Water Supply and Treatment

SOURCE WATER

AUGUST 2026 UPDATE

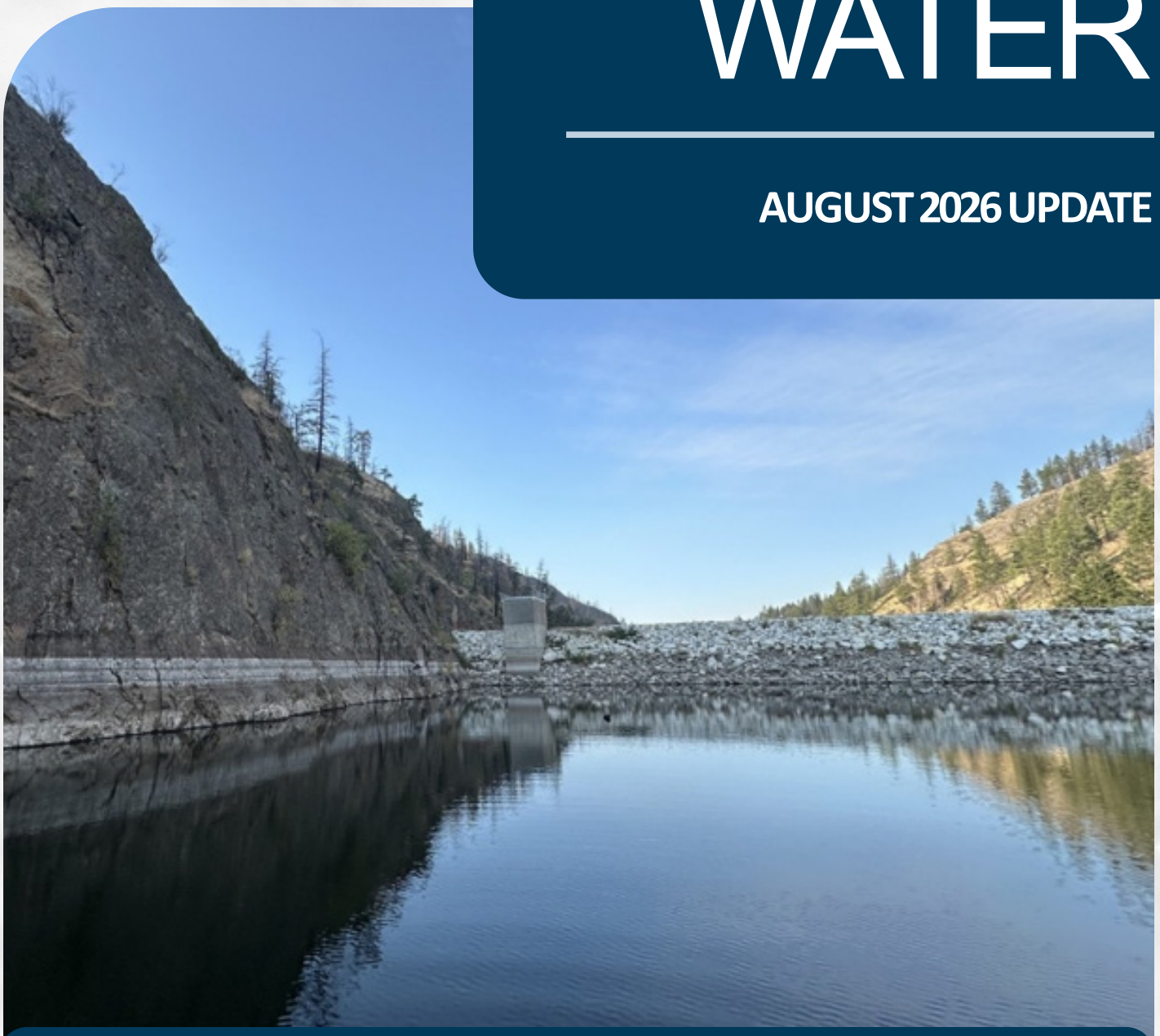


Photo: Low water line on Aug. 4, 2026.

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 sustainable use of water resources. The following report outlines the changes in the last month of monitoring by the Watershed Operations Team.

Hydrology in the Watershed

Hydrology measurements are critical, especially during drought conditions because they provide essential information on water availability, streamflow, groundwater levels, soil moisture, and reservoir storage. These data enable water managers to assess drought severity, anticipate water supply challenges, and make informed decisions regarding water allocation and conservation. Hydrological monitoring also supports ecosystem health, agricultural planning, and community resilience by informing timely management actions and helping mitigate the impacts of prolonged dry conditions.

