

2021 Manitoba Basins Fall Conditions Report

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Hydrologic Forecast Centre

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EXECUTIVE SUMMARY

The Fall Conditions Report describes the hydrologic conditions of Manitoba basins at the time of freeze-up. Hydrologic conditions at the time of freeze-up and weather conditions in winter and spring are the main factors that affect the extent of the spring runoff potential. This Fall Conditions Report describes the current state of two hydrologic factors for which data is available at the time of reporting. These two known factors covered in this report are the soil moisture at the time of freeze-up and base flows in rivers and water levels on lakes prior to freeze-up. The report also contains the long term forecasted winter precipitation as a general indication of probable future weather and forecasted flows and levels throughout the winter for various rivers and lakes.

Summer and Fall Precipitations

Precipitation through Summer and Fall is the main factor that determines the amount of soil moisture at the time of freeze-up and base flows and levels in winter. Most river basins in Manitoba received below normal precipitation between May and October, with the exception of some areas in southwest MB and the Red and Souris River basins in the U.S., which received near normal precipitation during this time.

October and November Precipitation

After a dry May to September, central and southern Manitoba and the U.S. portion of the Red and Souris River basins received normal to extremely above normal precipitation in October and November. Northern Manitoba received normal to below normal precipitation between October 1 and November 30

Soil Moisture at Freeze-up

Soil moisture at the time of freeze-up is one of the major factors that affect spring runoff potential and flood risk. Due to normal to below normal precipitation between May and October, and above normal temperatures throughout the summer, soil moisture in most Manitoba basins is near normal to below normal, with the exception of some portions of the Red River basin in the U.S. that have normal to above normal soil moisture. Below normal to near normal soil moisture indicates a potential for near normal to below normal spring runoff within these river basins but

the extent of spring runoff is still strongly dependent on future weather conditions, including the amount of winter and spring precipitation, as well as snow melt conditions.

River Flows and Lake Levels

Another factor that affects the spring runoff potential is the amount of water currently in the system, as represented by base flow in rivers and the water levels on lakes prior to freeze-up. Base flow is a portion of the stream flow that is not from surface runoff; it is water from the ground, flowing into the river channel over a period of time. Water levels on lakes indicate how much capacity the lakes have to receive spring runoff. Higher base flows and water levels indicate a higher risk of above normal spring runoff, as there is more water already in the system before spring runoff occurs. Base flows on most rivers are normal to below normal for this time of the year, with the exception of northern Manitoba rivers which have normal to above normal base flows.

Lake Manitoba is below its operating range and is tracking near record low levels for this time of the year. Lake Winnipeg is within its operating range but it is tracking near the lower 20% of historic record. Lake Winnipegosis and Lake St. Martin are lower than normal for this time of the year while Dauphin Lake is near normal. The inflow into Lake of the Prairies (Shellmouth Reservoir) is tracking near normal conditions for this time of the year. The Shellmouth dam is being operated in consultation with the Shellmouth Reservoir Regulation Liaison Committee (SLC) to drawdown the reservoir to create sufficient storage for spring runoff.

Long-term Precipitation Outlook

Winter precipitation is another factor that affects spring runoff potential. Although long-term weather forecasts are not very reliable, they provide an indication of potential future snowfall amounts. Environment and Climate Change Canada's latest long-term precipitation forecast from December to February indicates precipitation will be above normal for most of Manitoba and Saskatchewan. The National Weather Service (NWS) Climate Prediction Center's outlook indicates near normal precipitation within the U.S. portion of the Red River and the Souris River basins from December to March. Global weather models predict the development of a La Nina weather condition in the winter and spring. Generally, with the La Nina weather conditions, the long term precipitation forecast favours near normal to below normal precipitation for much of Manitoba basins.

Forecasted Winter Flows and Levels

The Fall Conditions Report also contains forecasted flows and levels on major rivers and lakes for near normal winter weather conditions prior to the spring runoff. The Assiniboine River is forecasted to maintain below normal flows until the spring runoff. Flows and levels on the Assiniboine River are affected partly by the sustained release of outflows from the Shellmouth Reservoir, which is being drawn down to provide room for spring runoff. The Red River is expected to remain near normal flows and levels within the Red River valley in the period prior to the spring runoff. Flows on the Waterhen River, Fairford River, and Dauphin River will remain well below normal throughout the winter. Lake Manitoba is expected to remain near 810.2 ft and Lake Winnipegosis will remain near 829.5 ft throughout the winter. Lake St Martin is expected to reach near 797.6 ft before the spring runoff while Lake Winnipeg is forecasted to be near 712.6 ft by March 31, 2022.

The Hydrologic Forecast Centre (HFC) of Manitoba Infrastructure works in collaboration with Environment and Climate Change Canada, the National Weather Service (NWS), and flood forecasters in neighbouring jurisdictions to regularly monitor the winter precipitation patterns throughout Manitoba basins.

At this point in time, it is not practical or feasible to provide a reliable long-term flood forecast for spring 2022 as conditions could change significantly during the coming months. Areas with normal to below normal soil moisture conditions, base flow, and lake water level conditions indicate a higher chance for normal to below normal flows and levels in spring runoff. However, there will be a higher chance of receiving below normal spring runoff if less winter or spring precipitation and a gradual snowmelt occur. Conversely, the risk of spring flooding could increase if heavy winter precipitation occurs, or if a fast snowmelt rate or heavy rainfall were to occur in early spring.

Looking back at some of the most significant historic flood or drought events, each flood or drought event is caused by a combination of multiple unique circumstances. There is an inherent risk of over-estimating or under-estimating the extent of spring runoff if one considers the conditions and available precipitation four months in advance of the spring runoff. The Hydrologic Forecast Centre will continue to monitor watershed conditions closely and will release spring runoff outlooks through the winter as required.

BACKGROUND

The spring runoff potential is generally dependent on six major factors (listed in general order of significance):

1. Winter precipitation;
2. Soil moisture at freeze-up;
3. Effective spring rain (April rainfall);
4. Melt rate;
5. Depth of frost; and
6. Base-flow conditions.

All of the above factors combine to determine the magnitude of spring runoff, which could range from a major flood event to an extremely low runoff event. The combination of these factors is generally unique for each specific year and for each specific watershed across the province. Generally, the soil moisture at freeze-up, winter precipitation, and base flow conditions are well known before spring melt and give a strong indication of the runoff potential.

SUMMER AND FALL PRECIPITATION

Most Manitoba watersheds received below normal precipitation between May and October, with the exception of localized areas in southwest Manitoba, parts of the Assiniboine River basin, and the Red and Souris River basins in the U.S., which received near normal precipitation during this time. All central and northern Manitoba basins, including the Interlake region, eastern and southeastern MB, the Whiteshell Lakes region, and northern MB including the Saskatchewan River basin, received below normal precipitation between May and October (Figure 1). All Manitoba watersheds received 50 mm to over 150 mm less precipitation than they would receive in a normal year between May and October (Figure 2). Compared with historic records, precipitation received within Manitoba watersheds ranks from record low to 40%. In other words, historic May to October precipitation is greater than this years' record for over 60% of the time (Figure 3).

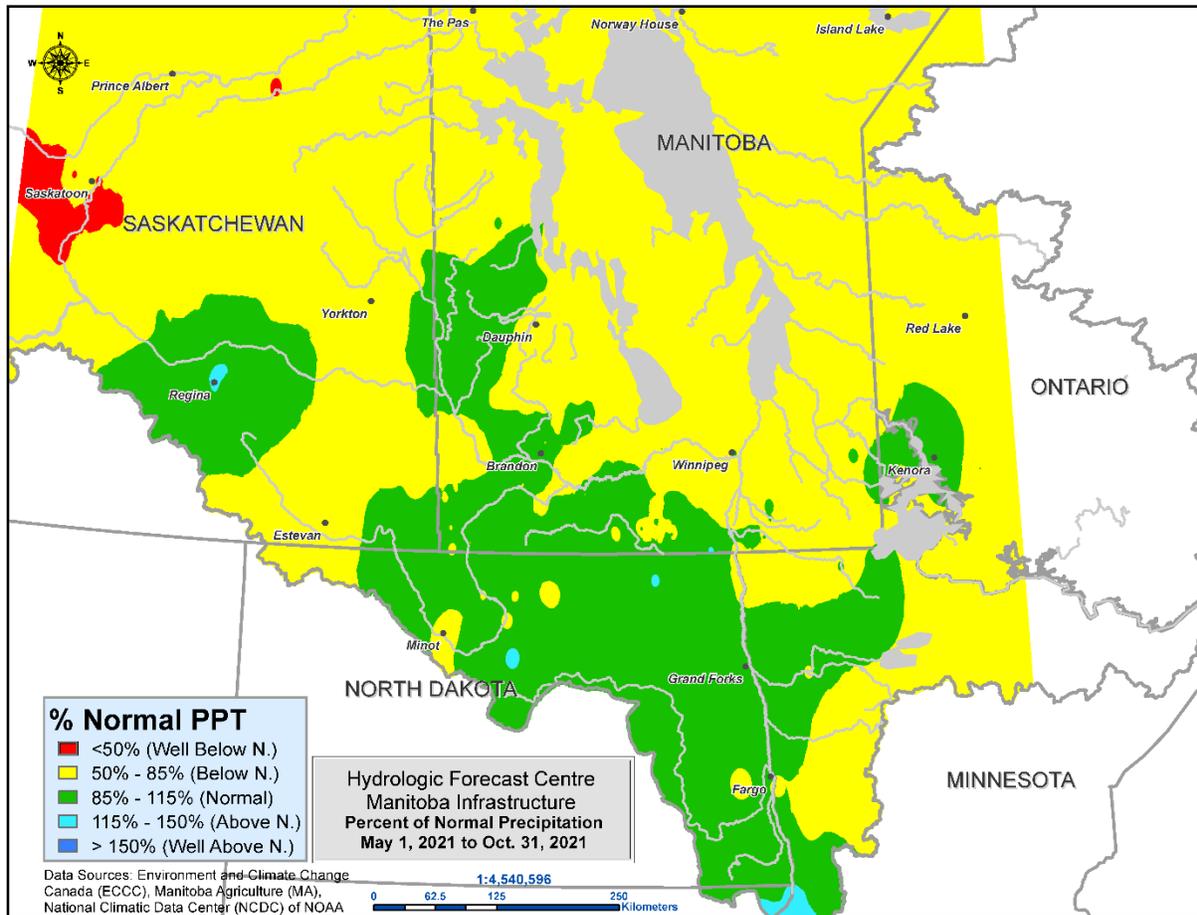


Figure 1. Percent of normal precipitation (%) from May 1 to Oct 31, 2021.

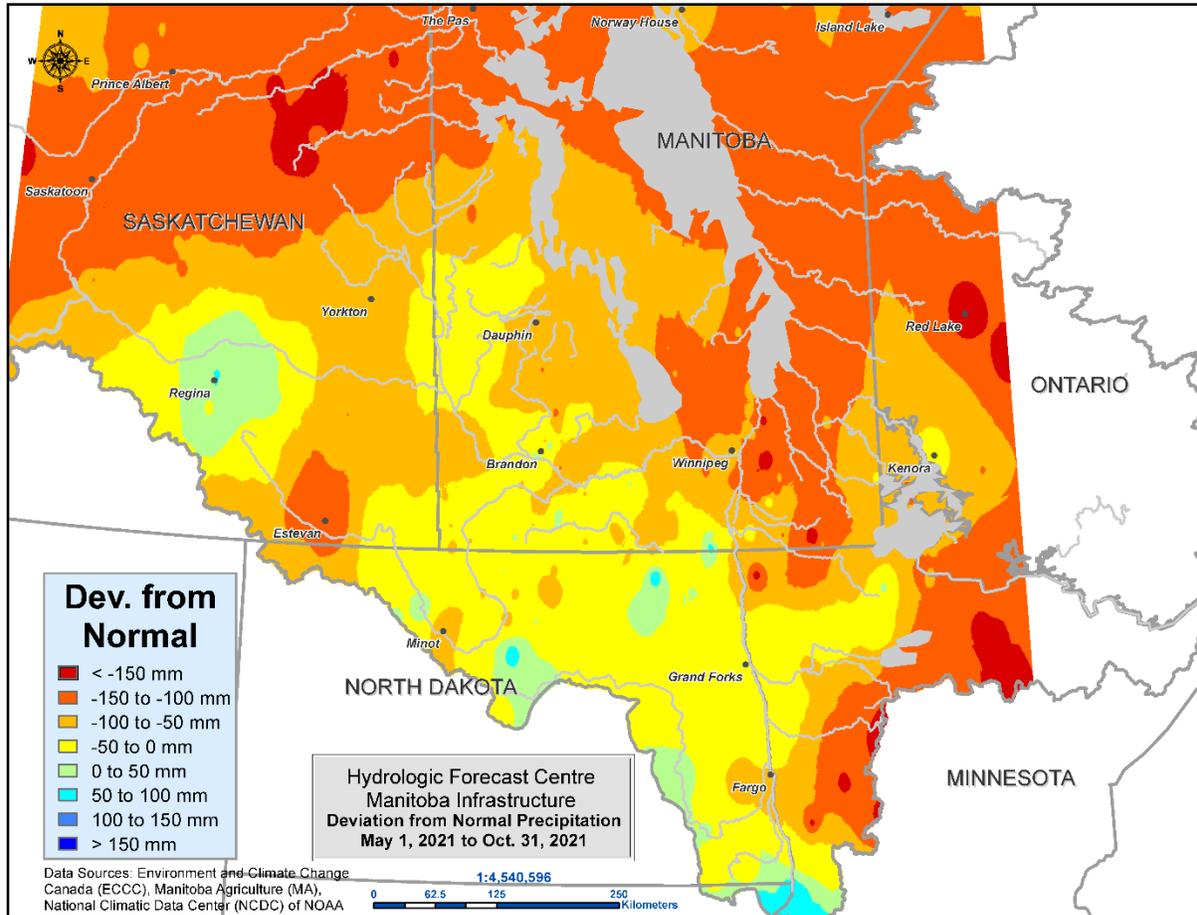


Figure 2. Deviation from normal precipitation (mm) from May 1 to Oct 31, 2021.

