



Water Supply and Treatment

# SOURCE WATER

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SEPTEMBER 2026 UPDATE



## 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

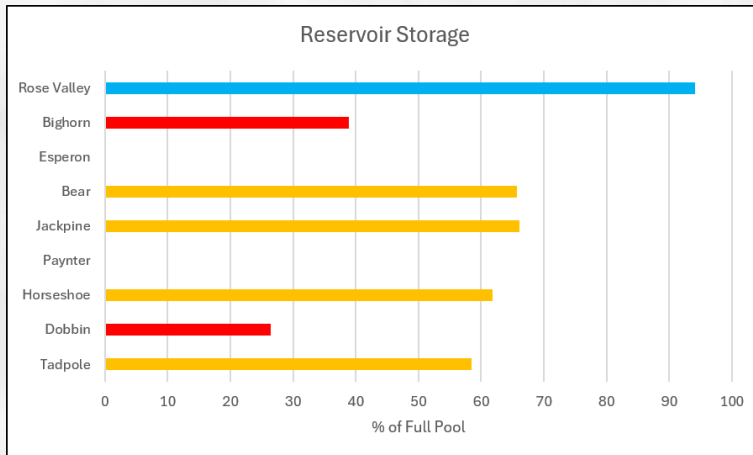


Figure 1: Visual representation of Raw Water Reservoir Storage

As we near the end of the growing season, hydrology measurements remain critical, especially during drought conditions because they provide essential information on water availability, streamflow, groundwater levels, soil moisture, and reservoir storage for the following year. These measurements enable water managers to assess drought continuation, anticipate water supply challenges for the following year, 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.

### Powers Creek update

- **The Nicola Creek Diversion (NCD)** is open and flowing to supplement water to Dobbin Reservoir with 21.8 MLD.
- **Powers Creek Diversion (PCD)** is flowing at 31.6 MLD
- **Dobbin Lake** is open, conveying 21.9 MLD water to Powers Creek.
- **Tadpole Reservoir** is now open and flowing at 21.8MLD to supplement Dobbin reservoir.
- **Paynter Reservoir** is empty.
- **Horseshoe Reservoir** is down to 64% of full pool and should continue to slowly fill before winter.

### Rose Valley update

- **Esperon Reservoir** is empty.
- **Bear Creek Intake (BCI)** is currently providing fish flow with flow over the lowest tier of the dam. The Rotork valve currently remains open to 30% to fill 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 was able to begin recovering throughout September, due to lower demand flows in Rose Valley Water Service Area. *\*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 60%.*
- **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 September. 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 September favored the production of algae in Rose Valley Reservoir. As algae blooms favor hot temperatures with extended periods of sunlight, Sept 2026 was moderately productive.

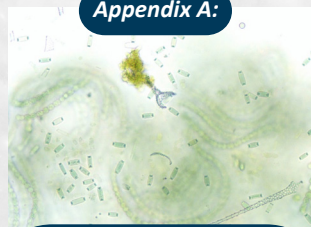
RVR experienced its fourth measurable algae bloom starting in mid-September, with its peak around the 16th. The surface bloom consisted mainly of Aphanizomenon sp. with some observed in both the surface and RVR Raw tap samples throughout September. See Appendix A for visual representations.

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

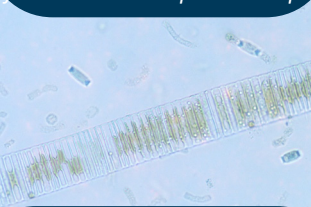
Figure 2: General Speciation for Sept. 2026

| Sample Location          | Comment                                                                                                                                                                                                                       |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Surface Samples          | Large numbers of Aphanizomenon were present in all surface samples throughout September.                                                                                                                                      |
| Plant Intake level (10m) | Low numbers of Aphanizomenon were observed in mid-Aug samples. Increasing diatom numbers noted.                                                                                                                               |
| Raw Tap                  | Moderate numbers of cyanobacteria observed. RVWTP experiencing no upsets due to algae.                                                                                                                                        |
| Tow samples              | Typical Copepod and Rotifer species noted. Aphanizomenon sp. present in large numbers in all tow samples. Moderate amounts of Anabena were noted in later in September. Large numbers of Ceratium present in early September. |

