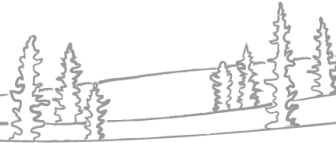




NWT Water Monitoring Bulletin

– April 29, 2025 at 12:00



NWT break-up reports will be published routinely as break-up unfolds. These reports will focus on regions with active snowmelt and ice break-up. The geographic focus of the report will shift as conditions change. Additional information about basin conditions can be found in the ECC Snow Survey Bulletin and Spring Water Outlook, [available here](#). If you have any photos or information about break-up in your community, feel free to reach out to us: nwtwaters@gov.nt.ca.

Current Status:

- Break-up has been progressing along the Hay River;
 - Large sections of rubble ice have pushed down the Hay River and are currently holding in place just above the Pine Point bridge.
 - The water level measured near the Town of Hay River had risen by 2.5 m (to a maximum of 5.9 m) over the last 24 hours, but is currently holding at about 5.6 m.
 - For reference, peak water level during the flood event of 2022 was 12.5 m.
 - An ice jam is holding between the Pine Point bridge and just above the golf course.
 - Sections of upstream river ice remain above Alexandra Falls.
 - At the Alberta/NWT border, no river ice remains, and the water level is receding.
- Break-up along the Liard River is progressing;
 - River ice has pushed down the Liard River past Fort Liard, with a small corresponding rise in water level.
 - The water level is well within the normal range for break-up.
 - Open water sections are developing between Fort Liard and Nahanni Butte.
 - River ice remains intact at the mouth of the Liard River at Fort Simpson.
 - Water levels are slowly rising and fluctuating in response to ice movement on the Liard River.
- River ice has been moving along the Mackenzie River between Fort Providence and Jean Marie River.
 - Rise in water level has been relatively small.
 - Some small ice jams appear to be forming and releasing between Jean Marie River and Fort Simpson.
 - River ice remains mostly intact at Fort Simpson.
 - The water level is continuing to rise under the ice on the Mackenzie River at Fort Simpson.

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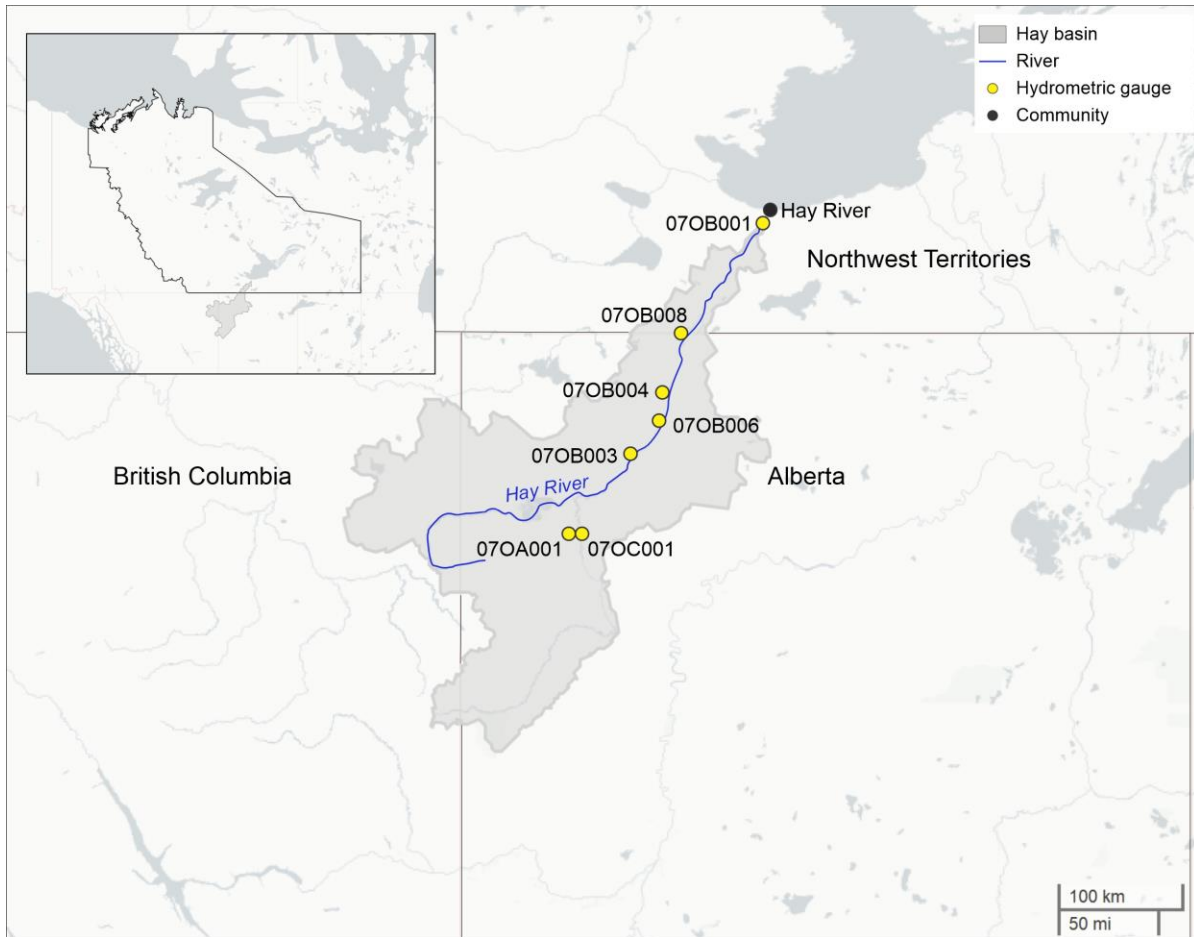
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Hay River:

Current Status:

- River ice is pushing down the Hay River to just above the Town of Hay River.
 - An ice jam is holding between the Pine Point bridge and just above the golf course.
 - Intact and rubble ice are moving through various sections of the river upstream of Enterprise.
 - No river ice remains on the Hay River at the Alberta/NWT border.
- The water level has risen on the Hay River near the Town of Hay River;
 - Water level measured near the Town of Hay River had risen by 2.5 m (to a maximum of 5.9 m) over the last 24 hours, but is currently holding at about 5.6 m.
 - The peak water level of the flood event in 2022 was 12.5 m.
 - The peak water level during break-up last year (2024) was 2.4 m
 - The freshet peak has passed, and water level is receding at the hydrometric gauge at the Alberta/NWT border.
- After a brief period of early season warm temperatures, recent air temperatures have generally remained below 0°C.
- Temperatures in the Town of Hay River are expected to be average to below average for the rest of this week, with temperatures fluctuating around 0°C.
- Refer to the [Town of Hay River website](#) for the most up-to-date information, as well as webcam images of current conditions.

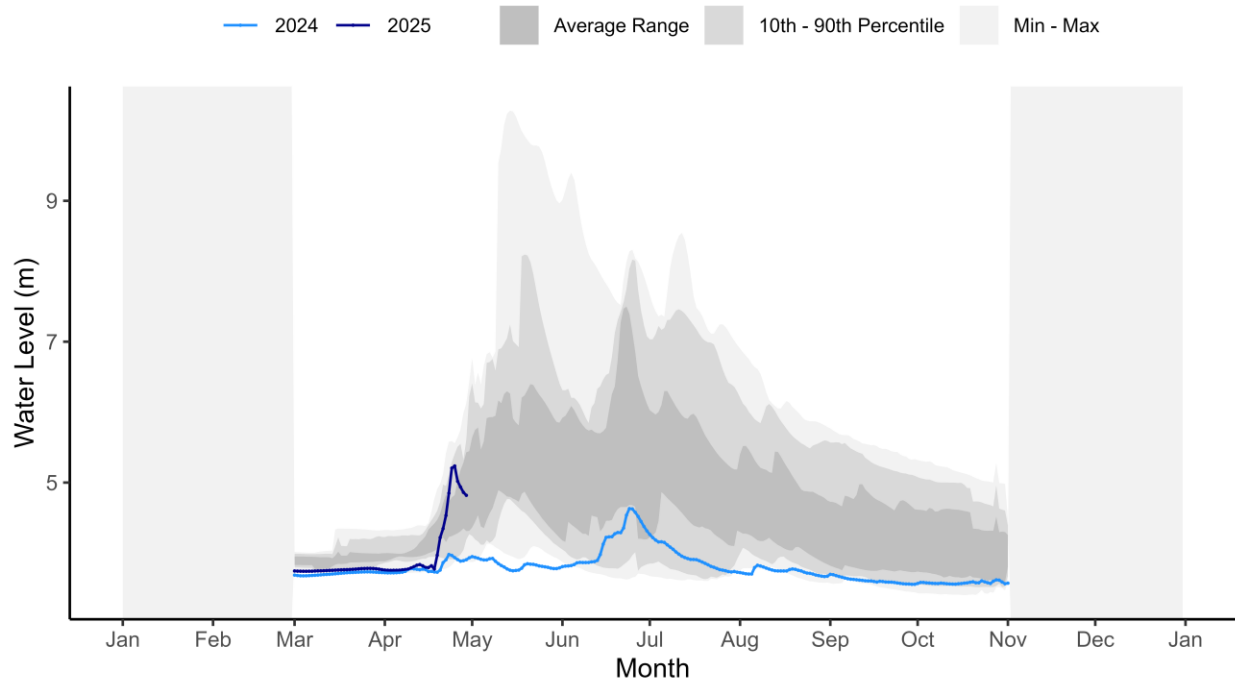


Above – Map of hydrometric stations in the Hay River basin. The station numbers are referenced in the water level plots below.

