



Government of
Northwest Territories

NWT Water Monitoring Bulletin

– September 14, 2023



NWT Water Monitoring Bulletins are posted monthly. These bulletins are intended to provide an update of water flow and level data at select NWT Hydrometric Network gauge stations across the Northwest Territories.

Where available, data from river sites are presented as flow (discharge) and data from lake sites are presented as level. When flow data are unavailable, data from river sites are presented as level. The figures in this report represent current conditions for this year, relative to historic minimum and maximum values, as well as the average range, which is calculated as the interquartile range.

The NWT Hydrometric Network is a partnership between ECC and Environment and Climate Change Canada (ECCC) and is operated by the Water Survey of Canada (ECCC). Both historic and real-time data for all stations are available at https://wateroffice.ec.gc.ca/index_e.html. All 2022 and 2023 data are considered provisional and may contain values that are later corrected.

Any questions regarding information contained in this Bulletin can be directed to NWTWaters@gov.nt.ca.

Current status:

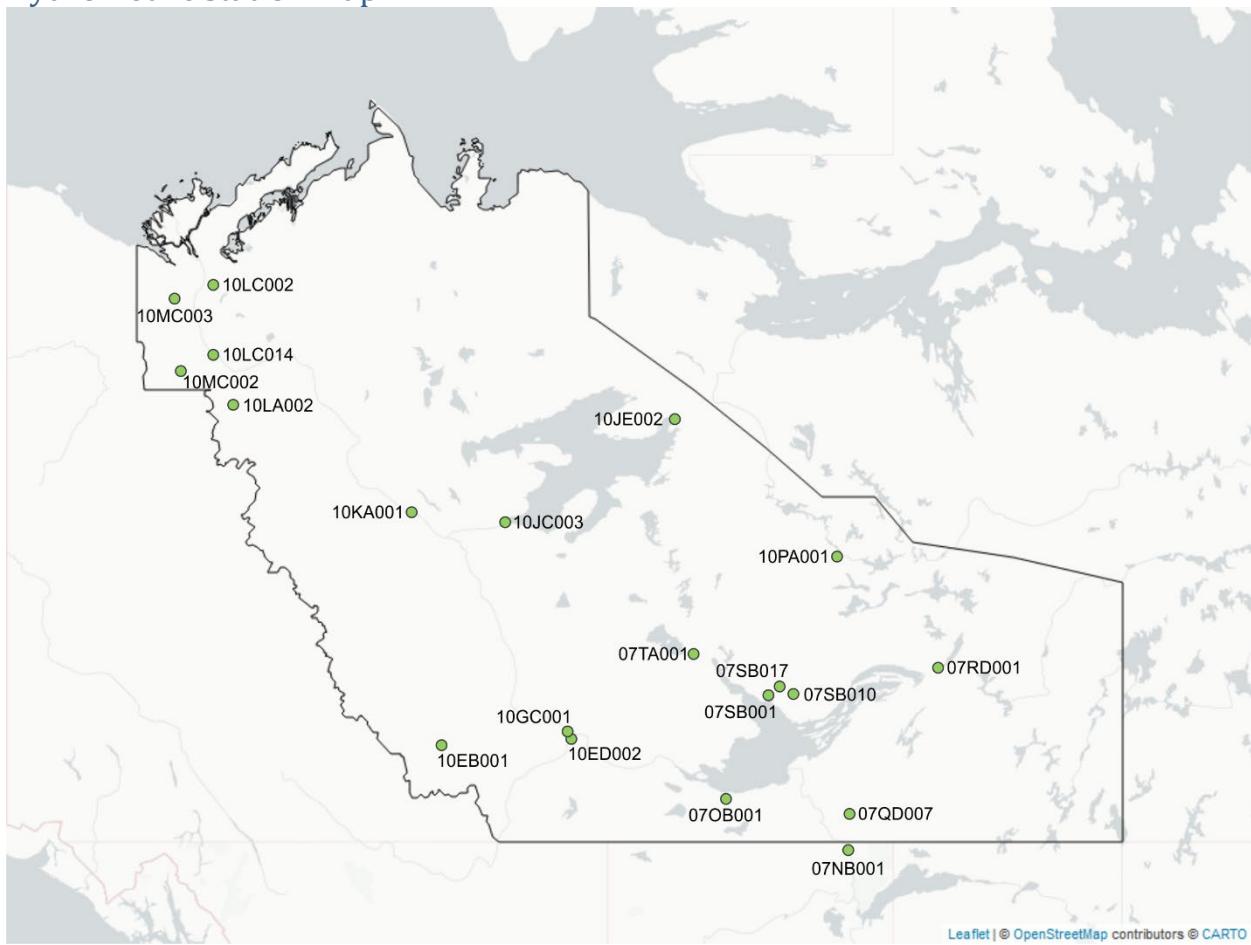
- In general, water levels across the NWT are extremely low, and in some cases the lowest on record for the time of year. Very dry conditions have resulted in little water being available to flow to rivers and lakes.
 - These conditions originated last summer and fall (2022) and have carried through summer 2023 and into September.
 - As a result of the extremely dry conditions in many basins, when rain does fall, it will first ‘fill up’ the soil, wetlands and ponds before contributing to larger rivers and lakes.
- August was very dry across the NWT, with exceptions around Fort Liard (71 mm of rain) and in the Beaufort Delta (41 mm of rain).
- Very warm air temperatures generally result in increased evaporation and transpiration rates, which contribute to dry conditions, and are therefore reported on in this bulletin.
- Great Slave Lake and Mackenzie River water levels remain very low, largely due to hot and dry conditions in northern Alberta and British Columbia, and the southern NWT.
 - The Slave River has been below average for the entirety of the summer.
 - Great Slave Lake is currently at a record low water level for this time of year.
 - The Mackenzie River at Tsiigehtchic is the lowest on record for this time of year.
 - Great Slave Lake went from being a record high water level in June 2022 to record low in September 2023 (for the respective times of year).
 - Over the last five years, water levels on Great Slave Lake have shifted from extremely low (July 2019) to the highest on record (2020 to 2022) back to extremely low (July 2023). The magnitude and frequency of these fluctuations have not previously been seen in the 88-year record.
 - These strong fluctuations in water levels are a result of large weather systems that have moved over the entirety of the Great Slave Lake basin, which includes sub basins in northern BC, Alberta, Saskatchewan and NWT.
 - While it is difficult to isolate individual events, these weather systems are likely a combination of climate variability from global teleconnections (La Niña and El Niño events) and climate change.
- In the South Slave and Dehcho regions, the summer has been very hot and dry. The southeast NWT has been extremely dry, while the southwest NWT has received closer to average precipitation
 - The months of July and August were the driest on record for Hay River (11.6 mm) and Fort Smith (11.7 mm)
 - Fort Liard (223 mm) and Sambaa K'e (107 mm) received the most rain of any community in the NWT in July and August.
 - This precipitation resulted in a rise in water level on the Liard River in late July and early August, but water levels have since receded.
 - Every community in the South Slave and Dehcho has recorded the hottest or second hottest spring/summer on record (01 May to 31 Aug).
 - Water levels and flows on many rivers in the South Slave and Dehcho regions are at or near the lowest on record (for the time of year), including:

- Hay River (lowest on record)
 - Kakisa River (lowest on record)
 - Trout River (lowest on record)
 - Jean-Marie River (lowest on record)
 - Petitot River (lowest on record)
 - Liard River (lowest on record)
- Conditions in the North Slave are similar to the South Slave.
 - Rainfall amounts in the North Slave region in July and August ranged between 15 to 50 mm, with areas along the north shore of Great Slave Lake receiving the lowest amounts. The average amount of rainfall in July is about 80 mm.
 - Spring/summer temperatures (01 May to 31 Aug) in the North Slave have been extremely high, with many communities recording the warmest on record.
 - Water levels and flows on lakes and rivers in the North Slave region are well below normal, including:
 - Cameron River
 - Yellowknife River
 - Prelude Lake
 - Prosperous Lake
 - Snare River (lowest on record)
 - Coppermine River (lowest on record)
- The Sahtu region was also drier than normal in July and August, with communities recording rainfall amounts between 14 and 66 mm (average rainfall is ~85 mm).
 - All communities in the Sahtu experienced the hottest or second warmest spring/summer period (01 May to 31 Aug) on record.
 - Water levels and flows on rivers and lakes in the Sahtu are below normal, including:
 - Great Bear River (slightly below normal)
 - Great Bear Lake (well below normal)
 - Loon River (slightly below normal)
 - Hare Indian River (lowest on record)
- The Beaufort Delta region received slightly less rainfall than average in July and August. Rainfall amounts over this time ranged from 49 to 62 mm (average rainfall is ~70 mm).
- The spring/summer period (01 May to 31 Aug) was extremely warm with Inuvik experiencing the warmest period on record, nearly 4°C warmer than normal.
 - Water levels in the Mackenzie Delta are lower than normal as a response to low water levels on the Mackenzie River.
 - Water levels and flows on most gauged local rivers in this region are about normal, including:
 - Peel River
 - Rengleng River
 - Travaillant River (well below normal)

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Hydrometric station map



Above – A map of the hydrometric stations included in this report.

Information on interpreting figures:

Water level and flow figures:

The light blue line shows levels/flows from last year (2022) and the dark blue line shows current levels/flows from this year (2023). The dark grey band represents the average range (calculated as the interquartile range), while the light grey bands represent the highest and lowest levels or flows on record. If the dark blue line is within the dark grey band, current conditions can be assumed to be normal.

Note: The grey bands are calculated for values prior to 2022. If the line from 2022 or 2023 is above (below) the grey band, it means that the flow or level from that year was the highest (lowest) on record.

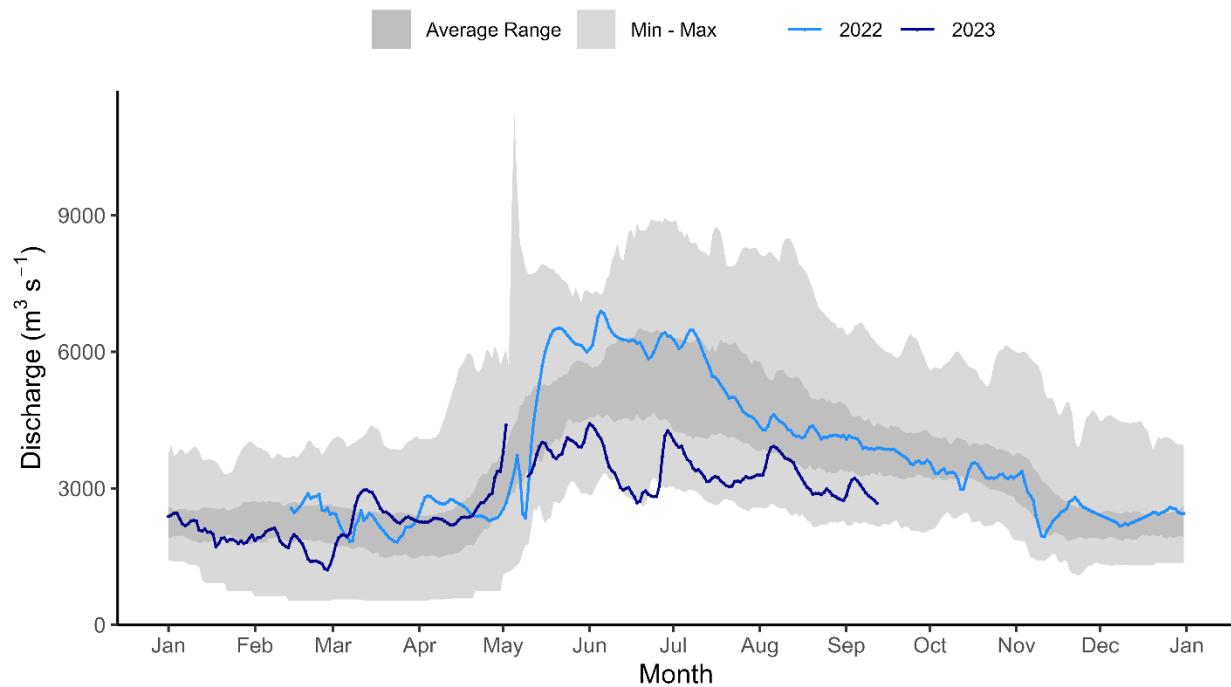
Climate figures:

Monthly air temperature and precipitation data are displayed for six communities in the NWT (Fort Smith, Hay River, Yellowknife, Fort Simpson, Norman Wells, and Inuvik) and presented as box and whisker plots. The box in each plot represents the average range (calculated as the interquartile range) for each month, and the whiskers are the vertical black lines that represent the extreme values (10th to 90th percentiles). Each grey dot is the value from a previous year, beginning in 1950. The red or blue dots represent the values for 2023. These data are acquired and managed by Environment and Climate Change Canada.

