

With our continued warm air temperature and average precipitation amounts, the Boundary Region stream water levels are continuing to drop. The Province has identified the Kettle River Watershed as severely dry (level 3) and Okanagan River Watershed as dry (level 1). These ratings remind us of the low water impacts that can be expected during these hot conditions, with a severely dry (level 3) rating recommending a 30% voluntary reduction in normal water use. In response to the cooler nights, water temperatures are continuing to drop but still showing an average over 18°C, so continues to be a temperature of concern. [RDKB Drought update link](#).

Provincial Drought Level for Boundary Region

This year the Province has separated the Kettle River watershed into five sub-watersheds and assigned individual drought levels for each. This is to improve drought condition reporting in our region. The list below details the Provincial Drought level for the two main watersheds and the five sub-watershed (also shown in the map below).

(A) Kettle River Watershed: level 3 (severely dry)

Upper Kettle River (3), West Kettle River (3), Middle Kettle River (3), Granby River (2), and Lower Kettle River (2)

(B) Okanagan River Watershed: level 1 (dry)

Surface and Groundwater levels (see below for graphs)

- The Boundary region has nine real time surface monitoring sites ([Water Survey of Canada](#)). Most of the smaller streams are low for this time of year, and close to or below 5% MAD (an indicator for fish survivability). The larger streams are between moderately low to average for this time of year, with five streams now below 10% MAD. All streams are being monitored closely now as their water levels continue to drop.
- The Boundary Region has three [groundwater observation wells](#). The Grand Forks well is reading normal for this time of year, the readings from the Beavercreek and Midway wells are believed to be suspect and under review.

Climate and Agricultural Drought Analysis (graphs and maps below)

- The Boundary has experienced average to slightly less than average rain this past month, along with continued high temperatures. Due to higher-than-normal precipitation and cooler temperatures this past spring, we continue to see less impacts from these hot conditions than would normally be expected.
- No agricultural drought was identified for most of the Boundary region in July, a big change from 2021 (see map below). The agricultural drought review for August will be available mid September.
- Environment Canada is forecasting a slightly higher than average temperature over the next three months.

Fisheries

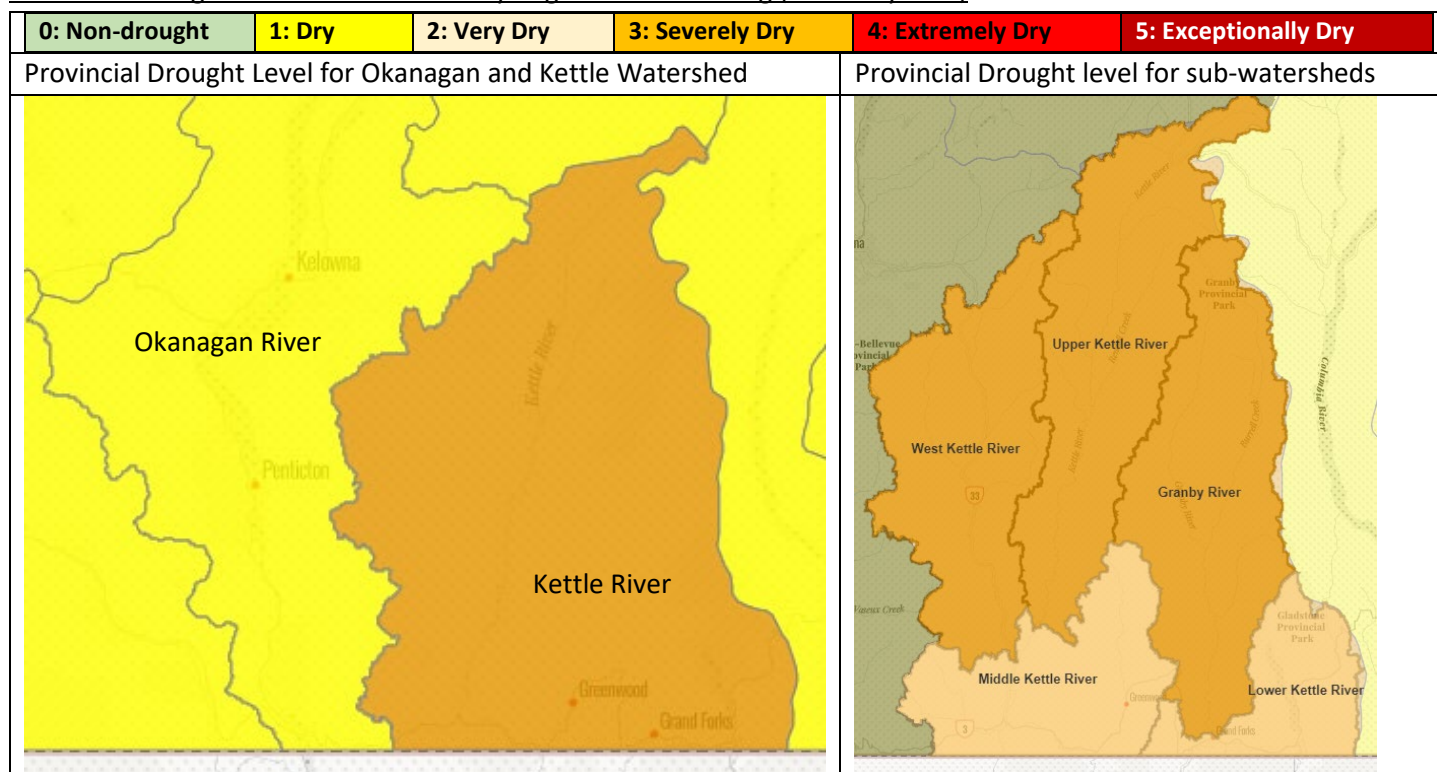
- Water temperatures are monitored at three Water Survey of Canada station (graphs below) with the maximum temperature reaching 23.5°C. See [Provincial Fisheries Drought Management Plan](#) (2019) for information on high temperature impacts for different fish species. Warm temperature concerns usually start around 18°C.
- Additional water temperature monitoring is underway for the Kettle River (Atwood bridge) and Boundary Creek. Information for these sites can be found at <https://kettleriver.ca/2022/08/water-temperature>.

