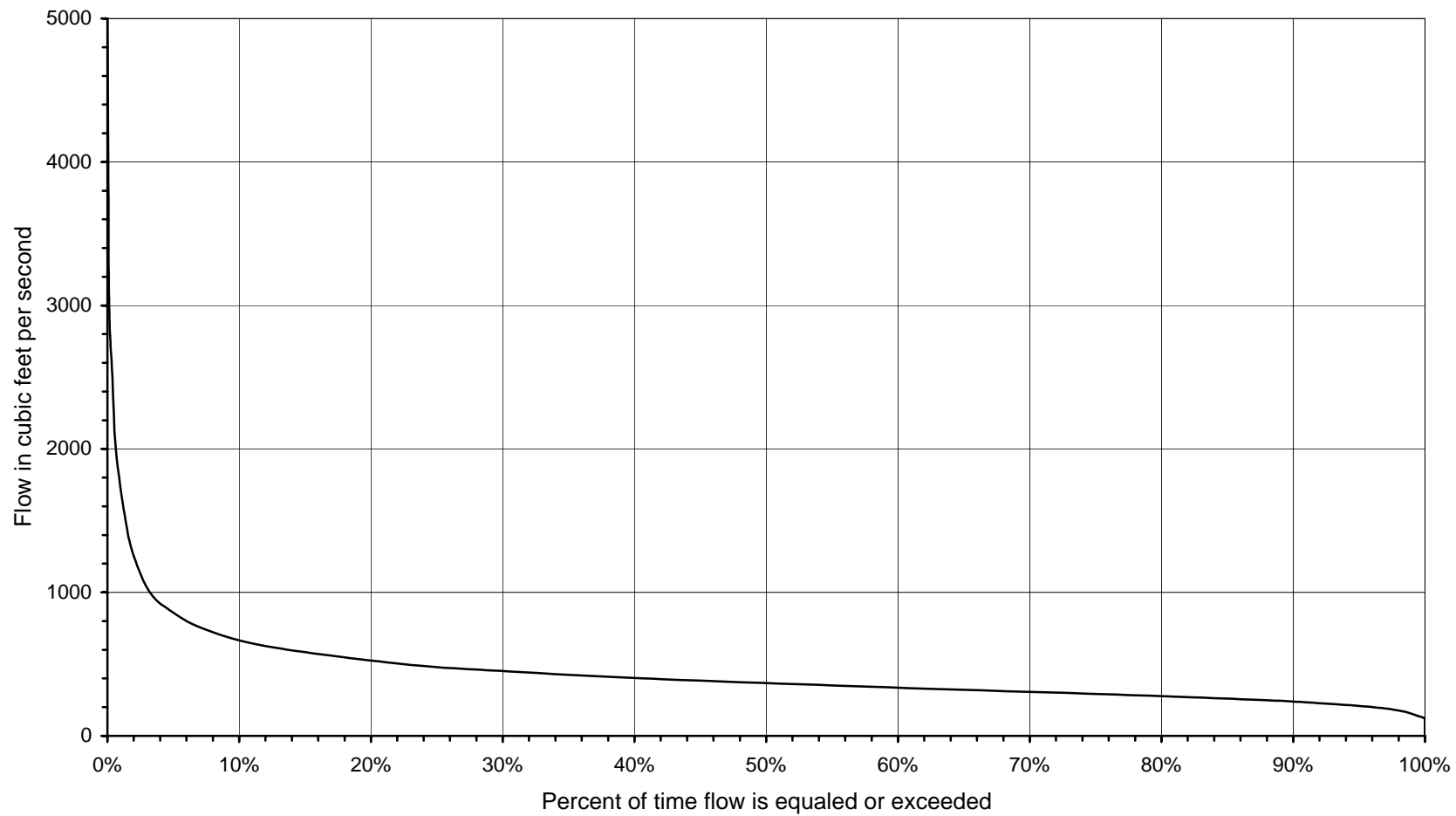
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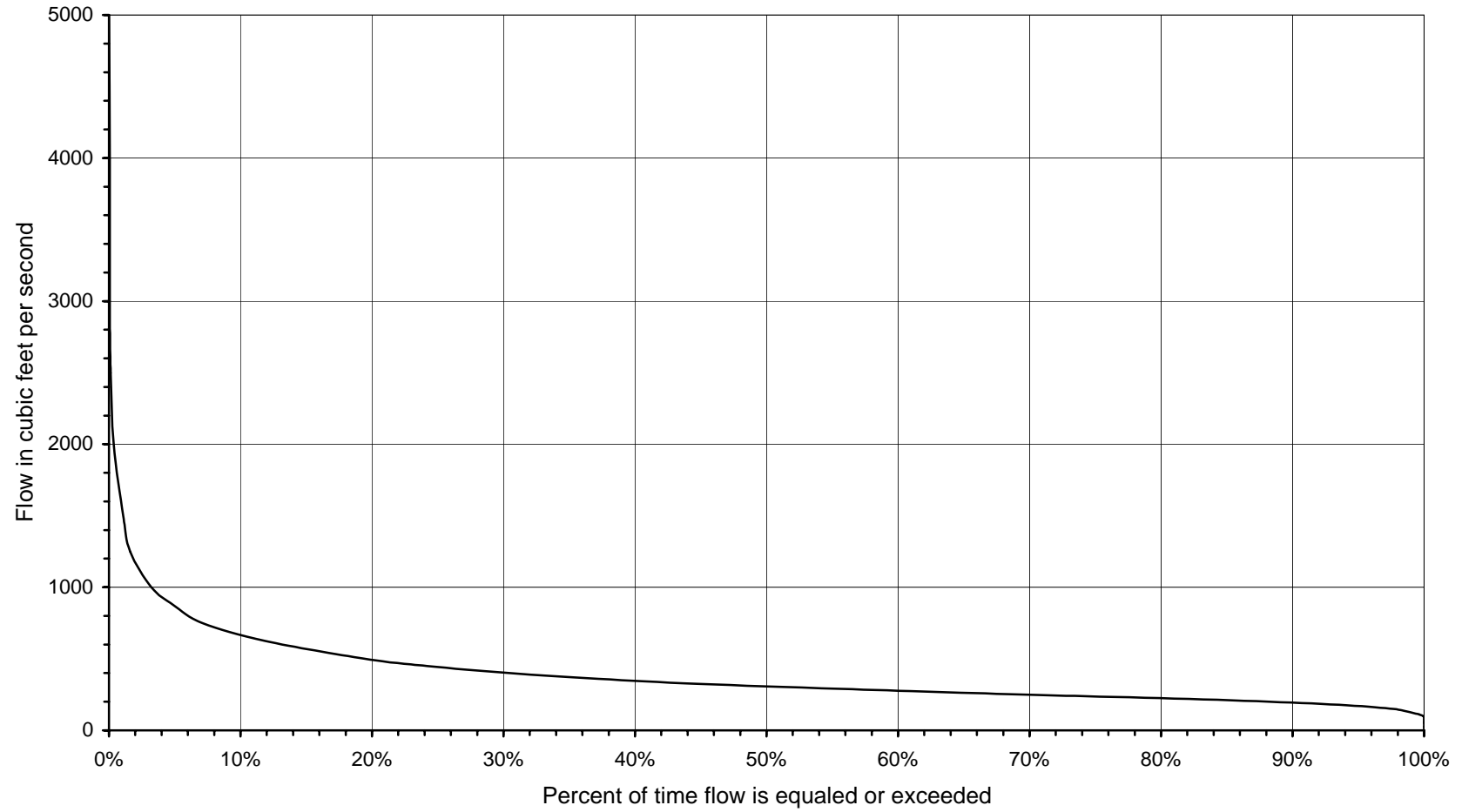
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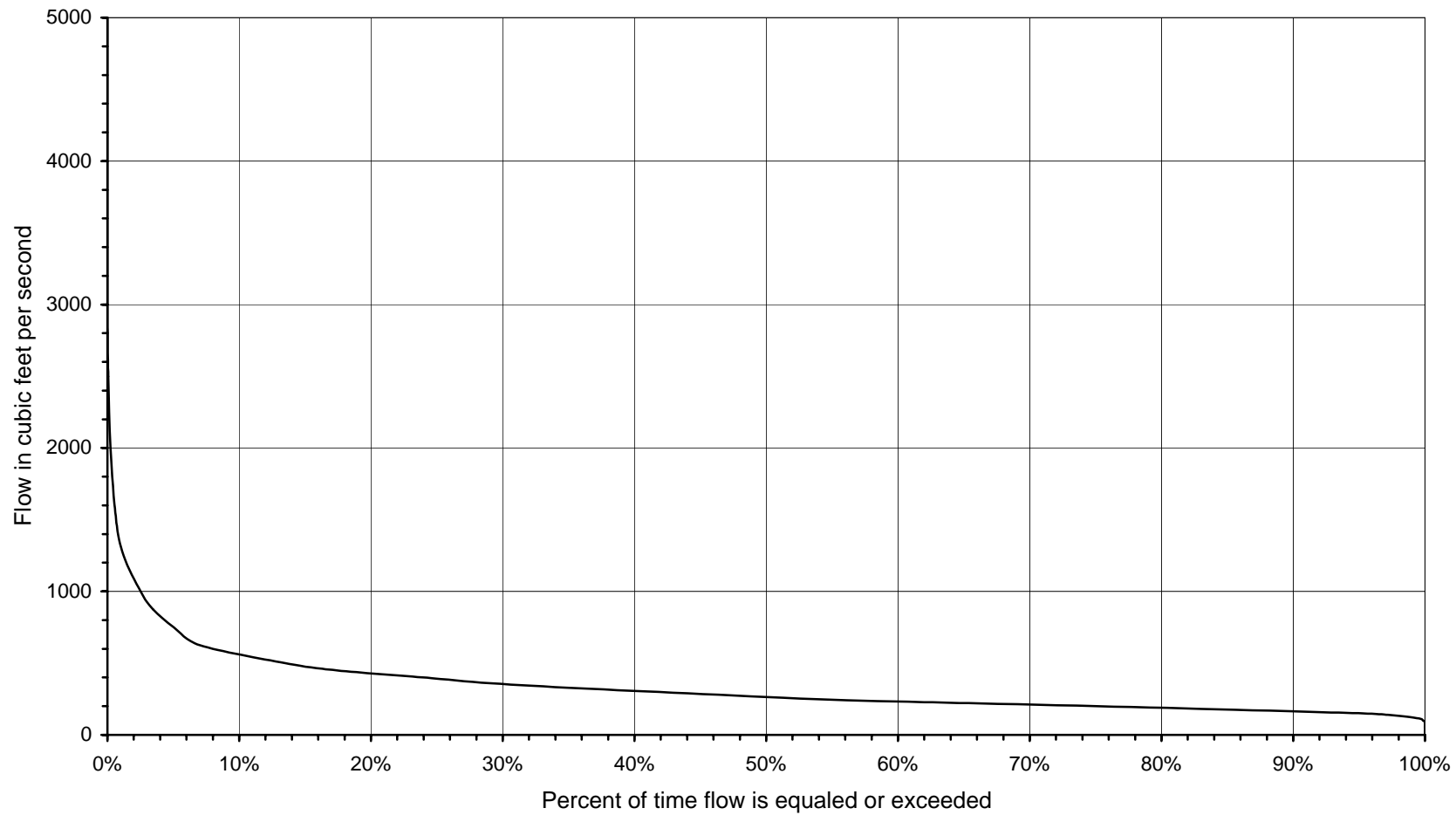
June flow-duration curve for Bryson



