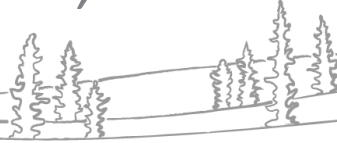




NWT Water Monitoring Bulletin

– June 3rd, 2025 at 11:00



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.

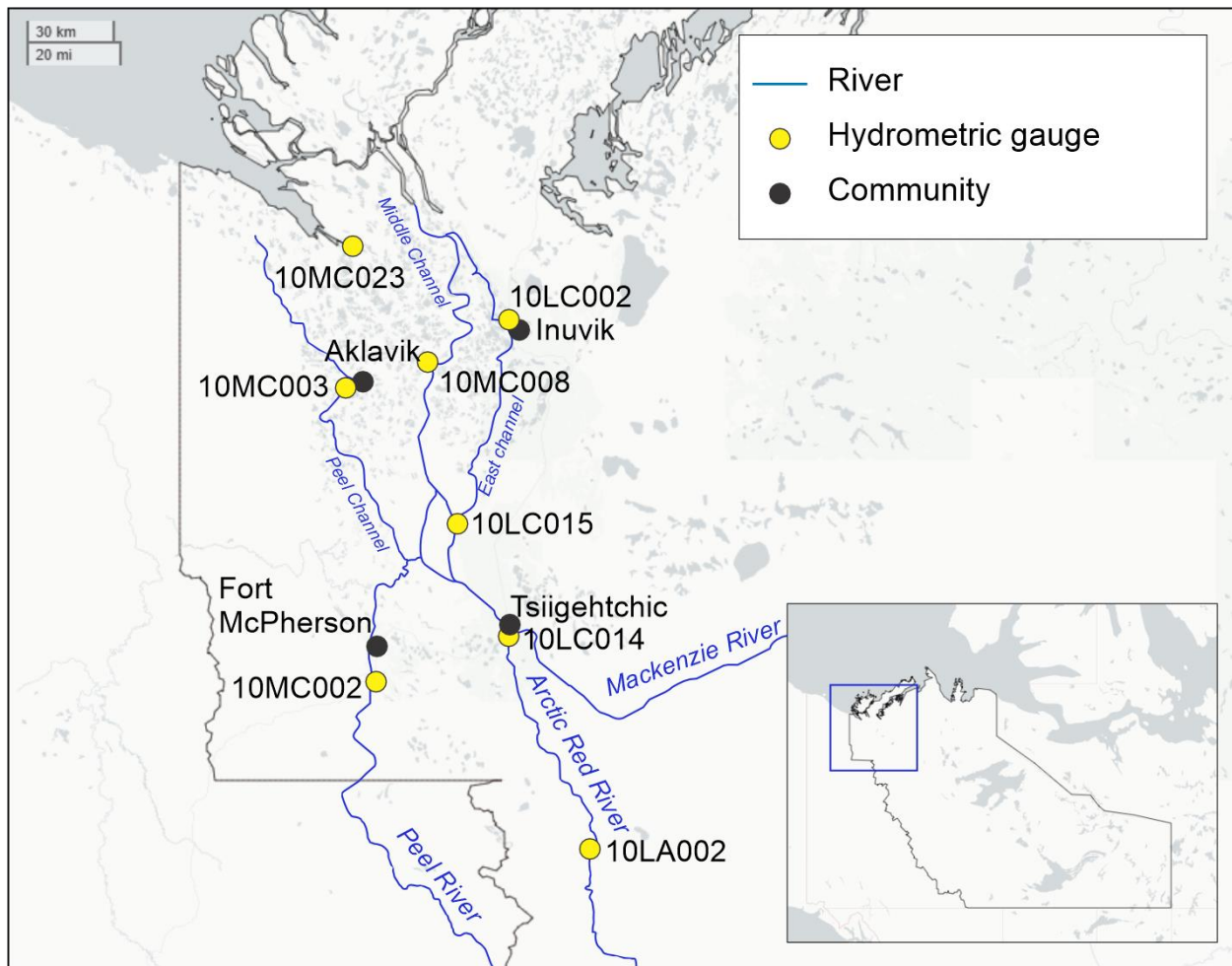
Current Status:

- Break-up related flood risk has passed for Aklavik for the 2025 season.
 - The ice front on the Peel Channel moved downstream past Aklavik on Sunday, June 1st, and is approximately 20 km downstream of Aklavik as of 8:30 pm last night.
 - According to radar imagery from yesterday, some rubble ice remains in the East Channel near Inuvik.
- Break-up is progressing in the lowest sections of the Beaufort Delta;
 - Water level on the Main Channel below Raymond Channel peaked at 15.3 m over this past weekend. It has since receded to 14.5 m.
 - According to recent radar imagery, rubble and sheet ice remain on the downstream sections of the Peel and Main Channels.
 - Water level is continuing to rise on the Napoiak Channel.
- This will be the last break-up report for the 2025 season

