

Kettle River Basin: Level 5 (exceptionally dry) & Okanagan River Basin Level 2 (very dry)

With these continued warm and dry conditions, the Boundary Region stream water levels are continuing to drop. Even with the anticipated rains this weekend, the Province has shifted the drought level for the Kettle Basin to a level 5 and the Okanagan Basin to a level 2. Following a cool and wet spring, we experienced a late freshet and higher than normal water levels; these past few months of hot and dry conditions most Boundary streams are now showing much lower than normal water levels. The Provincial recommendation for a level 5 is to reduce all indoor and outdoor water use as much as possible.

If you have any concerns about water availability or have noticed fisheries concerns in your region, please contact the RDKB (watershedplanner@rdkb.com), the Province at RAPP (1-877-952-7277) and/or FrontCounterBC@gov.bc.ca.

Provincial Drought Level for Boundary Region

The Boundary Region is covered by two Provincially monitored basins: Kettle River and Okanagan River. In an effort to improve drought messaging and communication, the Province has divided the Kettle River watershed into five sub-watersheds and assigned individual drought levels for each. Below are the drought levels for the two main watersheds, followed by the Kettle Basin sub-watershed. The table shows the drought levels changes in our region this past summer.

	0: Non-drought		1: Dry		2: Very Dry		3: Severely Dry		4: Extremely Dry		5: Exceptionally Dry			
BASINS	30-Jun	14-Jul	21-Jul	28-Jul	04-Aug	11-Aug	25-Aug	01-Sep	08-Sep	15-Sep	22-Sep	06-Oct	13-Oct	20-Oct
Kettle	0	0	0	1	1	1	3	3	3	3	3	4	4	5
Okanagan	0	0	0	0	0	1	1	1	1	1	1	1	1	2

(A) Kettle River Watershed: level 5 (exceptionally dry)

Upper Kettle River (5), West Kettle River (5), Middle Kettle River (4), Granby River (5), and Lower Kettle River (4)

(B) Okanagan River Watershed: level 2 (very dry)

Surface and Groundwater levels (see below for graphs)

- The Boundary region has nine real time surface monitoring sites ([Water Survey of Canada](#)). All streams are low for this time of year, with many below the 5% MAD (an indicator used to assess fish survivability). All streams are being monitored closely now as their water levels continue to drop.
- The Boundary Region has three [groundwater observation wells](#) (Grand Forks, Midway and Beaverdell). There were issues with reporting the water levels over the past few months, at times reporting water levels lower than what was there. The issue has been fixed and reporting is believed too now be accurate. That being the case, the groundwater levels in the observation wells are showing lower than normal for this time of year, but within the range experienced over the past 10 years. There have not been many groundwater level concerns reported, however of those provided levels appear to be more of a concern in the West Boundary. If you have any concerns with groundwater levels, please contact the RDKB or the Province (contact information above).

Climate and Agricultural Drought Analysis (graphs and maps below)

- The Boundary has received minimal rain since August, and higher than normal temperatures. This has caused our water systems to remain very low for this time of year, with a [fire danger rating](#) higher than normal.
- However, if you look at the precipitation level over our growing season (Apr1st -now) we are only slightly low. The high moisture and cool temperatures we experienced this spring has helped with water availability during these very dry months. As a result, agricultural drought is much less than the region's hydrological drought.
- Environment Canada is forecasting a higher than average temperature over the next three months, with some indication for increased rain in the southern half of our region.