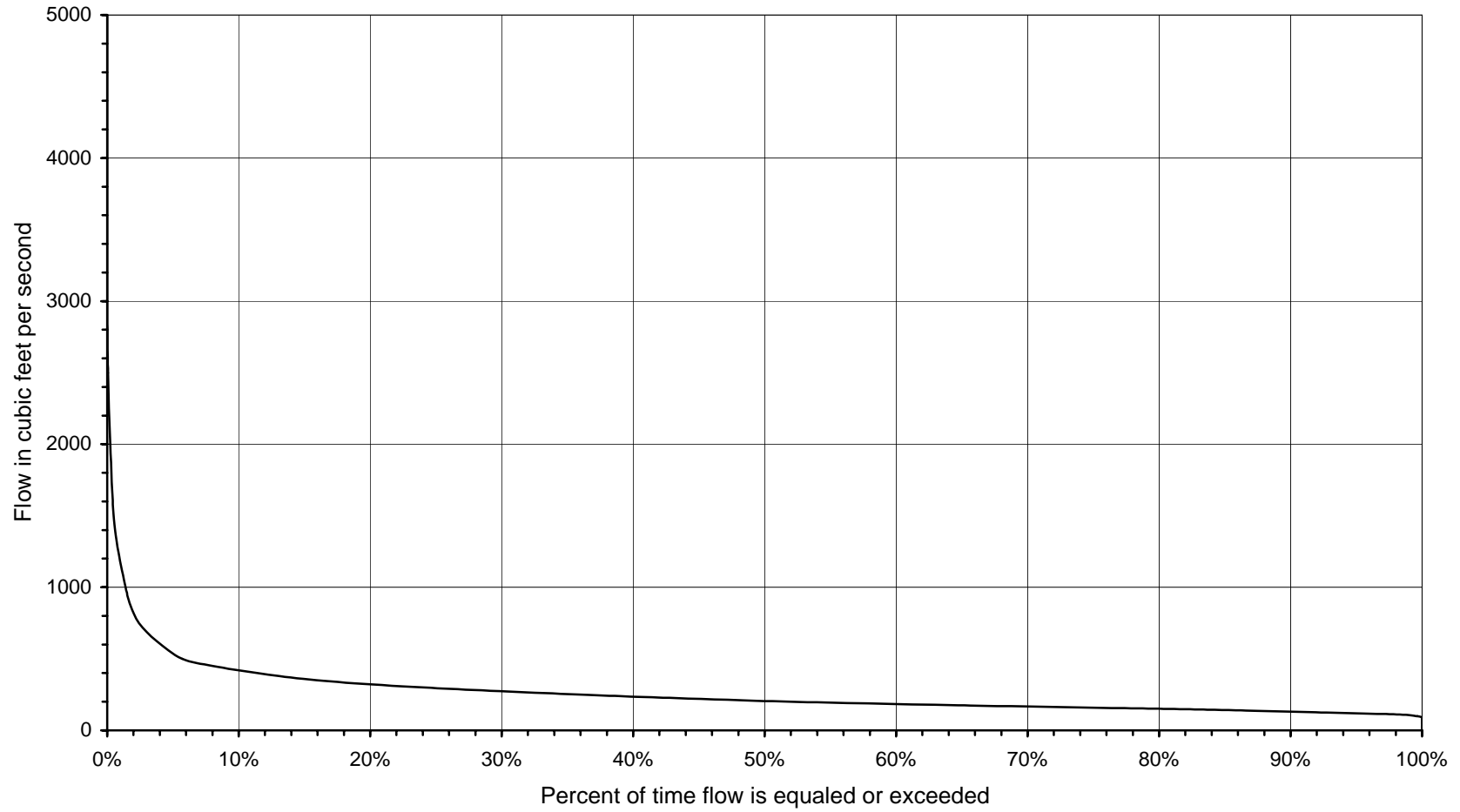
July flow-duration curve for Bryson



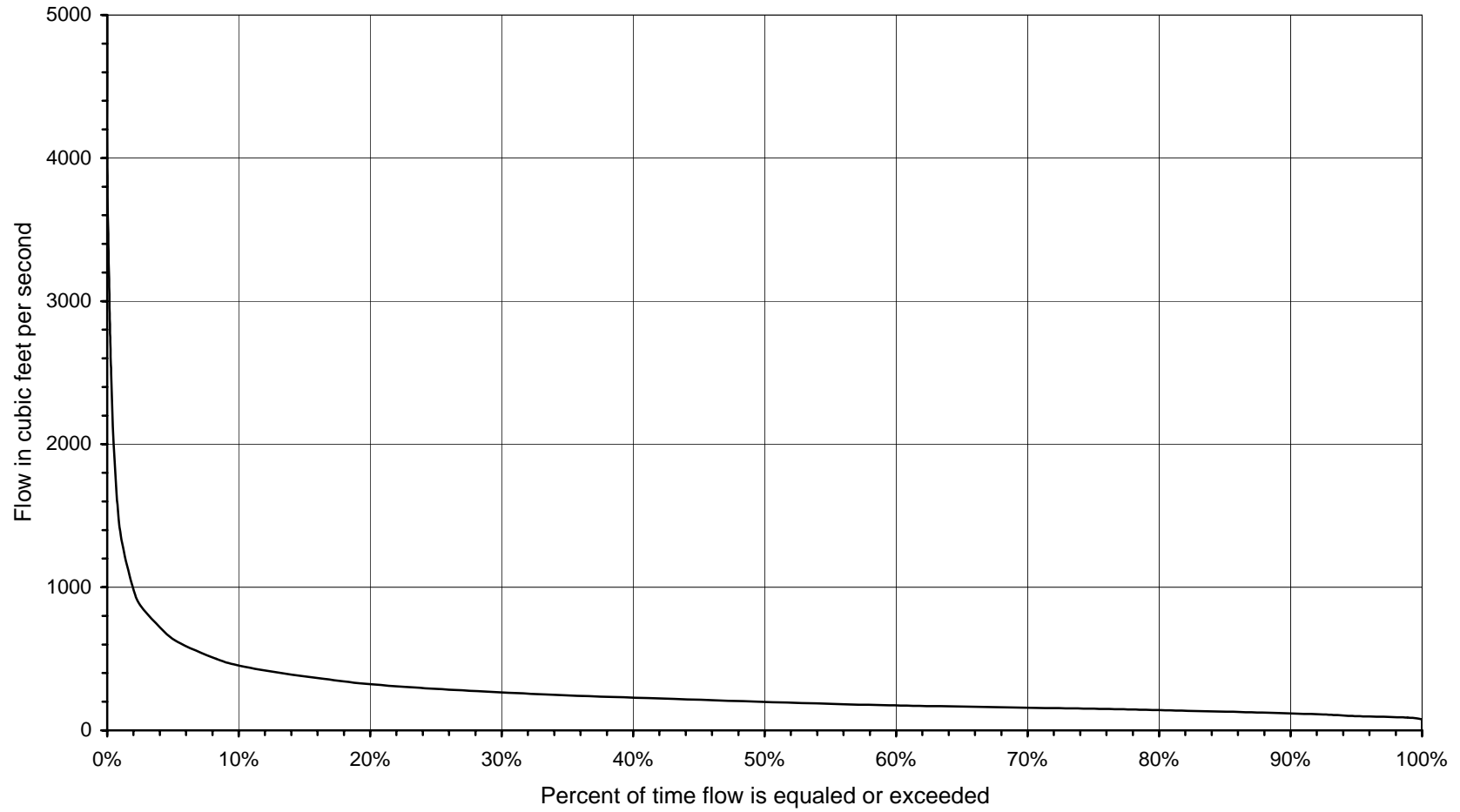
August flow-duration curve for Bryson



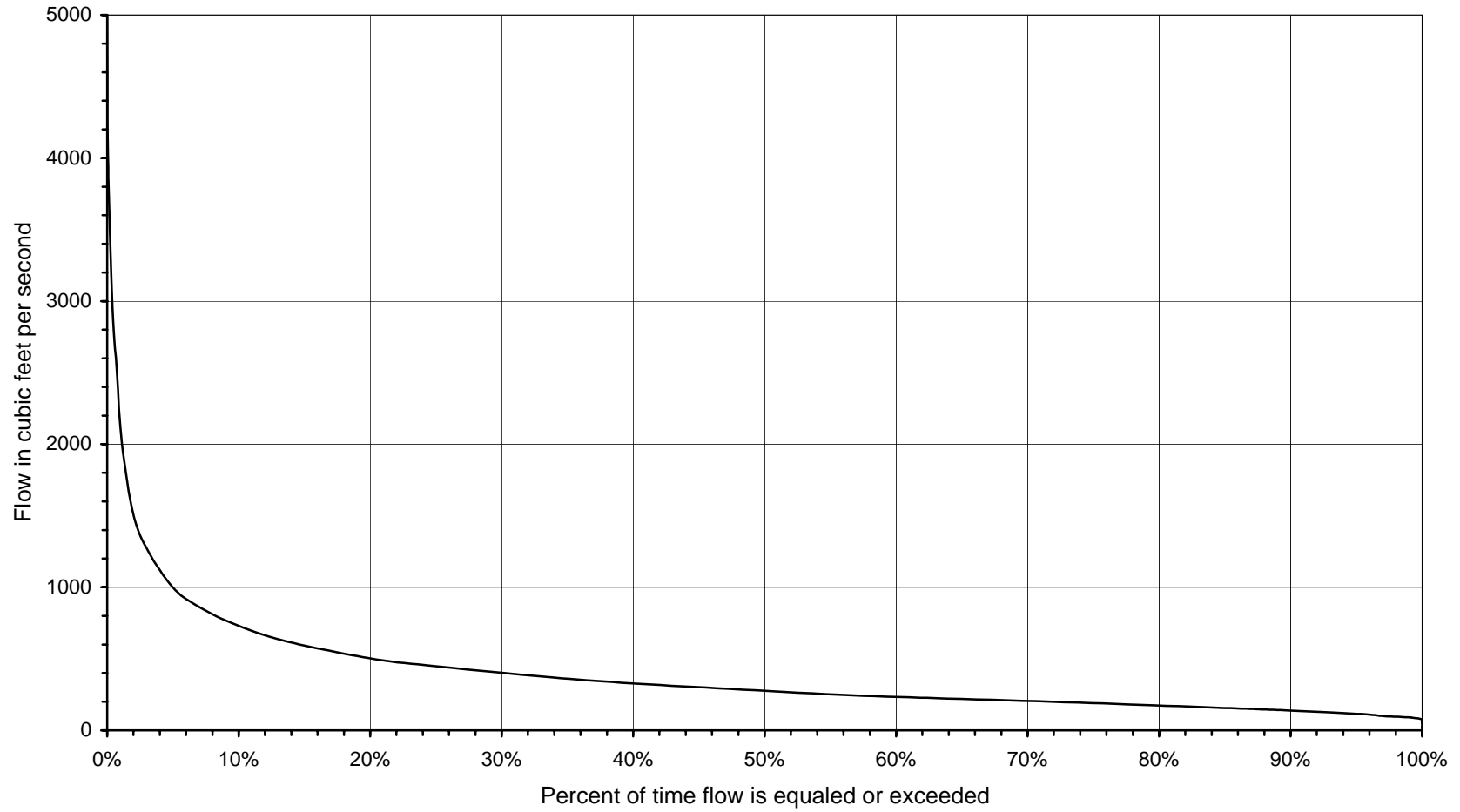
September flow-duration curve for Bryson



