NWS Form E-5 (04-2006) (PRES. BY NWS Instruction 10-924)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE	HYDROLOGIC SERVICE AREA (HSA) Burlington VT
MONTHLY REPORT OF HYDROLOGIC CONDITIONS		REPORT FOR: MONTH: February YEAR: 2022
TO: Hydrologic Information Center, W/OS31 NOAA's National Weather Service 1325 East West Highway Silver Spring, MD 20910-3283		SIGNATURE: /s/ John Goff, Senior Service Hydrologist DATE: March 21, 2022

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.

February 2022 was an active month for the NWS Burlington HSA, both from a meteorological and hydrological perspective. Temperatures averaged at or above normal for Vermont and the Adirondack region with mean monthly positive departures generally ranging from 0 to 4 degrees. The St. Lawrence Valley was slightly cooler, with Massena, NY showing a slight negative monthly departure of 1.3 degrees. Due to the active weather pattern, similar trends were observed with precipitation with month-end positive departures generally ranging from 0.40 to 1.60 inches. Only portions of the St. Lawrence and northern Champlain Valleys saw near normal monthly totals (Table 1). On average, the snowpack slowly built across the region but kept with season-long trends of running below normal in both depth and total snow water equivalent, especially across elevated terrain. This was partially due to the milder temperatures leading to some precipitation falling as rain.

Three significant storm systems affected the region, most notably on February 3 and 4, 17 and 18, and on the 25th. The storm systems on the 3rd and 4th, and on the 25th were colder events with mainly snow observed. Indeed, a widespread 10 to 18 inch snowfall was observed across a good portion of the area during the 3rd and 4th as low pressure passed just south of the region (Figure 1). This was likely the largest snowfall of the season. The most impactful event, from a damage perspective, occurred during the storm on the 17th and 18th. This system was accompanied by milder weather, very windy conditions, and heavier rainfall. The heaviest rainfall was observed across the Adirondack region into portions of northern Vermont (Figure 2). This led to significant river rises, and in some cases fostered ice breakup and the formation of ice jams. On the morning of the 18th, a large jam formed on the East Branch of the Ausable River at Au Sable Forks, NY, leading to severe flooding. Numerous structures were impacted, to the degree that residents had to self-evacuate, or quickly move to higher floors due to the rapid onset nature of the flooding (Figures 3 and 4). The NWS river gage forecast point nearby (ASFN6) crested above 15 feet, its third highest crest on record (Figure 5).

OBSERVING SITE (ASOS platforms)	PRECIPITATION DEPARTURE (inches, FEB 2022)
St. Johnsbury, VT	+0.41
Burlington, VT	+0.60
Montpelier, VT	+0.45
Morrisville, VT	+1.53
Springfield, VT	+1.63
Massena, NY	-0.06
Saranac Lake, NY	+1.50
Plattsburgh, NY	-0.11

Table 1: February 2022 precipitation departure (in inches) for selected NWS ASOS platforms in the NWS Burlington HSA. Most sites observed significant positive departures except portions of far northern New York.

