Water Availability and Drought Conditions Report

APRIL 2022

Executive Summary

- This Water Availability and Drought Conditions Report provides an update on conditions throughout Manitoba for April 2022.
- Precipitation conditions over the past month, three month, and twelve month periods are as follows:
  - During April 2022, most of southern Manitoba experienced above normal (>115 % of median) precipitation conditions, except for northwest agri-Manitoba which observed moderately dry (60 – 85 %) to normal (85 – 115 %) conditions. In northern Manitoba, conditions ranged from above normal (>115 %) in the east to extremely dry (<40 %) surrounding Gillam, The Pas and Flin Flon.
  - Over the past three months (February, March, April), most of southern Manitoba experienced normal to above normal conditions, except for northwest agri-Manitoba which observed moderately dry conditions. Conditions in northern Manitoba were generally moderately dry to normal, with pockets of severely (40 – 60 %) to extremely dry conditions.
  - Over the past 12 months, southern Manitoba observed moderately dry to normal conditions. Conditions in northern Manitoba were moderately dry in the south and normal further to the north and east.
- Spring runoff across most southern Manitoba sub-basins was well above normal, with large regions of overland flooding in the Red River Valley, Interlake and Eastern regions resulting in many municipalities declaring local States of Emergency. As of May 1, 2022, most streamflows and lake levels across Manitoba were above normal (75^{th} – 90^{th} percentile) to much above normal (>90^{th}). However, several lakes and rivers continued to observe below normal (10^{th} – 25^{th} percentile) or much below normal (<10^{th}) conditions lingering from the dryness in 2021, including the Dauphin and Waterhen rivers and Lake Manitoba and Lake Winnipegosis.
- The April 30, 2022 Canadian Drought Monitor assessment showed that the wet winter and spring alleviated drought conditions across much of agri-Manitoba, with some abnormally dry (D0) conditions persisting in the southwest and northwest regions along the Saskatchewan border extending north to The Pas. In northern Manitoba, there is a region of abnormally dry conditions surrounding Churchill.
- Provincial water supply reservoirs are mostly at or close to full supply levels and there are currently no concerns over reservoir water supplies. Nearly all creeks, streams, dugouts, and sloughs have refilled to capacity in agri-Manitoba and there are no concerns about on-farm water supplies at this time.
- It has been a slow start to the 2022 wildfire season with only three fires burning a total of one hectare during April. No burning or travel restriction are in place due to wildfire activity.

Drought Indicators

Precipitation Indicator

Precipitation is assessed to determine the severity of meteorological dryness and is an indirect measurement of agricultural dryness.

Three precipitation indicators are calculated to represent short term (one month; Figure 1), medium term (three months; Figure 2) and long term (12 months; Figure 3) conditions. The indicators compare current monthly precipitation totals to historical data to calculate the per cent of median precipitation that occurred over the past one, three or twelve months. Historical medians are computed from 45 years of data (1971 – 2015).

Due to large distances between meteorological stations in northern Manitoba, the interpolated contours in this region are based on limited observations and should be interpreted with caution.

