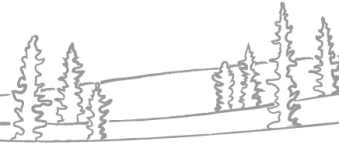




NWT Water Monitoring Bulletin

– August 02, 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:

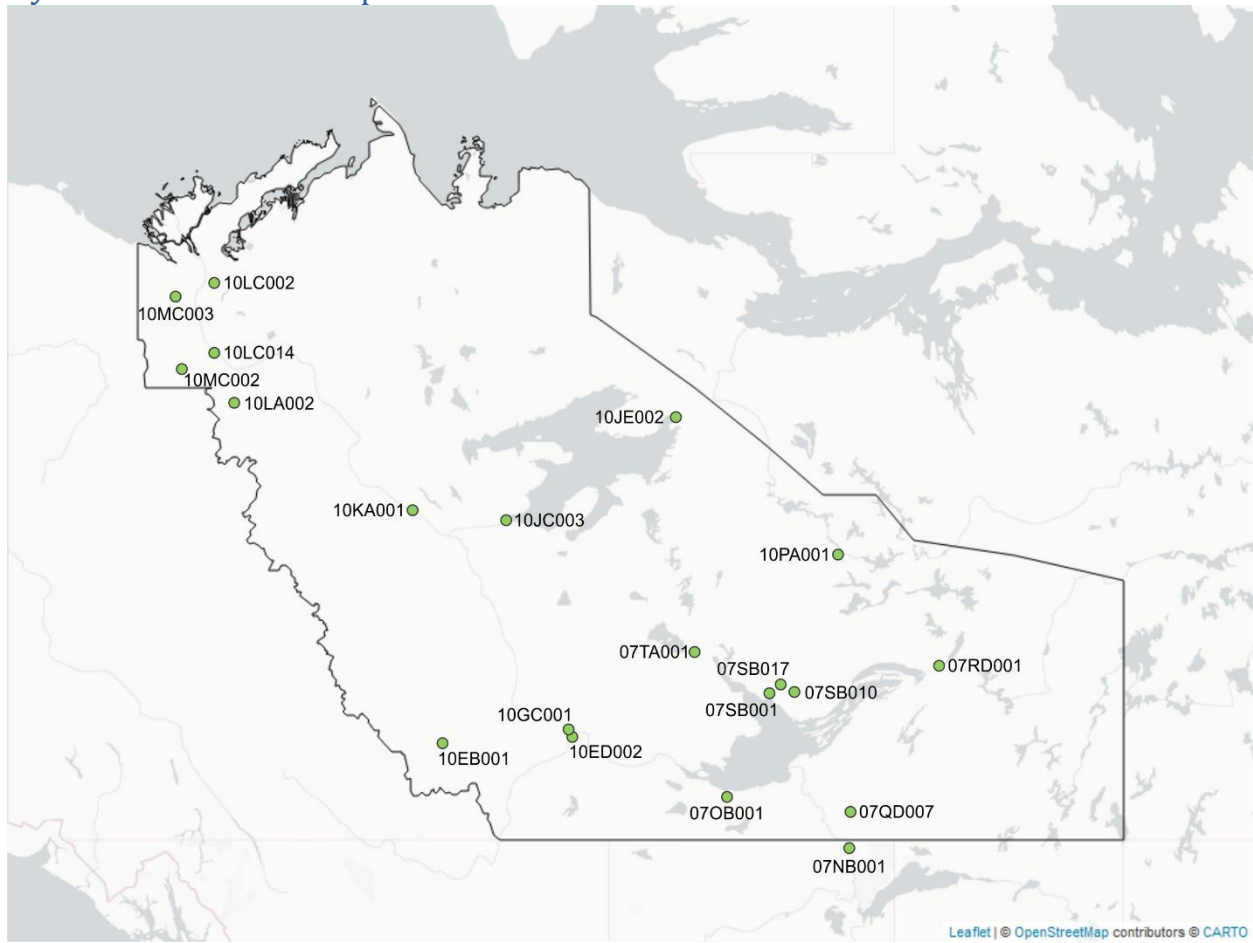
- In general, water levels across the NWT are much lower than normal, and in some cases the lowest on record for the time of year. Hot and dry conditions have resulted in very little water being available to flow to rivers and lakes.
 - These conditions originated last summer (2022) and have carried into summer 2023.
 - 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.
- 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.
 - Great Slave Lake went from being a record high water level in June 2022 to record low in July 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.
 - The teleconnections are caused by oceanic and atmospheric thermal cycling in the south Pacific Ocean, which influence global climate.
- In the South Slave and Dehcho regions, the summer has been very hot and dry. Rainfall in July in the southeast NWT was very low, while areas towards the southwest near the Mackenzie Mountains received a significant amount of rain in the last week of July.
 - Hay River and Fort Smith both received less than 10 mm of rain in July (average amounts are between 40 to 50 mm).
 - Fort Liard (152 mm) and Sambaa K’e (85 mm) both received above average rainfall (average is about 75 mm) as heavy rain fell in late July.
 - This precipitation resulted in a slight rise in water level on the Liard River, but it remains well below average.
 - The region covering the southern NWT and northern Alberta and British Columbia that feeds NWT rivers has received 67% of the usual amount of rain to date this summer (01 May to 31 July).
 - Every community in the South Slave and Dehcho has recorded either the hottest or the second hottest summer on record so far this summer (01 May to 31 July).
 - Streamflow on many rivers in the South Slave and Dehcho regions are at or near a record low (for the time of year), including:

- Hay River (record low)
 - Kakisa River
 - Trout River (record low)
 - Jean-Marie River (record low)
 - Petitot River (record low)
 - Liard River
- Conditions in the North Slave are similar to the South Slave.
 - Rainfall amounts in the North Slave region in July ranged between 5 to 30 mm, with areas along the north shore of Great Slave Lake receiving the lowest amounts. The average amount of rainfall in July is 35 mm.
 - Total rainfall to date this summer is about 78% of normal in the North Slave.
 - Summer temperatures have been warmer than normal this summer across the North Slave region.
 - Water levels and flows on lakes and rivers in the North Slave region are lower than normal, including:
 - Cameron River
 - Yellowknife River
 - Prelude Lake
 - Prosperous Lake
 - Snare River (record low)
 - Coppermine River (record low)
- The Sahtu region was also drier than normal in July, with communities recording rainfall amounts between 3 to 30 mm (the average amount for July is about 35 mm). To date this summer (May, June, July), rainfall has been approximately normal across the Sahtu.
 - All communities in the Sahtu experienced the hottest July on record.
 - Water levels and flows on rivers in the Sahtu are either average or below average, including:
 - Great Bear River (average)
 - Great Bear Lake (slightly below average)
 - Loon River (below average)
 - Hare Indian River (average)
- The Beaufort Delta region was warm and wet during May and June and transitioned to extremely hot with varying rain amounts in July. Rainfall amounts in July ranged from 5 to 20 mm (average amounts are about 20 to 30 mm).
- Every community in the Beaufort Delta recorded the hottest July on record. The average temperature in July in Inuvik was more than 2°C warmer than the previous hottest July.
 - Water levels and flows on local rivers in this region are lower than normal, including:
 - Peel River
 - Rengleng River
 - Travaillant River
 - Water levels in the Mackenzie Delta are lower than normal as a response to low water levels on the Mackenzie River.

Contents

Current status:	2
Hydrometric station map.....	5
Information on interpreting figures:.....	6
Water level and flow data:	7
Slave River at Fitzgerald [07NB001]	7
Hay River near Hay River [07OB001]	7
Taltson River below Hydro Dam [07QD007]	8
Lockhart River at outlet of Artillery Lake [07RD001]	8
Coppermine River below Desteffany Lake [10PA001].....	9
Great Slave Lake at Yellowknife Bay [07SB001]	9
Cameron River below Reid Lake [07SB010]	10
Prelude Lake near Yellowknife [07SB017]	10
La Martre River below outlet of Lac La Martre [07TA001]	11
South Nahanni River above Virginia Falls [10EB001]	11
Liard River near the Mouth [10ED002].....	12
Mackenzie River at Fort Simpson [10GC001]	12
Mackenzie River at Norman Wells [10KA001]	13
Great Bear River at outlet of Great Bear Lake [10JC003].....	13
Great Bear Lake at Hornby Bay [10JE002]	14
Arctic Red River near the mouth [10LA002]	14
Peel River above Fort McPherson [10MC002]	15
Mackenzie River at Arctic Red River [10LC014]	15
Mackenzie River (East Channel) at Inuvik [10LC002]	16
Mackenzie River (Peel Channel) above Aklavik [10MC003]	16
Climate Data:	17
Fort Smith	17
Hay River	18
Yellowknife.....	19
Fort Simpson.....	20
Norman Wells	21
Inuvik	22

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 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.

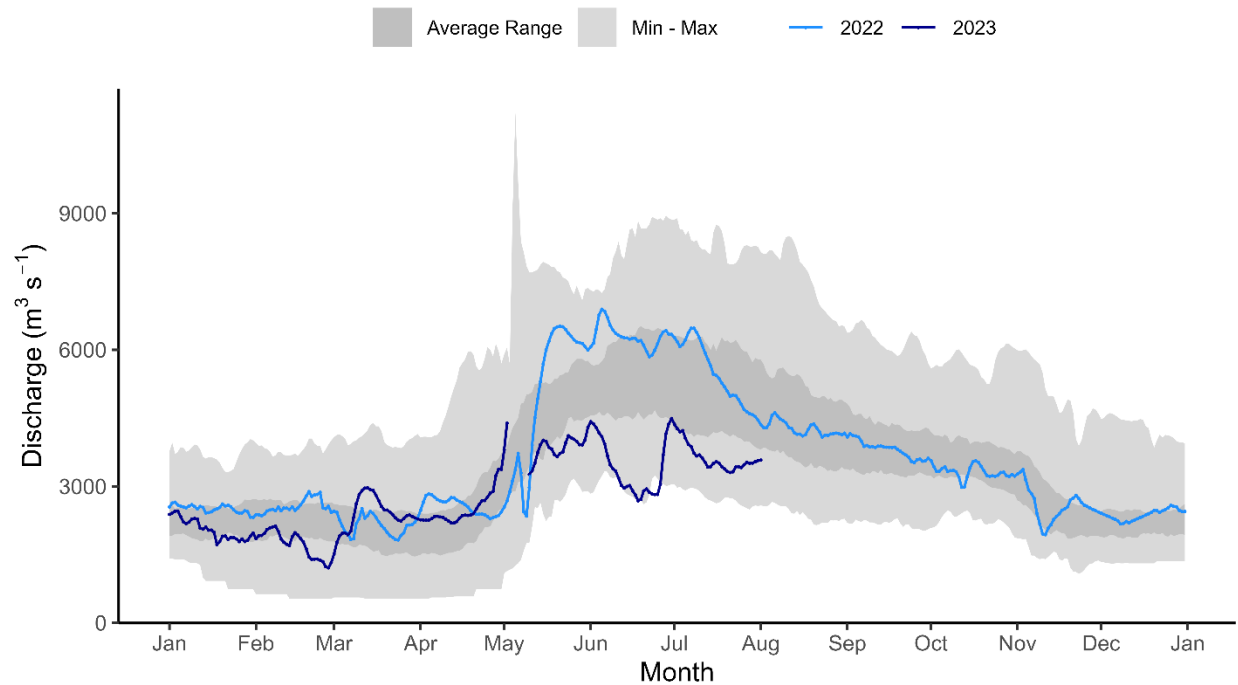
Climate figures:

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:

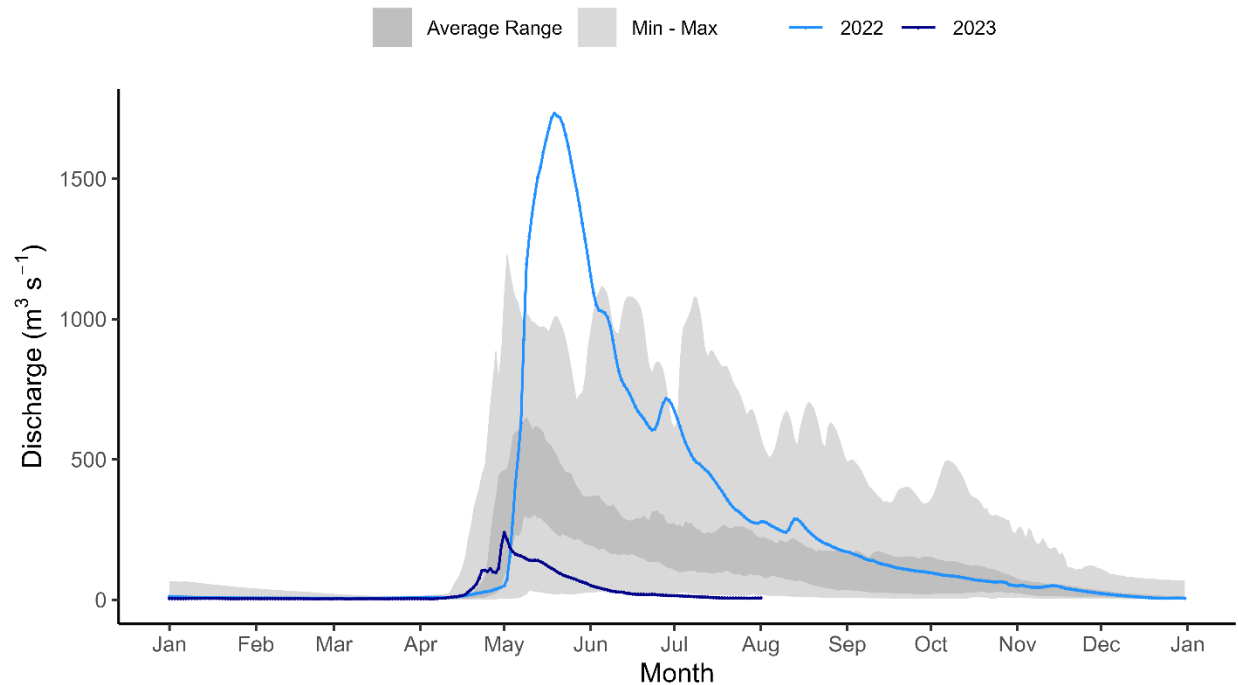
Slave River at Fitzgerald [07NB001]

SLAVE RIVER AT FITZGERALD (ALBERTA) (07NB001)



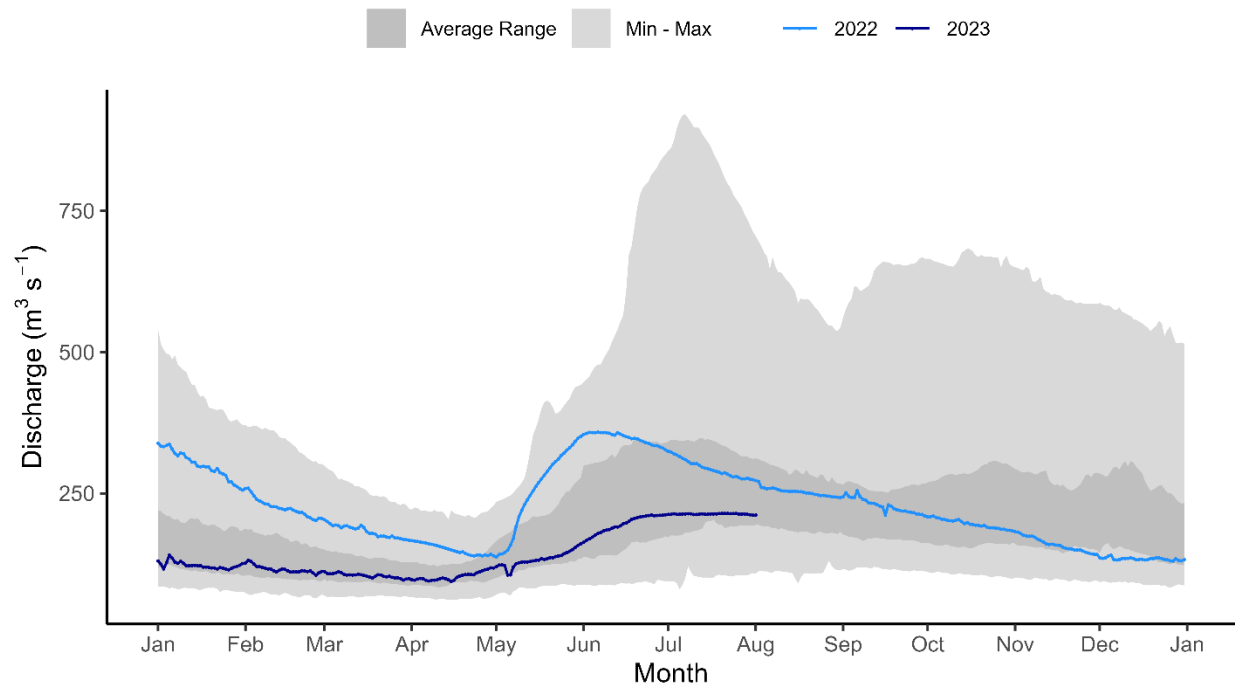
Hay River near Hay River [07OB001]

HAY RIVER NEAR HAY RIVER (07OB001)



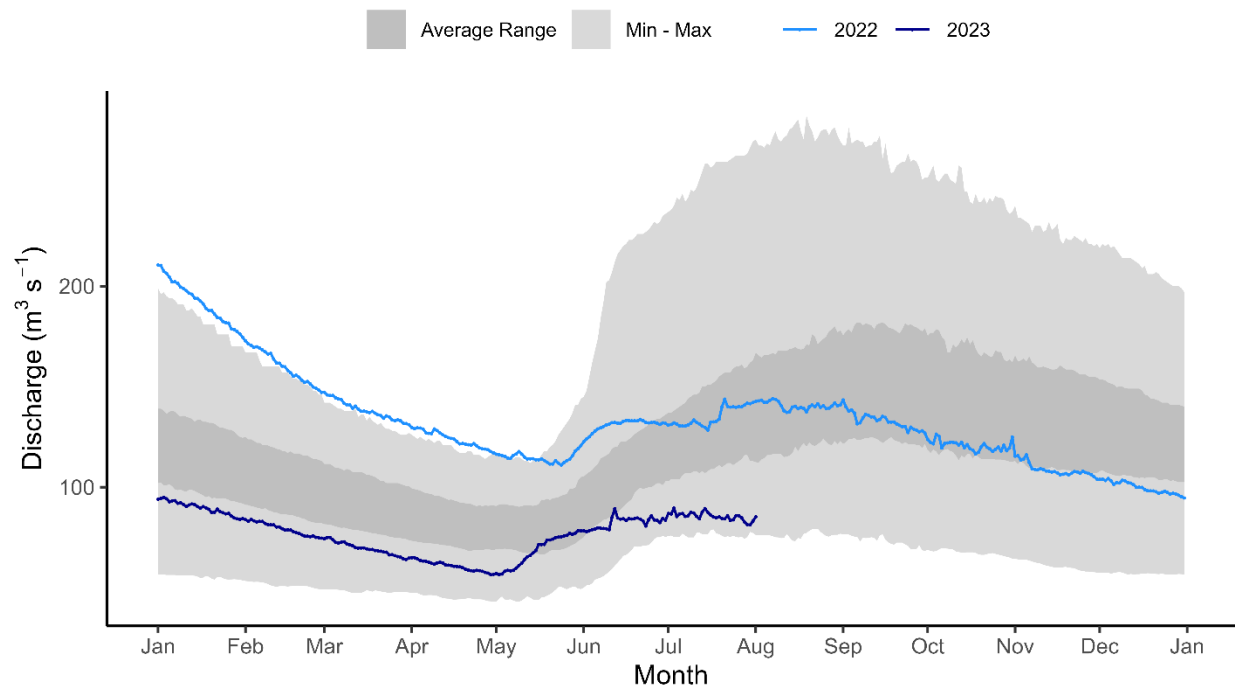
Taltson River below Hydro Dam [07QD007]

TALTSON RIVER BELOW HYDRO DAM (07QD007)



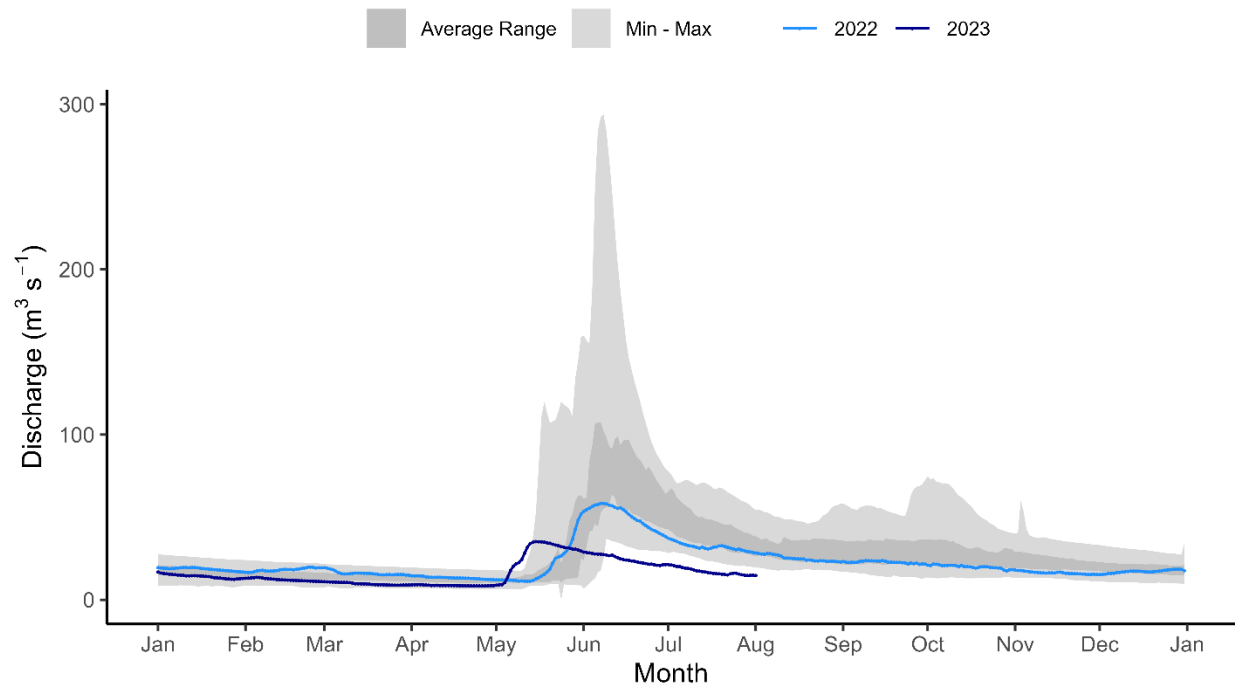
Lockhart River at outlet of Artillery Lake [07RD001]

LOCKHART RIVER AT OUTLET OF ARTILLERY LAKE (07RD001)



