



# WATER BULLETIN

## SPRING 2017

The winter snow accumulation period is now reaching its peak, with runoff conditions beginning to occur due to snow melt at the lower elevations. Cool and wet weather through the month of March has led to a significant increase in snowpack conditions compared to values recorded in February, with the biggest increases noted for the southern monitoring stations. Figure 1 shows the change in snow trajectory trends starting at the Pine Pass station located near Chetwynd, BC and ending at the Floe Lake station west of Banff, AB.

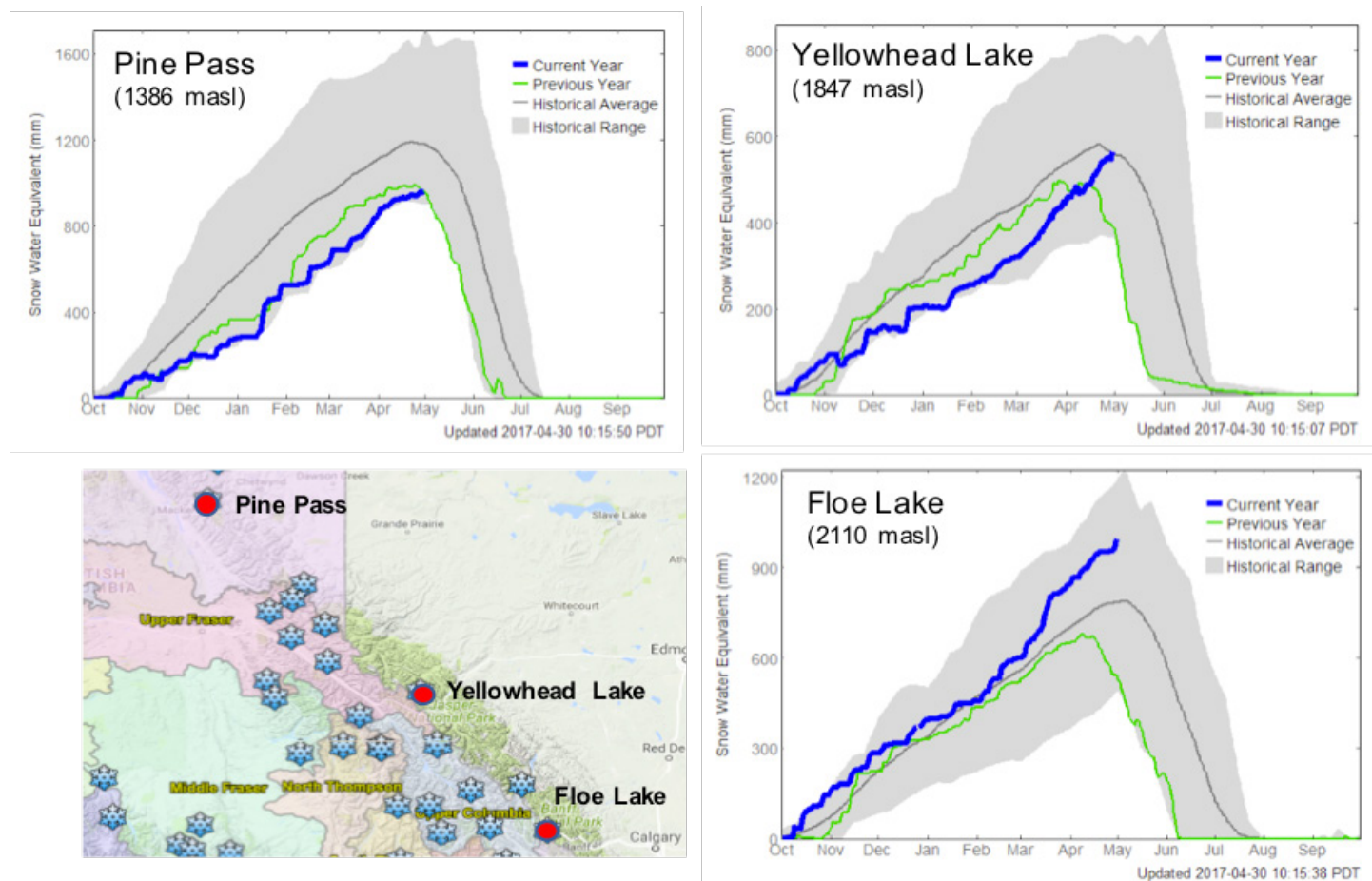


Figure 1. Snowpack trajectories for north to south stations: Pine Pass, Yellowhead Lake, and Floe Lake (Source: BC River Forecast Centre)

The general pattern has been for a greater snow accumulation in the southern portions of the Rocky Mountains, which will benefit streamflow generated in those headwaters compared to those in the northern basins. With two to four weeks of snow accumulation remaining, some basins will benefit from the additional moisture.