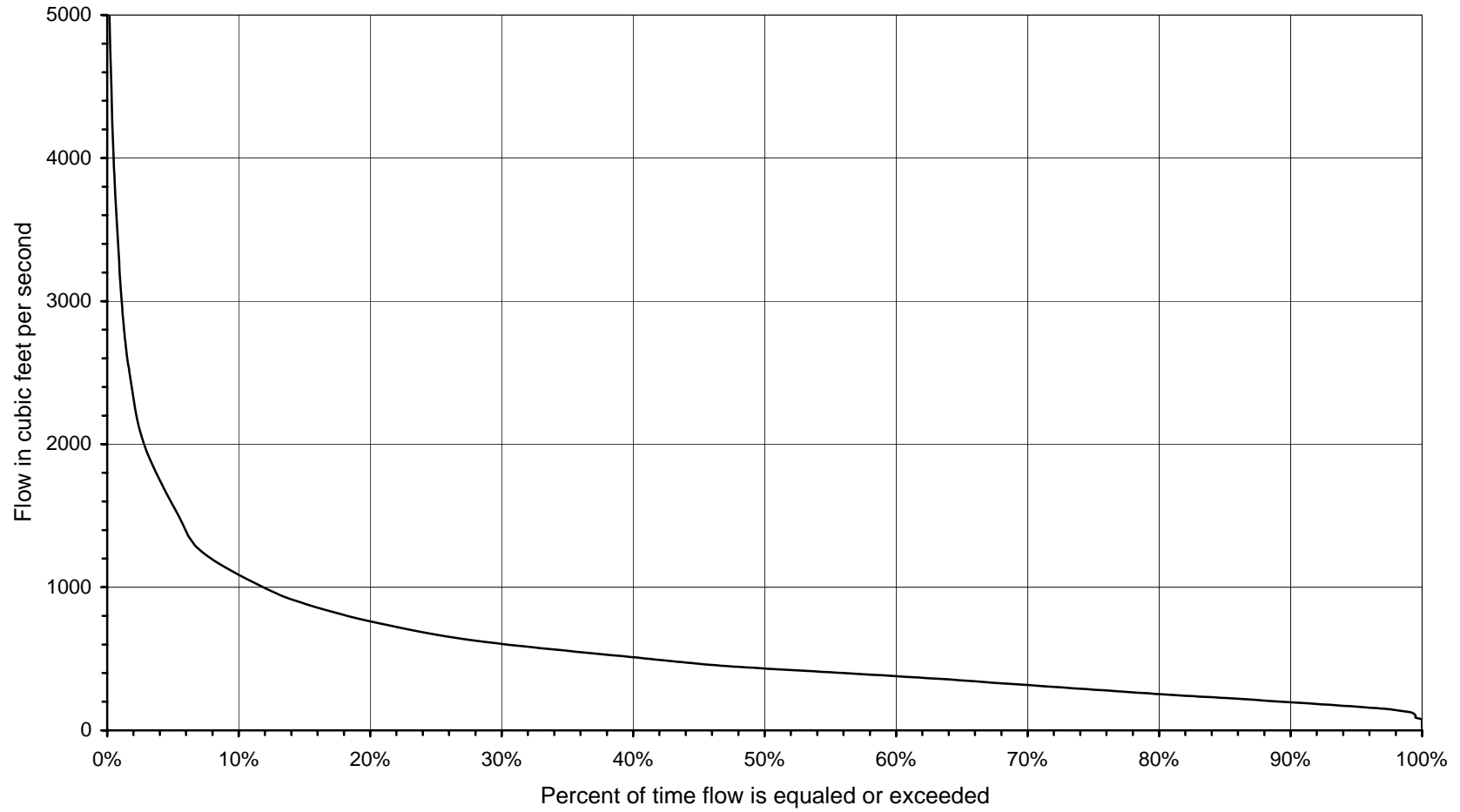
October flow-duration curve for Bryson



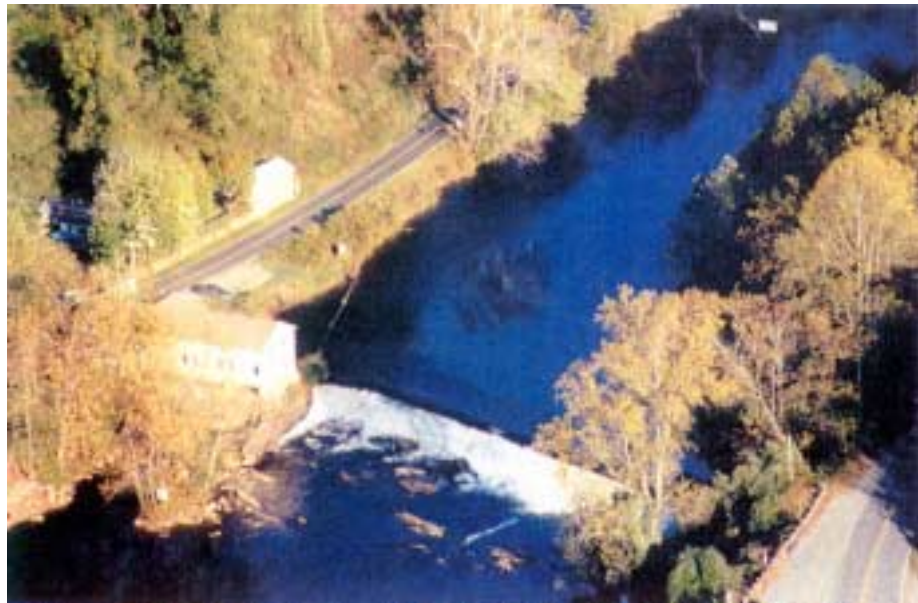
November flow-duration curve for Bryson



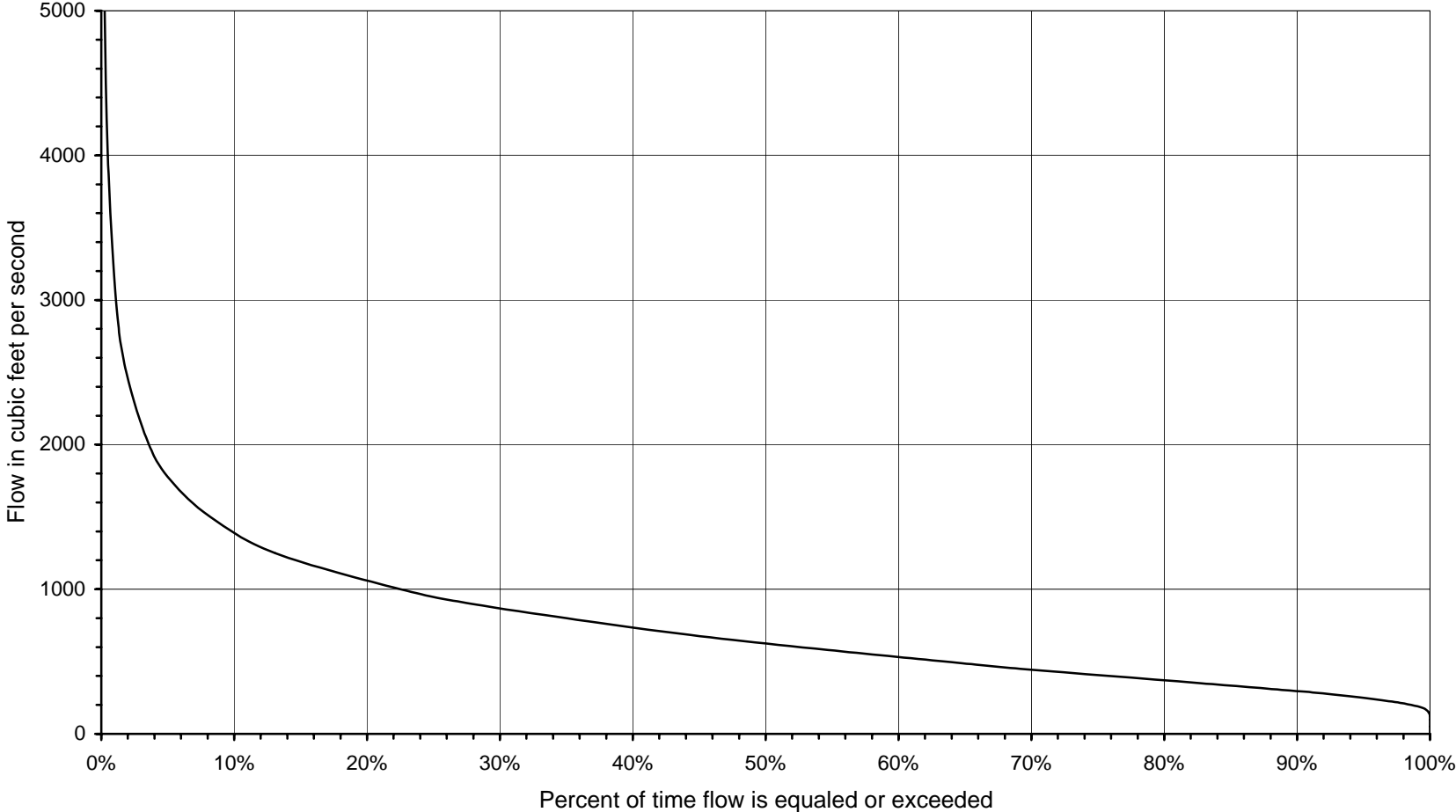