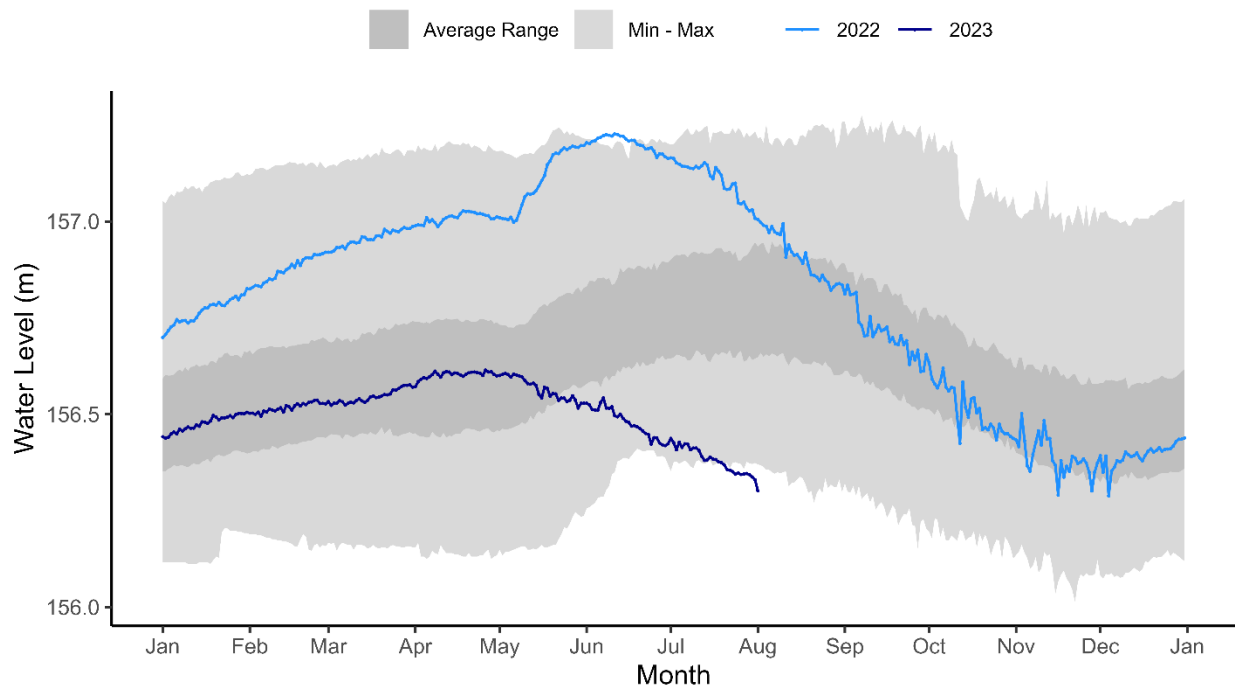
Coppermine River below Desteffany Lake [10PA001]

COPPERMINE RIVER BELOW DESTEFFANY LAKE (10PA001)



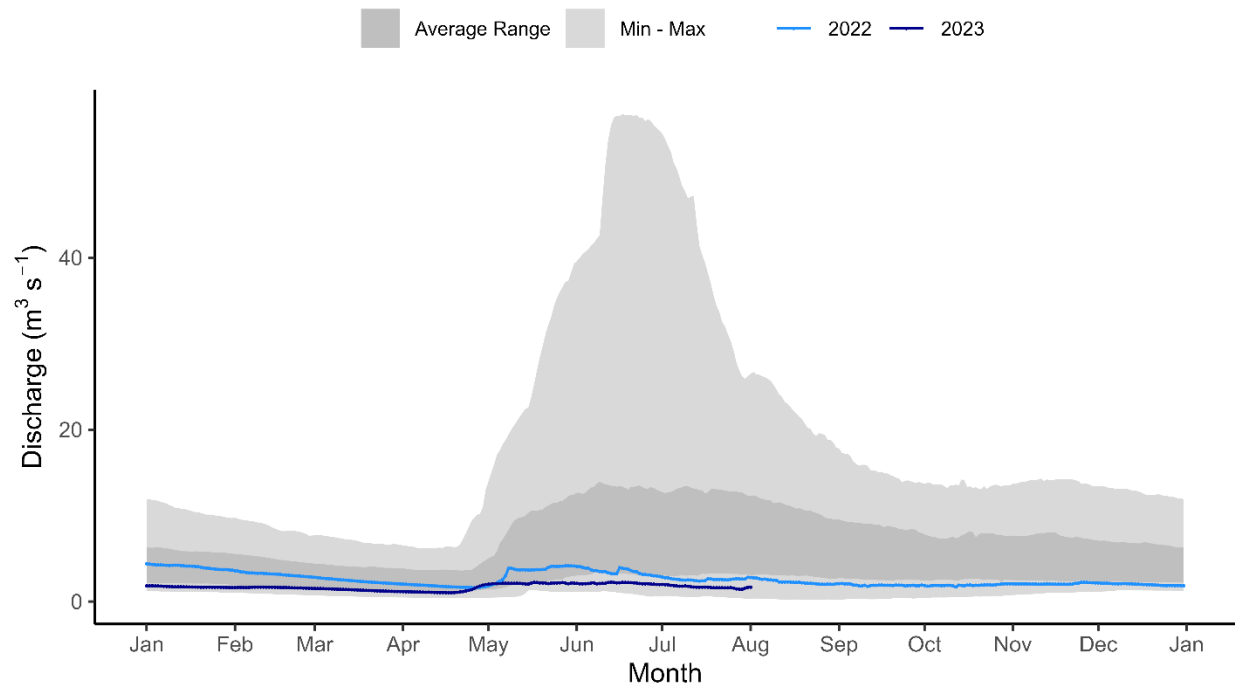
Great Slave Lake at Yellowknife Bay [07SB001]

GREAT SLAVE LAKE AT YELLOWKNIFE BAY (07SB001)



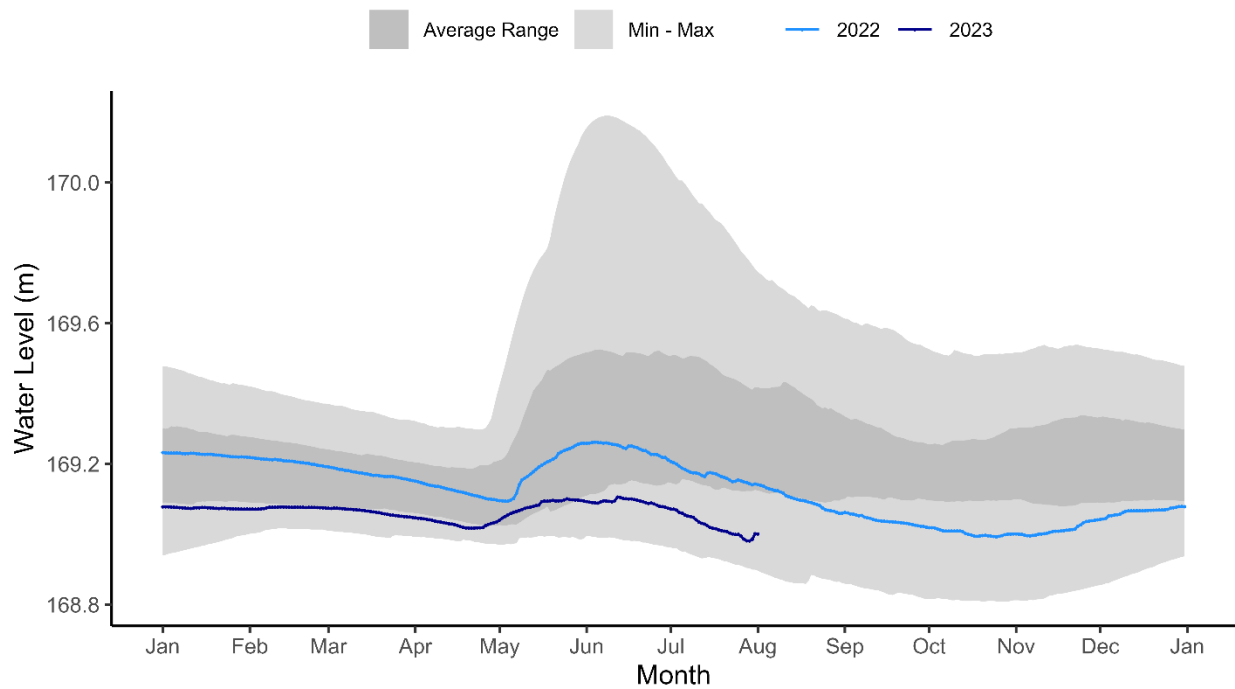
Cameron River below Reid Lake [07SB010]

CAMERON RIVER BELOW REID LAKE (07SB010)



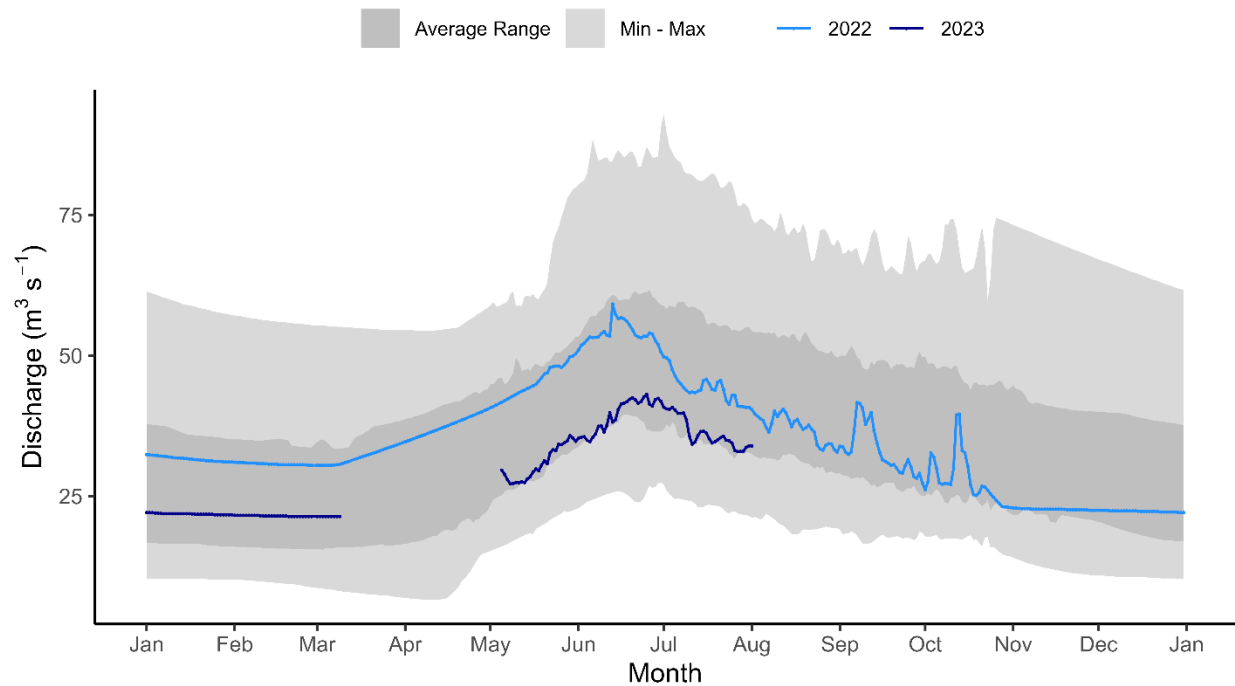
Prelude Lake near Yellowknife [07SB017]

PRELUDE LAKE NEAR YELLOWKNIFE (07SB017)