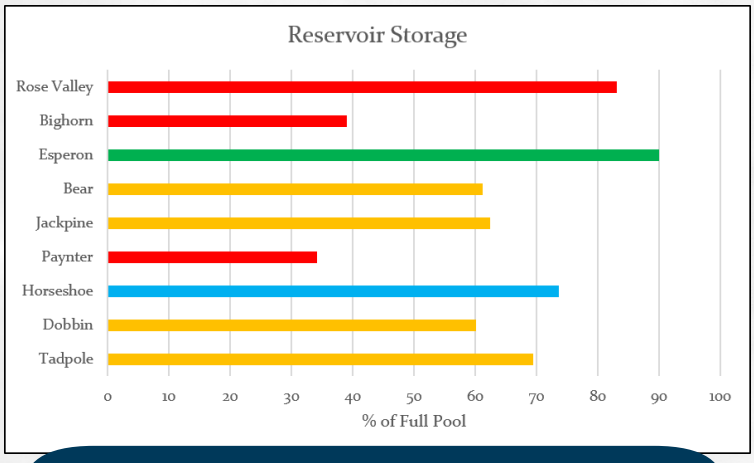


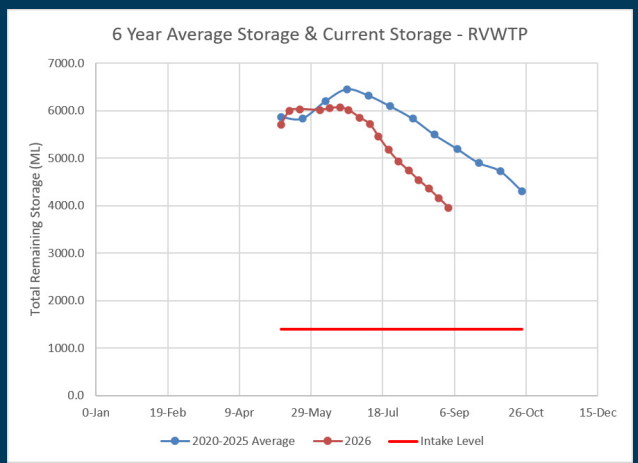
Figure 1: Visual representation of Raw Water Reservoir Storage.

Powers Creek update

- **The Nicola Creek Diversion (NCD)** is open and flowing to supplement water to Dobbin Reservoir with 11 MLD.
- **Powers Creek Diversion (PCD)** is flowing at 7 MLD
- **Dobbin Lake** is now open, conveying 11MLD water to Powers Creek.
- **Tadpole Reservoir** is now open and flowing at 12MLD to supplement Dobbin reservoir.
- **Paynter Reservoir** is down to 34% of full pool, and open, conveying 5.5 MLD to Powers Creek.
- **Horseshoe Reservoir** is now open and flowing at 10.4MLD, supplementing water to Powers Creek.
- **Bear (Lambly) Reservoir** is down to 61% of full pool.

Rose Valley update

- **Esperon Reservoir** is empty.
- **Bear Creek Intake (BCI)** is currently providing fish flow only (6 MLD). The Rotork valve currently remains open to 35% to maintain a level in RVR.
- **Bighorn Reservoir** is at 39% full pool, and the outlet is open, flowing into Bear Creek to aid filling Rose Valley Reservoir, as well as aiding in providing fish flow down Bear Creek.
- **Rose Valley Reservoir** level stayed consistent in Aug, due to the increased outlet feed from Bighorn Reservoir. **Note: the current outlet piping configuration does not allow for the usage of the lower 34% of storage. This means the "practical usable storage" is now only 49%. These low levels are not normally seen in the reservoir until mid-September, after much of the growing season is complete.
- **Tadpole Reservoir** has a northern outlet that allows water conveyance toward Bear Creek in case of drought emergencies. This outlet's functionality was tested in the month of September and may be a viable option for water conveyance in the future.



Water Quality

Source water monitoring continued throughout the month of Aug. By regularly measuring parameters like temperature, oxygen, turbidity, nutrient levels, contaminants, and flow rates, monitoring programs can detect changes early. This early detection is critical for preventing pollution events, identifying emerging threats, and ensuring safe drinking water supplies.

Rose Valley Reservoir Algae Monitoring

The weather in August further favored the moderate production of algae in Rose Valley Reservoir. As algae blooms favor hot temperatures with extended periods of sunlight, Aug 2026 was moderately productive.

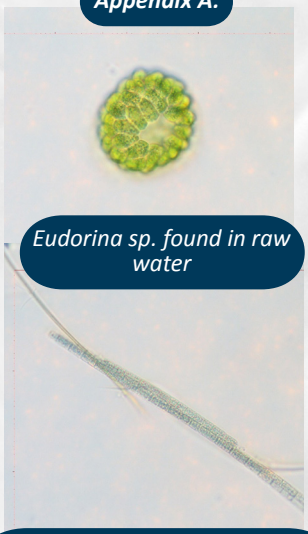
RVR experienced its third measurable algae bloom starting in mid-August, with its peak around the 19th. The surface bloom consisted mainly of Aphanizomenon as well as Aphanocapsa sp. with some observed in both the surface and RVR Raw tap samples. See Appendix A for visual representations.

