Supplementary Figures

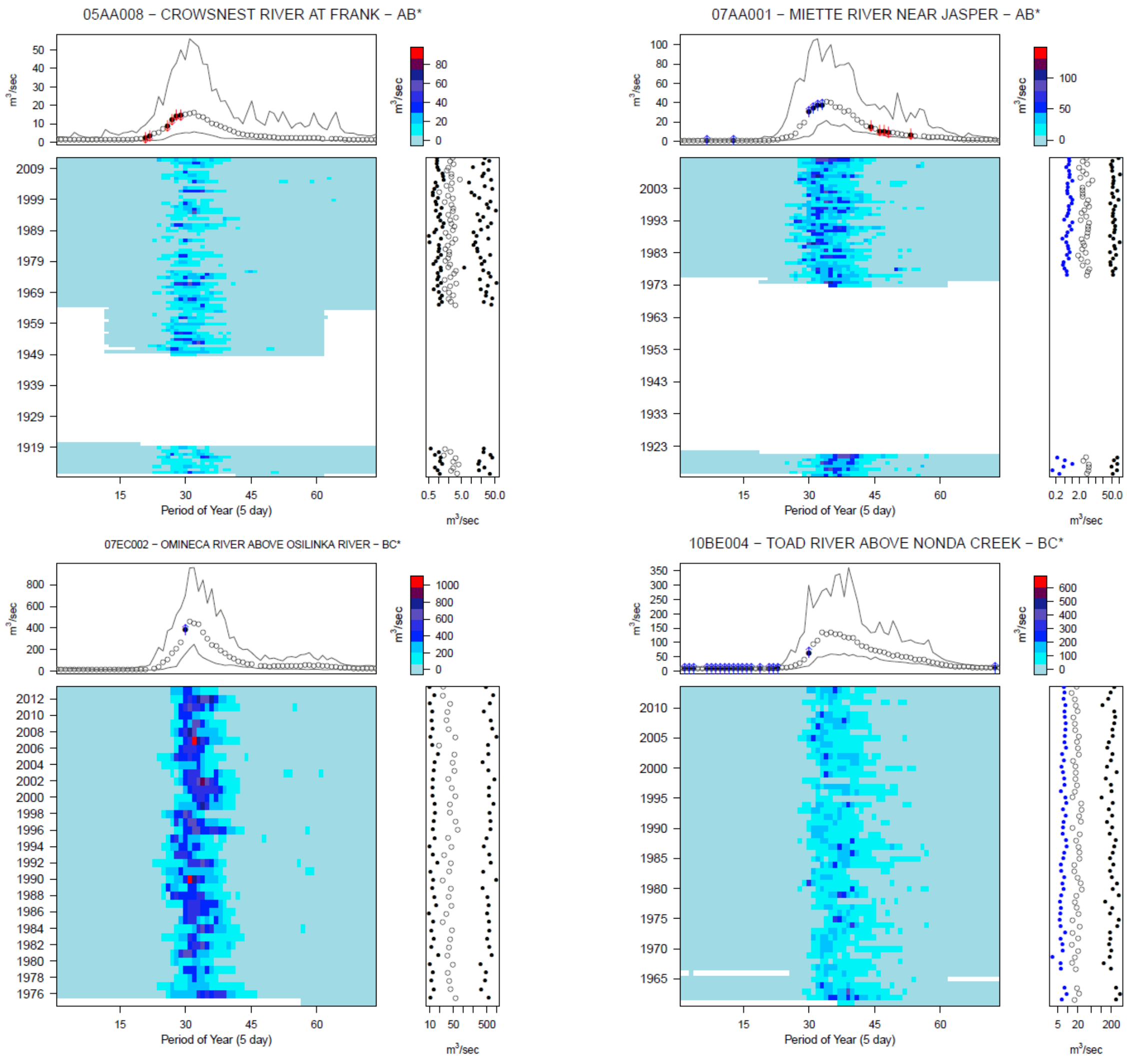


Figure S1. Examples of stations from Streamflow Regime (cluster) 1 (n=104), predominantly mountain watersheds. Station names appended with * are from the Reference Hydrological Basin Network (RHBN). For each cluster examples were preferentially chosen from among RHBN and different portions of the study area.

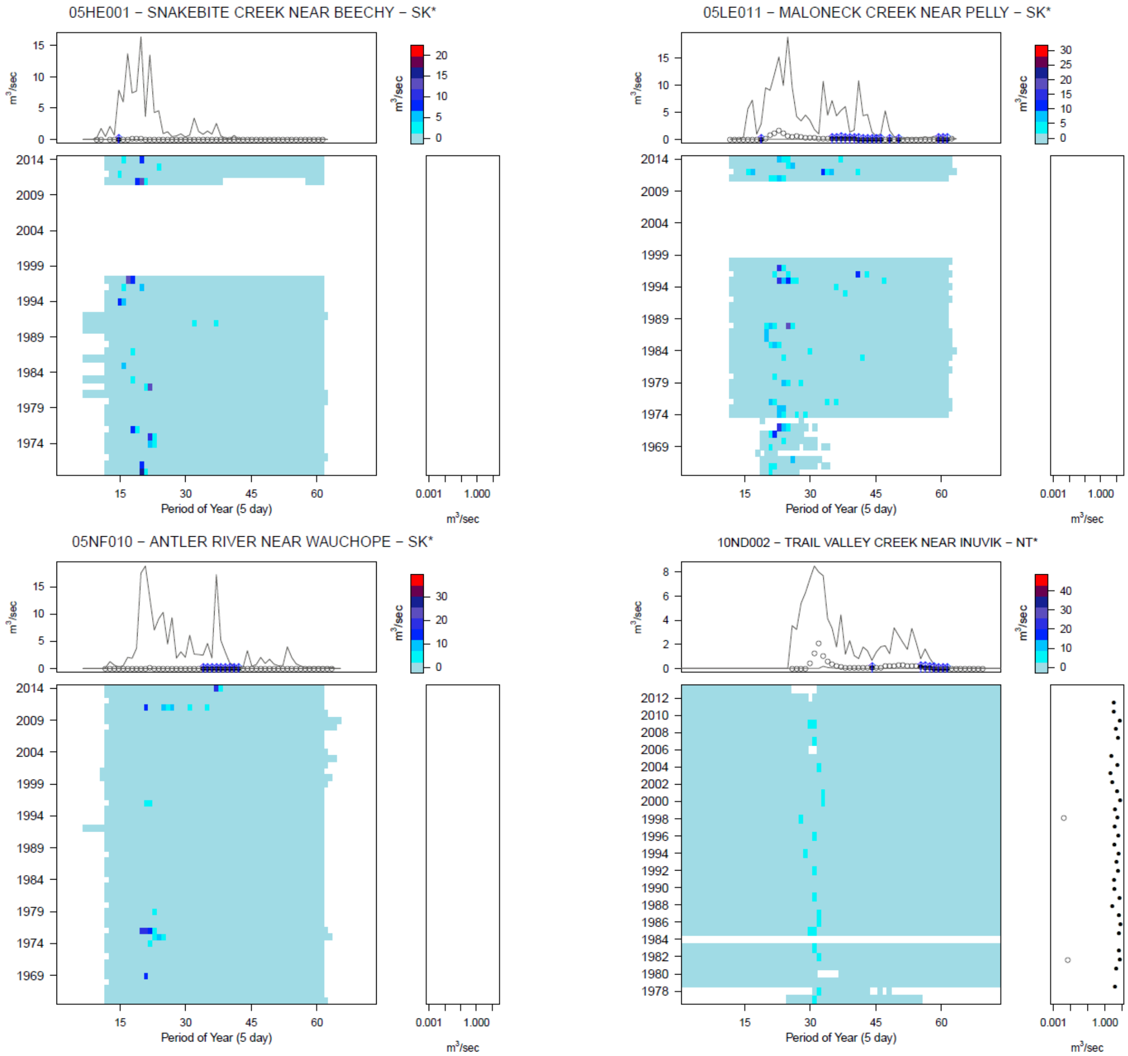


Figure S2. Examples of stations from Streamflow Regime (cluster) 3 (n=85) predominantly Prairie watersheds.