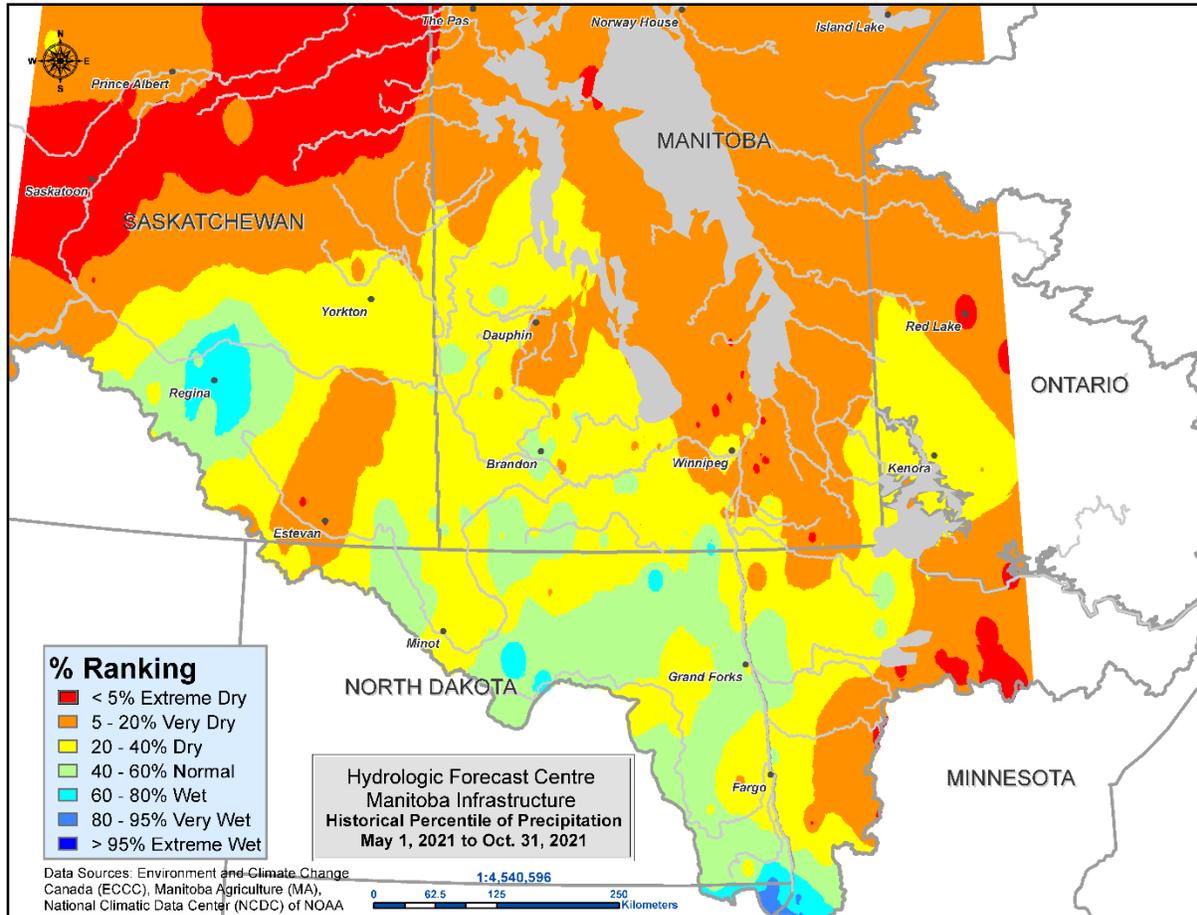


Figure 3. Percent ranking precipitation (%) for May 1 to Oct 31, 2021.

OCTOBER AND NOVEMBER PRECIPITATION

After very dry summer months, weather conditions changed in the Fall and brought significant precipitation in central and southern Manitoba watersheds. Precipitation in October and November is normal to extremely above normal (more than 200% of the normal) for the central and southern Manitoba watersheds, including the Red and Souris River basins in the U.S. (Figure 4). During this time, some areas in southeast Manitoba and the Red River basin in the U.S. received 50 mm to 100 mm more precipitation than they would receive in a normal year (Figure 5). This is 80% to record high precipitation compared to historic records (Figure 6). The Fall precipitation helped in recharging the dry soils and increasing flows in some drought affected

areas in southern and central Manitoba. The precipitation amount decreased further to the north as northern Manitoba continued to receive normal to below normal precipitation since May.

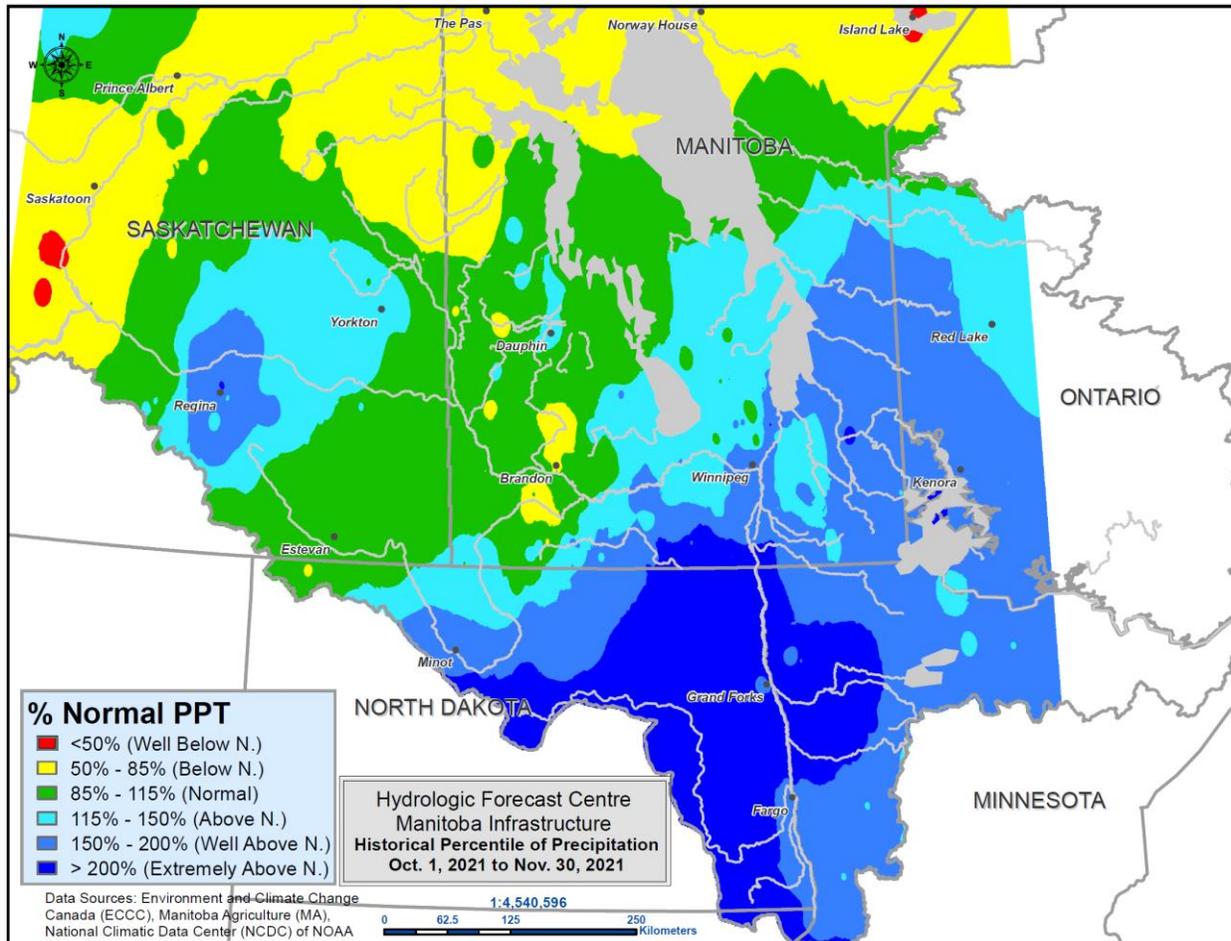


Figure 4. Percent of normal precipitation (%) from Oct 1 to Nov 30, 2021.

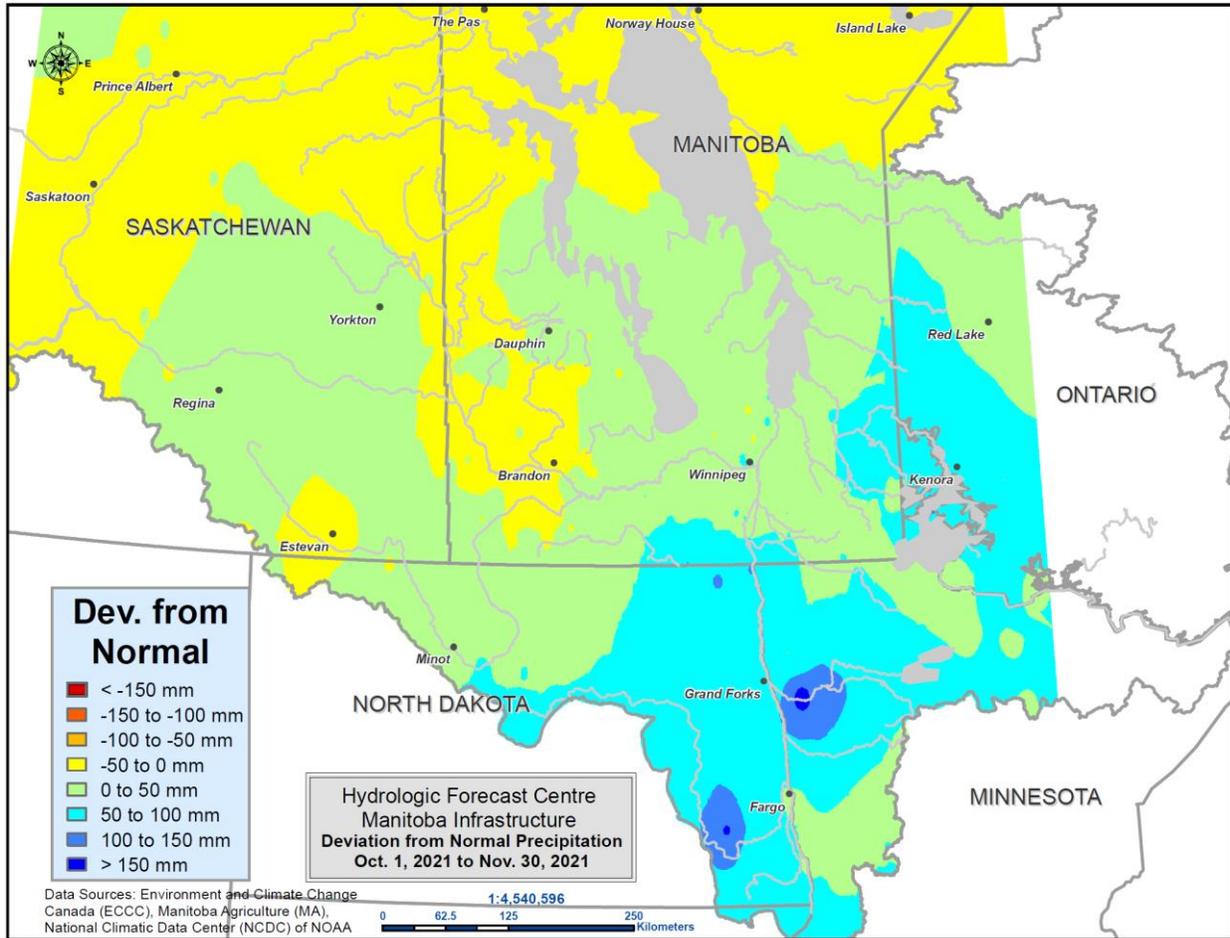


Figure 5. Deviation from normal precipitation (mm) from Oct 1 to Nov 30, 2021.

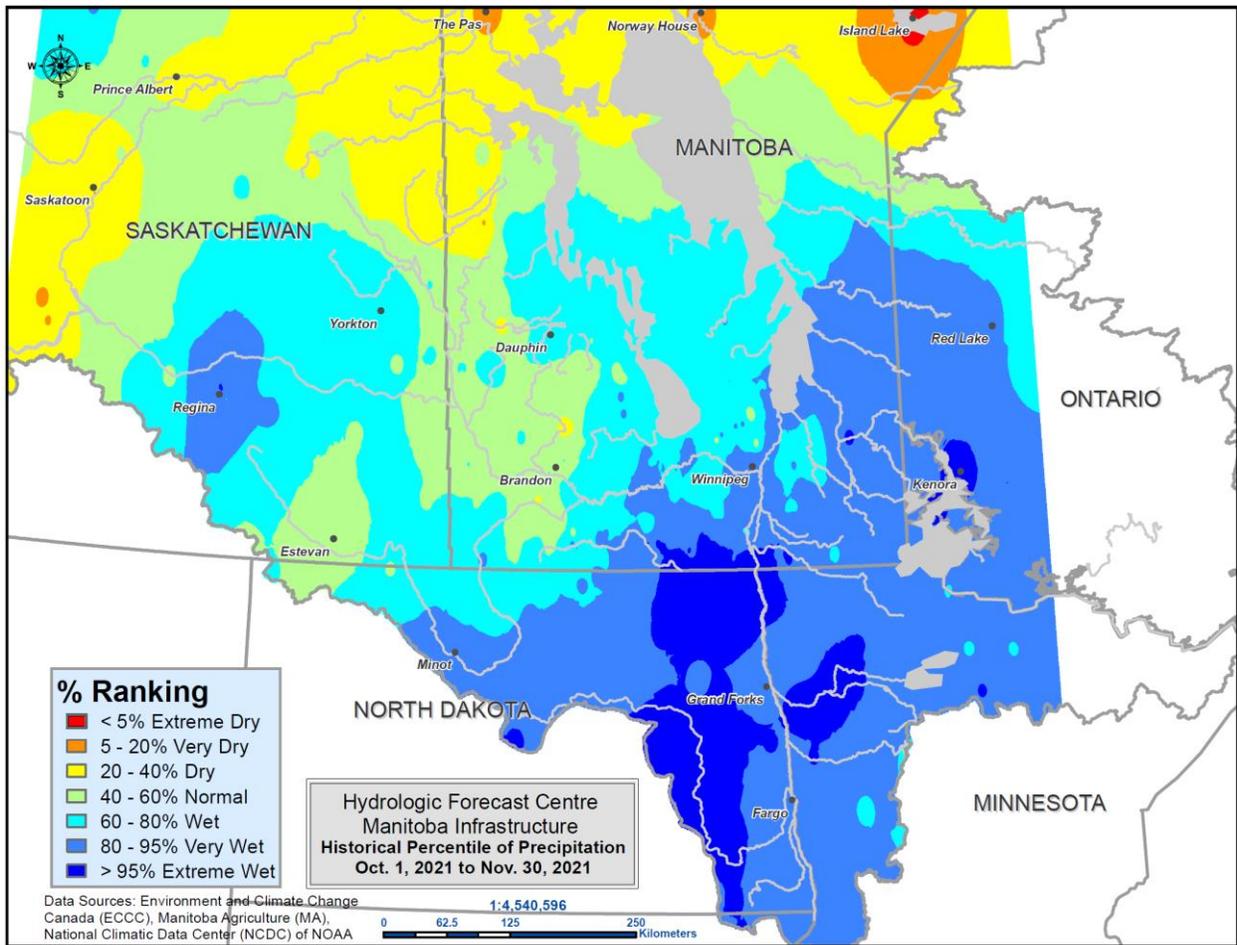


Figure 6. Percent ranking precipitation (%) for Oct 1 to Nov 30, 2021.

