Water Supply and Treatment

SOURCE WATER

JUNE 2026 UPDATE

Photo: Rose Valley Reservoir on June 30, 2026.

Overview

Source water monitoring involves measuring the quantity and quality of water in rivers, lakes, reservoirs, and groundwater. These data help track changes in water availability, detect potential issues and support informed decisions for protecting water supplies, managing drought, and ensuring the sustainable use of water resources. The following report outlines changes observed in the last month of monitoring by the Watershed Operations Team.

Hydrology in the Watershed

Hydrological measurements are essential during periods of drought because they provide critical information on water availability, streamflow, groundwater levels, soil moisture and reservoir storage. These data help water managers monitor drought severity, forecast water shortages and make informed decisions about water allocation and conservation. Accurate hydrological measurements also support ecosystem protection, agricultural planning and community resilience by enabling timely responses to changing water conditions and reducing the impacts of prolonged dry periods.

Powers Creek update

- **Dunwaters Diversion** remained open throughout June until the conveyance permit mandated it to be closed for the 2026 season. Dunwaters Diversion was closed on June 23, 2026.
- **Esperon Reservoir** is full.
- Bear Creek Intake (BCI) is currently spilling across one tier only. To maintain a steady level in RVR, the Rotork valve currently remains open to 10%.
- **Bighorn and Esperon Reservoirs** are currently at full pool. Bighorn outlet has been opened to supplement flow down Bear Creek.
- **Rose Valley Reservoir** is maintaining it's level with current water usage and cooler temperatures throughout June.

Rose Valley update

- **Dunwaters Diversion** is fully open and actively conveying water to Bighorn Reservoir; flows are slowing down as snowmelt is now minimal.
- **Powers Creek Diversion (PCD**) is flowing at 27 MLD.
- **Whiterocks Diversion** still has decent flow and is supplementing water to Tadpole Reservoir.
- **Dobbin Lake** is now open conveying water to Bear Creek approximately one week earlier than last year.
- **Tadpole Reservoir** is now open to supplement Dobbin reservoir.
- **Paynter Reservoir** is full and no longer spilling.
- **Horseshoe Reservoir** is now open and is supplementing water to Dobbin Reservoir.

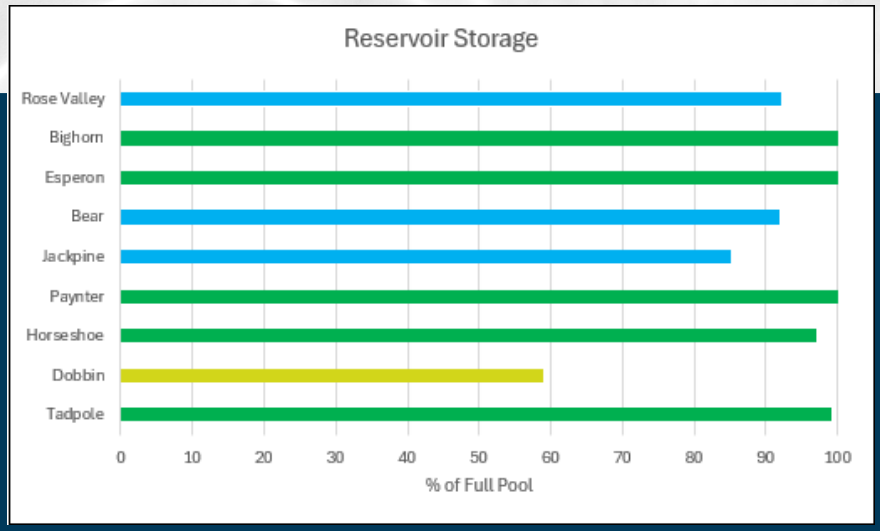


Figure 1: Visual representation of Raw Water Reservoir Storage

Snow Course Update

Snow course measurements for 2026 are completed. A snow course located near Esperon Lake, previously maintained by the Ministry, has been adopted by CWK, and rehabilitation work underway to preparing it for the winter 2026 measurements. This will provide more accurate and relevant snow course data for the Rose Valley Watershed moving forward.

Water Quality

Source water monitoring focuses on the quality and quantity of water used for drinking at its origins, such as streams and lakes. By regularly measuring parameters such as temperature, turbidity, nutrient levels, contaminants and flow rates, monitoring programs can detect changes early. Timely detection is critical for preventing pollution events, identifying emerging threats and ensuring safe drinking water supplies.

Rose Valley Reservoir Algae Monitoring

June's weather conditions were favourable for limiting algae production. As algae blooms thrive in hot temperatures and extended periods of sunlight, June 2026 was less favourable for algae growth than in previous years.

