



# Agency Report to the Mackenzie River Basin Board

**Meeting #82**  
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Location: Online meeting



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# 1. Bilateral Water Management Agreements

## British Columbia and the Yukon

British Columbia and the Yukon signed a Bilateral Water Management Agreement in March 2017. This agreement applies to all transboundary waters shared between British Columbia and the Yukon in the Mackenzie River basin, primarily the Liard River sub-basin. The Bilateral Management Committee (BMC) was established in 2019. It includes representatives of the Government of British Columbia, the Government of Yukon, First Nation governments and transboundary Indigenous governments and groups.

Since May 2022, the Yukon-British Columbia BMC has been working alongside the British Columbia-Northwest Territories BMC to develop a learning plan for the Liard River. The committees jointly decided to develop the learning plan following the [Land and People's Relationship model](#) developed by Elder Copper Joe Jack. The model is a framework for bringing together Indigenous knowledge and Western science. The BMCs have been undertaking work to gather both Indigenous Knowledge and Western science and met in November 2024 to review information gathered and discuss emerging priorities. As a next step, the BMCs are planning a workshop to develop the learning plan.

## Northwest Territories and the Yukon

In August 2022, the Northwest Territories and the Yukon signed a new Bilateral Water Management agreement for the Peel River and Mackenzie Delta sub-basin. This agreement replaces the previous agreement signed in 2002. Implementation of the new agreement began in 2023 with the inauguration of a Bilateral Management Committee and development of a workplan. In June 2024, the BMC met in-person in Dawson City. The meeting coincided with a Water Summit event being held by Tr'ondëk Hwëch'in, one of the Indigenous members on the BMC. BMC members were able to participate in a water song ceremony performed by Tr'ondëk Hwëch'in Knowledge Holders. The BMC priorities have included finalizing the terms of reference, sharing information, and developing options for approaching the development of a Learning Plan for the Peel River.

Additionally, the Northwest Territories and the Yukon signed another Bilateral Water Management Agreement in August 2022, that covers 64 km<sup>2</sup> in the Liard



River sub-basin, which is not covered by either of the British Columbia-Yukon or British Columbia-Northwest Territory agreements. During consultation, First Nations governments highlighted that implementation of this agreement should be coordinated through existing bilateral management committee structures in the Liard River sub-basin that include the Yukon and Northwest Territories.

It is still to be determined what the next steps will be. For now, all parties are already working together to develop the learning plan for the Liard River sub-basin.

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## 2. Water-related Legislation / Policy / Regulations / Planning

### Flood Mapping Initiative

The Government of Yukon is undertaking flood hazard mapping for several high-risk communities. Flood-related studies have already been undertaken in some communities, often to support short-term infrastructure and land development decision making. The flood hazard mapping studies involve a more thorough level of data collection, modelling, and engineering analysis. The products of these studies will serve as highly accurate tools to support long-term decision making by all levels of government and the public.

Within the Mackenzie River basin, a flood hazard mapping study is planned for the community of Upper Liard. The study is planned to begin by 2026 and be completed in approximately one year. The Government of Yukon is engaging with Liard First Nation as the start of the study approaches.

### Yukon State of the Environment interim report

The Government of Yukon published the 2024 Interim Yukon State of the Environment Report. The report includes information available up until the end of the 2023 calendar year. It provides data on key indicators such as the changes to the Yukon's water systems, the increase to the volumes of water contained in snowpack that becomes available when melting, and earlier average river ice break up in the Yukon River. The report can be found at: [See Yukon state of the environment reports | Government of Yukon.](#)

### Regional Land Use Planning

The [Peel Watershed Regional Land Use Plan](#) was approved in August 2019 and an implementation plan was approved in August 2020. Approximately 55 per cent of the area, including four major tributaries to the Peel River, is now permanently protected from mineral staking and oil and gas activities. The highest level of protection is now applied to these Special Management Areas, and off-road vehicle use is now regulated in specific areas to protect both wetlands and alpine habitat. Most of the existing mineral claims in the conservation areas of the region have been relinquished or have expired, ensuring protection for those lands and waters. Current implementation work includes the legal designation and development of management plans for protected areas and the



formalizing and amendment and variance process for the planning region. Research and monitoring efforts have focused on wetland inventory and surface disturbance mapping for the whole region and the establishment of two new hydrometric stations in partnership with the Water Survey of Canada.