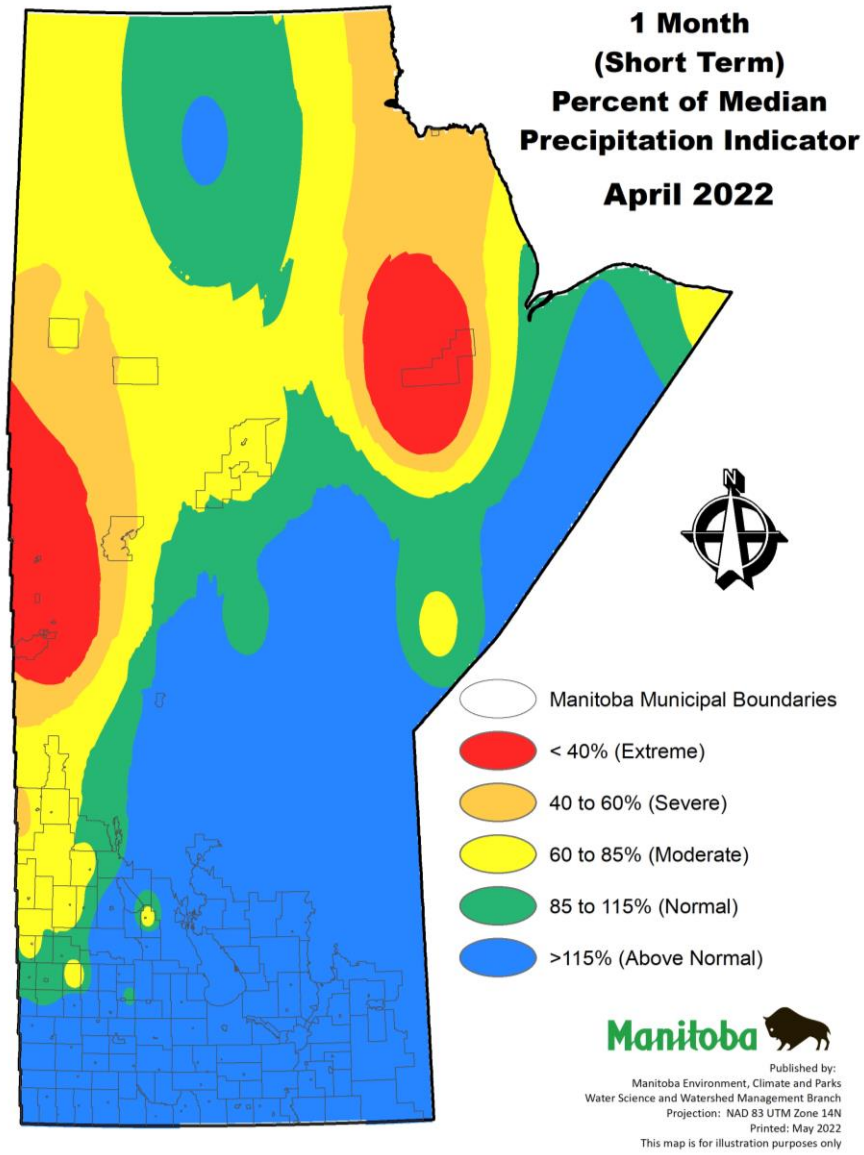

Figure 1: One month (short term) per cent of median precipitation indicator.

