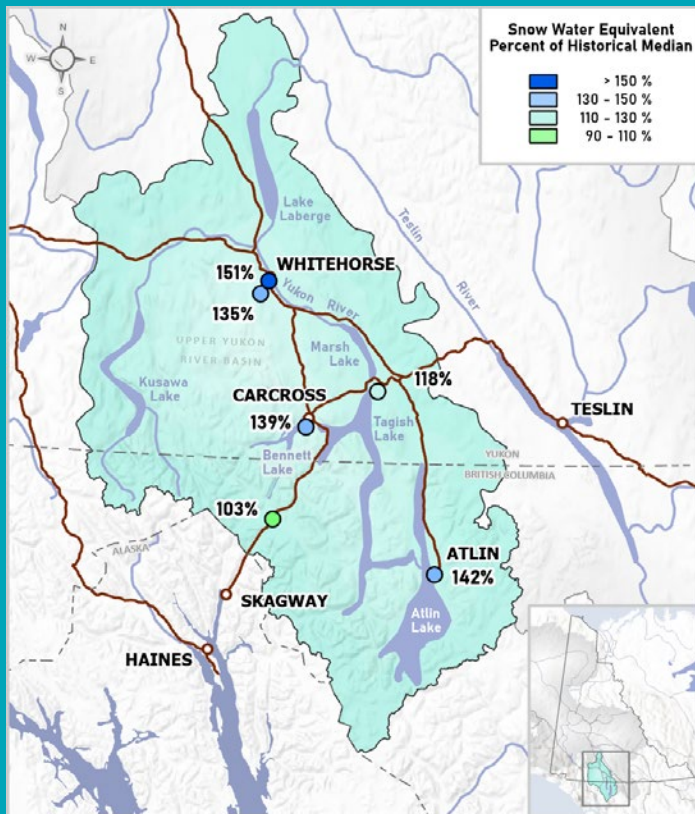


# Early season snowpack conditions in the Upper Yukon River Basin

February 1, 2022



## Key findings

- ▶ Snow survey results in the Upper Yukon River Basin indicate the relative snowpack is higher than normal – the basin-averaged Snow Water Equivalent (SWE) is estimated to be 123 per cent of the historical median.
- ▶ The current snowpack differs significantly from 2021. The snowpack at high elevation measurement locations in the headwaters is much closer to average, and well below 2021 levels (see map).
- ▶ The above average snowpack suggests peak water level will be above average in summer 2022, resulting in above average flood potential.

**Snow Water Equivalent:**  
The amount of water released from the snowpack when it melts.

## Why did we do a February 1 snow survey?

Heavy snow accumulation early in the 2021-22 winter season, and record flooding in the Upper Yukon River Basin (Southern Lakes) in summer 2021, raise concerns of more flooding in 2022. Understanding the snowpack as early as we can could help inform flood mitigation planning.

## Next update

The March 1 Yukon Snow Survey Bulletin and Water Supply Forecast will be available by mid-March with Yukon-wide snow survey data.

On average, the April 1 snow survey represents the peak snowpack and is the survey on which seasonal flood risk assessments are based.

## How did we do the survey?

The Government of Yukon's Water Resources Branch and partners surveyed the six long-term snow courses within the Upper Yukon River Basin and calculated a basin-wide snowpack estimate.\*

\*There is limited historical snowpack data for February 1 in the Upper Yukon River Basin, which means the calculated basin-wide snowpack estimate has a higher uncertainty than a typical snow survey would.

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## Snowpack, precipitation and water level observations

Snowpack at Wolf Creek Subalpine Station near Whitehorse is above median (Figure A).

In contrast, the snow depth sensor at Fraser, British Columbia, is tracking similarly to the 2019-2020 season (which was slightly above normal) and well below 2020-21 (Figure B).

The basin-averaged Snow Water Equivalent (SWE) is estimated to be 123 per cent of the historical median, with 161 mm on February 1 (Figure C); however, the snowpack at the Log Cabin snow course in the headwaters is estimated to be closer to median at 103 per cent.