Algae monitoring was completed weekly throughout August. Samples were taken from the surface, 10m depth, as well as the Raw tap inside the Dam building. Zooplankton activity was extremely lower than previous weeks, indicating potential harmful changes in the water conditions, likely caused by low dissolved oxygen due to the algae bloom. Aphanocapsa sp. and Aphanizomenon sp. Were dominating the top 10m of the water column.

Figure 2: GGeneral Speciation for August 2026

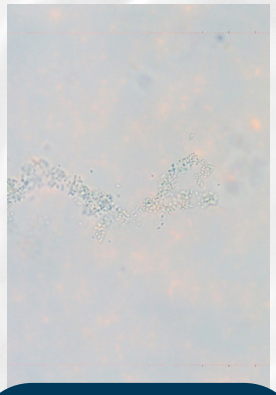
Sample Location	Comment
Surface Samples	Large numbers of Aphanizomenon and Aphanocapsa were present in all surface samples throughout August. Small amounts of Anabena were noted in the Aug 26 Sample.
Plant Intake level (10m)	Large numbers of Aphanocapsa were observed in mid-August samples.
Raw Tap	Large numbers of cyanobacteria observed 4 Aug. RVWTP experiencing no upsets due to algae.
Tow samples	Typical Copepod and Rotifer species noted. Aphanocapsa sp. and Aphanizomenon sp. present in all tow samples with Anabena sp in increasing numbers throughout Aug.

Appendix A:



Eudorina sp. found in raw water

Aphanizomenon sp. (above) found in raw, surface, and tow samples throughout August 2026.



Aphanocapsa sp. present in August surface, raw and tow samples

Figure 3: Values listed are cell counts for the early September algae bloom.

Algae Type	RV Raw Tap	Surface (0m)	RV - 10m
Total Cells	4890	75780	3380
Diatoms	0	0	0
Yellow. Brown	0	0	0
Green	90	130	30
Cyanobacteria	4800	4800	3350
Dinoflagelates	0	0	0

Nutrient loading, Manganese, DO and temperature?

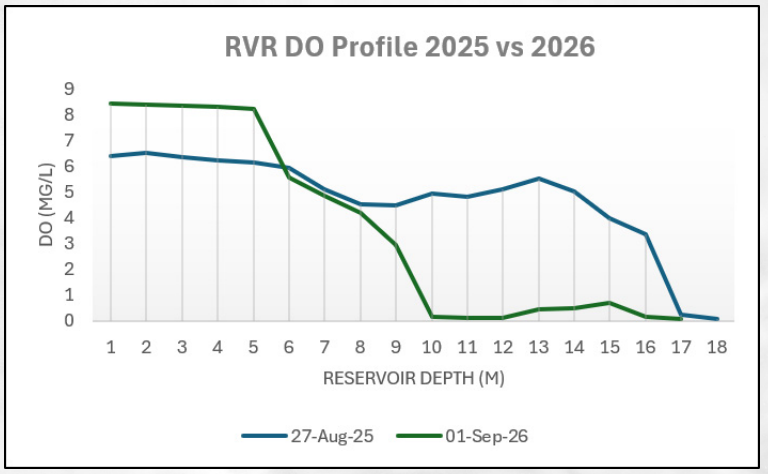
Nutrient loading continues to be monitored at different levels of RVR. August saw a slight decrease in both Nitrogen and Phosphorous levels in the 17m samples from July results. The observed decrease in nutrient concentrations during an algal bloom may indicate increased uptake of available nutrients by phytoplankton to support growth. Continued monitoring of nutrient concentrations alongside algal abundance will help determine whether nutrient availability is influencing bloom development and persistence.

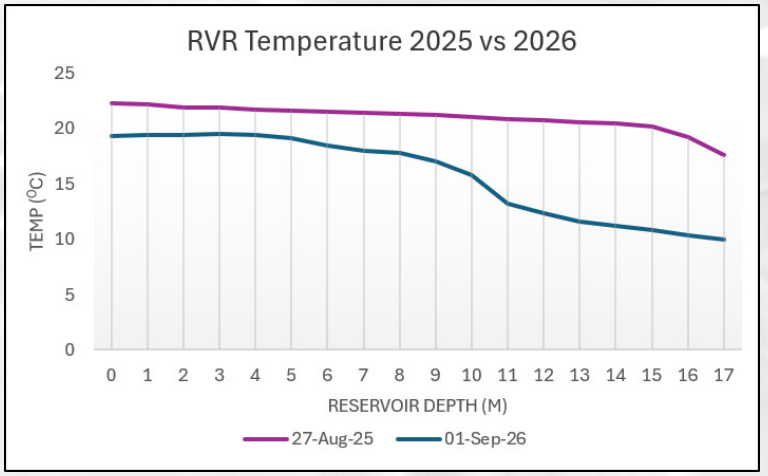
Third-party samples for total and dissolved manganese are submitted weekly from RVR. Results indicate significant increase in dissolved manganese at the sediment-water interface (17m). A dissolved manganese analyzer is installed at the Rose Valley Dam intake and now records regular concentrations above the aesthetic objective (0.02mg/L) and a few spikes above the MAC (0.12mg/L) throughout Aug. These manganese concentrations are expected during this time of year, as further declining dissolved oxygen levels in the reservoir create reducing conditions that promote the release of sediment-bound manganese into the water column. These raw water manganese levels have triggered a further increase in permanganate dosing at RV Dam. Treated Manganese levels remain well below the aesthetic objective of 0.02mg/L.