The Government of Yukon continues to work with First Nations to uphold the provisions of the First Nation Final Agreements, including many important initiatives vital to the Yukon's social and economic well-being.

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### 3. Science, Monitoring and Information

#### Monitoring Update

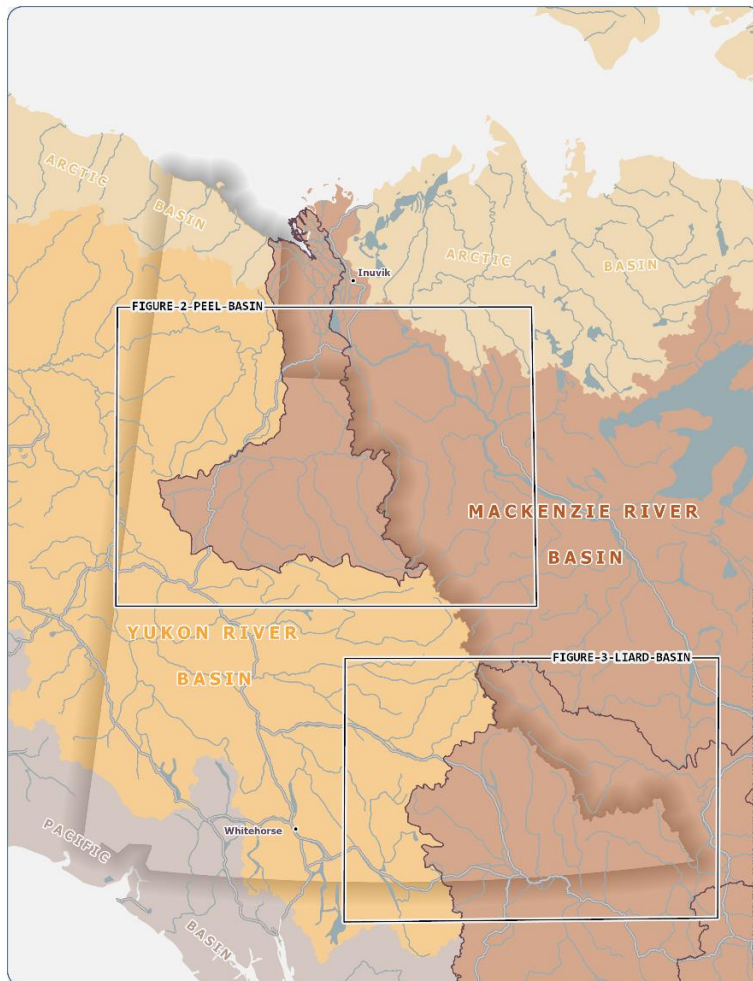


Figure 1 Peel and Liard Basins

#### Groundwater monitoring

In the Liard River watershed, the Water Resources Branch commissioned three new monitoring wells in Watson Lake in 2022 as part of their project to map aquifers underlying the area. The wells form part of the Yukon Observation Well Network (YOWN) ([Water well registry](#)). One well (YOWN-2208) was installed at a pullout along the Robert Campbell Highway and a pair of nested wells (YOWN-2209-S/D) were installed at a playground on Woodland Crescent.

In previous years, Water Resources Branch added two monitoring wells to the well network in the Liard River watershed in 2019 (YOWN-1923 at the Watson Lake solid



waste disposal facility and YOWN-1927 at the Upper Liard solid waste disposal facility) and another in 2020 (YOWN-2001, also at the Upper Liard solid waste disposal facility).