December flow-duration curve for Bryson



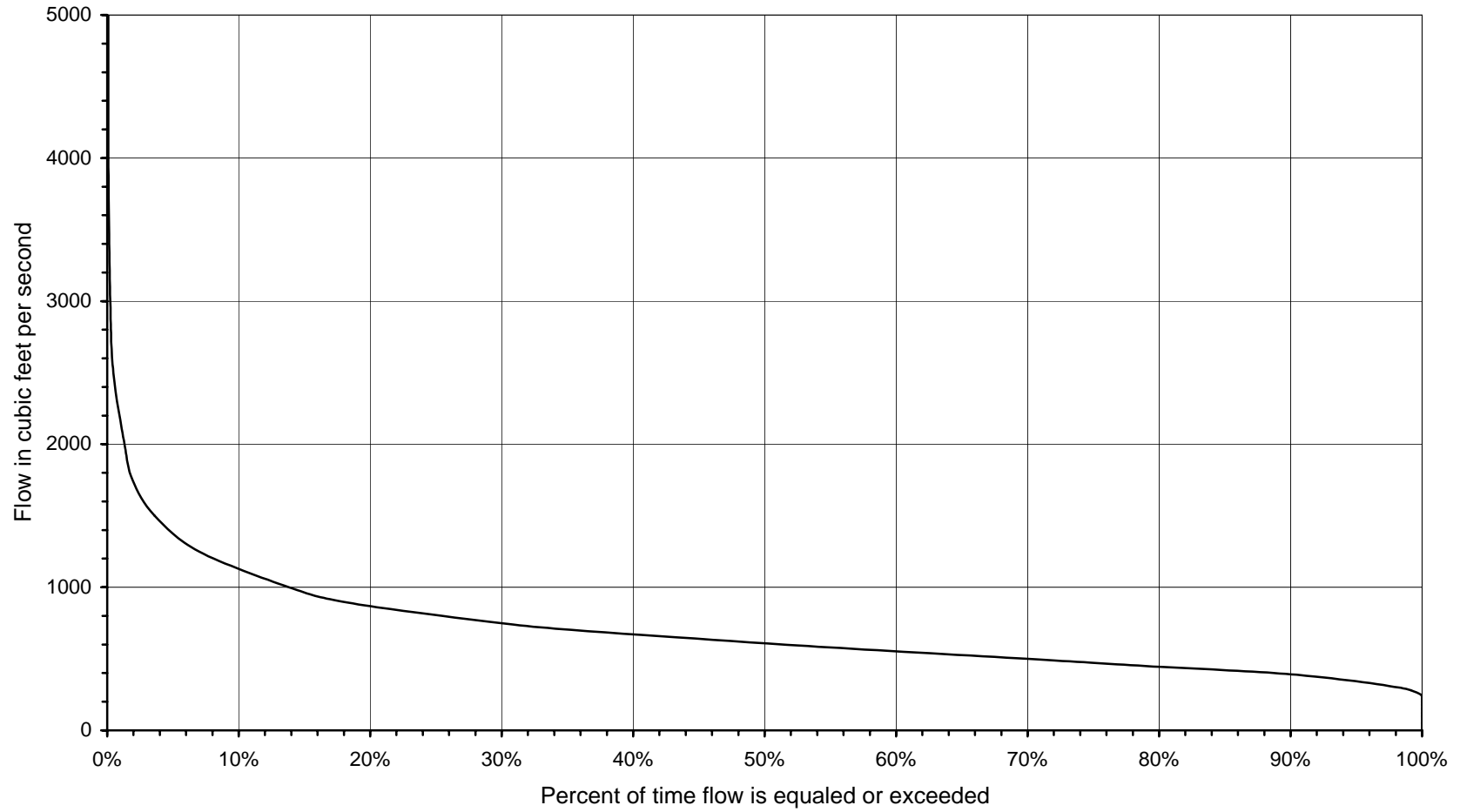
Dillsboro Flow Duration Curves



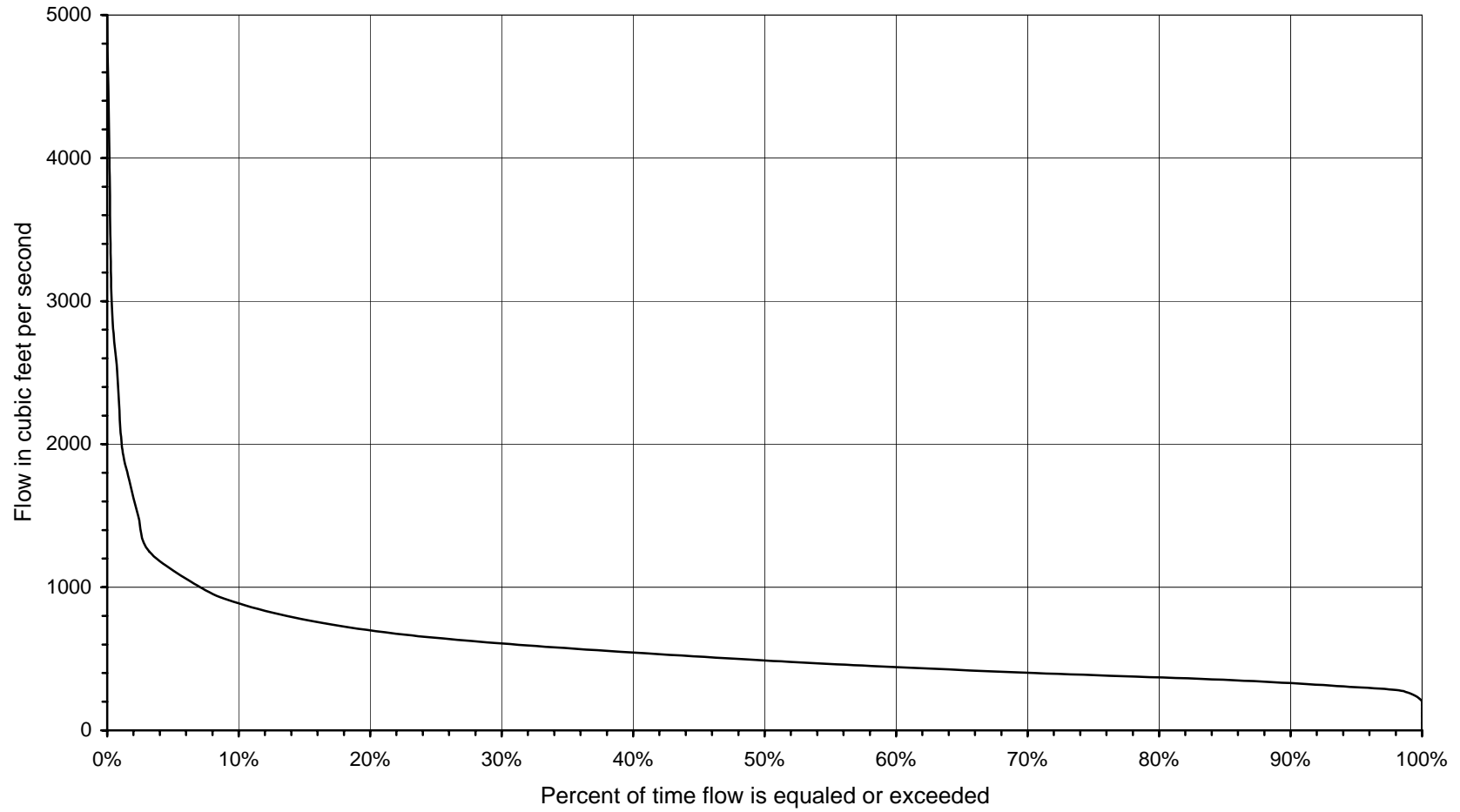
Annual flow-duration curve for Dillsboro