Water level and flow data:

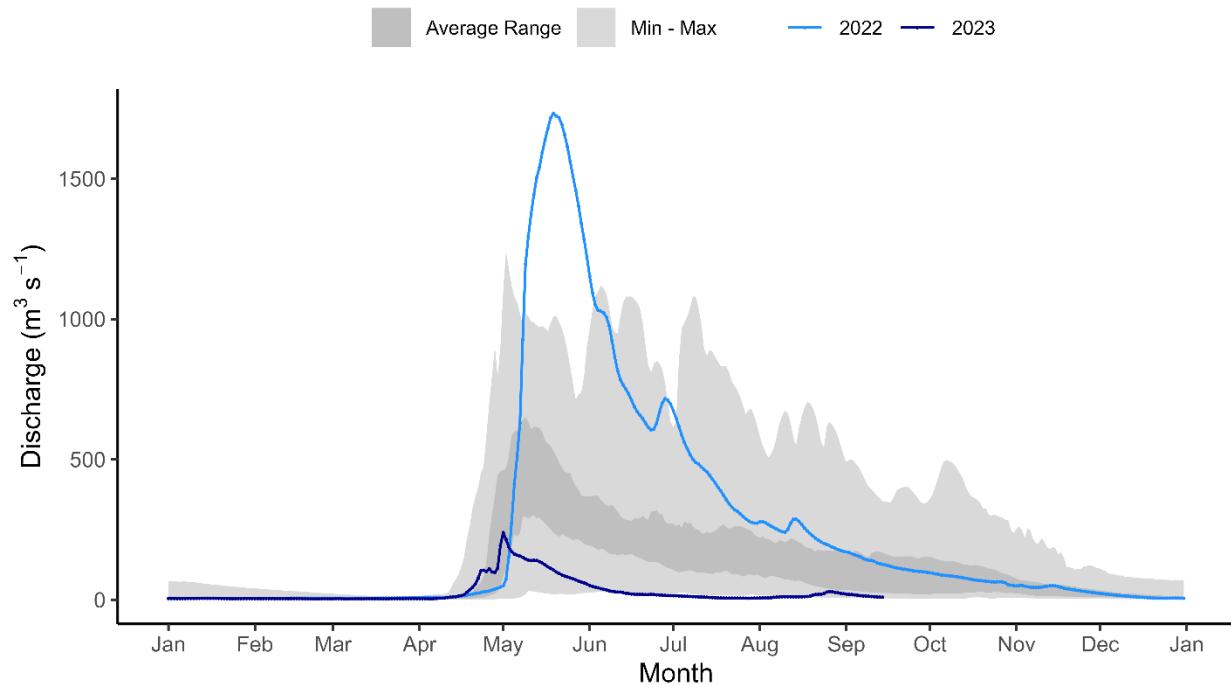
Slave River at Fitzgerald [07NB001]

SLAVE RIVER AT FITZGERALD (ALBERTA) (07NB001)



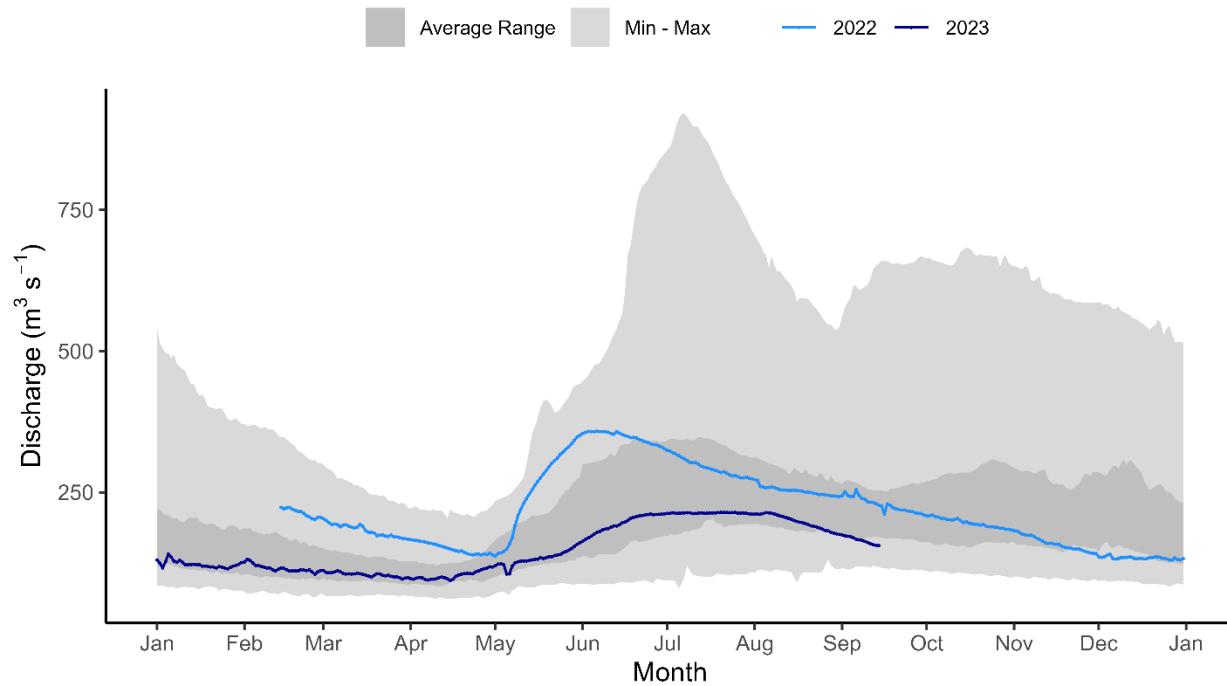
Hay River near Hay River [07OB001]

HAY RIVER NEAR HAY RIVER (07OB001)



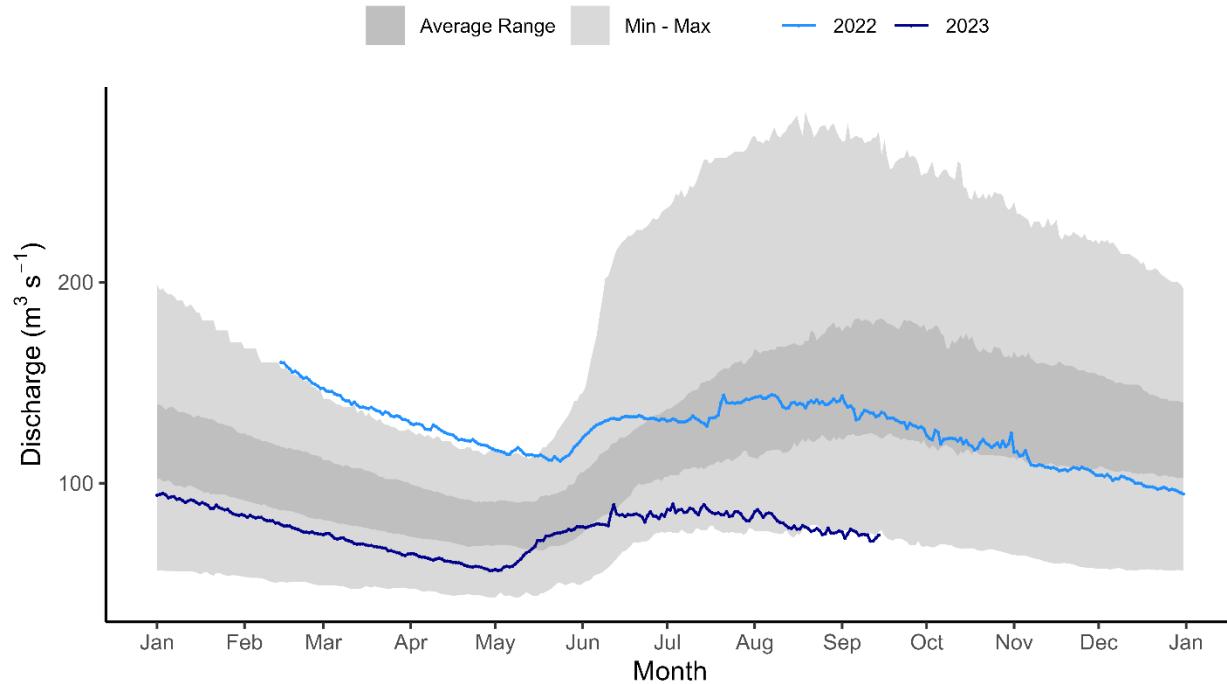
Taltson River below Hydro Dam [07QD007]

TALTSON RIVER BELOW HYDRO DAM (07QD007)



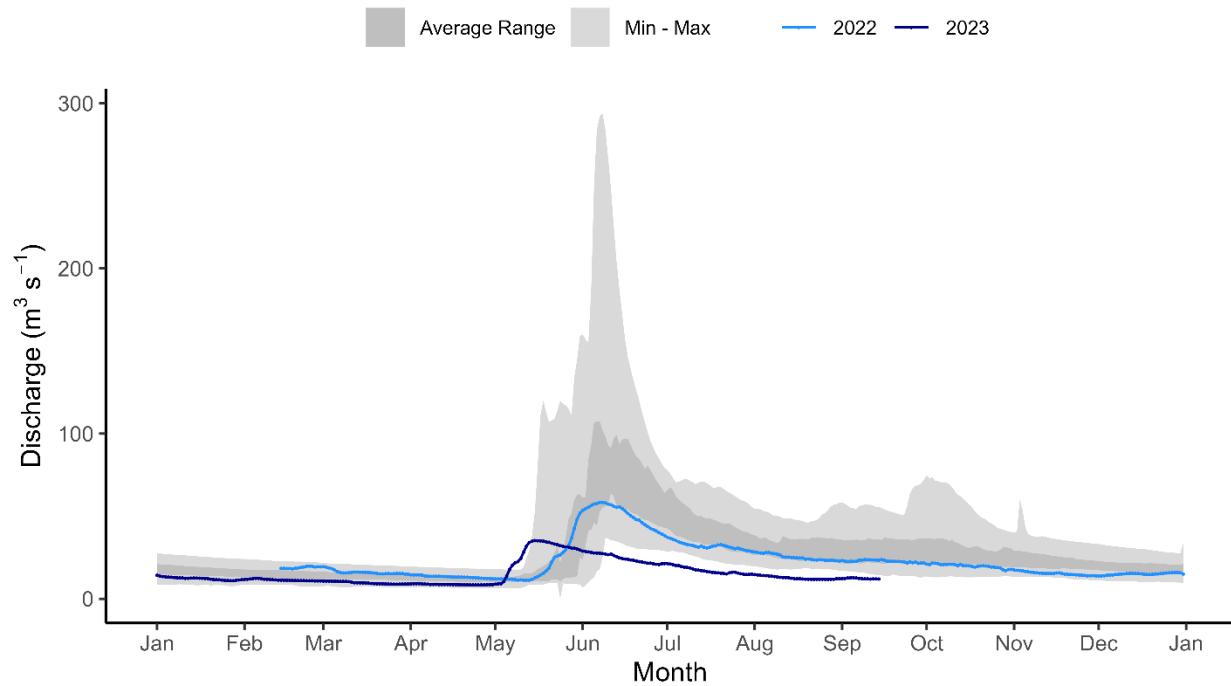
Lockhart River at outlet of Artillery Lake [07RD001]