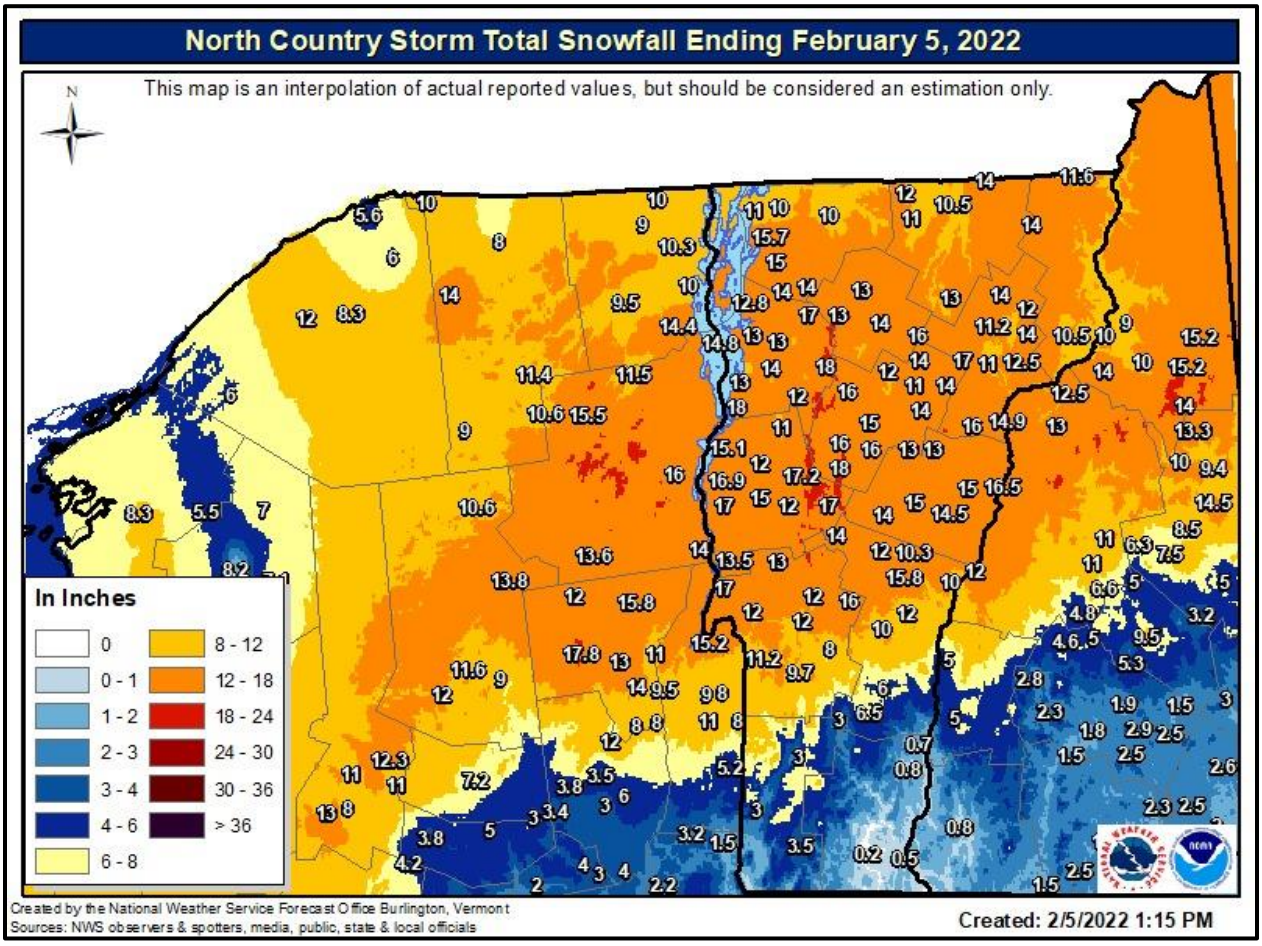

Figure 1: Total snowfall from the February 3-4, 2022, storm event. A widespread 10-18 inches fell across much of the NWS Burlington HSA, with slightly lesser totals in the St. Lawrence Valley.

