



INFORMATION ONLY COUNCIL REPORT

To: Mayor and Council

Date: July 25, 2023

From: Paul Gipps, CAO

File No: 5600

Subject: **Summer 2023 Water Supply Update**

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BACKGROUND

Drought is affecting much of British Columbia, including many parts of the southern and central interior. Record-setting warm weather this spring combined with persistently low levels of precipitation have placed great demands on our water resources. Most of British Columbia received precipitation in the order of 40 to 85% of the annual average over the last year.

British Columbia ranks drought levels from 0 to 5, with Drought Level 5 rated as the most severe with adverse impacts to socio-economic or ecosystem values being almost certain.

Lack of precipitation, declining streamflows, rising water temperatures, and forecasts for above normal temperatures this summer have prompted the Government of B.C. to move the Okanagan to Drought Level 3. Drought Level 3 is summarized as severely dry conditions with adverse impacts to socio-economic or ecosystem values being possible and local water restrictions are likely.

Water Supply Update

Adequate snowpack is a key contributor to ensuring our water storage reservoirs can fill in the spring. Full reservoirs in the spring ensures adequate water supply throughout the typically warm and dry summer months and into the fall without drawing our reservoirs down too low and compromising the ability to refill them for the following year. The main risk with our reservoir levels is subsequent drought years and hence the importance of always being able to refill our reservoirs over the winter and spring.

Despite lower-than-normal snowpack conditions for much of BC this spring the Okanagan area had higher than average levels. Staff reported in April that we were expecting our water reservoirs to reach full levels prior to the summer demands starting and therefore would start the irrigation season on Stage 1 watering restrictions (normal level). Staff also advised that drought planning is a continuous process and that we will be actively monitoring storage levels and re-evaluating our position continually.

As expected, our reservoirs did reach full level this spring however the minimal precipitation we have had through the spring and start of summer, combined with record-setting warm temperatures this spring have placed a significant strain on our water reservoirs. Additionally, the long-term forecast is anticipating above normal temperatures. These complicating factors have quickly negated the benefit of being able to reach full reservoir levels this spring.

A year over year comparison highlights the demand on our system this spring. Flows through the Powers Creek Water Treatment Plant were 50% higher this May than last, and 69% higher in June. The flow rates this year were closer to what we experienced in 2021 which is the last time Stage 2 watering restrictions were implemented.

Figure 1 shows Total Reservoir Storage for the Powers Creek system for the last 15 years.

The current trend is similar to conditions in 2021 and 2015 which are the last times the City of West Kelowna (CWK) necessitated elevating watering restrictions to Stage 2.

DROUGHT PLANNING

Drought occurs naturally in the Okanagan and hence the Province and the Okanagan Basin Water Board (OBWB) are encouraging communities to conserve water and to have current drought plans in place.

The City of West Kelowna Drought Plan was updated in 2019 in conjunction with the OBWB and Provincial initiatives on drought planning.

A key output of the plan is a drought response decision tree that was developed to guide decision making related to setting the appropriate level of watering restrictions. The intent is to ensure a science based and consistent approach to this critical decision making. The decision tree considers reservoir levels in the fall, the amount of fall precipitation, snowpack levels over the winter, information provided from the Province's River Forecast Centre, reservoir levels in May and June, and finally the anticipated demand heading into the summer months. Figure 2 shows an example of the matrix considered for current conditions.

Drought planning is a continuous process for CWK staff. Staff have been monitoring storage levels and re-evaluating our storage requirements on a weekly basis since May and as mentioned above, the winter and spring conditions allowed us to fill all of our reservoirs and put us in a good position entering the summer. Prolonged hot and dry weather however has drastically impacted storage levels and puts us in a position to necessitate Stage 2 watering restrictions.