LOCKHART RIVER AT OUTLET OF ARTILLERY LAKE (07RD001)



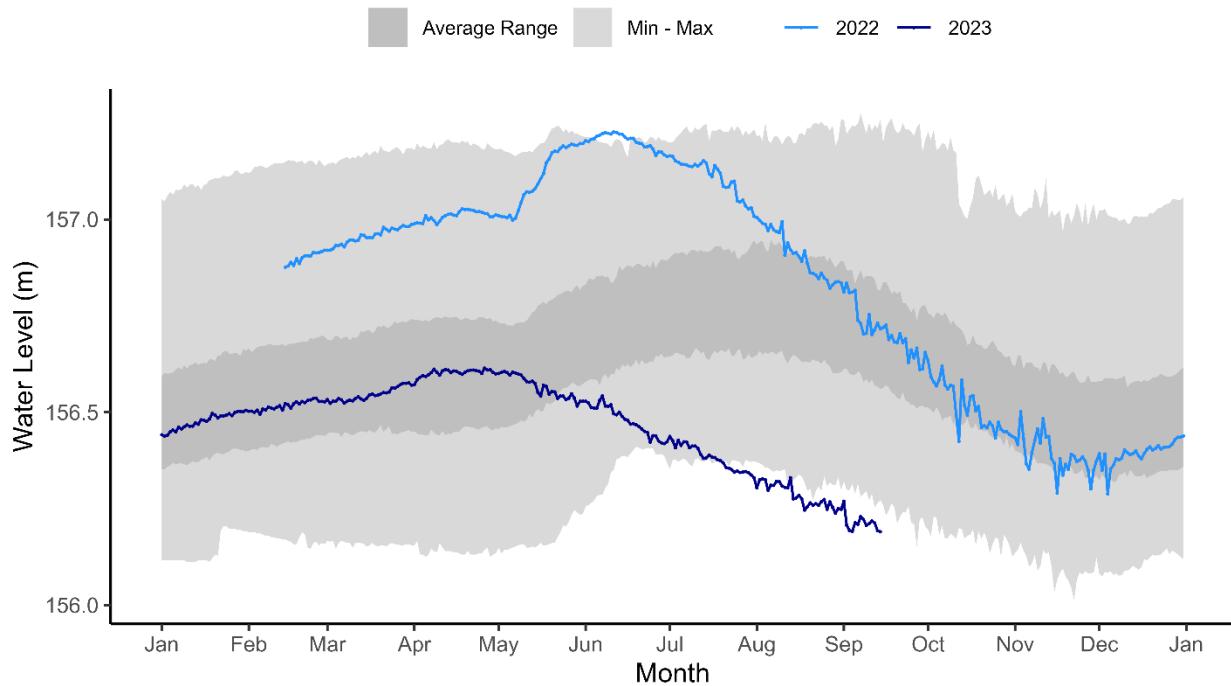
Coppermine River below Desteffany Lake [10PA001]

COPPERMINE RIVER BELOW DESTEFFANY LAKE (10PA001)



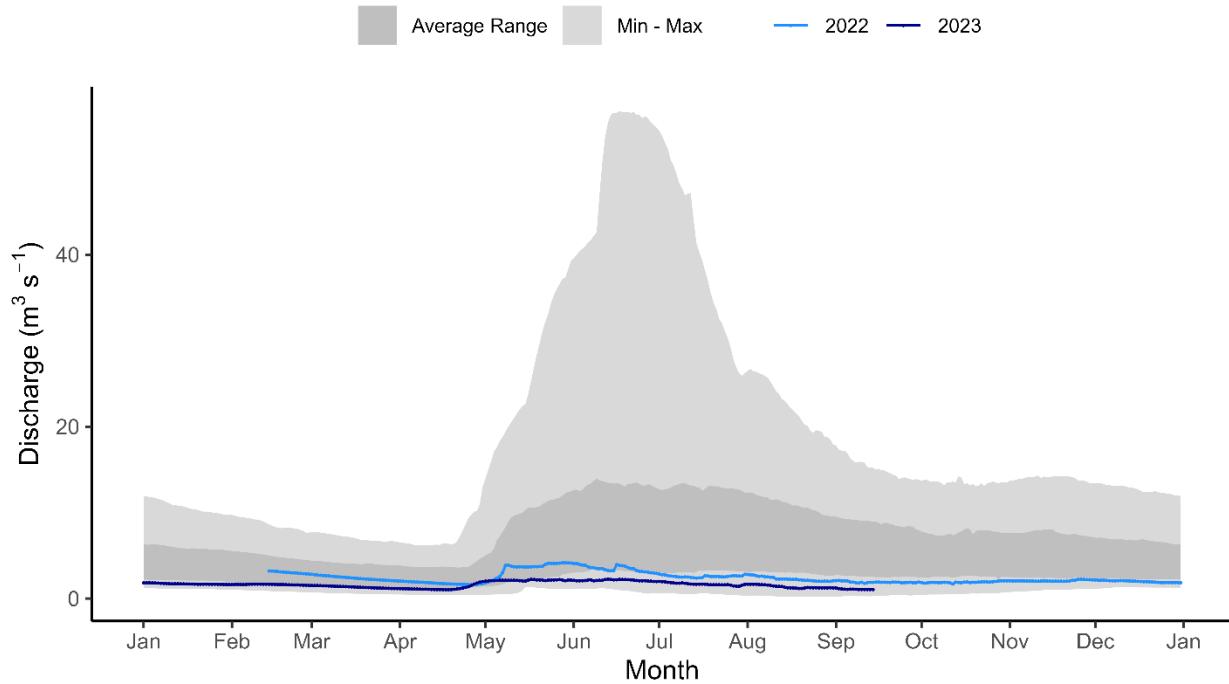
Great Slave Lake at Yellowknife Bay [07SB001]

GREAT SLAVE LAKE AT YELLOWKNIFE BAY (07SB001)



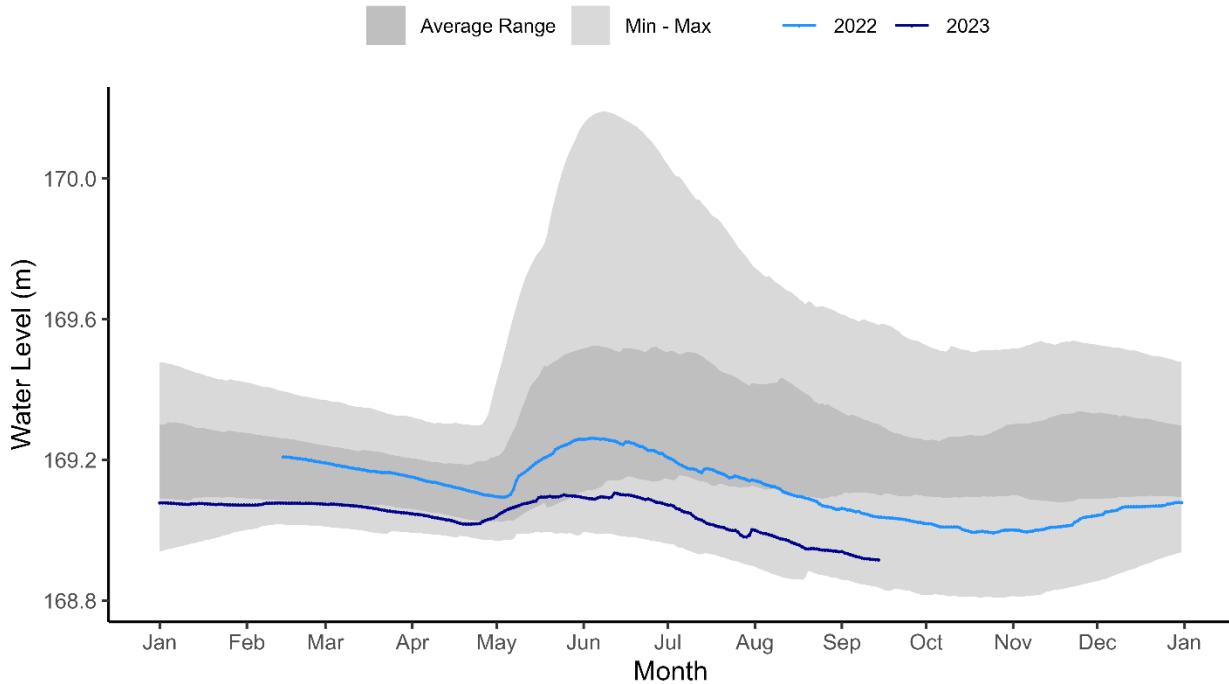
Cameron River below Reid Lake [07SB010]

CAMERON RIVER BELOW REID LAKE (07SB010)



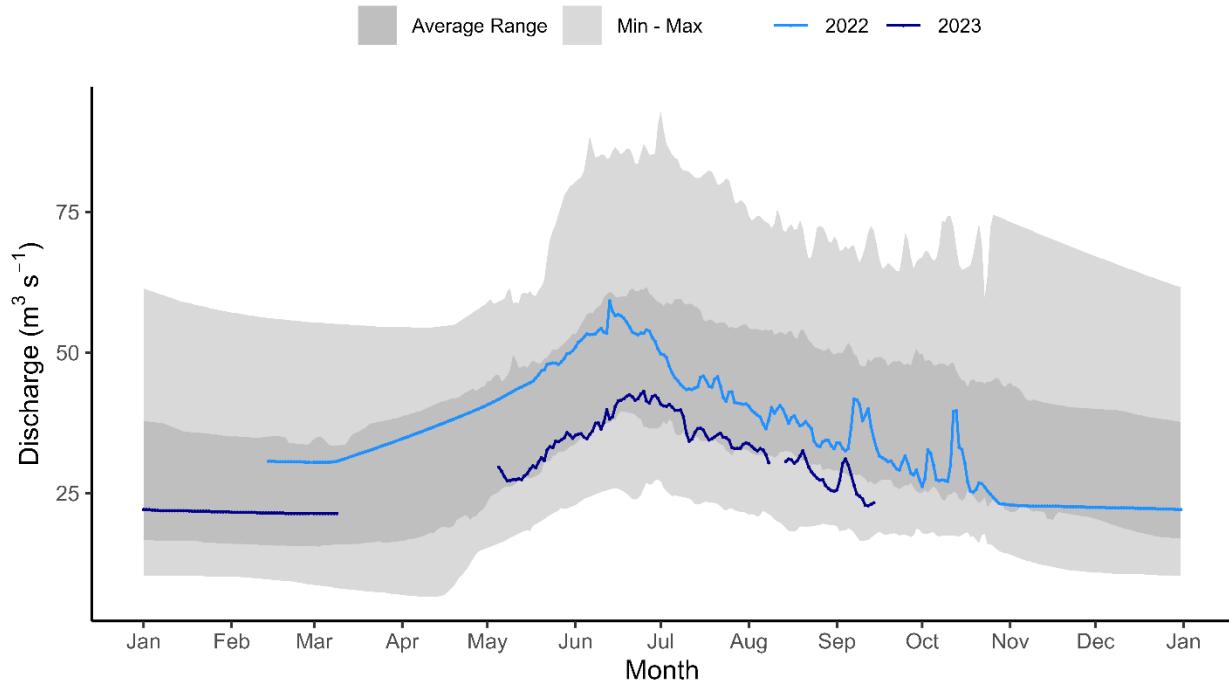
Prelude Lake near Yellowknife [07SB017]

PRELUDE LAKE NEAR YELLOWKNIFE (07SB017)