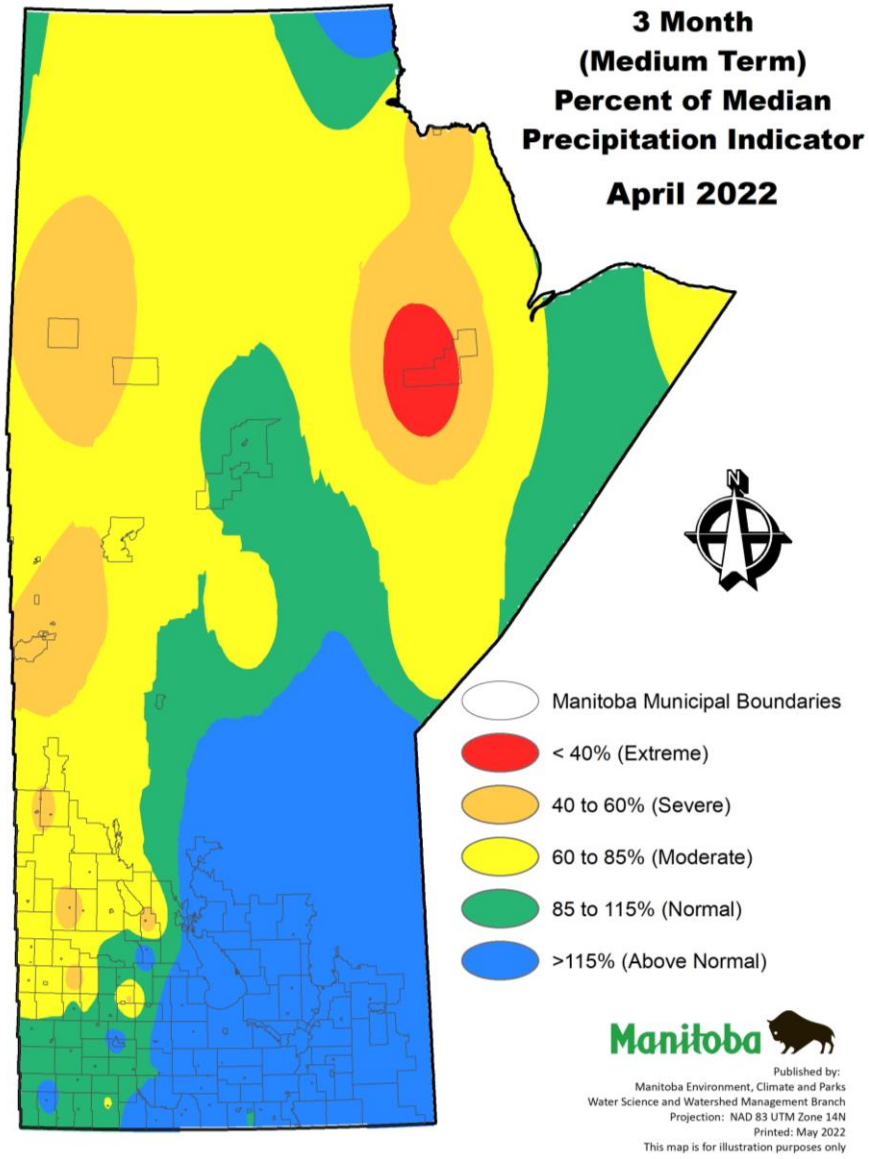

Figure 2: Three month (medium term) per cent of median precipitation indicator.