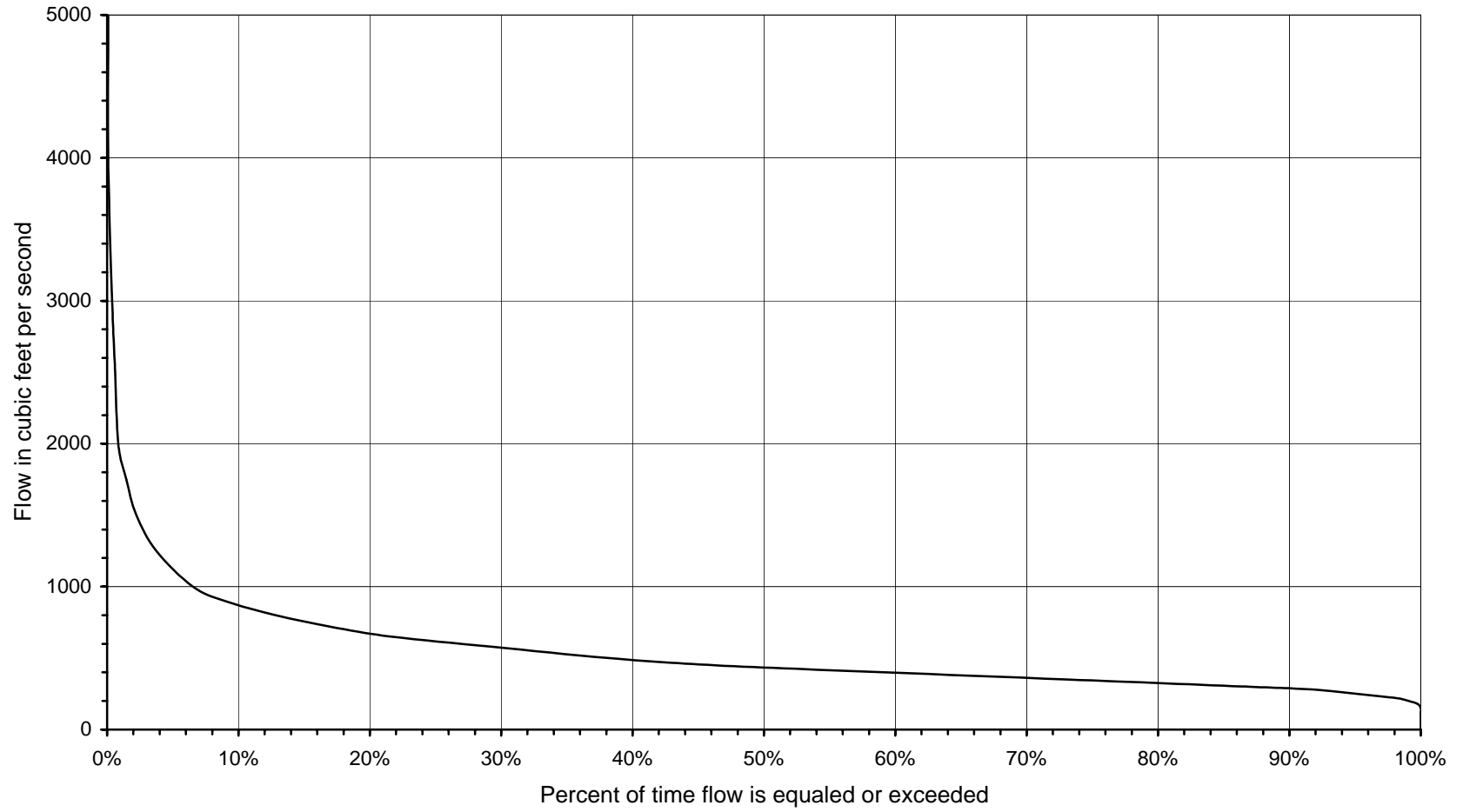
January flow-duration curve for Dillsboro



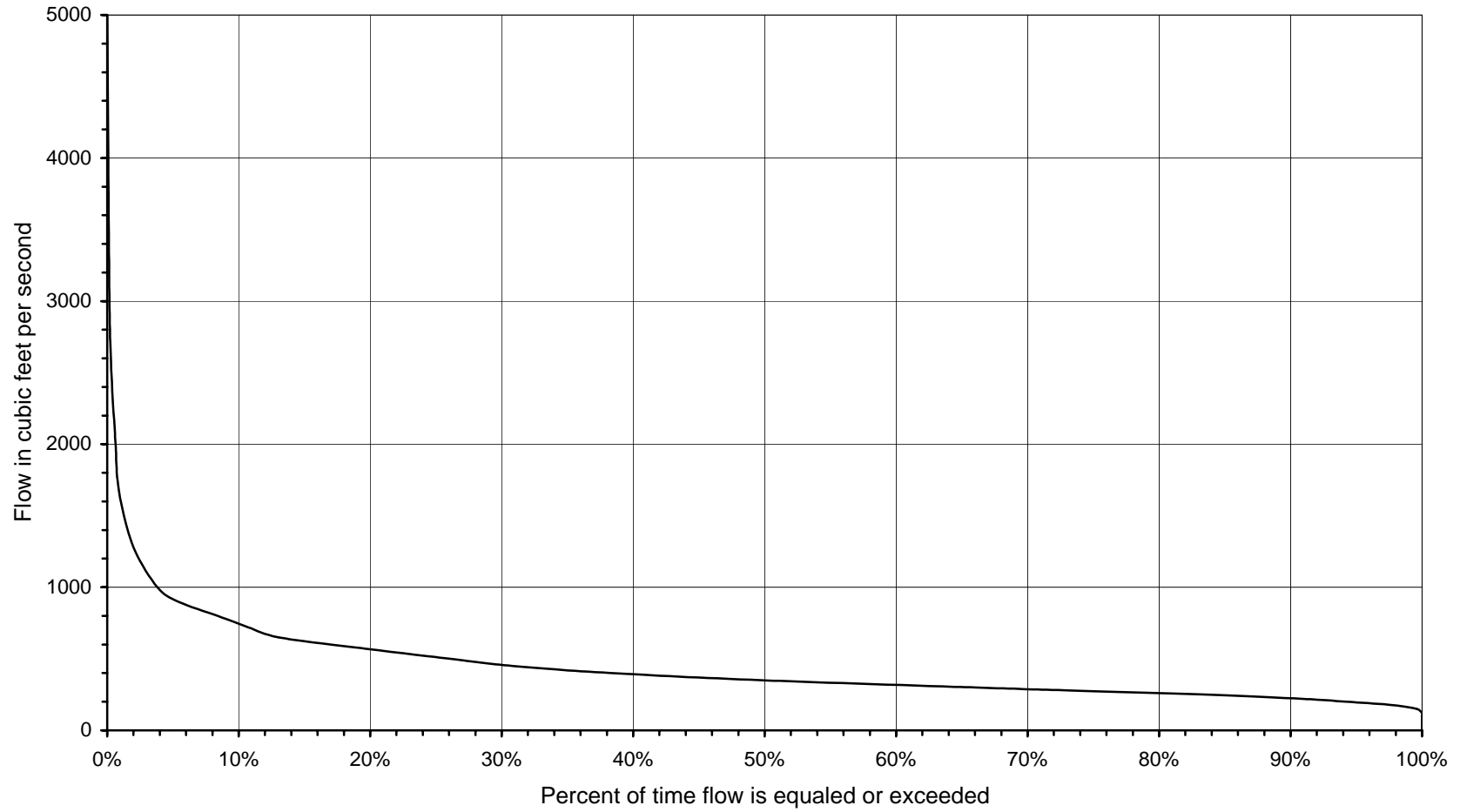
February flow-duration curve for Dillsboro