A dissolved oxygen (DO) profile is measured on a weekly basis in RVR. Dissolved oxygen levels at the intake level (10m depth) remain around 4.00 mg/L. However, oxygen levels near the sediment-water interface (17m) are now showing significant decline, and a distinct anoxic zone has formed in the lower 8m of the reservoir. It is expected DO levels will continue to decline at lower levels, allowing further nutrient and metals release into the water column. See figure 4 below. Note the same oxygen degradation in the hypolimnion in both years.

The month of August saw average temperatures of 24 degrees, raising the temperature at the intake level to above 17 degrees. (see figure 4 below). However, due to the lack of mixing since the decommissioning of the aeration system, there has been a decline in temperature at the intake level. The chart below clearly shows the formed anoxic zone below the plant intake level. See Figure 4 below. Note the difference in 2025 with the mixing of the aeration system affecting temperature at the intake depth of 10m.

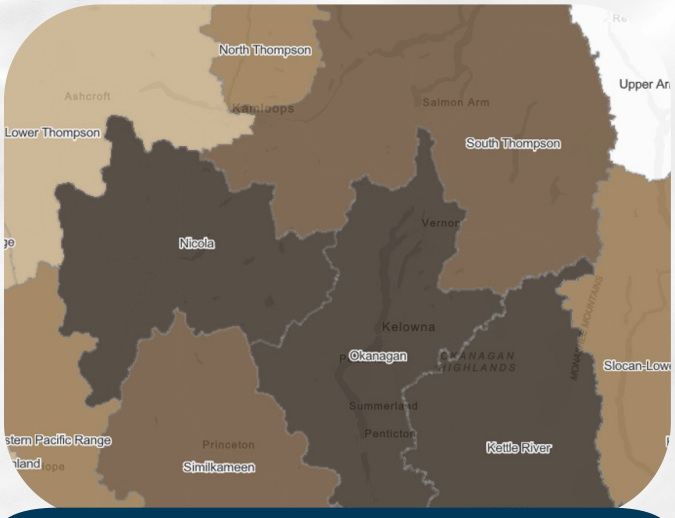
Figure 4: RVR DO and Temperature profiles comparing the same weeks in 2025 to 2026.





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 remains at a Drought Level 5, the highest drought classification. The Okanagan is experiencing severe drought and critical water shortages, with many reservoirs at record-low levels and stream flows continuing to decline. Low water levels and water temperatures above 20°C are creating significant stress for fish and causing fish-passage challenges, while fish salvage efforts are required in some streams. Communities are also facing drinking-water concerns, including domestic wells unable to meet demand, and ongoing wildfire activity is adding further pressure. (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

With recent rainfall only providing temporary relief, rainfall levels across the Okanagan continue to remain below average. Residents are encouraged to follow restrictions issued by CWK to help protect community water supplies and aquatic ecosystems.

Rose Valley Watershed storage remains of high concern as we move into September. Continued high summer temperatures promise increased water usage as we move into fall. With current RVR usable storage levels sitting at 49% water conservation efforts must continue to be at the forefront in the Rose Valley Water Service Area.

Operationally, the focus remains on:

- Planning for infrastructure upgrades
- Managing for drought conditions and supply constraints
- Continuation of smart watershed management to ensure usable water supply.
- Providing Council with timely, accurate information to support informed decisions.

Conservation efforts continue to be an important component of sustainable water management; however, achieving long-term water security also requires efficient water use across all sectors. Given the significant proportion of water allocated to agricultural use, continued improvements in agricultural water conservation and irrigation efficiency are an important component of overall watershed stewardship.

Achieving these improvements will require sustained investment in modernizing and maintaining water infrastructure, as well as supporting the adoption of more efficient irrigation technologies and practices. Strategic infrastructure investment can help reduce water losses, improve system reliability, and maximize the benefits of conservation efforts, ultimately contributing to greater long-term water security and watershed resilience.

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.