

MONTHLY REPORT OF HYDROLOGIC CONDITIONS

REPORT FOR:
MONTH YEAR
July 2021

TO: Hydrologic Information Center, W/OS31
NOAA's National Weather Service
1325 East West Highway
Silver Spring, MD 20910-3283

SIGNATURE
Nichole Hammond, Meteorologist /s/

DATE
08/30/2021

When no flooding occurs, include miscellaneous river conditions below the small box, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (NWS Instruction 10-924).

An X inside this box indicates that no flooding occurred within this hydrologic service area.

Overall, the month of July brought about below normal temperatures and above normal precipitation for much of the CWA. For example, the normal Max Temperature for Burlington, Vermont in July is 82.4 degrees. However, for July 2021, the average Max Temperature was 77.7 degrees (**Table 1**). In addition, several significant rainfall events occurred- some the result of convection and some the passing remnants of a tropical system. Regardless, much of the precipitation during the month of July was focused across southern portions of the CWA, while areas along the international border remained relatively dry (**Figure 1**).

The month started out cool and wet with high temperatures capping out in the upper 60s to low 70s for the 4th of July weekend, paired with persistent rain. Specifically, on Friday, July 2nd portions of northern New York and Vermont received up to 0.50 to 1.5 inches. This seemingly set the tone for the month.

About a week later, a more widespread significant rainfall event occurred in which rainfall totals ranged from 0.25 to 1.25 inches and locally up to 2 inches (**Figure 2**). This event was triggered by a favorable synoptic setup combined with a stationary surface front and embedded thunderstorms. In addition, the remnants of Tropical Storm Elsa were passing across southern New England which provided an especially moist air mass. In fact, a Flash Flood Watch was issued for Rutland, Windsor, and Orange counties in Vermont from 8 PM on July 8th through 8 PM on July 9th. However, no known flash flooding ensued.

Several more convective events occurred mid-month resulting in additional appreciable rainfall totals across the Saint Lawrence Valley in New York, portions of the northern Adirondacks, south-central Vermont. Then on July 17th into the 18th, a dynamic low pressure system combined with high PWATs produced a widespread 1 to 2 inches (**Figure 3**), with two-day totals nearing 3 inches (not shown).

On July 20th, a significant severe/flash flood event occurred in which a line of strong to severe thunderstorms moved across much of northern New York and Vermont during the afternoon and evening. There were many reports of trees and power-lines down (resulting in numerous power outages), along with a couple of hail reports, a funnel cloud, and flash flooding in the form of washed out roads (**Figure 4**). Said flooding occurred in eastern Addison County, Vermont in which 2 to 3 inches of rain fell in a short period of time over relatively steep terrain.

Finally, on July 29th a series of shortwave passages brought steady rainfall to the North Country along with embedded thunderstorms. Ultimately, this lead to rainfall totals of 1 to 3 inches across southern Vermont, the majority of which fell just outside of the BTV CWA (**Figure 5**).

Overall, the above events acted to improve and/or eradicate drought conditions across southern portions of the CWA during the month of July, while northern portions of the CWA (especially along the international border) remained under drought conditions (**Figures 6a and 6b**).