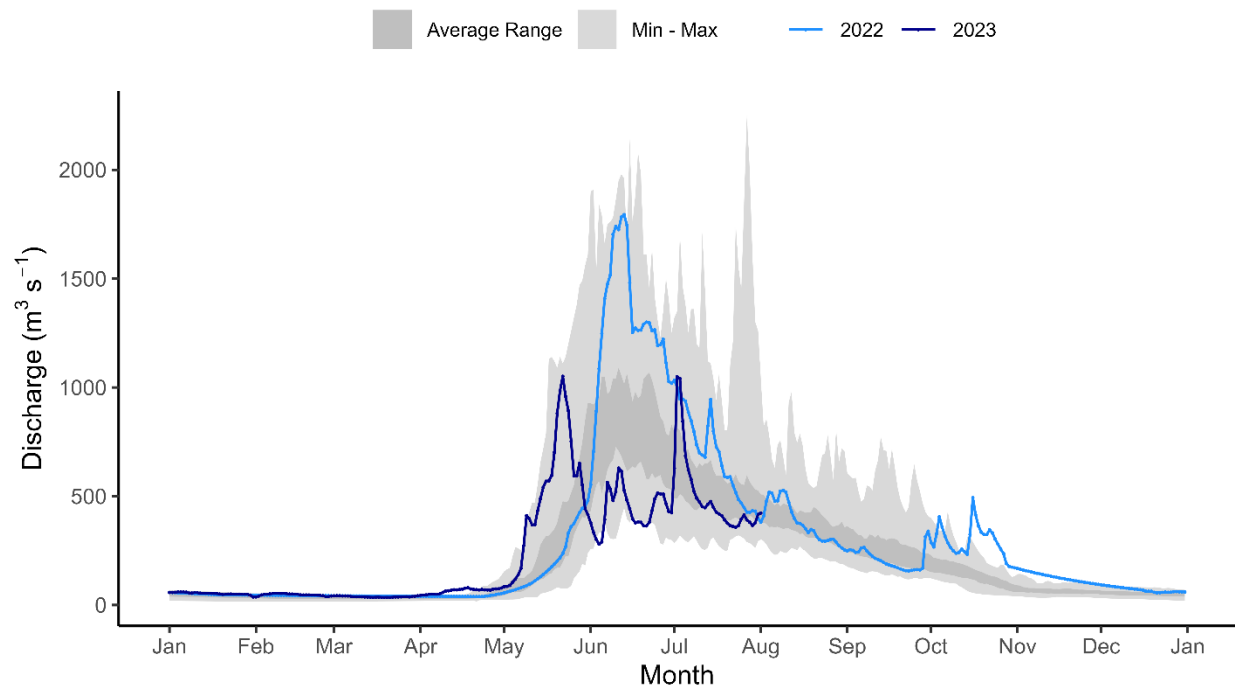
La Martre River below outlet of Lac La Martre [07TA001]

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



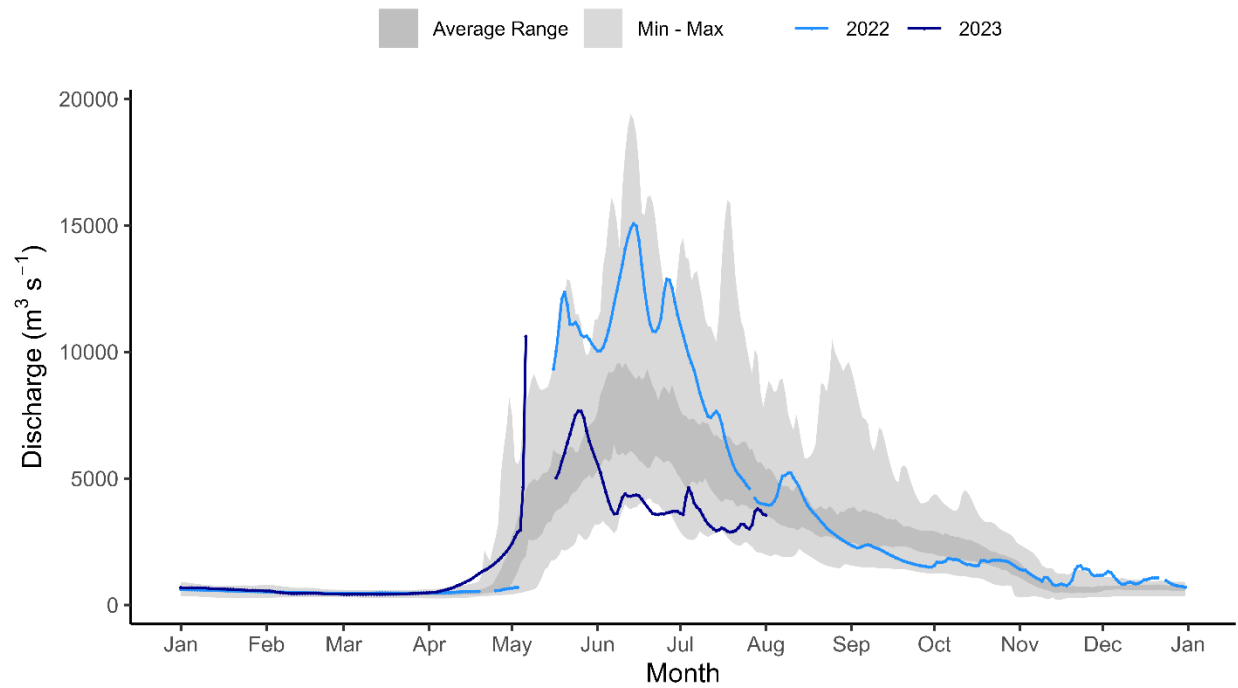
South Nahanni River above Virginia Falls [10EB001]

SOUTH NAHANNI RIVER ABOVE VIRGINIA FALLS (10EB001)



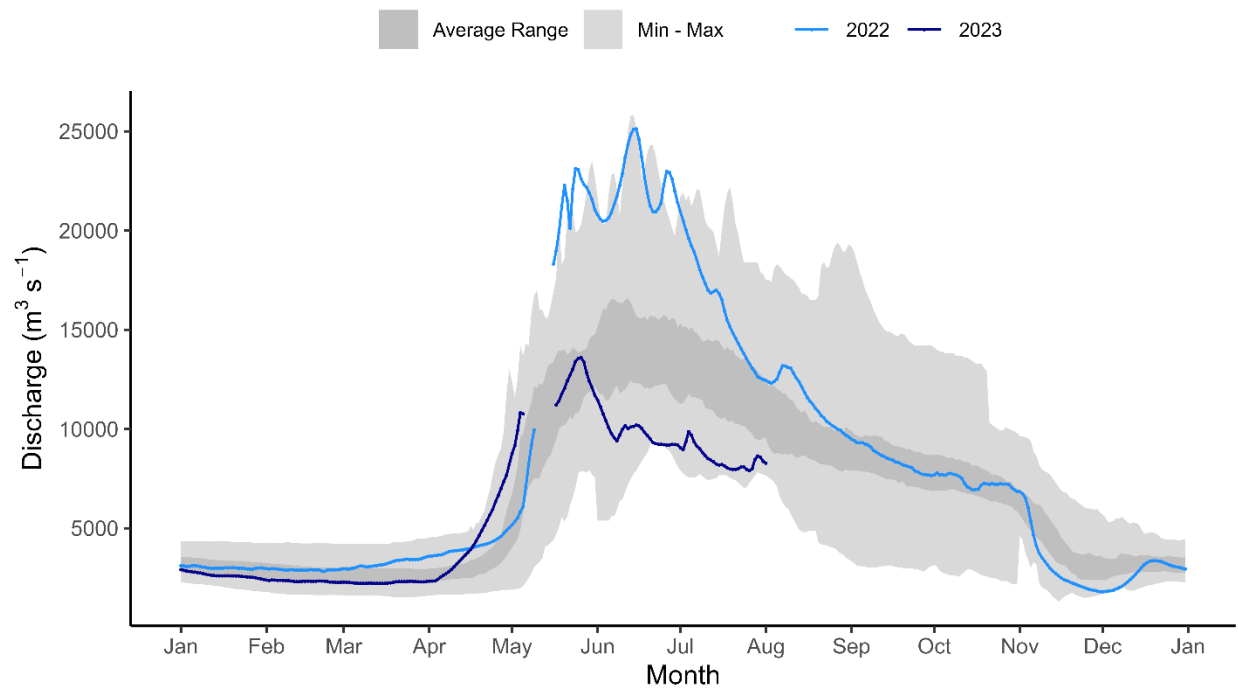
Liard River near the Mouth [10ED002]

LIARD RIVER NEAR THE MOUTH (10ED002)



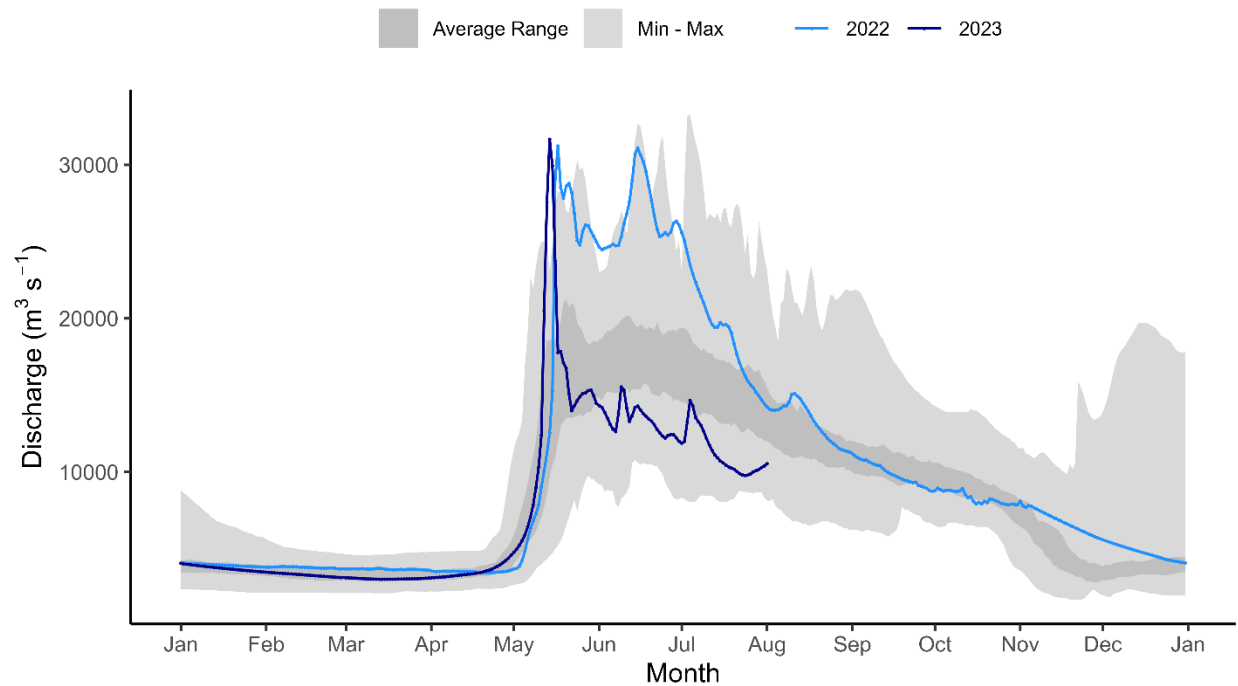
Mackenzie River at Fort Simpson [10GC001]

MACKENZIE RIVER AT FORT SIMPSON (10GC001)