Hydrometric Data:

Hay River near Meander River (Alberta) [070B003]:

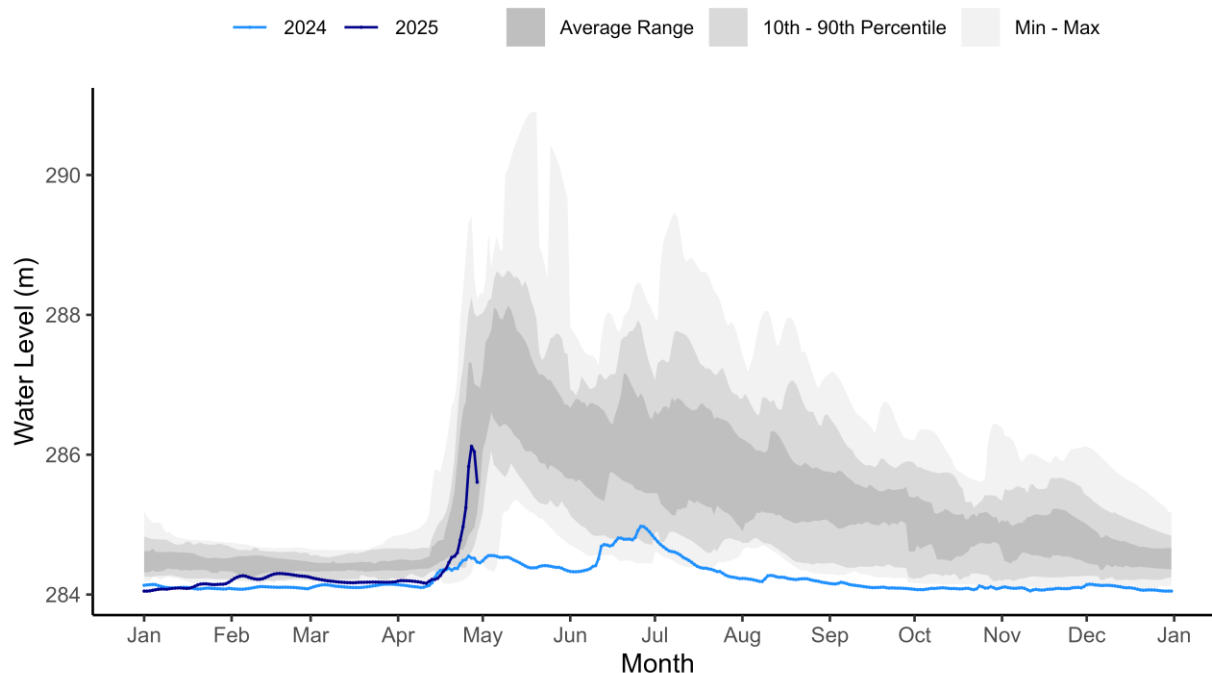
HAY RIVER NEAR MEANDER RIVER (070B003)



Above – Water level data on the Hay River near Meander River, AB. Daily average levels for the previous year are also shown here. This gauge is operated seasonally from March to November.

Hay River near the border [07OB008]:

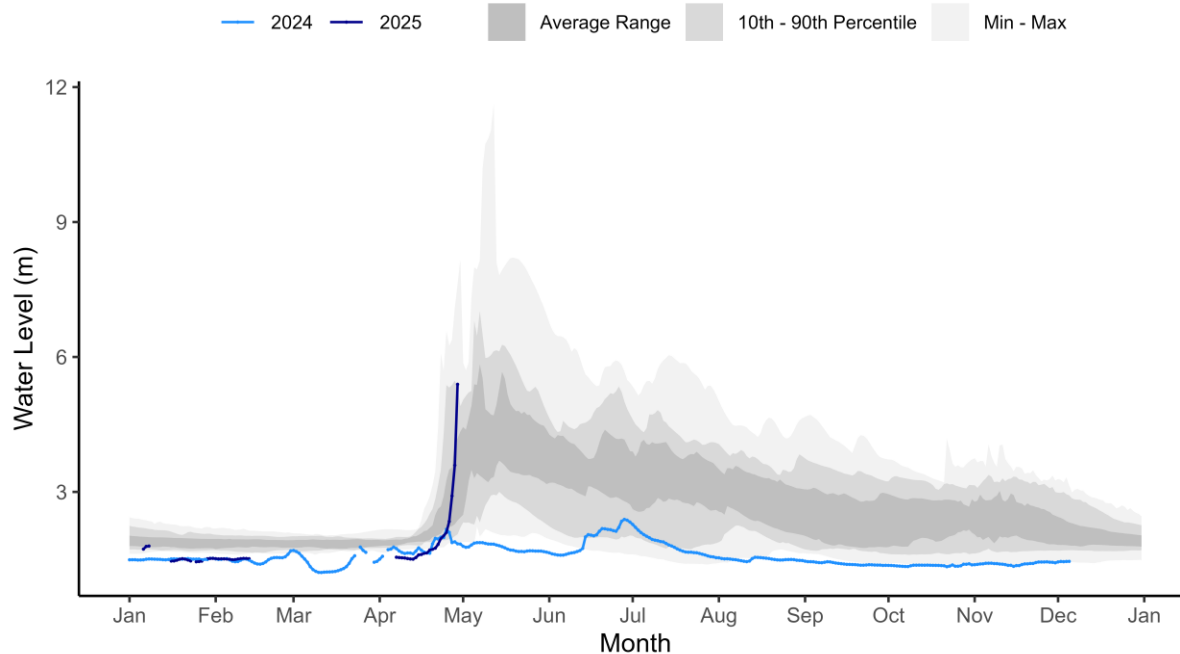
HAY RIVER NEAR ALTA/NWT BOUNDARY (07OB008)



Above – Water level data for the Hay River near the Alberta- NWT border. Daily average levels for the previous year are also shown here.

Hay River near Hay River [07OB001]:

HAY RIVER NEAR HAY RIVER (07OB001)



Above – Water level data for the Hay River near the Town of Hay River. Daily average levels for the previous year are also shown here.

Gauge photos:

Hay River near the border [070B008]:



Above – Hay River near the border hydrometric gauge photo on April 29 at 11:00. Photo courtesy of Water Survey of Canada and GNWT.

Hay River near Hay River [070B001]:

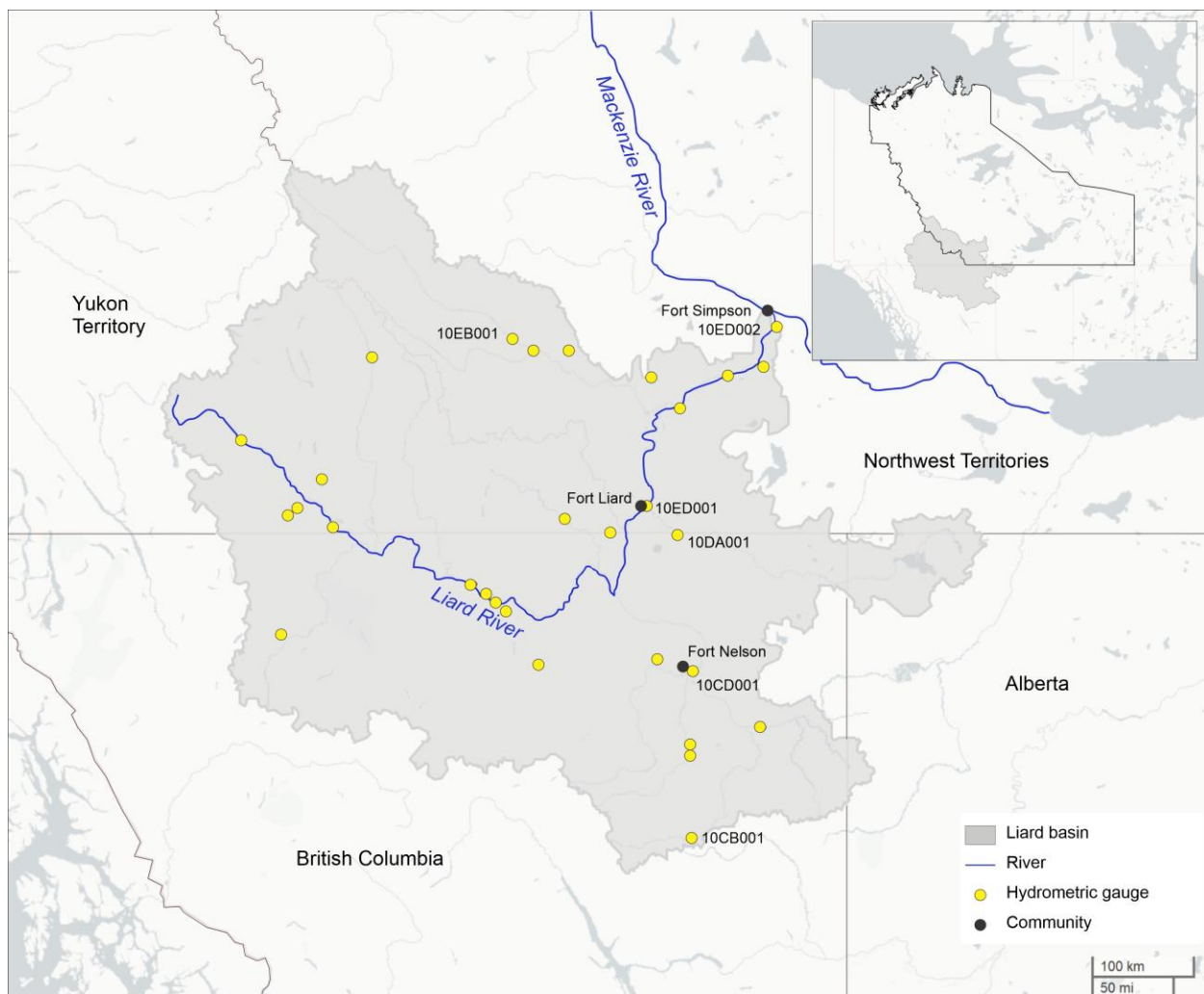


Above – Hay River near the Town of Hay River hydrometric gauge photo on April 29 at 11:00. Photo courtesy of Water Survey of Canada and GNWT.