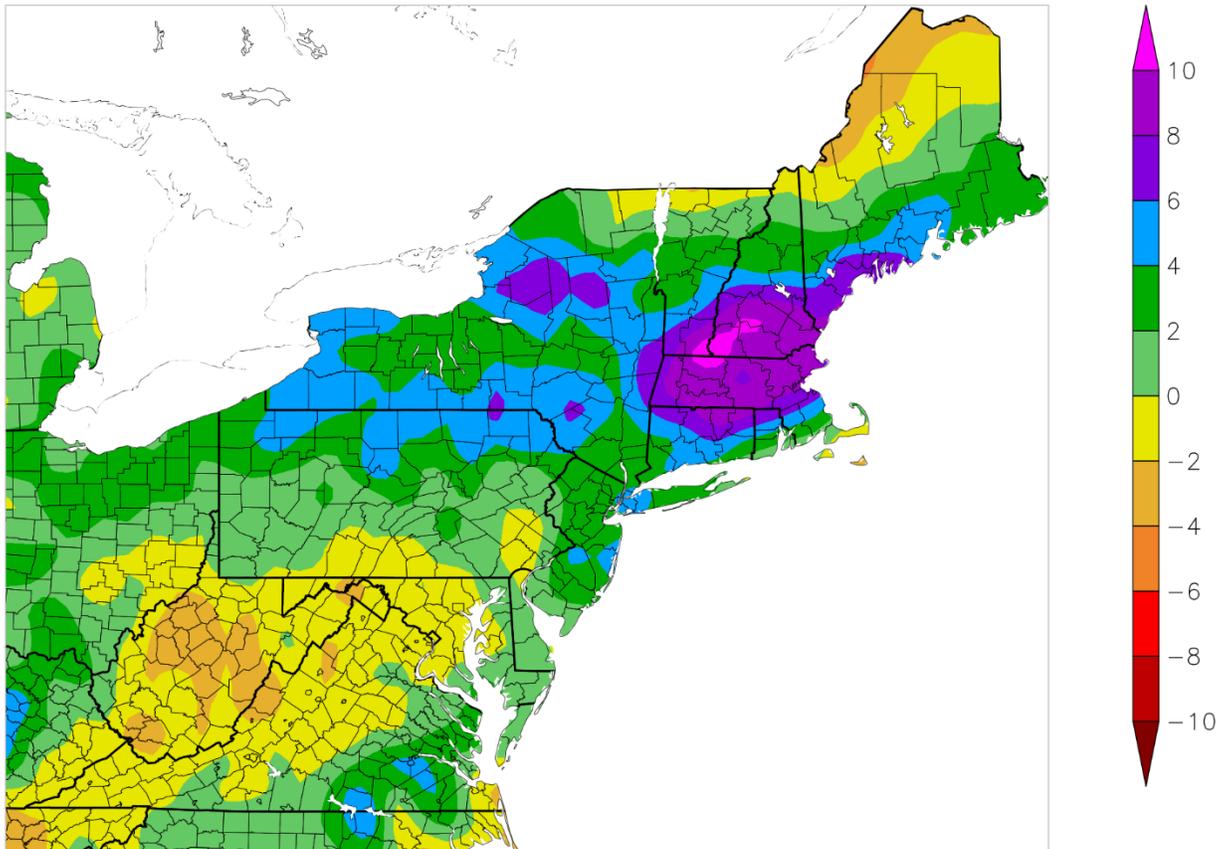
Climatological Data for Burlington Area, VT (ThreadEx) - July 2021

[Click column heading to sort ascending](#), [click again to sort descending](#).

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall	Snow Depth
2021-07-01	77	67	72.0	0.8	0	7	T	0.0	0
2021-07-02	69	61	65.0	-6.4	0	0	0.31	0.0	0
2021-07-03	63	58	60.5	-11.1	4	0	0.14	0.0	0
2021-07-04	71	59	65.0	-6.7	0	0	0.00	0.0	0
2021-07-05	82	55	68.5	-3.4	0	4	0.00	0.0	0
2021-07-06	89	70	79.5	7.5	0	15	0.08	0.0	0
2021-07-07	74	59	66.5	-5.6	0	2	T	0.0	0
2021-07-08	72	58	65.0	-7.2	0	0	0.34	0.0	0
2021-07-09	76	61	68.5	-3.8	0	4	0.16	0.0	0
2021-07-10	79	56	67.5	-4.9	0	3	0.00	0.0	0
2021-07-11	82	55	68.5	-4.0	0	4	0.00	0.0	0
2021-07-12	82	66	74.0	1.4	0	9	0.00	0.0	0
2021-07-13	76	65	70.5	-2.1	0	6	0.51	0.0	0
2021-07-14	83	71	77.0	4.3	0	12	0.20	0.0	0
2021-07-15	87	67	77.0	4.3	0	12	0.00	0.0	0
2021-07-16	80	67	73.5	0.8	0	9	T	0.0	0
2021-07-17	77	65	71.0	-1.8	0	6	0.34	0.0	0
2021-07-18	72	63	67.5	-5.3	0	3	1.40	0.0	0
2021-07-19	81	65	73.0	0.2	0	8	0.04	0.0	0
2021-07-20	82	64	73.0	0.2	0	8	1.24	0.0	0
2021-07-21	68	59	63.5	-9.3	1	0	0.06	0.0	0
2021-07-22	79	55	67.0	-5.8	0	2	0.00	0.0	0
2021-07-23	80	59	69.5	-3.2	0	5	0.00	0.0	0
2021-07-24	83	57	70.0	-2.7	0	5	0.00	0.0	0
2021-07-25	85	66	75.5	2.8	0	11	0.23	0.0	0
2021-07-26	86	66	76.0	3.4	0	11	T	0.0	0
2021-07-27	76	62	69.0	-3.6	0	4	0.22	0.0	0
2021-07-28	77	57	67.0	-5.6	0	2	0.00	0.0	0
2021-07-29	75	54	64.5	-8.0	0	0	0.01	0.0	0
2021-07-30	71	61	66.0	-6.4	0	1	0.33	0.0	0
2021-07-31	75	58	66.5	-5.9	0	2	0.00	0.0	0
Sum	2409	1906	-	-	5	155	5.61	0.0	-
Average	77.7	61.5	69.6	-2.8	-	-	-	-	0.0
Normal	82.4	62.4	72.4	-	6	235	4.06	0.0	-