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Station Map

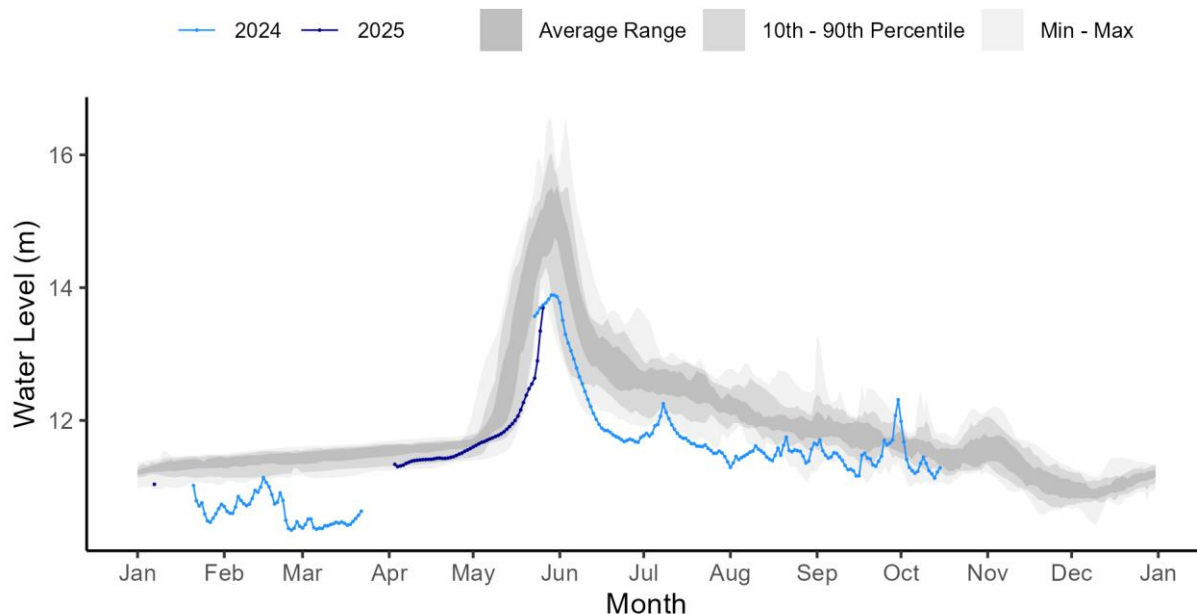


Above – Map of Hydrometric stations and nearby communities for the plots included in this report.

Hydrometric Data:

Mackenzie River (East Channel) at Inuvik [10LC002]

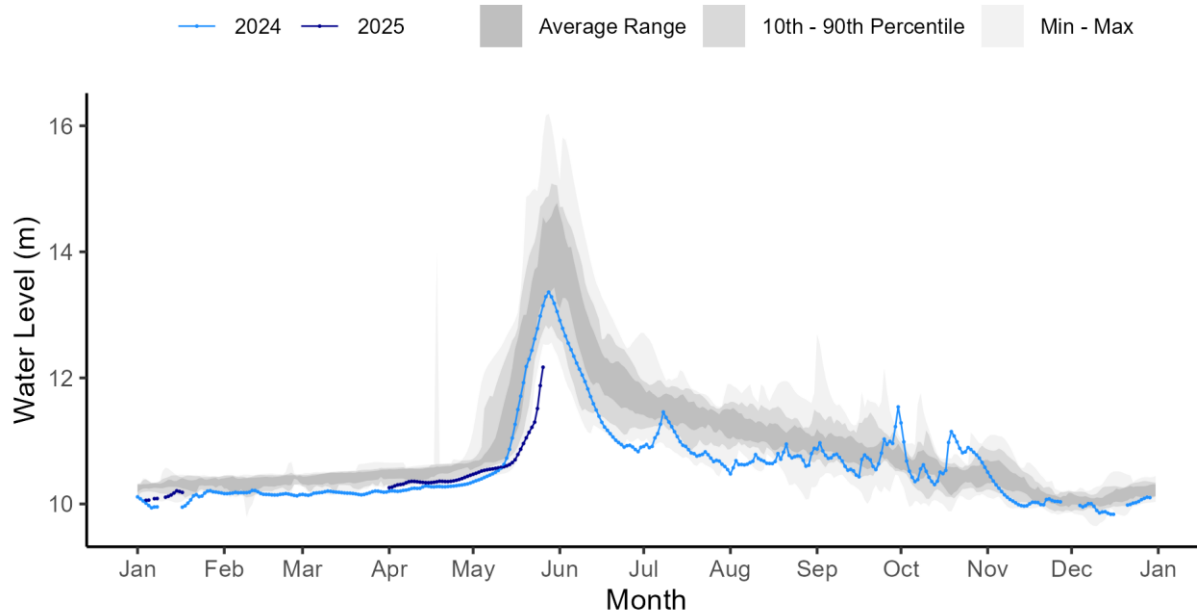
MACKENZIE RIVER (EAST CHANNEL) AT INUVIK (10LC002)



