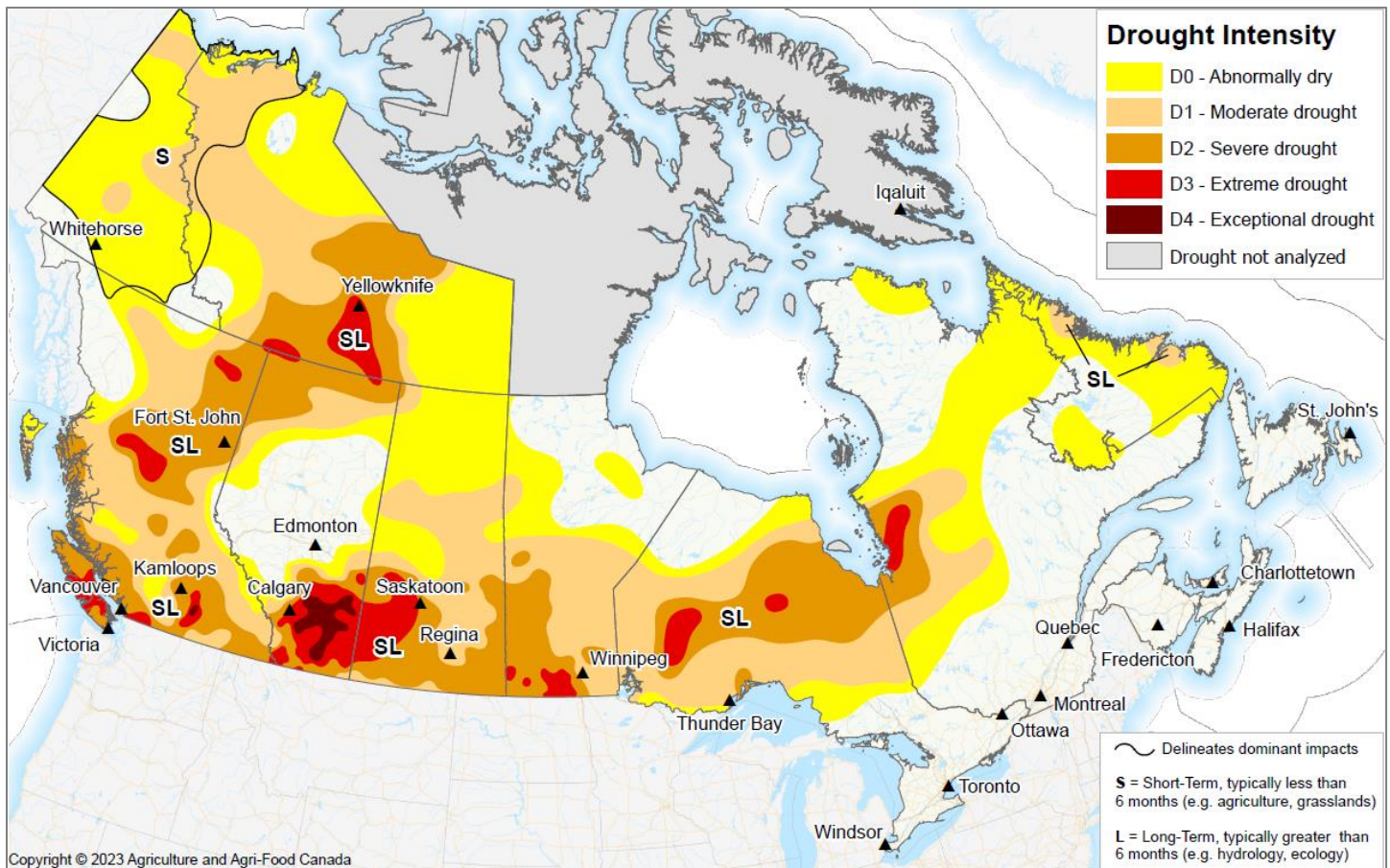


# Canadian Drought Monitor

Conditions as of August 31, 2023



Exceptionally dry conditions continued to dominate much of Western Canada through August, while eastern Canada received above- to well above-normal precipitation. Although the severity of drought worsened in many parts of Western Canada, the extent of drought conditions remained relatively unchanged. Extreme Drought (D3) conditions emerged in both southern Manitoba and the Northwest Territories and expanded in southern Alberta, Saskatchewan and British Columbia. The Exceptional Drought (D4) in southern Alberta also expanded this month as significant agricultural impacts persisted. Agricultural producers across Western Canada have struggled with impacts of this year's drought in combination with the effects of three or more consecutive years of drought in many regions. Annual crops have experienced significant yield losses in areas of severe drought, pasture and hay production has