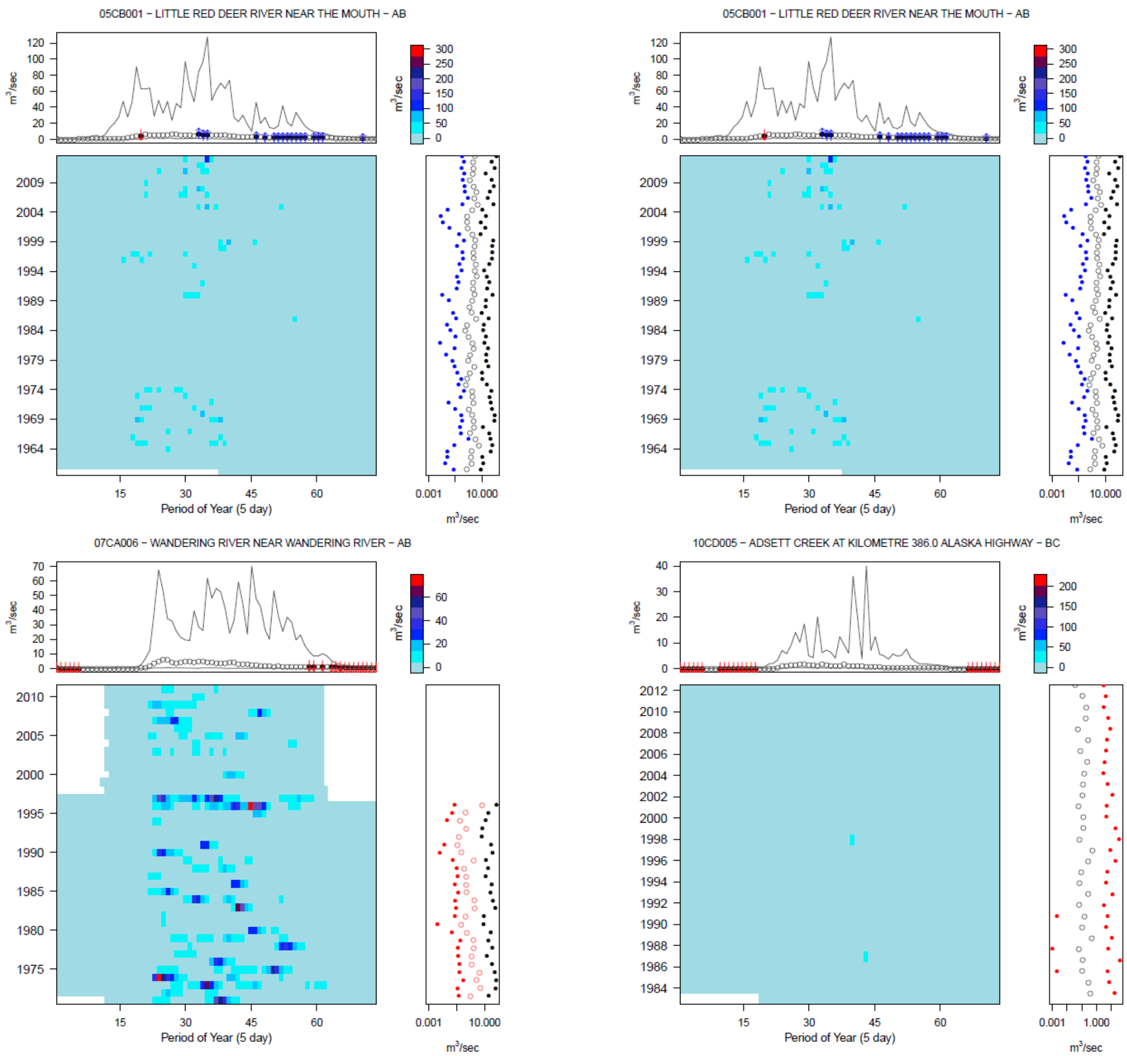


Figure S3. Examples of stations from Streamflow Regime (cluster) 3 (n=22).primarily along the Athabasca River.

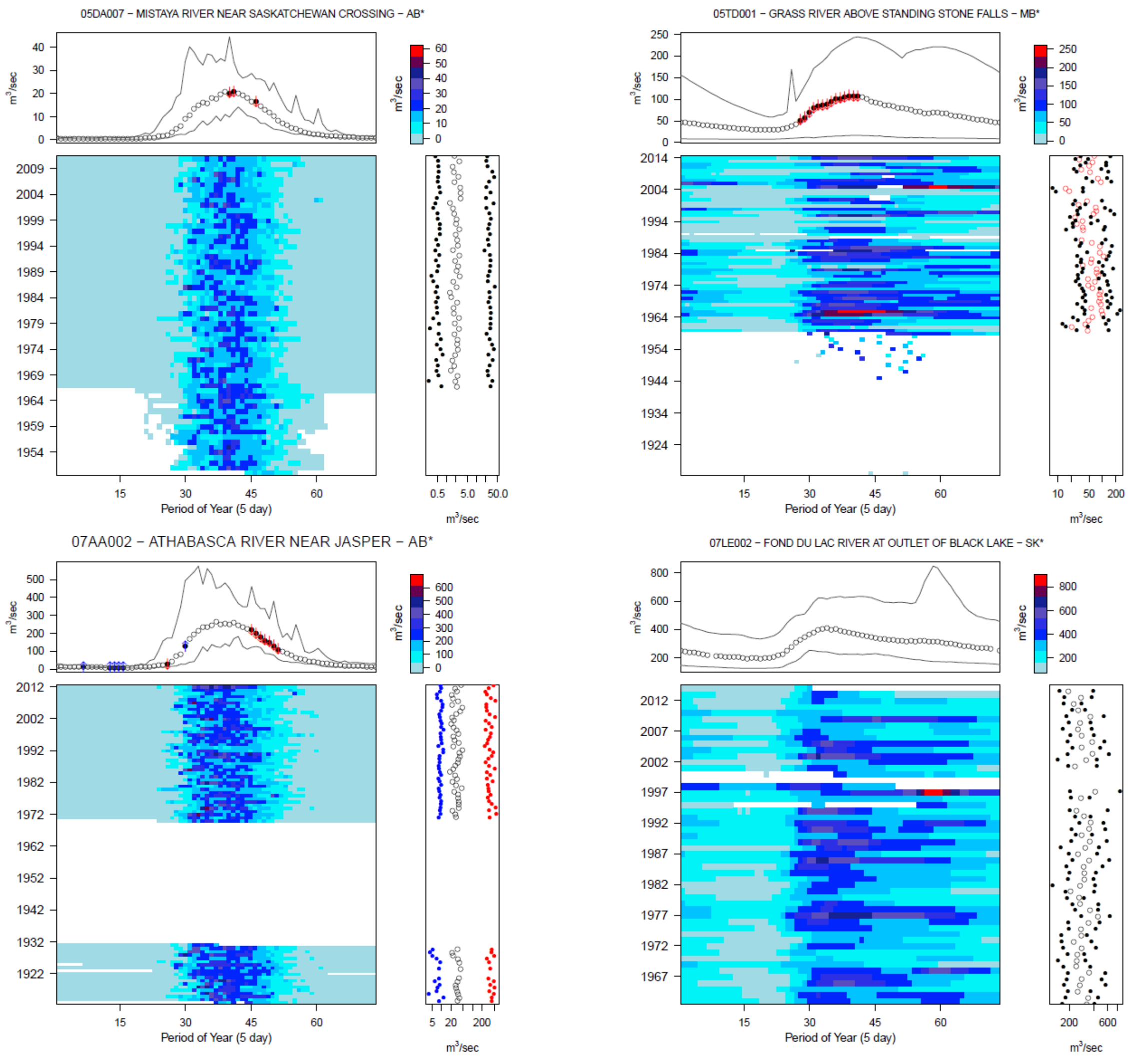
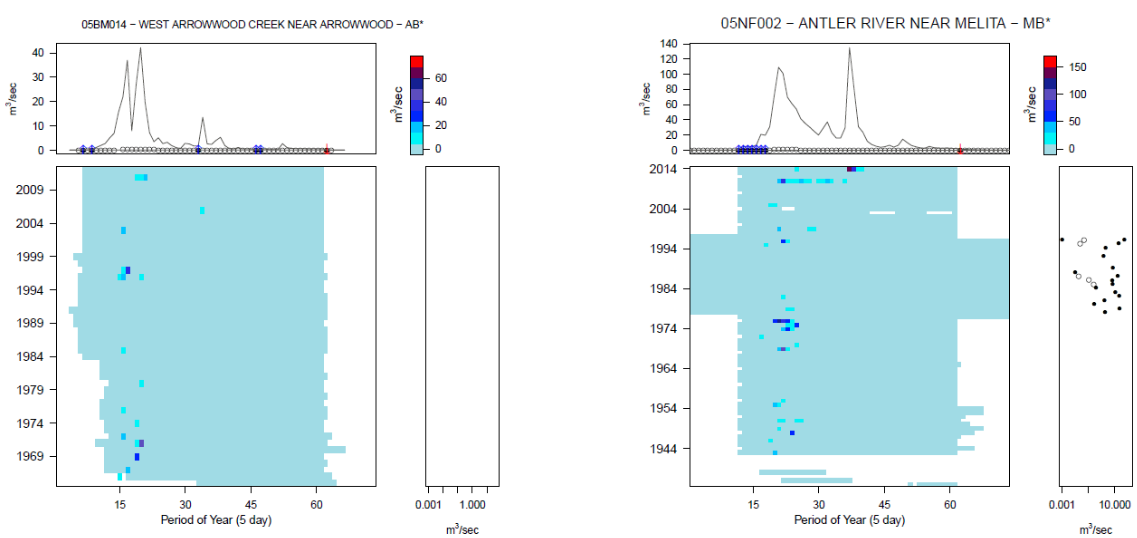