Above - Water level data for Mackenzie River (East Channel) at Inuvik [10LC002]. Daily average levels for the previous year also are shown here. **Note: Current data are ice-affected and are not shown here.**

Mackenzie River (Peel Channel) above Aklavik [10MC003]

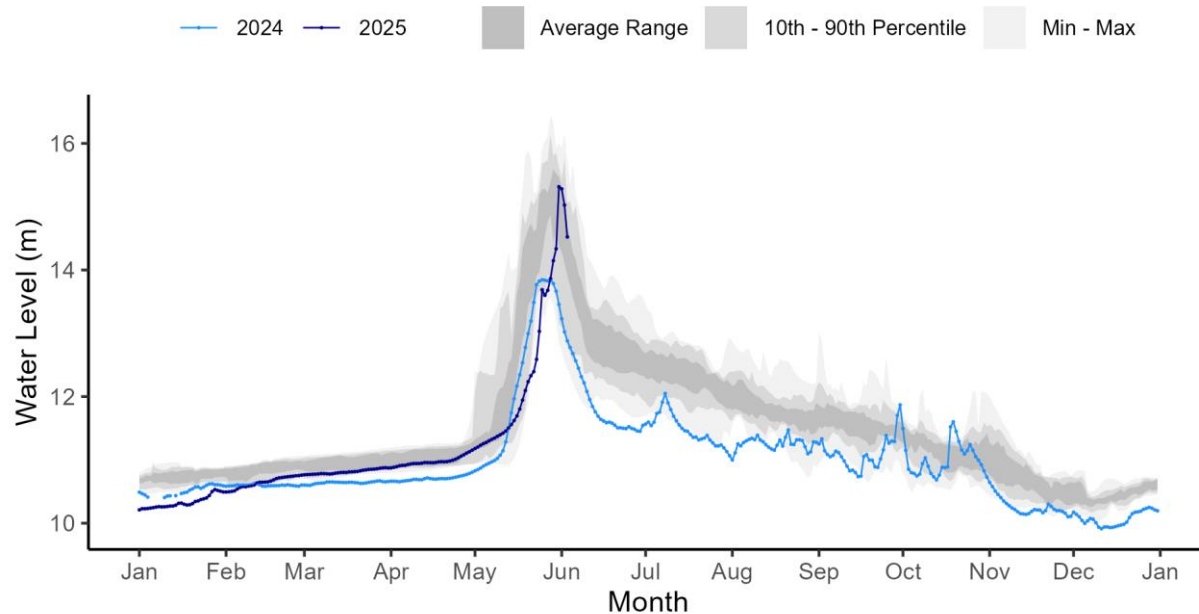
MACKENZIE RIVER (PEEL CHANNEL) ABOVE AKLAVIK (10MC003)



Above - Water level data for Mackenzie River (Peel Channel) above Aklavik [10MC003]. Daily average levels for the previous year also are shown here. **Note: Current data are ice-affected and are not shown here.**

Mackenzie River (Middle Channel) below Raymond Channel [10MC008]

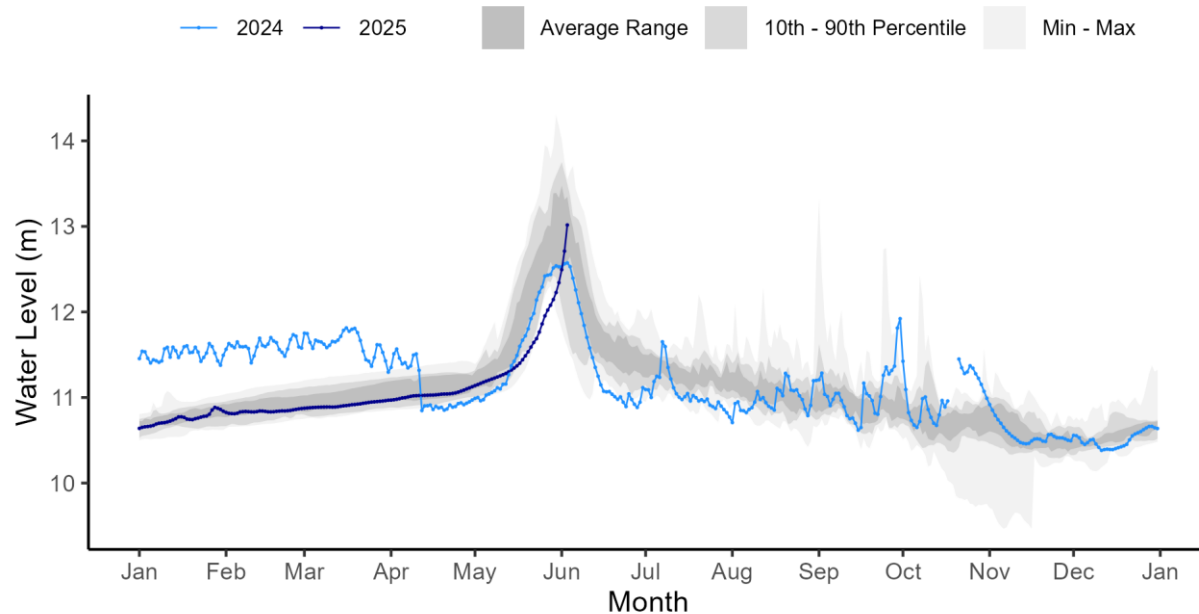
MACKENZIE RIVER (MIDDLE CHANNEL) BELOW RAYMOND CHANNEL