Liard River:

Current Status:

- River ice has pushed down the Liard River past Fort Liard, with a small corresponding rise in water level.
 - The water level is well within the normal range for break-up.
 - River ice remains mostly intact on the Liard River near the mouth (at Fort Simpson).
 - Open water sections are developing between Fort Liard and Nahanni Butte.
- The water level has been slowly rising under ice on the Liard River near the mouth (where it meets the Mackenzie River).
- Temperatures across the lower Liard River basin are expected to be above average throughout the week, with 5-10 mm of rain in the forecast.

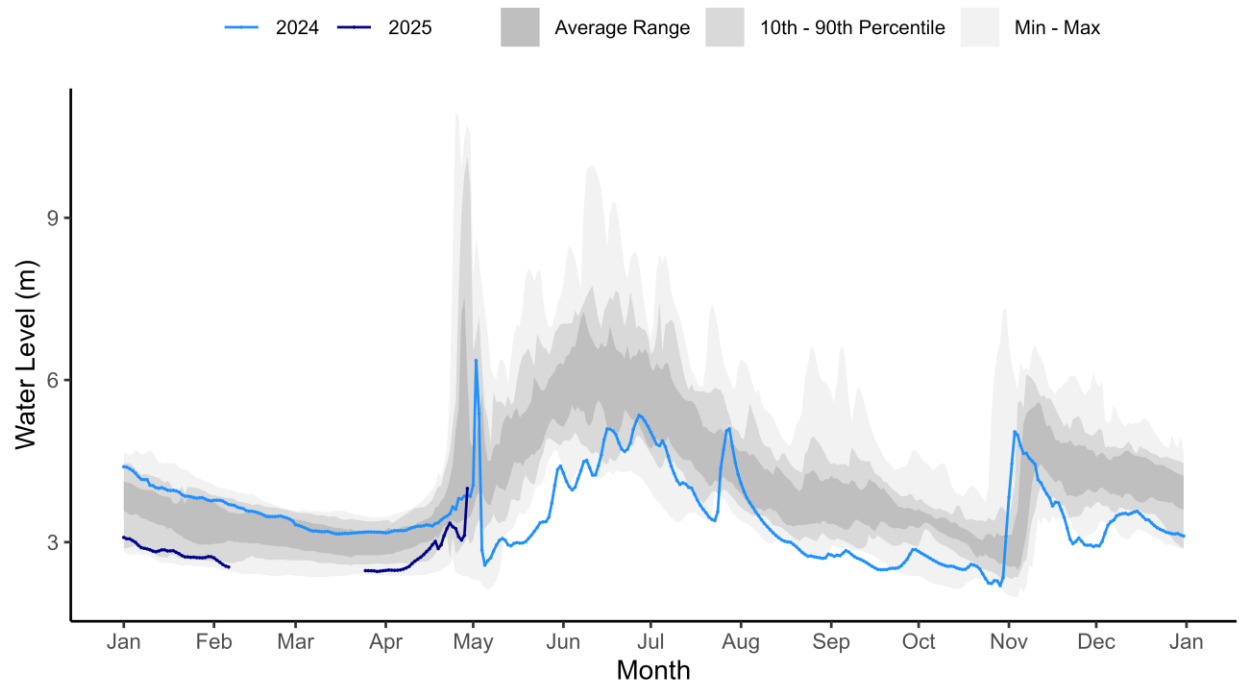


Above – Map of hydrometric stations in the Liard River basin. The station numbers are referenced in the water level plots below.

Hydrometric Data:

Liard River at Fort Liard [10ED001]:

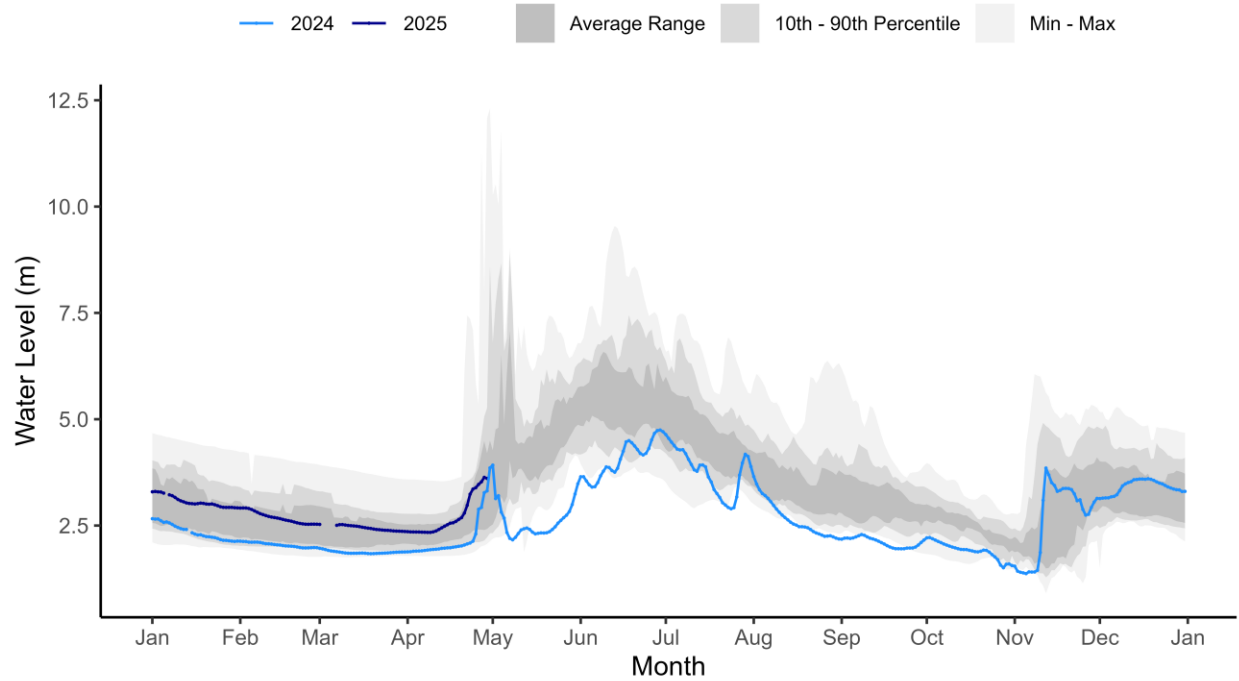
LIARD RIVER AT FORT LIARD (10ED001)



Above – Water level data for the Liard River at Fort Liard. Daily average levels for the previous year are also shown here.

Liard River near the mouth [10ED002]:

LIARD RIVER NEAR THE MOUTH (10ED002)



Above – Water level data for the Liard River near the mouth. Daily average levels for the previous year are also shown here.

Gauge photos:

Liard River at Fort Liard [10ED001]:



Above – Liard River at Fort Liard hydrometric gauge photo from April 29 at 11:00. Photo courtesy of Water Survey of Canada and GNWT.

Liard River near the mouth [10ED002]:

10ED002_LiardMouth 2025-04-29 13:01:14 UTC
61.74268, -121.22790 12.3V -10°C P



Above – Liard River near the mouth hydrometric gauge photo from April 29 at 07:00. Photo courtesy of Water Survey of Canada and GNWT.

Mackenzie River:

Current Status:

- Ice has been starting to shift on the Mackenzie River between Fort Providence and Jean Marie River.
 - Open water sections are developing, and ice is jamming and releasing in this stretch of the Mackenzie River.
 - Ice remains largely intact at Fort Simpson.
- The water level measured at Strong Point (gauge 10FB006) has decreased by over 1 m in the last 24 hours.
 - This suggests an ice jam just upstream (above) of the gauge.
- Water levels have been slowly rising underneath the ice at Fort Simpson.
- The water level measured at Jean Marie River has been variable (fluctuations of 10 cm over the last 24 hours) in response to ice movement but is currently holding steady.
- Temperatures are expected to fluctuate around 0°C throughout the rest of the week, with 5-10 mm of rain and/or snow in the forecast for the next 24 hours.