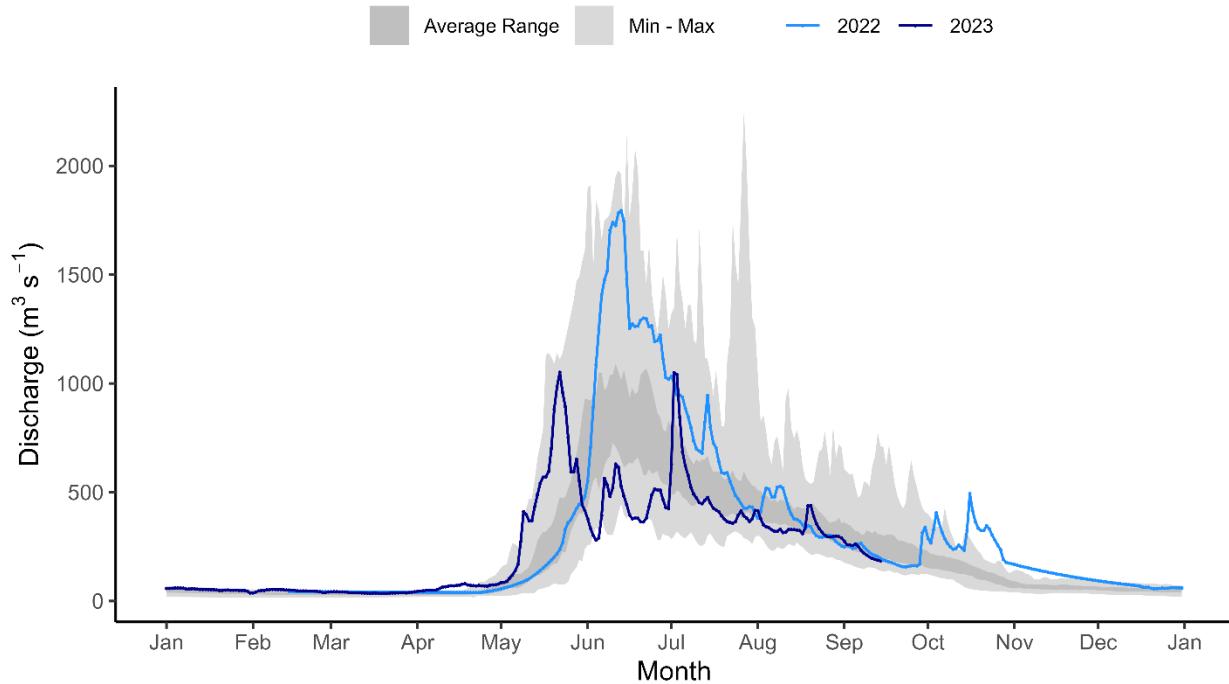
La Martre River below outlet of Lac La Martre [07TA001]

LA MARTRE RIVER BELOW OUTLET OF LAC LA MARTRE (07TA001)



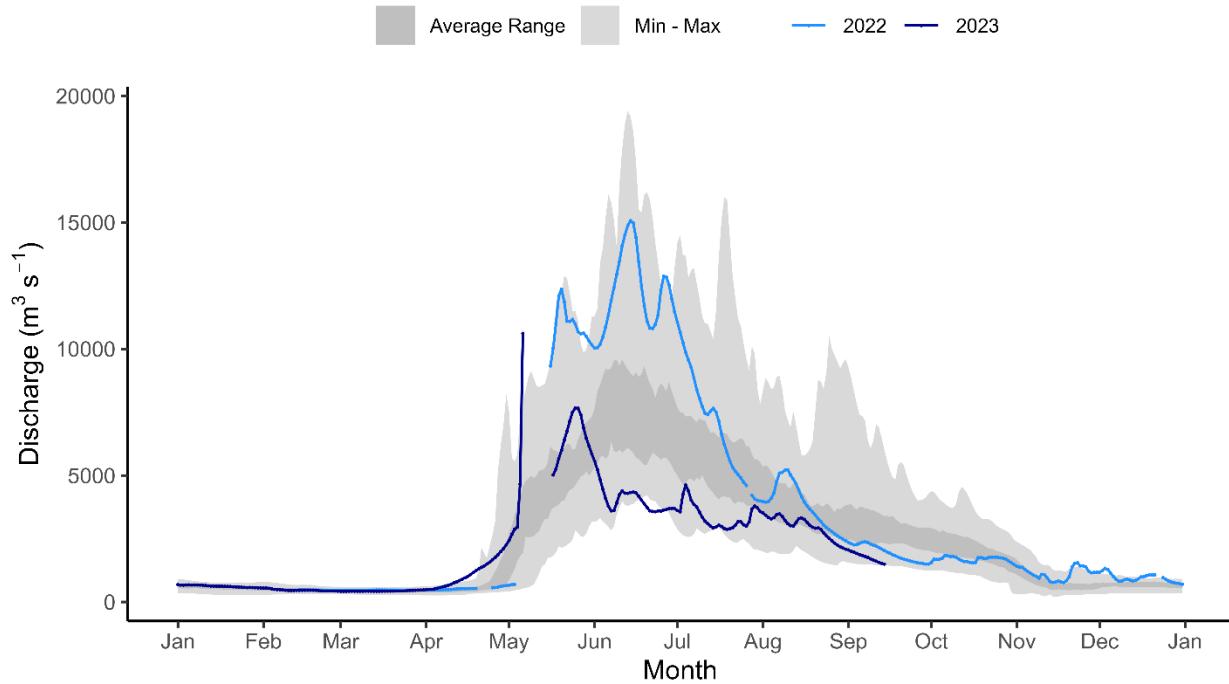
South Nahanni River above Virginia Falls [10EB001]

SOUTH NAHANNI RIVER ABOVE VIRGINIA FALLS (10EB001)



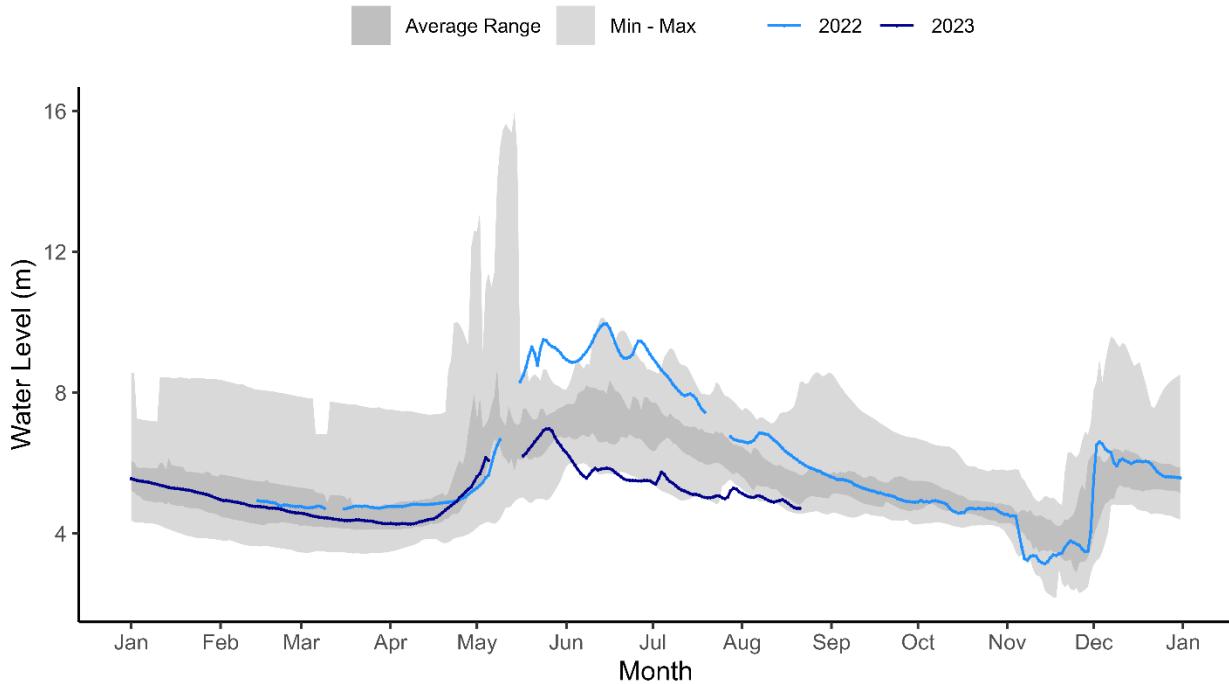
Liard River near the Mouth [10ED002]

LIARD RIVER NEAR THE MOUTH (10ED002)



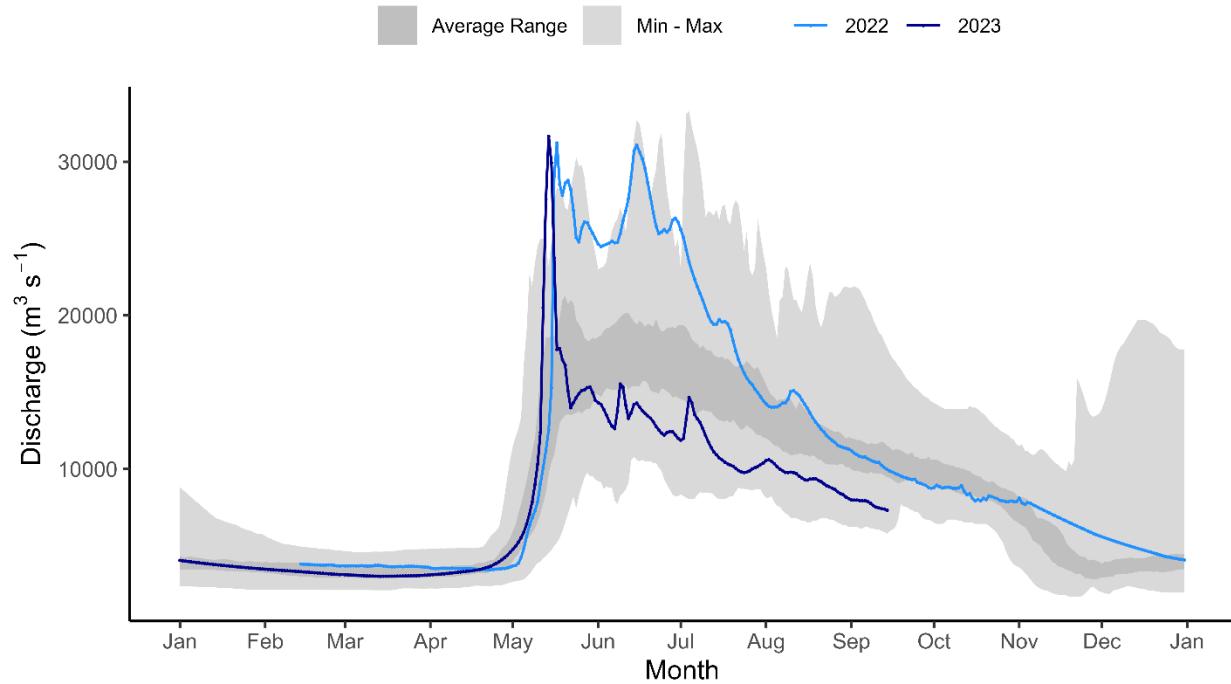
Mackenzie River at Fort Simpson [10GC001]

MACKENZIE RIVER AT FORT SIMPSON (10GC001)