SOIL MOISTURE CONDITIONS

A number of different tools have been used to determine the soil moisture at freeze-up. The most common method, which has been used for years, is Manitoba's MANAPI model, which is expressed by the API (Antecedent Precipitation Index) method. The MANAPI model indicates the degree of saturation in the soil. This method uses the recorded precipitation at a large number of meteorological stations throughout the various basins to calculate the amount of summer and fall rain that remains in the top soil layer and has yet to contribute to runoff. Figure 7 shows the API map for the fall of 2021 expressed in percent of normal.

The API model results indicate that soil moisture is below normal for northern Manitoba basins and portions of central Manitoba basins. Southern Manitoba, including Interlake and Whiteshell Lakes area, has normal to below normal soil moisture. The U.S. portion of the Red River basin has normal to above normal soil moisture while the U.S. portion of the Souris River basin has near normal soil moisture conditions (Figure 7). The soil moisture is below normal in the Assiniboine River and Qu'Appelle River basins in Saskatchewan.

Manitoba Agriculture also collects soil moisture measurements in the top 30 cm of the soil through its automatic weather monitoring stations located at various places across the province. These results, which indicate the moisture condition of the soil, are shown in Figure 8. Soil moisture measurements collected in the top 30 cm through monitoring sensors indicate the soil moisture is optimal to dry throughout most of southern and central Manitoba. There are not many weather stations in Northern MB to measure the soil moisture.

The National Weather Service (NWS) Climate Prediction Center, through its soil moisture monitoring and modelling works, indicates below normal soil moisture for the U.S. portion of the Souris River basin and near normal to above normal soil moisture for the U.S. portion of the Red River basin (Figure 9).

In summary, soil moisture in most Manitoba basins is near normal to below normal, with the exception of some portions of the Red River basin in the U.S. that has normal to above normal soil moisture.

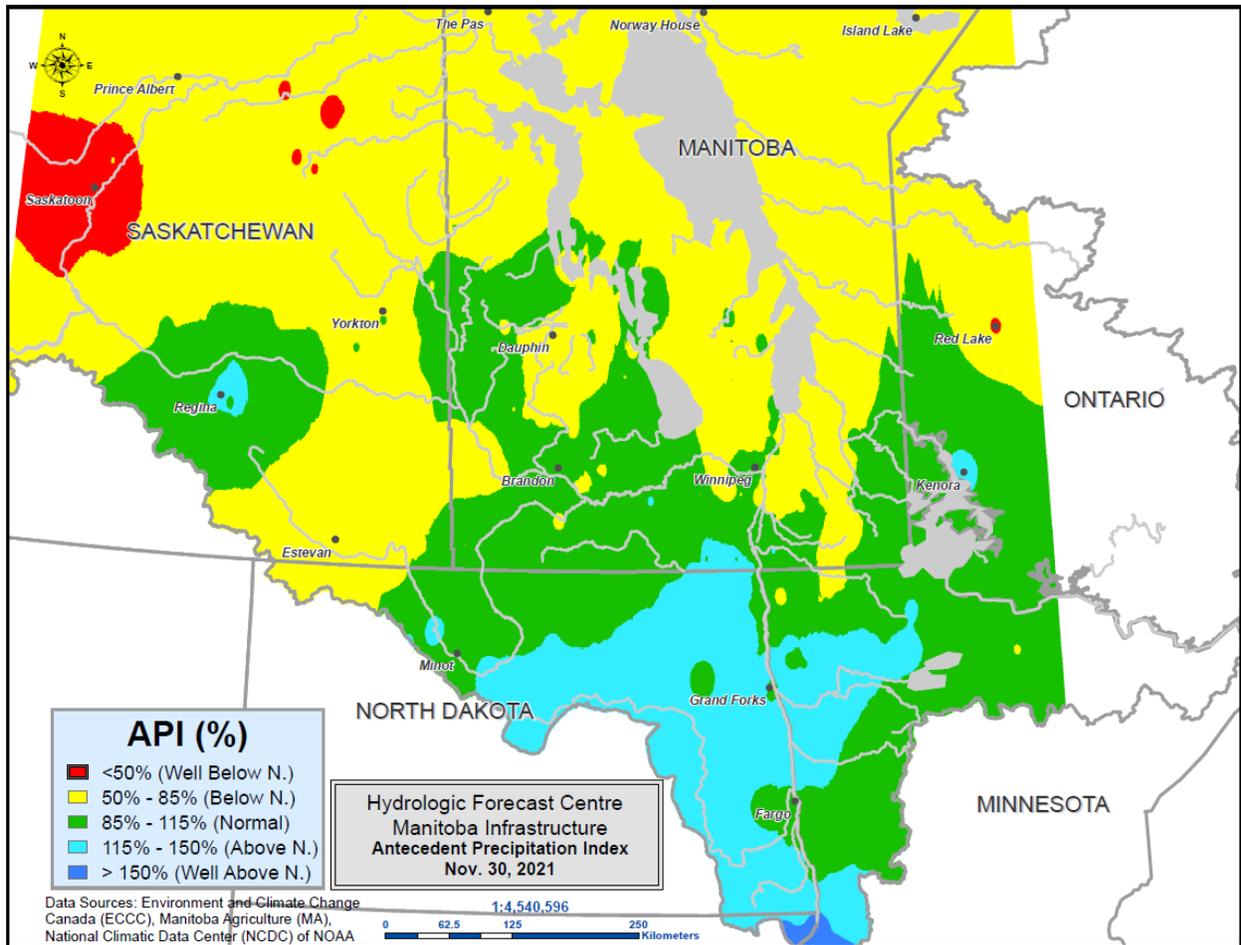


Figure 7. Antecedent Precipitation Index (API) (%) for 2021.

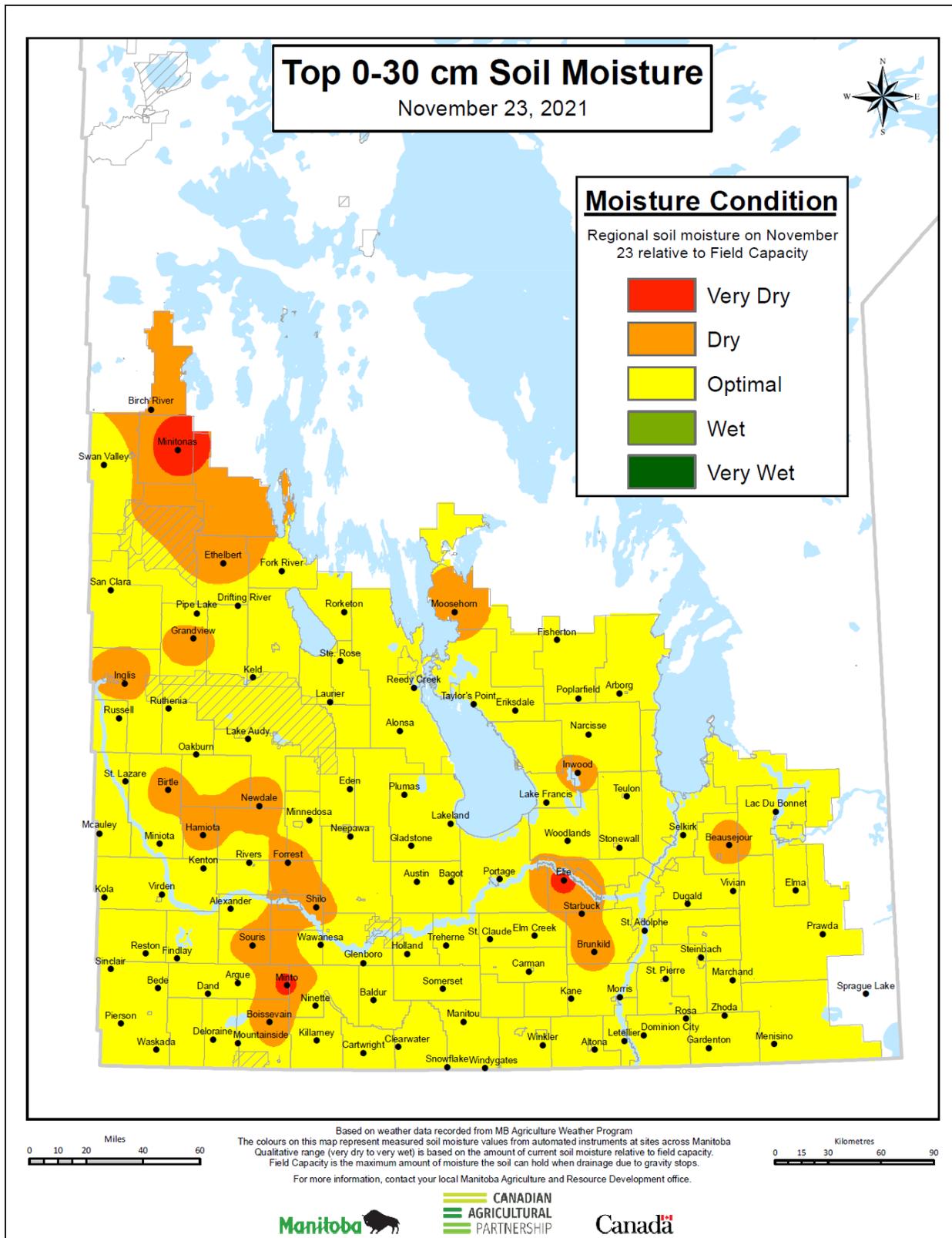


Figure 8. Soil moisture in top zone (0 to 30 cm) based on field measurements.

Calculated Soil Moisture Ranking Percentile DEC 01, 2021

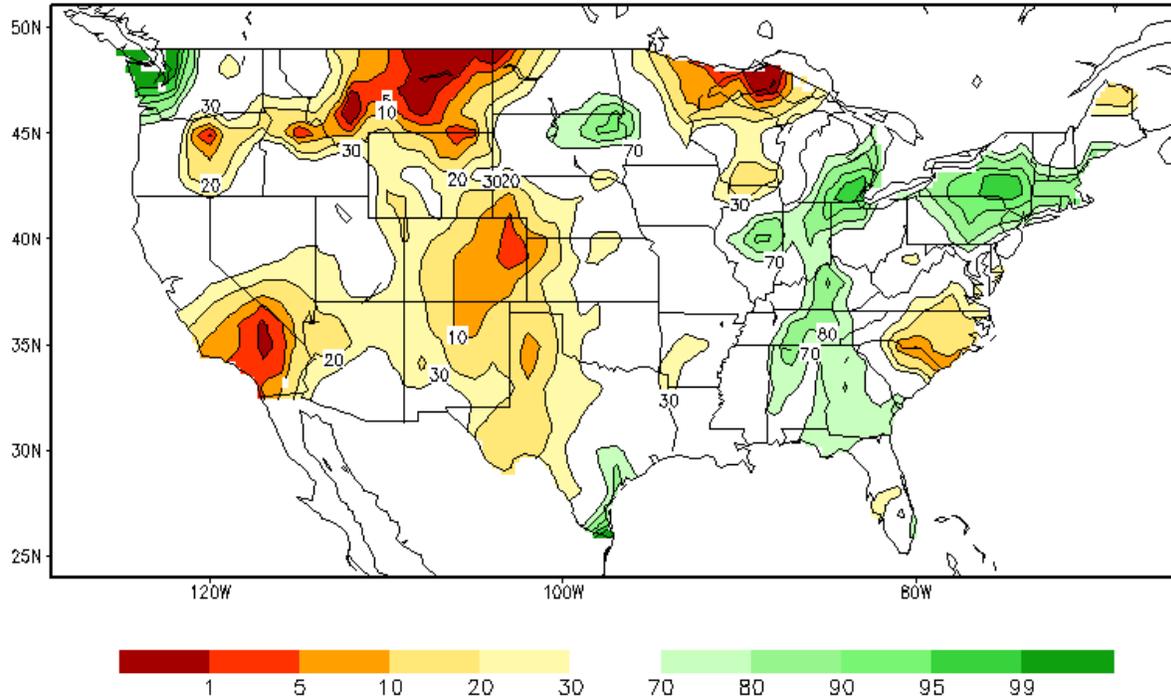


Figure 9. Calculated soil moisture ranking percentile as of December 1, 2021, from the NWS.

BASE FLOWS AND LEVELS CONDITIONS

Rivers

Base flow is a portion of the stream flow that is not from surface runoff; it is water from the ground, flowing into the river channel over a period of time. Base flows and levels are normal to below normal in most central and southern Manitoba rivers. Base flows and levels are normal to above normal in northern Manitoba rivers. Figure 10 shows current base flows in comparison with historic records. Hydrographs for the major rivers are shown in Figures 11 to 22. These figures show the measured or estimated flows on the rivers as of December 2, 2021. In most cases, near

normal base flows indicate near normal ground saturations or near normal soil moisture content. Below normal base flows indicate below normal soil saturation while above normal base flows indicate above normal ground saturation levels. Above normal base flows and levels indicate higher risk of spring flooding in these basins. Current flows for main rivers at selected locations are listed in Table 1. (Note: Some flow readings might be affected by ice).