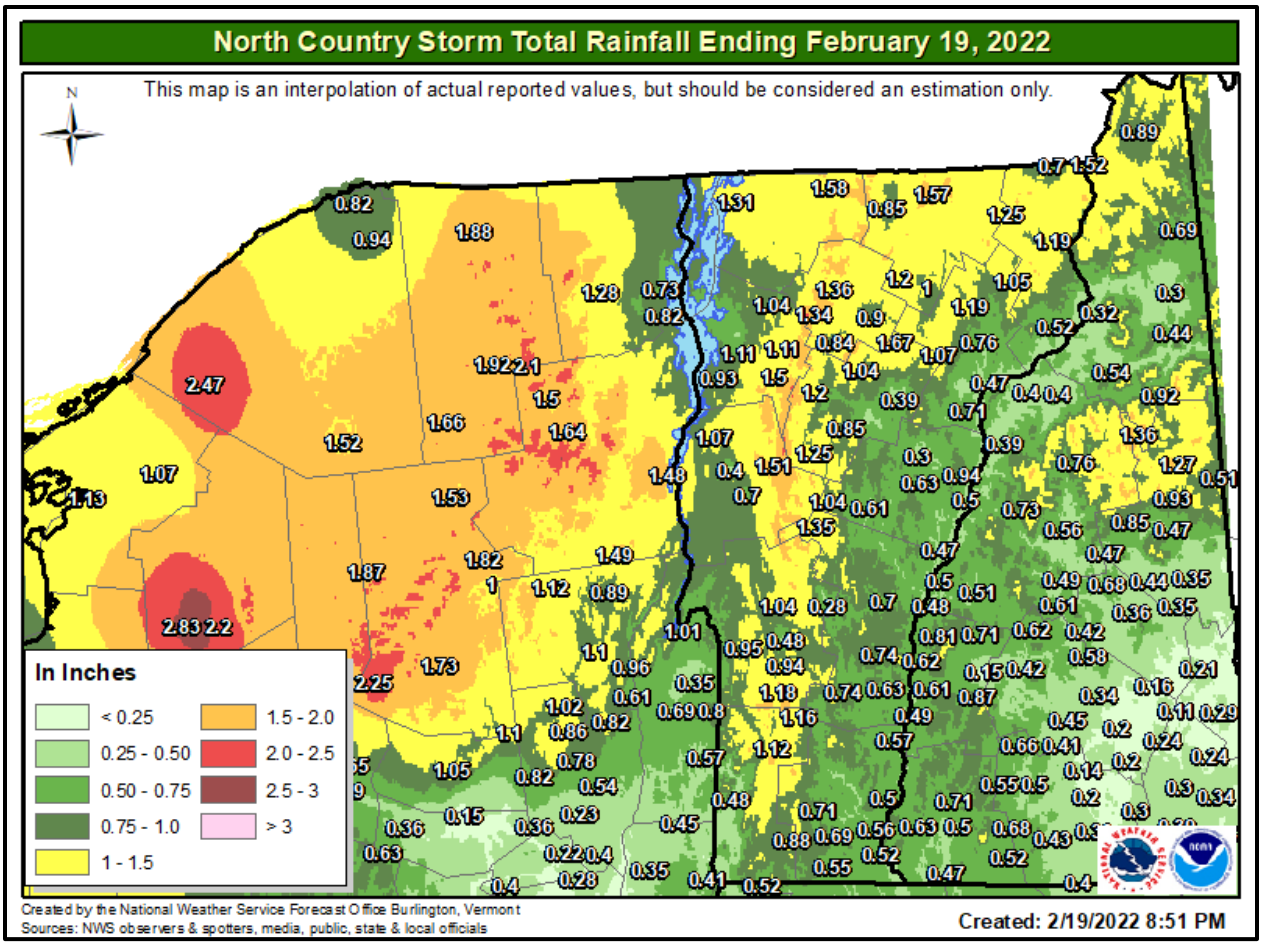

Figure 2: Total rainfall from the February 17-419, 2022, storm event. Heaviest totals of between 1 and 2.5 inches fell across the St. Lawrence Valley and Adirondack region of New York, and much of northern Vermont.

Figure 3: Severe ice jam flooding in Au Sable Forks, NY on the morning of February 18, 2022. Photo courtesy of the Plattsburgh Press Republican.

Figure 4: A car is seen trapped in flood waters resulting from an ice jam on the East Branch of the Ausable River at Au Sable Forks, NY on the morning of February 18, 2022. Photo courtesy of the Adirondack Explorer.