Table 1: A summary of climatological data for Burlington, VT during July 2021.

Departure from Normal Precipitation (in) 7/1/2021 – 7/31/2021



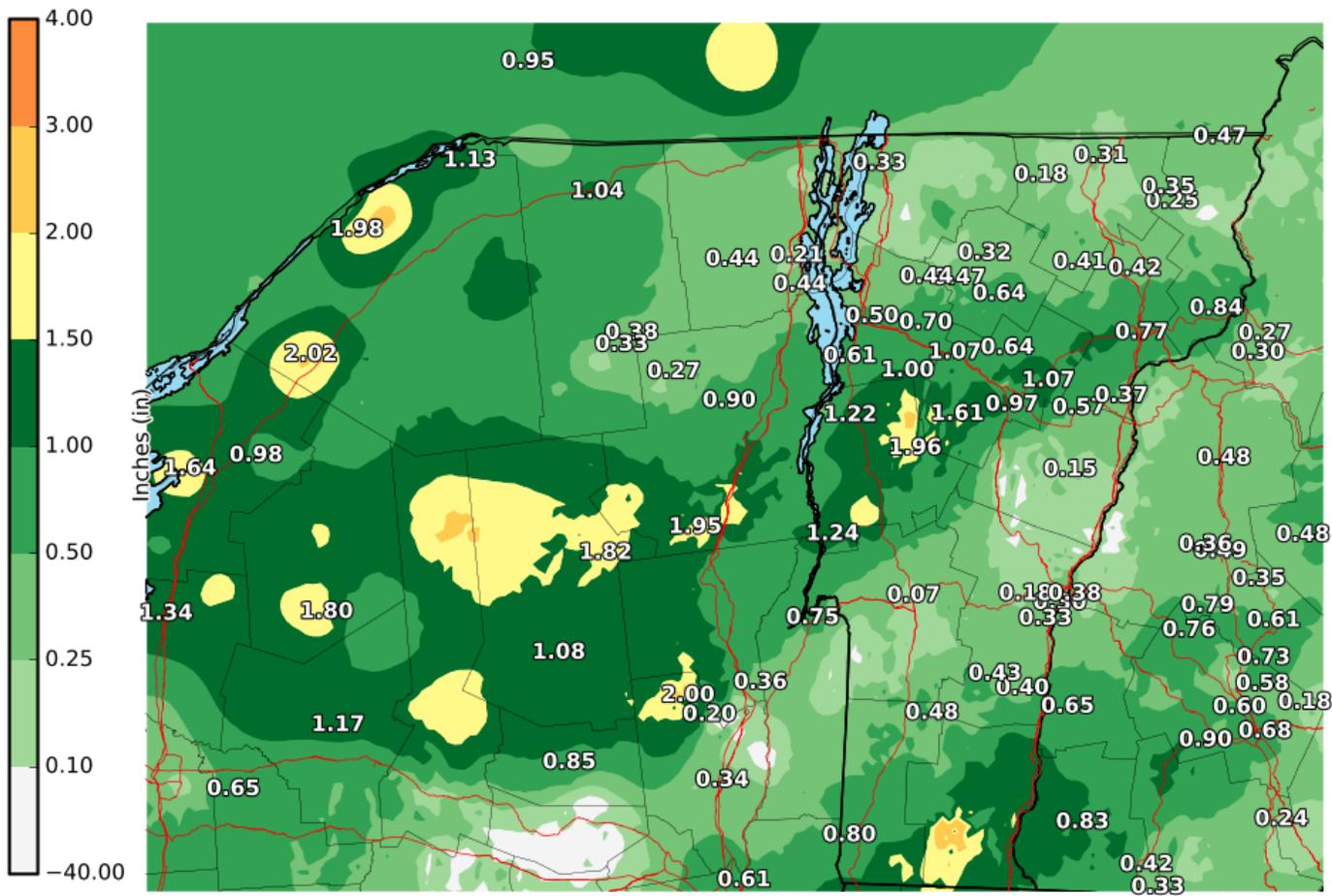
Generated 8/20/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

Figure 1: Total monthly precipitation departure from normal for July 2021. Above normal precipitation was received across southern portions of the CWA during the month of July. Meanwhile, below normal precipitation totals persisted along the international border.