been impacted and water supplies and stream flows have been extremely low in many regions. Wildfires continued to burn at record levels throughout Canada with more than 1,000 actively burning at the end of August. This season's fires have resulted in 16.5 million hectares burned thus far – 7.5 times greater than the 25-year normal of 2.2 million hectares. In contrast to everything in Western and Northern Canada, southern areas of Eastern Canada received significant precipitation in August resulting in the removal of all remaining Abnormally Dry (D0) and Moderate Drought (D1) areas from last month.

At the end of the month, 67% of the country was classified as Abnormally Dry (D0) or in Moderate to Exceptional Drought (D1 to D4), including 65% of the country's agricultural landscape.

## **Pacific Region (BC)**

In August, the Pacific Region experienced predominantly warm and dry conditions. Areas including the Lower Mainland, the Cariboo region and the Thompson-Okanagan region saw temperatures rise over 4 degrees above normal this past month. Precipitation levels were below-normal across southern Vancouver Island, the Lower Mainland, the Thompson-Okanagan region, the Cariboo region and most of northern B.C as these areas received only 40 to 60% of their normal monthly precipitation. The ongoing precipitation deficits and high temperatures led to increased irrigation demands, earlier than normal berry harvests and evacuation orders due to wildfires. Water restrictions were also put in place in some areas to address low streamflows and to protect fish populations.

Southern Vancouver Island and the Lower Mainland experienced very warm and dry conditions in August and, as such, experienced further drought degradation. On Vancouver Island, high temperatures and low stream flows led to fish die-offs in the Cowichan River. Southeast Vancouver Island, in particular, reported their warmest August on record and received less than 10% of normal monthly precipitation. As a result, Severe Drought (D2) expanded south towards Victoria. The Lower Mainland also experienced very warm conditions, with stations in the Lower Fraser River Basin receiving close to half of their normal precipitation this month. This, in addition to other impacts such as hay shortages or stunted plant growth, led to the emergence of Extreme Drought (D3) in this area.

Ongoing low precipitation and wildfires worsened overall drought conditions across southern B.C. as well. In the Okanagan River Basin, most stations reported exceptionally low precipitation, with Penticton and Vernon receiving only 5.1% and 2.1% of their normal precipitation this month, respectively. The area also faced other challenges including both the

driest soil moisture levels on record and a major wildfire near Kelowna. These factors resulted in an expansion of Extreme Drought (D3) in the Okanagan and the introduction of Exceptional Drought (D4) from Kelowna to Vernon. Precipitation across southwestern parts of the province was near- to above-normal this month, with some areas receiving between 150 to 200% of normal precipitation. Although drought remained relatively unchanged, a small section of Severe Drought (D2) was removed around Nelson.

Central and northern parts of the province continued to see significant drought impacts this month, with several reports of low on-farm water supplies and reduced hay yields. There are reports that smoke from wildfires has been impacting the drying time for hay crops near Prince George. Precipitation also continued to be generally minimal, except for an area west of Burns Lake, which received slightly above-normal precipitation in the past 3 months. All other areas across Central B.C., from Prince George to Prince Rupert, saw Severe to Extreme Drought (D2 to D3) either emerge or persist. The Northeast also reported significant precipitation deficits and resulting yield reductions to hay crops, poor pasture conditions and concern for herd reductions due to ongoing Severe Drought (D2).

At the end of the month, 88% of the Pacific Region was considered 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 much of the Prairies remained critical this month as significant precipitation deficits from the summer continued to impact producers. Despite only slightly below-normal precipitation across southern Alberta and Manitoba in August, longer-term deficits remained in place. Near- to above-normal monthly precipitation fell across parts of central Saskatchewan slowing harvest operations rather than alleviating drought impacts to seasonal crops. Temperatures were generally near-normal across the entire region, with western parts of the Prairies reporting slightly above-normal temperatures and eastern areas seeing slightly below-normal temperatures.