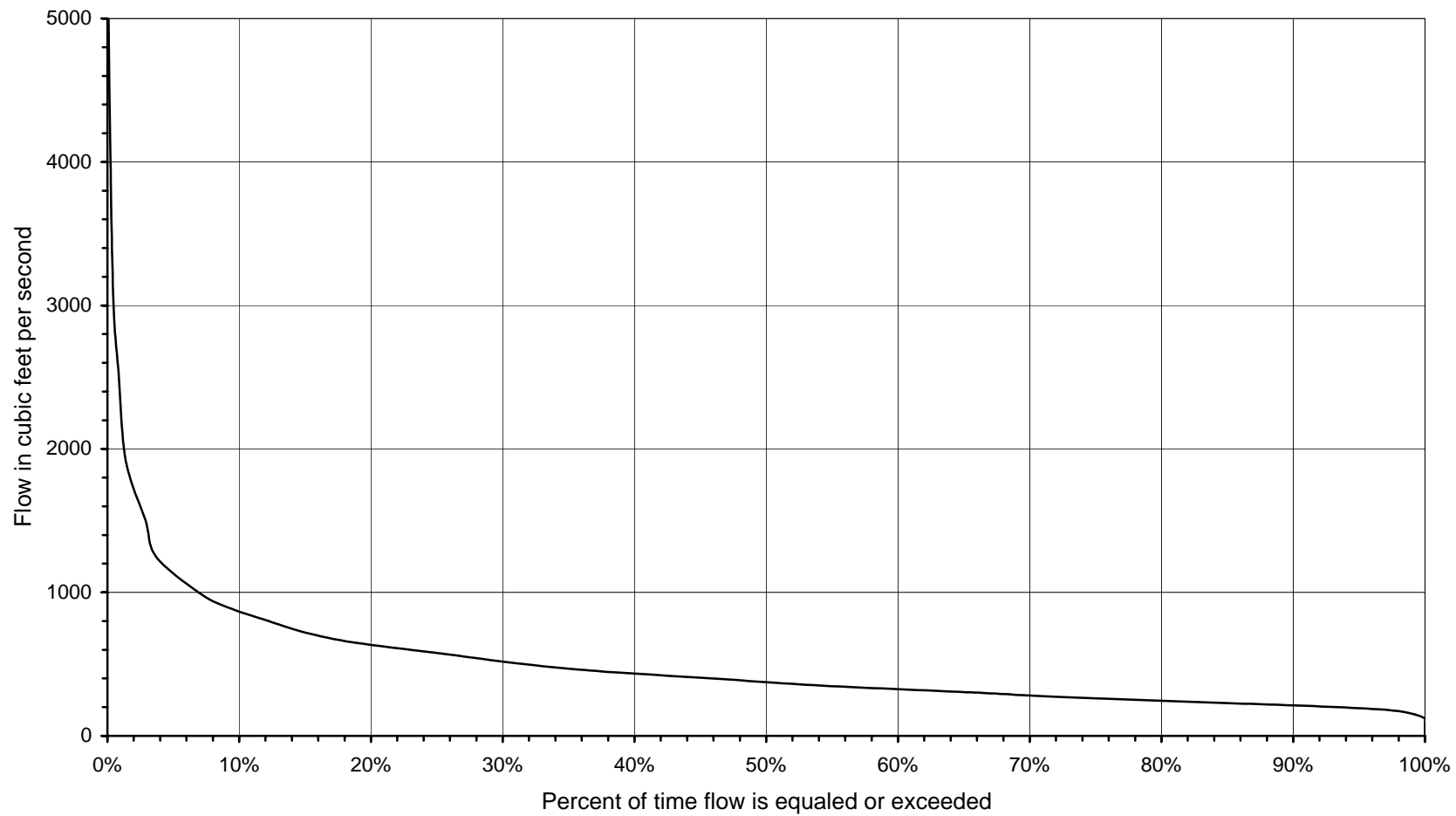
March flow-duration curve for Dillsboro



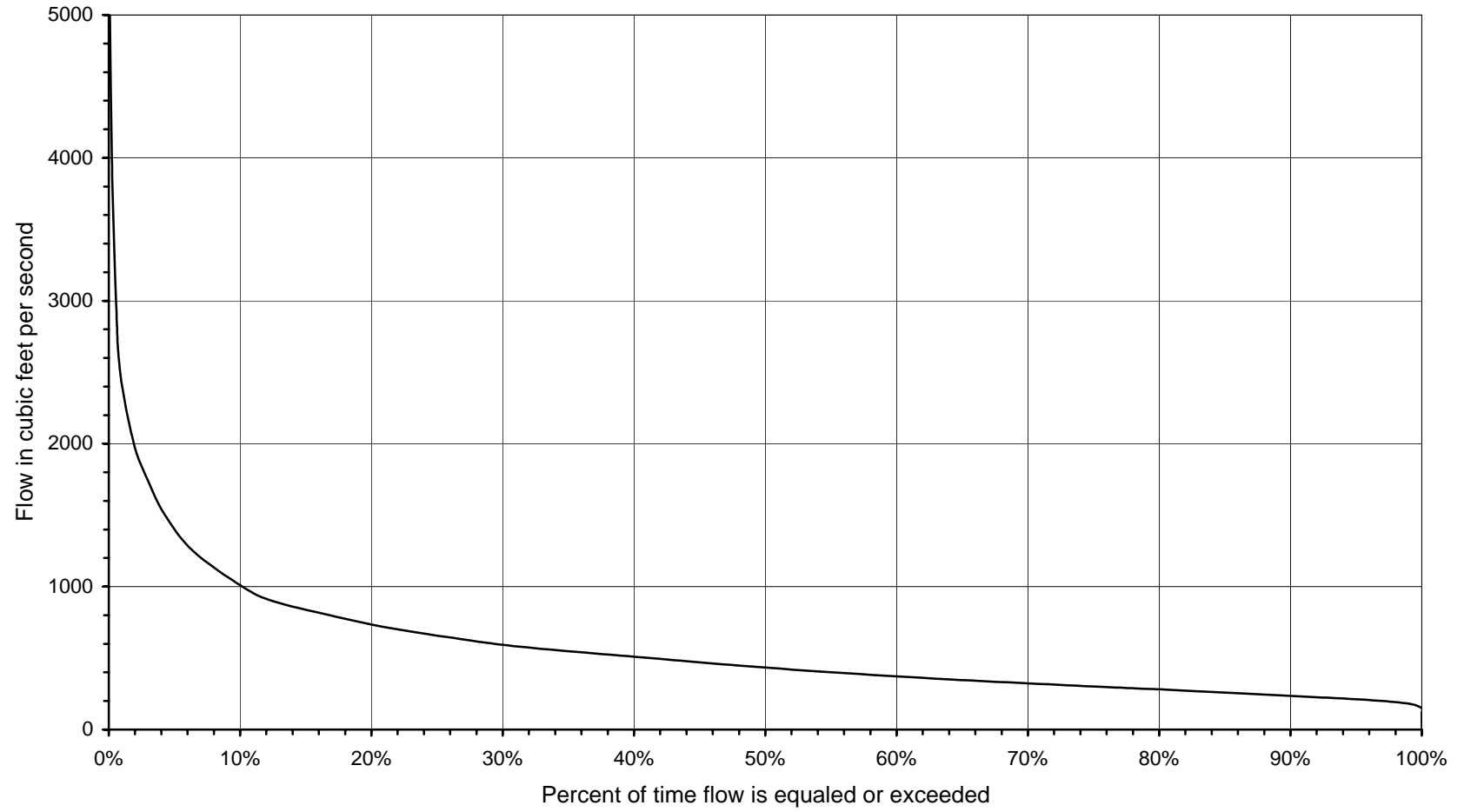
April flow-duration curve for Dillsboro



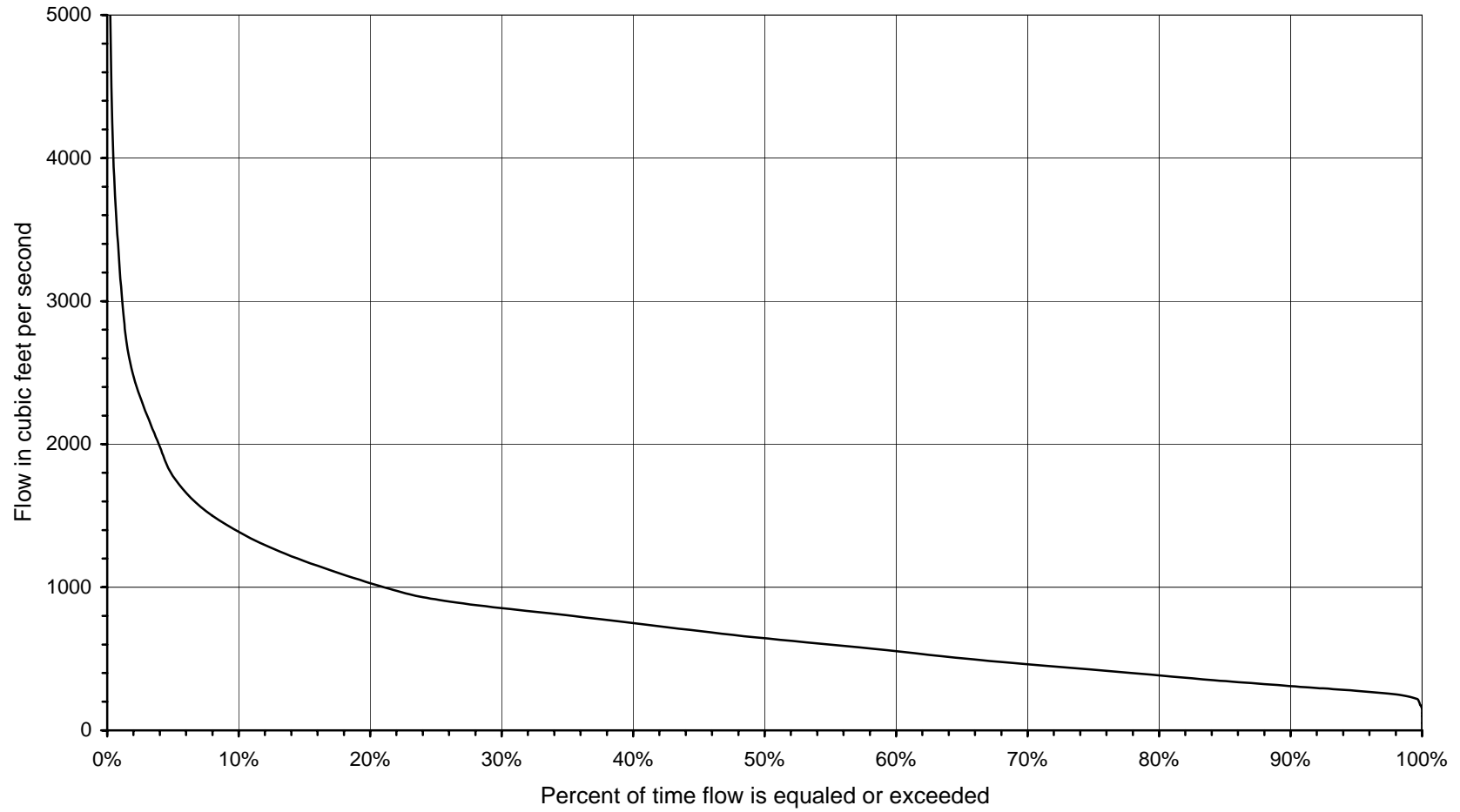
May flow-duration curve for Dillsboro