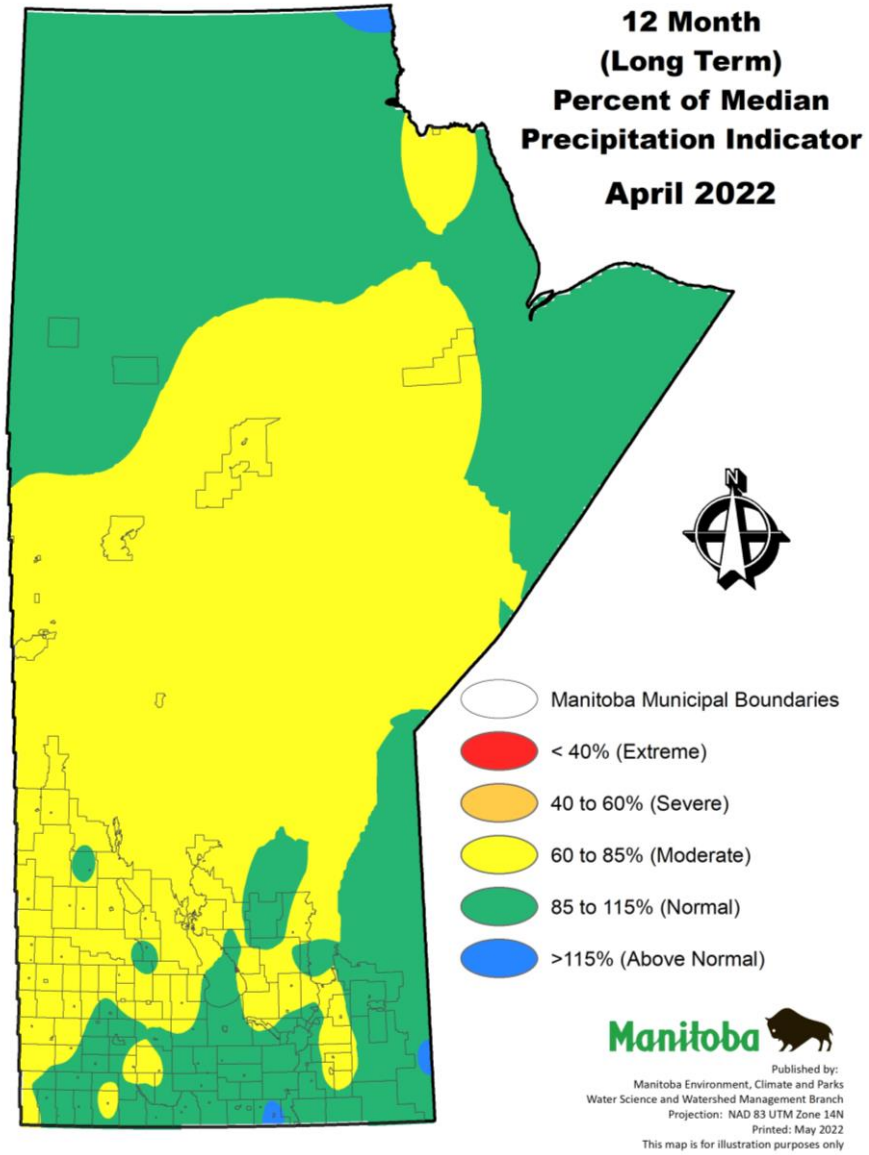

Figure 3: Twelve month (long term) per cent of median precipitation indicator.

Streamflow & Lake Level Indicator

The streamflow and lake level indicator is based on average daily flows and levels compared to historical values for that particular day.

This indicator is used to determine the severity of hydrological dryness in a watershed and is summarized on Figure 4, representing hydrological conditions for May 1, 2022.

Streamflow and lake level percentile plots for all of the rivers and lakes included on Figure 4 are available on the [Manitoba Drought Monitor website] under the *Drought Indicator Map* tab.