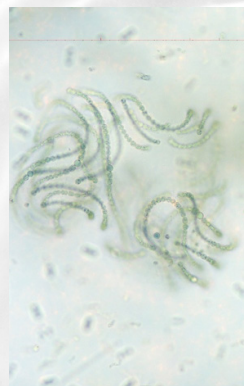
### Appendix A:



Anabena sp. chains surrounded by aphanizomenon sp. as well as Ceratium sp. found in tow sample on 1 Sept.



Fragillaria sp. chain (above) found in tow sample 22 Sept 2026. Note broken Aphanizomenon cells around them(candy-shaped cells).



Anabena sp. chains found in tow samples throughout September.

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

| Algae Type      | RV Raw Tap | Surface (0m) | RV - 10m |
|-----------------|------------|--------------|----------|
| Total Cells     | 4090       | 23540        | 600      |
| Diatoms         | 80         | 0            | 0        |
| Yellow. Brown   | 0          | 0            | 0        |
| Green           | 970        | 40           | 100      |
| Cyanobacteria   | 3000       | 23500        | 500      |
| Dinoflagellates | 0          | 0            | 0        |

## Nutrient loading, Manganese, DO and temperature?

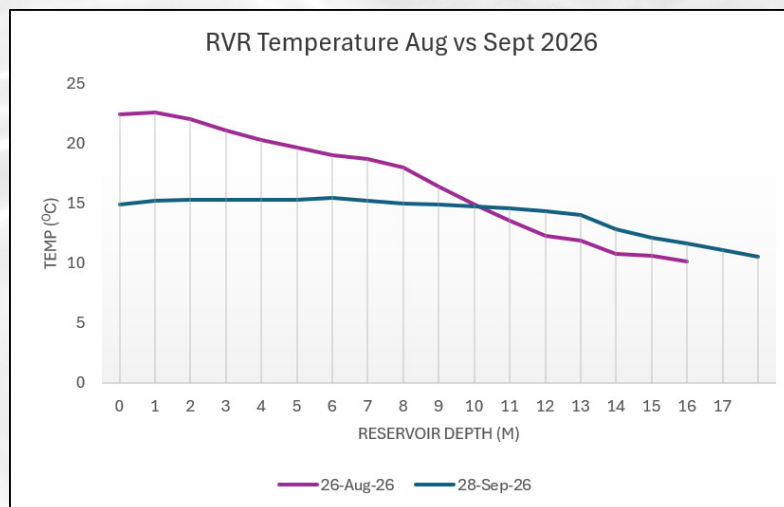
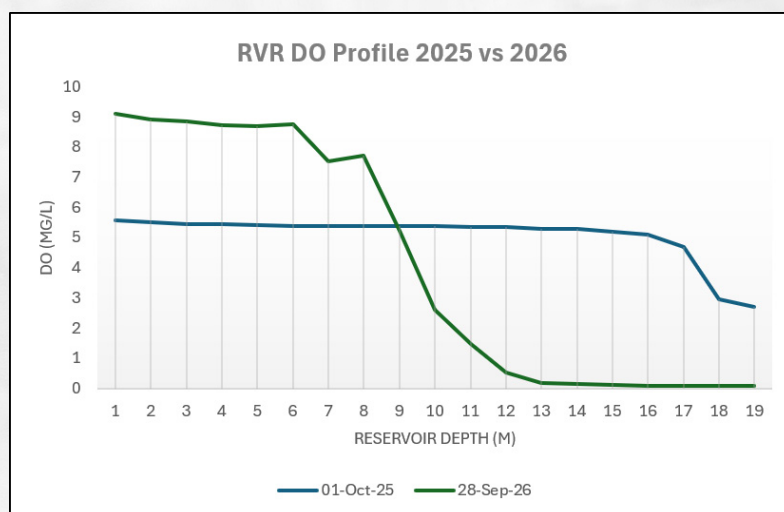
Nutrient loading continues to be monitored at different levels of RVR. September saw an increase in both Nitrogen and Phosphorous levels in the 17m samples from August results. The measured increase is likely due to continued anoxic conditions in the reservoir and will continue to support algal growth into the fall until turnover of the reservoir. 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 regular spikes above the MAC (0.12mg/L) throughout September. These manganese concentrations are expected during this time of year, as the anoxic zone in the reservoir creates reducing conditions that promote the release of sediment-bound manganese into the water column. These raw water manganese levels have triggered additional monitoring of total and dissolved manganese throughout the water treatment process. Treated total manganese levels remain around 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) are starting to see signs of improvement. However, oxygen levels near the sediment-water interface (17m) remain at anoxic levels. It is expected that if DO levels remain steady, we will continue to see nutrient and metals content rise in the water column. See figure 4 below. Note the increased hypolimnion depth in 2026, due to the lack of mixing from the legacy aeration system.