FIGURE 1 – Total Reservoir Storage

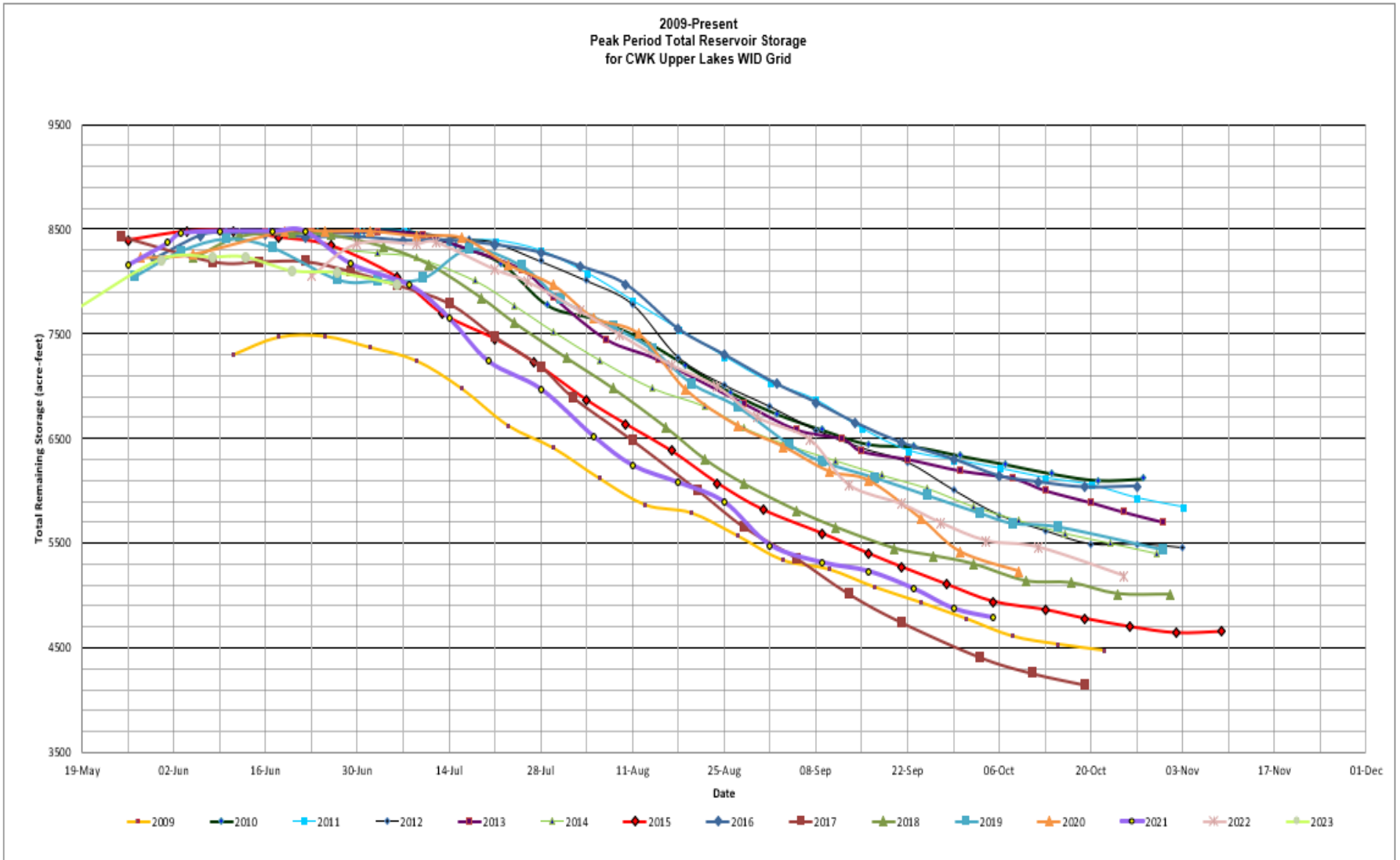
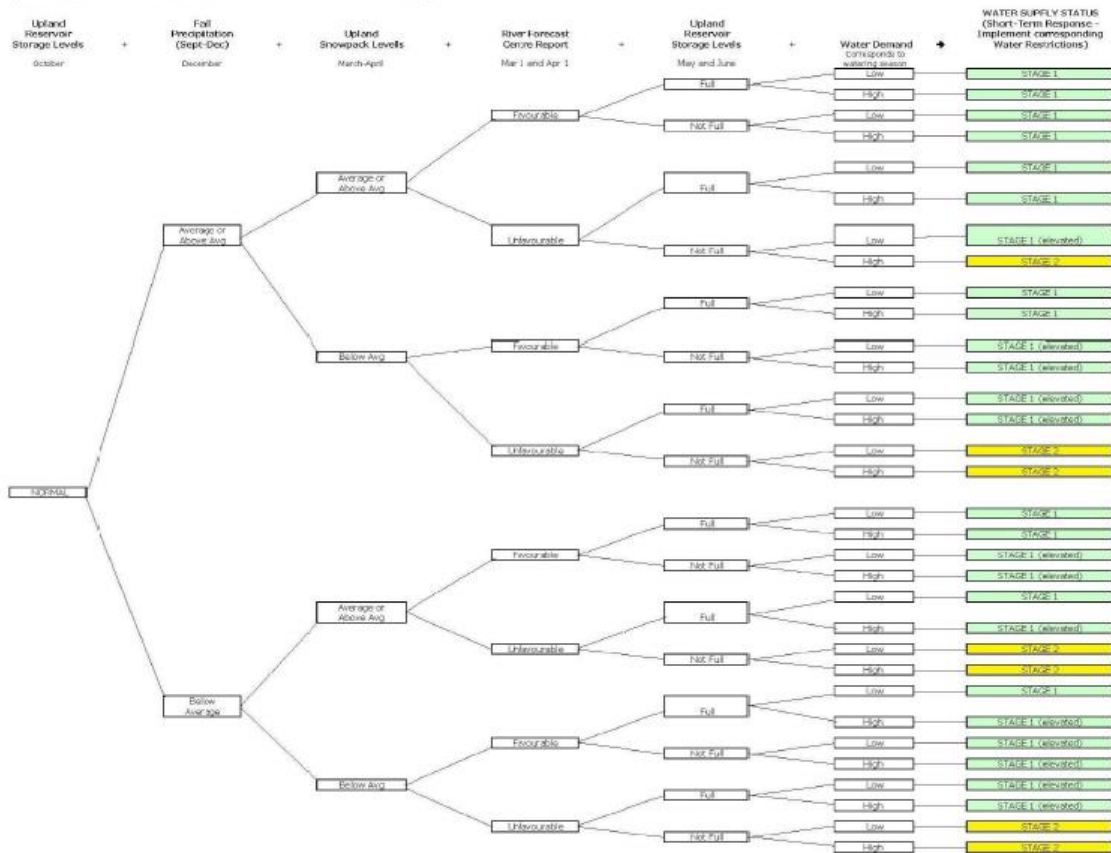