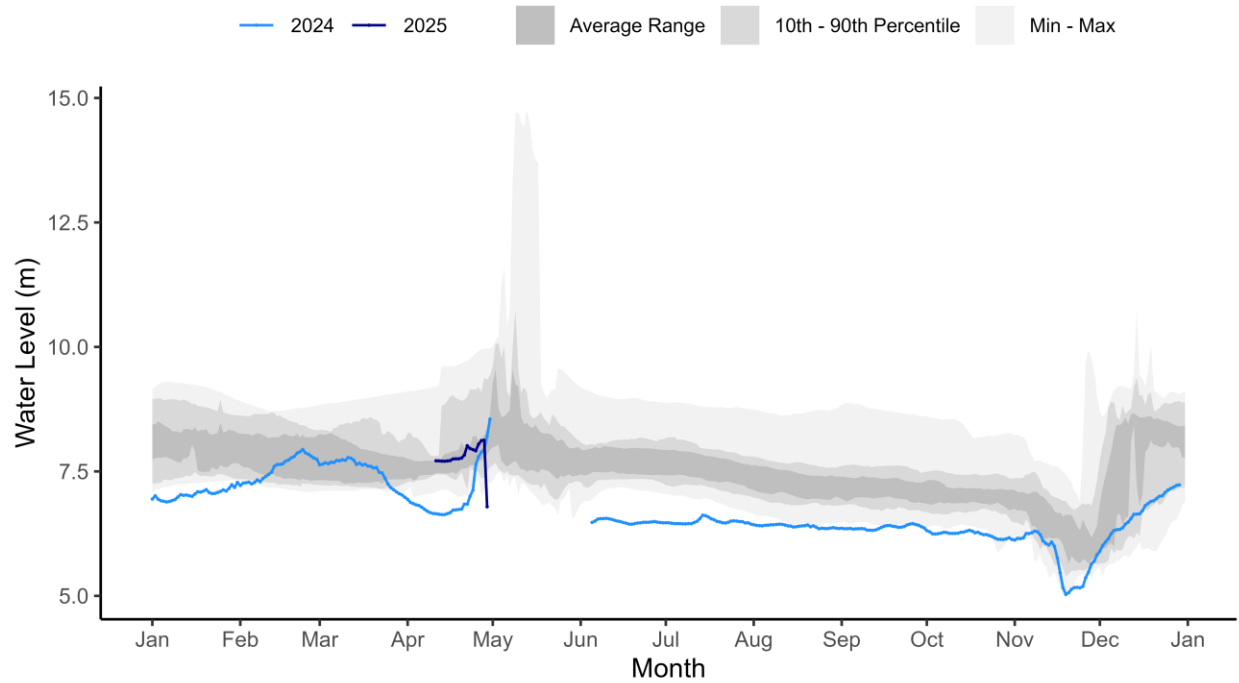


Above – Map of hydrometric stations along the Mackenzie River near Fort Simpson and Jean Marie River. The station numbers are referenced in the water level plots below.

Hydrometric Data:

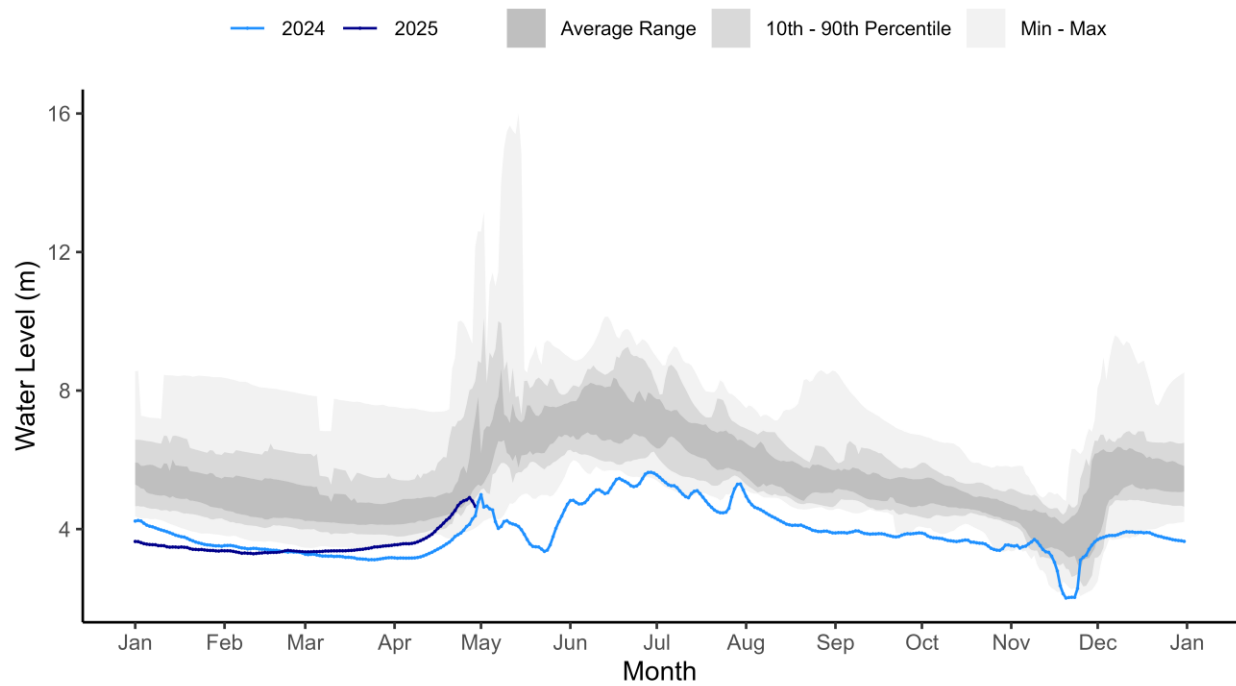
Mackenzie River at Strong Point [10FB006]:

MACKENZIE RIVER AT STRONG POINT (10FB006)



Above – Water level data for the Mackenzie River at Strong Point. Daily average levels for the previous year are also shown here.

Mackenzie River at Fort Simpson [10GC001]:
MACKENZIE RIVER AT FORT SIMPSON (10GC001)



Above – Water level data for the Mackenzie River at Fort Simpson. Data for the previous year are also shown here.

Gauge photos:

Mackenzie River at Strong Point [10FB006]:

10FB006_MackStrongPoint 2025-04-29 17:01:15 UTC
61.81649, -120.79186 12.9V 6.0°C P



Above – Mackenzie River at Strong Point hydrometric gauge photo from April 29 at 11:00. Photo courtesy of Water Survey of Canada and GNWT.

Mackenzie River at Fort Simpson [10GC001]:

10GC001_MackSimpson 2025-04-29 17:01:14 UTC
61.866804, -121.35845 14.3V 6.5°C P



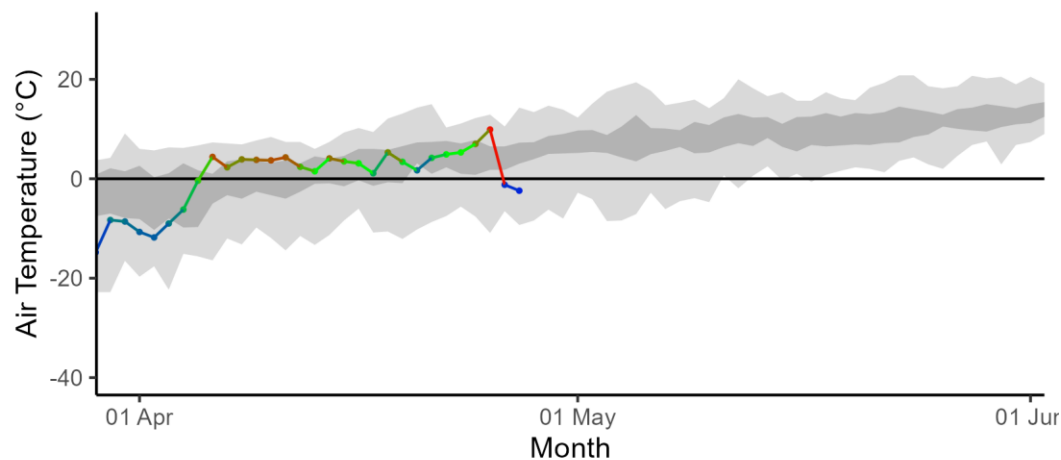
Above – Mackenzie River at Fort Simpson hydrometric gauge photo from April 29 at 11:00. Photo provided by GNWT.

Weather Data:

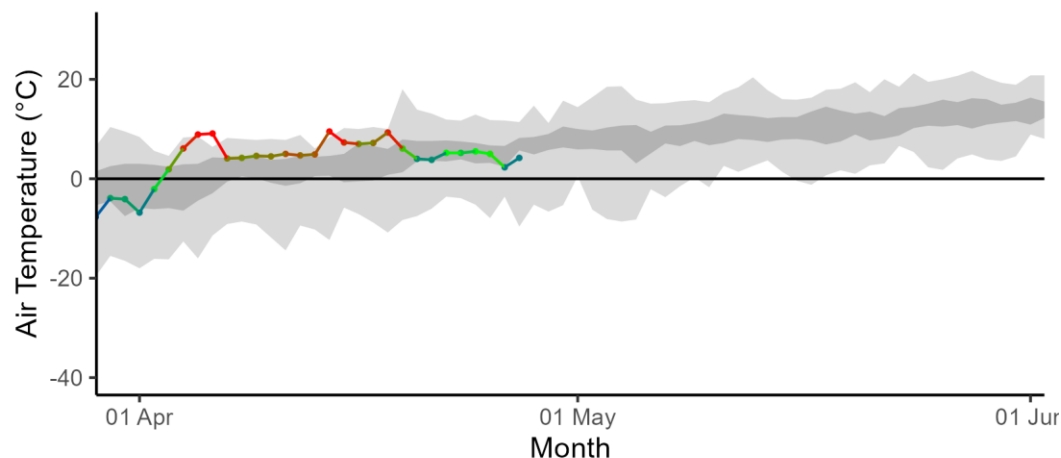
Weather information informs how snow and ice will melt and provides information about how this spring is unfolding relative to previous springs. Warmer than normal conditions early in the spring allow for additional energy to melt the snowpack and soften river ice. Rain-on-snow events can cause rapid melt of snowpacks and facilitate quick delivery of snowmelt water to rivers. Locations included here cover basin areas that feed into NWT rivers that are currently undergoing break-up. The first set of figures show how temperatures have been relative to average (dark grey band) this spring, while the second set is Environment and Climate Change Canada (ECCC) weather forecast data for the next seven days.