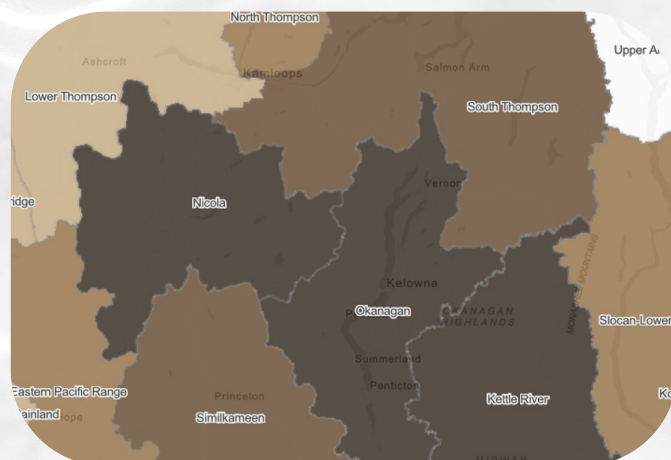
The month of September brings cooler temperatures as fall approaches. This means we are currently seeing a shift in water temperature at the intake level. This shift will eventually bring on Fall turnover as air temperatures continue to decrease. (see figure 4 below). Note the difference in the thermocline from only a few short weeks ago, a sign that fall turnover will be happening soon.

Figure 4: RVR DO profile comparing the same weeks in 2025 to 2026. Temperature profile comparing Aug and Sept 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 Drought Level 5. The Okanagan is experiencing severe drought and critical water shortages, with water scarcity levels classified as "High risk". (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 October. Continued high summer temperatures promise increased water usage as we move into fall. With current RVR usable storage levels sitting at 60% water conservation efforts must continue to be at the forefront in the Rose Valley Water Service Area.

Operationally, the focus remains on:

- RVR infrastructure improvement planning to utilize lower intake.
- Planning for continued drought conditions and supply constraints
- Continuation of smart watershed management to ensure usable, healthy water supply.
- Providing Council with timely, accurate information to support informed decisions.

Water conservation, investment in water infrastructure, and effective watershed management remain essential to ensuring long-term water security and community resilience. Although the growing season is coming to a close and seasonal water demands are beginning to decline, continued attention to water conservation is important for maintaining adequate water supplies and preparing for future periods of drought and increased demand. Proactive investment in infrastructure upgrades, water efficiency measures, monitoring programs, and watershed management can improve system reliability, reduce water losses, and support the sustainable use of available resources. Strategic investment and planning now can help mitigate future water shortages, reduce long-term costs, and protect the health and function of watersheds that our community, agriculture, industry, and ecosystems depend upon.

Regards,  
Water Supply and Treatment Team



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