Figure S4. Examples of stations from Streamflow Regime (cluster) 4 (n=10).



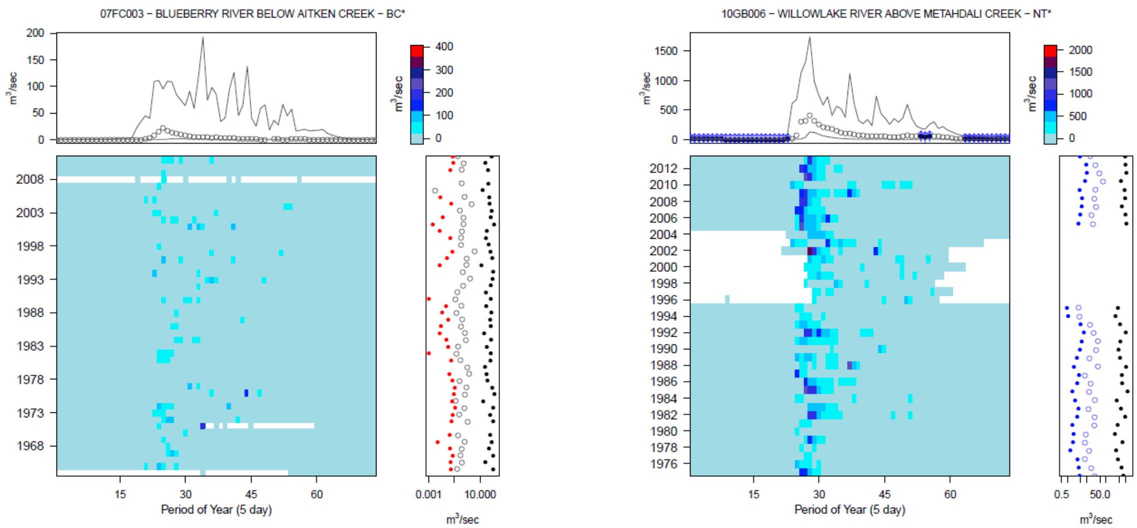


Figure S5. Example of station from Streamflow Regime (cluster) 5 (n=148).

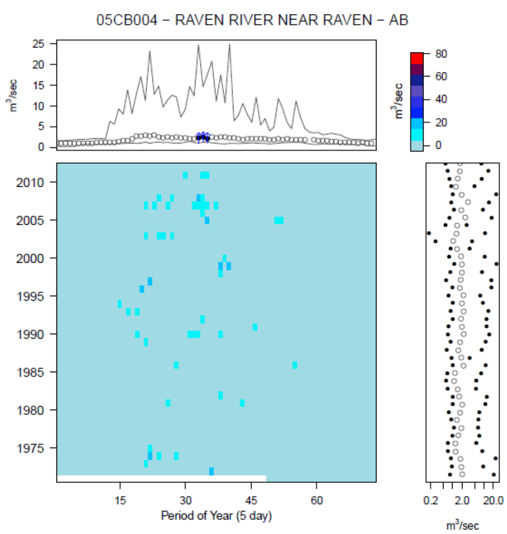


Figure S6. Examples of stations from Streamflow Regime (cluster) 6 (n=1).

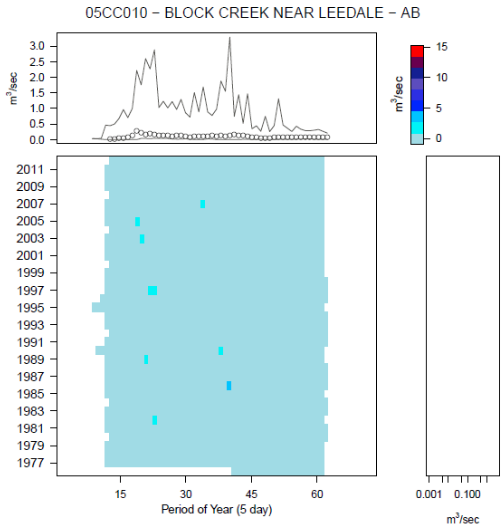


Figure S7. Examples of stations from Streamflow Regime (cluster) 7 (n=1).

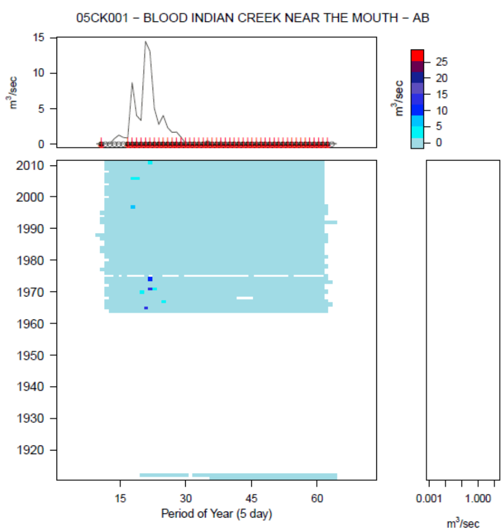


Figure S8. Examples of stations from Streamflow Regime (cluster) 8 (n=1).