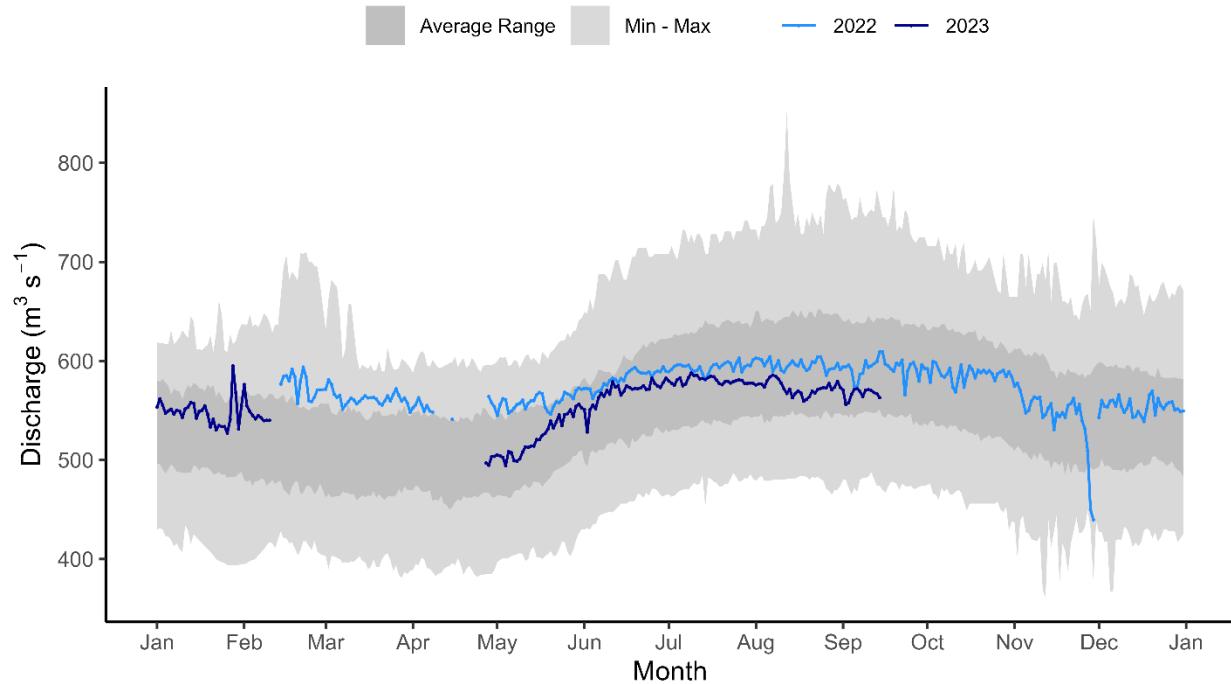
Mackenzie River at Norman Wells [10KA001]

MACKENZIE RIVER AT NORMAN WELLS (10KA001)



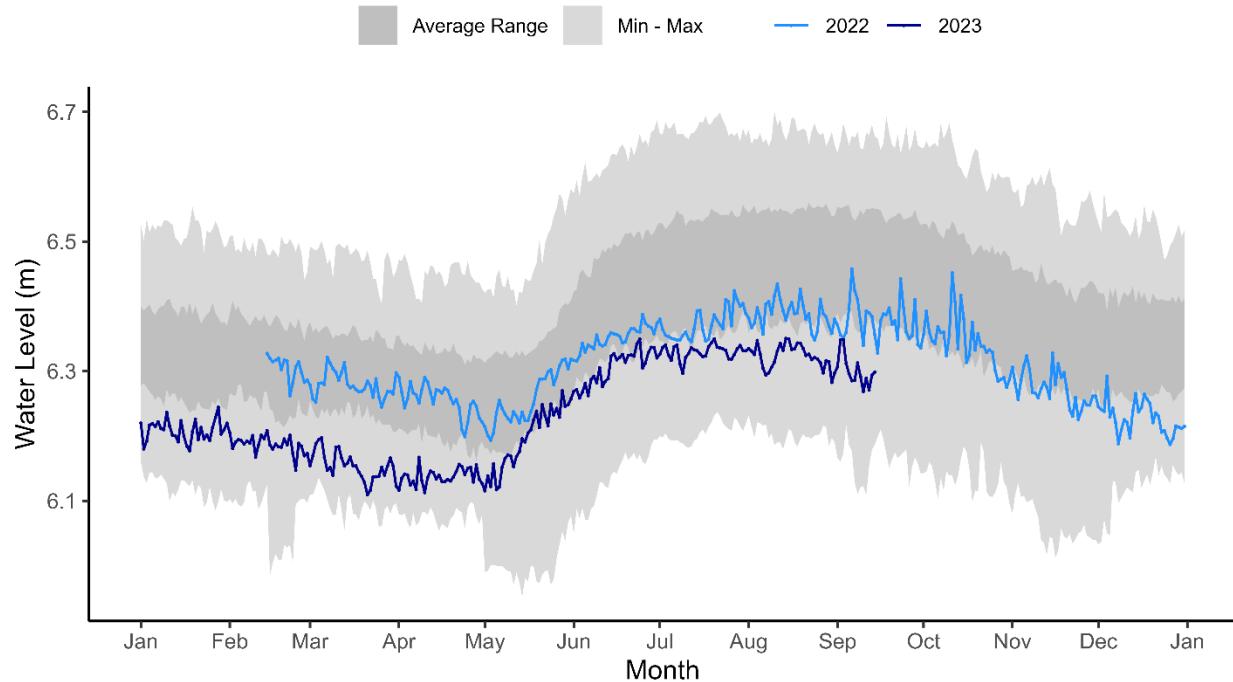
Great Bear River at outlet of Great Bear Lake [10JC003]

GREAT BEAR RIVER AT OUTLET OF GREAT BEAR LAKE (10JC003)



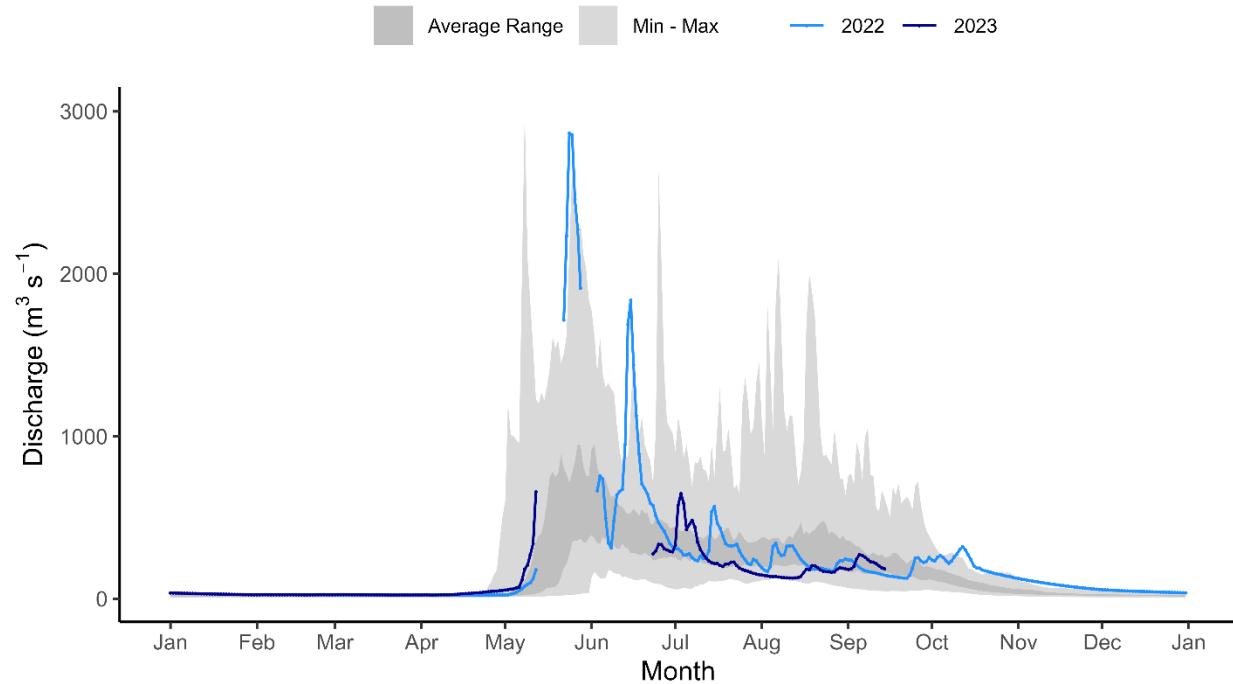
Great Bear Lake at Hornby Bay [10JE002]

GREAT BEAR LAKE AT HORNBY BAY (10JE002)



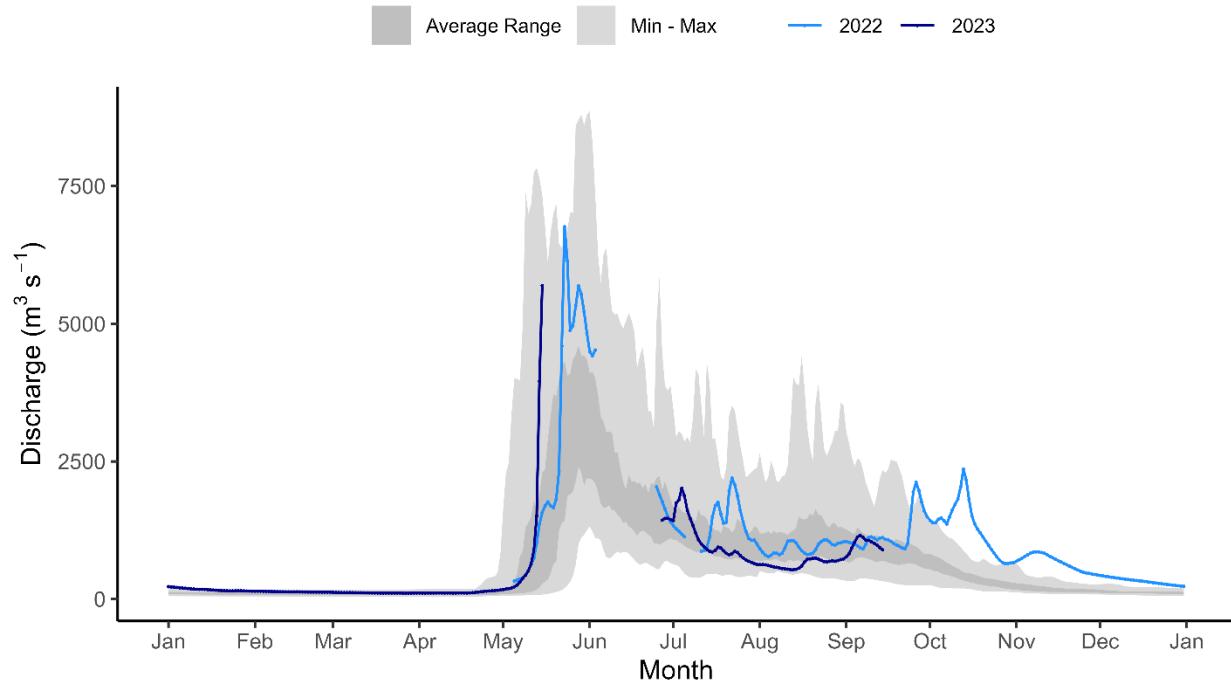
Arctic Red River near the mouth [10LA002]

ARCTIC RED RIVER NEAR THE MOUTH (10LA002)



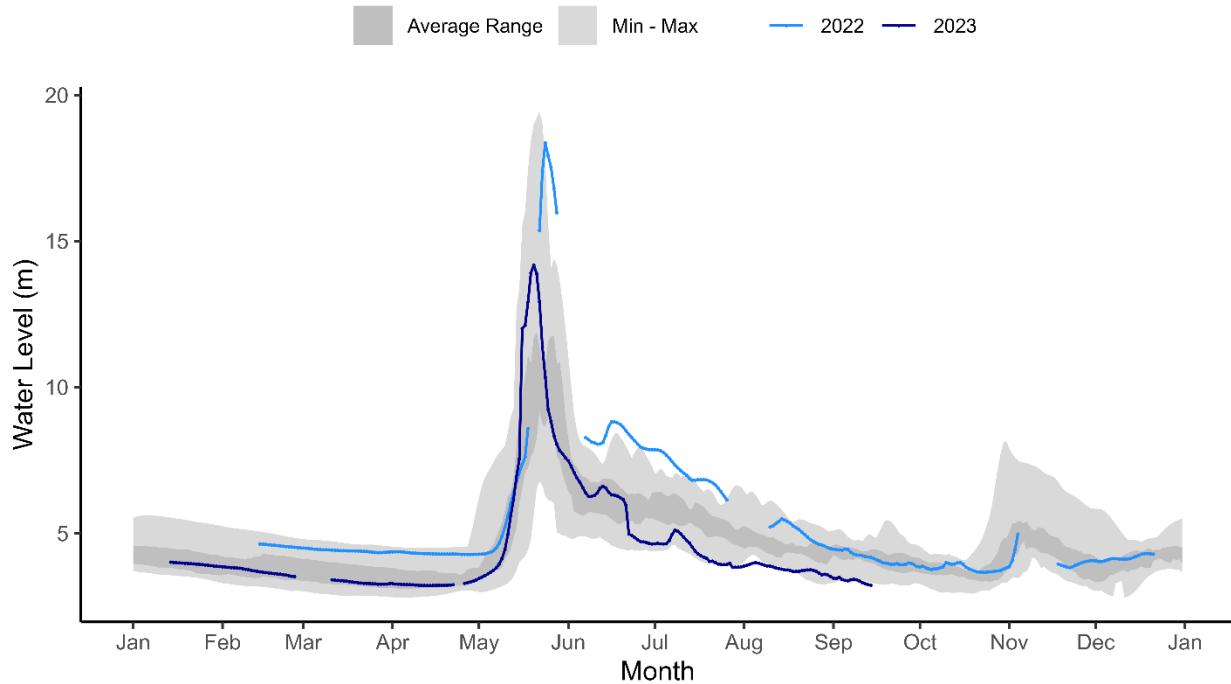
Peel River above Fort McPherson [10MC002]