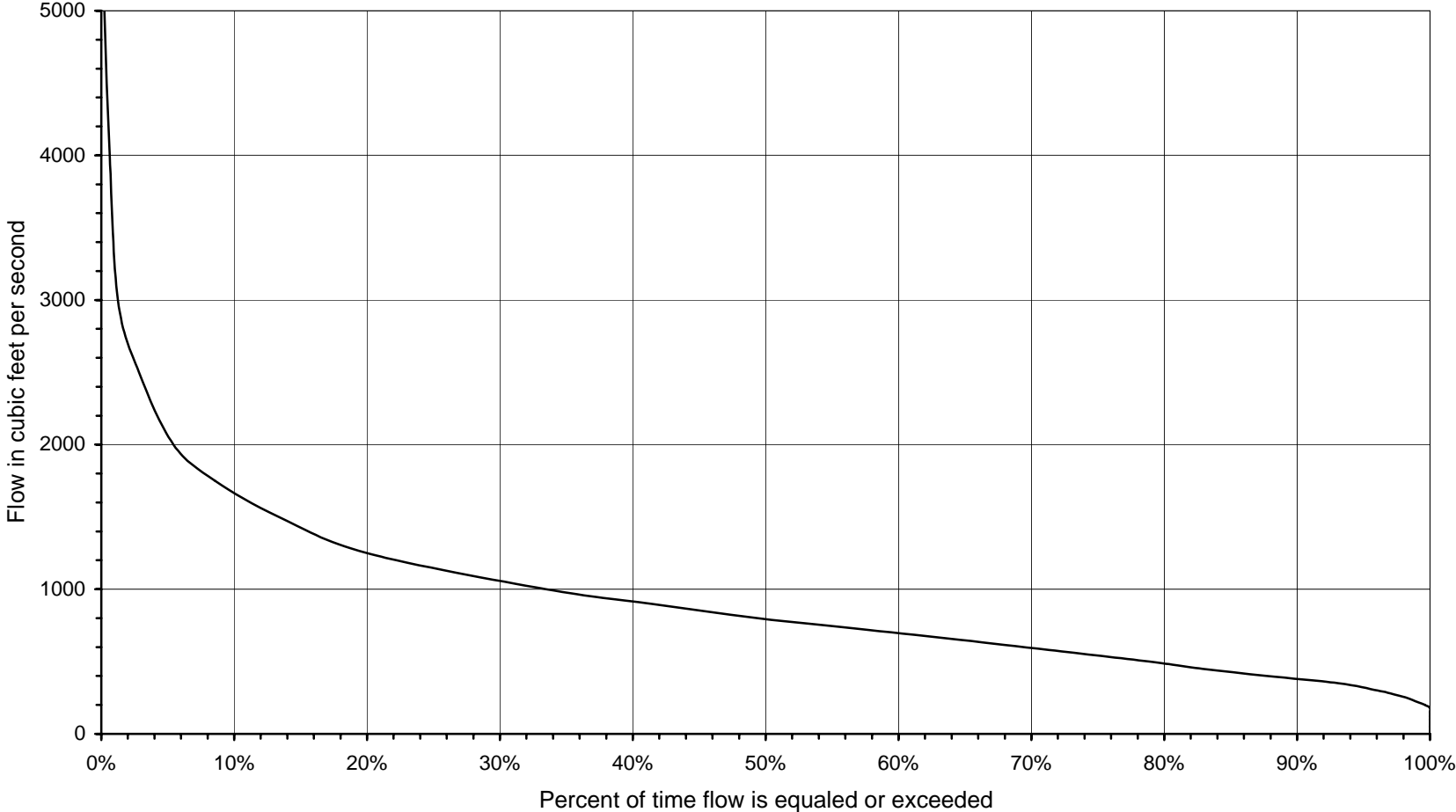
June flow-duration curve for Dillsboro



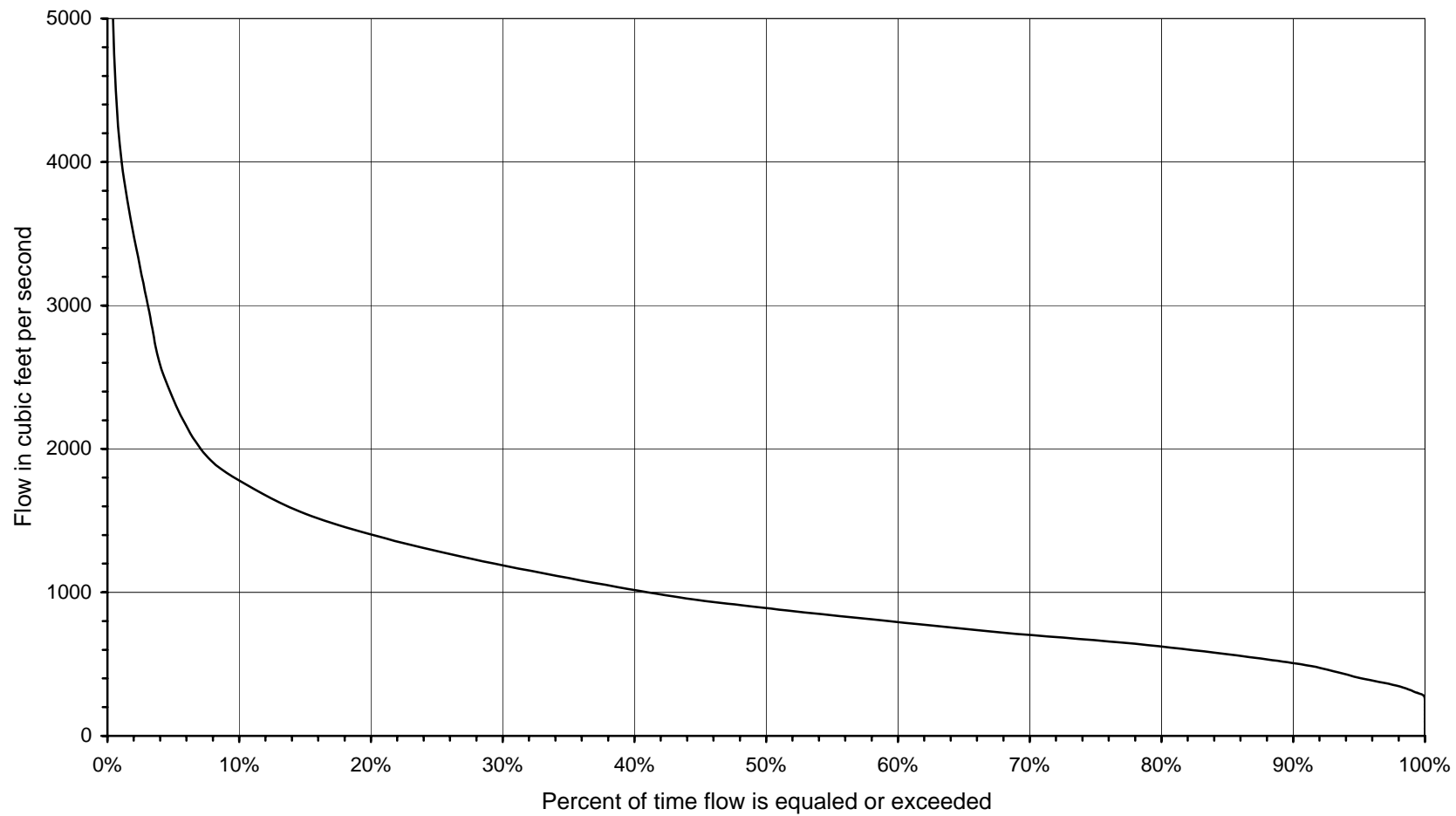
July flow-duration curve for Dillsboro



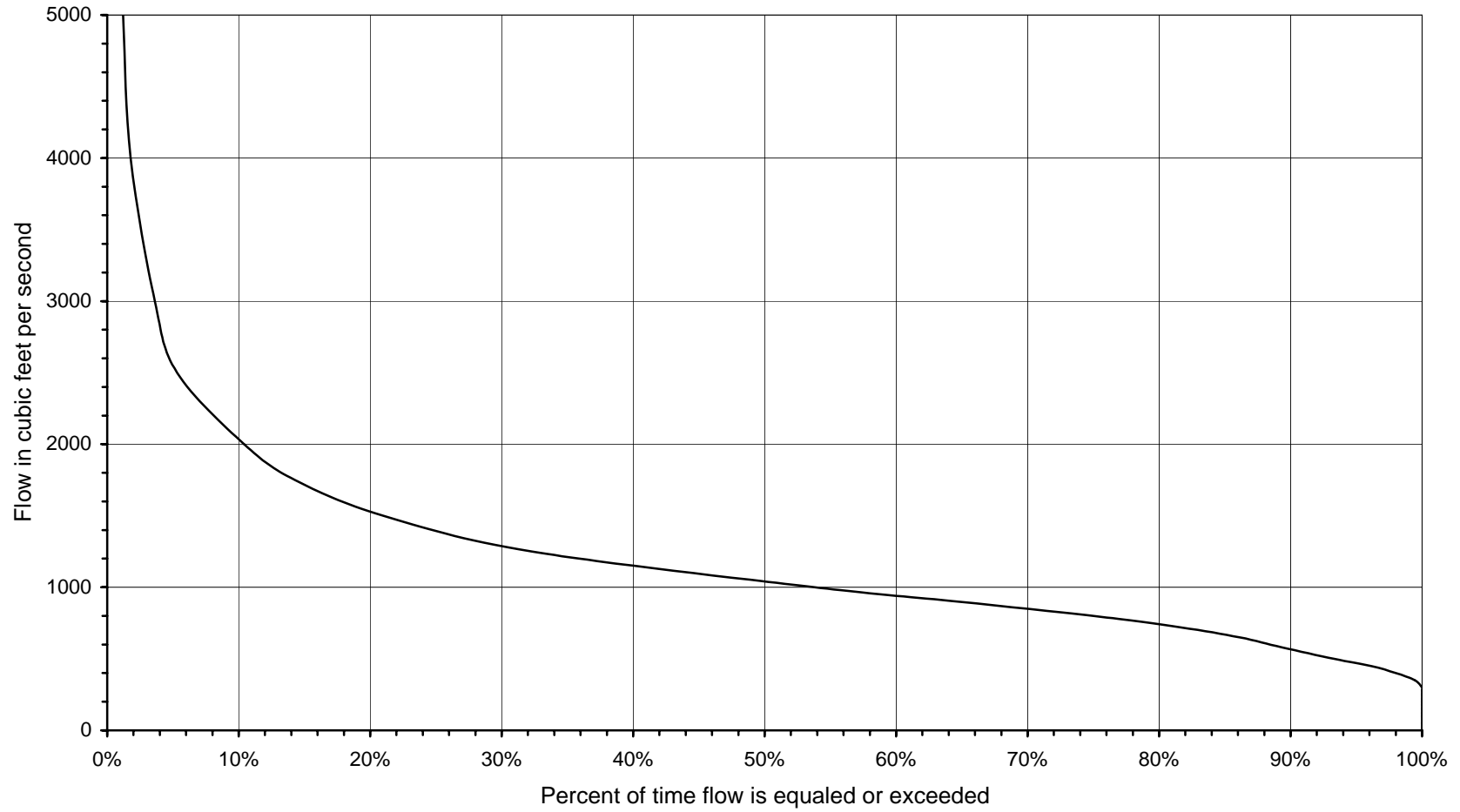
August flow-duration curve for Dillsboro