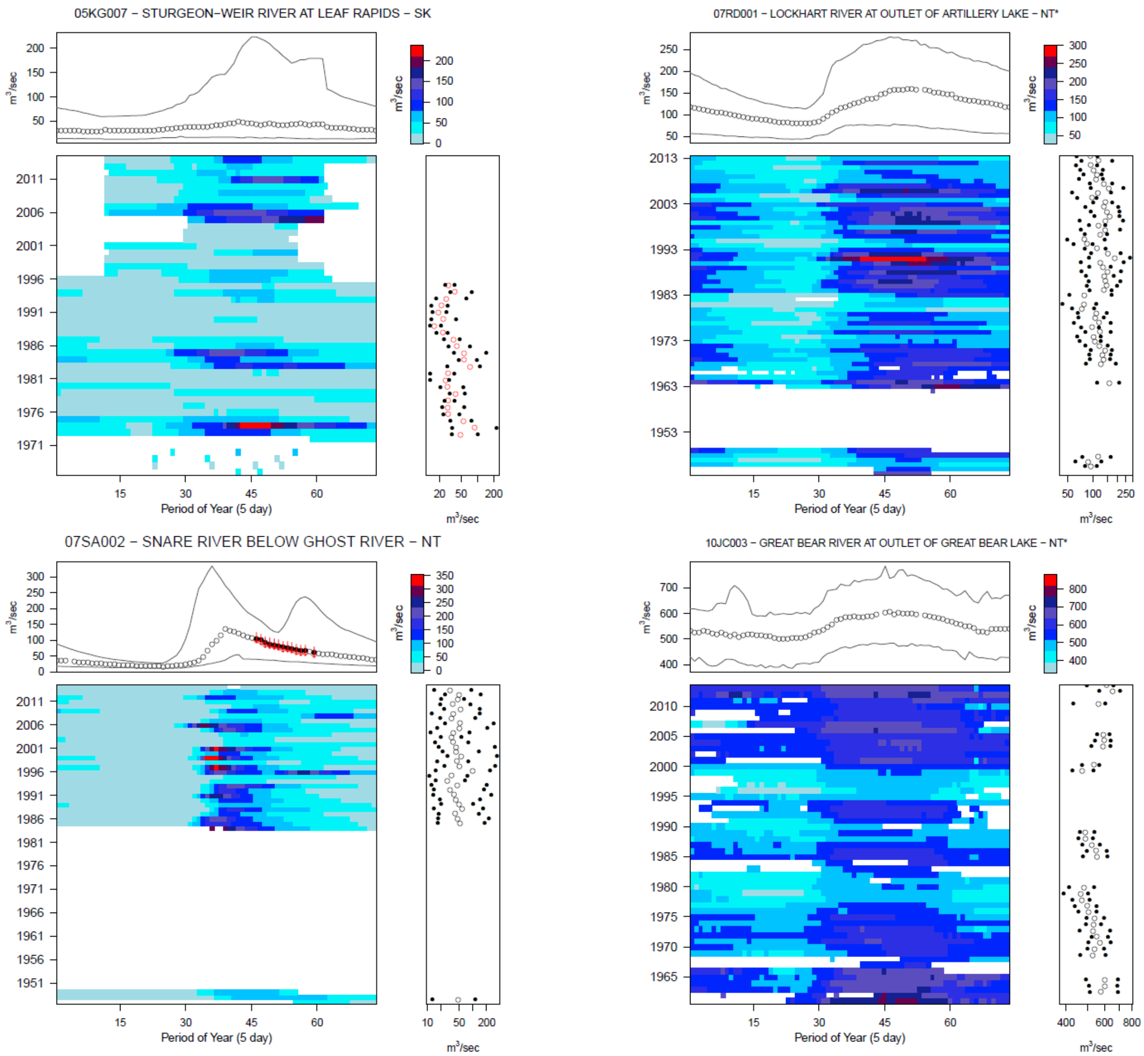


Figure S9. Examples of stations from Streamflow Regime (cluster) 9 (n=5).

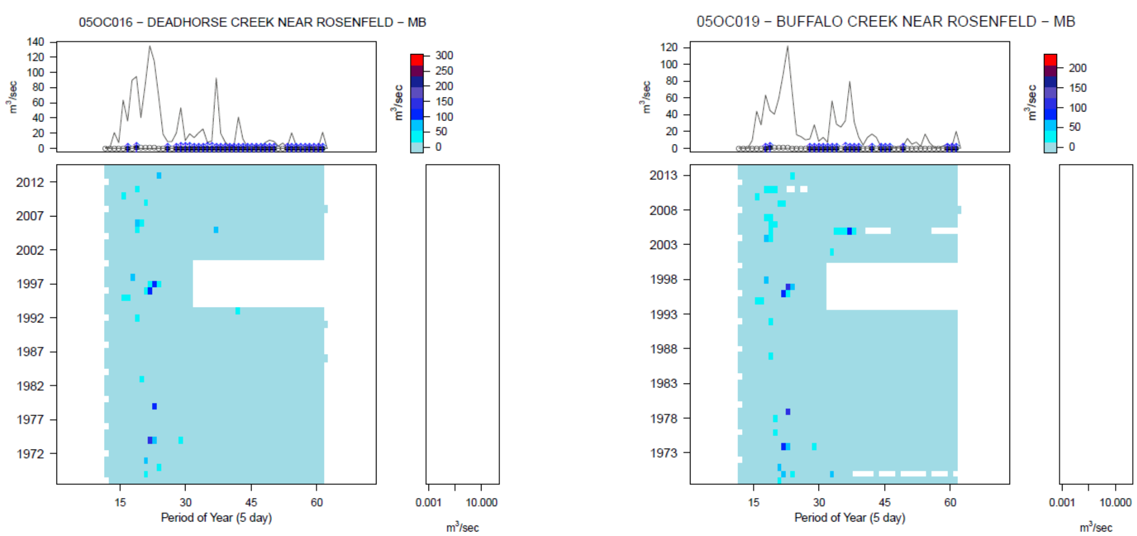


Figure S10. Examples of stations from Streamflow Regime (cluster) 10 (n=2).

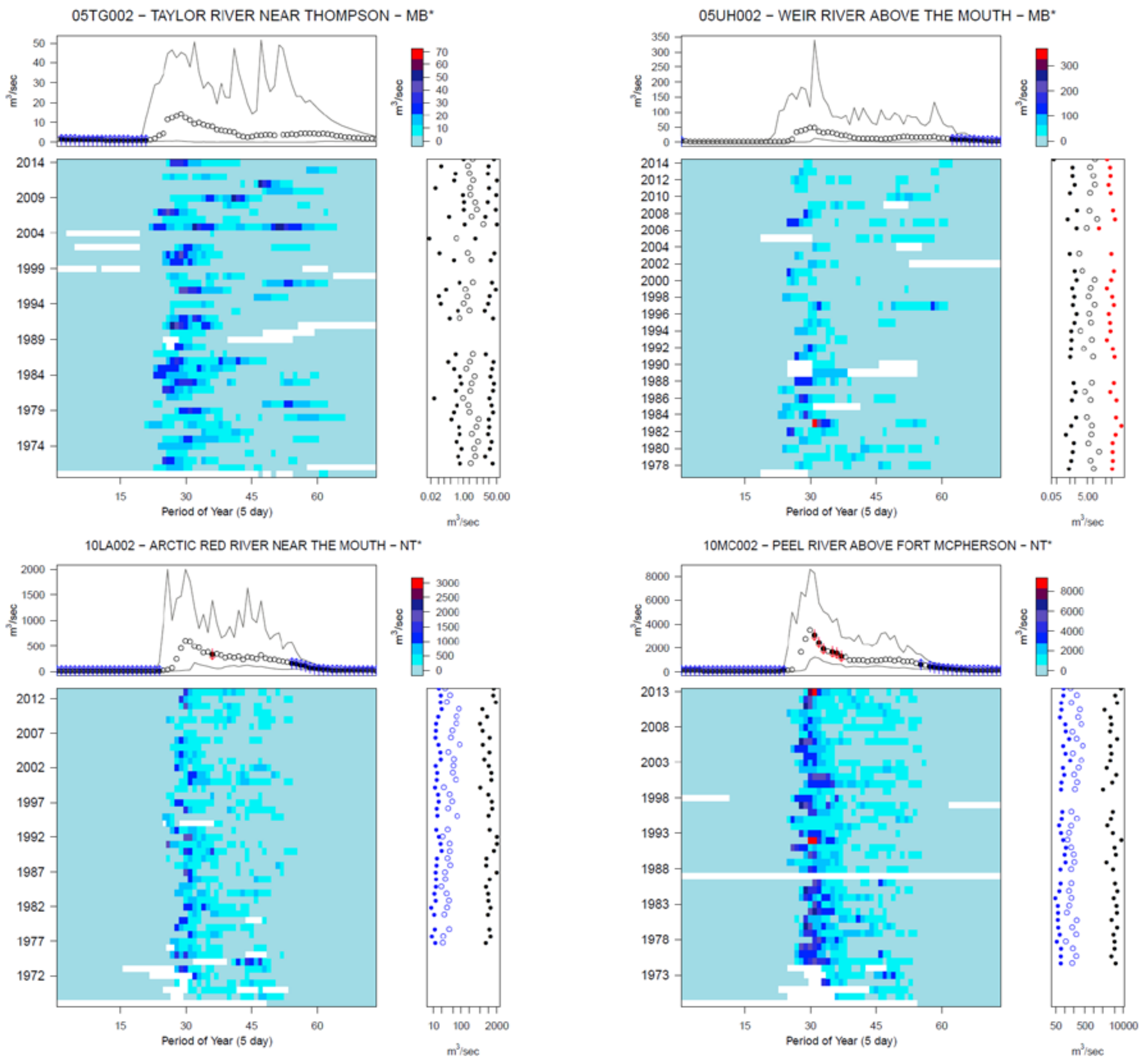


Figure S11. Examples of stations from Streamflow Regime (cluster) 11 (n=12).

