

MEMORANDUM

Okanagan Basin Water Board
Regular meeting
August 6, 2024
Agenda No: 6.4

To: OBWB Directors
From: Sandra Schira
Date: July 29, 2024
Subject: Water Science Specialist Report

2024 Drought Timeline

The Okanagan spent more than half of 2023 in drought, and that drought persists today. The below-normal snowpack over the winter meant that despite some rain in April, the Okanagan did not see a significant recovery of the precipitation deficit and entered the spring in drought. In addition to the low snowpack, above-normal temperatures caused an early melt where, for example, Brenda Mines reported the earliest-ever snow-free conditions in its 28-year record. This early melt led to an early freshet, bringing concerns for late-season water supply. These concerns prompted B.C.'s Thompson Okanagan Regional Drought Team to meet a month early and set the Okanagan to Drought Level 2 on May 16.

Thanks to some precipitation in May and an improvement in stream flows, the Okanagan was downgraded to Drought Level 1 on May 30. June – typically the wettest month in Okanagan – saw about average precipitation (Figure 1).

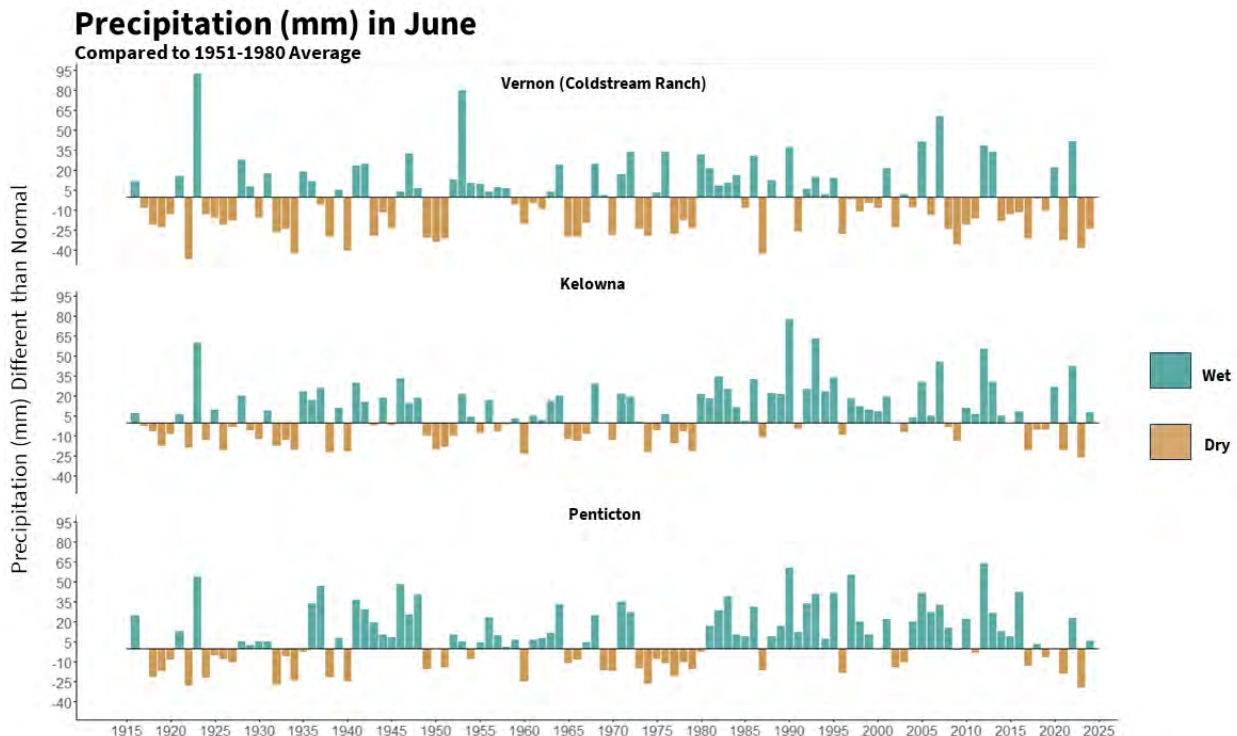


Figure 1 Total precipitation (mm) for June across the Okanagan from 1915 to 2024 compared to the 1951-1980 average for each city. Negative values (brown) are drier and positive values (green) are wetter. The 1951-1980 June averages are 49.9 mm in Vernon, 30.3 mm in Kelowna, and 31.9 mm in Penticton.

As June shifted to July, a heatwave set in. For the first half of July, air temperatures consistently stayed between 35C and 40C, unprecedented for the Okanagan (Figure 2). With the shift to hot, dry conditions, water temperatures in some creeks reached 27C (concerning for fish mortality). Many creeks across the watershed also saw a rapid drop in flows. This prompted the provincial drought level to be raised back to Level 2 as of July 17.

