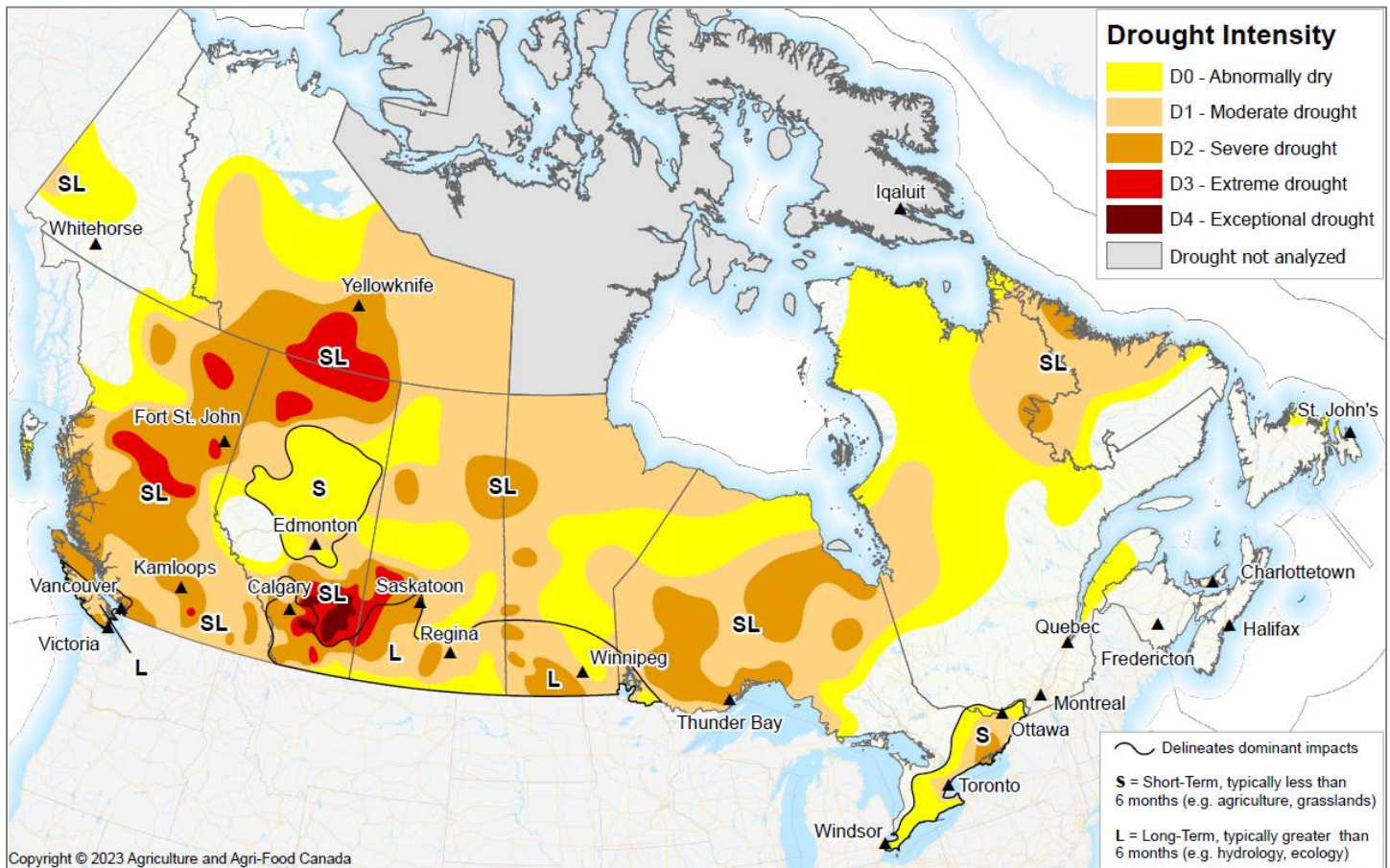


Canadian Drought Monitor

Conditions as of November 30, 2023



Central Alberta and southern Ontario continued to experience significantly low precipitation in November compared to the monthly normal, while southern Saskatchewan and much of Northern Canada received above-normal monthly precipitation. Temperatures in November were significantly warmer than normal in western Canada, with temperatures more than 5 degrees above normal across northern Alberta and much of the Yukon and Northwest Territories. Snow was fairly sparse across much of the country by the end of the month given the warmer than normal temperatures and low seasonal precipitation.

At the end of the month, 72% of the country was classified as Abnormally Dry (D0) or in Moderate to Exceptional Drought (D1 to D4), including 81% of the country's agricultural landscape.