RDKB water use recommendations for households

- [Boundary Region Drought Response Plan](#) recommends reducing water use by 30% when at drought level 3. For drought level 2, it is recommended to continue to prepare in case the region experiences much drier conditions.
- All year long: Be WaterSmart. Water is a necessary and valuable resource; success can only happen by using water efficiently. Consider planting drought tolerant plants, xeriscaping with plants/shade, water for deep roots, don't water concrete, repair water pipe leaks, fix dripping taps, use rain barrels for outside watering, etc.

[BC Drought Portal](#) offers a review of the BC drought levels and links to drought information. Real time discharge (flow) measurements and water temperatures below for the larger river systems are from WSC ([Water Survey of Canada](#)) and [Northwest River Forecast centre](#). The groundwater level information is provided by the [Province of BC Groundwater Monitoring](#) program. Ministry of Agriculture and Agri-Food Canada produces the [drought analysis](#) and [AgroClimate maps](#). [Environmental Canada](#) provides the 3-month Probabilistic Forecasts for Temperature and Precipitation.

Provincial Drought Level for the Boundary Region: colour coding (6-level system)



Surface and Groundwater Levels (Boundary Region)

Discharge for WSC streams relative to their Mean Annual Discharge (MAD). MAD and water temperature are tools used to assess fisheries conditions and survivability in a stream. A minimum of 5% MAD has been determined as necessary for general fish survival in the Boundary streams.