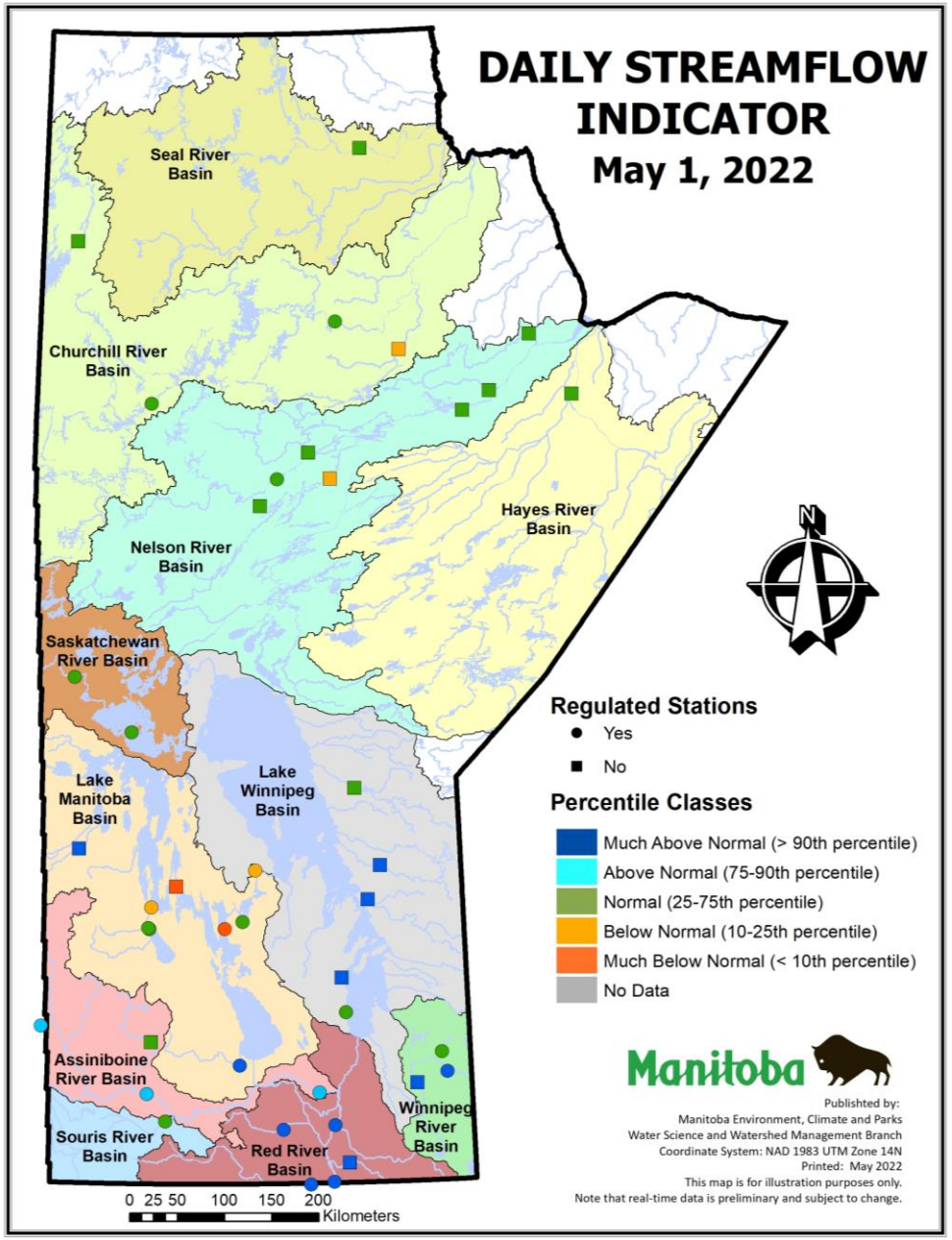

Figure 4: Daily streamflow and lake level indicator for May 1, 2022

Canada and United States Drought Monitors

The Canadian Drought Monitor and the United States Drought Monitor map the extent and intensity of drought conditions across Canada and the continental U.S.A.

Drought Monitor assessments are based on a suite of drought indicators, impacts data and local reports as interpreted by federal, provincial/state and academic scientists.

The Canadian and United States Drought Monitor maps use the following classification system:

- D0 (Abnormally Dry) – represents an event that occurs every 3 to 5 years;
- D1 (Moderate Drought) – 5 to 10 year event;
- D2 (Severe Drought) – 10 to 20 year event;
- D3 (Extreme Drought) – 20 to 50 year event; and
- D4 (Exceptional Drought) – 50+ year event.

Additionally, the map indicates the duration of drought as either short-term (S; less than 6 months) or long-term (L; more than 6 months) (Figure 5).