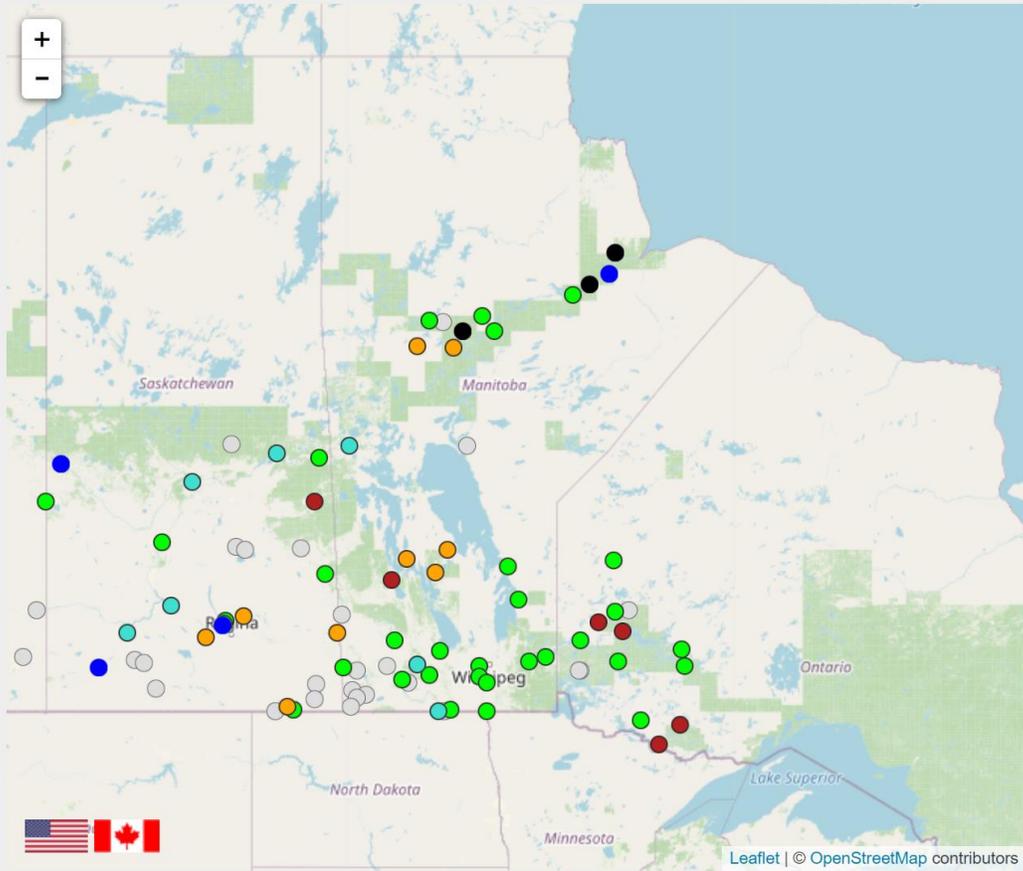
North America WaterWatch

Map of real-time streamflow compared to historical streamflow for the day of year

(Choose a region and then click "GO" to view a regional map)
 (Warning: It may take several minutes to process)

United States: Water Res. Region: Neighbor:

Canada: 05 Nelson River Drainage: Go



Explanation - Percentile classes						
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High

Figure 10. Base flows and level conditions as of December 2, 2021 (readings at some gauges might be affected by ice).

Hydrologic Forecast Centre - Manitoba Infrastructure
Red River at James Avenue (Datum 727.57 ft)
 Dec 02, 2021 : -0.61 feet

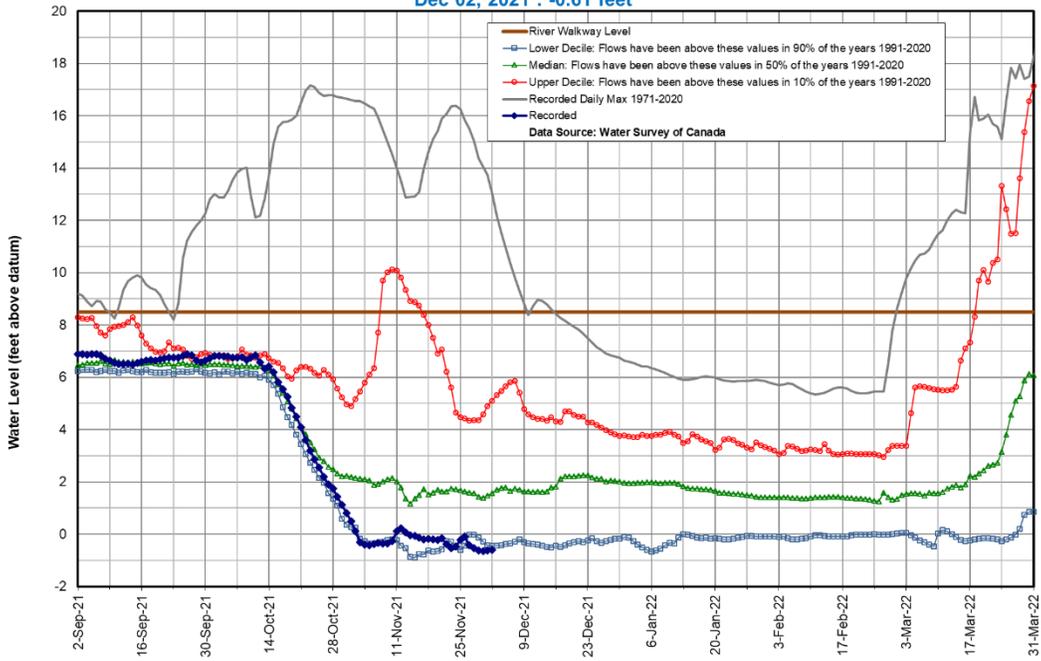


Figure 11. Red River water levels at James Avenue.

Hydrologic Forecast Centre - Manitoba Infrastructure
Red River at Emerson
 Dec 02, 2021 : 1,852 cfs

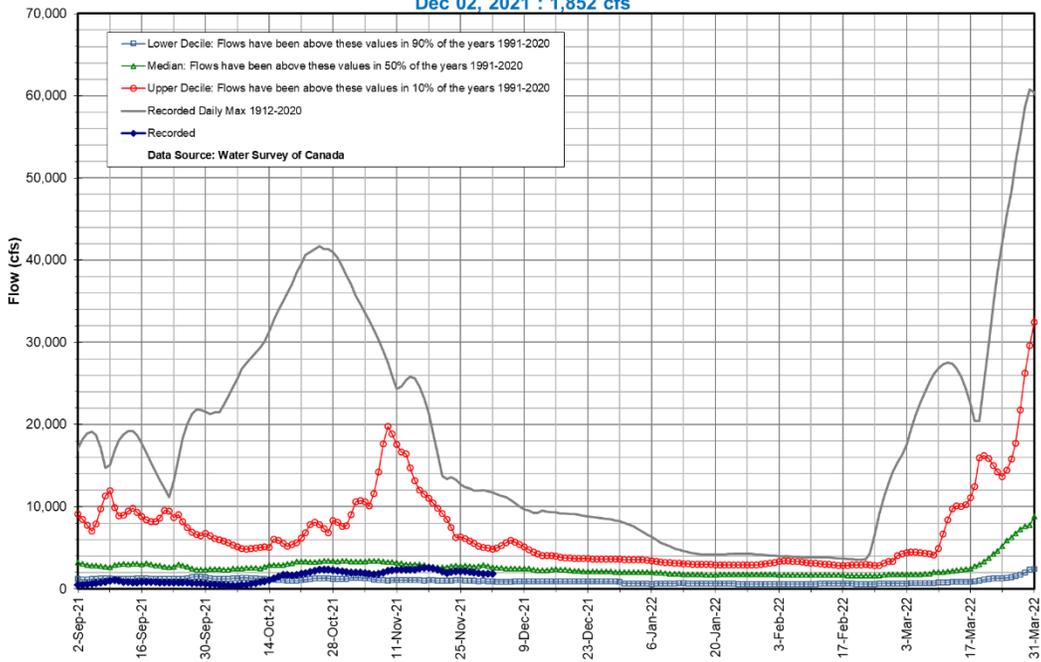


Figure 12. Red River flows near Emerson.

Hydrologic Forecast Centre - Manitoba Infrastructure

Red River near Ste. Agathe

Dec 02, 2021 : 2,000 cfs

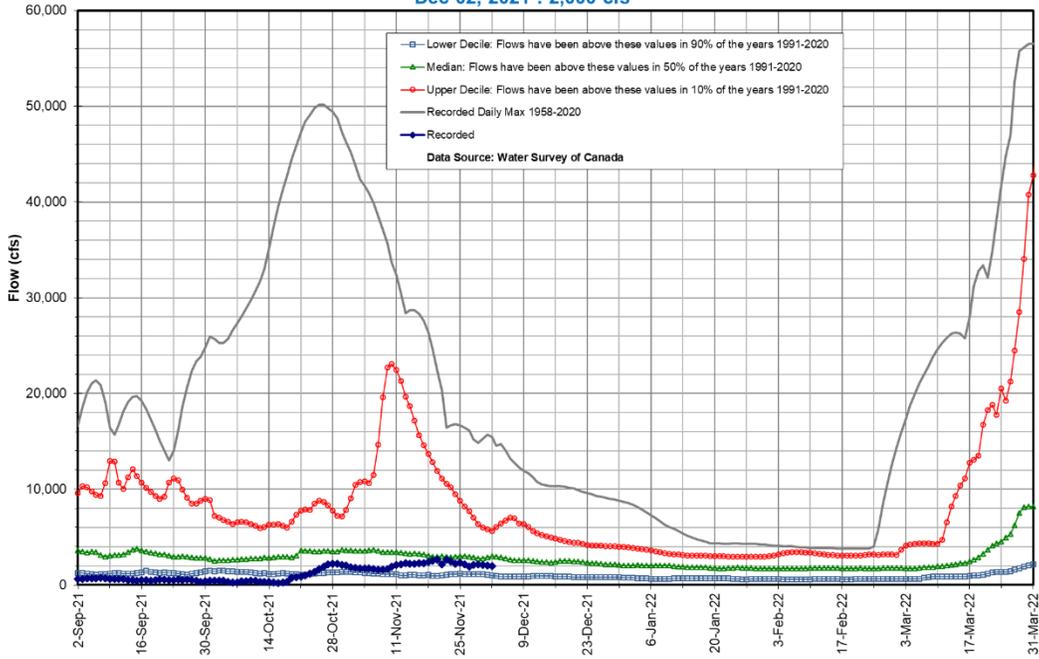


Figure 13. Red River flows near Ste. Agathe.

Hydrologic Forecast Centre - Manitoba Infrastructure

Souris River at Wawanesa

Dec 02, 2021 : 12 cfs

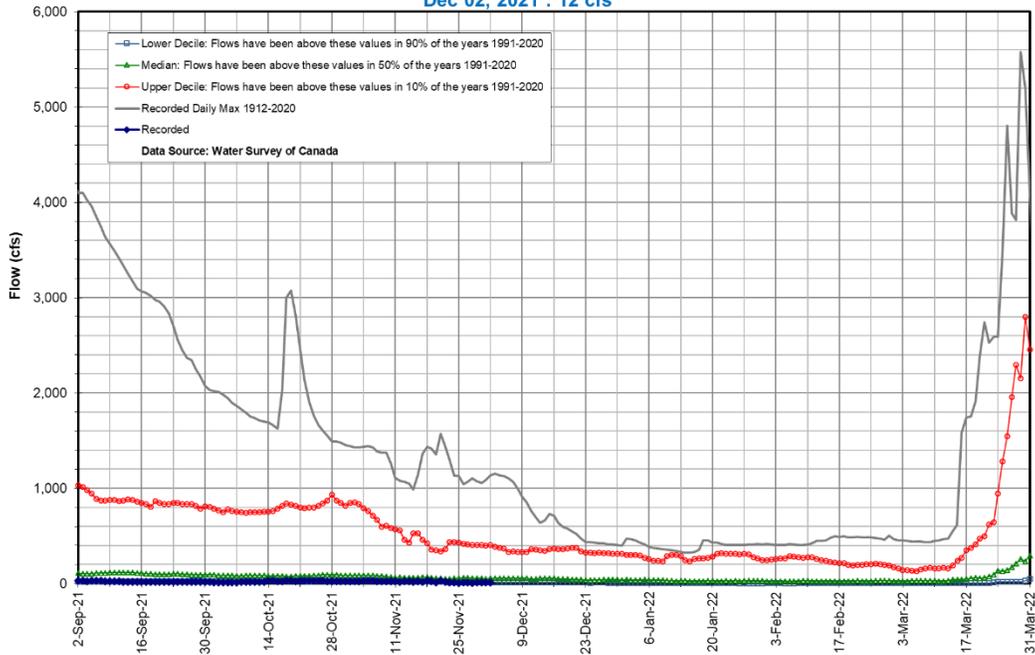


Figure 14. Souris River flows at Wawanesa.

Hydrologic Forecast Centre - Manitoba Infrastructure
Assiniboine River near Russell
 Dec 02, 2021 : 127 cfs

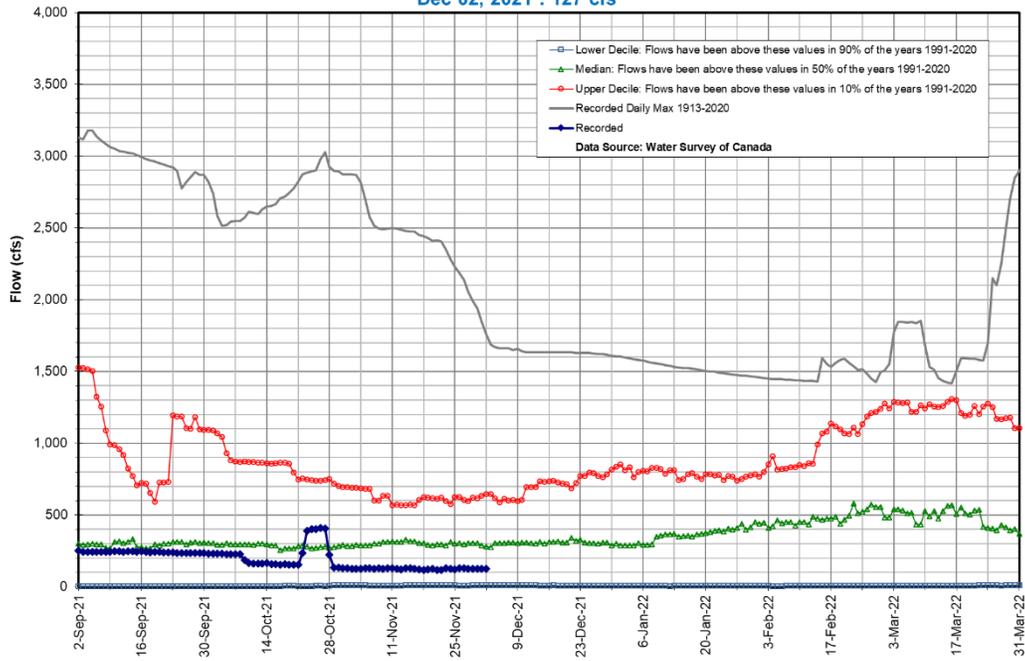


Figure 15. Assiniboine River flows near Russell.