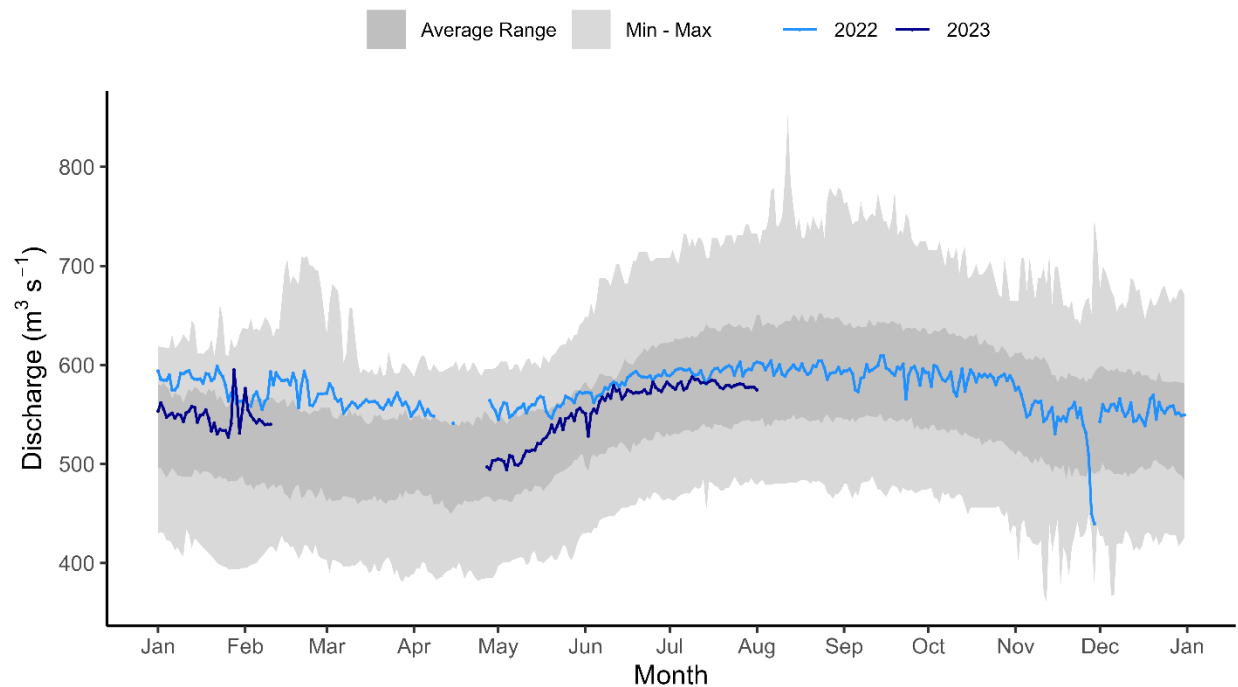
Mackenzie River at Norman Wells [10KA001]

MACKENZIE RIVER AT NORMAN WELLS (10KA001)



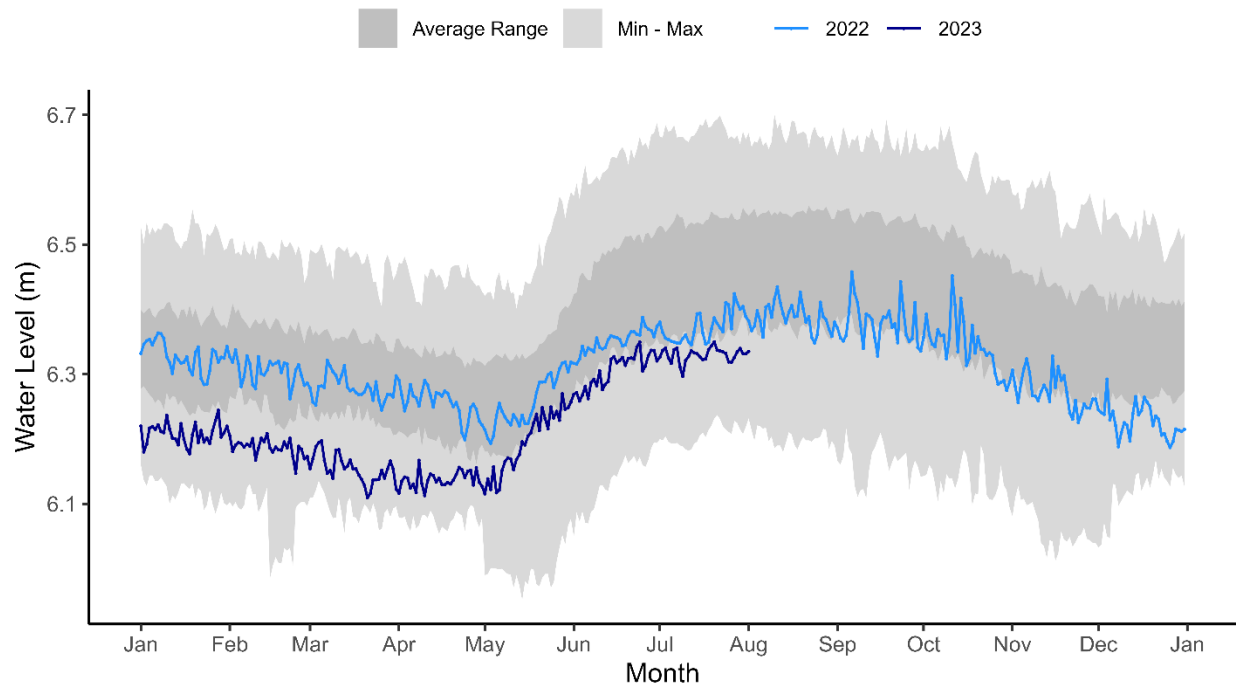
Great Bear River at outlet of Great Bear Lake [10JC003]

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



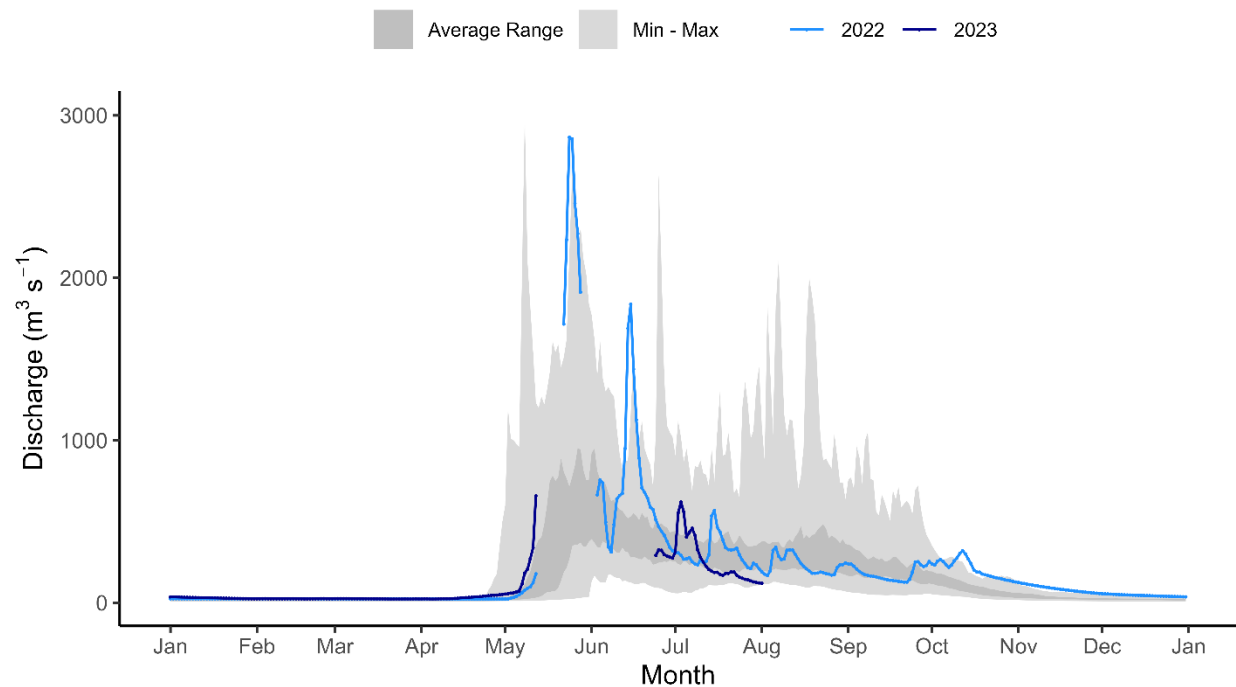
Great Bear Lake at Hornby Bay [10JE002]

GREAT BEAR LAKE AT HORNBY BAY (10JE002)



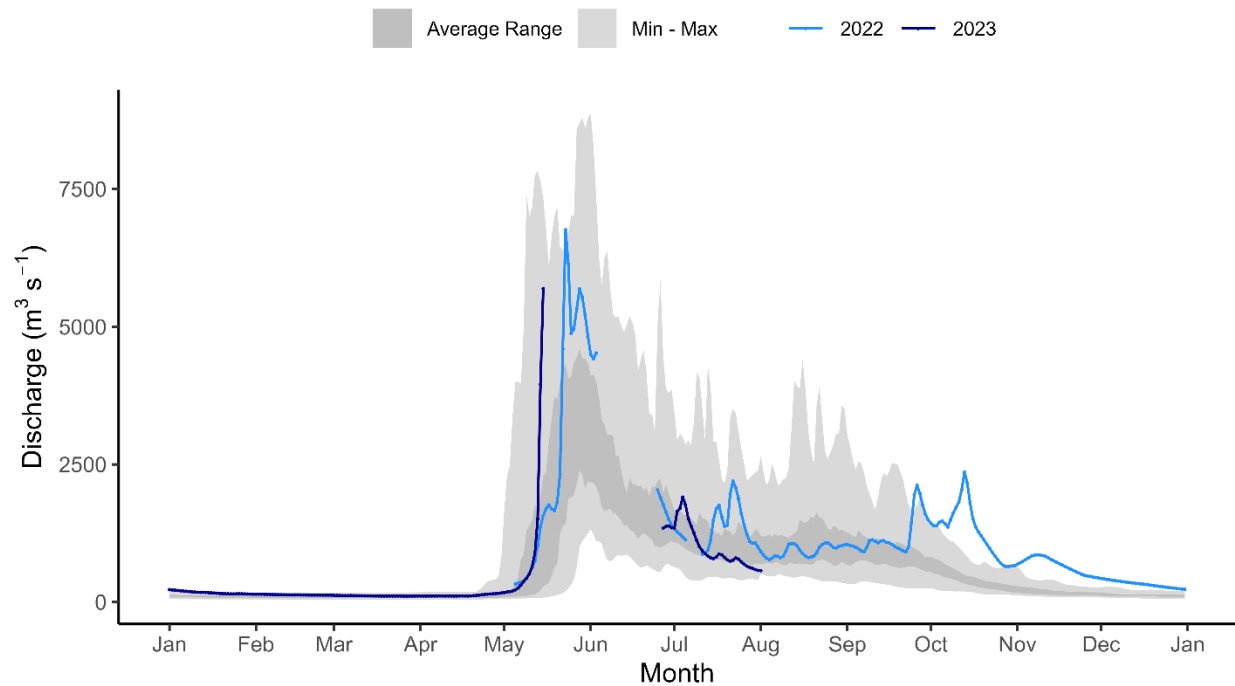
Arctic Red River near the mouth [10LA002]

ARCTIC RED RIVER NEAR THE MOUTH (10LA002)



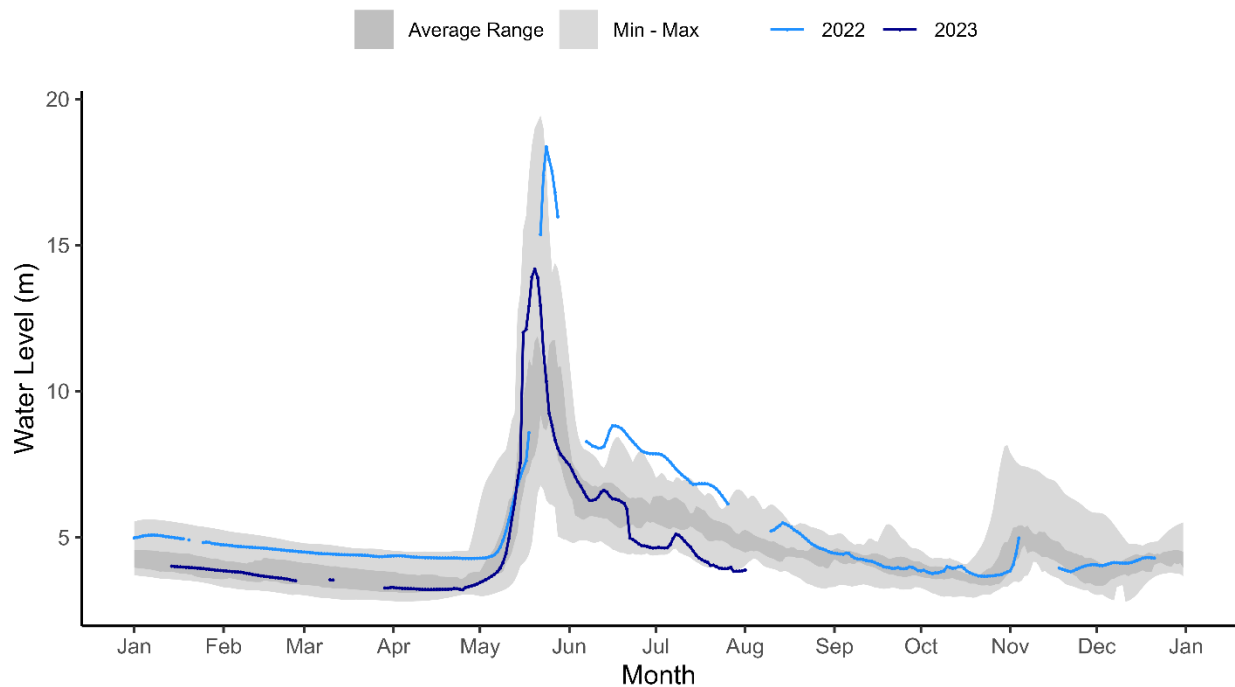
Peel River above Fort McPherson [10MC002]