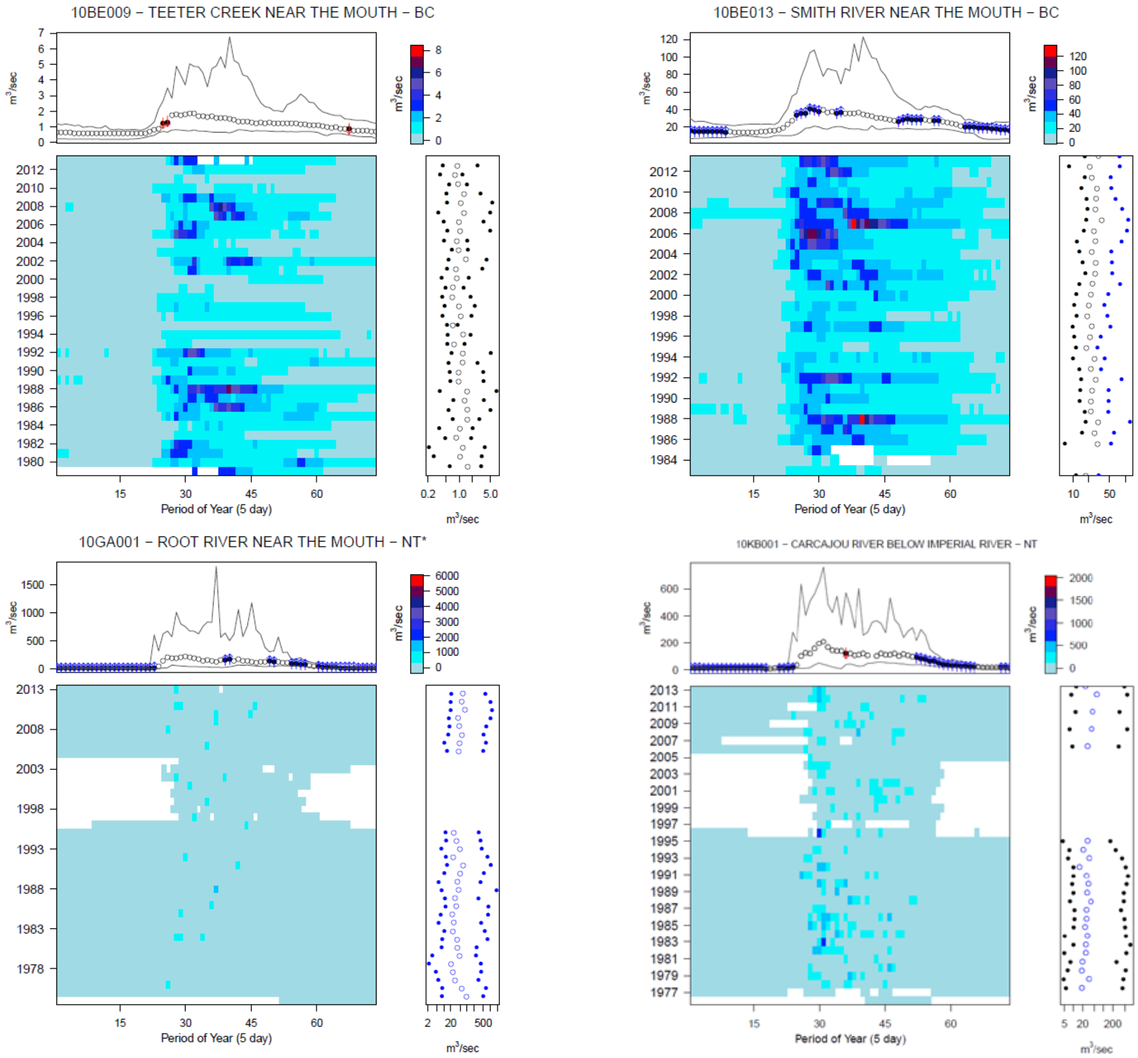


Figure S12. Examples of stations from Streamflow Regime (cluster) 12 (n=4).

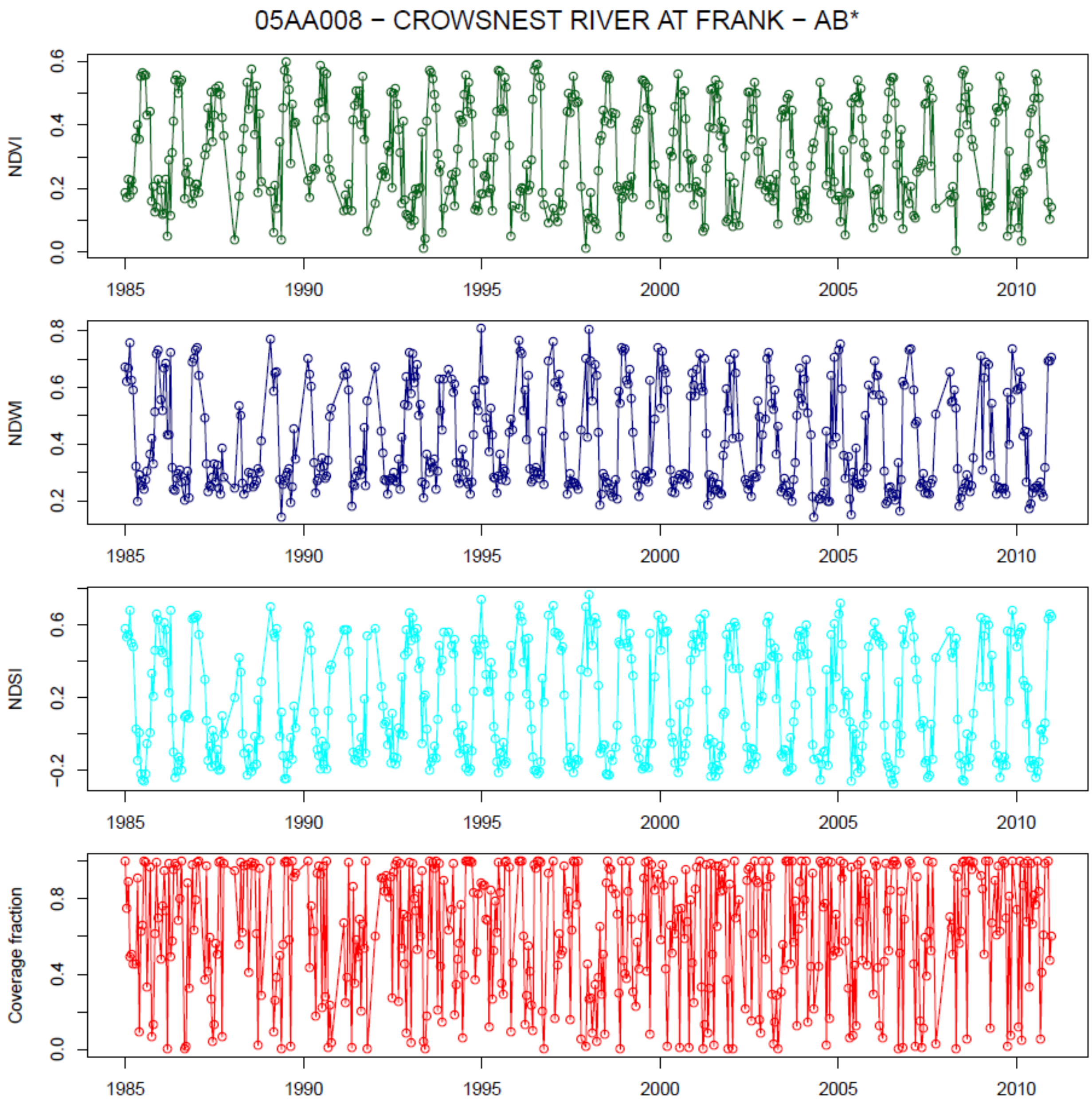


Figure S13. An example of the time series for NDVI, NDWI, NDSI, and Coverage fraction for the catchment 05AA008 Crowsnest River at Frank AB. These values are extracted from Landsat composite images for every sixteen days between 1980 and 2013.