Hydrologic Forecast Centre - Manitoba Infrastructure
Qu'Appelle River near Welby
 Dec 02, 2021 : 99 cfs

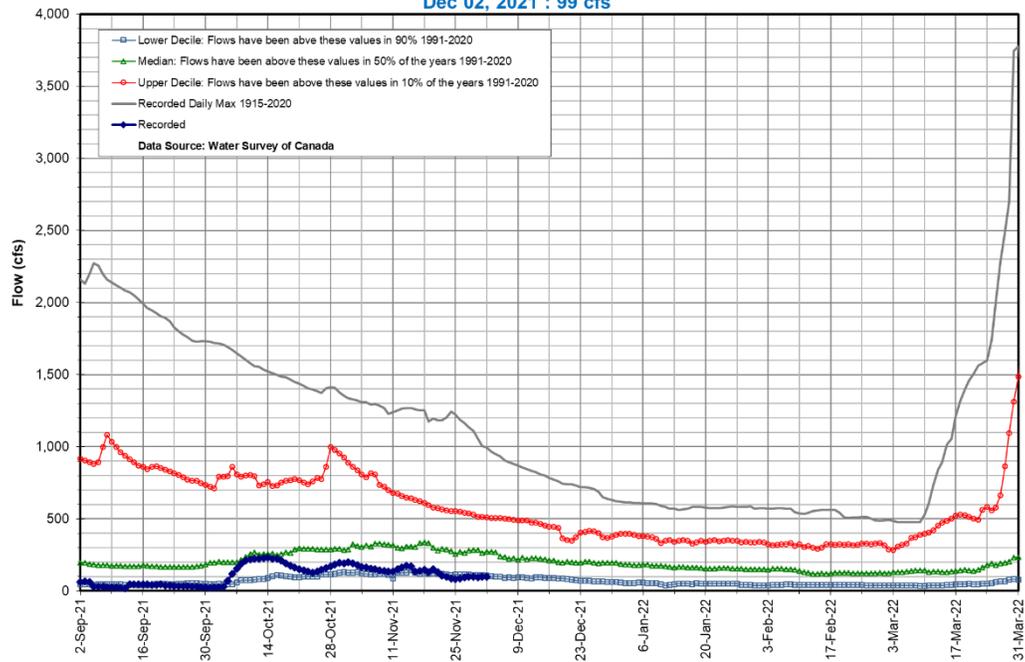


Figure 16. Qu'Appelle River flows near Welby.

Hydrologic Forecast Centre - Manitoba Infrastructure
Assiniboine River at Brandon
 Dec 02, 2021 : 207 cfs

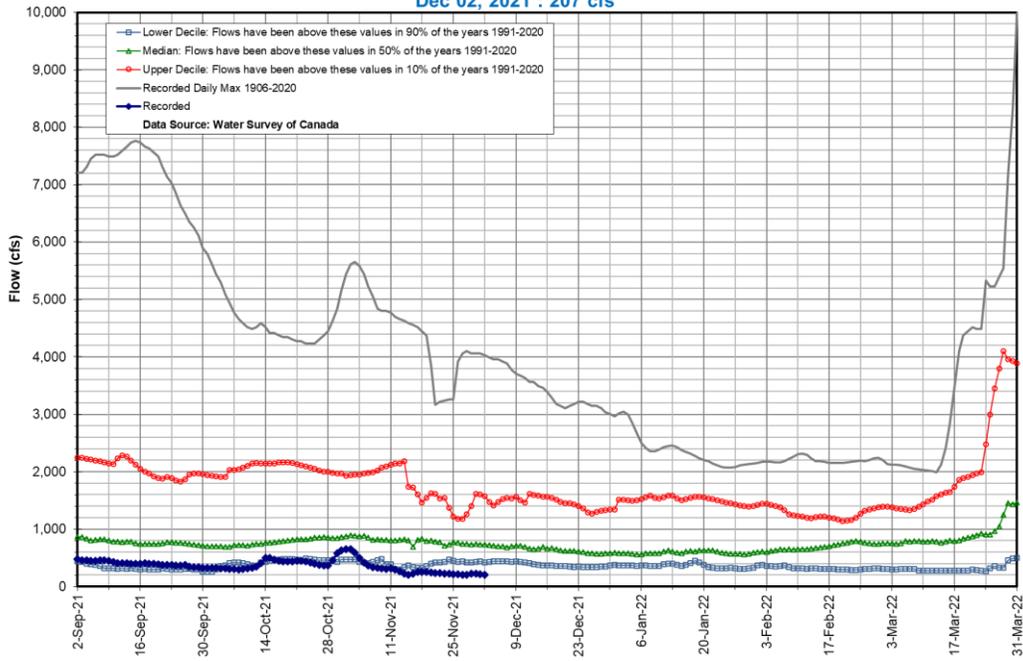


Figure 17. Assiniboine River flows at Brandon.

Hydrologic Forecast Centre - Manitoba Infrastructure
Assiniboine River at Headingley
 Dec 02, 2021 : 400 cfs

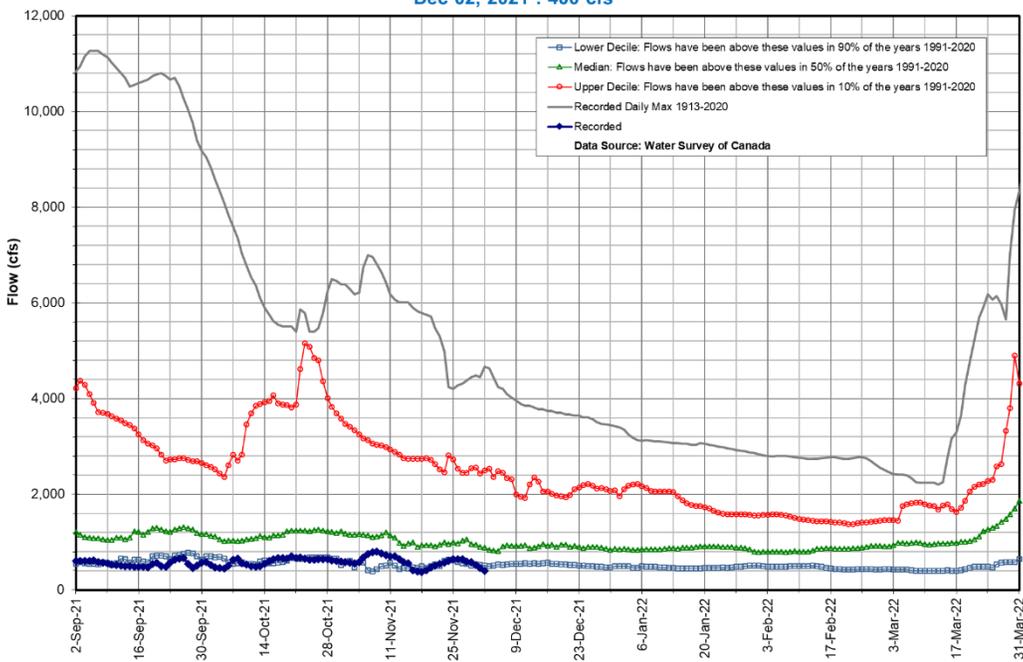


Figure 18. Assiniboine River flows at Headingley.

Waterhen River near Waterhen

Dec 02, 2021 : 1,216 cfs

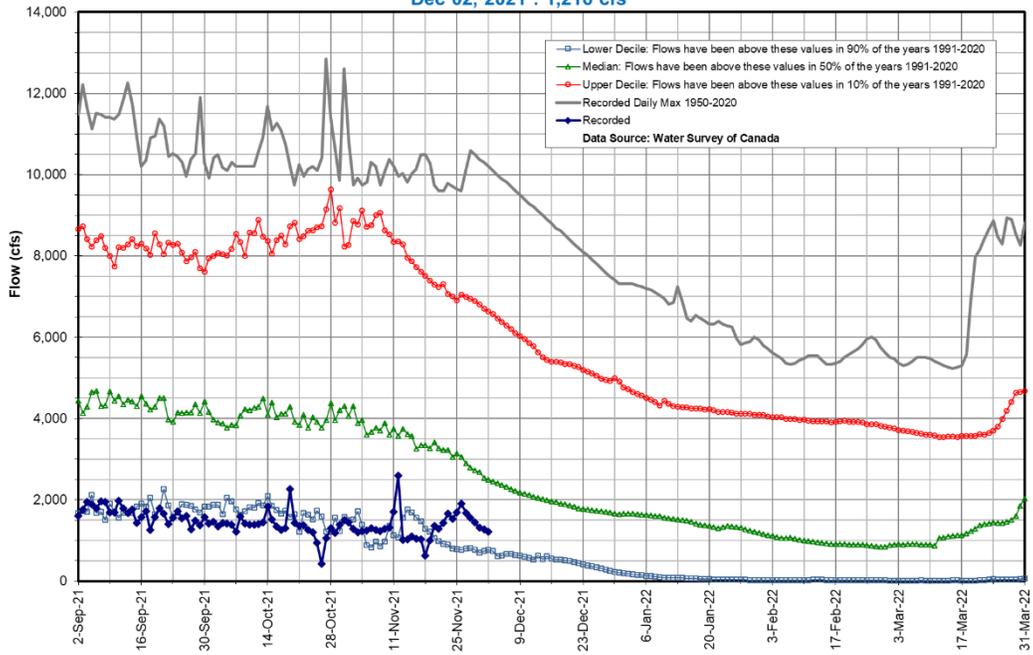


Figure 19. Waterhen River flows near Waterhen.

Fairford River near Fairford

Dec 02, 2021 : 495 cfs

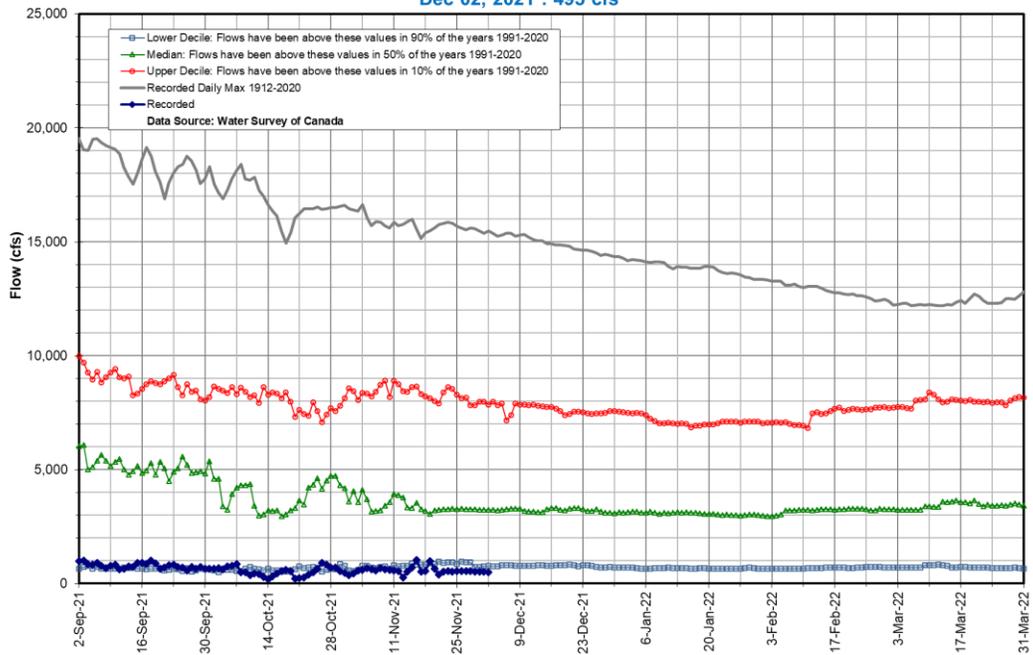


Figure 20. Fairford River flows near Fairford.

Hydrologic Forecast Centre - Manitoba Infrastructure
Dauphin River near Dauphin River

Dec 02, 2021 : 749 cfs

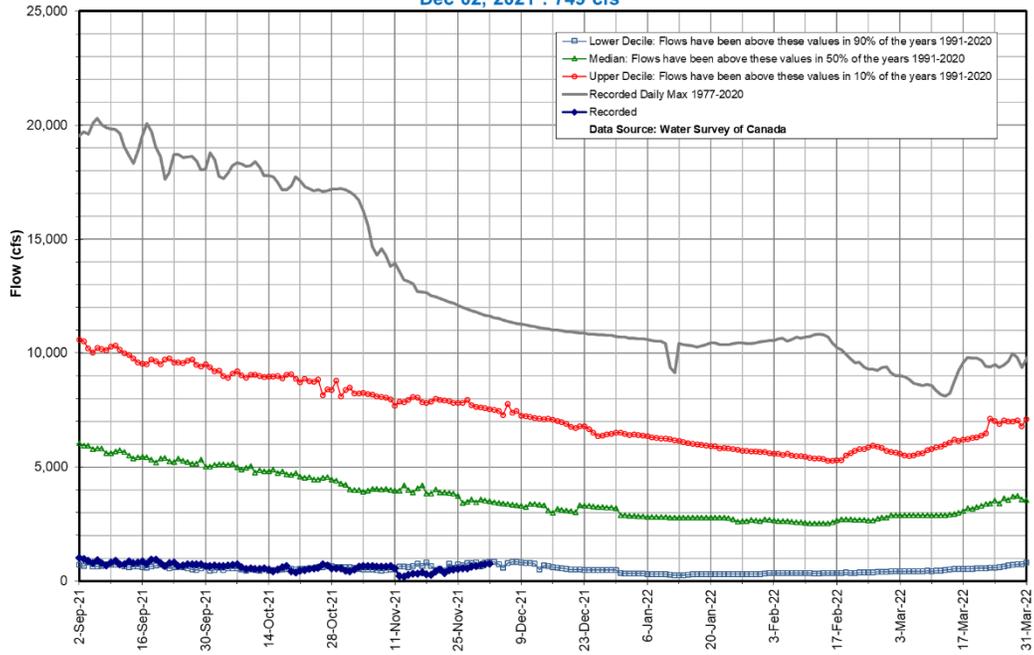


Figure 21. Dauphin River flows near Dauphin River.