PEEL RIVER ABOVE FORT MCPHERSON (10MC002)



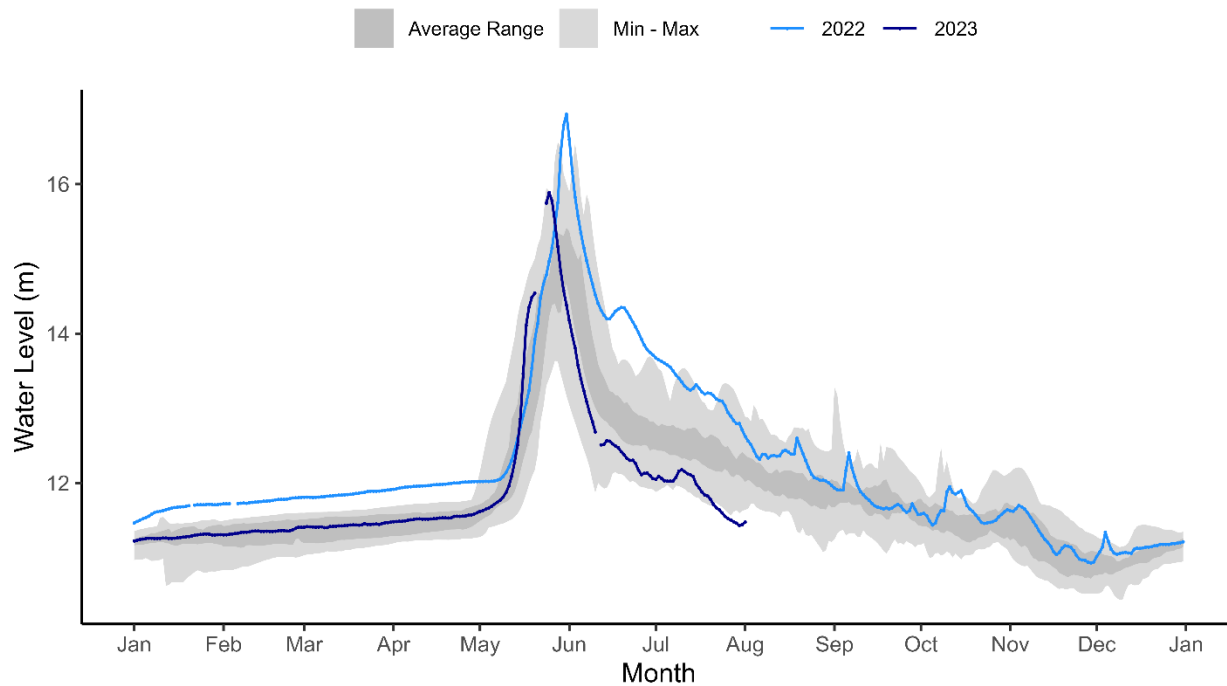
Mackenzie River at Arctic Red River [10LC014]

MACKENZIE RIVER AT ARCTIC RED RIVER (10LC014)



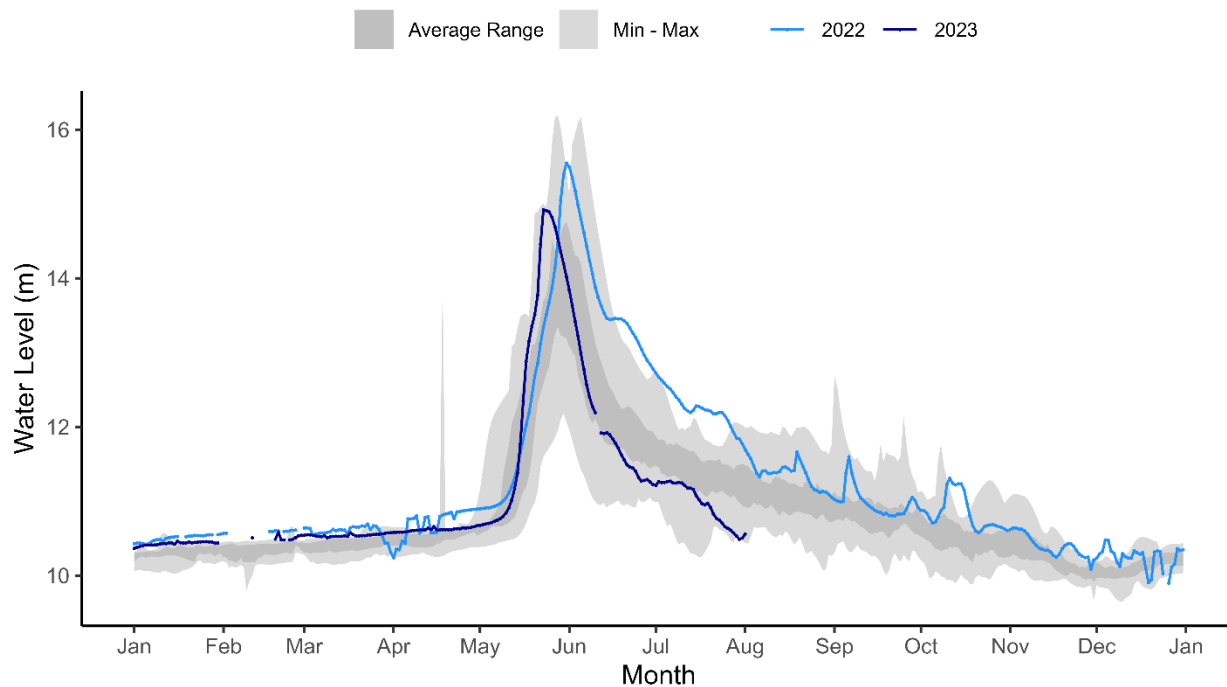
Mackenzie River (East Channel) at Inuvik [10LC002]

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

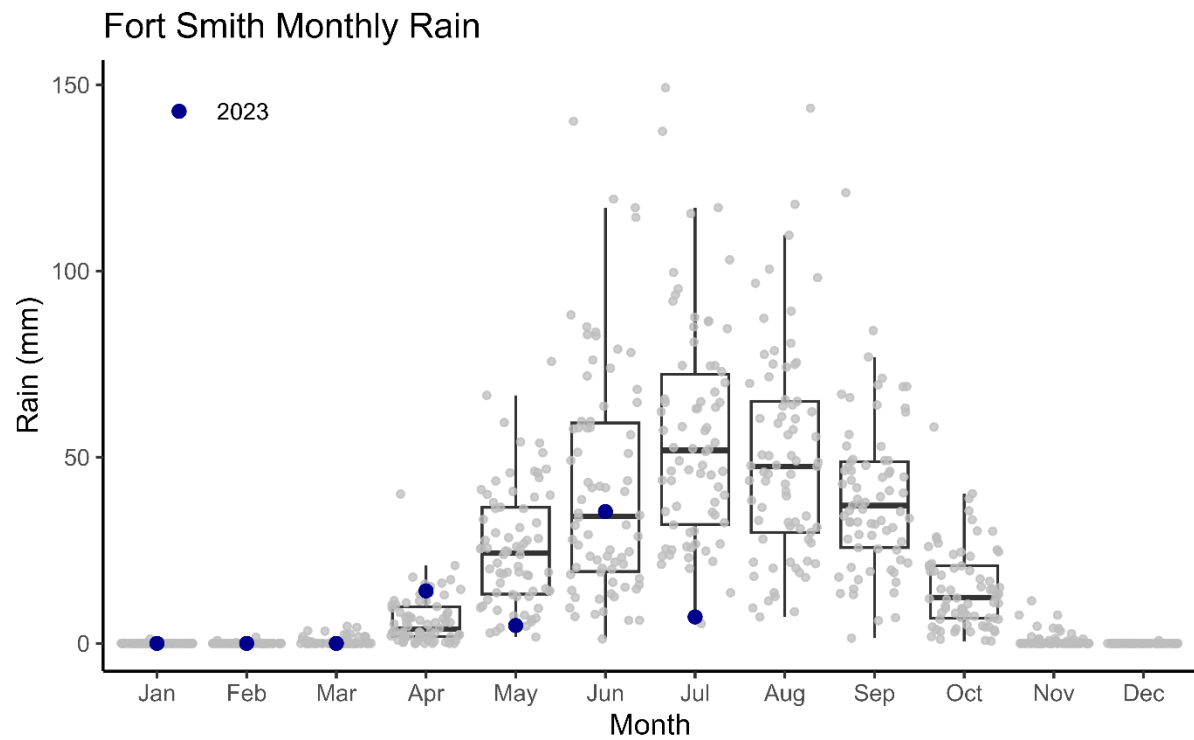
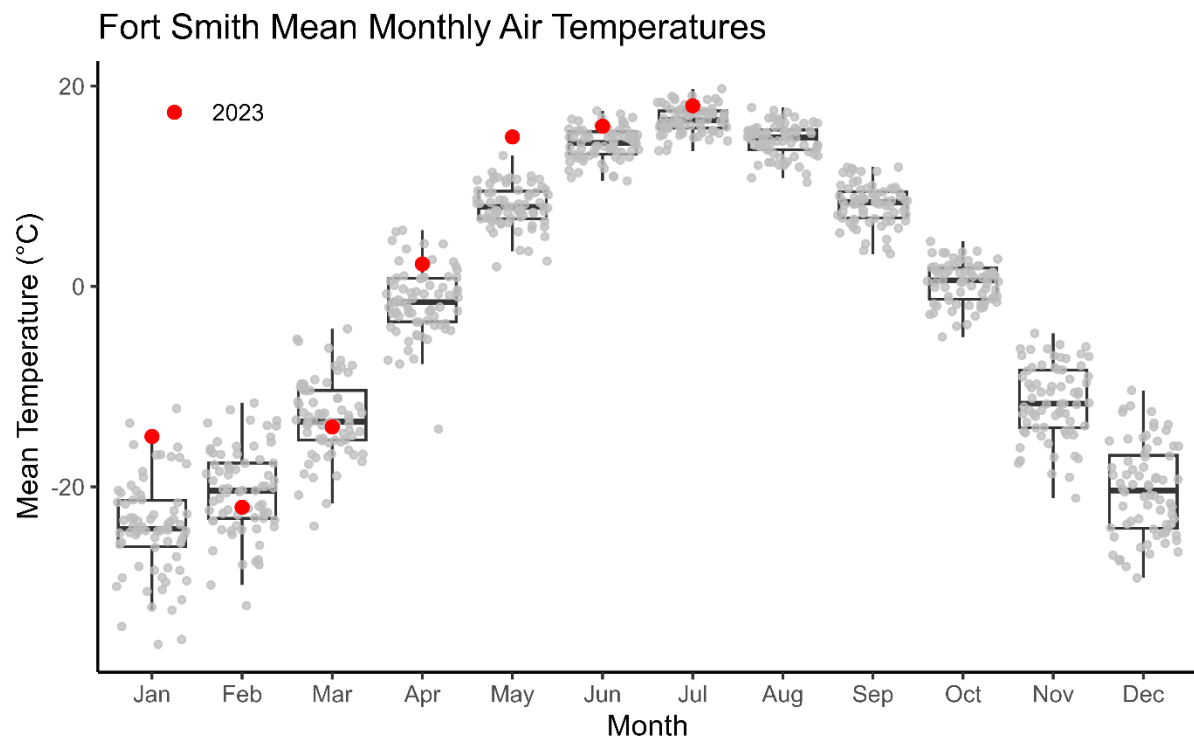