Monthly precipitation at Whitehorse Airport during fall and winter was above average with the exception of October (Figure D). The well above average snowfall in December brings the cumulative October 1 to January 31 precipitation to above average.

The measured water surface elevation (relative to sea level) in Marsh Lake is currently below average (Figure E). Water levels in the Southern Lakes are driven by a combination of snowmelt, summer precipitation and glacier melt. Current snow conditions suggest that water levels will be higher than average this summer. Weather conditions over the remainder of winter, spring and summer will determine the peak water level in Marsh Lake.

FIGURE A

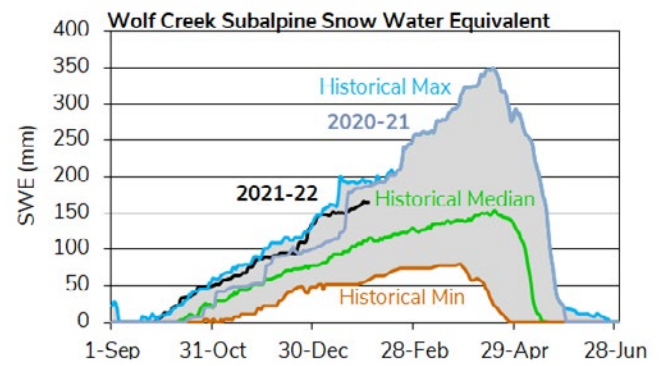


FIGURE B

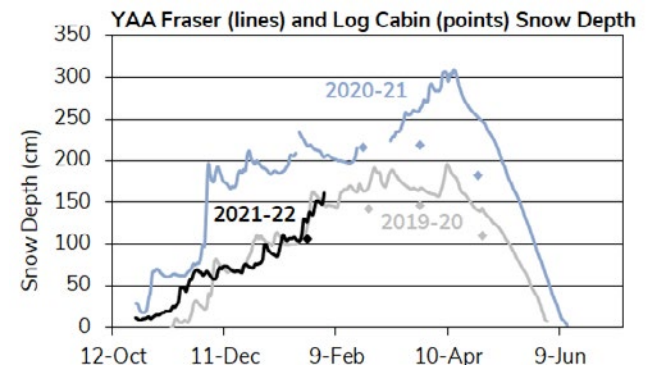


FIGURE C

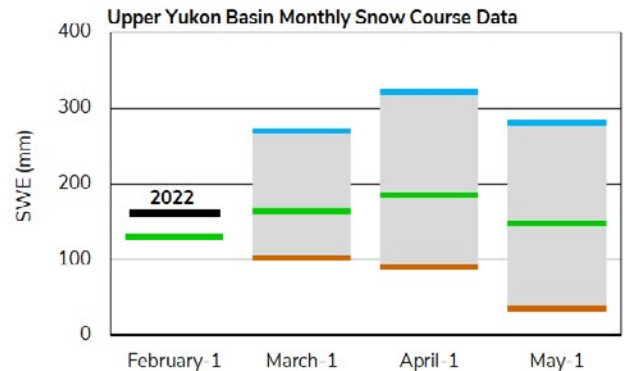


FIGURE D

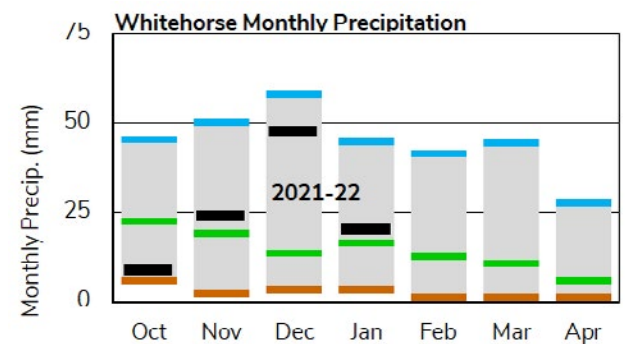


FIGURE E