Hydrologic Forecast Centre - Manitoba Infrastructure
Saskatchewan River at the Pas

Dec 02, 2021 : 13,413 cfs

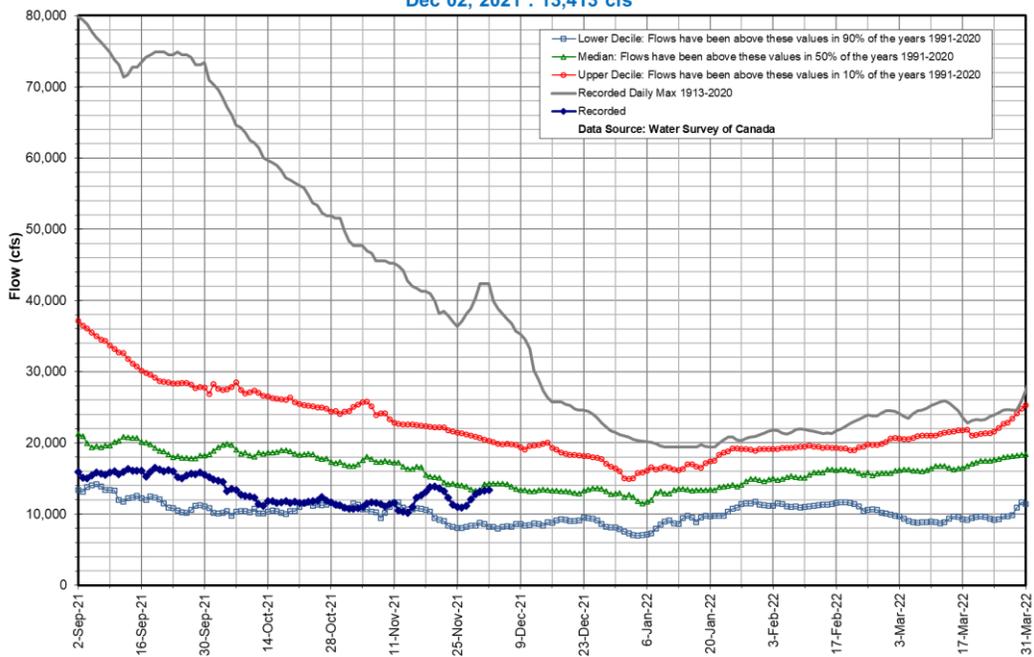


Figure 22. Saskatchewan River flows at The Pas.

Table 1. Flows for main rivers at selected locations as of December 2, 2021.

*Note – The Assiniboine River flows and levels are regulated by the operation of Shellmouth Dam.

** Note – The Red River Level at James Avenue is measured in relative to the long term mean winter ice level at James avenue, which is 727.57 feet geodetic or 0 ft James.

Rivers	Location	Most Recent Flow/Level (Dec 2)	Minimum Flows/Levels	10 th Percentile	Normal flows/Levels	90 th Percentile	Maximum Flow/Level	Period of Record
Red River	Emerson	1,852 cfs	32 cfs (1936)	261 cfs	1,632 cfs	3,584 cfs	11,725 cfs (2019)	108 years
	Ste. Agathe	2,000 cfs	215 cfs (1976)	565 cfs	2,508 cfs	4,817 cfs	15,433 cfs (2019)	60 years
	James Avenue Level **	-0.6 ft	-2.1 ft (1988)	-1.3 ft	1.3 ft	4.2 ft	13.0 ft (2019)	49 years
Assiniboine River*	Russell	127 cfs	20 cfs (1968)	62 cfs	269 cfs	528 cfs	1,759 cfs (2010)	108 years
	Brandon	207 cfs	42 cfs (1937)	104 cfs	536 cfs	995 cfs	4,026 cfs (2010)	108 years
	Holland	450 cfs	210 cfs (1967)	468 cfs	1,052 cfs	1,284 cfs	4,379 cfs (2016)	60 years
	Headingley	400 cfs	120 cfs (1940)	201 cfs	721 cfs	1,277 cfs	4,662 cfs (2016)	108 years
Shellmouth Dam Release	Shellmouth	100 cfs	97 cfs (2001)	153 cfs	407 cfs	626 cfs	1,599 cfs (2010)	52 years
Souris River	Wawanesa	12 cfs	0 cfs (1938)	3 cfs	98 cfs	254 cfs	1,134 cfs (2014)	108 years
Qu'Appelle River	Welby	99 cfs	6 cfs (1988)	44 cfs	246 cfs	446 cfs	992 cfs (2010)	78 years
Fairford River	Fairford	495 cfs	38 cfs (1964)	207 cfs	3,005 cfs	6,816 cfs	15,468 cfs (2011)	66 years
Waterhen River	Waterhen	1,216 cfs	49 cfs (1963)	548 cfs	2,647 cfs	5,043 cfs	10,206 cfs (1954)	70 years
Dauphin River	Dauphin	749 cfs	93 cfs (2003)	409 cfs	3,040 cfs	7,028 cfs	11,619 cfs (2011)	44 years
Saskatchewan River	The Pas	13,413 cfs	2,490 cfs (1929)	4,707 cfs	10,360 cfs	16,316 cfs	42,378 cfs (1954)	108 years

Lakes

Lake Manitoba is at 810.3 ft, which is below its operating range of 810.5 ft – 812.5 ft and near record low levels for this time of the year (Table 2). Lake Winnipeg is within its operating range at 712.0 ft (operating range is 711 ft – 715 ft) but levels have been above the current levels for 83% of the time. Lake Winnipegosis and Lake St. Martin are well below normal for this time of the year (both lakes tracking the lower decile levels, and Lake St. Martin is below its desired operating range of 797.0 ft – 800 ft) while Dauphin Lake is near normal. Currently, Lake St. Martin is at 796.5 ft, and Lake Winnipegosis is at 829.2 ft. Water level hydrographs for these lakes are shown in Figures 23 to 27. Whiteshell Lakes are near normal for this time of the year. Inflow into Lake of the Prairies (Shellmouth Reservoir) is near the normal inflow condition for this time of the year.

Shellmouth Dam is being operated in consultation with the Shellmouth Reservoir Regulation Liaison Committee (SLC). The lake level on December 2 was 1,398.9 ft. The operating guidelines recommend that the lake level be drawn down between 1386 ft and 1400 ft depending on the spring runoff forecast. Regular spring runoff forecasts will be issued and the lake level will be dropped to the appropriate level prior to the spring runoff. Figure 28 shows the observed and forecasted lake levels, reservoir inflow, and reservoir outflow until January 12, 2022. The outflow and level forecasts were made for the median future inflow conditions. As conditions on the ground change, a revised inflow forecast will be issued and the outflow from the reservoir will be adjusted accordingly.

Hydrologic Forecast Centre - Manitoba Infrastructure
Lake Winnipeg Observed Water Levels
 2-Dec-21

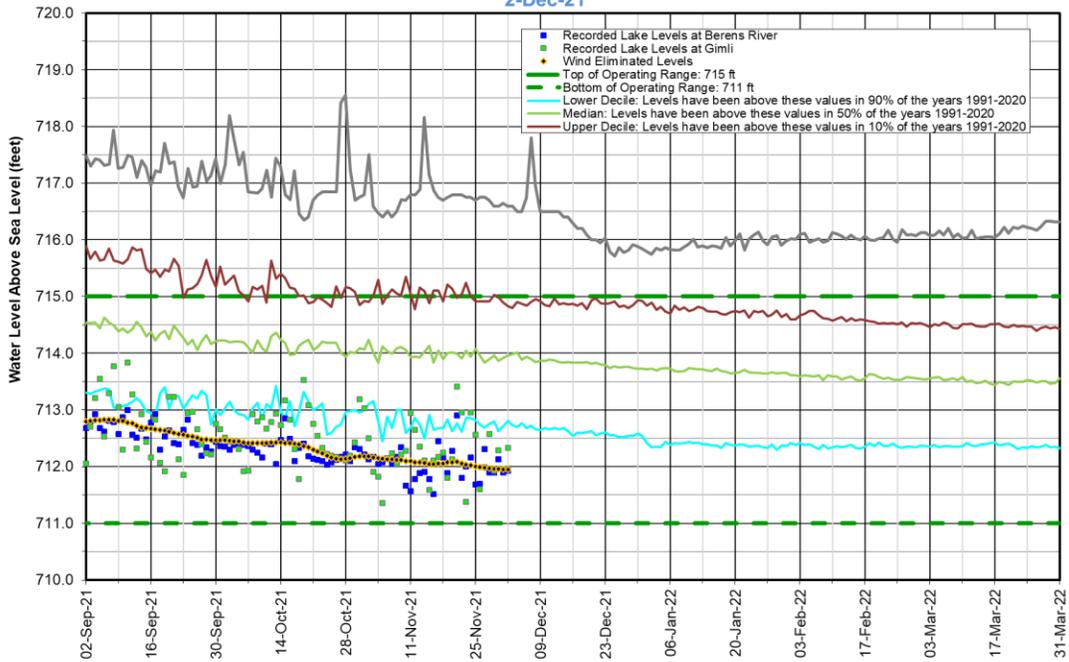


Figure 23. Lake Winnipeg water levels.

Hydrologic Forecast Centre - Manitoba Infrastructure
Dauphin Lake Observed Water Level
 2-Dec-21

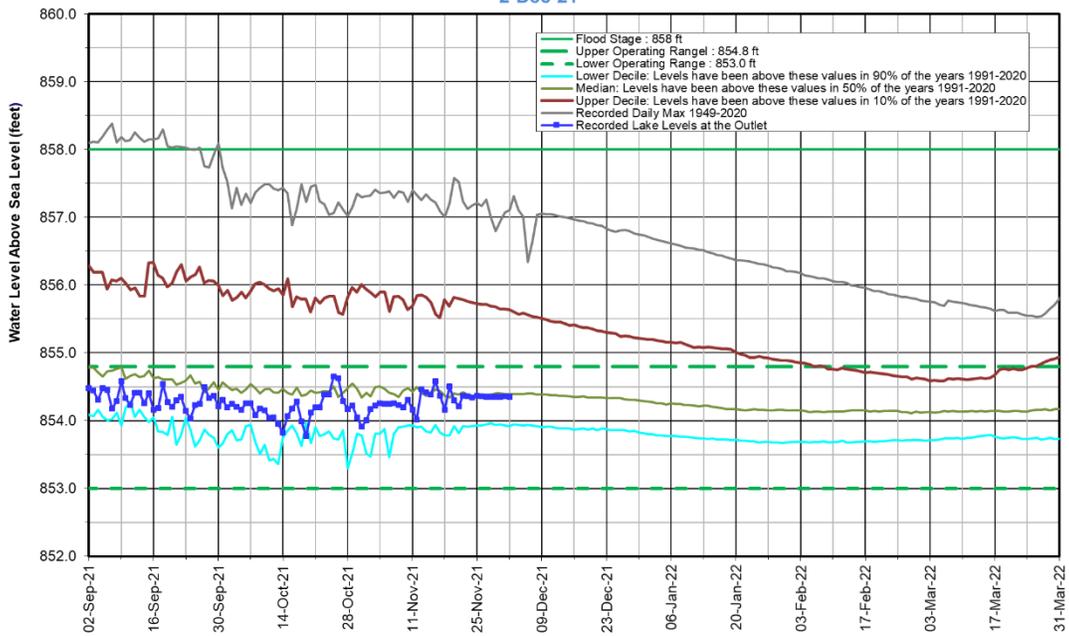


Figure 24. Dauphin Lake water levels.

Hydrologic Forecast Centre - Manitoba Infrastructure
Lake Manitoba Observed Water Levels
 2-Dec-21

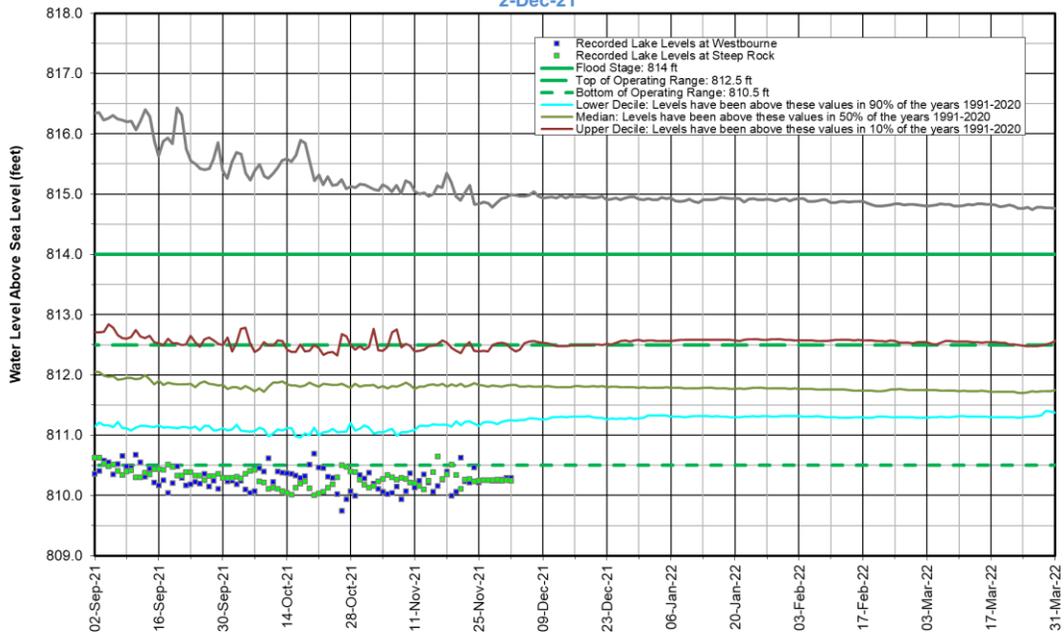


Figure 25. Lake Manitoba water levels.