One week later, on July 25th, the drought level was raised again to Level 3. Stream flows across the Okanagan had continued to drop—in some cases quite rapidly—and water temperatures continued to increase. Although flows remained better in some streams with control structures or with storage, certain unregulated streams were extremely low. These low flows and hot water temperatures increased concerns about fish passage and mortality.

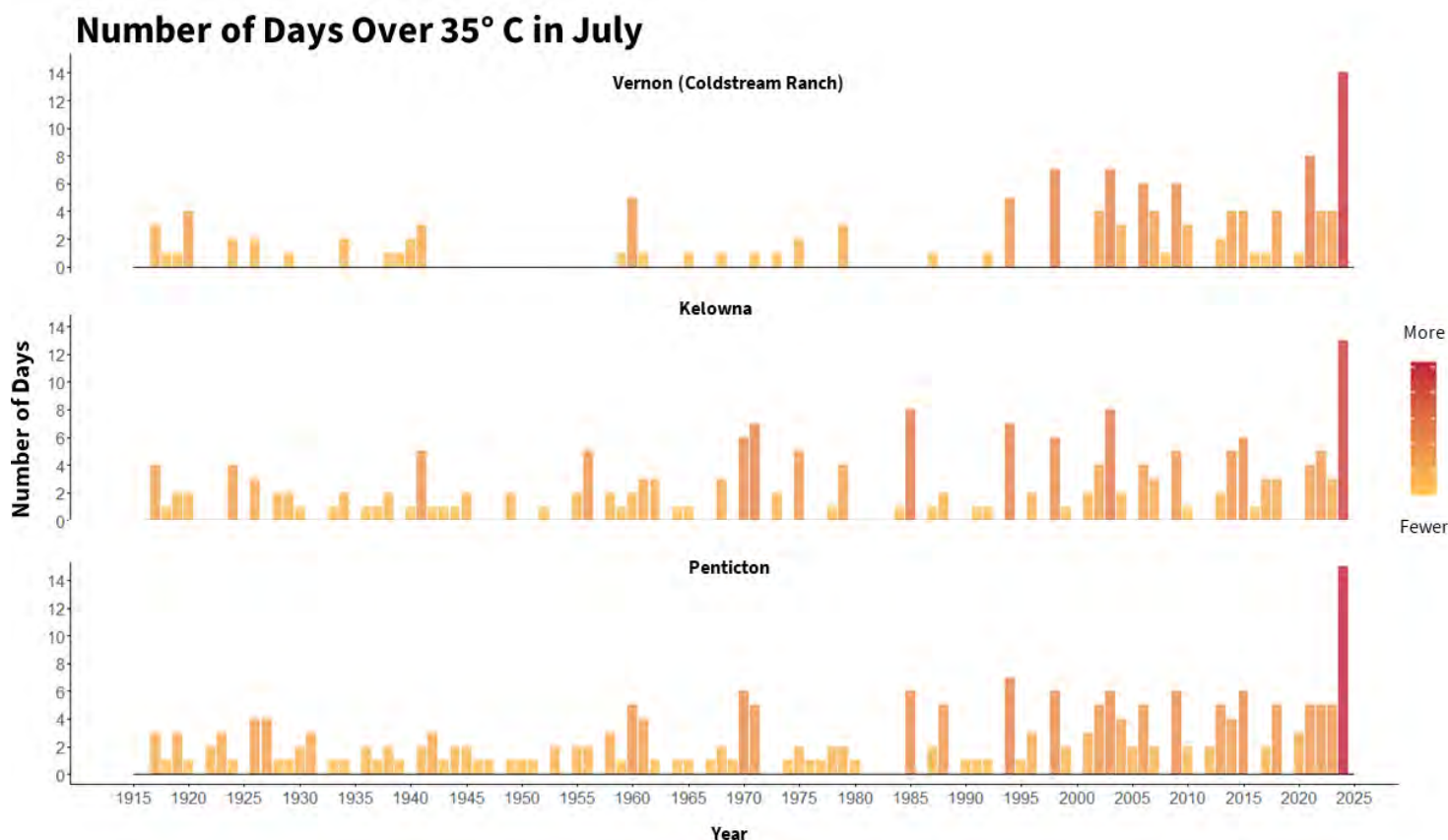


Figure 2 Number of days over 35 degrees C in July across the Okanagan from 1915-2024.

Current Conditions

The Okanagan region remains at Drought Level 3 (“Severely Dry”). Provincial drought levels range from 0 – “non-drought conditions” to 5 – “exceptionally dry.” These levels are set by a regional drought team that includes staff from the OBWB, province, Okanagan Nation Alliance, water suppliers, local governments, and more. To assign the levels, the team meets weekly to consider key indicators, on-the-ground conditions, and local observations.