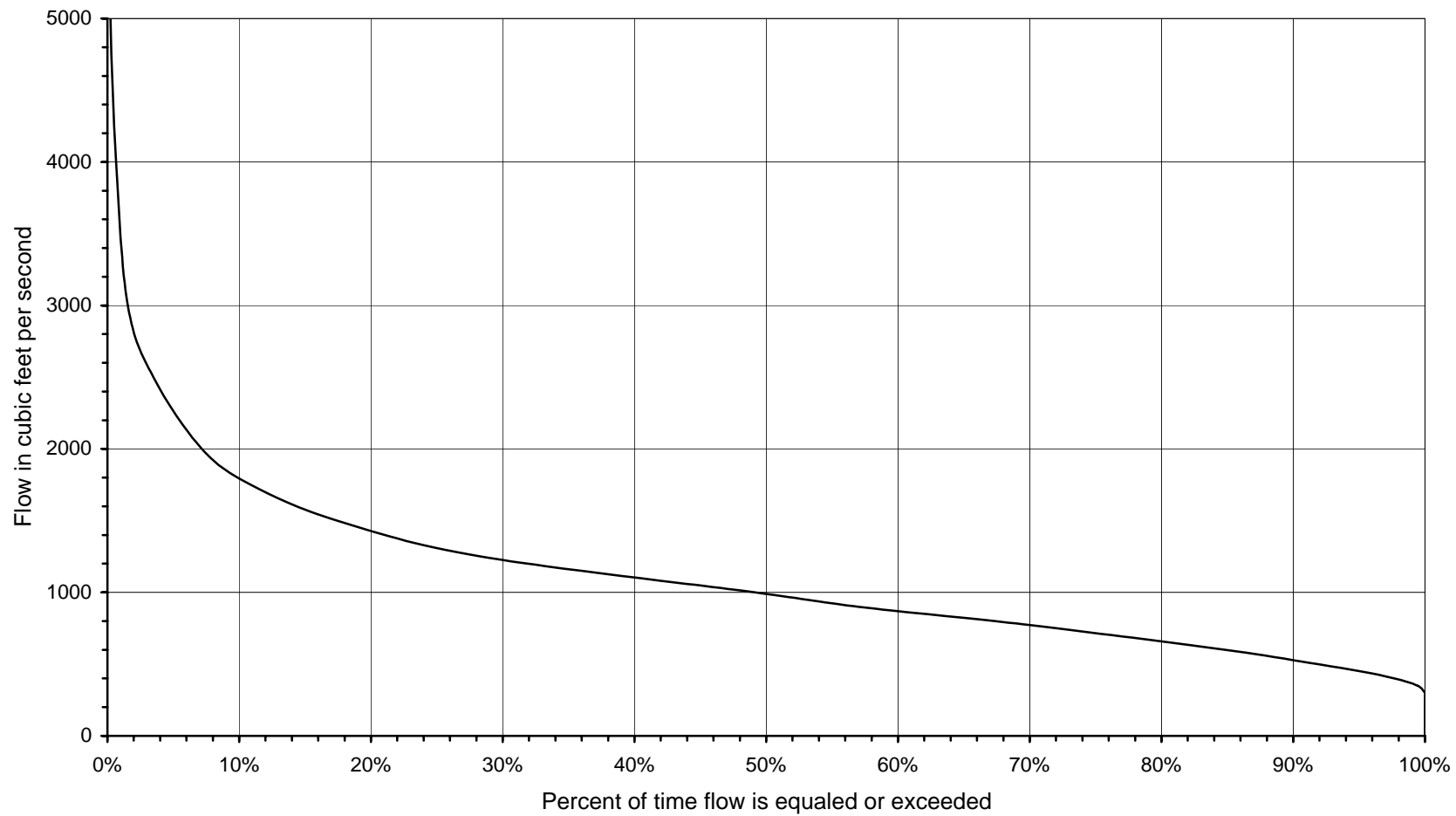
September flow-duration curve for Dillsboro



October flow-duration curve for Dillsboro



November flow-duration curve for Dillsboro



December flow-duration curve for Dillsboro