Fisheries

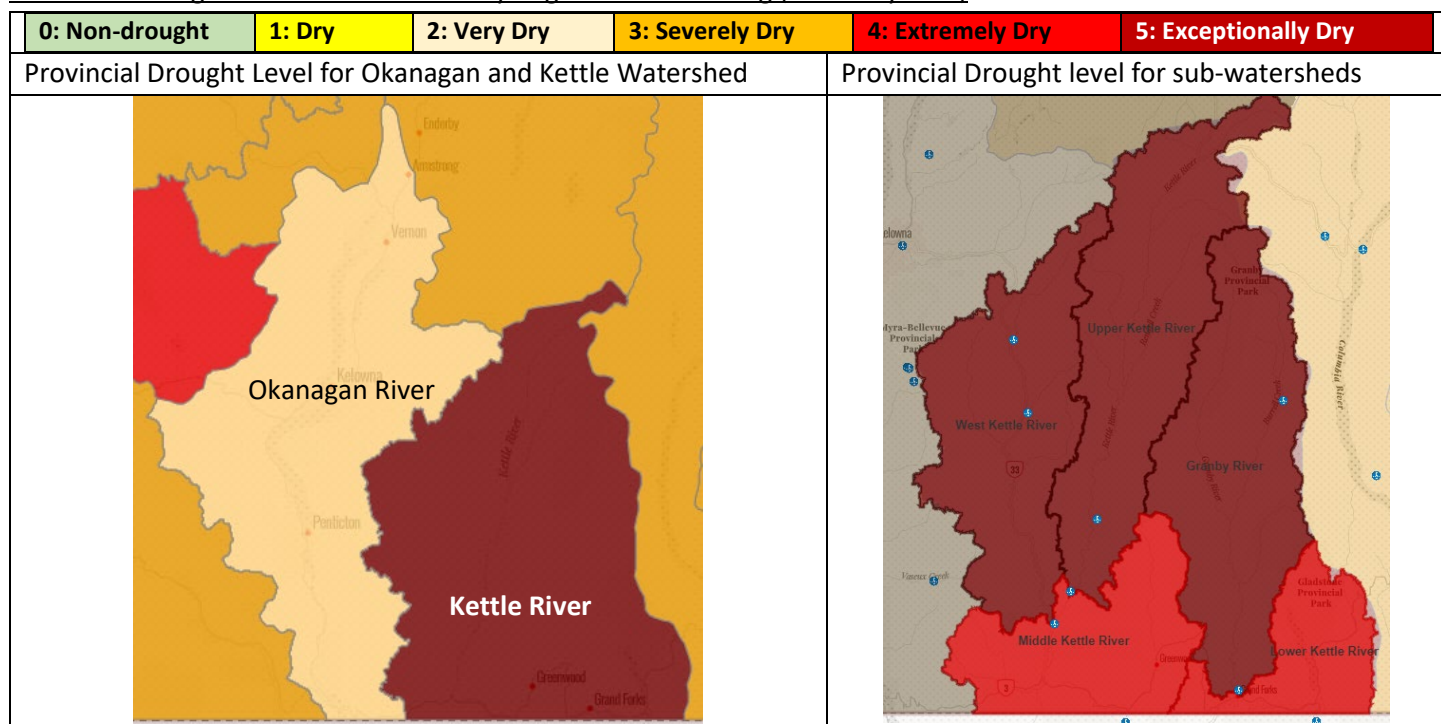
- Water temperatures are monitored at three Water Survey of Canada station (Granby, Kettle and West Kettle). As water temperature is closely connected to air temperature, all October water temperature readings are within the acceptable range for fisheries as outlined by the [Provincial Fisheries Drought Management Plan](#) (2019).

RDKB water use recommendations for households

- [Boundary Region Drought Response Plan](#) recommends reducing water use as much as possible for both indoor and outdoor use. As we have reached the end of the normal irrigation season, it is our hope that water use has reduced substantially.
- With the changing climate, spend this time to look at different ways to reduce your overall water needs. Consider rain collection, improved water distribution systems, changing habits. It's essential: Be WaterSmart.