According to the province: “At Level 3, conditions are becoming severely dry. Potentially serious ecosystem or socio-economic impacts are possible in some circumstances. All unauthorized use should be curtailed. Water suppliers are much more likely to impose watering restrictions, and data collection for regulatory action by the provincial government may start to occur.” - *British Columbia Drought and Water Scarcity Response Plan, 2023*

While the region is at level 3, conditions vary for individual streams across Okanagan, and local water restrictions (stages) are set using different indicators from those of provincial drought *levels*. Therefore, customers of water utilities should check with their utility and comply with all watering restrictions and advice from their supplier. Water licence holders on streams and wells who are not customers of local water utilities should adhere to conservation measures communicated by the Government of B.C.

Current long-term forecasting indicates warmer-than-normal weather for the rest of the summer (Figure 3). Therefore, voluntary water conservation is encouraged to help mitigate the effects of drought. By working together, we can help reduce conflict and support agriculture, firefighting, and fish through 2024 and into the future.

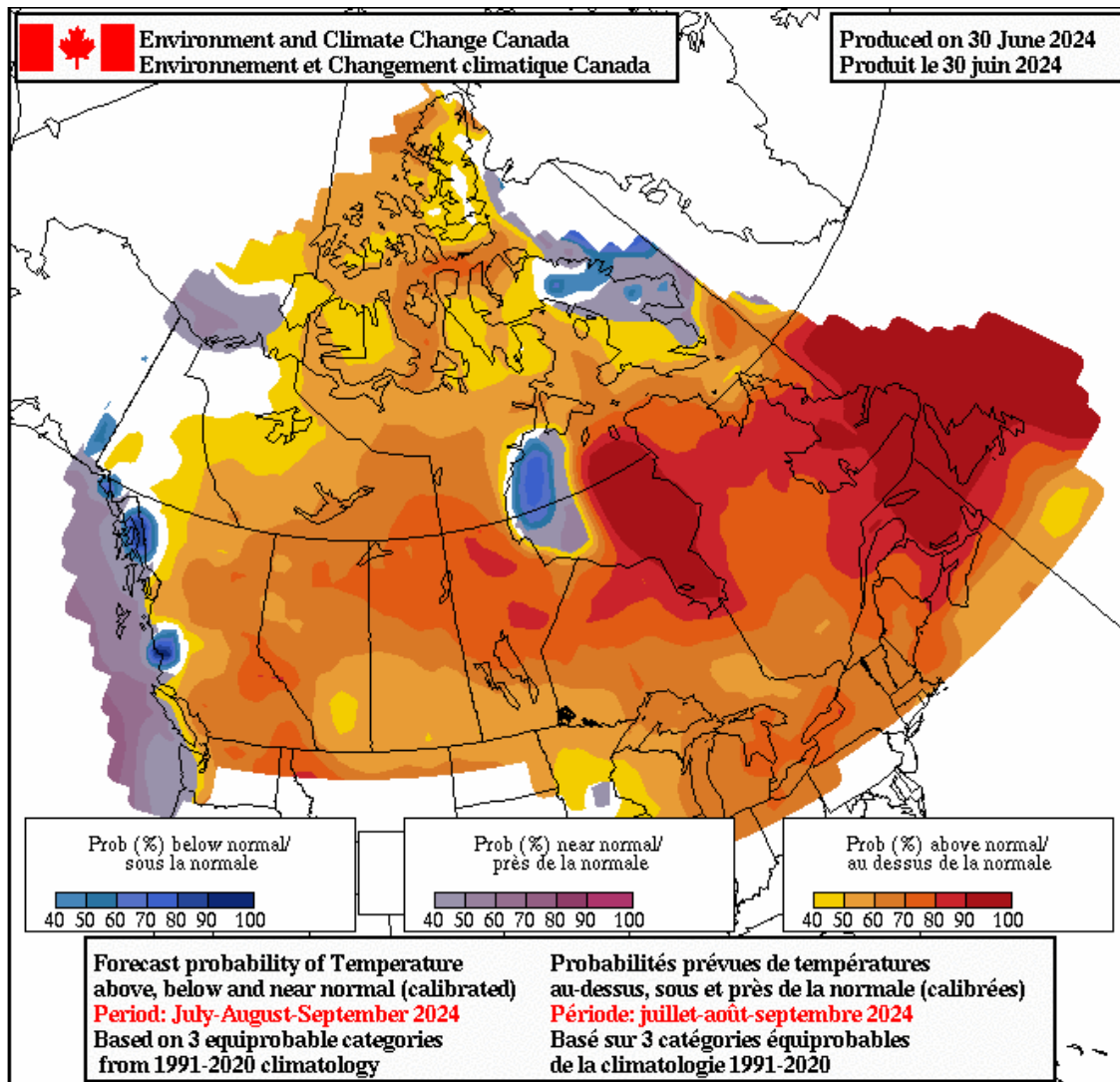


Figure 3 Environment and Climate Change Canada long-term temperature forecast for July-August-September 2024. Red areas have a high chance of being warmer than usual, and the blue regions have a high chance of being colder than usual.