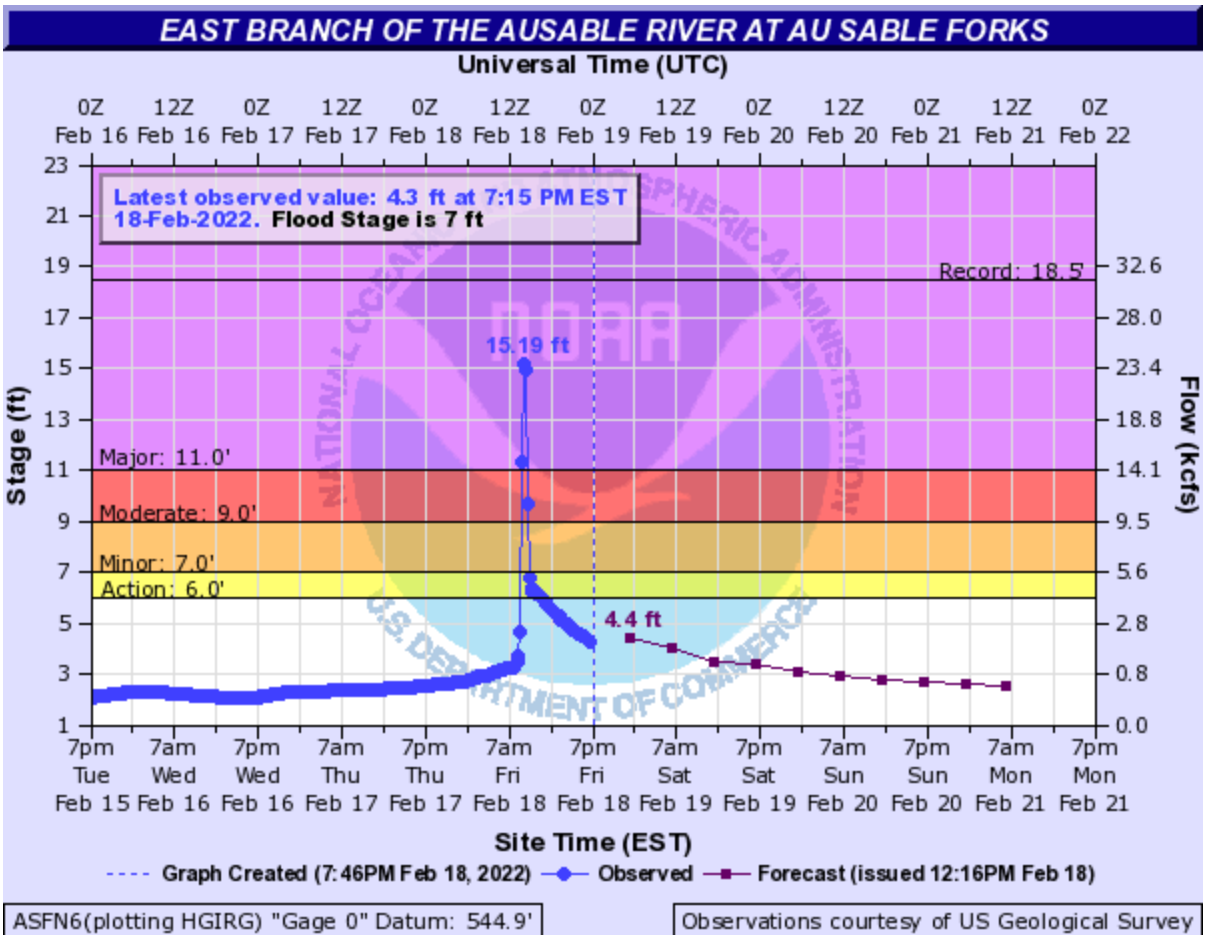

Figure 1: Hydrograph of the forecast point gage on the East Branch of the Ausable River at Au Sable Forks, NY (ASFN6) showing a rapid rise to near record stage on the morning of February 18, 2022 resulting from a large ice jam just downstream.