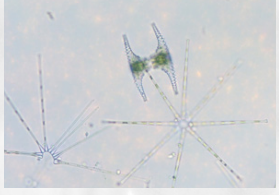
Throughout the month of June Phytoplankton tow samples showed signs of increasing numbers of both Anabena sp. as well as Aphanizomenon sp. both of which are different types of blue-green algae that are no stranger to Rose Valley Reservoir. Tow samples also showed increasing numbers of diatoms, particularly Asterionella. See Appendix A for visual observations of algae in RVR.

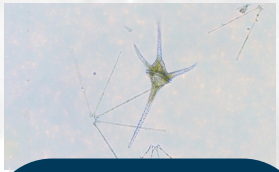
Algae monitoring continued weekly throughout June and samples were taken from the surface at a 10m depth, as well as, the raw tap inside the dam building. Relatively low numbers of all types of algae were observed in all samples. See Figures 2 and 3 for details.

Figure 2: General Speciation for June 2026

Sample Location	Comment
Surface Samples	In June, equal numbers of green algae and diatoms were observed in surface samples. Additionally, 23 surface samples were showing signs of a cyanobacteria bloom leading into early July.
Plant Intake level (10m)	No cyanobacteria were observed in June. Low numbers of diatoms and green algae were present.
Raw Tap	Diatoms and green algae were the main types of algae throughout the month of June. Observed in the June 30 sample were a small numbers of Cyanobacteria causing no significant concern at this time.
Tow samples	Typical Copepod and Rotifer species were noted. Throughout June increasing numbers of Anabena sp. and Aphanizomenon sp. were present in all tow samples. Asterionella were prevalent in all tow samples.

Asterionella sp. (star-shaped colonies of diatoms) and Staurastrum, June 16





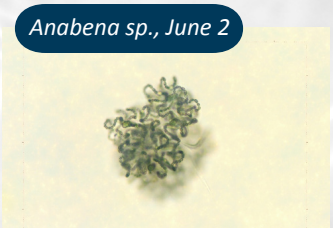
Asterionella sp. (star-shaped colonies of diatoms) and Ceratium sp. (dinoflagelate), June 16

Figure 3: Values listed are cell count ranges for the month.

Algae Type	RV Raw Tap	Surface (0m)	RV - 10m
Total Cells	140 - 1310	70 - 2080	110 - 230
Diatoms	20 - 490	0 - 120	0 - 40
Yellow. Brown	0 - 180	0	110 - 190
Green	80 - 610	50 - 180	110 - 190
Cyanobacteria	0 -450	0-20000	0
Dinoflagelates	0 - 10	0	0

Aphanizomenon sp., June 2

Anabena sp., June 2



Nutrient loading, manganese, dissolved oxygen and temperature

Nutrient loading continues to be monitored at different levels of RVR. In June we saw an increase in both Nitrogen and Phosphorous levels in the 17 m samples which were derived from May results. Increased nutrient levels can lead to an increase in algae blooms, and oxygen depletion. Continued monitoring is applied throughout the summer season.

A dissolved manganese analyzer is installed at the Rose Valley Dam intake. Manganese concentrations remained below the aesthetic objective throughout June. These low-level manganese concentrations are expected during this time of year as naturally declining dissolved oxygen levels in the reservoir create reducing conditions. These conditions promote the release of sediment-bound manganese into the water column. Although concentrations remain below the aesthetic objective, the presence of manganese has initiated pretreatment with sodium permanganate. Third-party laboratory analyses continue to be conducted to verify manganese concentrations within the reservoir.

A dissolved oxygen (DO) profile is measured weekly in RVR. Dissolved oxygen levels at the intake level (10 m depth) remain around 5.0 mg/L. However, oxygen levels near the sediment-water interface (17 m) continue to show signs of decline and a distinct anoxic zone has formed. See Figure 4. DO levels are expected to continue declining at lower depths despite the RVR aeration system being operational.

The month of June was warmer than May, but despite the increase in sunshine,the reservoir temperature remained several degrees cooler at the intake level than the same time last year (see Figure 4). Bear Creek Intake remained open throughout June, supplying RVR with enough water to meet demand, keeping RVR levels relatively stable. See Figure 4.

