



Arnica (left), and barge transports a mineral truck across the Yukon River at Minto landing (above)

## Water Use in Yukon

Water is used in Yukon for nature, people and the economy. It is vital that we properly manage water in Yukon to ensure that we have enough water – and enough good water – to meet all of these needs. In nature, water supports the ecosystem. This includes drinking water and food for plants and animals to providing climatic control and waste assimilation. People use water for a variety of purposes, including travel, firefighting, recreation and harvesting. In addition, water has great heritage, cultural and spiritual significance to many people throughout Yukon and the North.

This Fact Sheet highlights these consumptive uses. While many of these activities are licensed through the Yukon Water Board, some do not trigger the licensing criteria as specified in the *Waters Regulation*.

### Municipal

We use water in our communities for drinking, cooking, flushing our toilets, bathing, laundry, cleaning, and other household needs including lawn and garden watering, and car washing. Most Yukoners rely on groundwater for drinking water, while the treatment of sewage varies by community. Water use surveys conducted by Environment Canada found that Yukoners use consistently more water per person than the average Canadian. Our high rate of residential water use is due in part to the use of bleeders to prevent the freezing of pipes.

Yukon's population has increased gradually, but some small communities may experience an influx of immigrants, a mining boom or seasonal tourism that could have a drastic increase in

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**Water Resources Branch  
Department of Environment  
Government of Yukon**

**Phone: 867-667-3171  
Web: [YukonWater.ca](http://YukonWater.ca)  
Email: [Water.Resources@gov.yk.ca](mailto:Water.Resources@gov.yk.ca)**



# Water for Nature, Water for People

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population. With or without growth, many communities will need costly upgrades to their water systems in the coming years due to aging infrastructure.

There is interest in increasing our knowledge of groundwater in the territory in order to sufficiently protect it from contamination. Some researchers suggest that climate change might already be affecting the quantity of groundwater supplies in Yukon. Changing permafrost conditions could pose further threats. Planners face an additional challenge, in that climate change means they can no longer rely on historical data to predict the future.

### Commercial and Natural Resources Development

Many commercial and natural resource sectors depend on water availability and access to water in order to sustain their operations.

#### Agriculture

Less than 2% of Yukon lands (mainly in the major river valleys) are suitable for agricultural development. Yukon farmers need water for irrigation, crop washing, livestock, and home use. Most agriculture production occurs in southwest Yukon where droughts between April and July are common, so access to irrigation water is important. There is likely to be more demand in the future for local vegetables and locally grown foods, with demand for hay crops remaining strong. One of the biggest constraints on growth is accessibility to water because the amount of agricultural land adjacent to water courses is limited.

#### Fisheries and Aquaculture

Yukon's freshwater fishery is dominated by recreational angling, with a small component of commercial, domestic and First Nations fisheries concentrated on lake trout and lake whitefish. Yukon also has a small aquaculture sector composed of pothole-lake fish farms, where fish are stocked and grown in closed-system pothole lakes, and tank farm operations that raise and export Arctic char and Arctic char eggs. Not all fish farm licences issued on pothole lakes are currently active. The existing licensed capacity, combined with tank farms and hatcheries, could produce significant quantities of commercial fish products.



#### Forestry

Yukon's forestry sector is small, with 69 commercial operators. Most harvest fuelwood for domestic heating, while two operating mills produce rough lumber for local markets. Given the small scale of Yukon forestry, its current impact on water resources is minimal. The sector's growth is linked to the emergence of a bioenergy market as there is potential opportunity for wood chips or pellets in central heating. Climate change might lead to more forest fires and insect disturbances, as well as changes to forest species, which could in turn have dramatic effects on water resources in forested watersheds.

#### Hydroelectric

Hydro power is the main form of electricity production in Yukon, ranging from the large four-turbine plant at Whitehorse Rapids to small, in-stream micro-hydro installations serving only one user. Yukon energy providers continue to assess potential hydro project options to meet growing energy demand. These options include the expansion of existing facilities and new projects. Secure access to water is critical for existing and new hydroelectric power generation.