Pacific Region (BC)

Temperatures across the Pacific Region were warmer than normal in November, with northeastern B.C. seeing the warmest monthly temperatures in the province. Precipitation across British Columbia trended dry, with central B.C. receiving 60% of normal monthly precipitation or less while other parts of the province saw between 60 and 115% of normal precipitation. The exception to this was the northwestern coast, where precipitation trended above normal this month.

Although monthly precipitation was below normal this month, overall drought severity improved along the west coast. Longer-term precipitation deficits on Vancouver Island began to improve, inching closer to normal; this led to a slight reduction to both northern and southern pockets of Severe Drought (D2) on the island. This extended to the Lower Mainland where the pocket of Extreme Drought (D3) was removed. Further north along the coast, Severe Drought (D2) persisted, though a small section around Prince Rupert was reduced due to significant monthly precipitation.

In contrast, concerns for feed supply in the late fall due to long-term drought along with continued below-normal monthly precipitation led to an expansion of Severe Drought (D2) across the Fraser Plateau in central B.C. An area surrounding Prince George and west towards Smithers continued to miss out on any meaningful precipitation, further exacerbating significantly low streamflows and water supply concerns going into the winter. Prince George in particular is at risk of reporting its driest year on record, reporting only 300 mm of annual precipitation thus far, half of what they would normally receive.

Finally, southern B.C. saw some slight improvements to drought, with the removal of Exceptional Drought (D4) and reduction of Extreme Drought (D3) around Kelowna, as well as an overall reduction to Severe Drought (D2) south of Nelson and Cranbrook in southeastern B.C. These areas have seen an overall improvement to streamflows given near-normal precipitation in the past three months, but despite this, these areas remain vulnerable to an increase in drought severity without adequate winter snowpack.

At the end of the month, 88% of the Pacific Region was classified as Abnormally Dry (D0) or in Moderate to Extreme Drought (D1 to D3), including 99% of the region's agricultural landscape.

Prairie Region (AB, SK, MB)

Conditions across the Prairies trended drier and warmer than normal this month, with very little snowfall reported by the end of the month marking a late start to the winter season. Central and northern Alberta reported both the warmest temperatures (more than 5 degrees above normal) and least precipitation compared to other parts of the Prairies. In contrast, southern Saskatchewan and northwestern Alberta reported above-normal precipitation for November, while southern Manitoba and southeastern Saskatchewan temperatures were only slightly above normal.

Short-term precipitation deficits continued to grow across central Alberta and the Peace Region this month; this trend has persisted for the past 3 months, leading to reports of Extremely Low to Exceptionally Low precipitation since the start of September. Although these areas received ample precipitation throughout the growing season, these extreme short-term deficits led to Moderate Drought (D1) remaining in place this month around Edmonton and Grande Prairie. Extreme (D3) and Exceptional Drought (D4) also remained in southeastern Alberta, with only slight reductions in size given the long-term impacts and continued short-term deficits. However, Extreme Drought (D3) was pulled away from the foothills in southwestern Alberta and around Lethbridge where precipitation in the past few months improved conditions slightly. This area remains vulnerable to significant drought impacts, however, and substantial winter snowpack and spring snowmelt will be needed to fully recover from this years' significant drought. The Severe Drought (D2) classification still reflects the seriousness of these water concerns and low reservoirs in and around Calgary, Lethbridge, the Oldman Reservoir and St. Mary Reservoir going into the winter.

Precipitation across Saskatchewan was varied this month, with an area from Regina southwest towards the U.S./Canada border reporting above-normal precipitation while western Saskatchewan received less than normal precipitation. This led to a small section of the province seeing a skim of snow while the rest reported a late start to the winter season with limited, if any, snowpack at the end of the month. Given that Saskatchewan is entering its dry season, only minor improvements were made to drought this month. In areas along the southern border with the U.S. and in parts of central Saskatchewan, Moderate Drought (D1) was reduced. Slight improvements were made to Severe (D2) and Moderate Drought (D1) in northern parts of the province as well given continued near-normal precipitation in the past 6 months. However, significant long-term moisture deficits remained across western Saskatchewan, from North Battleford towards Leader. There is concern that these areas are going into the winter with below- to well below-normal soil moisture levels due to the hot and dry conditions in the summer, leaving the area vulnerable to water supply issues in the spring

without sufficient snowpack. As such, pockets of Severe (D2) to Extreme Drought (D3) remained in these areas this month.