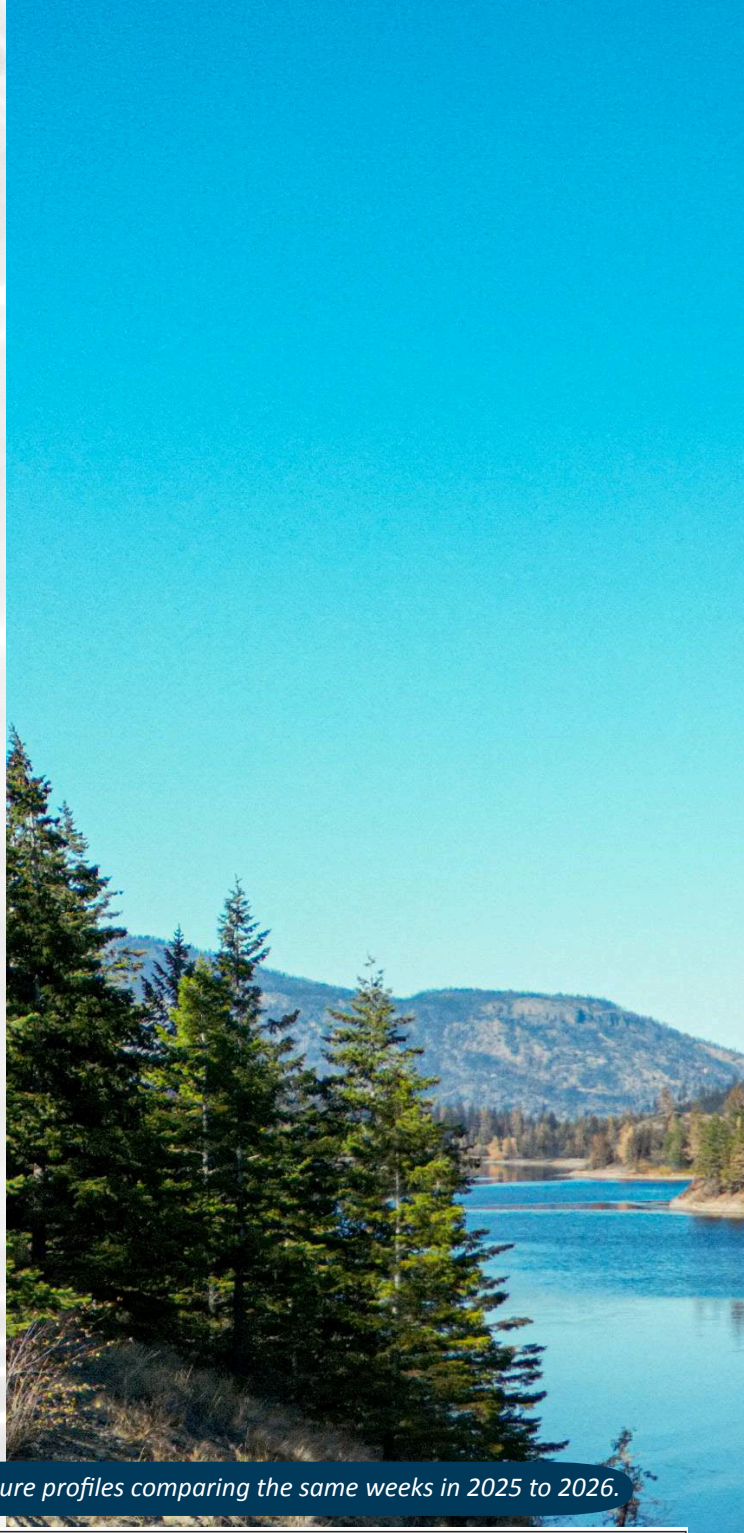
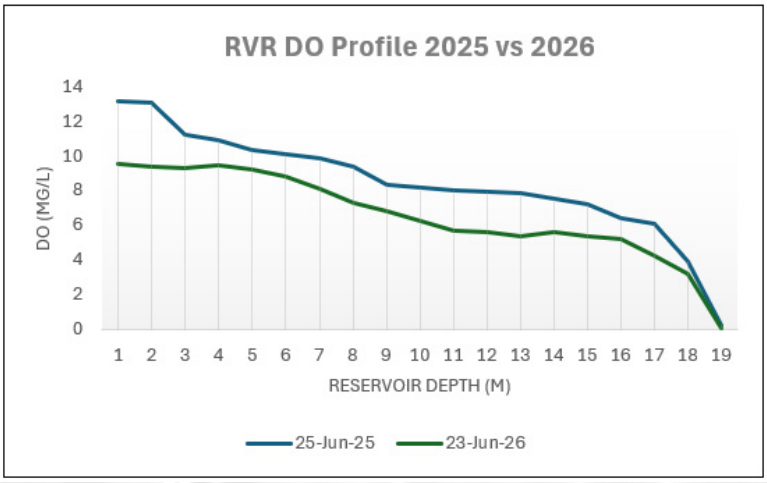
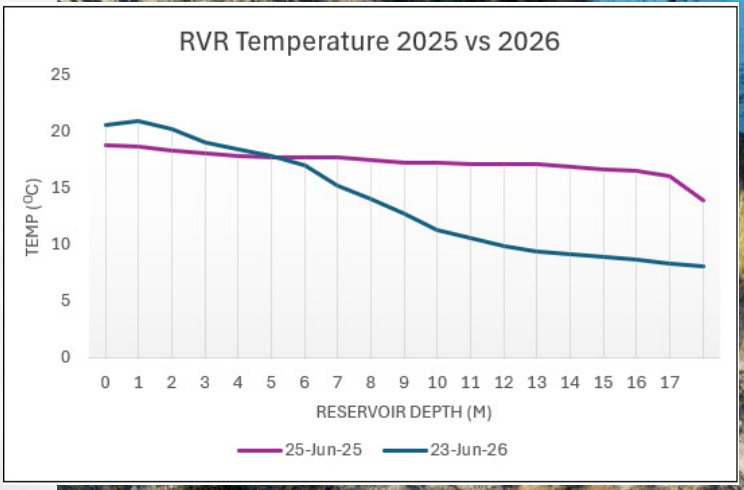