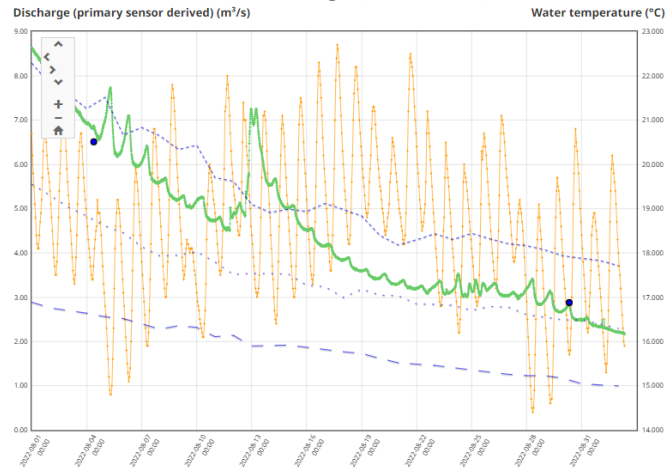
Date	Station	Stream	Current Discharge (cms)	% of MAD	Comments
02-Sep	08NN002	Granby River at Grand Forks	2.370	7.6%	between average and lower quartile
02-Sep	08NN003	West Kettle River at Westbridge	1.220	9.1%	between average and lower quartile
02-Sep	08NN026	Kettle River near Westbridge	2.180	7.8%	lower quartile
02-Sep	08NN015	West Kettle River near McCulloch	0.192	5.5%	lower quartile
02-Sep	08NN028	Lost Horse Near Christian Valley	0.015	7.5%	above average
02-Sep	08NN023	Burrell Creek	0.157	3.6%	lower quartile
02-Sep	08NN019	Trapping Creek	0.071	5.0%	lower quartile
02-Sep	FRYW1	Kettle River at Ferry (cms)	5.295	12.0%	below average
02-Sep	LAUW1	Kettle River at Laurier (cms)	10.704	12.8%	below average

Boundary Water Temperatures August 1 – September 2, 2022	WSC Stn Number	Median (°C)	Average (°C)	Min (°C)	Max (°C)	MWMT (°C)
	08NN002	19.50	19.51	17.10	21.30	20.42
	08NN003	18.40	18.52	12.90	23.50	21.58
	08NN026	18.70	18.69	14.40	22.70	20.85

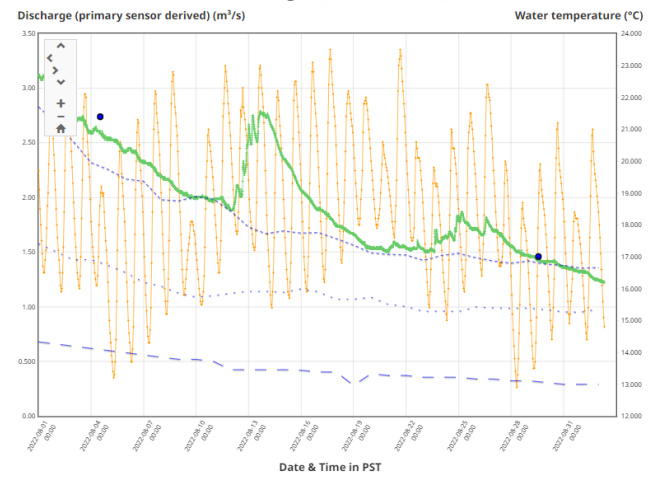
Legend for the Water Survey of Canada stations.



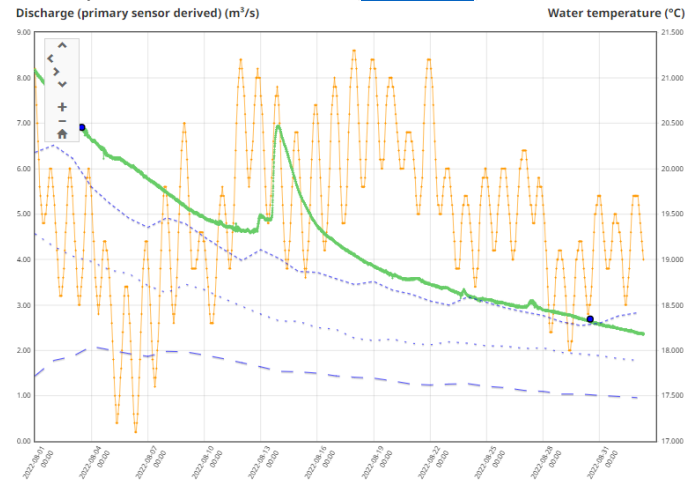
Kettle River near Westbridge (08NN026)