Weather was variable across Alberta this month as southern and northern regions of the province continued to see severe drought conditions while central areas received significant rainfall. Southern Alberta continued to be the most drought impacted region with ongoing reports of depleted soil moisture, low crop yields and unproductive hay lands leading to feed shortages and/or the need to further reduce cattle herds. Although August precipitation was not low compared to normal, longer-term deficits continued to impact water supplies and irrigation systems. Several water shortage advisories were reported for southern Alberta due to

high temperatures, insufficient rainfall and increased evaporation at reservoirs, leading some irrigators to draw from different reservoirs altogether. As of the end of August, southern Alberta only received between 40 to 60% of their normal precipitation since the start of the growing season, with parts of the Special Areas towards Lethbridge seeing less than 40% of normal. Given these ongoing impacts, Extreme and Exceptional Drought (D3 and D4) not only remained, but slightly expanded this month, with the hardest hit regions located between Calgary, east of Brooks and towards Lethbridge and the Special Areas. Drought also remained a concern this month in the northern Peace River region of the province and along the border with the Northwest Territories; these areas reported less than 50% of their normal precipitation since the start of June in addition to long-term severe moisture deficits. Wildfires remained concern in northern Alberta as hotspots were reported along much of the Alberta-NWT border at the end of the month. As a result of the ongoing dryness, Severe Drought (D2) remained in place from the northern Peace region towards Fort Smith, NWT. Adequate precipitation over the next 6 months will be needed to replenish soil moisture across both southern and northern Alberta for next spring's growing season. In contrast to the significant dryness, central Alberta continued to report above-normal precipitation this month, as much as 150% to more than 200% of normal precipitation; this led to further improvement of Abnormally Dry (D0) or Moderate Drought (D1) in the surrounding areas. However, this ongoing precipitation left some producers with excess moisture concerns as hay lands now need to dry down in order to cut.

Drought conditions across Saskatchewan did not change significantly in August. Although above-normal precipitation fell across south-central parts of the province this month, ongoing agricultural impacts remained in many areas. In hardest hit areas of southwestern Saskatchewan, some crops have been decimated by grasshoppers, very short hay and pasture soil moisture was reported and concern grew for the need to reduce cattle herd sizes. Southeastern parts of the province also reported drought impacts this month; although less severe than in other areas, this region reported degrading water quality and reduced forage yields. Recent rains also hampered harvest operations and added concern of quality degrading from excess moisture in fields. Additionally, more than 70 rural municipalities declared states of emergency by the end of the month. All of these impacts, coupled with ongoing precipitation deficits since the start of the growing season, led to Severe and Extreme Drought (D2 and D3) remaining across much of the area. Conditions in central parts of the province, around Meadow Lake and Prince Albert, received above-normal precipitation this month, leading to slight improvements to Moderate Drought (D1). However, drier conditions returned to northern Saskatchewan and as a result, Abnormally Dry (D0) conditions were added back this month.

August brought varied precipitation across Manitoba, with southern and Interlake regions receiving below-normal precipitation and the northwest region receiving near- to slightly

above-normal precipitation. Province-wide temperatures remained slightly cooler than normal this month as well, with the exception of northern Manitoba. Although these cooler temperatures, in conjunction with well-timed precipitation events, have helped to prevent significant drought impacts in many parts of the province throughout the summer, overall precipitation amounts have been minimal in the past year and as a result, impacts have become more apparent. Dugouts are reporting only half of their normal amounts, some pastures reported drying and browning off with minimal regrowth and there is a growing concern about sourcing hay due to low cereal yields. Cattle herd reductions were also reported in addition to spring wheat quality falling in southwestern and central parts of the province. Given these circumstances, pockets of Extreme Drought (D3) emerged in southcentral and southwestern Manitoba as well as an expansion of Severe Drought (D2) towards the Manitoba-Saskatchewan border. Northeastern regions of Manitoba also saw a slight degradation this month with the expansion of Moderate Drought (D1) east of Lake Winnipeg.