#### Mining

Water is critical to every stage of placer mining. Placer miners excavate soil and gravel, often in streambeds, to uncover the gold-bearing gravels. Water thaws the frozen ground, washes the gold-bearing gravel loose, and sluices the gold free. Other fine materials are washed away, resulting in high concentrations of suspended sediments in the discharge water. Climate change could have both positive and negative impacts on Yukon placer mining. Reduced permafrost cover could make mining easier and cheaper, but shorter



ice-road seasons could make site access harder and more expensive. Lack of water would halt placer mining altogether.

Hard rock mining affects water resources, particularly water quality, during all phases from exploration to mine closure. The key issue is usually too much water rather than a scarcity of it. The water balance of a mine site, an important tool for water management in mining, refers to the need to account for all water in and out of the site. Considerable growth is projected in Yukon's hard-rock mining sector, with at least three mines currently under development. Increasing precipitation could make it more difficult to manage water quality. With little baseline data available, it is difficult to assess impacts on the aquatic environment or to incorporate climate change concerns into the design of long-term projects.

### Oil and Gas

Oil and gas operations use water in many ways including in drilling muds, water flooding to extract oil and gas, and ice roads to gain access to oil and gas wells. Currently, Yukon has no producing wells; 75 exploration wells have been drilled, mostly in the Liard Plateau, Peel Plateau, or Eagle Plain basins. Active exploration is underway in the Eagle Plains basin. Future production depends on the size of reserves, the price of oil, the cost of production, and the cost and accessibility of transportation.

### Public Safety

Water presents both a threat and a safeguard to public safety. Precipitation can impact the safety of our roads

and when combined with other factors such as glacial melt, may lead to extensive flooding. But water is vital to the protection of our homes and forests from fires. As well, the prevention and remediation of pollution helps to safeguard our water supplies from contamination.

### Weather and Roads

Staying safe on highways and roads requires planning and preparedness.

### Flooding

River flooding in the spring is common. Warm temperatures, rain and a high snow pack in the mountains all contribute to flood potential. Residents in flood prone areas should take the necessary measures to protect their property.

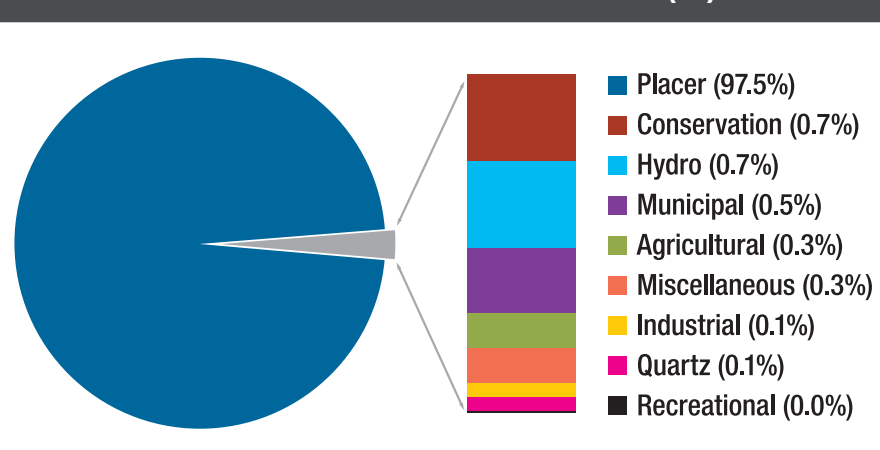
### Wildland Fires

Successful fire management depends on effective fire prevention, detection, suppression, and consideration of fire ecology relationships.

## Licensed Water Uses in Yukon

The Yukon Water Board is responsible for the issuance of water use licences for the use of water and/or the deposit of waste into water. Water licences fall into nine categories: Agricultural (AG), Conservation (CN), Hydro (HY), Industrial (IN), Municipal (MN), Miscellaneous (MS), Placer (PM), Quartz (QZ), and Recreational (RE). Other criteria that can trigger the requirement for a water licence under the Waters Regulation include watercourse crossings, diversions, and the deposit of waste.

**Water Use Allocation in Water Licences (%)**



Please note the graph does not reflect percentages of actual water use by each category, but rather the allocated water use within water licences. Further, the graph does not delineate the various types of uses (consumptive vs. non-consumptive) that occur within the various activities.



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