[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)

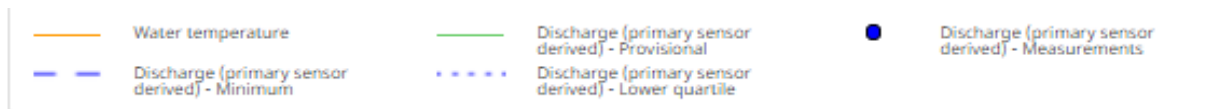


Surface Water Levels (Boundary Region)

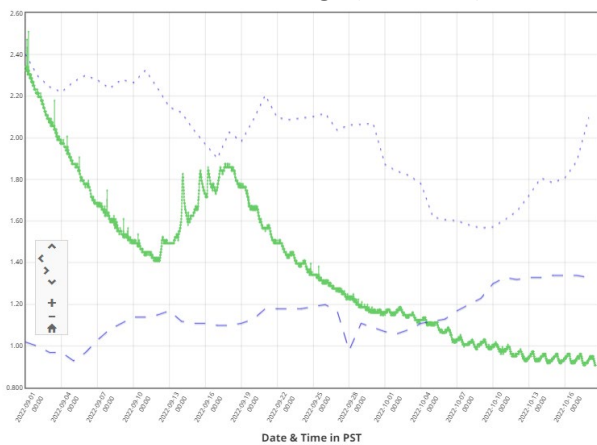
Discharge for WSC streams relative to their Mean Annual Discharge (MAD). MAD and water temperature are tools used to assess fisheries conditions and survivability in a stream. A minimum of 5% MAD has been identified as necessary for general fish survival in Boundary streams.

Date	Station	Stream	Current Discharge (cms)	% of MAD	Comments
19-Oct	08NN002	Granby River at Grand Forks	1.31	4.2%	close to minimum
19-Oct	08NN003	West Kettle River at Westbridge	0.87	6.5%	between lower quartile and minimum
19-Oct	08NN026	Kettle River near Westbridge	0.91	3.2%	below minimum
19-Oct	08NN028	Lost Horse Near Christian Valley	0.01	4.6%	close to minimum
19-Oct	08NN023	Burrell Creek	0.06	1.4%	below minimum
19-Oct	08NN019	Trapping Creek	0.03	2.3%	below minimum
19-Oct	FRYW1	Kettle River at Ferry (cms)	2.83	6.4%	close to minimum
19-Oct	LAUW1	Kettle River at Laurier (cms)	5.95	7.1%	close to minimum

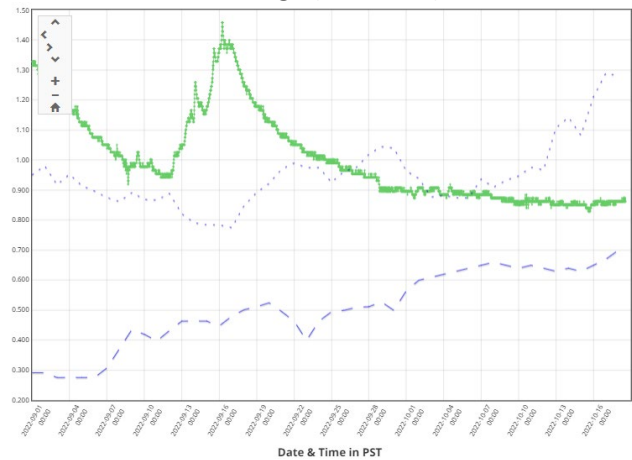
Legend for the Water Survey of Canada stations.



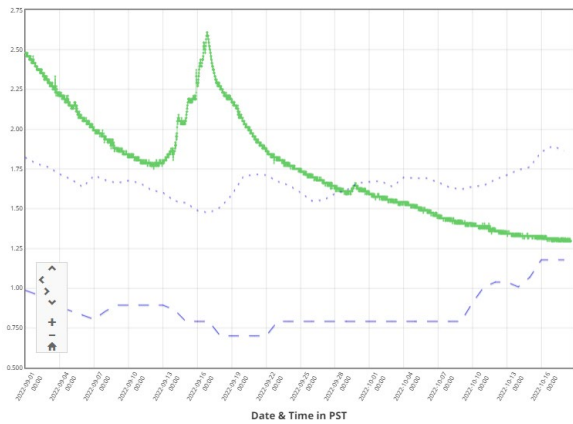
Kettle River near Westbridge ([08NN026](#))