The distribution of precipitation, as a percentage of normal, over the winter period in Alberta and British Columbia is shown in Figure 2. Provincially, snow basin indices have improved significantly since the month of February, when many stations were reporting below to well-below average conditions. The northern half of both provinces are still reporting below normal accumulations, which may have an adverse influence on associated stream flows this year. This will of course depend on how the snow melts. In the last 2 years, the melt has occurred early and quickly, leaving flow in the rivers reliant on spring precipitation events and spatially-variable (i.e., hit and miss) summer storms.

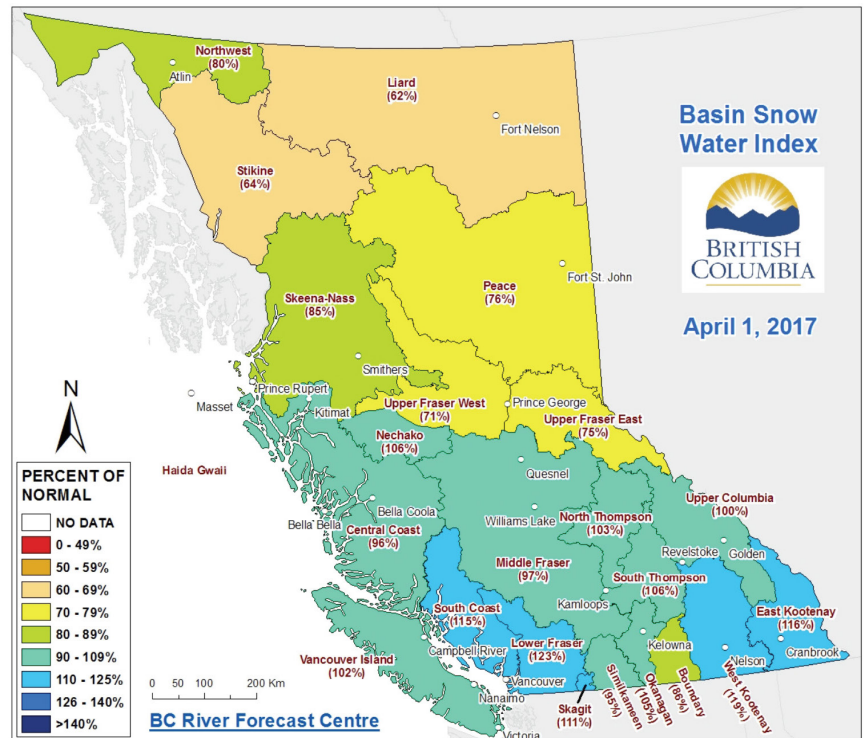
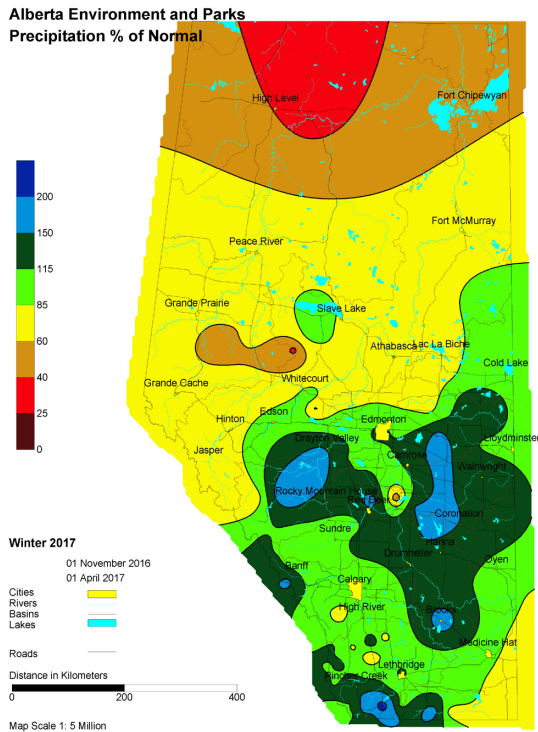


Figure 2. Percent of average precipitation for Winter 2017 (Source: Alberta Environment and Parks and BC River Forecast Centre)

The spring freshet has commenced and seasonal flow monitoring stations are beginning to report flow rates. So far, the melt is generating average to above-average stream flows across BC and Alberta. Although not included in their regular communiques, Alberta Environment and Parks is reporting flow conditions at key gauging stations in the Athabasca and Peace river basins at average to above-average conditions for this time of year. The next few weeks will determine what the flow season will look like as the melt advances to higher elevations and stored snow pack water begins to flow through the system.