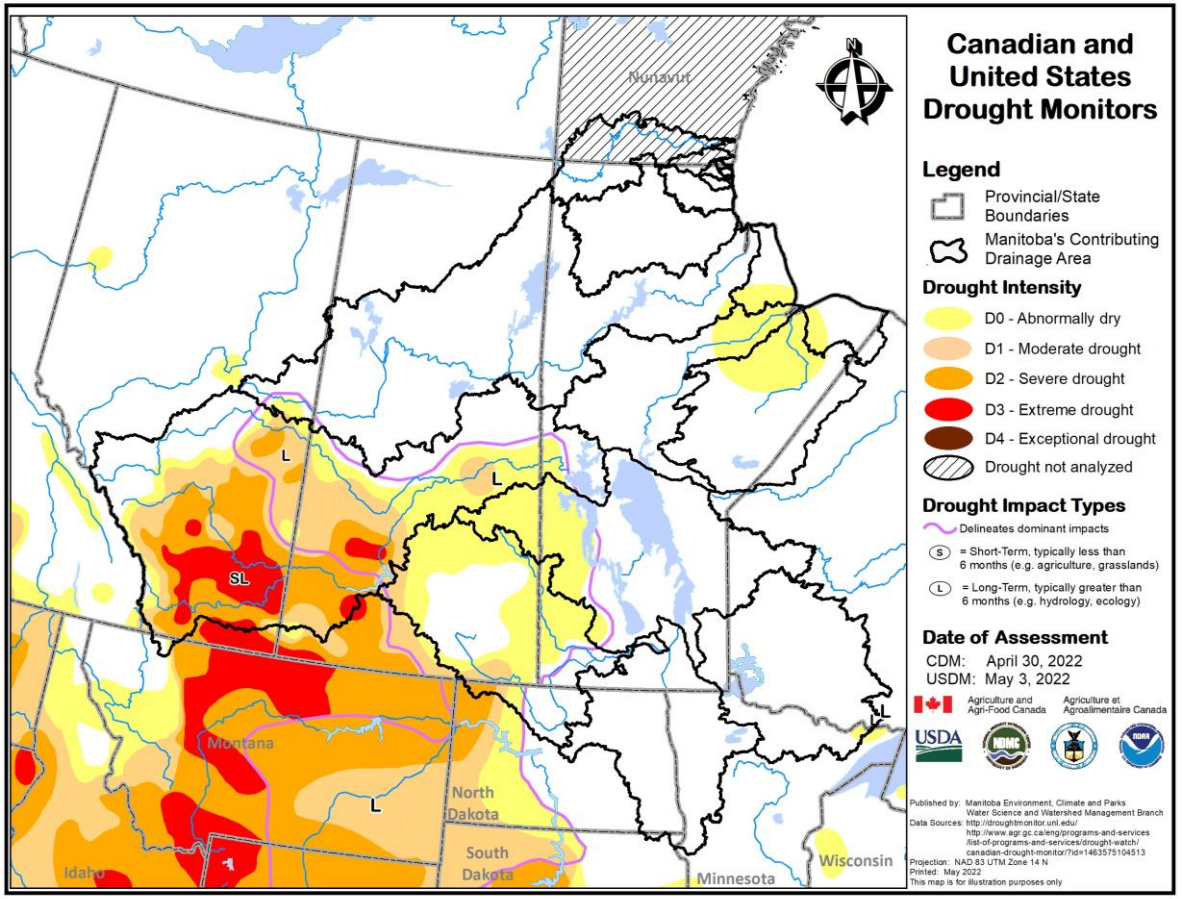

Figure 5: Canadian and United States Drought Monitors' classification of short-term (S) and long-term (L) drought conditions assessed as of April 30, 2022.

Water Availability

Reservoir Conditions

Table 1: Water Supply Reservoir Levels and Storages – May 2, 2022 (Southern and Western Manitoba).