Hydrologic Forecast Centre - Manitoba Infrastructure
Lake Winnipegosis Observed Water Levels
 2-Dec-21

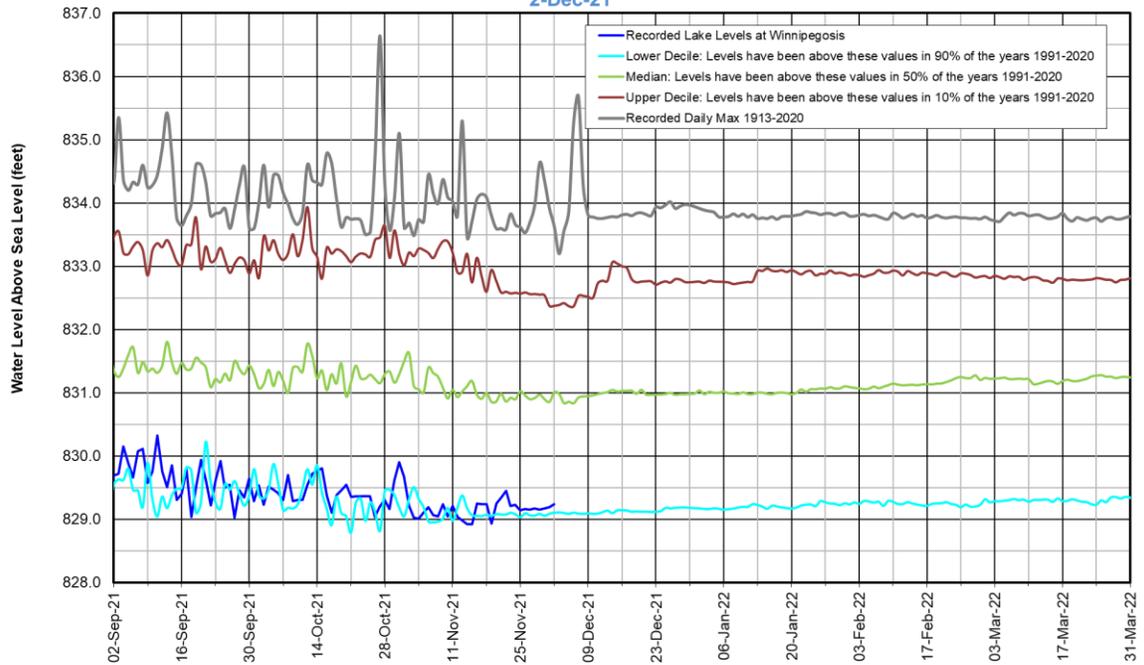


Figure 26. Lake Winnipegosis water levels.

Hydrologic Forecast Centre - Manitoba Infrastructure
Lake St. Martin Observed Water Levels
 2-Dec-21

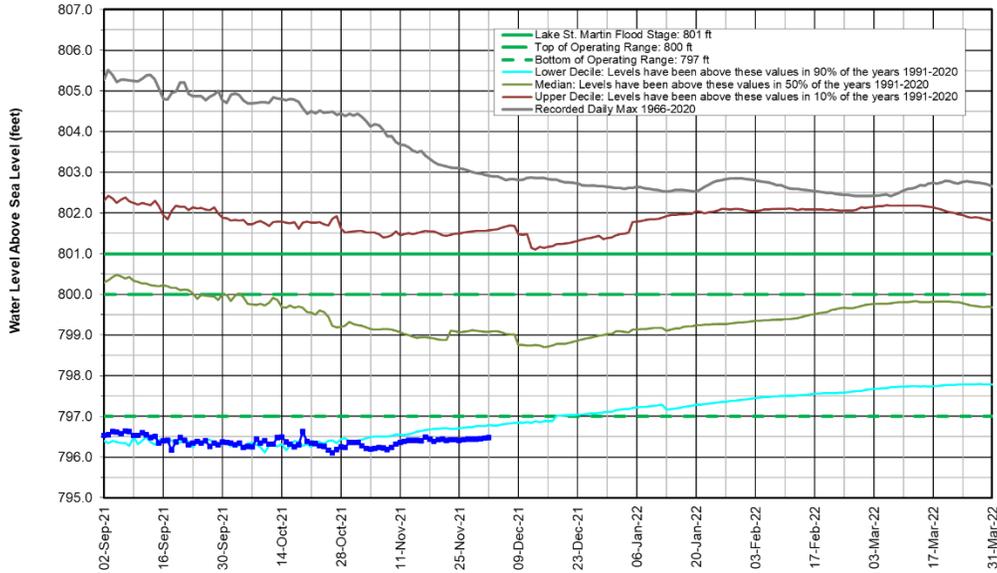


Figure 27. Lake St. Martin water levels.

Hydrologic Forecast Centre, Manitoba Infrastructure
Shellmouth Reservoir - November 30, 2021
 Operation plans for median conditions (100 cfs release)

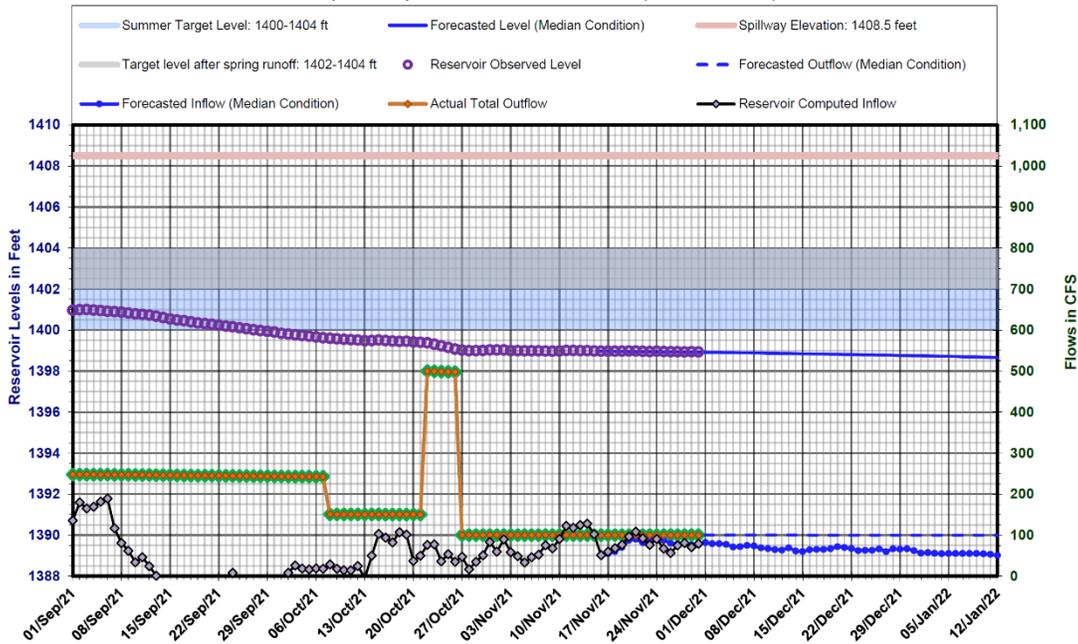


Figure 28. Lake of the Prairies (Shellmouth Reservoir) water levels and flows.

WINTER PRECIPITATION (LONG TERM PRECIPITATION OUTLOOK)

Global weather prediction centres indicated a La Nina climate condition has developed globally. The effect of La Nina is variable across the globe but generally it is characterized by above normal precipitations in some areas and below normal precipitation in other areas until spring 2022. For Manitoba basins, however, La Nina conditions throughout the winter favour equal chances of above normal, below normal, and near normal precipitation and temperature from December to April. Some climate models tend to indicate very drier conditions in southern and central Manitoba and normal to wetter than normal conditions in northern Manitoba.

Environment and Climate Change Canada (ECCC) issued a long term precipitation outlook at the end of November for the winter period (Figures 29 and 30). Based on the outlook, precipitation is expected to be above normal from December to February for most of Manitoba and Saskatchewan. The U.S. National Weather Service (NWS) Climate Prediction Center's outlook issued on November 18, 2021 indicates near normal precipitation within the U.S. portion of the Red and Souris River basins between December and March (Figures 31 and 32).

Long range climate projections issued by Columbia Climate School International Research Institute (IRI) indicate very drier conditions in southern and central Manitoba and normal to wetter than normal conditions in northern Manitoba. Temperature prediction for December to March favour near normal conditions (Figure 33 and 34).

Experience indicates that long term precipitation outlooks are more accurate for the first month of the forecast time frame and forecast modelling results start to deviate significantly further into the future. Generally, long term weather forecasts are not as reliable as short term forecasts.

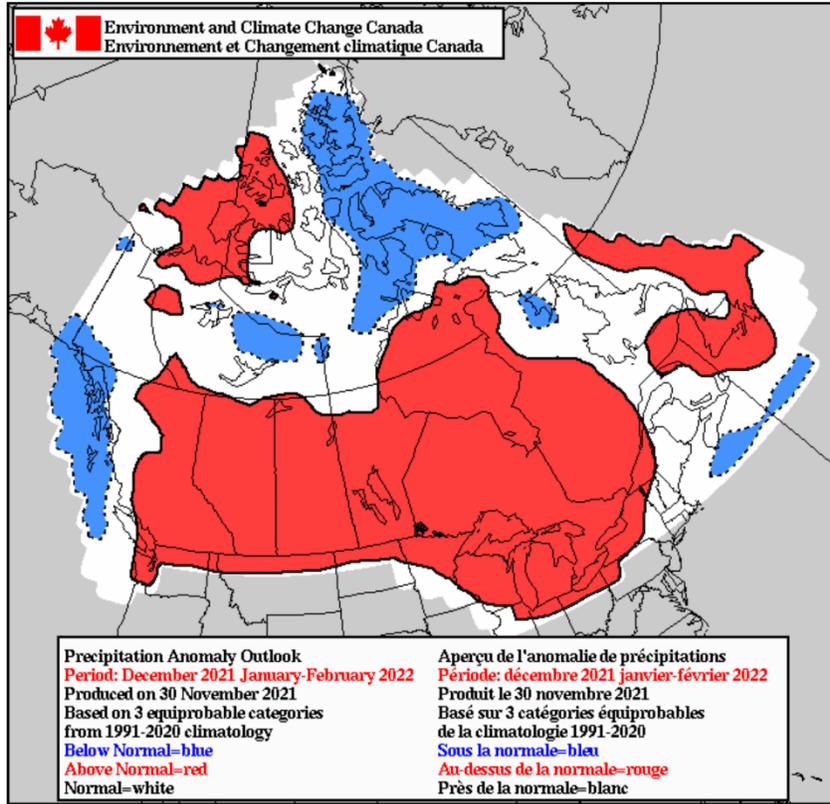


Figure 29. Environment and Climate Change Canada's Deterministic Precipitation Outlook (December - February).

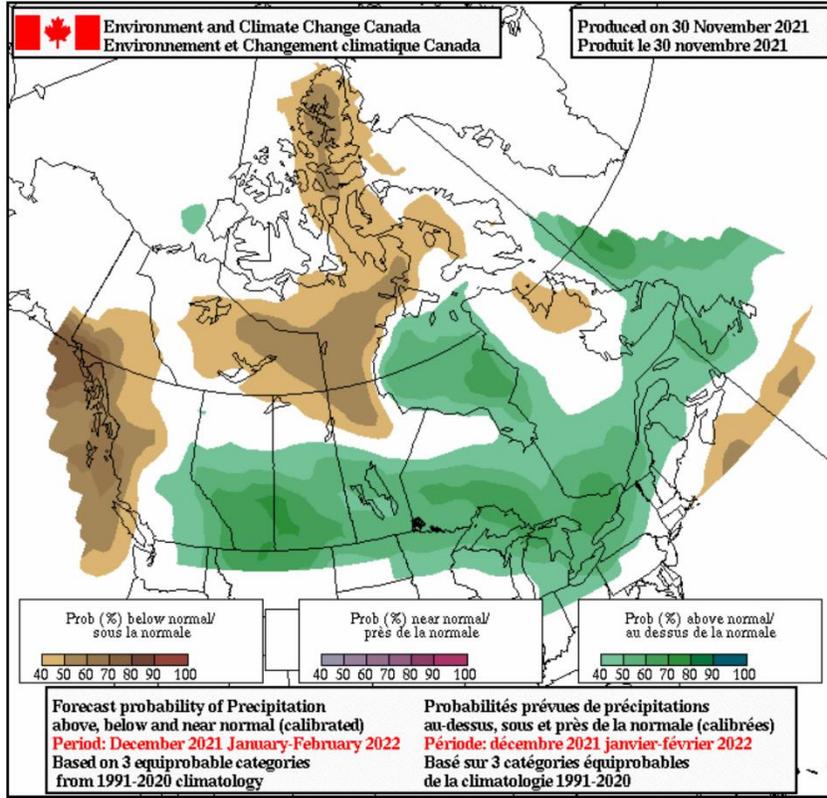


Figure 30. Environment and Climate Change Canada’s Probabilistic Precipitation Outlook (December – February).

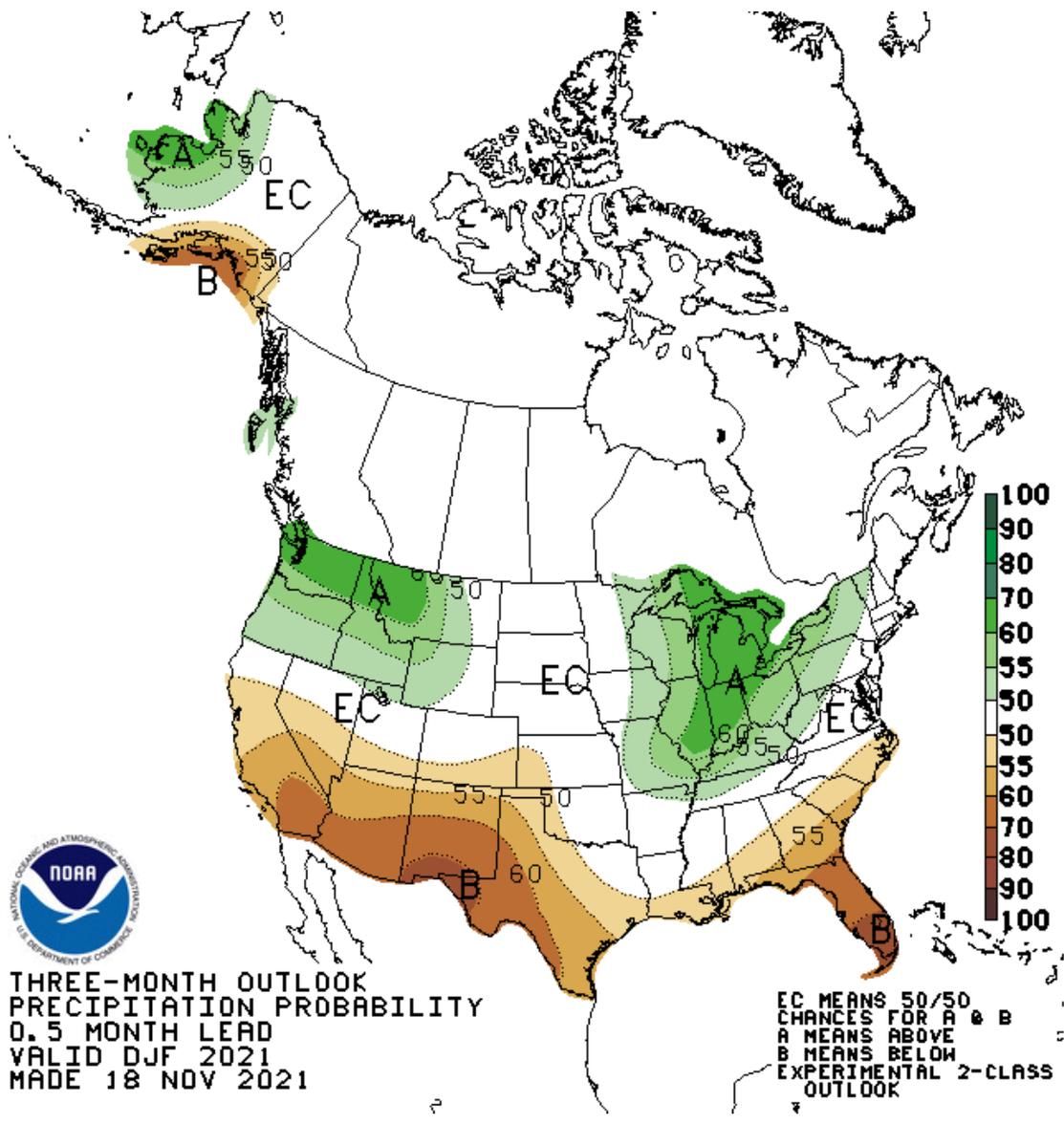


Figure 31. National Weather Services' precipitation outlook (December - February).