Mackenzie River (Peel Channel) above Aklavik [10MC003]

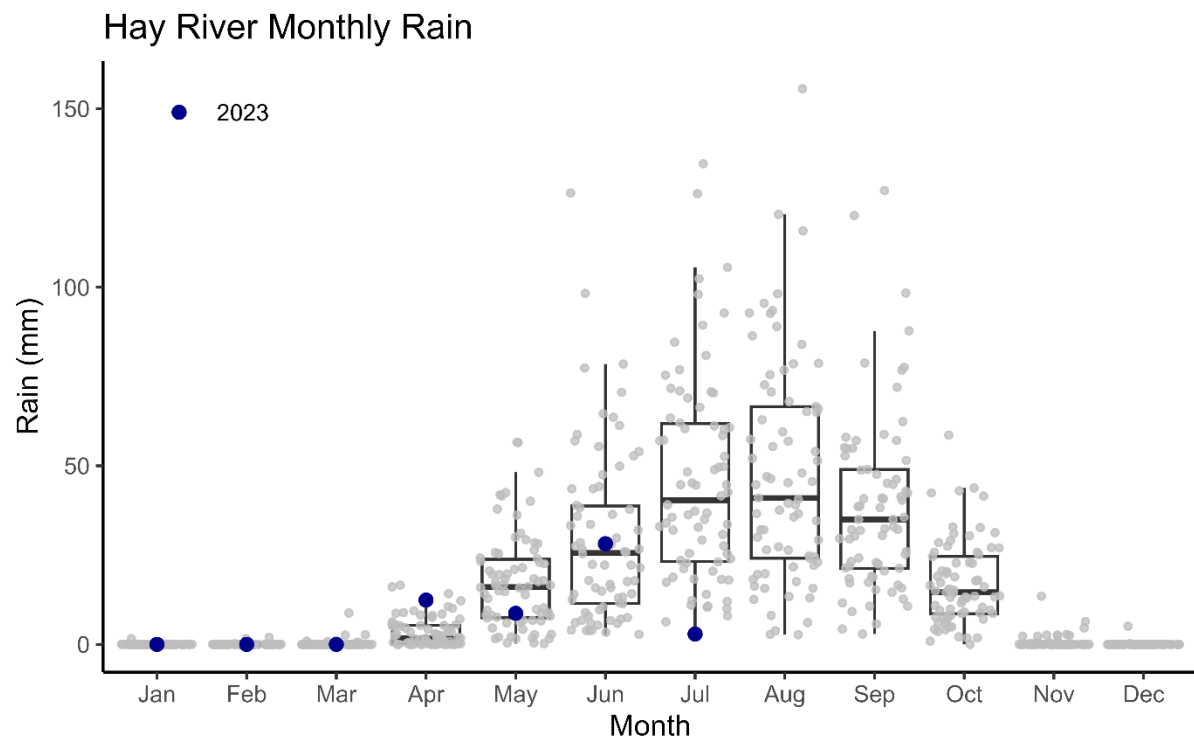
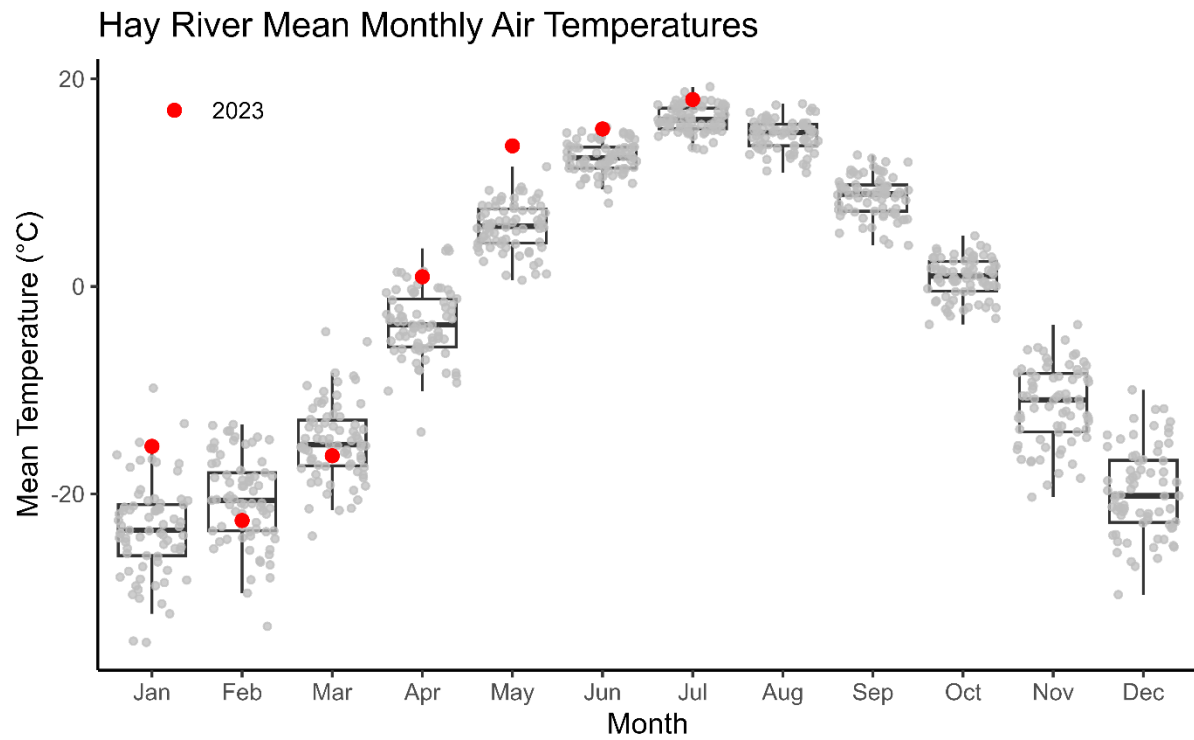
MACKENZIE RIVER (PEEL CHANNEL) ABOVE AKLAVIK (10MC003)



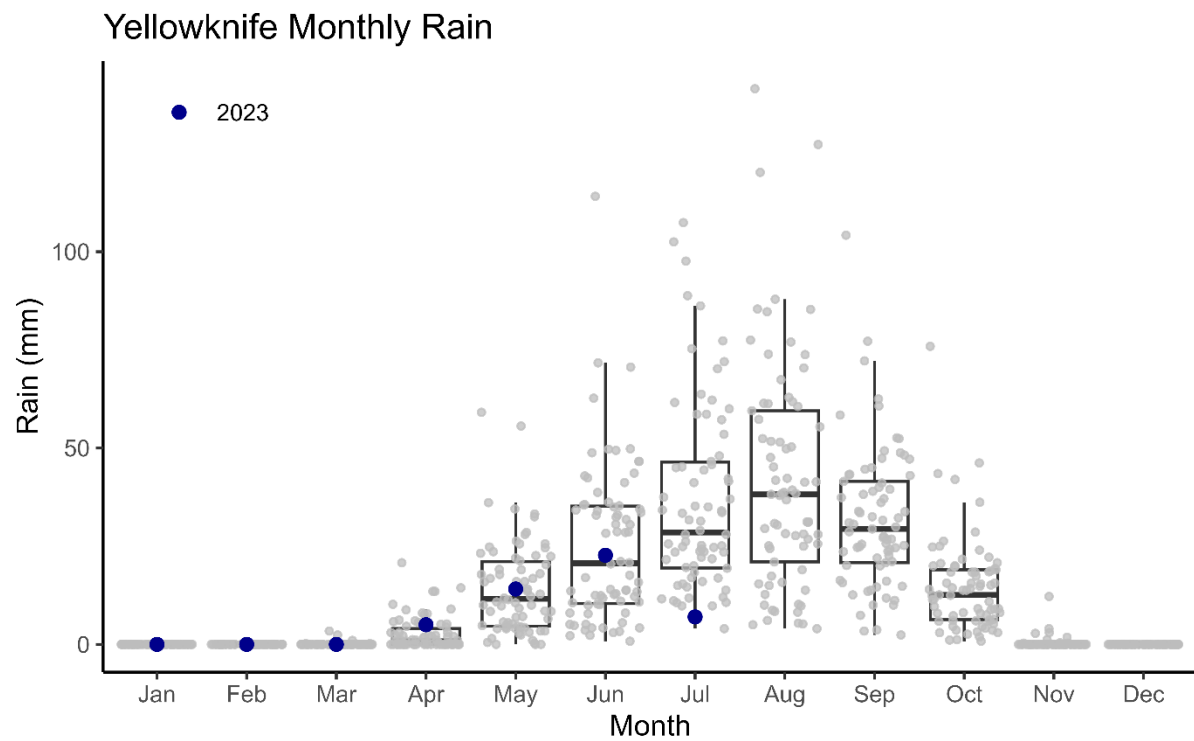
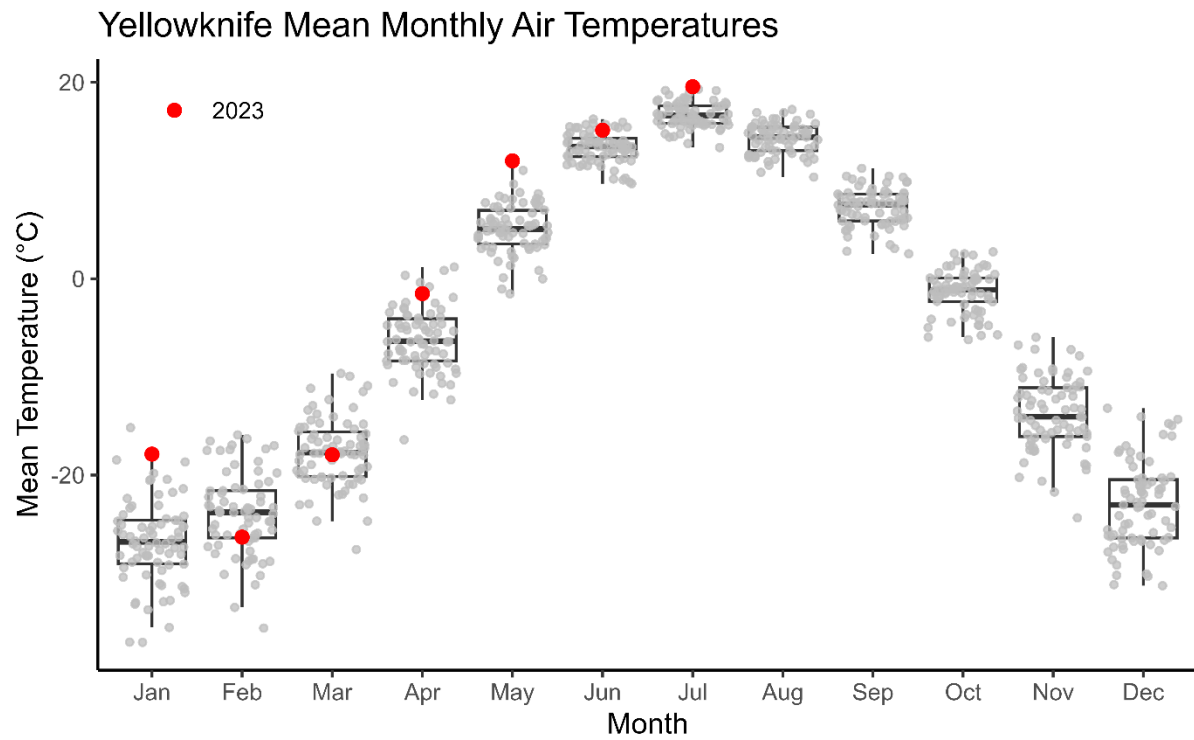
Climate Data:
Fort Smith