Figure 4: Rose Valley Reservoir dissolved oxygen (DO) and temperature profiles comparing the same weeks in 2025 to 2026.

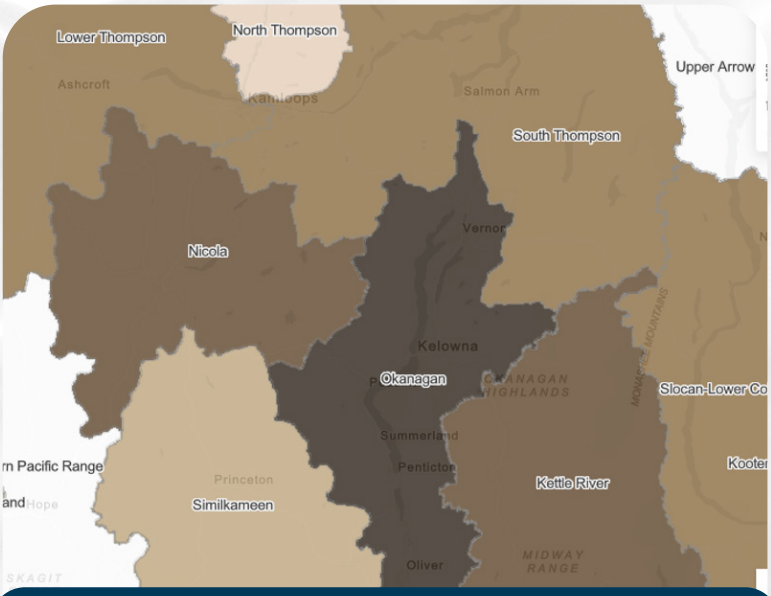




Provincial Drought Rating and Water Restrictions

According to British Columbia's Drought Information Portal, the Okanagan continues to experience significant drought conditions. Provincial drought monitoring indicates that the Thompson-Okanagan region is currently at a **Drought Level 4**, which is the second-highest drought classification. This reflects the prolonged hot and dry conditions that have led to declining streamflow levels in the interior.

Stream flows across the Thompson-Okanagan region remain at record-low levels compared to previous years at this time. Elevated water temperatures are creating stressful conditions for fish habitat. Water management efforts are focused on balancing instream flow protection with reservoir storage to support aquatic ecosystems later in the season. (BC Drought Information Portal, 2026).



The dark brown colour indicates Drought Level 5, the most severe level indicated by the Province.

Source: BC Drought Information Portal, 2026

Key risks, considerations and recommendations

Despite welcome rainfall in June, drought conditions continue to affect the Okanagan due to several years of below-average precipitation, significantly reduced snowpack, and below-normal stream flows. While recent rainfall has provided some short-term relief, it has not been sufficient to replenish water supplies or offset ongoing precipitation deficits. With warmer-than-usual temperatures expected, an increase in evaporation and water demand mean continued water conservation remains essential. Residents are encouraged to follow restrictions issued by CWK to help protect community water supplies and aquatic ecosystems.

While many reservoirs are at or near full capacity, the lack of spring precipitation remains a major concern. During ongoing drought conditions, the Watershed Operations team is actively managing reservoir storage and controlled releases to optimize stream flows while conserving water for anticipated late-season demands.

Operationally, the focus remains on:

- Maintaining infrastructure readiness
- Preparing for drought conditions and supply constraints
- Continuation of watershed water quality monitoring to ensure a healthy supply
- Keeping the flow of information consistent to provide community resilience

In response to continued drought conditions and declining water availability, increased water restrictions may be necessary to protect water supplies and maintain long-term water reliability.

Regards,
Water Supply and Treatment Team

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WEST
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Report by the City of West Kelowna Water Supply & Treatment team.