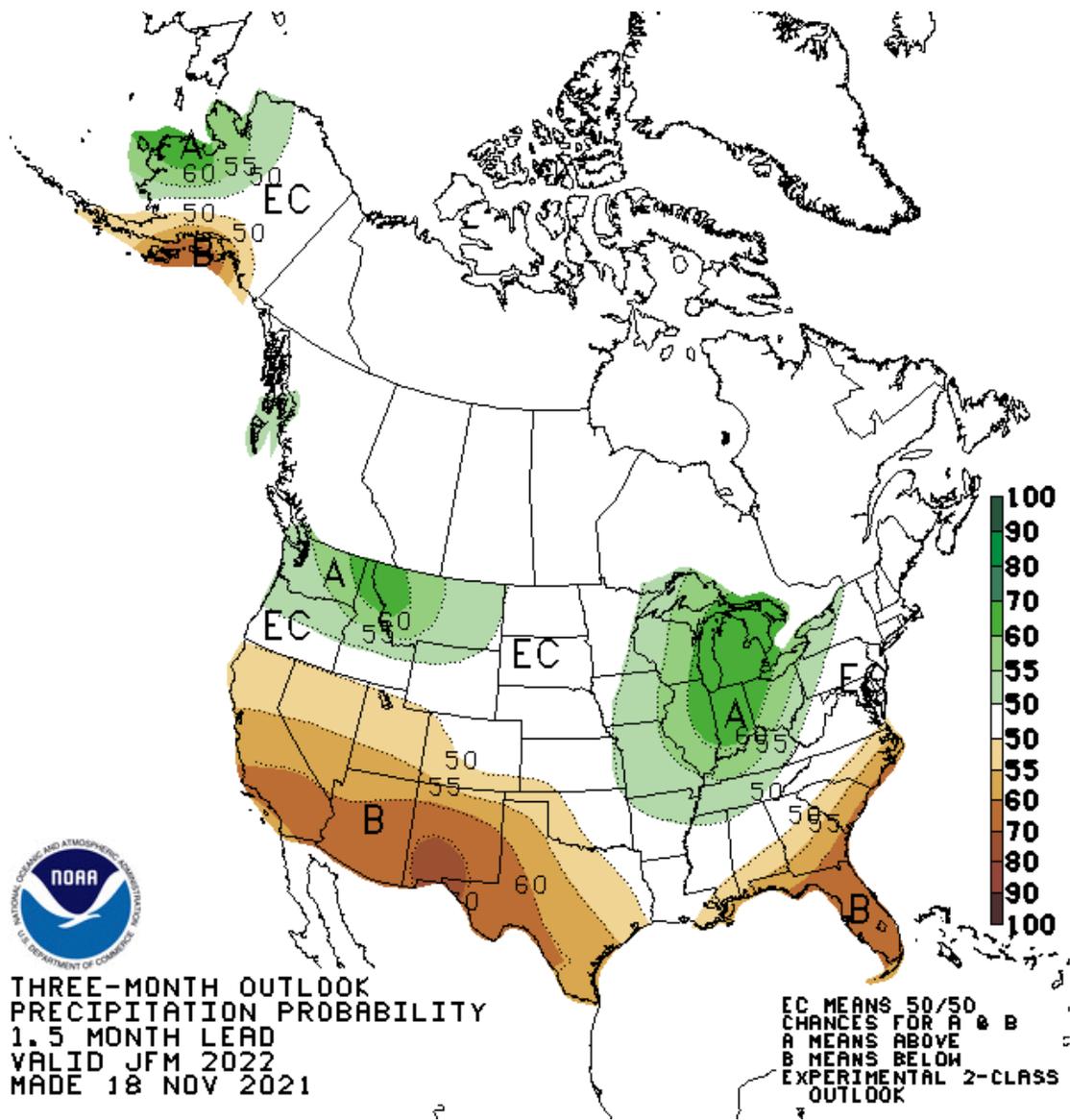


Figure 32. National Weather Services' precipitation outlook (January - March).

IRI Multi-Model Probability Forecast for Precipitation for December–January–February 2022, Issued November 2021

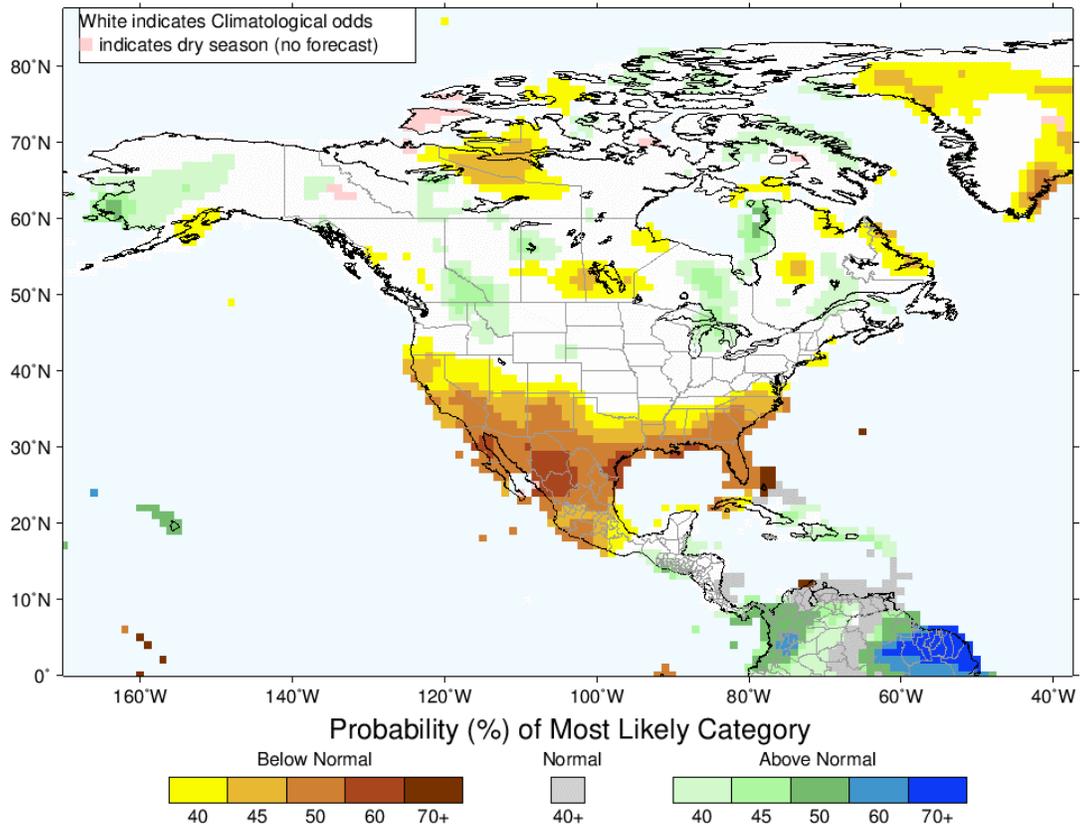


Figure 33. Columbia Climate School International Research Institute’s Multi-Model Probabilistic Precipitation Outlook (December - February).

IRI Multi-Model Probability Forecast for Precipitation for January-February-March 2022, Issued November 2021

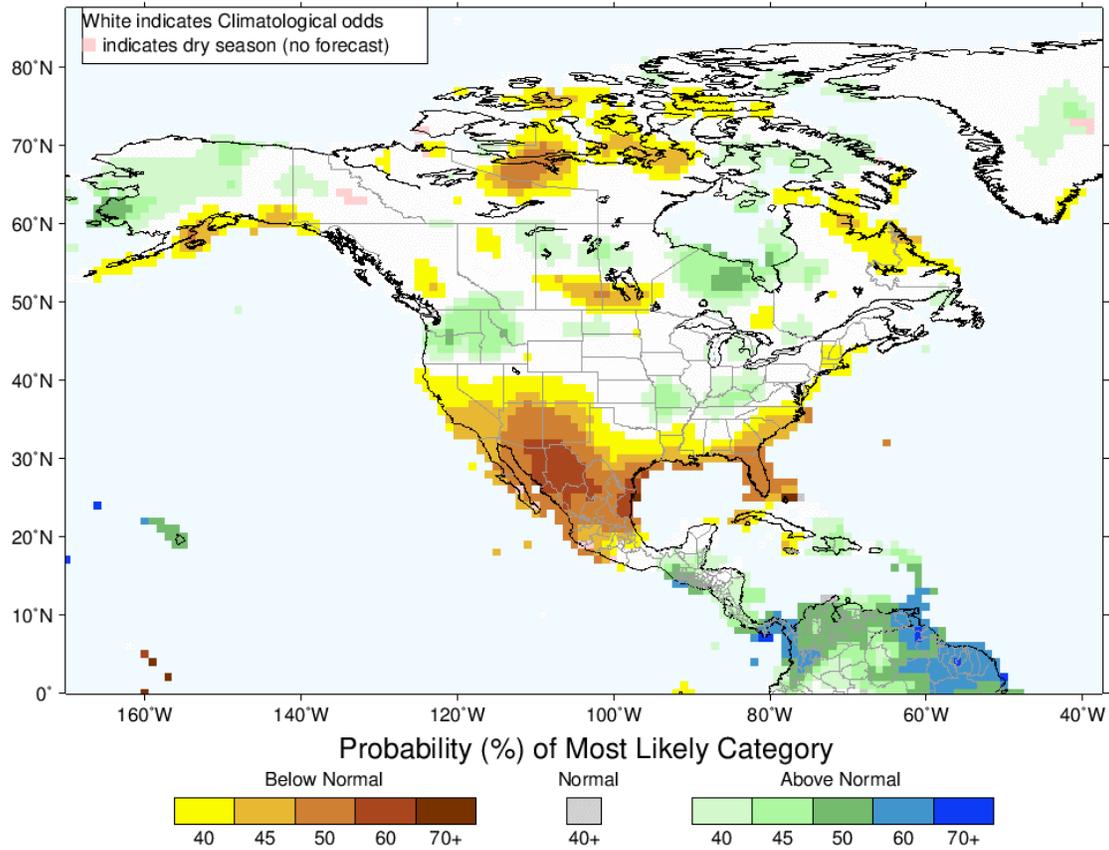


Figure 34. Columbia Climate School International Research Institute’s Multi-Model Probabilistic Precipitation Outlook (January - March).

FORECASTED LAKE LEVELS AND RIVER FLOWS OVER THE WINTER PERIOD

Providing reliable forecasts of river flows through the winter (which are also called base flows) is extremely difficult due to the frozen ground conditions and the effect of ice on flows and levels on rivers and lakes. The Assiniboine River is forecasted to remain at below normal flows and levels in the period prior to the spring runoff. There is sustained release of outflows from the Shellmouth Reservoir in order to reduce the level in the reservoir in preparation for the spring runoff. Flows and levels on the Red River are expected to remain near normal in the period prior to the spring runoff. Flows on the Waterhen River, Fairford River, and Dauphin River will remain well below normal.

Lake Manitoba is expected to remain near 810.2 ft throughout the winter. Lake Winnipeg is expected to be near 712.6 ft by end of March, which will be near the historic lower decile level for March 31st. Lake Winnipegosis will remain near 829.5 ft throughout the winter and Lake St. Martin is expected to reach near 797.6 ft before the spring runoff. Recorded lake levels (as of December 2, 2021) and expected levels prior to the 2022 spring runoff (by March 31, 2022) are given in Table 2.

Table 2. December 2 lake levels and expected levels by March 31, 2022 (before the 2022 spring runoff).

Lakes	Current Level, December, 2 (ft)	Operating Range or Long Term Avg. (ft)	Expected Level by Mar 31, 2022 (ft)	Normal level for this time of the year (ft)	Last time level was equal or lower than the current level (ft)
Lake Manitoba*	810.3 <i>Historic water level for this time of year is above the current level for 98% of the time</i>	810.5 - 812.5	810.1 – 810.3	811.9	810.1 (1942)
Lake Winnipeg*	712.0 <i>Historic water level for this time of year is above the current level for 83% of the time</i>	711 - 715	712.6	713.2	711.6 (2003)
Lake St. Martin*	796.5 <i>Historic water level for this time of year is above the current level for 91% of the time</i>	797 - 800	797.4 – 797.6	798.4	796.0 (2003)
Lake Winnipegosis	829.2 <i>Historic water level for this time of year is above the current level for 80% of the time</i>	831.0	829.5 – 829.6	831.0	828.5 (2003)
Dauphin Lake*	854.4 <i>Historic water level for this time of year is above the current level for 41% of the time</i>	853.0 - 854.8	853.9 – 854.2	854.3	854.1 (2019)
Lake of the Prairies (Shellmouth)*	1398.9 <i>Historic water level for this time of year is above the current level for 63% of the time</i>	1386 - 1400	1386 – 1398	1399.8	1398.2 (2017)
Lake Wahtopanah near Rivers*	1535.9 <i>Historic water level for this time of year is above the current level for 11% of the time</i>	Summer – 1536 Winter – 1535.5	1533	1534.5	1533.5 (2020)
Lake Minnewasta	1070.8 <i>Historic water level for this time of year is above the current level for 91% of the time</i>	1080.4	1068.7-1069.7	1079.0	1069.3 (1989)

*Levels on these lakes are managed by operation of dam structures.