Above - Water level data for Mackenzie River (Middle Channel) below Raymond Channel [10MC008]. Daily average levels for the previous year also are shown here.

Mackenzie River (Napoiak Channel) above Shallow Bay [10MC023]

MACKENZIE RIVER (NAPOIAK CHANNEL) ABOVE SHALLOW BAY (10



Above - Water level data for Mackenzie River (Napoiak Channel) above Shallow Bay [10MC023]. Daily average levels for the previous year also are shown here.

Gauge photos:

Mackenzie River below Raymond Channel [10MC008]

10MC008 2025-06-03 15:01:17 UTC
68.29233, -134.42966 13.1V 10°C P



Above – Mackenzie River below Raymond Channel hydrometric gauge photo from June 3rd at 9:00. Photo courtesy of Water Survey of Canada and GNWT.

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, hits the ground, or gets stuck in a river bend. When this happens, the pieces of floating ice jam 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

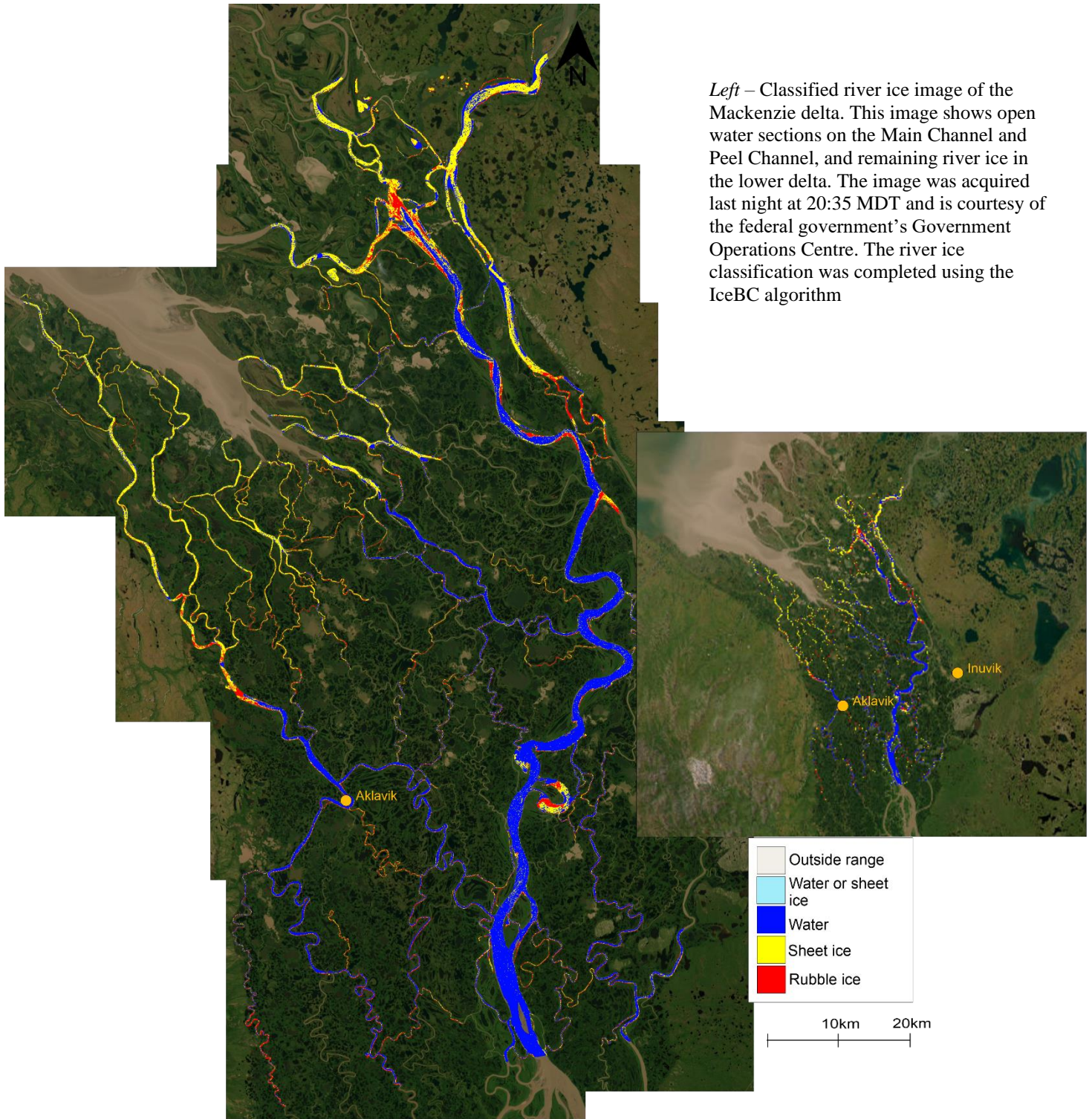
chances of ice jams. If an ice jam occurs, the location of the ice jam is also very important. Each river reach has different locations that are prone to ice jams. The location of the ice jam can be an important factor as to whether or not a community floods. Furthermore, ice will jam and then move again 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.