In the Peel River watershed, one groundwater well was added to the network in 2019 (YOWN-1918). The well is located near the Eagle Plains solid waste disposal facility. There are two groundwater wells in the Eagle Plains area (the other one is YOWN-1401, near the Eagle Plains Camp). Water Resources Branch added another monitoring well to the YOWN in 2020 in the Peel River watershed YOWN-2002, which is at the Ogilvie Highway Camp.

### Aquifer mapping in the Watson Lake area

This project is a collaboration between the Government of Yukon (Water Resources Branch and Yukon Geological Survey), Liard First Nation (LFN), Dena Kayeh Institute, the Town of Watson Lake, the Geological Survey of Canada, Yukon University and an environmental consultant, WSP-Golder Associates. The project is essentially complete, but Water Resources Branch is continuing to work with LFN to ensure that Kaska place names, (including Kaska names for the three newly mapped, proven aquifers), are included in the deliverables. The final deliverables will be published as soon as the Kaska place names are woven into them. The purpose of the project was to identify, delineate, and classify aquifers in the Watson Lake area (including Upper Liard and Lower Post) and build a foundation for the development of a conceptual hydrogeological model for the area. The project involved compiling, preprocessing, standardizing, and importing subsurface geological and hydrogeological data into a commercially available 3D subsurface modelling software package for interpretation and aquifer delineation. The project also involved drilling new boreholes to generate stratigraphic information in key locations and the installation of new monitoring wells that form part of the Yukon Observation Well Network (see above). This work builds on the 2020 Liard River Basin Transboundary Aquifer Assessment which concluded that the most vulnerable aquifers in the portions of the Liard River basin in the Yukon and Northwest Territories are in the Watson Lake area.

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## Surface Water Quality Monitoring

Environment and Climate Change Canada and the Government of Yukon, through a formal agreement signed in 2019, support a coordinated approach to the planning and implementation of water quality and aquatic biomonitoring activities in the Yukon. The agreement also formalizes the ability to set up community monitoring arrangements and agreements with First Nations such as Tr'ondëk Hwëch'in (Peel River) and Daylu Dena Council (Liard River).

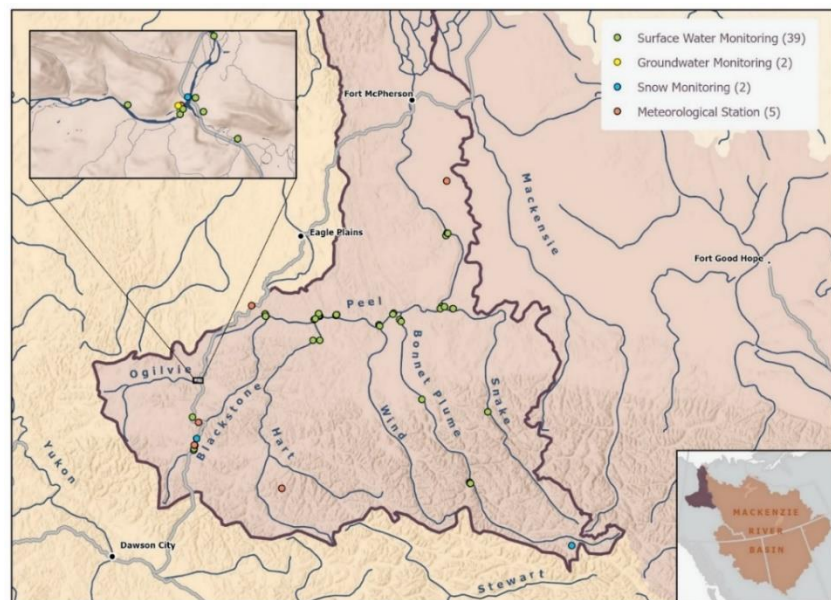


Figure 2 Peel River basin showing the Yukon-based monitoring stations

A water quality monitoring station on the Liard River is located adjacent to the Alaska Highway near Watson Lake and serves as a reference site for the Liard River watershed. Since monitoring data has been collected for over a decade on the Liard River, Environment and Climate Change Canada is conducting a trend analysis to determine how water quality has changed over time. Results will be posted to Yukon.ca when available. Also, the Water Quality Index was calculated for 2020-22 to be “Fair.” This is consistent with the previous WQI calculated for 2019-21 but is a decrease from the previous 15 years, when the Water Quality Index was “Good.” The 2021-2023 Index is currently being calculated and will be shared when available.