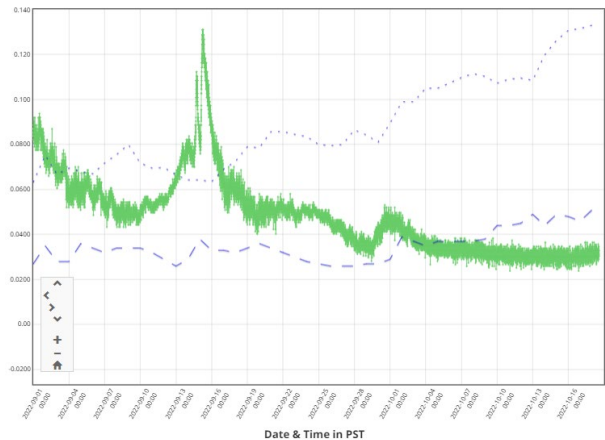
West Kettle at Westbridge ([08NN003](#))



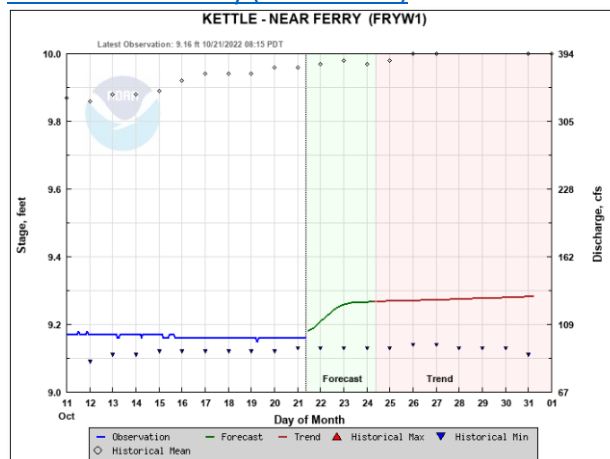
Granby River at Grand Forks ([08NN002](#))



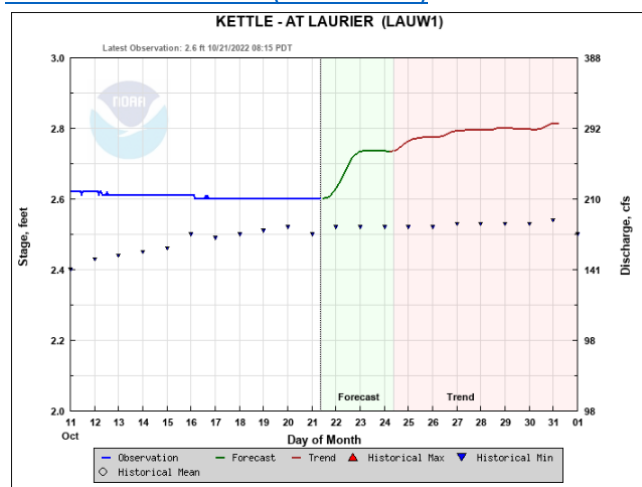
Trapping Creek ([08NN019](#))



Kettle River at Ferry (USA station)



Kettle River at Laurier (USA station)