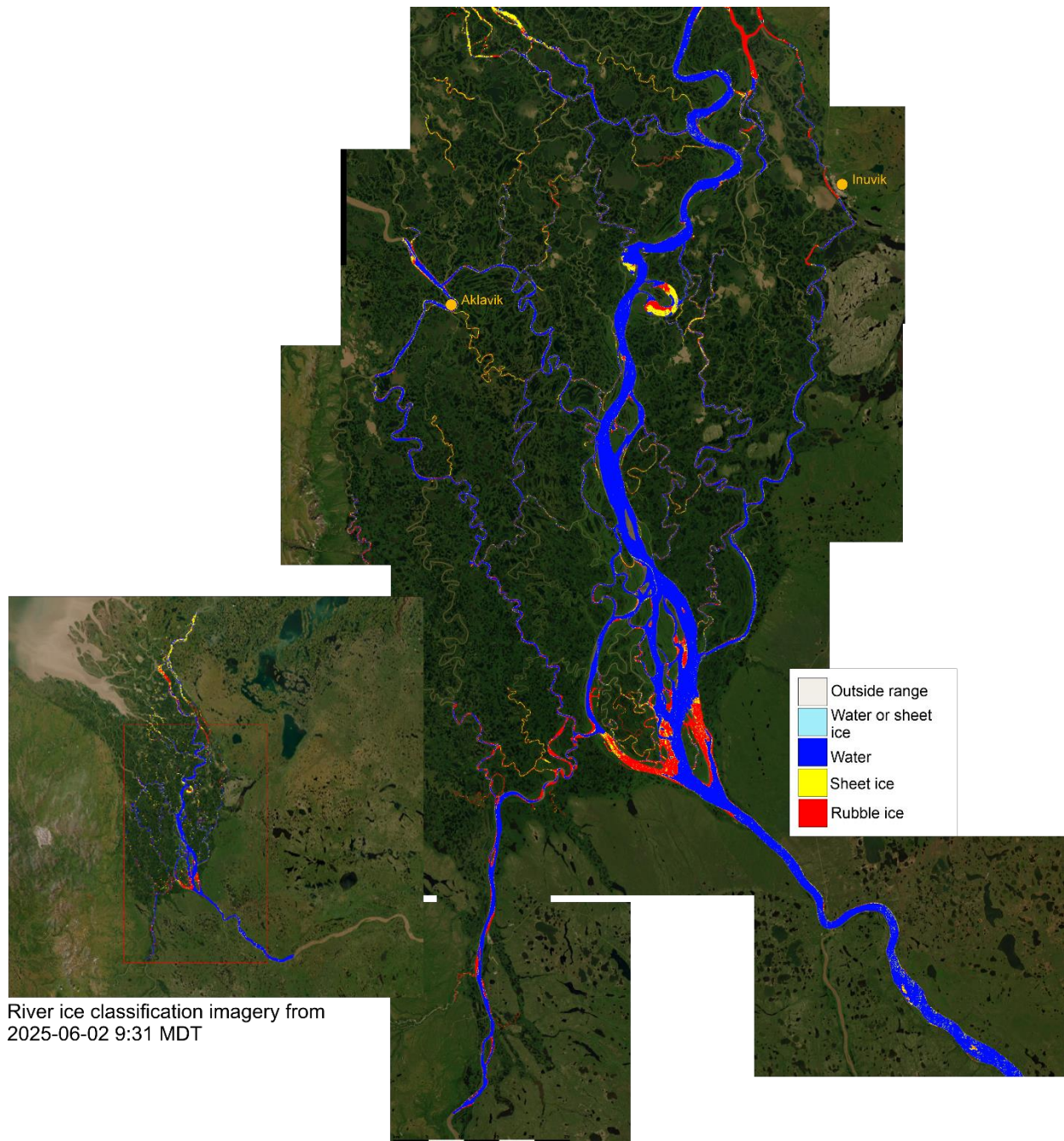
For example, the Hay River near the border gauge (07OB008) records a level of about 288 m. The Hay River near Hay River gauge (07OB001) usually records a level of about 4 m. This **does not mean** that the water level at the Hay River at the border site is 284 m higher than the water level at the Hay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

