

Report to Council



Date: April 22, 2024
To: Council
From: City Manager
Subject: Potable and Non-Potable Water Systems – Supply Status Update
Department: Utility Services

Recommendation:

THAT Council receives, for information, the report from Utility Services dated April 22, 2024, with respect to the status of anticipated water supplies for 2024;

AND THAT due to drought conditions leading to an anticipated shortage in supply of water in the Non-Potable water system, Council declare Stage 1 Water Use Restrictions be in effect for all water customers of the Kelowna Water Utility;

AND FURTHER THAT Council declare that Agricultural Customers of the Kelowna Water Utility cannot exceed their annual Allotment in 2024; and that the City may shut off water services in the event that Customers exceed their Allotment.

Purpose:

To receive an update on water supply and storage levels and take action required to prepare for potential drought condition.

Council Priority Alignment:

Agriculture

Background:

The City of Kelowna analyzes snowpack levels, groundwater levels, creek flows, and climate data as part of an elaborate data monitoring process that helps inform and manage our water supplies and resources. The sustainability of our water supply depends on managing demand on the system year-over-year and giving our water sources time to recover and replenish. After multiple dry summers and an exceptionally low snowpack winter, current and projected conditions indicate the City must act to assure that water is available to all customers through to the end of 2024.

Discussion:

As of April 8, 2024, the Province reports that provincial snowpack levels are 63% of average; the lowest recorded snowpack since 1970. The Okanagan Region, which encompasses the Okanagan Valley from

the Thompson to the US border, averages 73%. From a City of Kelowna perspective, the relevant local measurements for snow, lake and upland storage levels are noted in Table 1.

Table 1. Select lake level, creek flow and climate measurements for the Kelowna region*

	Readings		Comment
	Apr 1/24	Normal (Apr 1)	
Okanagan Lake water level	341.65 m	341.44 m	Above normal – Expecting lower freshet volumes
Okanagan Lake Outflow (Penticton)	5.53 m ³ /s	16.6 m ³ /s	Well below normal – in anticipation of lower freshet volumes
McCulloch Reservoir	8,530 ML	8,800 ML	Maximum storage = (16,650 ML)
<u>Snow Pillows (elevation)</u>			(Snow-Water Equivalents)
Mission Creek (1780 m)	391 mm	491 mm	78% of normal
Greyback (1550 m)	151 mm	226 mm	Dropping - 67% of normal.
Oyama Lake (1360 m)	100 mm	158 mm	Dropping - 63% of normal
Brenda Mines (1460 m)	172 mm	324 mm	Dropping - 53% of normal
<u>Snowcourses</u>			(mm of snow)
Postill (GEID - 1370 m)	164 mm	197 mm	83% of normal

* Notes: m = metres; mm = millimetres; m³/s = cubic metres per second; ML = 1 million litres or 1 megalitre; ML/yr = megalitres per year; snow pillows are monitoring stations

Non-Potable Water: The McCulloch (Hydraulic Creek) Watershed captures diverted water from upper licensed catchments and is the only supply of water for agricultural irrigation and fire protection year-round in southeast Kelowna. Snowpack measurements below 1,550 m, reflective of this watershed, are well below normal and started to melt early. This will result in an earlier reliance on water reservoir storage to supply customers.

Our local snowcourses indicate that there remains some snow frozen in the upper watershed, however these depths are also lower than normal. Temperatures continue to be above normal. We optimistically see snow on top of Little White mountain, which is often considered a reason to expect further snowmelt later in the spring or early summer, however the data indicates the coming snowmelt will be significantly below levels necessary to recharge our reservoir.

City operations staff have adjusted practices for what is forecast to be a low flow snowmelt year. The diversions in the upper watershed were set up all winter to maximize storage in the reservoir.