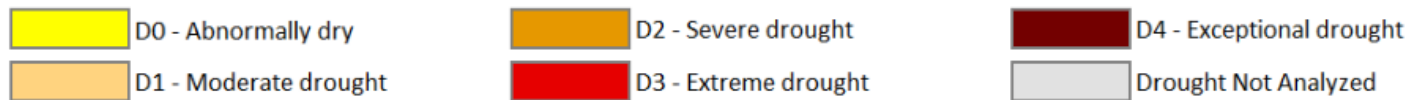


Climate and Agricultural Drought Analysis

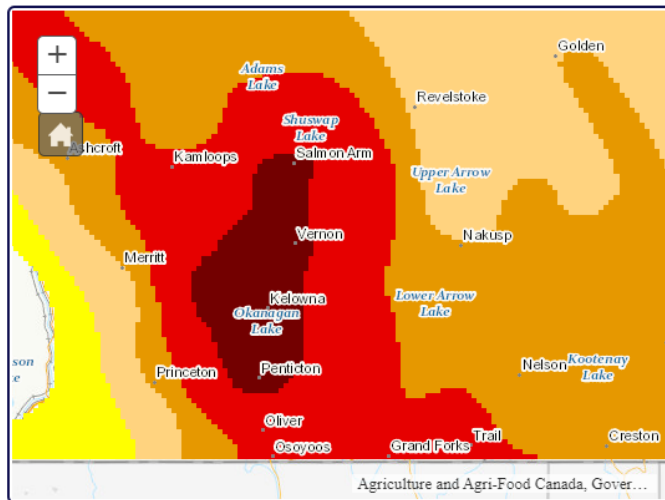
Ministry of Agriculture and Agri-Food Canada: [Precipitation Percentage of Normal](#) and [Drought Analysis](#)

Monthly Drought Map Comparisons

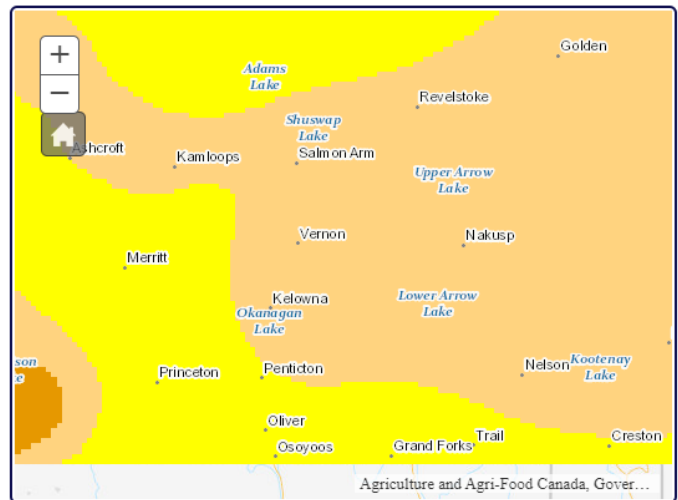
Legend



Year: Month:



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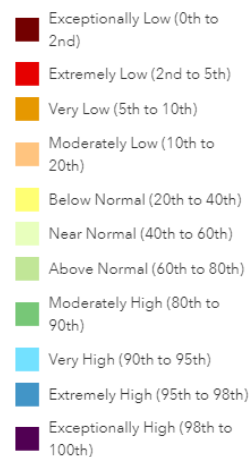


Agroclimate Interactive Maps

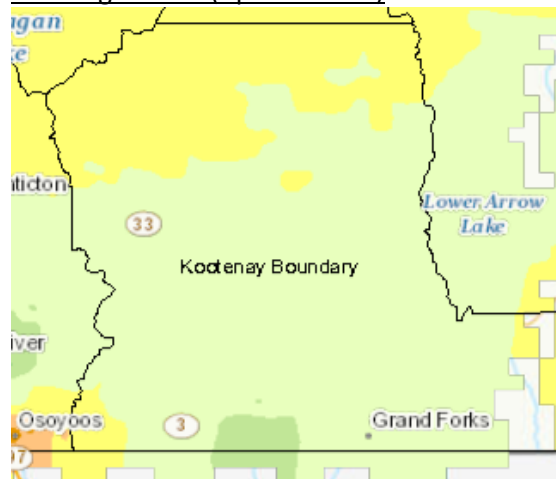
Precipitation: Precipitation Percentile (normal is the 50th percentile)

Legend

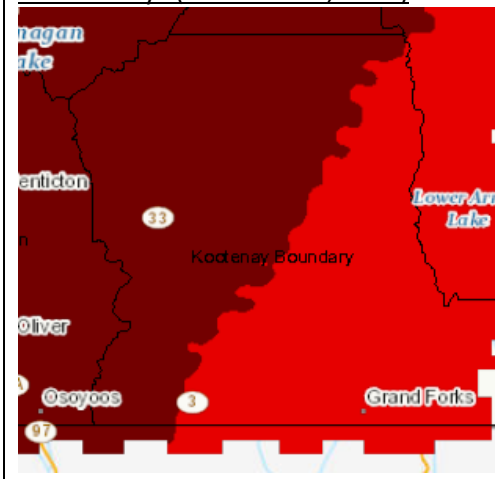
Precipitation - Precipitation percentile