Appendix A: River Ice Imagery



Left – Classified river ice image of the Mackenzie delta. This image shows open water sections on the Main Channel and Peel Channel, and remaining river ice in the lower delta. The image was acquired last night at 20:35 MDT and is courtesy of the federal government's Government Operations Centre. The river ice classification was completed using the IceBC algorithm

River ice classification imagery from
2025-06-02 20:35 MDT



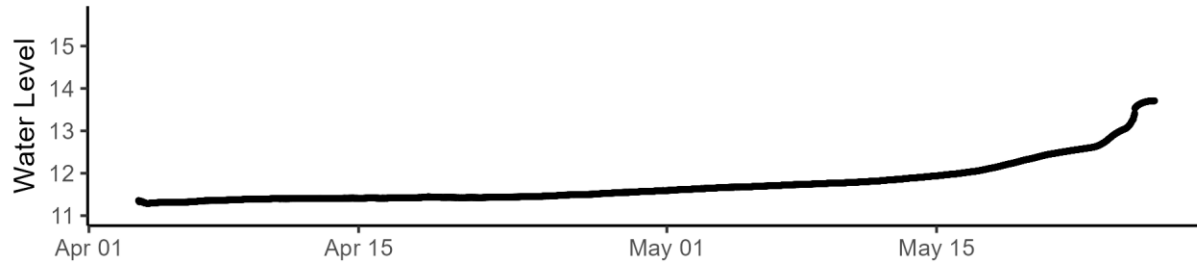
Above – Classified river ice image of the Mackenzie delta. This image shows open water on the Main Channel and Peel Channel, and some rubble ice remaining on the East Channel. The image was acquired yesterday at 9:31 MDT and is courtesy of the federal government’s Government Operations Centre. The river ice classification was completed using the IceBC algorithm

Appendix B: High resolution and historic water level plots

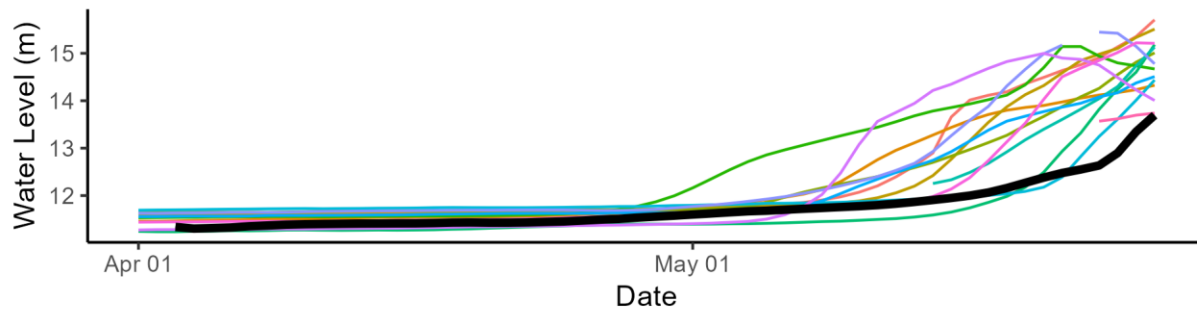
Mackenzie River (East Channel) at Inuvik [10LC002]

MACKENZIE RIVER (EAST CHANNEL) AT INUVIK (10LC002)

2025 Water Levels (5 minute resolution)



Historic Daily Water Levels

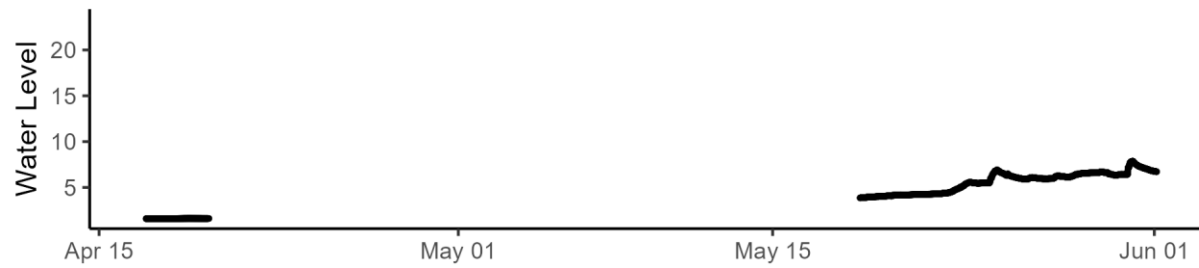


Above - The upper graph in the figure presents real time water level data at 5-minute resolution. The lower graph shows daily average levels relative to the previous 20 years. **Note: Current data are ice-affected and are not shown here.**