In the coming years, Environment and Climate Change Canada will be initiating work in the Liard River to support the “Freshwater Action Plan” that would “protect and restore large lakes and river systems” across the country, including the Mackenzie River basin.



In the Peel River watershed, water quality monitoring at the Ogilvie River station continues by Tr'ondëk Hwëch'in and is part of the Water Quality Monitoring Network between the Yukon and Canada. This station is road-accessible and is a reference site for the upper portion of the watershed. The Water Quality Index for the Ogilvie River 2020-22 is "Fair" and hasn't changed from the previous WQI calculations. The 2021-2023 Index is currently being calculated and will be shared when available.

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## Snow Survey Bulletin and Water Supply Forecast

### Surface Water Flow and Level Forecasting

Surface water flows and levels are monitored by the Water Resources Branch, Government of Yukon, and the Water Survey of Canada, Environment and Climate Change Canada within the Liard and Peel River basins. Water Resources Branch also monitors snowpack at manual snow courses in both the Liard and Peel River basins and at one automated snow weather station within the Liard River basin. Ice, water level and streamflow advisories are communicated online through the [Yukon Flood Atlas](#). In 2024 a Current Situation section was added, allowing forecasters to highlight current conditions and forecasts through the ice breakup period and the open water season.

The Yukon portion of the Peel River basin had above average snowpack in the spring of 2024, estimated at 130 percent of the historical median on May 1, while the Yukon portion of the Liard River basin was below average, estimated at 81 percent on May 1.

In the Liard River basin, freshet was protracted, with multiple small water level rises and drops resulting in an annual peak below the 25<sup>th</sup> percentile of flows. Low flow persisted through the summer, but flows rose closer to average in the fall with close to normal freeze-up timing. In the upper Peel River basin, the freshet peak was higher and slightly earlier than average. While the Peel River above Canyon Creek station was inoperable during the peak, multiple upstream stations captured the freshet timing and magnitude, which was close to the 75<sup>th</sup> percentile of flow. Early summer saw lower than average flows on the Peel and its tributaries, however summer rain returned flows to normal to above normal, a condition that persisted into freeze-up. This continues a pattern of above average winter baseflows in the Yukon.



## Snow and Meteorological Network

The Government of Yukon operates ten snow survey stations within the Yukon portion of the Mackenzie River basin, with three stations in the Peel River basin and seven stations in the Liard River basin. The snowpack at these stations is sampled three times annually for depth, density, and snow water equivalent. One meteorological station is also operated in the Liard River basin; this includes a snow scale that measures snowpack evolution over the winter. Government of Yukon publishes results in the [Yukon Snow Survey Bulletin & Water Supply Forecast](#) at the beginning of March, April and May each year. Past editions of the bulletin can also be viewed. The information presented in the snow bulletin continues to be used to identify any potential spring and early summer flood threat for those basins.

## Hydrometric Network

The Government of Yukon's small stream hydrometric network includes one station in the Liard River basin and one station in the Peel River basin. Continuous water level measurements are recorded at each station using electronic data loggers. The station in the Liard River basin is also equipped with real-time data transmitters, so water levels can be tracked remotely. Regular discharge measurements are taken during the open water season so that flow records can be produced, with a particular emphasis in capturing discharge during spring peak flows. Data are available on request by emailing [waterresources@yukon.ca](mailto:waterresources@yukon.ca).



