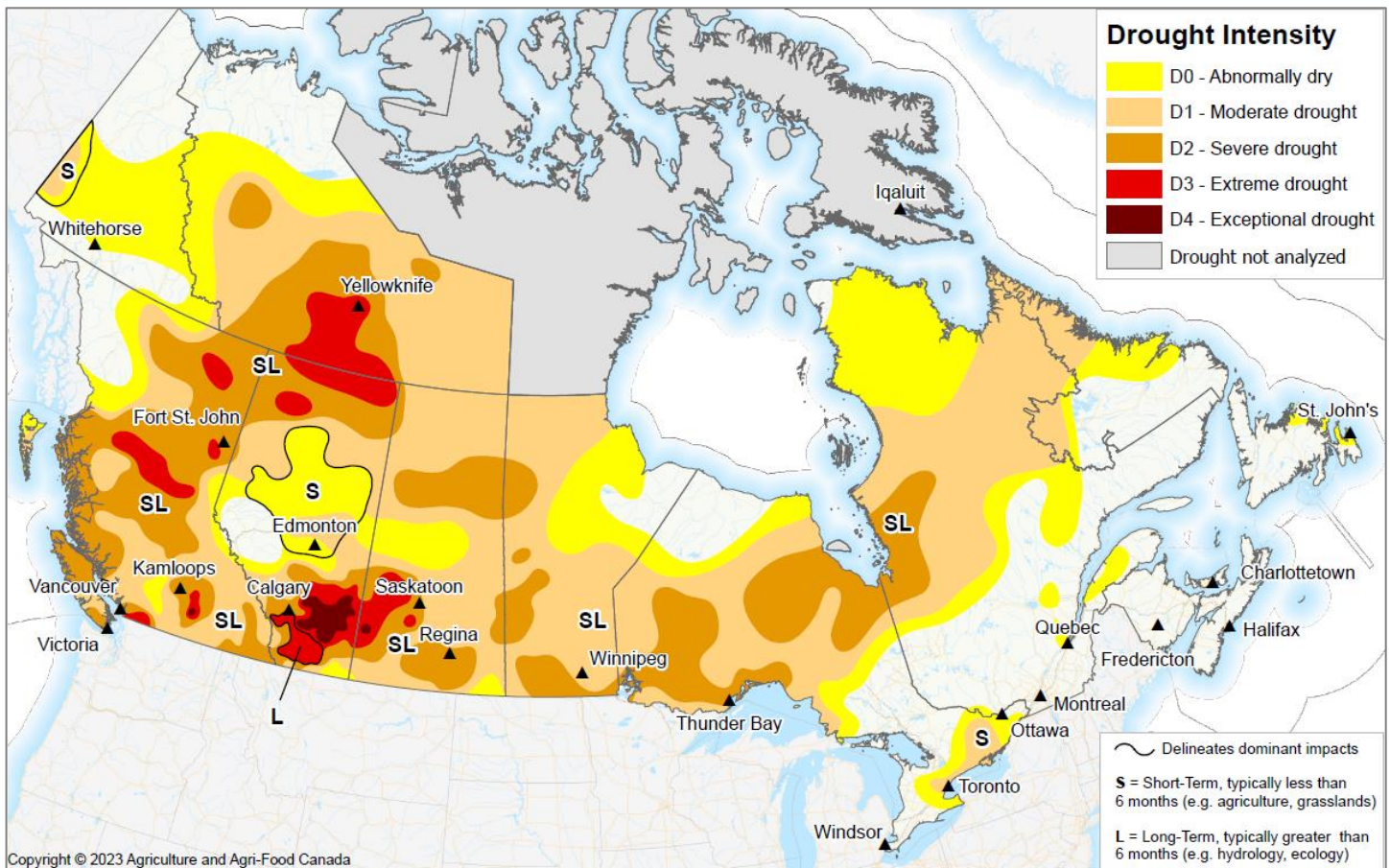


Canadian Drought Monitor

Conditions as of October 31, 2023



Several storm systems and atmospheric rivers brought substantial precipitation much of the country, especially across the southern Prairies, southwestern British Columbia, as well as central Ontario and Quebec in October. However, a few places continued to receive below-normal precipitation this month, including central B.C., central and northern Alberta as well as southern parts of the Northwest Territories. Temperatures were also quite varied. The Prairies experienced a significant cooldown near the end of the month, resulting in below normal monthly temperatures. The rest of the country saw above-normal temperatures with the largest departures occurring in southeastern Quebec. Changes to drought were relatively minor this month, with improvements made to much of western Canada, excluding slight degradation across central B.C. and central Alberta. Parts of Ontario, Quebec and Newfoundland



experienced worsening drought conditions, with eastern Ontario seeing the biggest change since September. Drought conditions stayed relatively unchanged across remaining parts of the country.