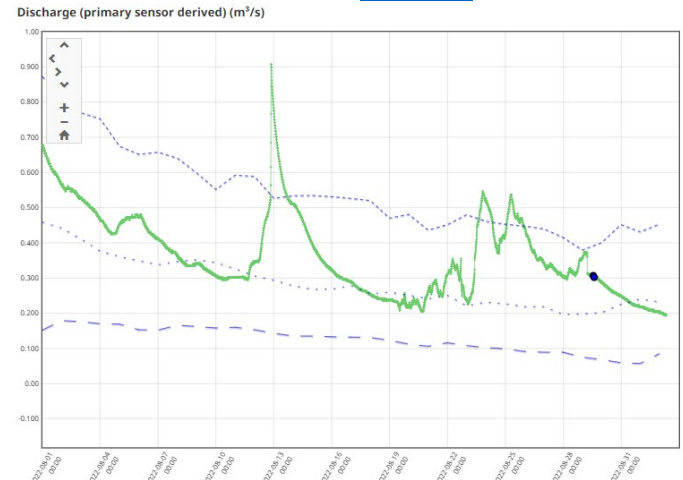
West Kettle at Westbridge (08NN003)



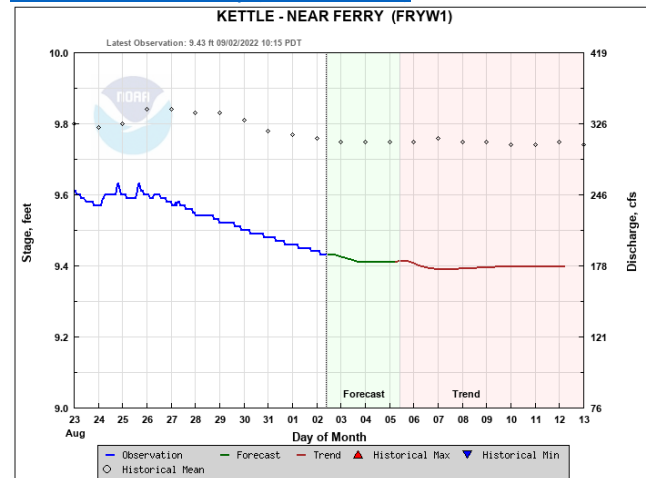
Granby River at Grand Forks (08NN002)



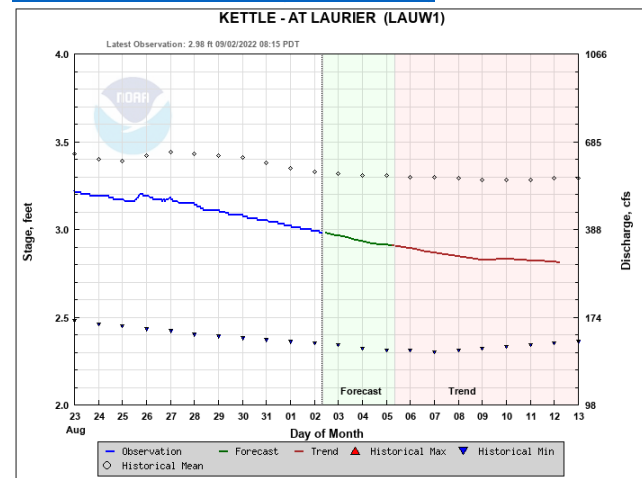
West Kettle near McCulloch (08NN015)



Kettle River at Ferry (USA station)



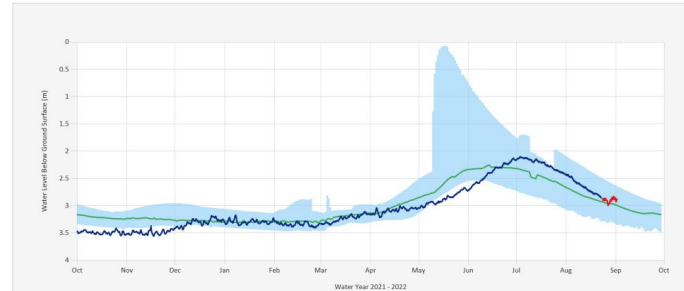
Kettle River at Laurier (USA station)