24-hr Precipitation Totals

Valid: 7 AM Thursday July 08, 2021 to 7 AM Friday July 09, 2021



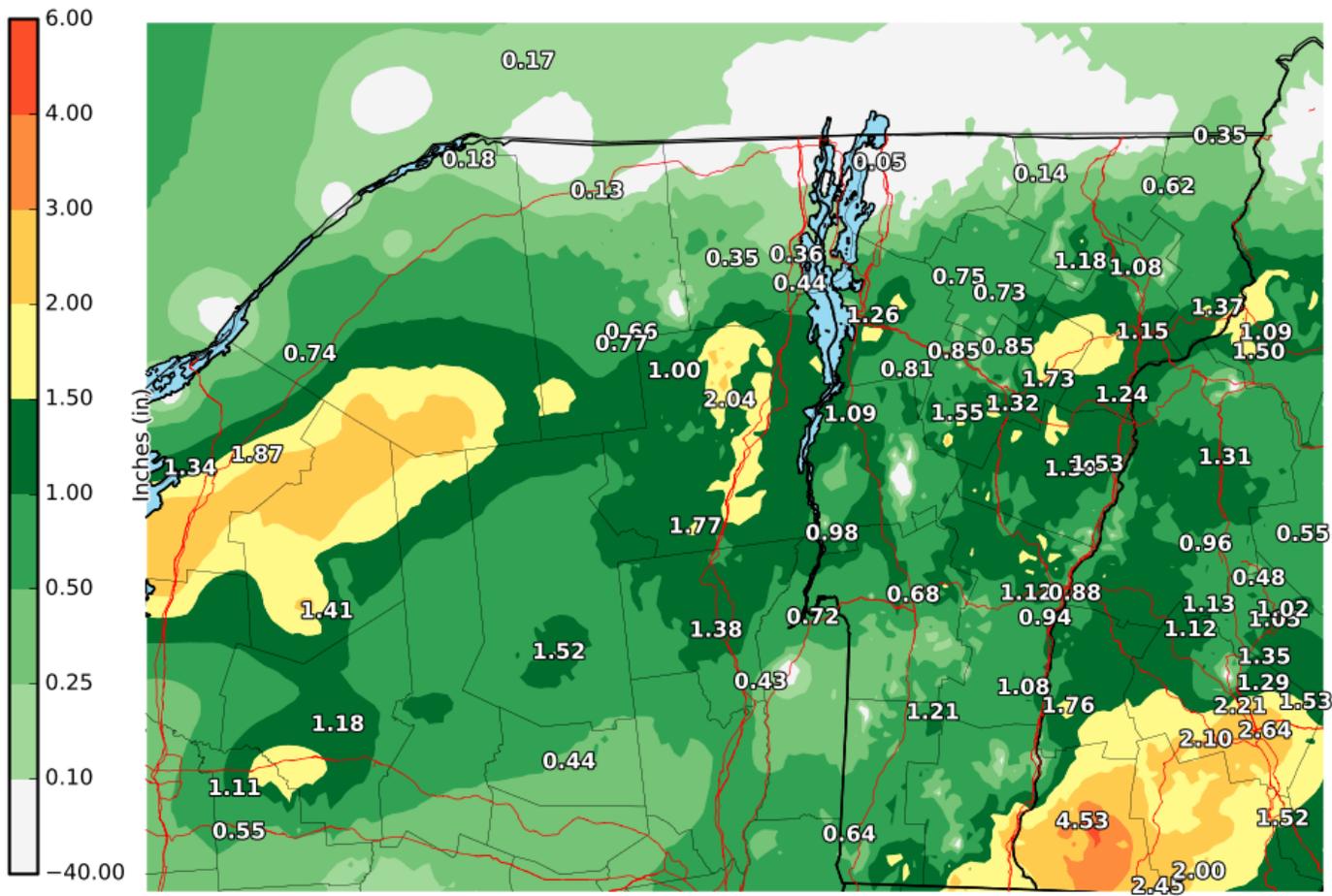
National Weather Service
Burlington, VT
07/09/2021 10:32 AM EDT

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Figure 2: Rainfall totals occurring on July 8th, 2021.