Manitoba saw further improvement to drought this month as above-normal short-term precipitation continued to alleviate long-term precipitation deficits. Despite southern Manitoba receiving less than 40% of their normal precipitation this month, 2- and 3-month precipitation amounts were reported near- to above-normal. This led to minor improvements to the Severe Drought (D2) pockets along the Manitoba/U.S. border and towards the Manitoba/Saskatchewan border. Precipitation conditions also improved along Lake Winnipeg and south towards Steinbach in the southeastern corner of the province, leading to the removal of Moderate Drought (D1) in this stretch. However, overall hydrological conditions in Manitoba remain vulnerable due to the significant drought across the Prairie region: below-normal reservoir and river levels forced Manitoba Hydro to operate natural gas-fired plants this month earlier than normal due to reduced hydroelectric generating capacities. This will need to be monitored, especially if precipitation remains low throughout the winter and spring seasons.

At the end of the month, 97% of the Prairie Region was classified as Abnormally Dry (D0) or in Moderate to Exceptional Drought (D1 to D4), including 98% of the region's agricultural landscape.

Central Region (ON, QC)

Precipitation across the Central Region varied from north to south: northern areas received mostly near- to above-normal precipitation in November, while southern sections continued to see lower than normal precipitation going into the winter season. This continued the dry trend that southern Ontario experienced this fall, leading to significant short-term precipitation deficits. Precipitation between Ottawa and Toronto was between the 2nd and 10th percentile since the start of September, leading to an expansion of Moderate Drought (D1) towards Toronto and Hamilton as well as the emergence of a Severe Drought (D2) pocket north of Lake Ontario. Abnormally Dry (D0) conditions also stretched further towards Windsor, where 40 to 85% of normal precipitation was reported for the past 3 months.

Elsewhere across the region, dry conditions began to emerge along the Gaspé Peninsula of Quebec: this area received between 40 to 60% of normal precipitation in the past month as well as 60 to 85% of normal precipitation since September 1. As a result, the pocket of Abnormally Dry (D0) conditions remained across much of the peninsula this month. Dry conditions also remained across parts of northwestern Ontario, where Thunder Bay and areas to the north reported less than 60% of their average precipitation in the past 3 to 6 months.

Given the continued deficits, Moderate (D1) to Severe Drought (D2) remained. Conversely, northwestern Quebec around Hudson Bay saw above-normal precipitation, exceeding 150% of the typical monthly precipitation; this allowed for the removal of Severe Drought (D2) and a reduction to Moderate Drought (D1) in the area.

At the end of the month, 71% of the Central Region was classified as Abnormally Dry (D0) or in Moderate to Severe Drought (D1 to D2), including 42% of the region's agricultural landscape.

Atlantic Region (NS, NB, PE, NL)

Despite a drier than normal November, changes to drought were minimal across the Atlantic Region this month. New Brunswick and western Nova Scotia reported slightly below-normal precipitation in November, but this paled in comparison to the months of significantly above-normal rainfall that the region received since the start of the growing season. Although November trended dry, streamflows remained at near-normal levels across much of the region, preventing any additional Abnormally Dry (D0) conditions from being placed. However, these areas are under watch due to the low water holding capacity. Abnormally Dry (D0) pockets also remained across eastern parts of Newfoundland, with only minor precipitation deficits reported in the past 3 months. Further north, parts of Labrador received between 25 to 50% of their normal November precipitation, continuing a trend of below-normal precipitation in the past 3 to 6 months. These areas were placed into Severe Drought (D2) this month, with surrounding areas in Moderate Drought (D1).

At the end of the month, 39% of the Atlantic Region was classified as Abnormally Dry (D0) or in Moderate to Severe Drought (D1 to D2), including 1% of the region's agricultural landscape.

Northern Region (YT, NT)

The Northern Region remained very warm this month, with temperatures in many areas reported at more than 5 degrees above normal. Overall conditions, however, continued to improve due to higher-than-normal precipitation this past month. Central and northern parts of the Northern Region received well above-normal precipitation (90th percentile or greater), while the rest of the region received moderately low to above-normal levels of precipitation. This, in conjunction with improved precipitation in the past 3 to 6 months, resulted in a reduction to all drought classes, especially across much of the Yukon and northwestern parts of the Northwest Territories. A smaller pocket of Severe (D2) to Extreme Drought (D3) remained south of the Great Slave Lake where wildfires were significant this summer, but surrounding

areas of Moderate Drought (D1) and Abnormally Dry (D0) conditions were significantly reduced. A small pocket of Moderate Drought (D1) also remained along the Yukon/Alaska border where 6-month precipitation deficits of 25 to 50% of normal persisted.

At the end of the month, 49% of the Northern Region was classified as Abnormally Dry (D0) or in Moderate to Extreme Drought (D1 to D3).