At the end of the month, 73% of the Prairie Region was classified as Abnormally Dry (D0) or in Moderate to Exceptional Drought (D1 to D4), including 85% of the region's agricultural landscape.

## **Central Region (ON, QC)**

In August, most of Southern Ontario and southeastern Quebec received near- to above-normal precipitation: the southwest and Niagara region in Ontario and Quebec's Gaspé region in particular saw precipitation exceeding 150% of normal. This above-average rainfall helped to eliminate any remaining Moderate Drought (D1) or Abnormally Dry (D0) conditions in the region. However, the excess moisture led to growing concerns in southern Ontario and Quebec, with increasing reports of corn and soybean crops and hay lands not drying up properly and leading to a decrease in quality or being abandoned altogether.

Ontario and Quebec's central and northwestern regions received comparably lower precipitation in August: these areas received between 60 and 115% of normal precipitation. This below-normal precipitation led to the deterioration of drought conditions in these regions with the expansion of both Moderate (D1) and Severe Drought (D2). Several smaller areas of Extreme Drought (D3) were also added including a pocket northeast of Dryden, one around the Albany River and another pocket east of James Bay in Quebec. Northern Quebec experienced slight drought degradation with the minor expansion of Abnormally Dry (D0) and Moderate Drought (D1) conditions towards Labrador as well as a small Abnormally Dry (D0) pocket in the Ungava Peninsula in the northern-most tip of Quebec.

At the end of the month, 52% of the Central Region was classified as Abnormally Dry (D0) or in Moderate to Extreme Drought (D1 to D3), including 12% of the region's agricultural landscape.

## **Atlantic Region (NS, NB, PE, NL)**

There was significant rainfall across Atlantic Canada in August, ranging from 115% to over 200% of normal. Nova Scotia, New Brunswick and P.E.I received the most precipitation during this period, with more than 150% of normal precipitation and no drought or dry conditions present.

Newfoundland also received scattered precipitation of near- to slightly above-normal precipitation this month, leading to the removal of Abnormally Dry (D0) conditions around the Avalon Peninsula on the island's southeastern side. The majority of Labrador received near- to below-normal precipitation, with coastal regions receiving the least amount of precipitation this month; this resulted in the persistence of Abnormally Dry (D0) conditions in this area and the addition of two pockets of Moderate Drought (D1) along the coastline.

At the end of the month, 38% of the Atlantic Region was classified as Abnormally Dry (D0) or in Moderate Drought (D1). None of the region's agricultural landscape was impacted this month.

## **Northern Region (YT, NT)**

In Northern Canada, the persistent occurrence of extremely warm and dry conditions, coupled with numerous wildfire outbreaks and sudden flash droughts, contributed to the deterioration of drought conditions this month. Many communities reported their top three warmest Augusts on record including Norman Wells, Fort Simpson and Fort Liard in the NWT; these communities experienced their warmest, second warmest, and third warmest Augusts on record, respectively. This extends into the summer season as well, with Norman Wells and Yellowknife reporting their warmest and third warmest summer on record, respectively. Large swaths of the northern region also reported significant precipitation deficits over the summer with much of the Northwest Territories reporting 3-month precipitation amounts of only 25 to 50% of normal. Southern NWT including Hay River, Fort Smith and Yellowknife reported less than 25% of their normal precipitation in the past 3 months as well. These prolonged hot and dry conditions over the summer led to a substantial decrease in the Mackenzie River's water levels, hitting an all-time low in July at Fort Simpson for that time of year. Additionally, the lack of soil moisture around Hay River and Fort Smith, NWT, forced fire management to adapt their tactics as plants and vegetation that would typically be less susceptible to burning and serve as a natural barrier to slow down fires were igniting quicker than usual. With all of these deficits and

impacts in mind, a large swath of Severe Drought (D2) was expanded to cover 18% of the Northwest Territories in addition to a couple pockets of Extreme Drought (D3) placed in southern NWT for the first time in Canadian Drought Monitor history. Additionally, Moderate Drought (D1) was expanded to reach into the Yukon Territory while Abnormally Dry (D0) conditions covered nearly the entire Northern Region by the end of August.

At the end of the month, 81% of the Northern Region was classified as Abnormally Dry (D0) or in Moderate to Extreme Drought (D1 to D3).

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