24-hr Precipitation Totals

Valid: 7 AM Saturday July 17, 2021 to 7 AM Sunday July 18, 2021



National Weather Service
Burlington, VT
07/18/2021 10:33 AM EDT

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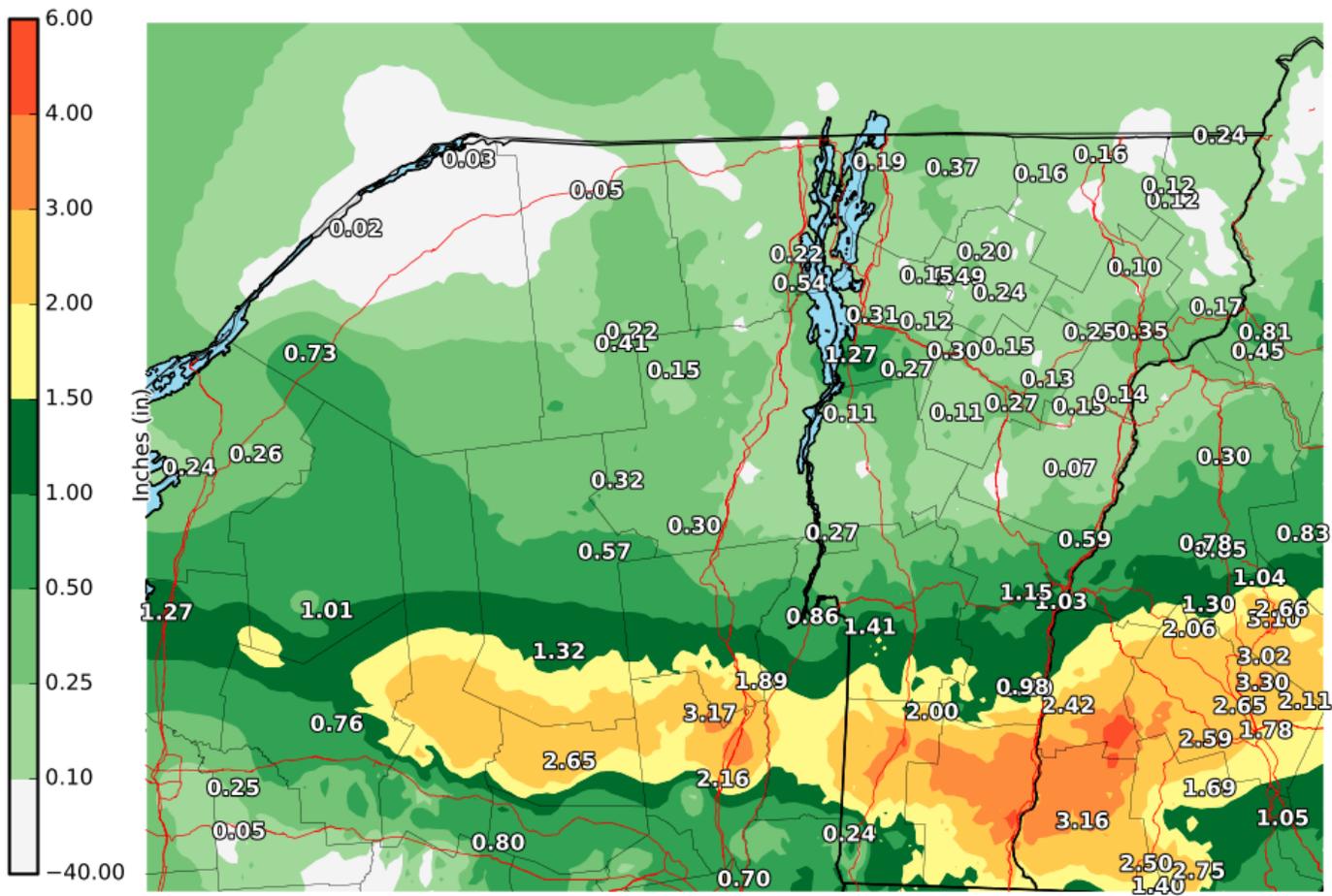
Figure 3: Rainfall totals occurring on July 17-18, 2021.



Figure 4: Flash flooding led to road washouts in Waitsfield, Vermont on July 20th, 2021. Overall, 2 to 3 inches of rain fell in a short period of time in eastern Addison County, Vermont.