FIGURE 2 - Drought Response Decision Tree

Figure 6.1: Normal Decision Tree for City of West Kelowna

Figure 6.1: 2020 DROUGHT RESPONSE DECISION-TREE FOR CITY OF WEST KELOWNA
 (TO BE USED DURING NORMAL or ABOVE-NORMAL FALL RESERVOIR LEVELS)



MANAGING WATER SUPPLY

Given the changes in weather patterns and with a focus on planning for the future it is imperative to continually focus on water conservation and education around the importance of water as a resource.

Watering Regulations are one tool available to help manage water demand. The current CWK regulations are as such:

General Rules for Stages 1 to 3

- Hand watering of all landscape plant materials and vegetable plantings, excluding lawns, is permitted, except during Stage 4.
- Sprinkling is never permitted between 11 a.m. and 6 p.m.
- Only one half-inch diameter outside tap may be used at any one time for sprinkling.
- Never use an open, free flowing pipe, outlet or hose for any watering.
- Properties equipped with automated sprinkler systems may only water between midnight and 6 a.m. on the days described below.
- Properties equipped with manually controlled sprinkling systems, including those attached to outside taps, may only water from 6 to 11 a.m. or 6 p.m. to midnight on the days described below.

Stage 1

- Even numbered addresses may only water on even calendar days.
- Odd numbered addresses may only water on odd calendar days.

Stage 2

- Even numbered addresses may only water on Saturdays and Tuesdays.
- Odd numbered addresses may only water on Sundays and Wednesdays.

Stage 3

- Even numbered addresses may only water on Saturdays.
- Odd numbered addresses may only water on Sundays.
- No filling of swimming pools, hot tubs, garden ponds or decorative fountains is permitted.
- No washing of vehicles, boats, bikes - motorized or otherwise, RVs or ATVs is allowed.
- No washing of sidewalks, driveways, patios, or eaves can occur.

Stage 4

- No watering is permitted outdoors for any purpose.

Our Communications team have developed a comprehensive communications plan that focuses on delivering the message of the importance of using water wisely. Water conservation offers a number of benefits including:

- Operations and maintenance cost savings by reducing the volume of water treated (further highlighted as we move towards full treatment for all systems);
- Future cost savings through deferral of capital investment as a result of population growth and expansion;
- Environmental benefits: less water could be removed from the environment for human purposes;
- Competing beneficial uses: more water could be available for competing beneficial uses such as agriculture, or recreation;
- Stewardship: utilities that conserve water demonstrate leadership in resource management;

The CWK is a partner in the Okanagan Basin Water Board's Waterwise Initiative. This initiative aims primarily to educate residents of the Okanagan Valley about water issues in our region. This includes promoting water conservation and protecting water quality. There are also tips on how to conserve water in the home, yard and business:

<https://okwaterwise.ca/>

A current initiative of the WaterWise program is the Make Water Work program. Residents are encouraged to take the pledge at:

<https://www.makewaterwork.ca/pledge/>

The Province provides useful drought information here:

[Drought information - Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/spe/spe_collections/drought/drought_information.htm)

The CWK website also has a number of tips for conserving water inside and outside the house:

<https://www.westkelownacity.ca/en/our-community/conservation.aspx>

Water conservation is everyone's responsibility. Residential, agricultural and industrial water users in areas affected by drought should observe all water conservation bylaws, watering restrictions and advice from their local government, irrigation district or water utility.

Irrigators, water licensees and water users in watersheds experiencing water scarcity should prepare and plan in case additional targeted local water restrictions or provincial temporary protection orders under the Water Sustainability Act are required as the summer progresses.

REVIEWED BY

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APPROVED FOR THE AGENDA BY

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Powerpoint: Yes No