At the end of the month, 73% of the country was classified as Abnormally Dry (D0) or in Moderate to Exceptional Drought (D1 to D4), including 79% of the country's agricultural landscape. This is an increase from last month's drought extent of 72% of the total area in D0 or drought and 69% of the agricultural area in D0 or drought.

Pacific Region (BC)

British Columbia continued to receive below- to well below-normal precipitation in October, with most areas receiving less than 85% of normal precipitation. However, there were exceptions including central and southern Vancouver Island and the South Coast, where precipitation levels were 85 to 200% of normal due to an atmospheric river which brought significant precipitation to the area. Temperatures across the region remained slightly above normal, with pockets in eastern parts of the province seeing temperatures 2 to 3 degrees above normal.

The substantial rainfall across Vancouver Island and the south coast this month led to improved streamflow levels and water restrictions being lifted. As a result, Extreme Drought (D3) was removed from the island and Severe Drought (D2) was reduced across central parts of the island and along the Sunshine Coast, north of Vancouver. Conditions across the remainder of the region, however, continued to be drier than normal. Central B.C., the north coast and the northeastern corner of the province received less than 25% of their normal monthly precipitation, while other parts of the province received 25 to 75% of normal precipitation. The north coast, in particular, saw a degradation of conditions after extremely low levels of precipitation fell in October. This extended into parts of the Caribou and Nechako regions of central B.C. as this region grappled with long-lasting effects of drought and has reported the need for several months of average precipitation to replenish soils, ground water supplies and streamflows. Very short soil moisture also affected pastures, leading to reduced feed supplies and livestock reductions. Below-normal and record low streamflows also stretched towards Dawson Creek and Fort Nelson. All these impacts, in conjunction with below-normal monthly precipitation, led to Severe (D2) and Extreme Drought (D3) persisting across these areas.

Only minimal changes were made to southern parts of B.C. including the Thompson-Okanagan and Kootenay Boundary regions. Severe Drought (D2) expanded slightly from south of Cranbrook towards Trail due to significantly low short-term precipitation and streamflow levels

decreasing, while Extreme Drought (D3) was slightly improved around Penticton given improvement in the long-term.

At the end of the month, 90% of the Pacific Region was classified as abnormally Dry (D0) or in Moderate to Exceptional Drought (D1 to D4), including nearly 100% of the region's agricultural landscape.

Prairie Region (AB, SK, MB)

Precipitation across much of the southern Prairies was above normal in October, with the foothills region of Alberta, southwest Saskatchewan and the Winnipeg area of Manitoba receiving more than 200% of normal precipitation. However, central and northern Alberta received less than 60% of normal precipitation; remaining parts of the region received near-normal precipitation this month. Although overall temperatures were reported as near normal in October, parts of the Prairies experienced a swing of 20 degrees Celsius near the end of the month as the jet stream shifted to bring cooler conditions to the region. In contrast, northwestern Alberta experienced temperatures more than 2 degrees warmer than normal this month.

Conditions across Alberta were varied in October: southern Alberta received more than 150% of normal precipitation after a late October Arctic front brought 5 to 20cm of snowfall to the area, while central and northern Alberta experienced warm and dry conditions. Although the significant monthly moisture in southern Alberta helped, long-term drought still remained across much of the area. Ongoing pasture and feed sourcing concerns, as well as significant deficits remained in key reservoirs, leading to extremely low streamflows going into the winter. Despite slight improvements to drought along the foothills, Extreme (D3) and Exceptional Drought (D4) remained across a large portion of southern Alberta. Central parts of the province, around Edmonton and towards the Alberta/Saskatchewan border, continued to experience monthly precipitation deficits; this, in addition to last month's deficits of less than 40% of normal, led to the expansion of Abnormally Dry (D0) and Moderate Drought (D1) conditions. Although this area was well-off throughout the growing season with adequate soil moisture, there are reports of concern going into the winter after a very dry fall period. These drought expansions continued into northern Alberta as Extreme Drought (D3) emerged around High Level and Moderate Drought (D1) was expanded in the southern Peace region.