The Government of Yukon also maintains a cost-sharing agreement with Environment and Climate Change Canada to operate six hydrometric stations within the Peel River basin and eight hydrometric stations within the Liard River basin. Real-time and historical water level and discharge data from this network are available online at <https://wateroffice.ec.gc.ca/>.

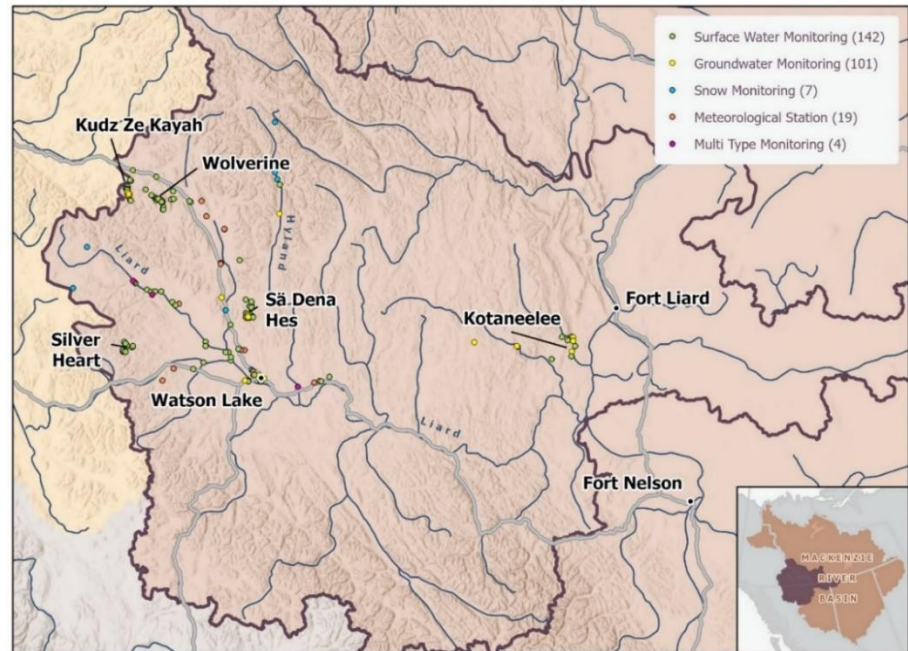


Figure 3 Liard River basin showing the Yukon-based monitoring stations

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## Yukon Water Online Information

### Water Monitoring Data Access

Government of Yukon online data platforms such as the [Waterline](#), [Water Data Catalogue](#) (WDC), [Water Well Registry](#) (WWR), [Government of Yukon's meteorological data repository](#), and the [Snow Survey Network portal](#) continue to be operational and available to the public. Waterline is an online water licence registry maintained by the Yukon Water Board that stores information related to water licensing processes (e.g. water quality lab reports).

The WDC and WWR are housed online as interactive maps that provides water monitoring stations metadata (e.g., site location, period of record, type of data collected) and groundwater well data from across the territory (e.g., well depth, estimated yield, etc.), respectively.



The meteorological data repository houses near real-time weather data (e.g., air temperature, precipitation, wind speed) for a select number of stations across the territory. Up to one month's worth of data can be downloaded, or more data be provided upon request.

The [Snow Survey Network](#) portal makes available recent and historical snow depth and snow water equivalent data from across the territory. There are three survey locations in the Peel basin and eight in the Liard basin, each measured three times annually (~March 1<sup>st</sup>, April 1<sup>st</sup>, and May 1<sup>st</sup>).

Additional spatial layers to compliment the online portals are available on the Government of Yukon's Corporate Spatial Warehouse and can be viewed via [GeoYukon](#), notably weather stations, water licences, groundwater wells and water monitoring sites layers, which are grouped in the Environmental Monitoring section.

Real-time hydrometric (water level) data from [Water Survey of Canada stations](#) is collected at six stations in the Peel River basin and eight in the Liard River basin.

Weather station data is collected at six stations in the Liard basin and three in the Peel and is available through the Government of Yukon's meteorological repository portal.