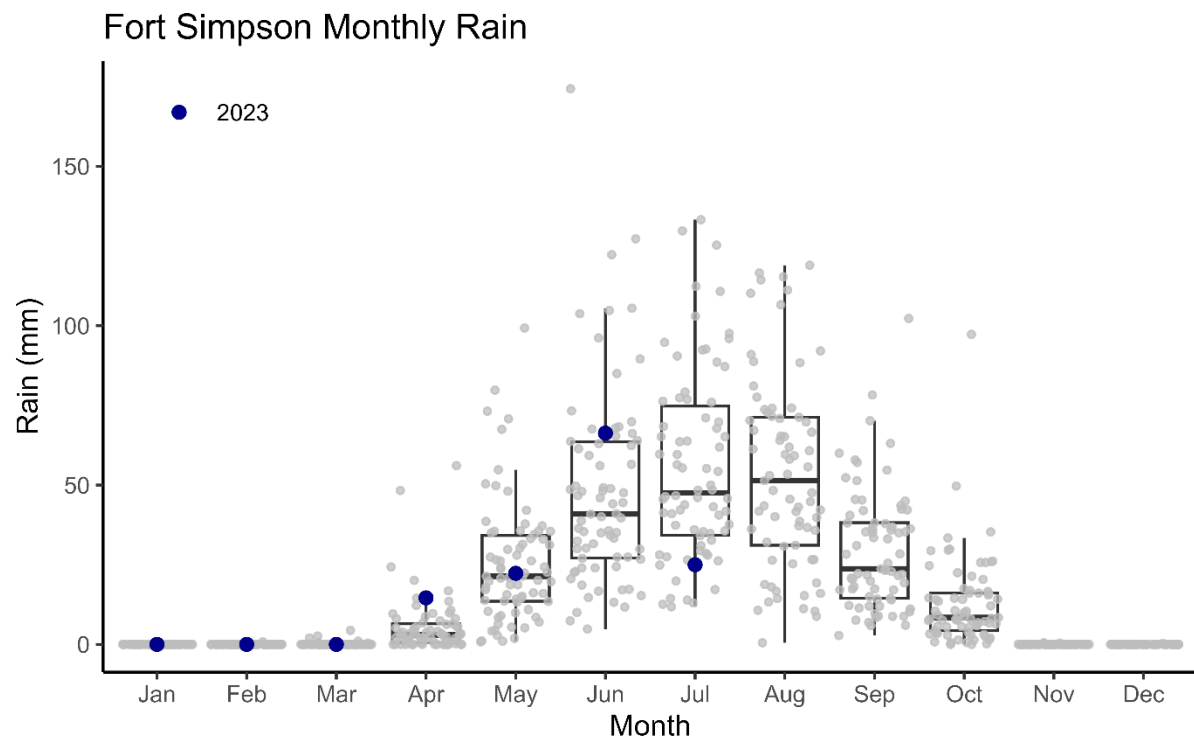
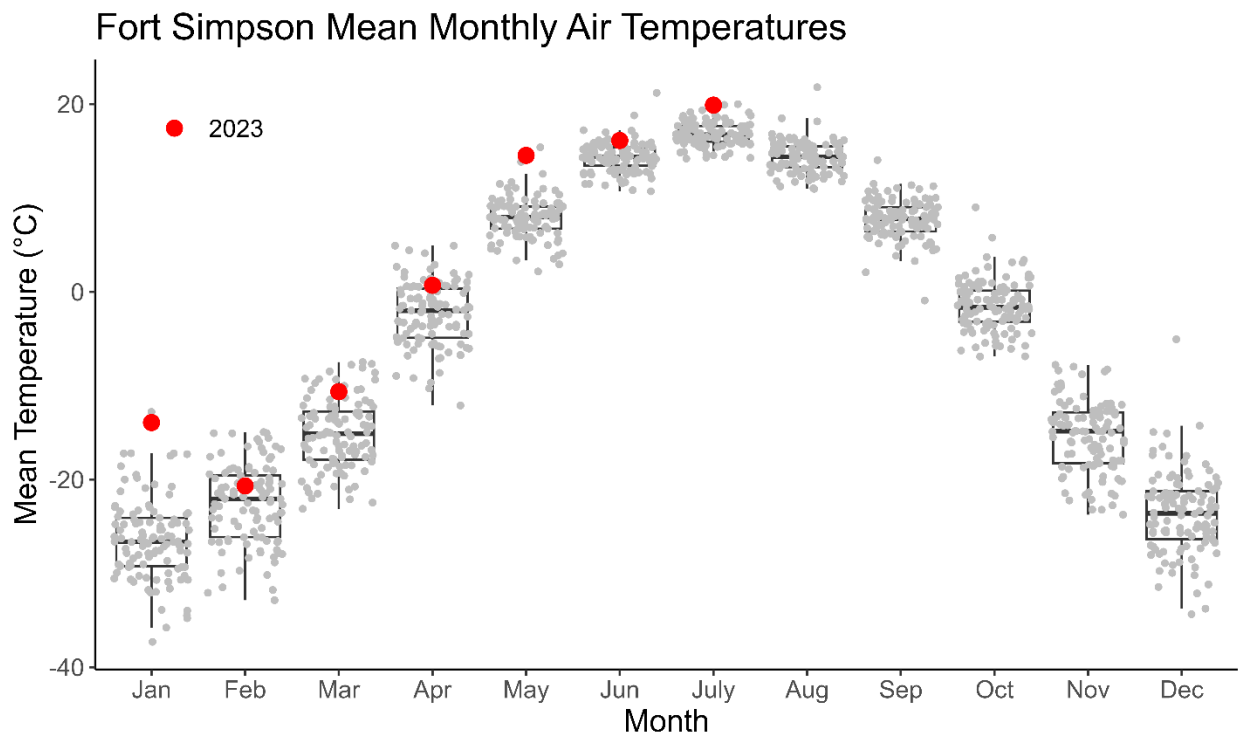
Hay River



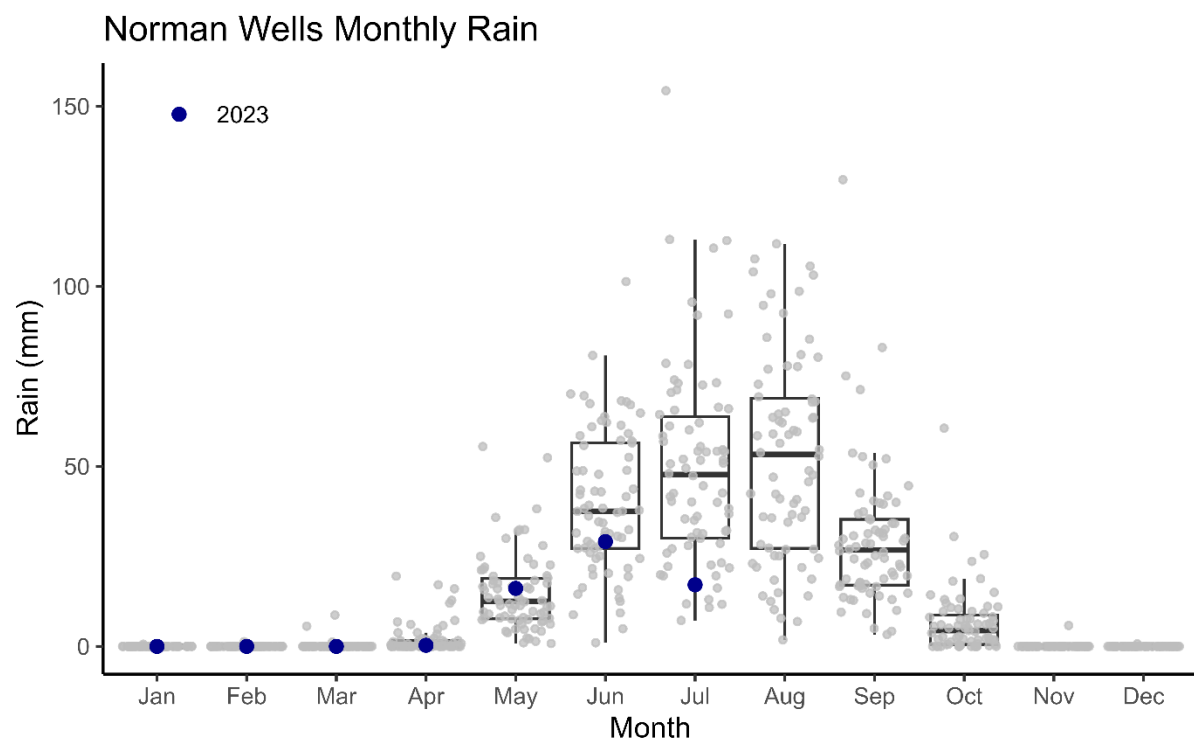
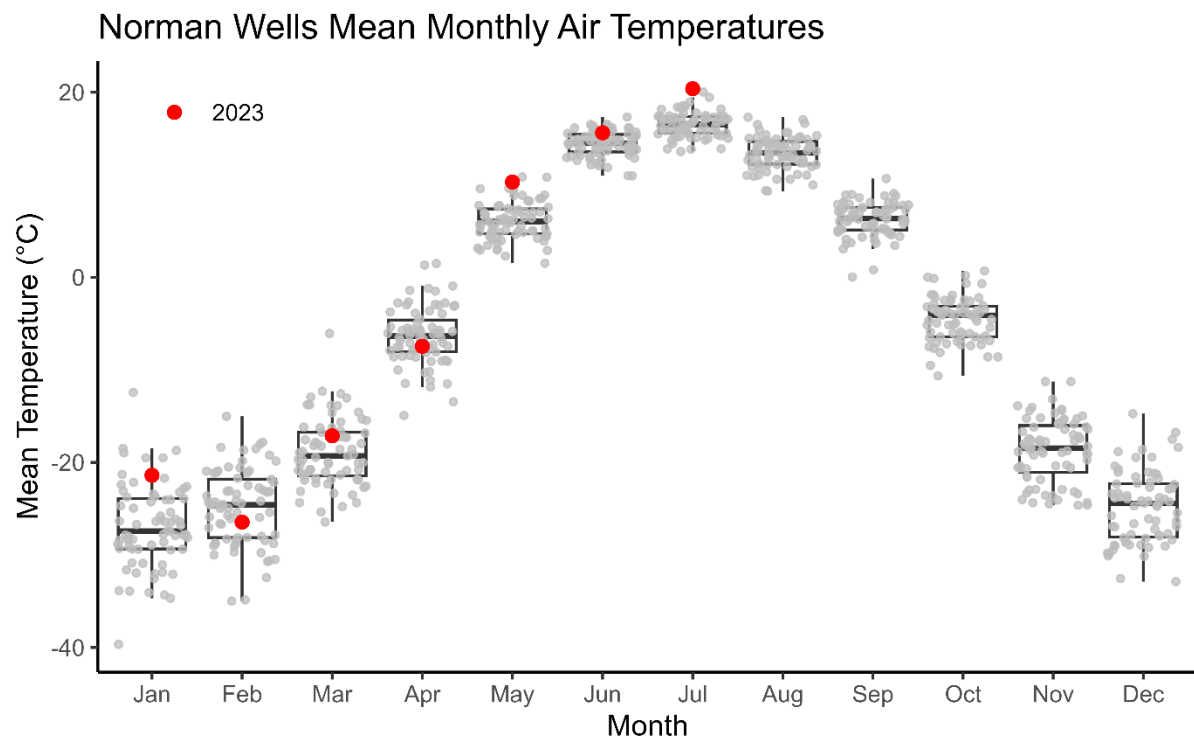
Yellowknife



Fort Simpson



Norman Wells



Inuvik