PEEL RIVER ABOVE FORT MCPHERSON (10MC002)



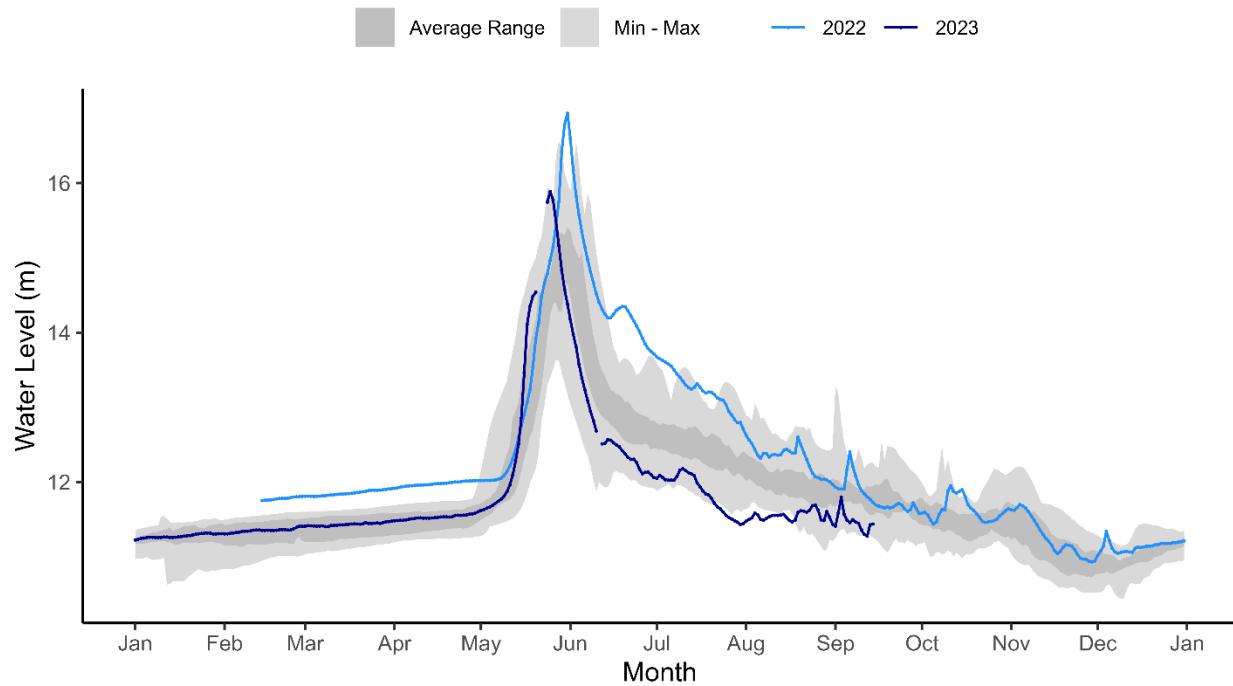
Mackenzie River at Arctic Red River [10LC014]

MACKENZIE RIVER AT ARCTIC RED RIVER (10LC014)



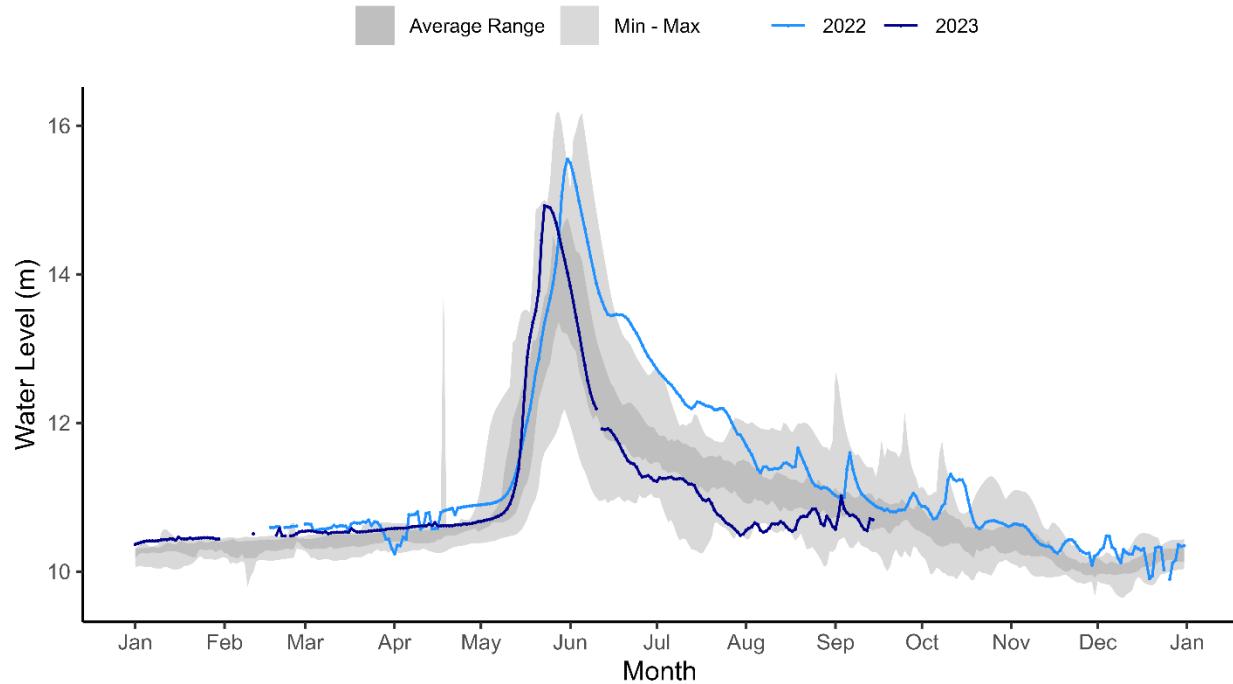
Mackenzie River (East Channel) at Inuvik [10LC002]

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

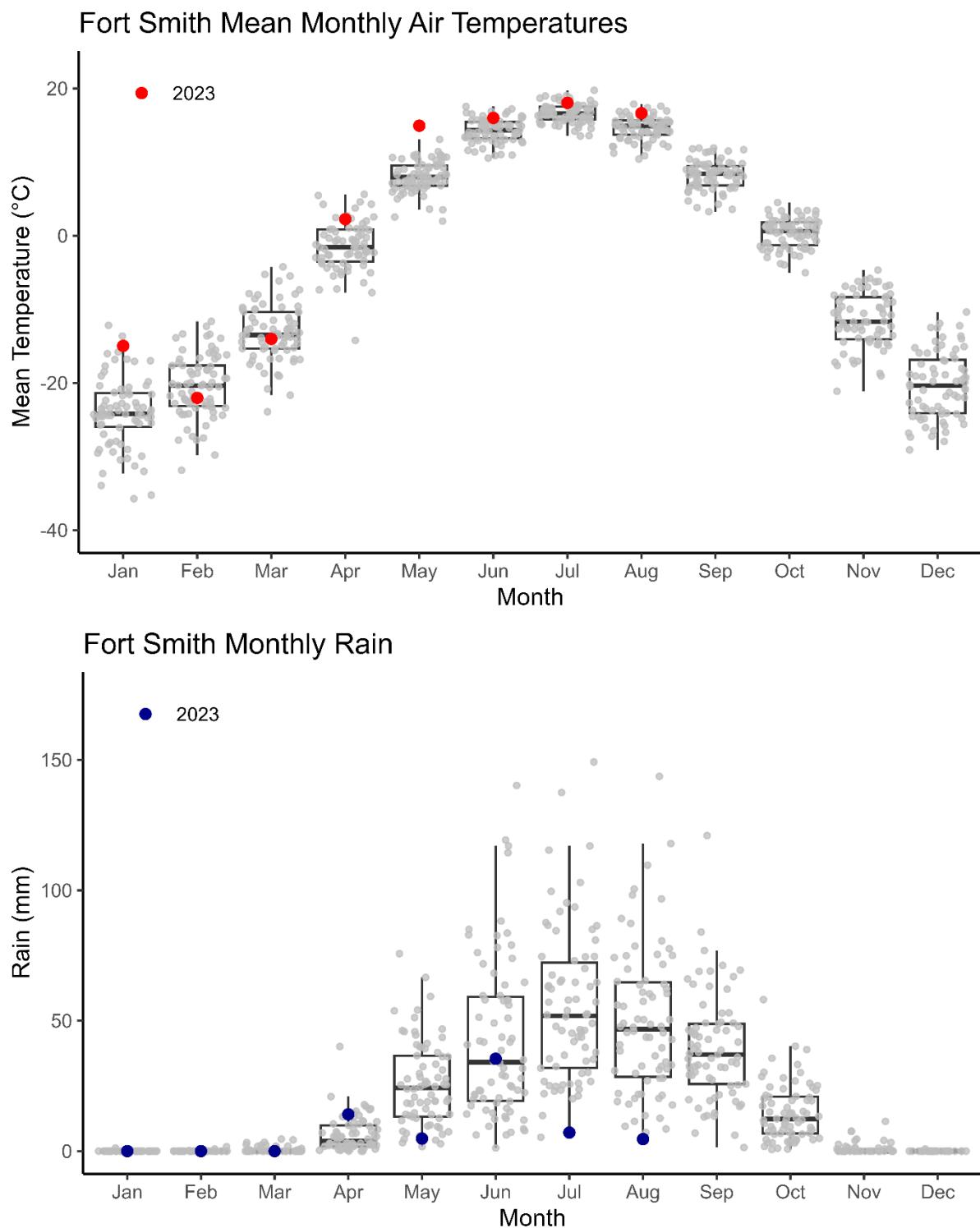


Mackenzie River (Peel Channel) above Aklavik [10MC003]