24-hr Precipitation Totals

Valid: 7 AM Thursday July 29, 2021 to 7 AM Friday July 30, 2021



National Weather Service
Burlington, VT
07/30/2021 10:44 AM EDT

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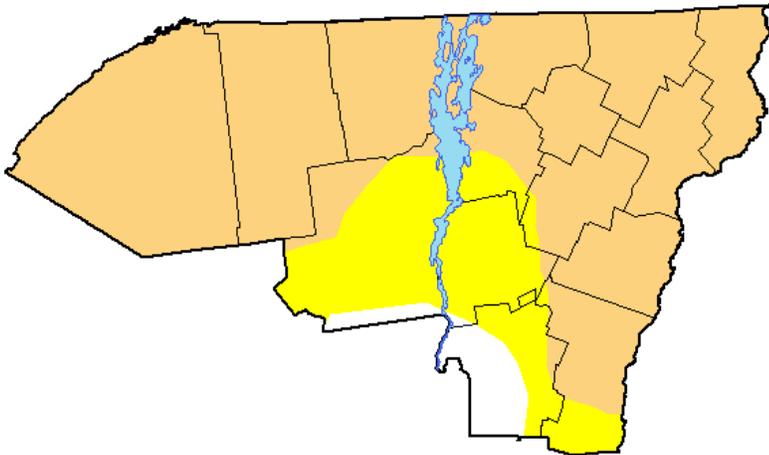
Figure 5: Rainfall totals occurring on July 29th, 2021.

U.S. Drought Monitor Burlington, VT WFO

July 6, 2021
(Released Thursday, Jul. 8, 2021)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.11	95.89	75.65	0.00	0.00	0.00
Last Week 06-29-2021	4.11	95.89	62.10	0.00	0.00	0.00
3 Months Ago 04-06-2021	0.00	100.00	46.00	0.00	0.00	0.00
Start of Calendar Year 12-29-2020	12.78	87.22	38.19	0.00	0.00	0.00
Start of Water Year 09-29-2020	0.00	100.00	60.49	18.09	0.00	0.00
One Year Ago 07-07-2020	0.00	100.00	41.54	8.65	0.00	0.00



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

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National Drought Mitigation Center



droughtmonitor.unl.edu

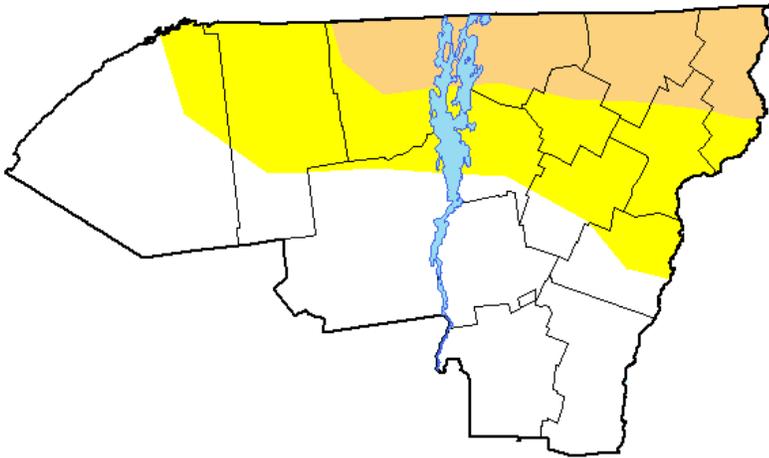
Figure 6a: Drought monitor on July 6, 2021 for BTV CWA. Much of the CWA was under abnormally dry to moderate drought conditions at the beginning of the month.

U.S. Drought Monitor Burlington, VT WFO

August 3, 2021
(Released Thursday, Aug. 5, 2021)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	51.21	48.79	17.26	0.00	0.00	0.00
Last Week 07-27-2021	24.55	75.45	35.19	0.00	0.00	0.00
3 Months Ago 05-04-2021	0.00	100.00	60.62	0.00	0.00	0.00
Start of Calendar Year 12-29-2020	12.78	87.22	38.19	0.00	0.00	0.00
Start of Water Year 09-29-2020	0.00	100.00	60.49	18.09	0.00	0.00
One Year Ago 08-04-2020	2.25	97.75	40.96	9.12	0.00	0.00



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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CPC/NOAA/NWS/NCEP



droughtmonitor.unl.edu

Figure 6b: Drought monitor on August 3, 2021 for BTV CWA. Overall, drought conditions improved or were eradicated across southern portions of the CWA during the month of July, while northern portions of the CWA (especially along the international border) remained under drought conditions.