The lower Liard basin is forecast to above average temperatures this week. About 5-10 mm of precipitation is expected in the Dehcho region and in the upper Hay River basin over the next few days.

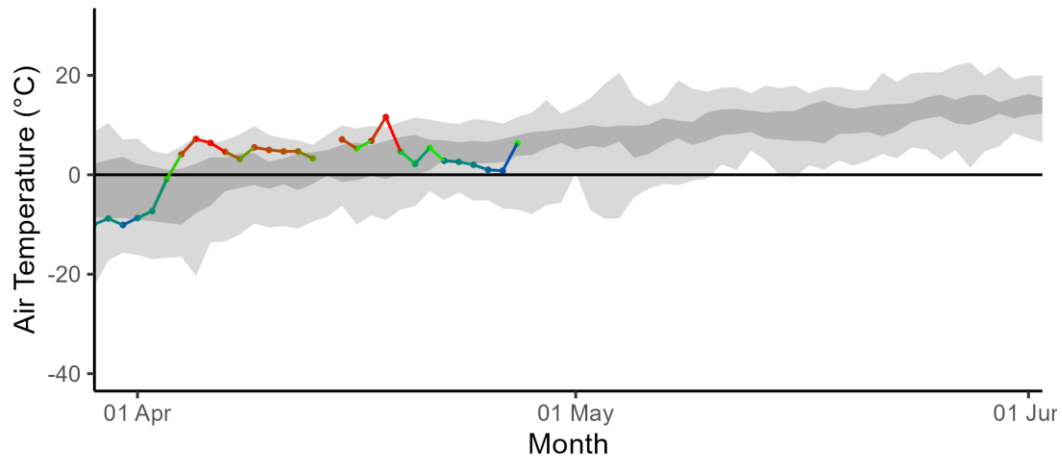
2025 High Level Daily Mean Air Temperatures



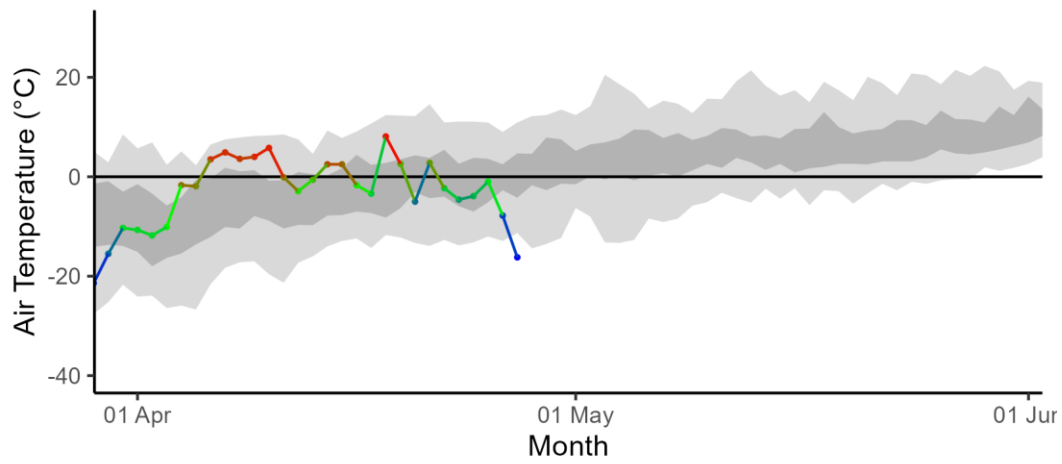
2025 Fort Nelson Daily Mean Air Temperatures



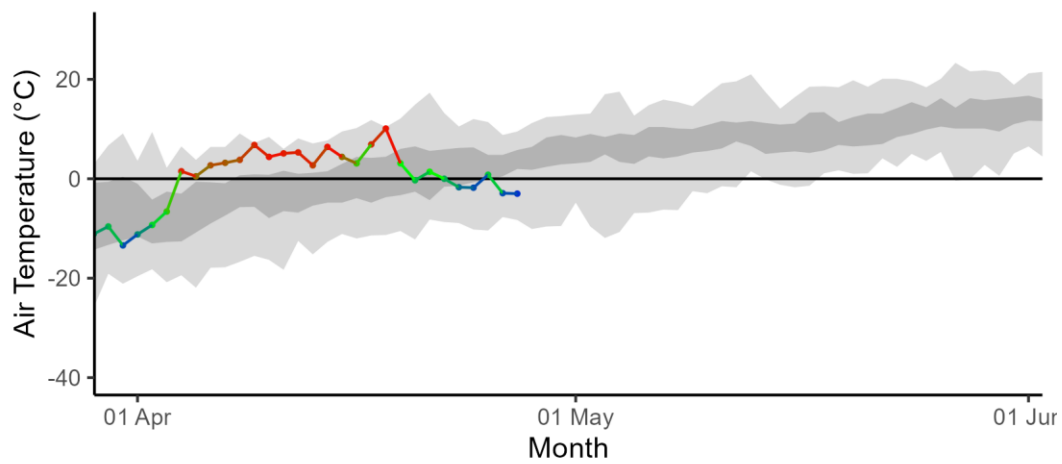
2025 Fort Liard Daily Mean Air Temperatures
















2025 Hay River Daily Mean Air Temperatures
















2025 Fort Simpson Daily Mean Air Temperatures
















High Level seven-day weather forecast:

Tue 29 Apr	Wed 30 Apr	Thu 1 May	Fri 2 May	Sat 3 May	Sun 4 May	Mon 5 May
 13°C 30% Chance of showers	 9°C 60% Chance of rain showers or flurries	 15°C A mix of sun and cloud	 20°C Sunny	 15°C A mix of sun and cloud	 16°C Sunny	 18°C Sunny
Tonight	Night	Night	Night	Night	Night	
 3°C 30% Chance of showers	 -1°C Clear	 1°C Clear	 8°C Clear	 2°C Clear	 -2°C Clear	














Fort Nelson seven-day weather forecast:

Tue 29 Apr	Wed 30 Apr	Thu 1 May	Fri 2 May	Sat 3 May	Sun 4 May	Mon 5 May
 14°C 40% Chance of showers	 15°C 30% Chance of showers	 19°C A mix of sun and cloud	 22°C Sunny	 16°C 60% Chance of showers	 16°C A mix of sun and cloud	 15°C A mix of sun and cloud
Tonight	Night	Night	Night	Night	Night	
 4°C Partly cloudy	 2°C Clear	 6°C Clear	 5°C 60% Chance of showers	 3°C Cloudy periods	 2°C Cloudy periods	














Fort Liard seven-day weather forecast:

Tue 29 Apr	Wed 30 Apr	Thu 1 May	Fri 2 May	Sat 3 May	Sun 4 May	Mon 5 May
 16°C A mix of sun and cloud	 16°C 30% Chance of flurries or rain showers	 18°C A mix of sun and cloud	 16°C A mix of sun and cloud	 16°C 60% Chance of showers	 13°C A mix of sun and cloud	 11°C A mix of sun and cloud
Tonight	Night	Night	Night	Night	Night	
 0°C 30% Chance of rain showers or flurries	 2°C Clear	 7°C Cloudy periods	 6°C 60% Chance of showers	 1°C Cloudy periods	 -1°C Cloudy periods	

Hay River seven-day weather forecast:

Tue 29 Apr	Wed 30 Apr	Thu 1 May	Fri 2 May	Sat 3 May	Sun 4 May	Mon 5 May
 3°C A mix of sun and cloud	 -3°C Periods of snow	 11°C Cloudy	 3°C A mix of sun and cloud	 14°C A mix of sun and cloud	 9°C Sunny	 6°C A mix of sun and cloud
Tonight	Night	Night	Night	Night	Night	
 -6°C Periods of snow	 -9°C Clear	 -1°C Cloudy	 2°C Cloudy periods	 3°C Cloudy periods	 -6°C Clear	

Fort Simpson seven-day weather forecast:

Tue 29 Apr	Wed 30 Apr	Thu 1 May	Fri 2 May	Sat 3 May	Sun 4 May	Mon 5 May
 7°C Snow mixed with rain	 5°C Snow	 14°C A mix of sun and cloud	 10°C 40% Chance of showers	 11°C Rain	 6°C A mix of sun and cloud	 8°C A mix of sun and cloud
Tonight	Night	Night	Night	Night	Night	
 -2°C Rain or snow	 -2°C Clear	 0°C Cloudy periods	 2°C 60% Chance of showers	 -2°C Cloudy periods	 -3°C Cloudy periods	

Factors to Watch:

It is important to note that much of the water contributing to NWT rivers originates from outside of the NWT, which is why we also rely on information from the Yukon, British Columbia, Alberta and Saskatchewan.

The potential and severity of flooding will depend in large part on the weather over the upcoming weeks and how this interacts with existing ice conditions, water levels and snowpack amounts.

The primary factors that influence water levels in the spring are:

- Ice jams (can result in out-of-bank flows, even if there are below normal flows)
- Rate of melt of ice and snow:
 - Gradual vs quick melt
 - Rain on snow or ice events (rain brings a lot of energy to help melt happen more quickly)
- Current water levels
- How wet the ground was in the fall
- Snowpack

Spring Break-up on NWT Rivers: Mechanical vs Thermal

In any given year, spring flooding can occur in a number of NWT communities, including Hay River, Jean Marie River, Fort Simpson, Fort Liard, Tulita, Fort Good Hope, Fort McPherson and Aklavik. Spring flooding is caused by ice jam-induced flooding and can occur irrespective of existing water levels. However, if existing water levels are high, the impact of an ice jam flood can be much worse.