**Links to data portals mentioned above:**

Waterline: <https://apps.gov.yk.ca/waterline>

Water Data Catalogue: <https://open.yukon.ca/data/datasets/water-data-catalogue>

Water Well Registry: <https://yukon.ca/en/get-information-about-yukon-groundwater-and-wells>

Meteorological data repository: <http://rwis.gov.yk.ca/weather/>

Snow Survey Network: <https://open.yukon.ca/data/datasets/yukon-snow-survey-network>

GeoYukon: <https://mapservices.gov.yk.ca/GeoYukon/>

Water Survey of Canada: [https://wateroffice.ec.gc.ca/search/real\\_time\\_e.html](https://wateroffice.ec.gc.ca/search/real_time_e.html)

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## 4. Major Projects

### Regulatory Update

#### Mineral Exploration

**Peel River watershed:** One mineral exploration project has been proposed in the Peel River watershed in 2022, and the Yukon Socio-economic Assessment Board (YESAB) issued their recommendation for the project not to proceed. The Government of Yukon has applied for a judicial review of YESAB's recommendation. There is one active Class 3 (exploration) Mining Land Use Approval in the watershed. This authorization slightly overlaps the Peel River watershed in its southern reaches in between the Wind and Bonnet Plume Rivers. There were no Class 1 Notifications (low level exploration programs) in the Peel River watershed for 2024. There is one remediation project currently undergoing environmental assessment that would require the development of 50 km of winter road through the NWT to access the site in the Yukon as well as a water licence. YESAB recommended the project not proceed due to significant effects to Boreal Caribou. The Decision Bodies have not issued a final decision on the project yet. The Government of Yukon is anticipating the submission of a YESAB Executive Committee project for continued exploration of oil and gas resources in the Eagle Plains area in 2025 which could overlap the Peel River watershed.

**Liard River watershed:** There are two active Class 1 approvals valid in 2024; these are only valid for one year at a time. There are four active Class 3 Mining Land Use Approvals and one active Class 4 Approval in the Liard River watershed. There are four projects currently undergoing an environmental assessment; however, all three projects have previously been explored and would not be new exploration projects. The Mining Land Use Approvals in the Liard River watershed are dispersed throughout the watershed's territory in the Yukon. Water Resources Branch published an [audit report](#) of the Silver Hart exploration property.

#### Major Mines

##### Liard River watershed

**Wolverine Mine:** Yukon Zinc Corporation put the Wolverine Mine, located 180 km southeast of Ross River, into temporary closure on January 27, 2015. The Government of



Yukon is now managing the site. A leak in the Tailings Management Facility was detected in fall 2024, with water quality exceeding targeted standards in the facility's underdrains. Work is ongoing to pump this water back to the containment pond. Irrespective of the leak, preparations for full closure of the site remain ongoing and a treatment and discharge campaign is planned for summer 2025. The Assessment and Abandoned Mines Branch of the Department of Energy, Mines and Resources is currently providing monthly updates to the Bilateral Management Committee following the change in conditions at the Wolverine Mine Tailings Storage Facility after the leak.

*Sä Dena Hes Mine:* Permanent closure and decommissioning activities of this former lead-zinc mine were completed in 2015; the site is now in post-closure monitoring.

*Kudz Ze Kayah Mine:* in June 2022, Decision Bodies, including the Government of Yukon and the Government of Canada, issued a joint Decision Document under the Yukon *Environmental and Socio-economic Assessment Act*, allowing the mine to proceed subject to terms and conditions. However, in December 2024, the Court of Appeal of Yukon ruled that consultation during the assessment phase was inadequate in relation to Kaska concerns around economic feasibility of the project and ordered the Decision Document set aside to allow for this consultation to occur.

The company, BMC Minerals, had additionally begun pursuing regulatory authorizations to begin construction of the mine although such regulatory processes will not conclude without a decision document. BMC submitted the final version of their water licence application in 2023, and a first round of public comment period occurred in spring 2023.

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