Growing Season (Apr1 – Oct31)



Past 30-days (from Oct 20, 2022)

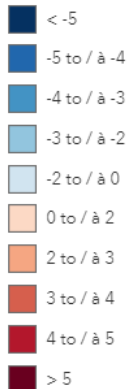


Agroclimate Interactive Maps

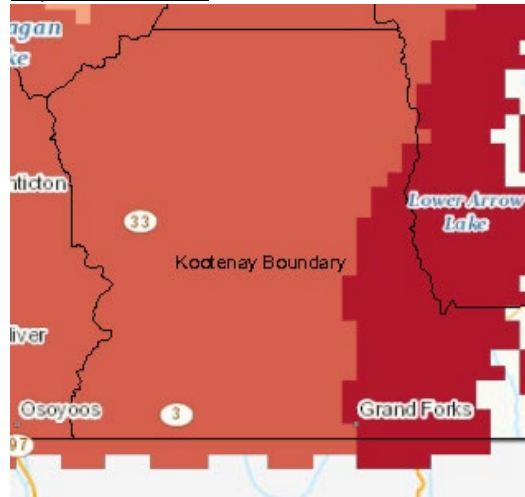
Temperature: Mean Temperature difference from normal (by Calendar Month)

Legend

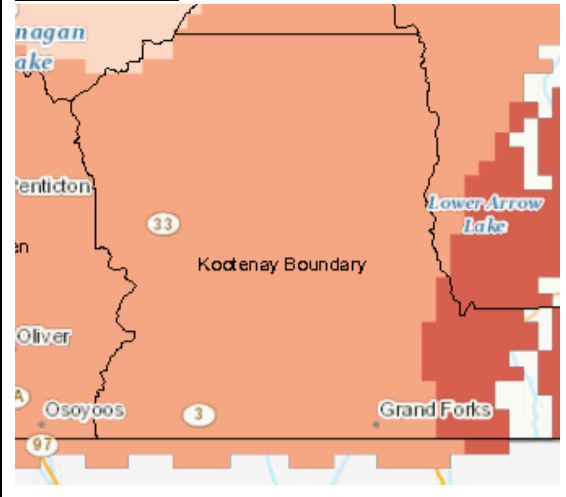
Temperature - Mean
temperature difference from
normal



September 2022

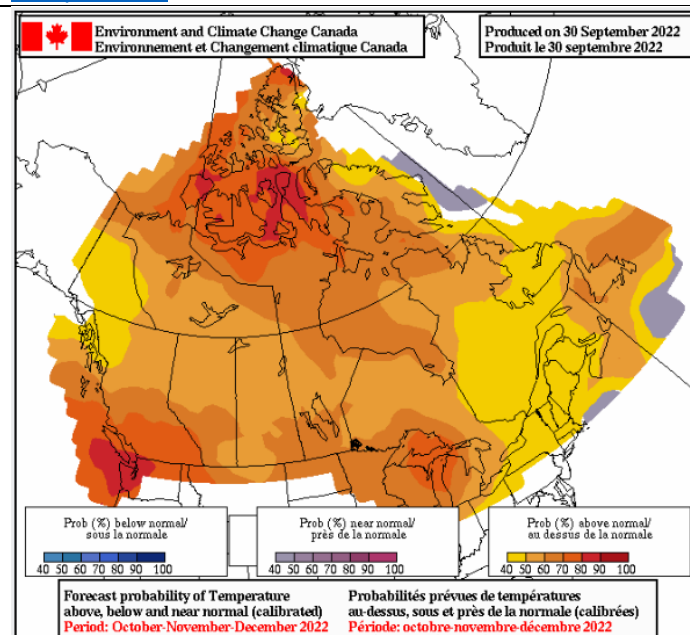


October 2022



Probabilistic Forecasts –October, November, December 2022

Temperature



Precipitation