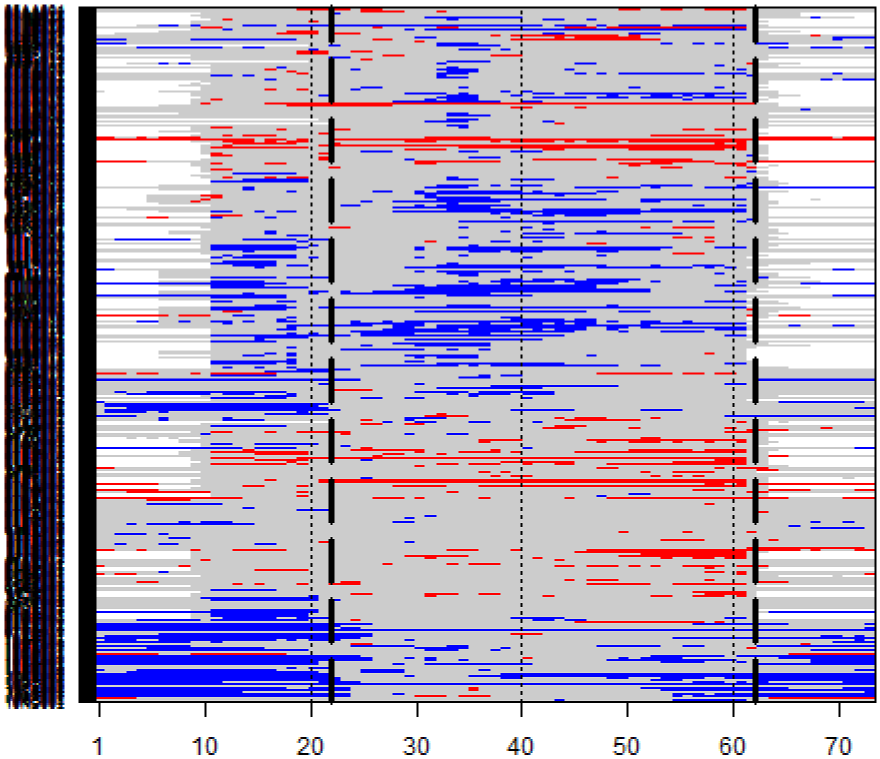


Figure S14. Hydrologic change in the 395 stations across the 73 five day periods showing significant increases (blue) and significant decreases (red), no trend (gray) and missing (white). The stations are ordered by WSC StationID.

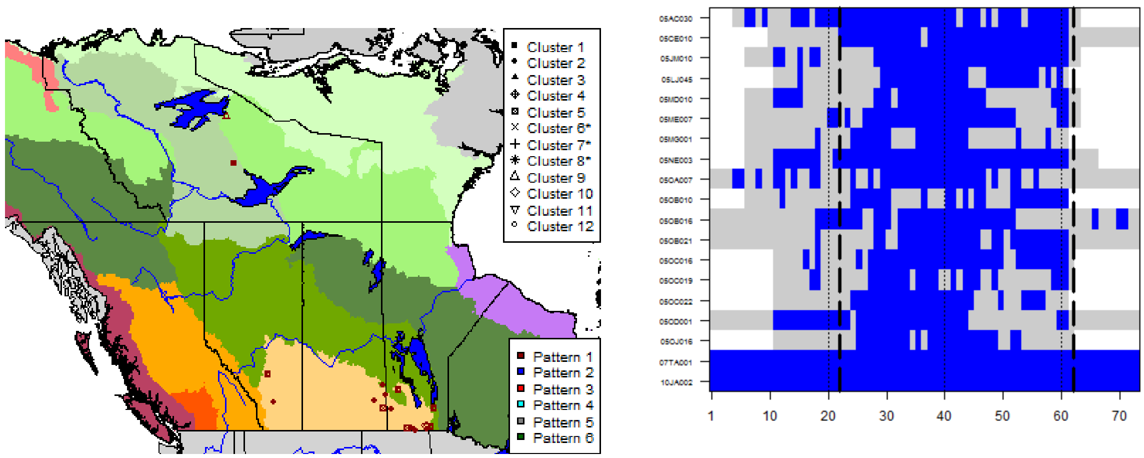


Figure S15. Location of stations with Trend Pattern 1 (n=19). Increases in summer and fall streamflow. Significant decreases in red, increases in blue, no trend in gray, and no data in white. Clustering was based upon periods 23 to 61. Periods 1-22 and 62-73 only have observations in some cases.

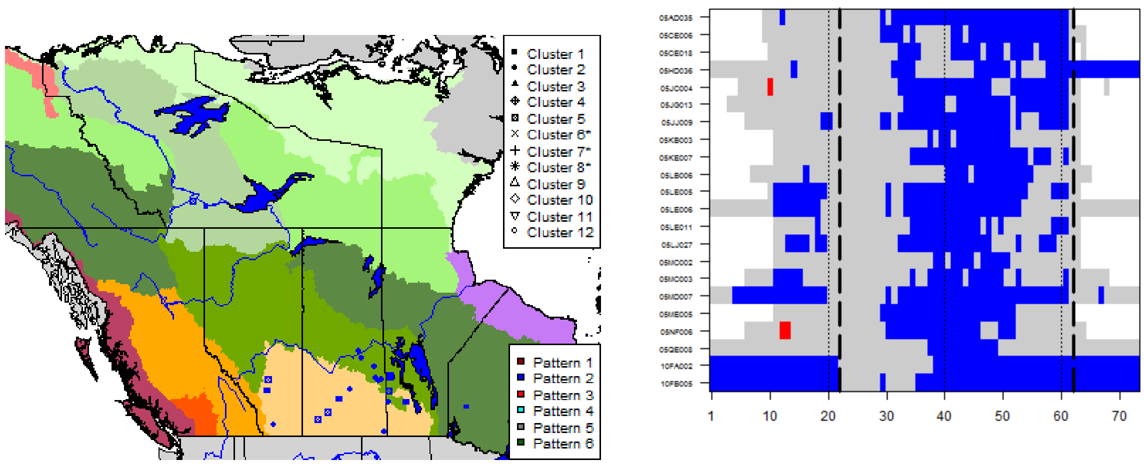


Figure S16. Location of stations with Trends Pattern 2 (n=22). Decreases in streamflow in late summer and fall but not spring. Significant decreases in red, increases in blue, no trend in gray, and no data in white. Clustering was based upon periods 23 to 61. Periods 1-22 and 62-73 only have observations in some cases.

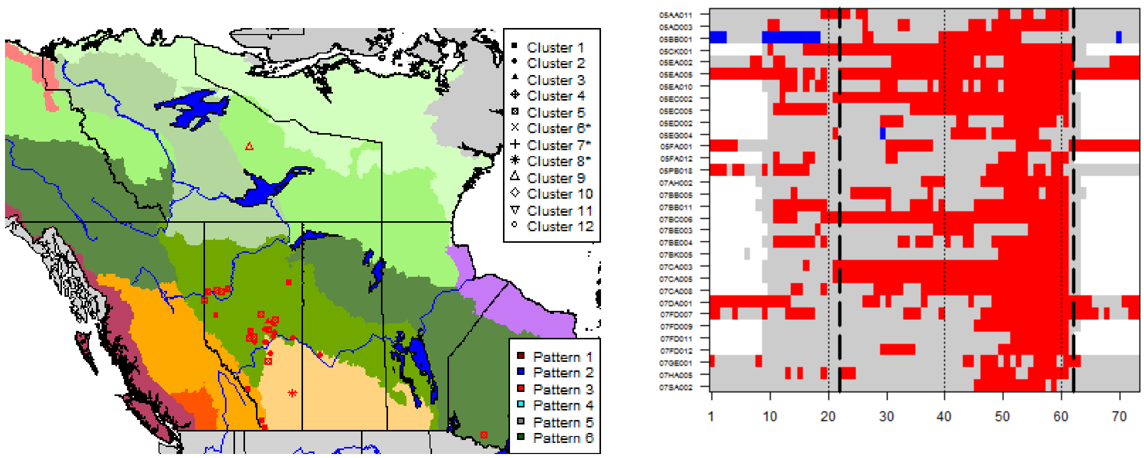


Figure S17. Location of stations with Trends Pattern 3 (n=32). Decreases in streamflow, predominately in late summer and fall. Clustering was based upon periods 23 to 61. Periods 1-22 and 62-73 only have observations in some cases.