Water Supply Reservoir Levels and Storages - May-02-22								
Lake or Reservoir	**Community Supplied**	**Target Level (feet)**	**Latest Observed Level (feet)**	**Observed date**	**Supply Status (Recent - Target) (feet)**	**Storage at Target Level (acre-feet)**	**Storage at Observed Level (acre-feet)**	**Supply Status (observed storage/target storage) (%)**
Lake of the Prairies (Shellmouth)*[1]	Brandon, Portage, Cartier Regional Water Co-op	1,402.5	1395.02	May 2, 2022	-7.48	300,000	209,078	70%
Lake Wahtopanah (Rivers)*	Rivers	1,536	1538.10	May 2, 2022	+2.10	24,500	29,182	119%
Minnewasta (Morden)*	Morden	1,082	1083.98	May 2, 2022	+1.98	3,150	3,473	110%
Stephenfield*	Carman, Pembina Valley Water Co-op	972	977.06	May 2, 2022	+5.06	3,810	6,138	161%
Vermilion*	Dauphin	1,274	1274.26	May 2, 2022	+0.26	2,600	2,660	102%
Goudney (Pilot Mound)*		1,482	1483.82	May 2, 2022	+1.82	450	541	120%
Jackson Lake*		1,174	1171.62	May 2, 2022	-2.38	2,990	2,400	80%
Manitou (Mary Jane)*		1,537	1542.67	May 2, 2022	+5.67	1,150	1,627	141%
Turtlehead (Deloraine)*	Deloraine	1,772	1775.71	May 2, 2022	+3.71	1,400	1,694	121%
Lake Irwin*		1,178	1179.26	May 2, 2022	+1.26	3,800	4,594	121%
Minnedosa*		1,682	1682.29	May 2, 2022	+0.29	1,688	1,764	104%
Boissevain*	Boissevain	1,697	1694.44	**March 7, 2022**	-2.56	505	336	66%
Elgin*		1,532	1530.74	**March 7, 2022**	-1.26	520	433	83%
St. Malo*		840	840.28	**March 31, 2022**	+0.28	1,770	1,816	103%
Kenton Reservoir		1,448	1446.41	**March 21, 2022**	-1.59	600	510	85%
Killarney Lake		1,615	1613.07	**March 8, 2022**	-1.93	7,360	6,470	88%

[1] Summer target level and storage
* Real-time water level gauge

On Farm Water Supply

On farm water supply updates from Manitoba Agriculture's Crop Report Issue 1 (May 10, 2022) are provided in Table 2.

Table 2: On Farm Water Supply (Dugout) Conditions.

Region	General Dugout Condition
Eastern	Nearly all creeks, streams, dugouts, and sloughs have refilled to capacity in agri-Manitoba due to above-normal snowfall and melt, together with consecutive Colorado Low systems bringing rain to nearly all parts of Manitoba.
Interlake	
Southwest	
Central	
Northwest	

Soil Moisture

A regional representation of soil moisture conditions for the top 120 cm relative to the field capacity is shown for May 9, 2022.

The colours on the map represent measured soil moisture values from automated instruments at sites across Manitoba. Qualitative range (very dry to very wet) is based on the amount of current soil moisture relative to field capacity. Field Capacity is defined as the maximum amount of moisture the soil can hold when drainage due to gravity stops.