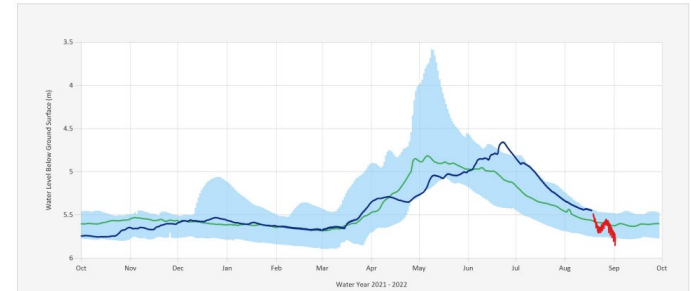
Groundwater Observation Wells



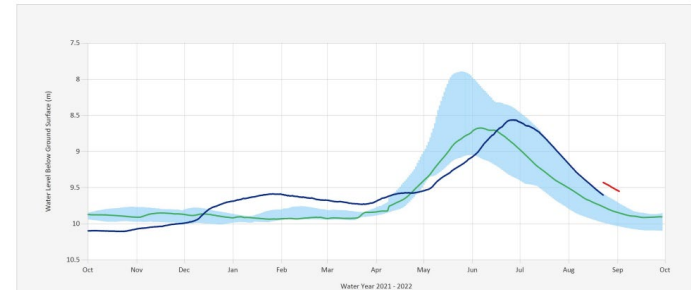
Grand Forks Obs Well No. 217



Beaverdell Obs Well No. 306



Midway Obs Well (No.444)



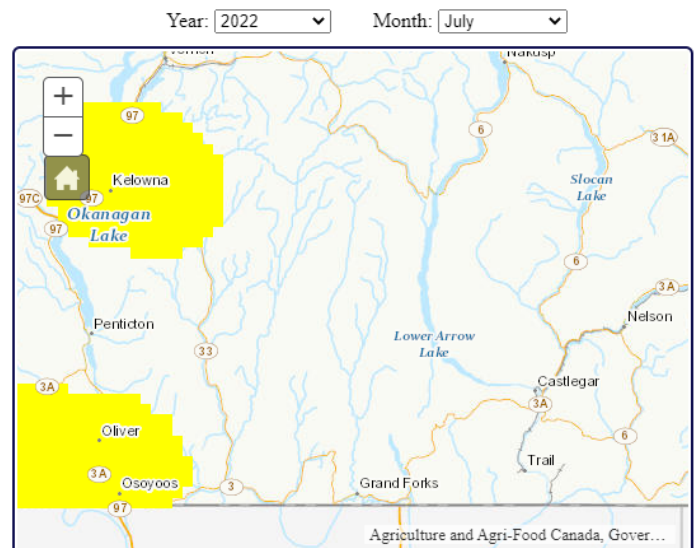
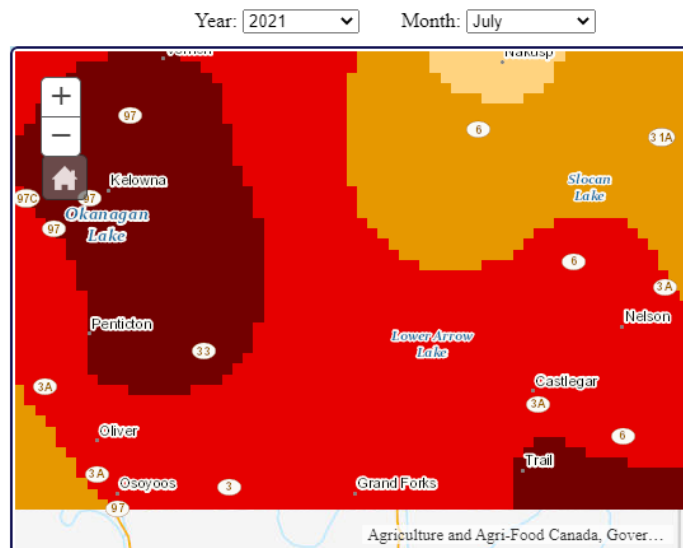
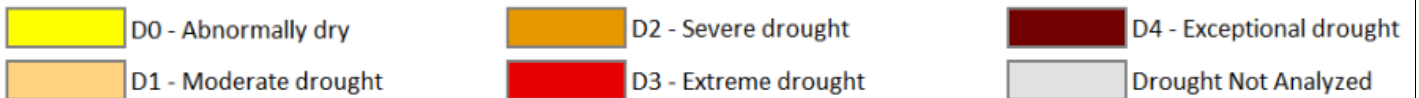
Note: Since the observation well in Midway is recent (4 years of data), there is not enough information yet to determine average levels.