Potable Water Supply from Okanagan Lake:

The City Water Utility sources all its drinking water supply from Okanagan Lake, with some wells as backup. As of today, the water level of Okanagan Lake is near normal for this time of year. Snowpack across the valley is below normal, and well below normal north of Penticton. The Province recognizes the low snowpack levels and has been managing flow releases at Penticton at very low flows to meet the

minimum regulatory needs downstream. Under average rainfall and current snowpack conditions, we are predicting that Okanagan Lake will not meet full pool. We do not anticipate significant supply issues from Okanagan Lake for the City's Water Utility customers.

Water Restrictions:

Water use restrictions may be necessary to sufficiently reduce water demand to allow for sustainable supply for all customers and to meet environmental requirements. On the Non-Potable system, we also manage water license requirements for Critical Flow and Environmental Flow Needs for fish in Hydraulic Creek and Mission Creek downstream of the confluence. The City will continue to release at least the Critical Flow Need requirements at the intake as per the Mission Creek Water Use Plan developed in 2010.

As a result of these requirements, upland reservoirs that supply irrigation water to the Southeast Kelowna (SEK) agricultural community are at risk of not filling. Climatic factors that may alter this assessment are increased spring precipitation and lower temperatures (i.e. evaporation loss), thereby increasing storage and reducing demand from current expectations. Staff have reviewed immediate prudent actions that can be taken under the Bylaw to prepare for drought conditions, including:

- Implementing Stage 1 water restrictions for users of both potable and non-potable water services. Water restrictions outlined in the Water Regulation Bylaw are staged with the ability to move to more progressive restrictions. Stage 1 is intended to raise awareness of drought conditions and prepare the community for the possibility of moving to more impactful watering restrictions.
- Using the provision provided under Section 8.3.2. (b) of the Water Regulation Bylaw to firmly cap Water Allotments to all agricultural properties. These provisions allow staff to shut off water to properties that exceed their Allotment.

These recommendations are in line with 2018 survey results from agricultural customers stating that consumption should be limited to allotment volumes. In 2023 over 80% of agriculture customers operated within their allotment volume. Additional customer support and engagement will occur with the smaller segment of agriculture customers that historically have not stayed within their allotment.

Staff will continue to educate customers on irrigation management and efficiency during this difficult period. For example, free water audits for the top 32 overuse agriculture accounts are being offered during May 2024. The Eye on Water Application continues to be promoted as well, which allows individual customers to monitor near real time consumption on their mobile phones or home computers. Staff will monitor and communicate directly with customers should water consumption levels approach their allotment limit.

Staff will continue to monitor weather conditions, runoff capture and storage levels throughout the season and advise Council and the public if modifications are required to address local situations.

Conclusion:

Through all available data on current and projected conditions, it is clear the City needs to take prudent and targeted actions for the sustainability of our 2024 water supply, particularly the non-potable water supply. Staff are working closely with agriculture customers to help them stay within their allotments. Staff will also re-evaluate storage estimates later in the season, reassess water availability at that time, and continue to adopt efficiencies in the delivery system.

By taking actions available to us under the Bylaw now and advising our agricultural users of the situation, customers will be able to make timely decisions about how to manage their business and lands appropriately through the upcoming season considering current and projected conditions.

Internal Circulation:

Communications

Considerations applicable to this report:

Legal/Statutory Authority:

Section 8.3.2 (b) of Water Regulation Bylaw 10480 states that if there is anticipated to be a shortage of supply Council may declare that Customers cannot exceed their Allotment and may Shut Off water services in the event that Customers exceed their Allotment.

Communications Comments:

Utility Services is communicating directly with all affected agricultural customers of the importance of complying with their irrigation allotment. Additionally, direct offers of irrigation audit assistance is being made to 34 properties that significantly exceeded their allotment in 2023.

Considerations not applicable to this report:

Legal/Statutory Procedural Requirements:

Existing Policy:

Financial/Budgetary Considerations:

Consultation and Engagement:

Submitted by: R. MacLean, Utility Planning Manager

Reviewed by: K. Van Vliet, Utility Services Manager

Approved for inclusion: M. Logan, General Manager of Infrastructure

Attachment(s):

Potable & Non-Potable Water Supply Status

cc: Divisional Director, Corporate Strategic Services