

**Utilities**

electric · stormwater · wastewater · water

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DATE: April 7, 2021

TO: Water Board

FROM: Susan Smolnik, P.E., Water Resources Engineer
Donnie Dustin, P.E., Water Resources Manager

RE: **March 2021 Water Resources Division Staff Report**

Purpose

This memorandum is intended to update the Water Board on water resource conditions for the City of Fort Collins Water Utility (Water Utility) over the month of March.

Water Resources Summary

Weather: <https://climate.colostate.edu/>

The conditions measured at the Fort Collins 053005 weather station for the month:

- Mean daily high temperature recorded for the month: 52.9 °F.
 - Long term average daily high temperature for the month is: 51.6 °F.
- Total recorded monthly precipitation: 2.66 inches.
 - Long term average precipitation for the month: 1.17 inches.

Water Demand: Water demands within the Water Utility service area for the month:

- Water demand for the month: 100% of the projected demand.
- Water demand for calendar year: 102% of the projected demand.

River Streamflows: See attached sheet or go to website <https://www.northernwater.org/streamflow>

- The CBT system west slope river basins most probable forecasts range from 66% to 86% of average for April through July
- Poudre River streamflow most probable forecast is 199,000 AF or 88% of average for April through July
- Poudre River run-off expected to begin in late May or early June

Reservoir Storage: (See attached sheet)

- Colorado-Big Thompson project reservoirs (Granby, Carter, and Horsetooth): 73% full
- Horsetooth Reservoir: 75% full.
- Joe Wright Reservoir: 70% full (110% of average based on 13 years of data).

Snowpack:

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/co/snow/products/?cid=nrcseprd1432263>

Natural Resources Conservation Service SNOTEL program percent of average snow water equivalent totals as of 04/07/2021:

- Upper Colorado Basin: 77% of average.
- Poudre Basin: 86% of average.

Drought Monitor: <https://www.drought.gov/states/colorado>

- The U.S. Drought Monitor shows Larimer County as abnormally dry to moderate drought
- https://climate.colostate.edu/drought_info.html

Climate Outlook<https://www.cpc.ncep.noaa.gov/>

- National Oceanic and Atmospheric Administration (NOAA) climate outlooks for the northern Front Range and northern mountains, over the next three months:
 - Below normal precipitation.
 - Above normal temperature.

2021 Water Supply Considerations:

- The Cameron Peak and East Troublesome Fires will likely impact Utilities water availability in 2021 and subsequent years.
- Utilities staff is monitoring the potential impacts to both the Poudre River basin and the CBT project system from these fires, which may be exacerbated if drought conditions persist in the region.

City of Fort Collins Utilities

ASSUMPTIONS

- Values look at remaining demands and supplies through the end of the Water Year (Oct 31)

DEMANDS (treated only)

- Average Demand is projected demand
- Low Demand is projected Average Demand reduced by 10%
- High Demand applies a monthly worse case factor to projected Average Demand

SUPPLIES

Poudre

- High Supply is a fire impacted Poudre that is 62% of the annual average. Monthly percentages of average are Nov-Mar 95%, Apr 85%, May-Jun 5%, Jul 25%, Aug 60%, Sep 70%, Oct 80%. Medium Supply is 95% of the fire impacted Poudre (or 59% of annual average) and Low Supply is 90% (or 56% of annual average).

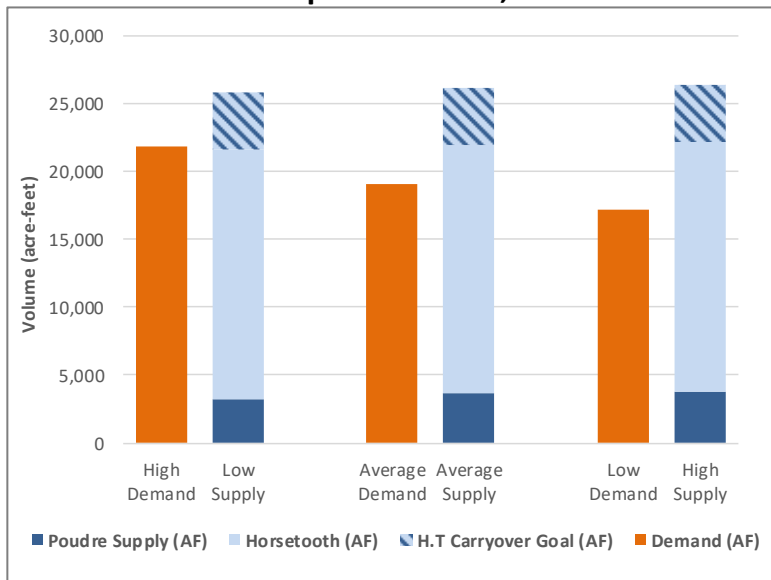
Horsetooth Reservoir

- Horsetooth Supplies include CBT, NPIC MU & Windy Gap
- CBT supply is 70% quota, 2.66 NPIC MU allocation/share
- All remaining Horsetooth raw water obligations have been deducted. A 1,000 AF exchange of Joe Wright water for CBT is included.