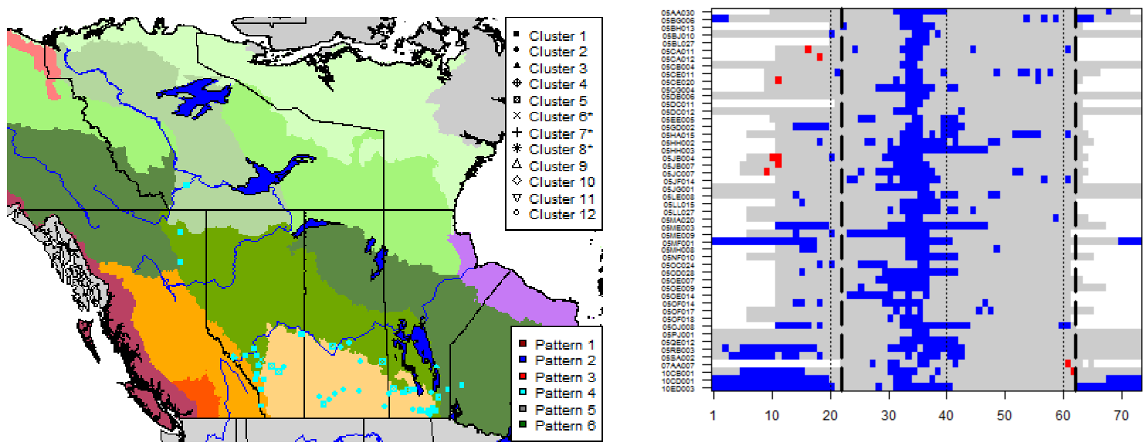


Figure S18. Location of stations with Trend Pattern 4 (n=50). Increases in spring discharge centered on period 33-38, but few changes outside those periods. Clustering was based upon periods 23 to 61. Periods 1-22 and 62-73 only have observations in some cases.

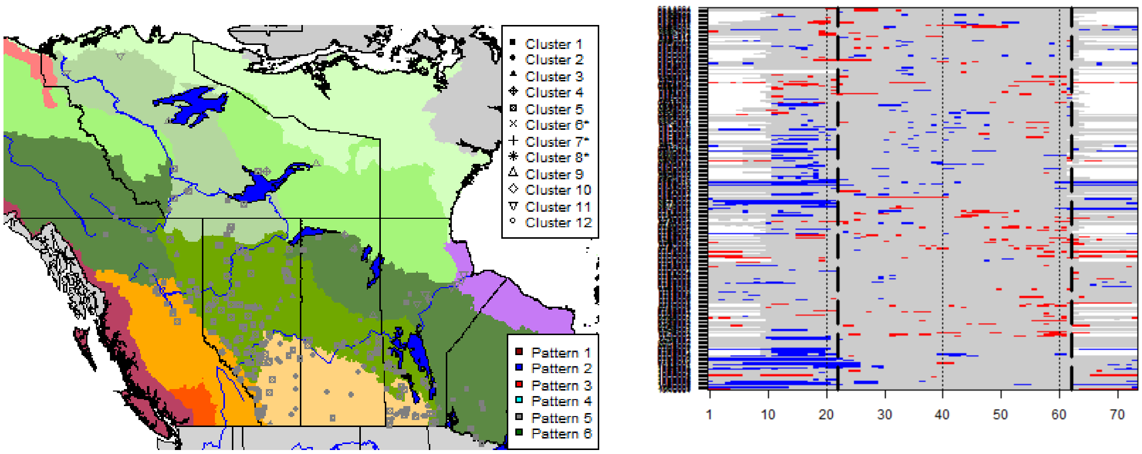


Figure S19. Location of stations with Trend Pattern 5 (n=254). No organized pattern of change in the period of the year used to cluster; some increases in winter discharge. Clustering was based upon periods 23 to 61. Periods 1-22 and 62-73 only have observations in some cases.

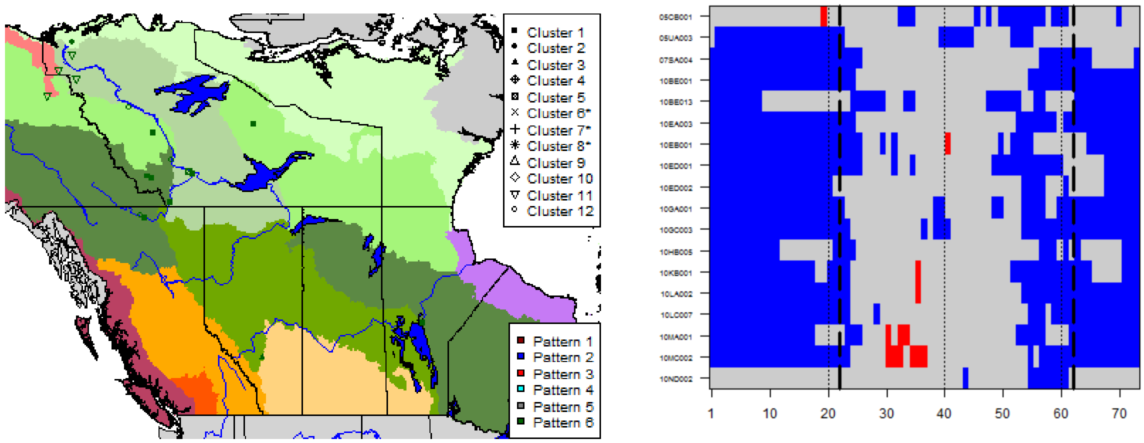


Figure S20. Location of stations with Trend Pattern 6 (n=18). Increases in fall discharge (periods 55-61) but little consistent change in summer and increases in winter discharge. Clustering was based upon periods 23 to 61. Periods 1-22 and 62-73 only have observations in some cases.

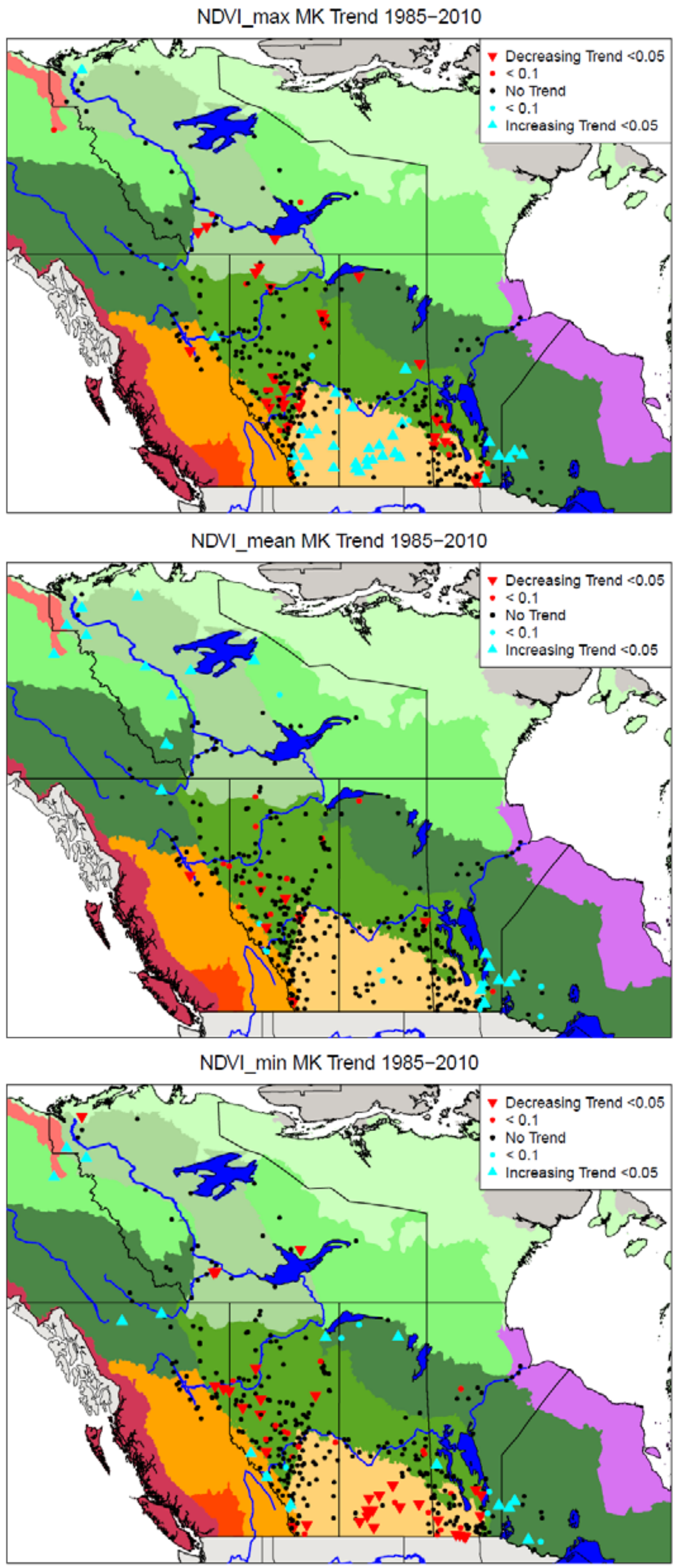


Figure S21. Trends in maximum, mean, and minimum NDVI between 1985 and 2012.