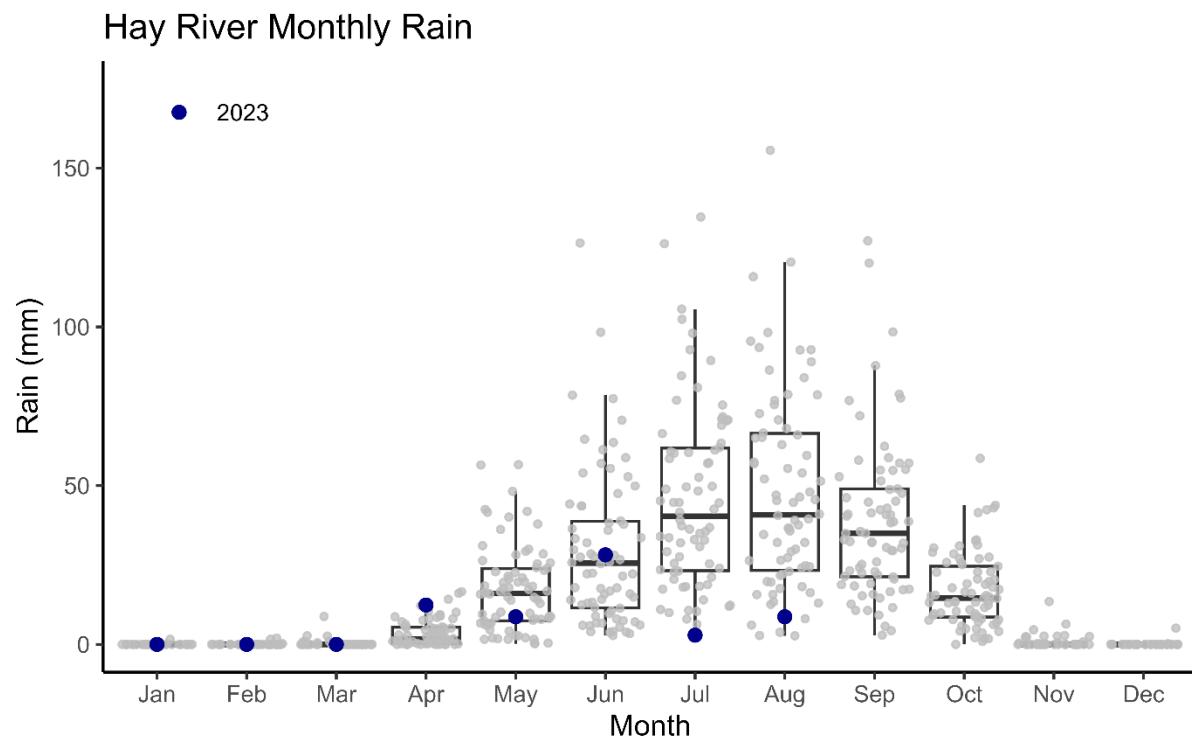
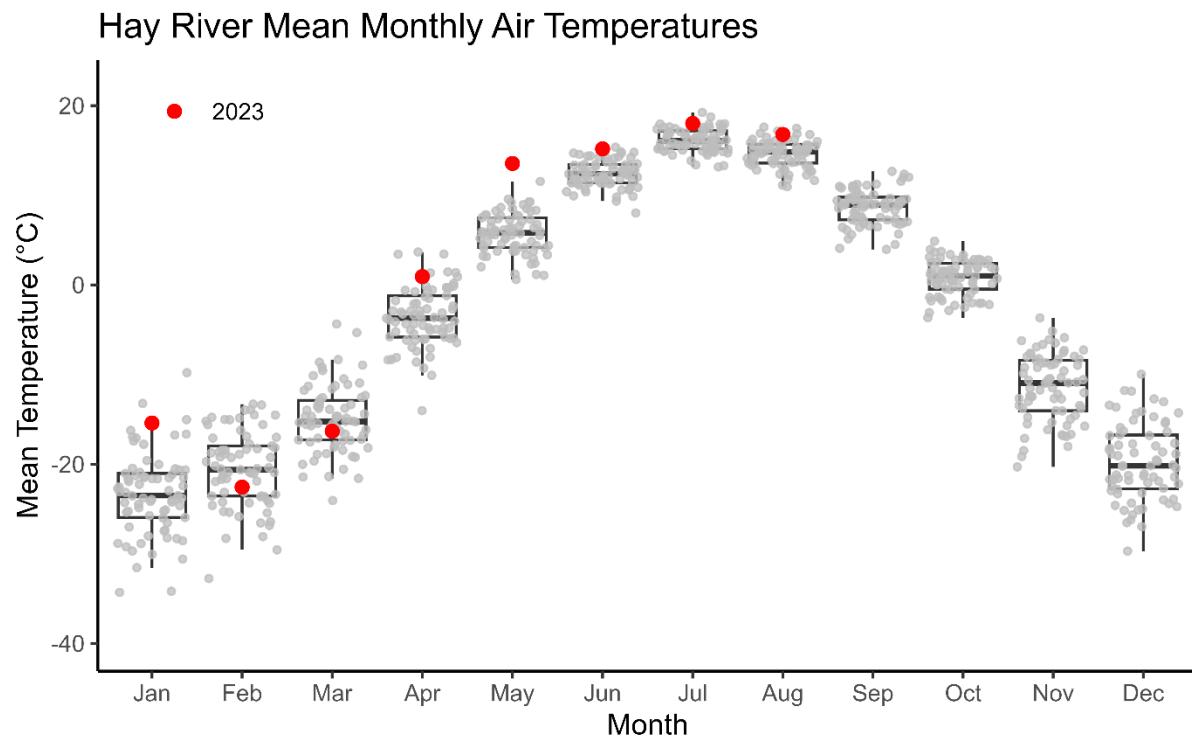
MACKENZIE RIVER (PEEL CHANNEL) ABOVE AKLAVIK (10MC003)