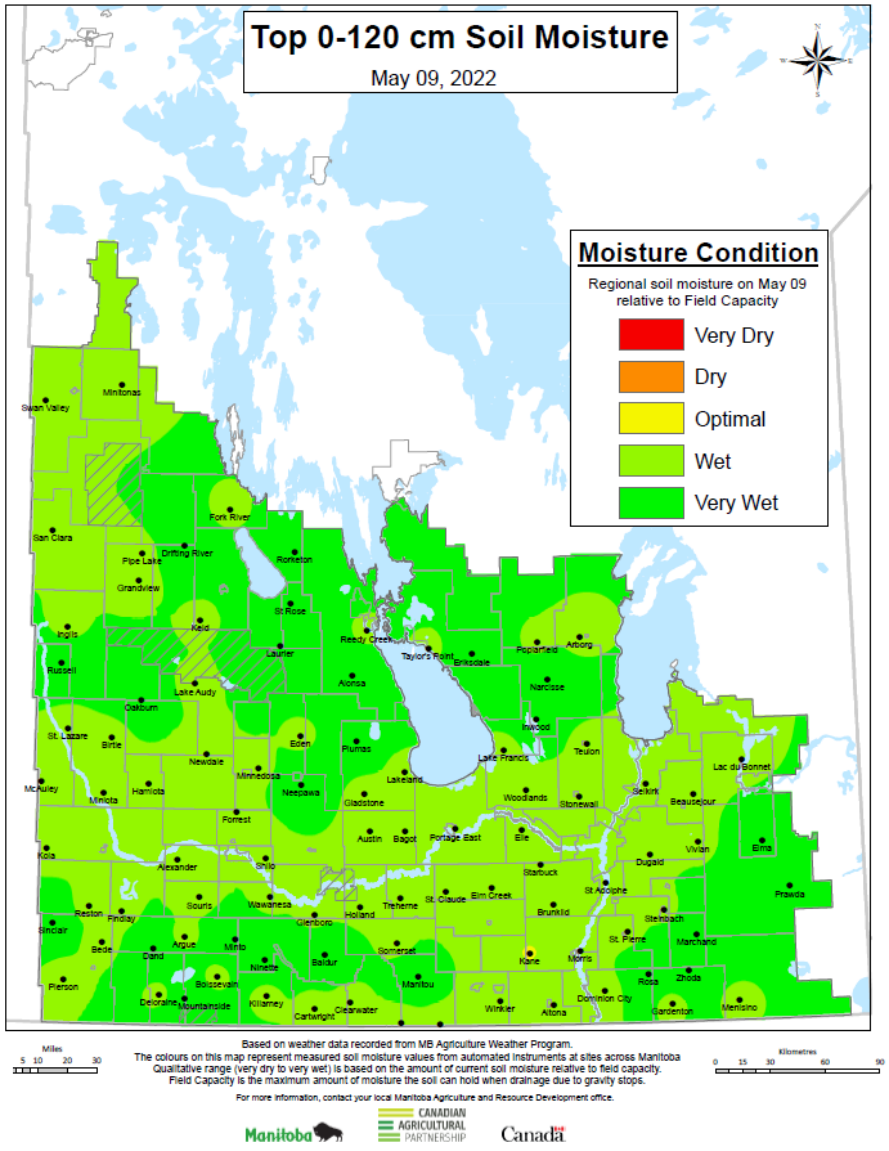

Figure 6: Manitoba Agriculture's May 9, 2022 mapping of soil moisture conditions in the top 0 – 120 cm.

Wildland Fires

Due to the wet spring conditions, wildfires have been very minimal so far in 2022, with only three fires burning a total of one hectare. No travel or burning restrictions are currently in place.

Impacts due to Dry Conditions

There are currently no impacts occurring due to dry conditions, a marked shift from May 2021.

Past reports, drought mapping and other information and resources are available on the Manitoba Drought Monitor website.

For further information, please contact:

Carly Delavau, Ph.D, P.Eng.
Water Supply Engineer, Surface Water Management Section,
Water Science and Watershed Management Branch,
Manitoba Environment, Climate and Parks
Box 14, 200 Saulteaux Crescent, Winnipeg, Manitoba R3J 3W3
Ph. (204) 806-4557, Fax (204) 945-7419
E-mail : Carly.Delavau@gov.mb.ca

Acknowledgements

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Manitoba Transportation and Infrastructure - Reservoir level information:
https://www.gov.mb.ca/mit/floodinfo/index.html

Manitoba Natural Resources and Northern Development Fire Program:
https://www.gov.mb.ca/sd/fire/

Manitoba Agriculture:
Crop Reports:
http://www.gov.mb.ca/agriculture/crops/seasonal-reports/crop-report-archive/index.html
Topsoil moisture conditions:
https://www.gov.mb.ca/agriculture/weather/weather-conditions-and-reports.html

Environment and Climate Change Canada:
Flow and lake level information:
http://www.wateroffice.ec.gc.ca/index_e.html

Agriculture and Agri-Food Canada:
Canadian Drought Monitor:
https://agriculture.canada.ca/en/agriculture-and-environment/drought-watch-and-agroclimate/canadian-drought-monitor

United States Drought Monitor:
https://droughtmonitor.unl.edu/