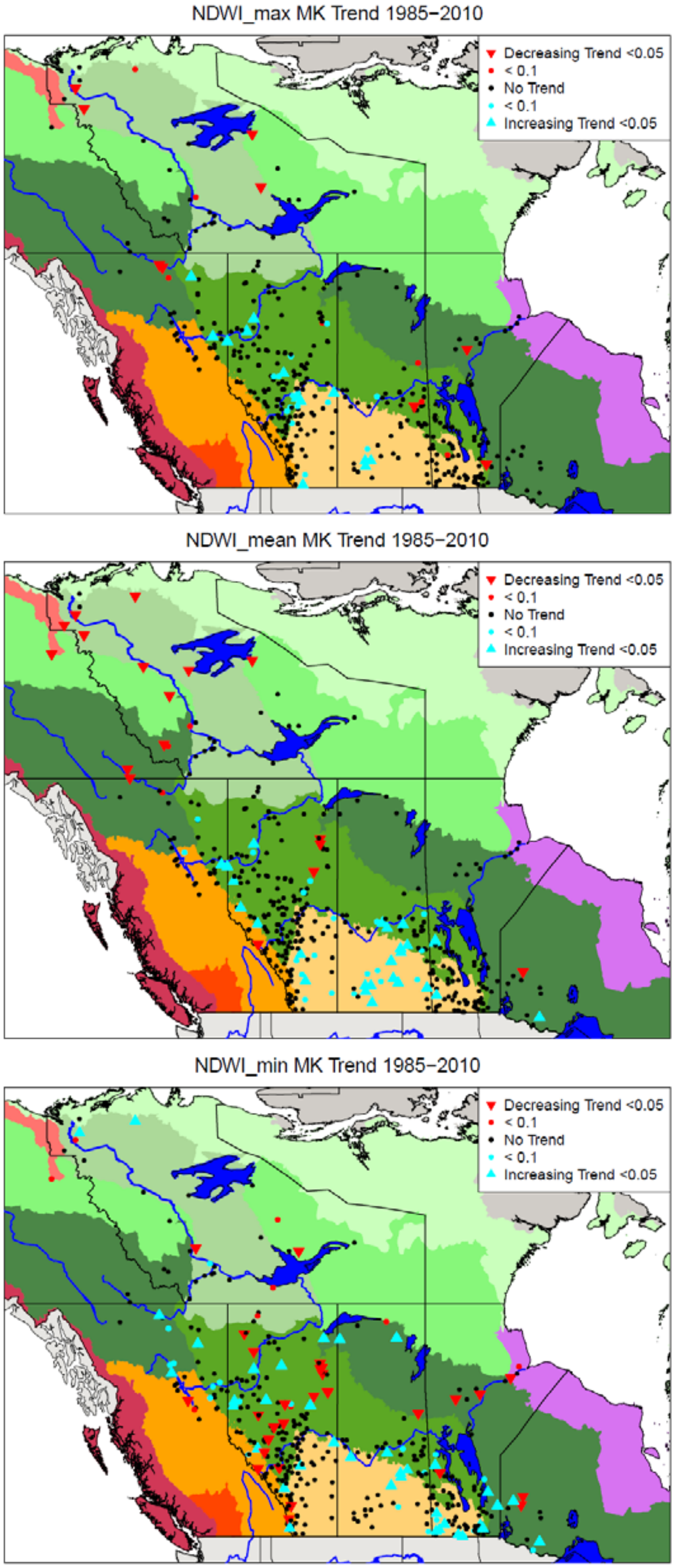


Figure S22. Trends in maximum, mean, and minimum NDWI between 1985 and 2012

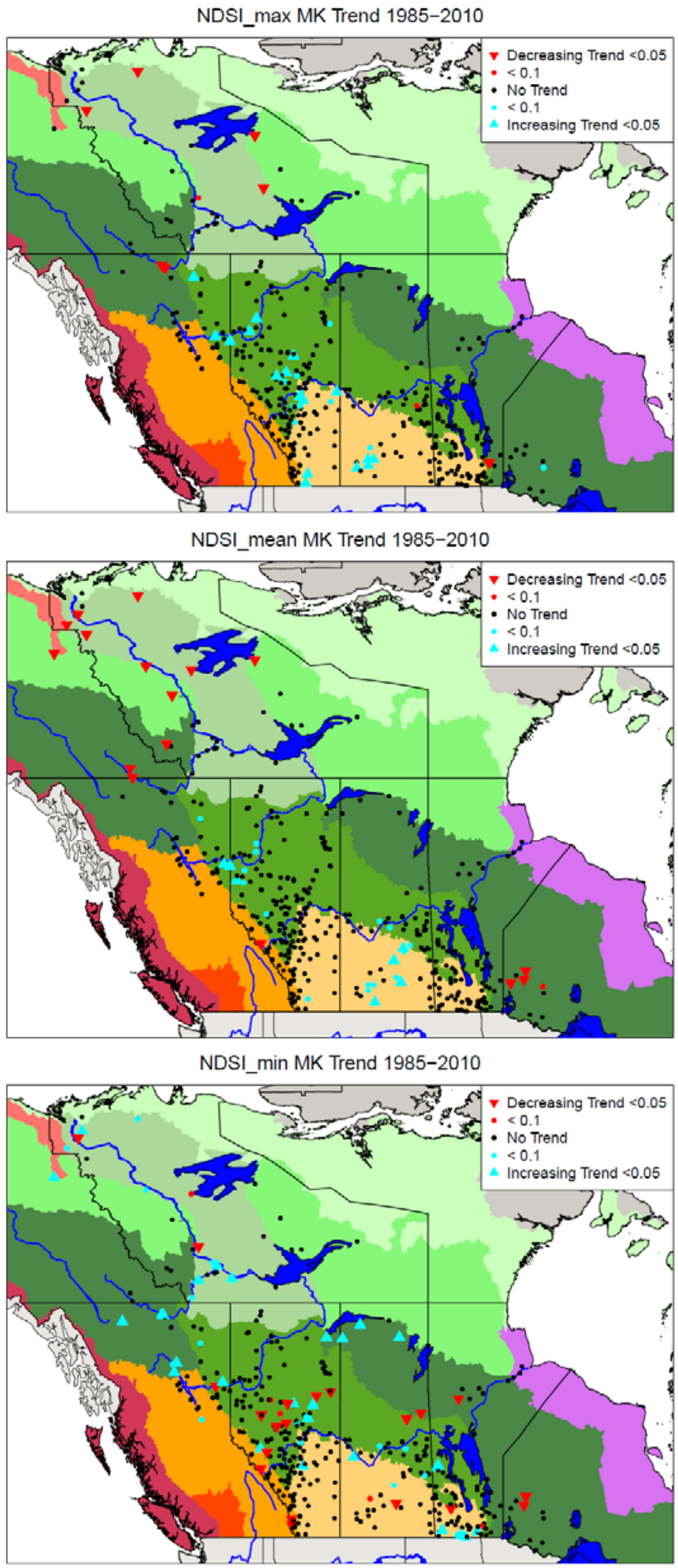


Figure S23. Trends in maximum, mean, and minimum NDSI between 1985 and 2012.