Ice jams typically occur on north-flowing rivers where warm weather and snowmelt cause ice to break-up on the southern reaches of a river. As this ice flows north (downstream), it meets a more solid ice cover. When this happens, the pieces of floating ice jam on the solid ice and can form a dam, which causes water levels to rise rapidly. This is called a **mechanical break-up**, whereby the ice downstream is broken up by the force of ice moving into it.

If there is warm and sunny weather throughout early spring, the ice may thermally erode and weaken. This provides less of a resisting force for ice and water moving down the river and will have less of a chance of causing water levels to rise behind an ice jam. This is called a **thermal break-up**.

The causes of mechanical and thermal break-ups are usually dependent on the weather during early spring. Warm weather, sunshine, and rain on snow events are usually a good way to bring extra energy into the system to help melt the ice. Warm temperatures in the upstream part of a basin could also cause a rapid snowmelt and move water to the river very quickly. This could lead to ice-jam conditions downstream if the ice has not yet received enough energy to degrade. Another important factor is the thickness of the ice. Thicker ice takes longer to melt and can increase the chances of ice jams. If an ice jam occurs, the location of the ice jam is also very important. Each

river reach has different locations that are prone to ice jams. The location of the ice jam can be an important factor as to whether or not a community floods. Furthermore, ice will jam and then move again at multiple locations along a river as break-up progresses downstream. The timing and location of each jam can also influence if a community will flood.

Technical Note:

- The figures in this report plot water levels. The values on the y-axis are (in most cases) relative to an arbitrary datum. This means that the values on each gauge can be compared to different years but should not be used to compare water levels from one location to the next.

For example, the Hay River near the border gauge (07OB008) records a level of about 288 m. The Hay River near Hay River gauge (07OB001) usually records a level of about 4 m. This **does not mean** that the water level at the Hay River at the border site is 284 m higher than the water level at the Hay River near Hay River site.

Appendix A: River Ice Imagery



River ice classification imagery from 2025-04-29 at 8:13 MDT

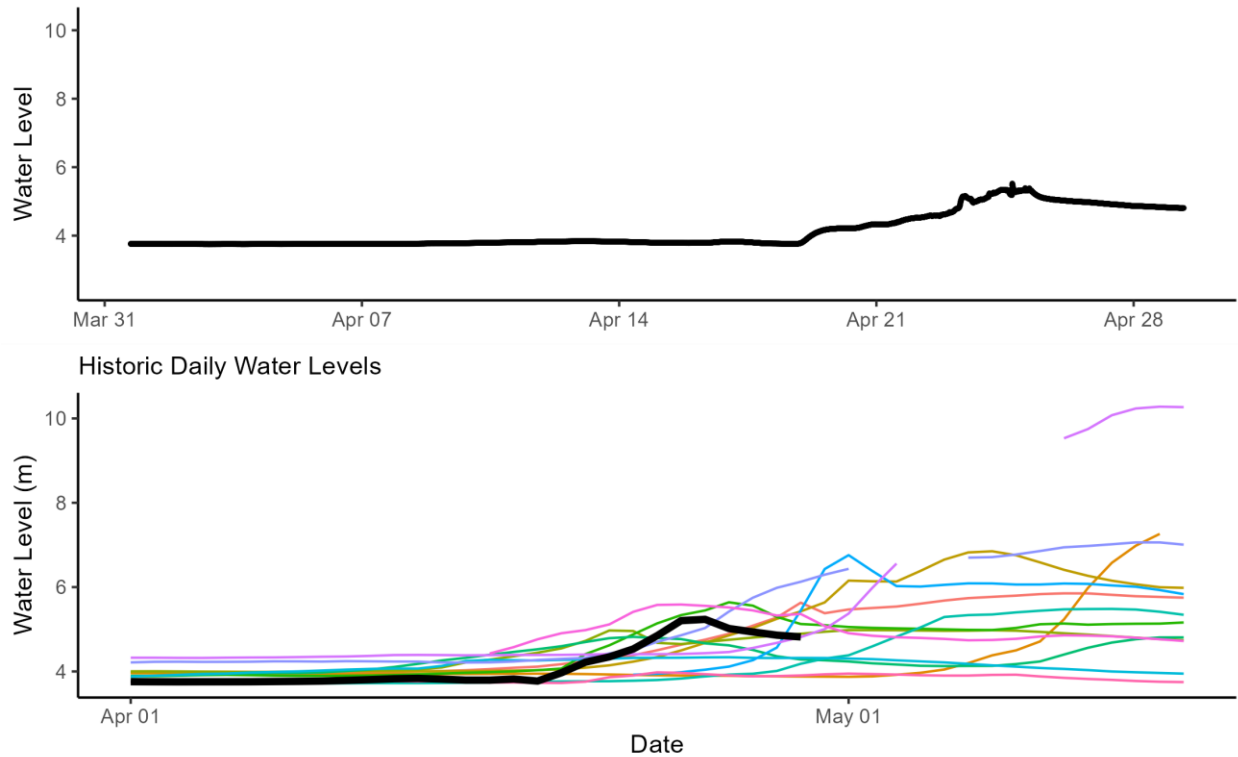
Above – Classified river ice image of the Hay River. The image shows an ice jam holding between the Pine Point bridge and just above the golf course (red arrow). The image was acquired this morning at 08:13 MDT and is courtesy of the federal government's Government Operations Centre. The river ice classification was completed using the IceBC algorithm.

Appendix B: High resolution and historic water level plots

Hay River near Meander River (Alberta) [07OB003]:

HAY RIVER NEAR MEANDER RIVER (07OB003)

2025 Water Levels (5 minute resolution)

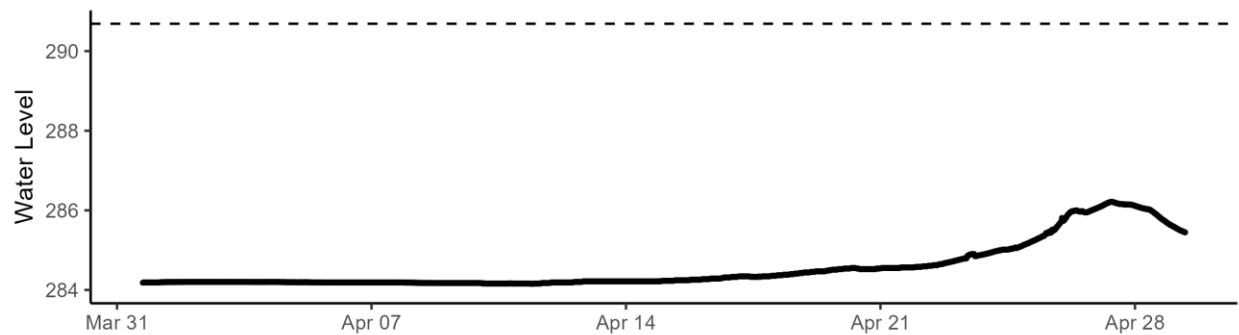


Above – Water level data on the Hay River near Meander River, AB. This plot shows high resolution (5 minute) water level data on the top, and daily average data on the bottom.

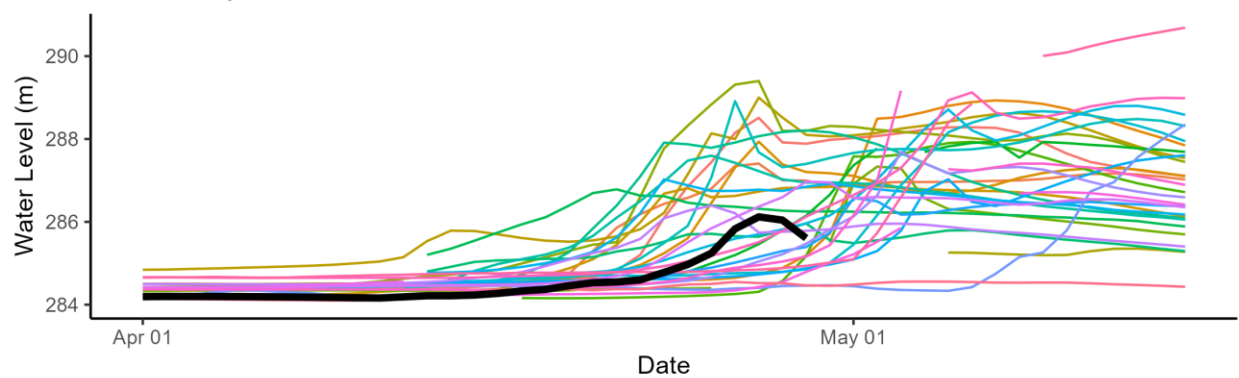
Hay River near the border [07OB008]:

HAY RIVER NEAR ALTA/NWT BOUNDARY (07OB008)