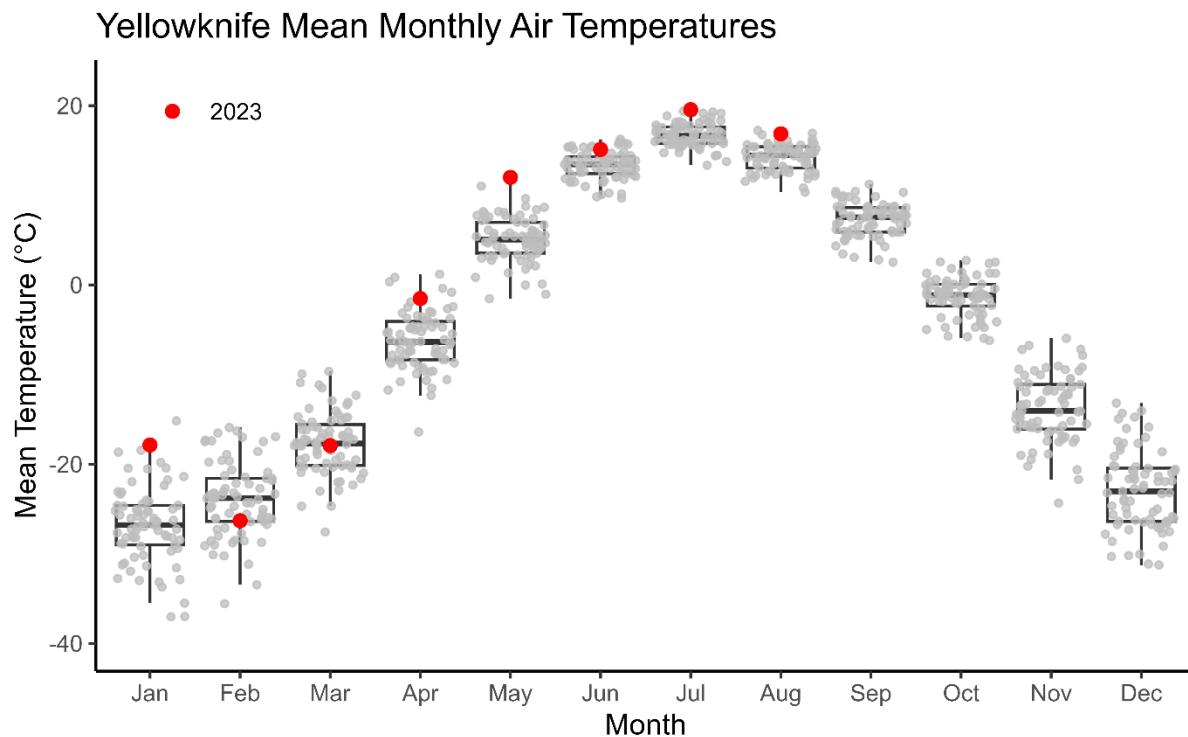
Climate Data:
Fort Smith



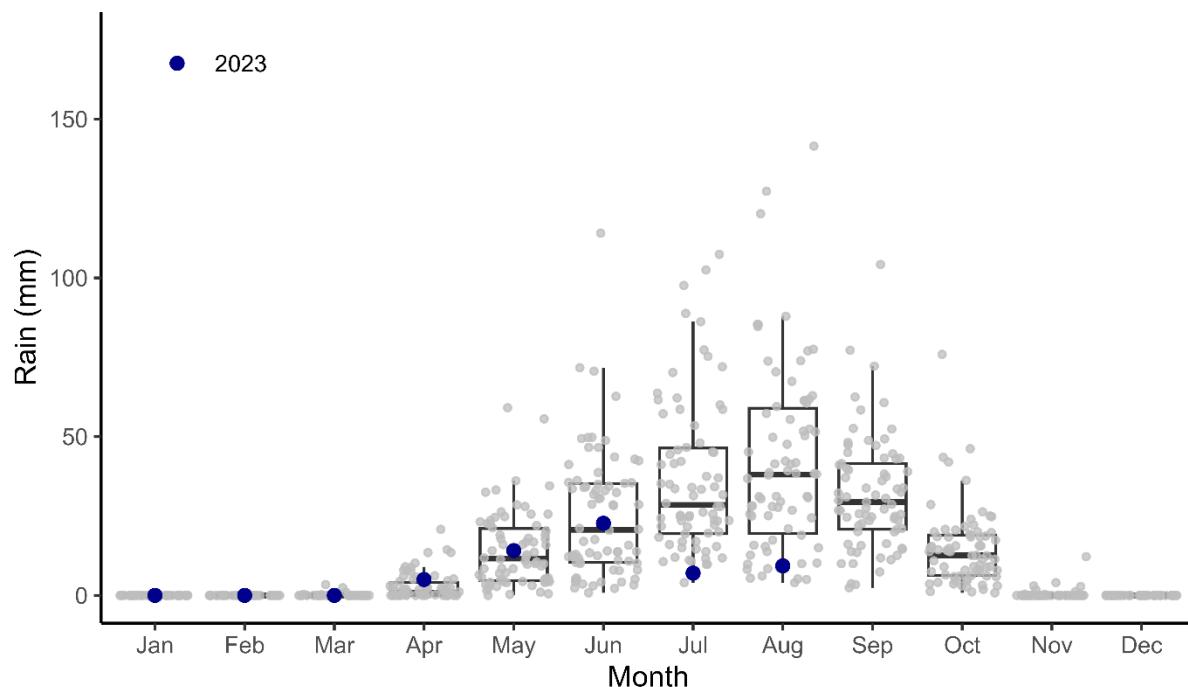
Hay River



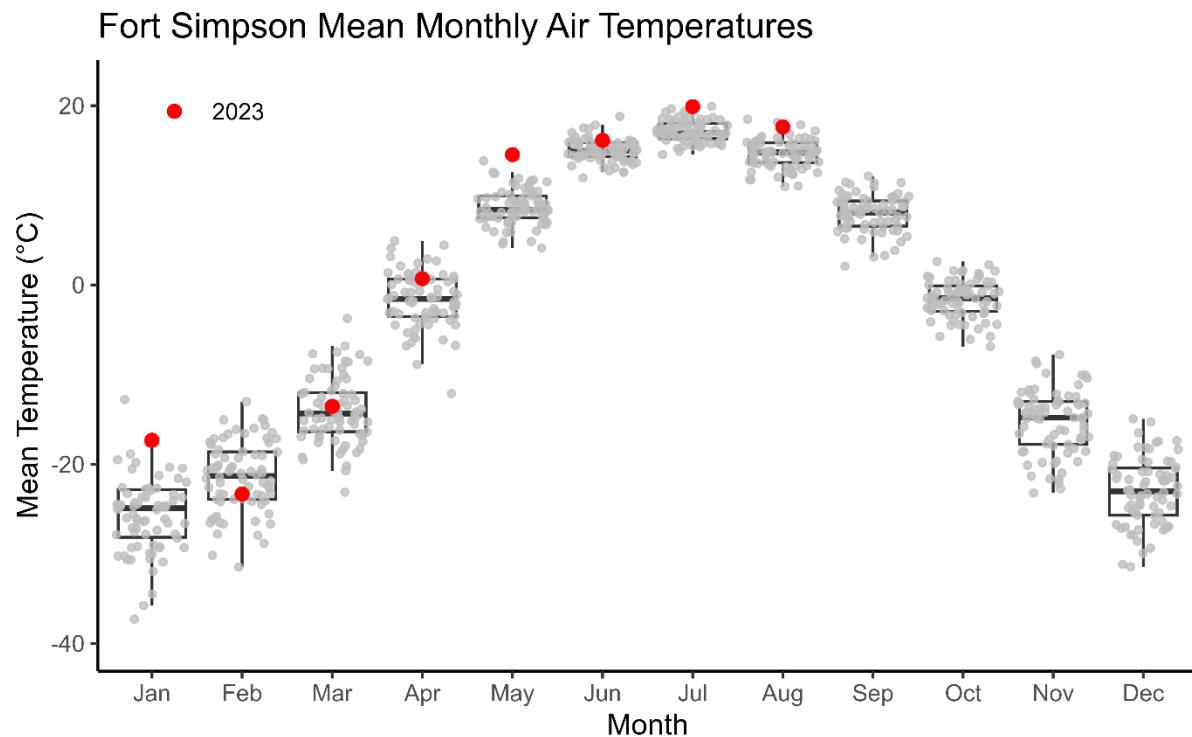
Yellowknife



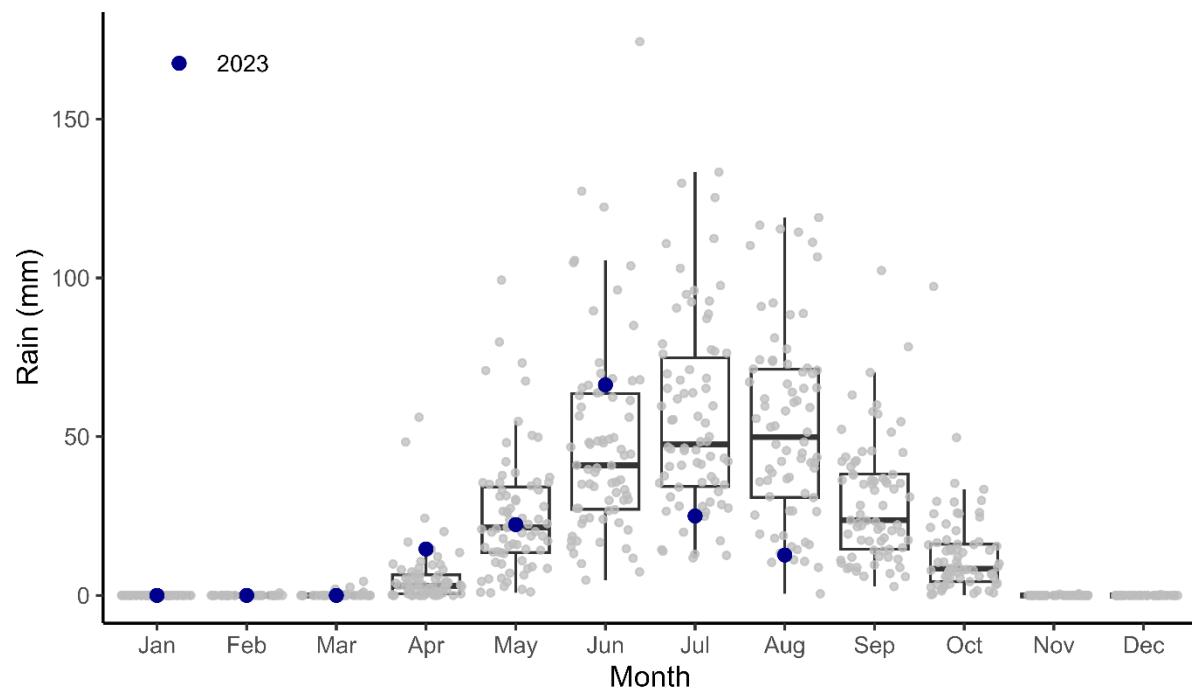
Yellowknife Monthly Rain



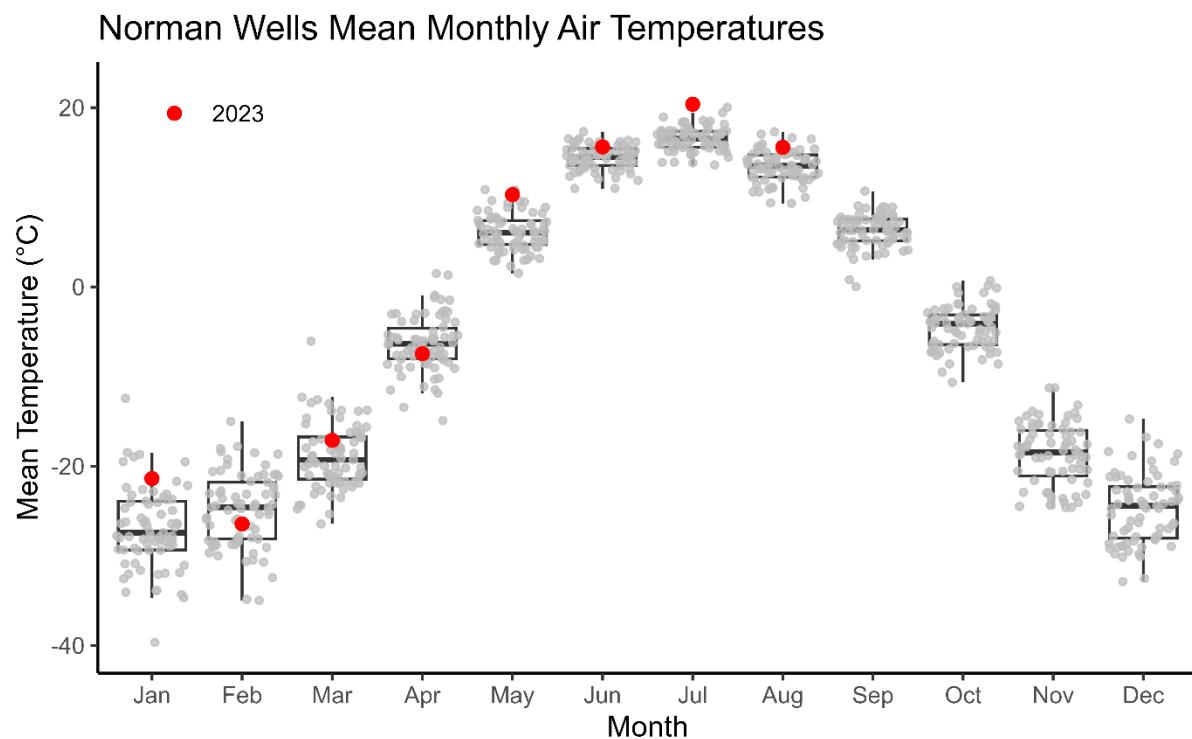
Fort Simpson



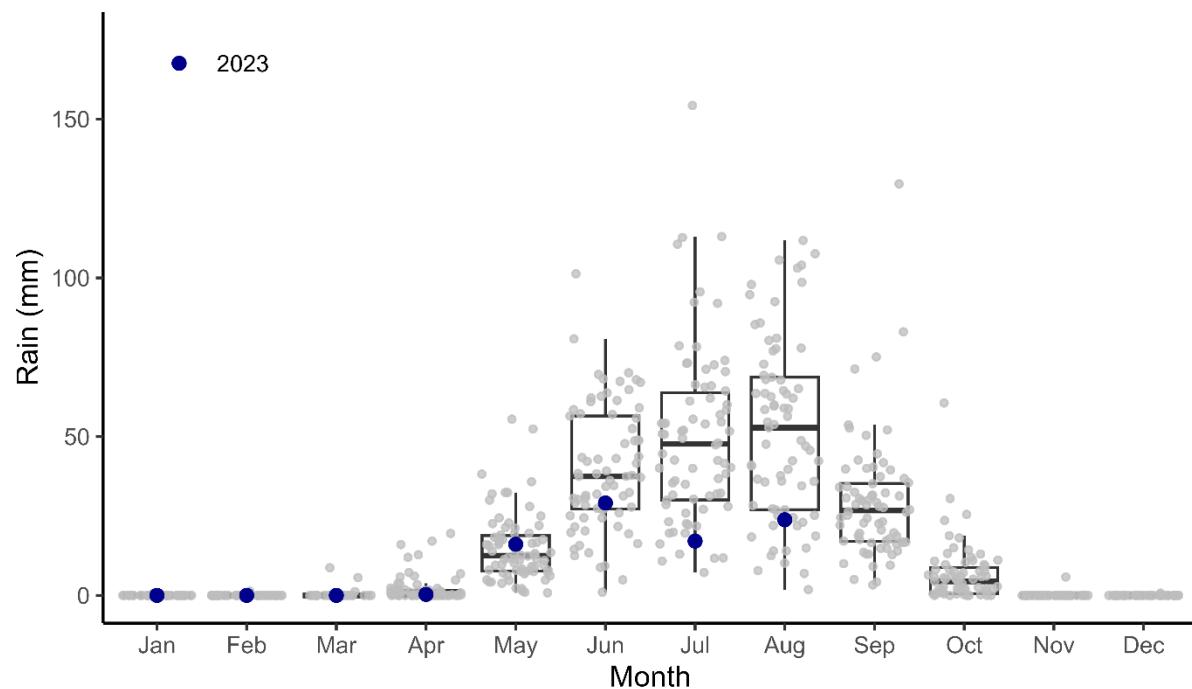
Fort Simpson Monthly Rain



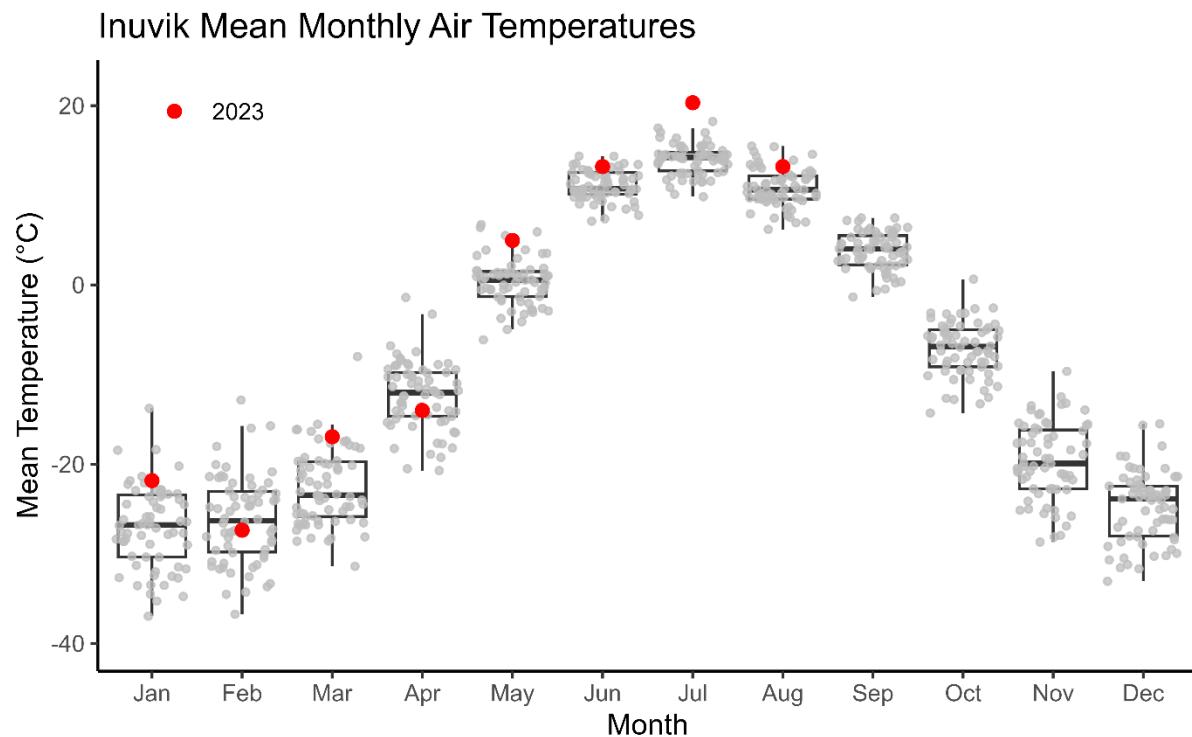
Norman Wells



Norman Wells Monthly Rain



Inuvik



Inuvik Monthly Rain