Climate and Agricultural Drought Analysis

Ministry of Agriculture and Agri-Food Canada: [Precipitation Percentage of Normal](#) and [Drought Analysis](#)

Monthly Drought Map Comparisons

Legend



Agroclimate Interactive Maps

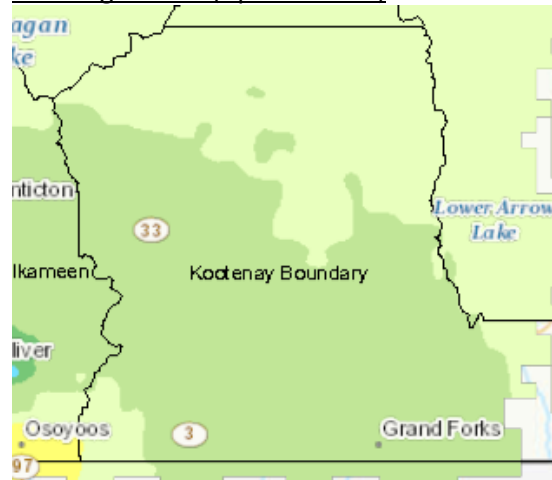
Precipitation: Precipitation Percentile (normal is the 50th percentile)

Legend

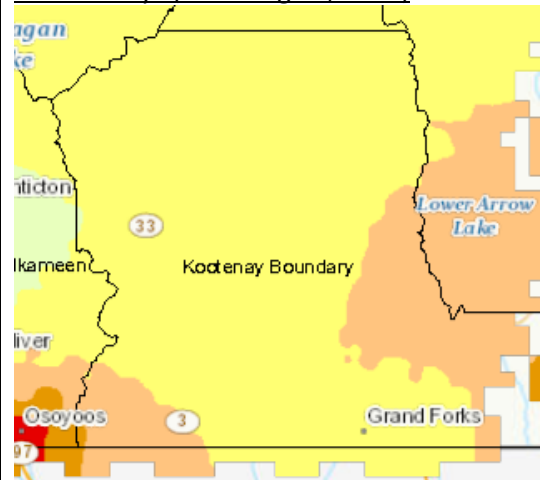
Precipitation - Precipitation percentile

- Exceptionally Low (0th to 2nd)
- Extremely Low (2nd to 5th)
- Very Low (5th to 10th)
- Moderately Low (10th to 20th)
- Below Normal (20th to 40th)
- Near Normal (40th to 60th)
- Above Normal (60th to 80th)
- Moderately High (80th to 90th)
- Very High (90th to 95th)
- Extremely High (95th to 98th)
- Exceptionally High (98th to 100th)

Growing Season (Apr1 – Oct31)

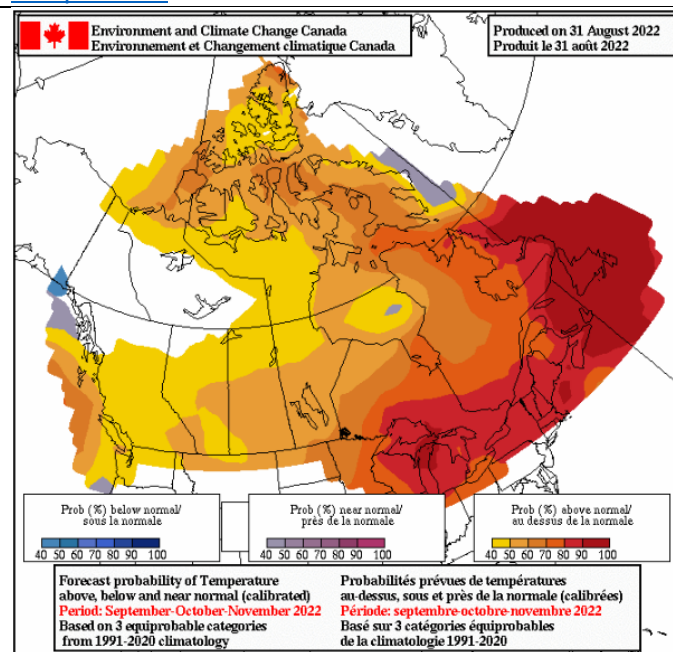


Past 30-days (from Aug 31, 2022)



Probabilistic Forecasts –September, October, November 2022

Temperature



Precipitation