2025 Water Levels (5 minute resolution)

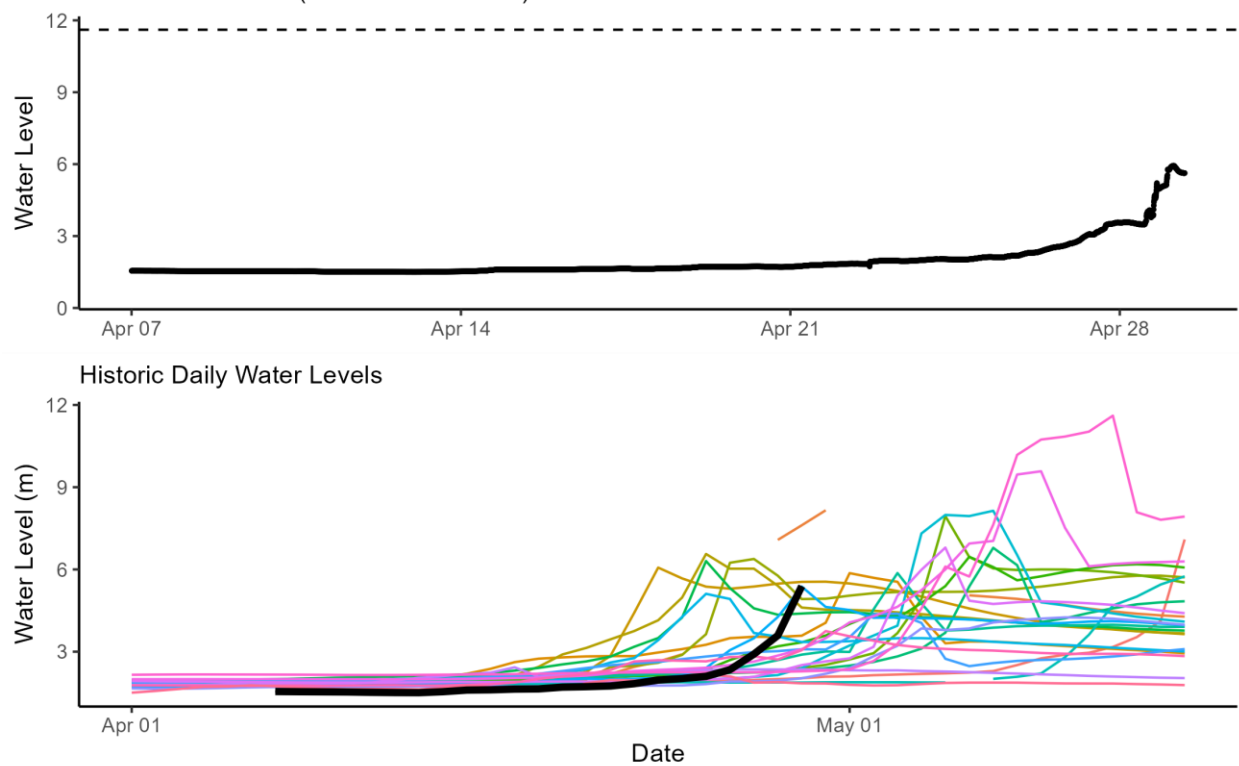


Historic Daily Water Levels



Above - The upper graph in the figure presents real time water level data at 5-minute resolution with the dashed line representing the peak water level from 2022. The lower graph shows daily average levels relative to the previous 20 years.

Hay River near Hay River [07OB001]:
HAY RIVER NEAR HAY RIVER (07OB001)
2025 Water Levels (5 minute resolution)

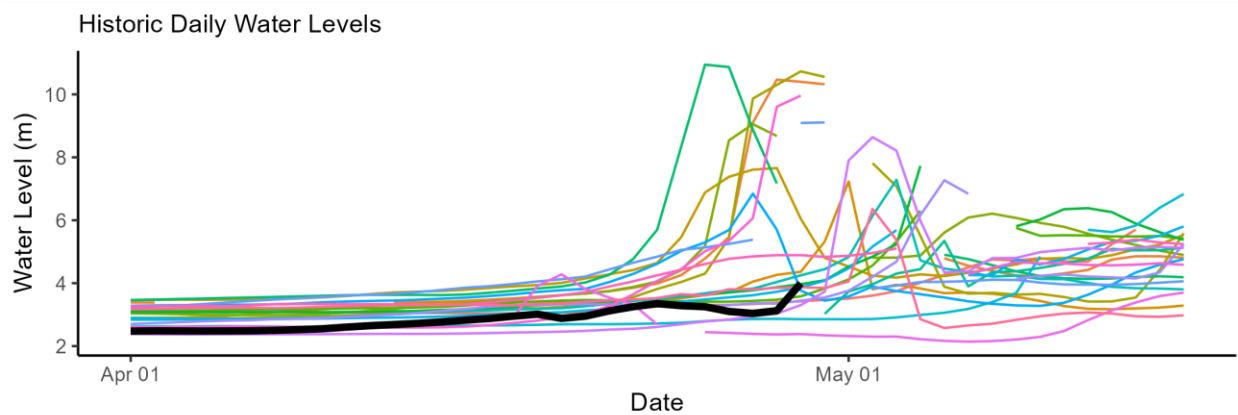
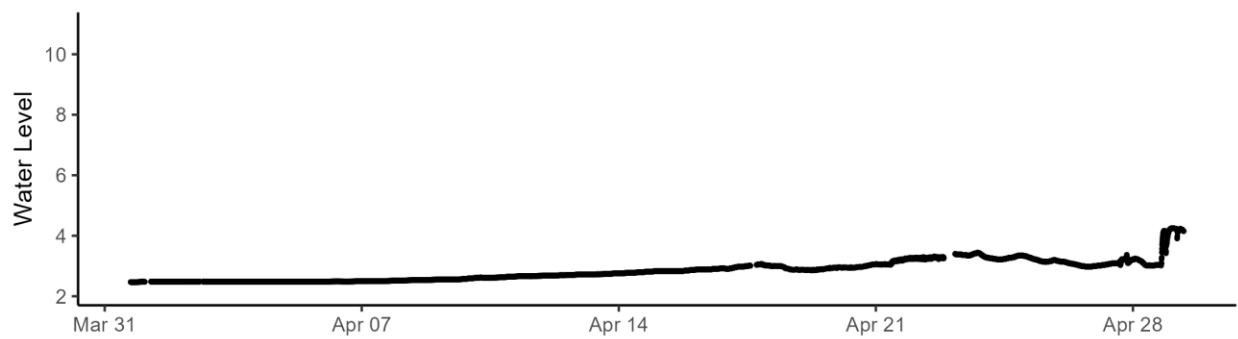


Above - The upper graph in the figure presents real time water level data at 5-minute resolution with the dashed line representing the peak water level from 2022. The lower graph shows daily average levels relative to the previous 20 years.

Liard River at Fort Liard [10ED001]:

LIARD RIVER AT FORT LIARD (10ED001)

2025 Water Levels (5 minute resolution)

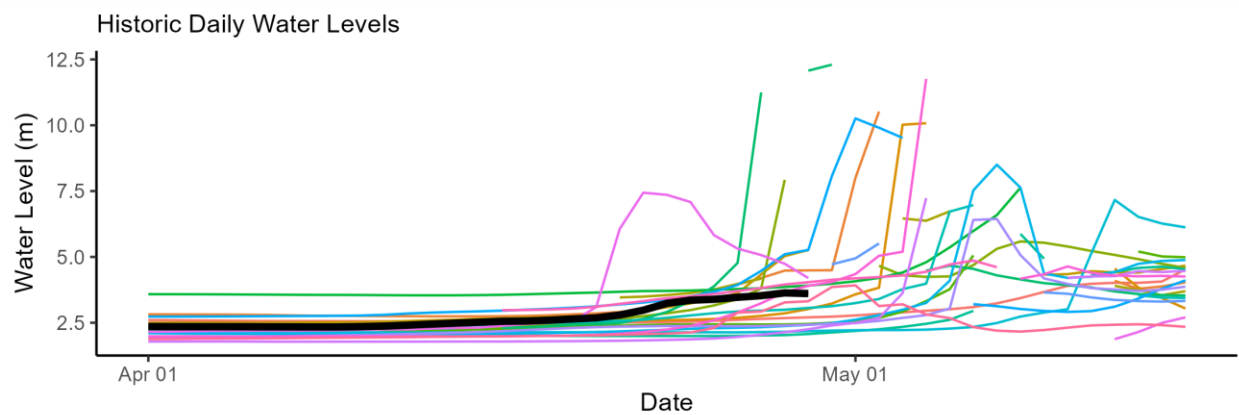
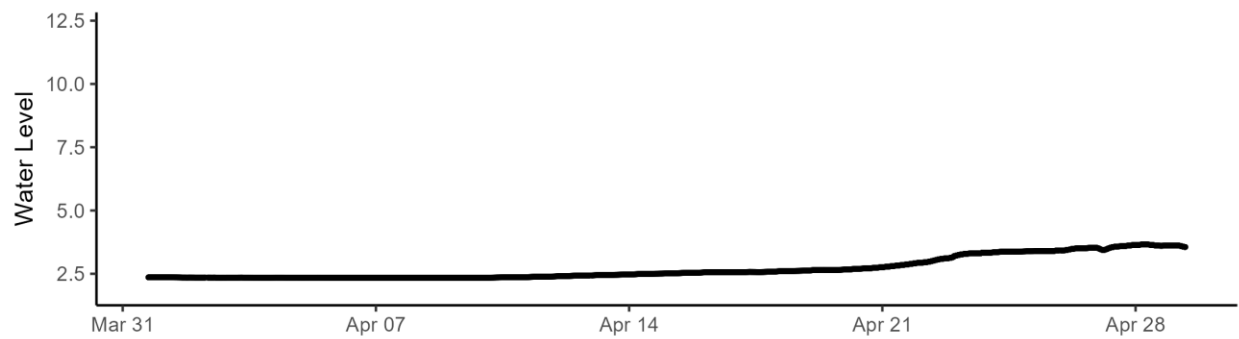


Above - The upper graph in the figure presents real time water level data at 5-minute resolution. The lower graph shows daily average levels relative to the previous 20 years.