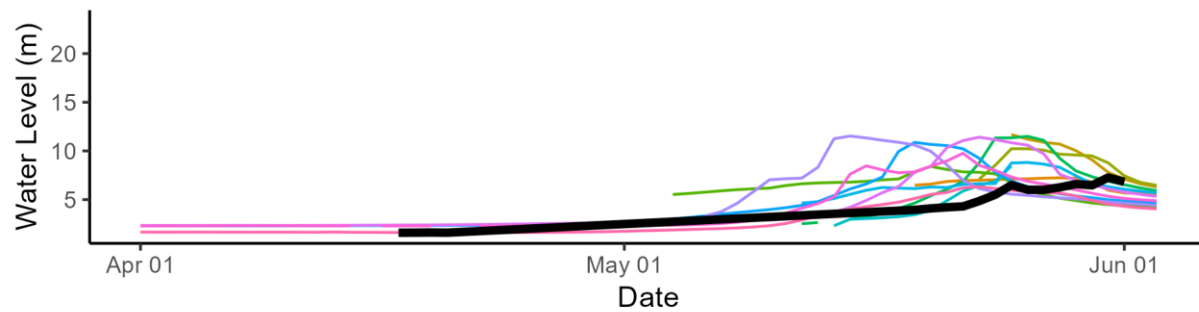
Mackenzie River at Confluence East Channel [10LC015]

MACKENZIE RIVER AT CONFLUENCE EAST CHANNEL (10LC015)

2025 Water Levels (5 minute resolution)



Historic Daily Water Levels

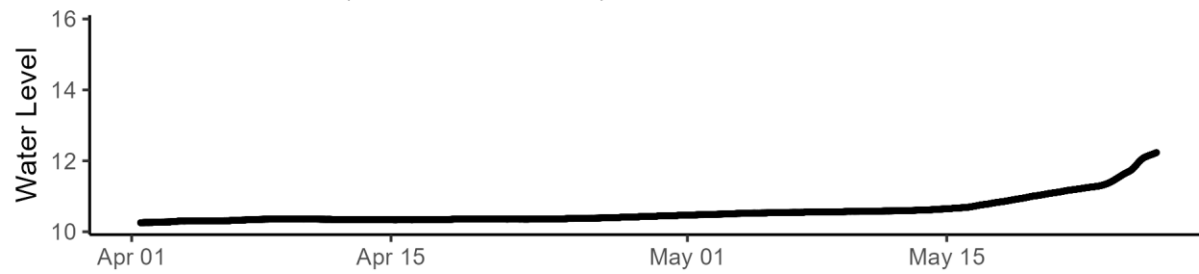


Above - The upper graph in the figure presents real time water level data at 5-minute resolution. The lower graph shows daily average levels relative to the previous 20 years. **Note: Current data are not transmitting, likely due to ice effects.**

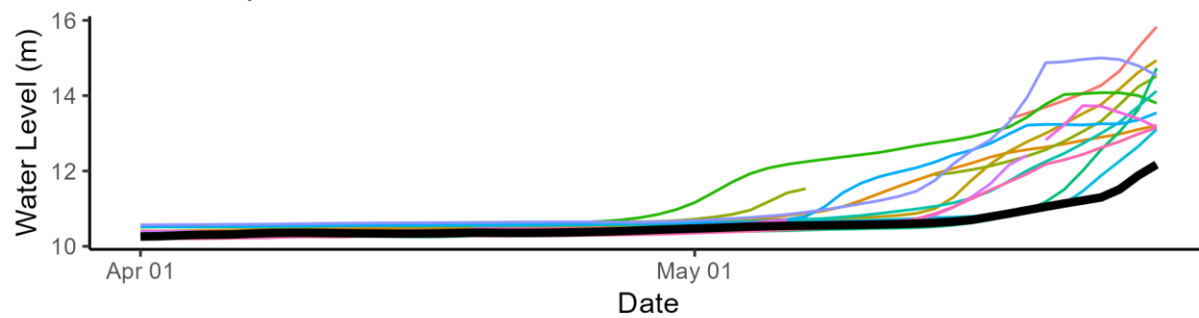
Mackenzie River (Peel Channel) above Aklavik [10MC003]

MACKENZIE RIVER (PEEL CHANNEL) ABOVE AKLAVIK (10MC003)

2025 Water Levels (5 minute resolution)



Historic Daily Water Levels

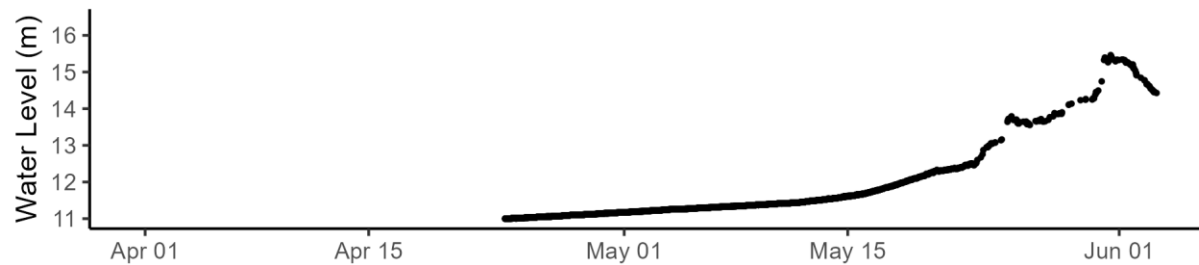


Above - The upper graph in the figure presents real time water level data at 5-minute resolution. The lower graph shows daily average levels relative to the previous 20 years. **Note: Current data are ice-affected and are not shown here.**