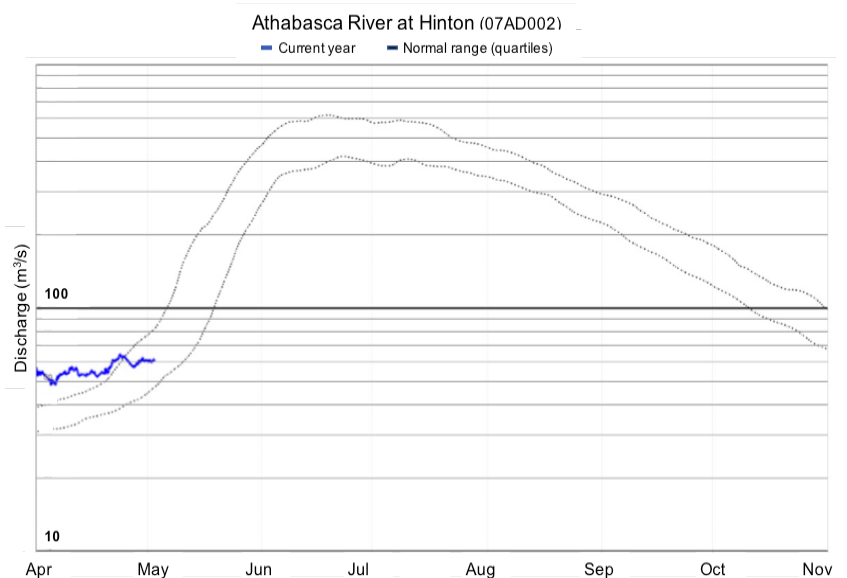


Figure 3. 2017 flow conditions on the Athabasca River at Hinton, AB (Source: Alberta Environment and Parks)



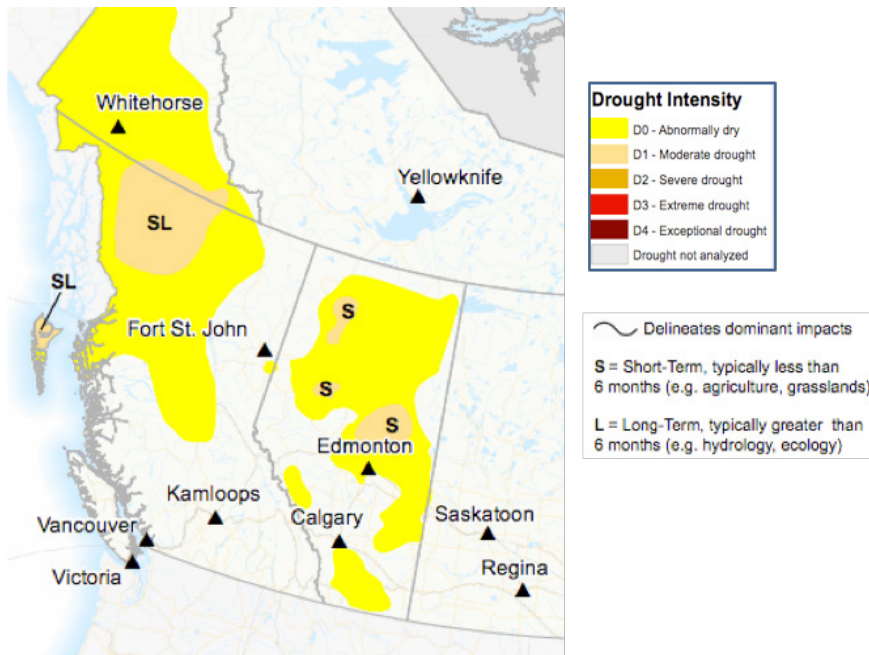


Figure 4. Current drought conditions in Western Canada (Source: Agriculture and Agri-Food Canada)

Current drought conditions, as of the end of March 2017, indicate a risk for moisture deficits in the northern portions of BC and Alberta compared to the southern regions. Short-term impacts are beginning to occur in some areas, which may negatively impact stream flows later in the season (particularly in the smaller, more sensitive, watersheds). So far, areas reliant on surface water supplies to sustain shale gas development activities have not been adversely affected (i.e. Montney and Duvernay play areas).

The water supply outlook for 2017 suggests normal conditions based on the expected normal to above-normal temperatures and precipitation conditions projected by Environment Canada. The National Oceanic and Atmospheric Administration (NOAA) is currently indicating the presence of a neutral El Niño Southern Oscillation (ENSO) phase that should extend through the spring period. However, expectations are for a transition to an El Niño phase later this year, which typically brings warmer and drier conditions to Western Canada. As such, continued assessment of river flows and their trends through the freshet period and into the lower flow summer to fall periods should be used to inform storage strategies or development plans reliant on “just-in-time” water through the remainder of this year.