Precipitation was varied across Saskatchewan this month, with southeastern and southwestern corners of the province receiving upwards of 200% of normal monthly precipitation and central and northern Saskatchewan receiving less than 40% of normal precipitation. Temperatures

were above normal for much of October but suddenly dropped to below normal in the last week of the month with a change to the jet stream bringing cooler air to the province. Seasonal precipitation deficits reported in the western half of the province led to Extreme Drought (D3) remaining in place this month, as producers wait for more consistent precipitation to alleviate long-term moisture deficits. Severe Drought (D2) was slightly reduced east of Swift Current and in the southeastern corner of the province following this month's significant precipitation. Moderate Drought (D1) was also reduced around Prince Albert as precipitation since July was reported as near normal and producers had adequate feed supply going into the winter. Further north, however, Severe Drought (D2) persisted and slightly expanded between Reindeer Lake and Buffalo Narrows with less than 50% of normal precipitation since July and well below-normal streamflows reported at the end of the month.

Similar to the other two Prairie provinces, Manitoba experienced varied precipitation in October, with more than 115% of normal monthly precipitation in southern parts of the province and less than 60% of normal precipitation in the north. Because minimal drought impacts were reported across Manitoba in October, and with timely rains and soil moisture carried over from last year, the pocket of Extreme Drought (D3) in the southwest corner of the province was removed. Improvements to Severe Drought (D2) were also made northeast of Winnipeg and around Riding Mountain National Park, though D2 persisted along the western border with Saskatchewan. Despite adequate soil moisture heading into the winter, longer-term precipitation deficits and remaining drought impact warranted the continued drought classification.

At the end of the month, 94% 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 trended much above normal this month across most of the Central region with the exception of the Thunder Bay region and parts of southern and southeastern Ontario. A large area from Lake Huron towards central Quebec received more than 150% of their normal October precipitation this month, leading to reductions of drought in the area, including the removal of the Extreme Drought (D3) pocket east of James Bay. In contrast, precipitation remained below normal across parts of southern Ontario, north of Lake Ontario. This area received less than 60% of normal precipitation since September 1st, leading to concerns of wells drying out and lack of groundwater recharge going into the winter season. As a result, Moderate Drought (D1) was expanded to include an area from south of Pembroke towards

Belleville, stretching west to include Toronto and Brampton. Additional short-term precipitation deficits also appeared around Sault Ste. Marie and eastern parts of Quebec, which led to the emergence of Abnormally Dry (D0) pockets and a small extension of Moderate Drought (D1) along Lake Superior towards Sault Ste. Marie.

At the end of the month, 68% of the Central Region was classified as Abnormally Dry (D0) or in Moderate to Severe Drought (D1 to D2), including 33% of the region's agricultural landscape.

Atlantic Region (NS, NB, PE, NL)

Throughout October, the Atlantic Region experienced warm conditions and above-normal precipitation, with the highest amounts of precipitation reported along northern Nova Scotia and western Newfoundland. Northwestern New Brunswick and Labrador had temperatures above normal, with New Brunswick reaching temperatures more than 4 to 5 degrees above normal.

Despite much of the region reporting above-normal precipitation this month, continuing a trend of much above-normal rainfall over the summer, the east coast of Newfoundland reported below-normal precipitation this month. This extended into the past three months, where some stations along the east coast reported 3-month precipitation less than 85% of normal. Given these short-term conditions, an Abnormally Dry (D0) pocket was placed. These below-normal precipitation conditions also extended along the eastern border of Labrador, where less than 60% of normal precipitation was reported in October. As a result, Abnormally Dry (D0) and Moderate Drought (D1) extended south along the coast towards Happy Valley Goose Bay. Southern Labrador remained drought-free as a result of post-tropical cyclone Philippe bringing surface water levels to normal and improving groundwater well levels.

At the end of the month, 29% of the Atlantic Region was classified as Abnormally Dry (D0) or in Moderate Drought (D1), including 3% of the region's agricultural landscape.

Northern Region (YT, NT)

Conditions across the Northern Region improved slightly this month, as significant precipitation fell across much of the Yukon and northern parts of the Northwest Territories. This allowed for the reduction of Abnormally Dry (D0) and Moderate Drought (D1) across much of the Yukon, except for a pocket along the southern border to Alaska. However, despite these improvements, a large area of Severe (D2) to Extreme Drought (D3) remained near Yellowknife

and towards the NWT/Alberta border. Streamflows continued to report as significantly below normal, and after the extreme wildfire season this summer, more precipitation will be needed to alleviate these concerns. For the sixth month in a row, temperatures were reportedly above normal across the entire region in October, with eastern parts of the region seeing temperatures more than 5 degrees warmer than normal.

At the end of the month, 62% of the Northern Region was classified as Abnormally Dry (D0) or in Moderate to Extreme Drought (D1 to D3).