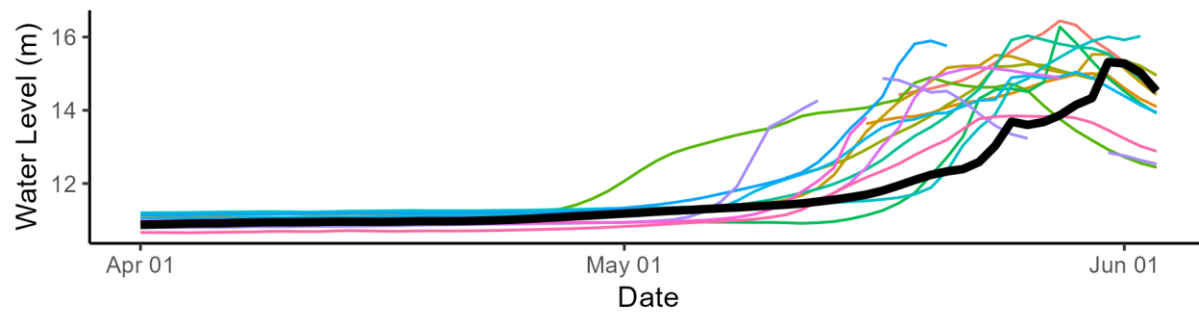
Mackenzie River (Middle Channel) below Raymond Channel [10MC008]

MACKENZIE RIVER BELOW RAYMOND CHANNEL (10MC008)

2025 Water Levels (5 minute resolution)



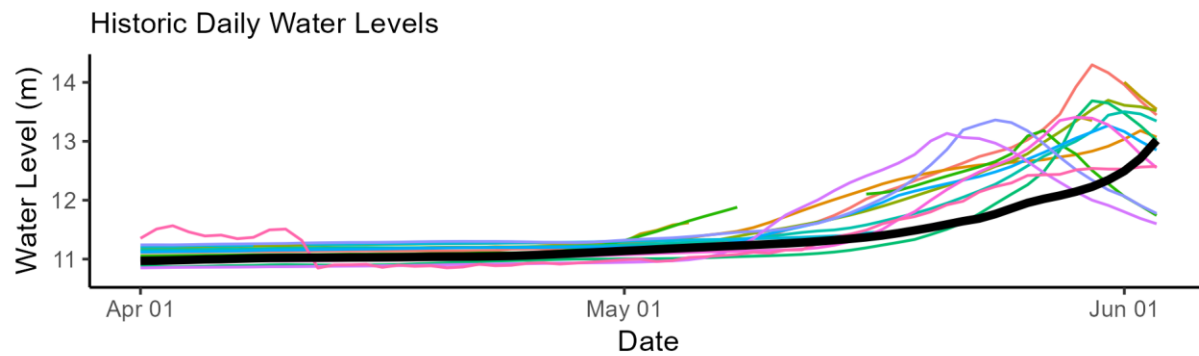
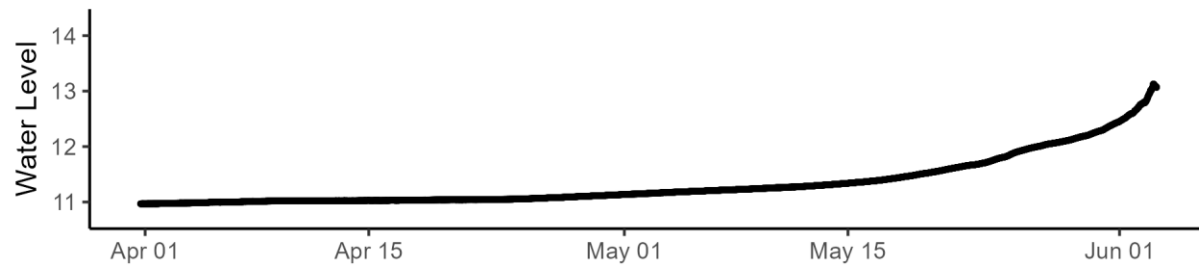
Historic Daily Water Levels



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

Mackenzie River (Napoia Channel) Above Shallow Bay (10MC023)

MACKENZIE RIVER (NAPOIAK CHANNEL) ABOVE SHALLOW BAY (10MC023) 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.