Liard River near the mouth [10ED002]:

LIARD RIVER NEAR THE MOUTH (10ED002)

2025 Water Levels (5 minute resolution)

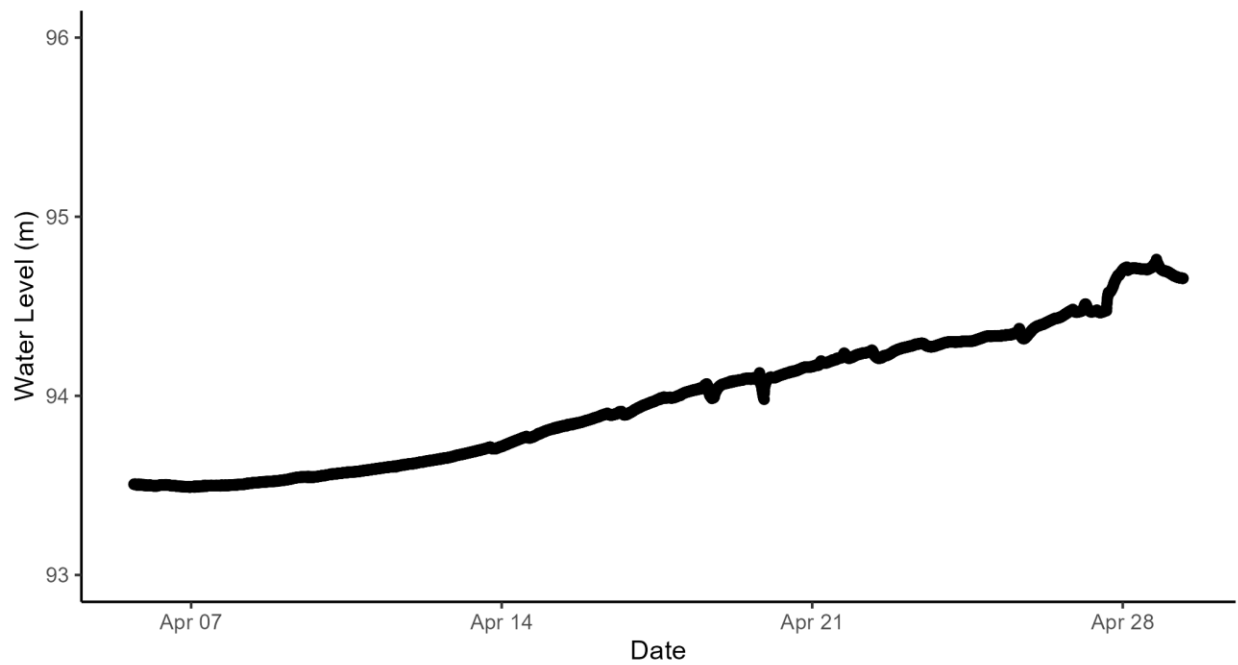


Above - The upper graph in the figure presents real time water level data at 5-minute resolution. The lower graph shows daily average levels relative to the previous 20 years.

Mackenzie River at Jean Marie River [10FB007]:

MACKENZIE RIVER AT JEAN MARIE RIVER (10FB007)

High Resolution Water Level Data

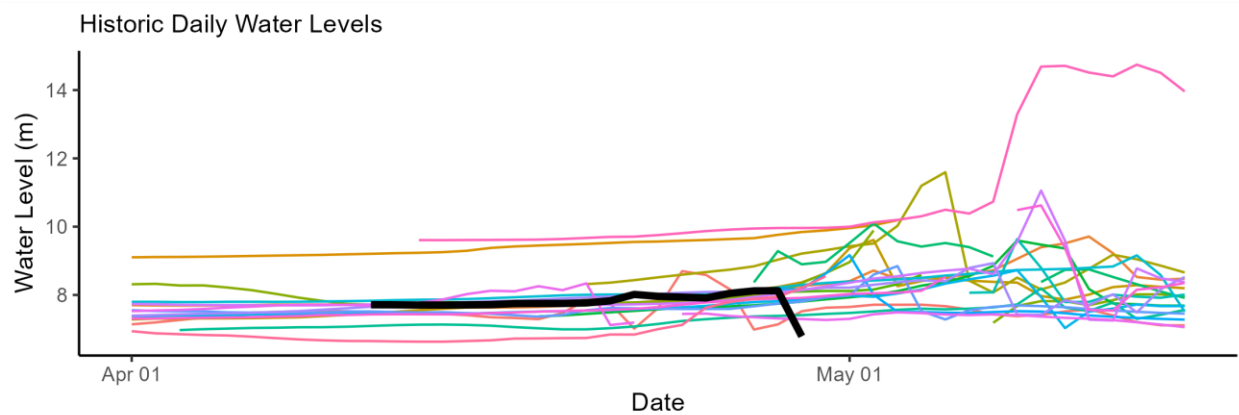
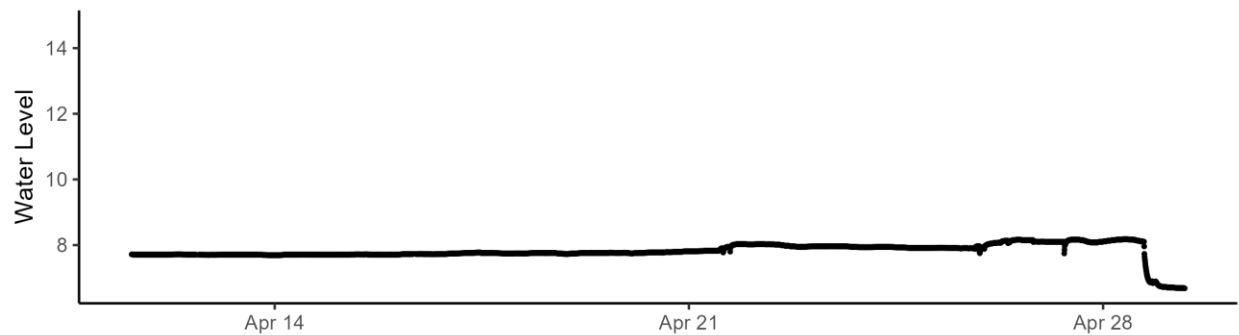


Above - Real time water level data at 5-minute resolution.

Mackenzie River at Strong Point [10FB006]:

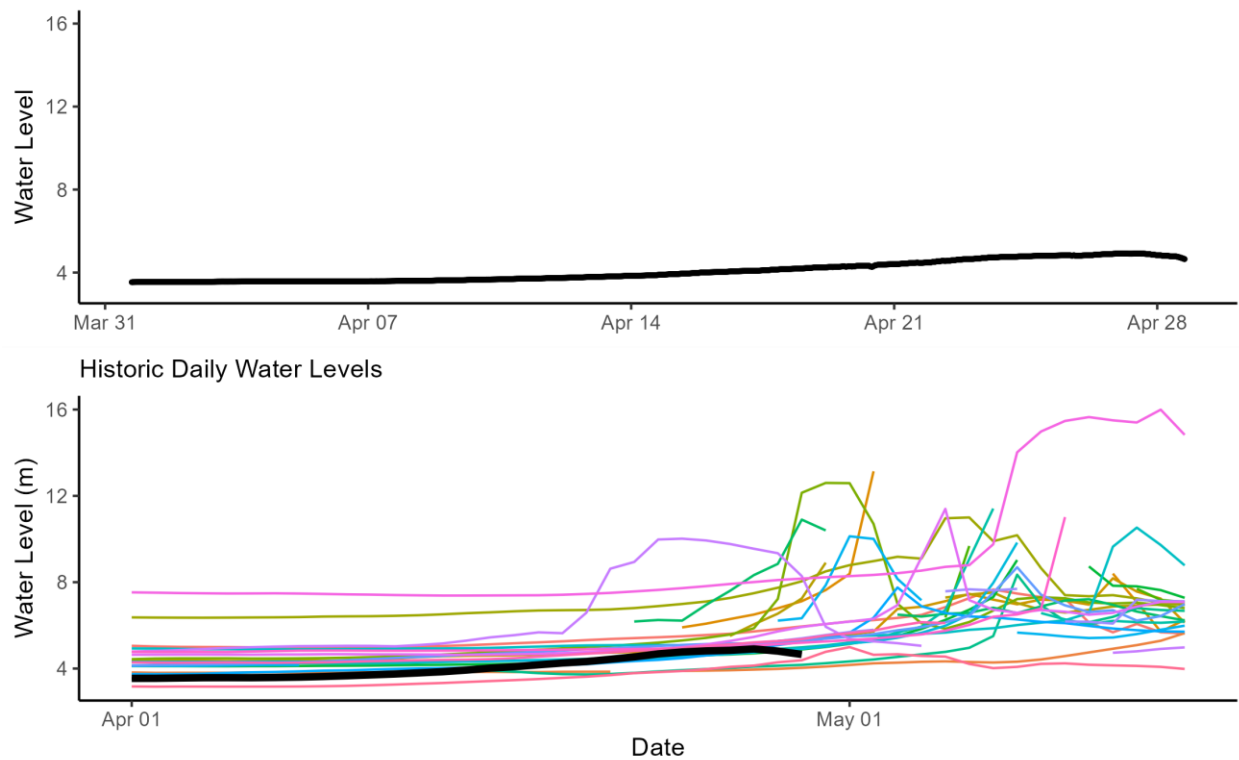
MACKENZIE RIVER AT STRONG POINT (10FB006)

2025 Water Levels (5 minute resolution)



Above - The upper graph in the figure presents real time water level data at 5-minute resolution. The lower graph shows daily average levels relative to the previous 20 years.

Mackenzie River at Fort Simpson [10GC001]:
MACKENZIE RIVER AT FORT SIMPSON (10GC001)
2025 Water Levels (5 minute resolution)



Above - The upper graph in the figure presents real time water level data at 5-minute resolution. The lower graph shows daily average levels relative to the previous 20 years.