Horsetooth Carryover Objective

- Amount from this years Horsetooth supplies to carryover for next year
- Max amount allowable is 4,190 AF before 10% shrink

Remaining Water Demand and Supply from Apr 06 - Oct 31, 2021



Scenario	Demand (AF)	Poudre Supply (AF)	Horsetooth (AF)	H.T. Carryover Goal (AF)
High Demand Low Supply	21,868	3,260	18,343	4,190
Average Demand Average Supply	19,054	3,622	18,343	4,190
Low Demand High Supply	17,223	3,813	18,343	4,190

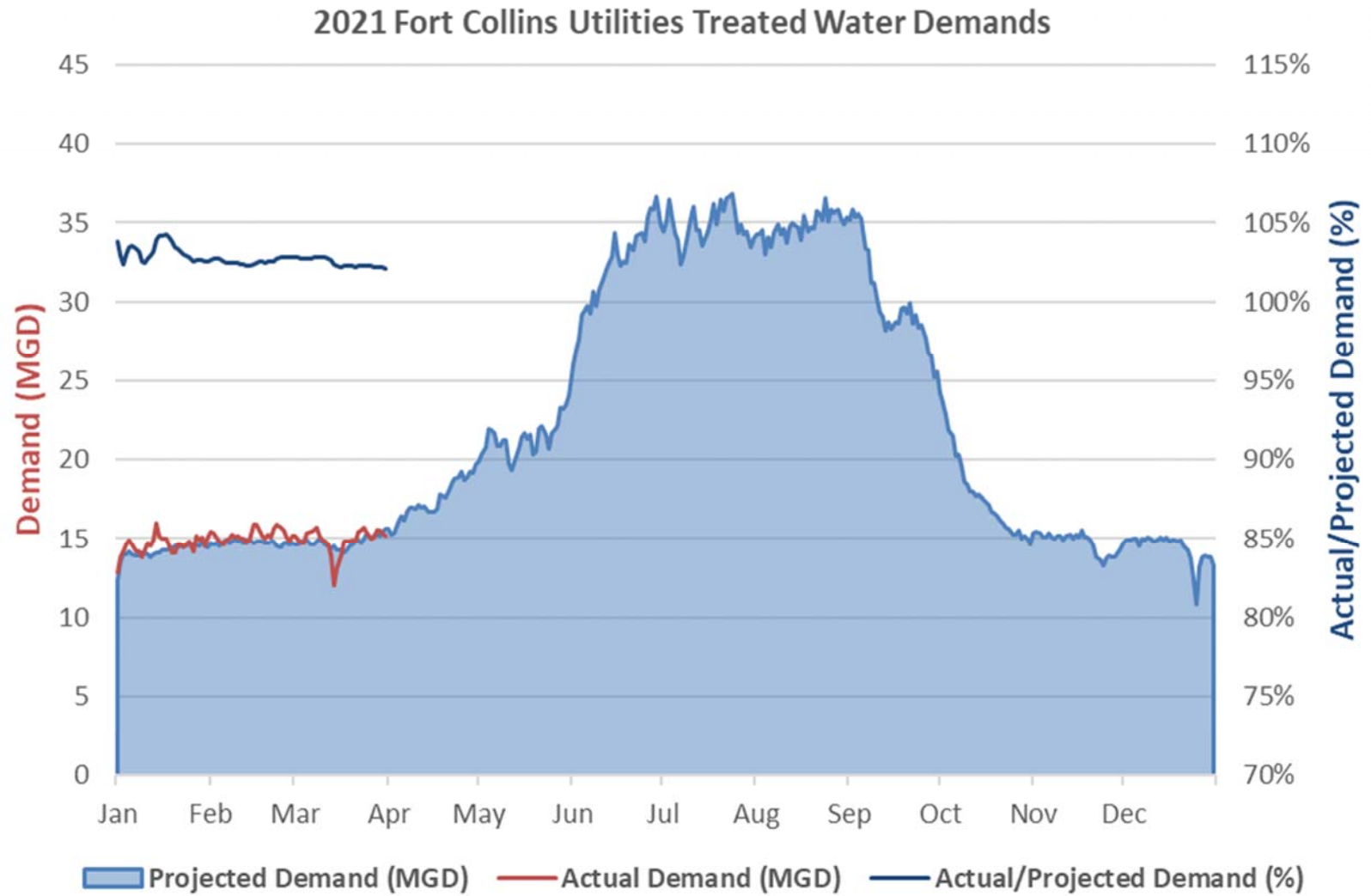
NOTES:

MGD = million gallons per day; PVP = Pleasant Valley Pipeline; CBT = Colorado-Big Thompson Project; NPIC = North Poudre Irrigation Company; MU = Multiple Use (NPIC allocation of CBT water, measured in acre-feet per share); AF = acre-feet



**City of Fort Collins Utilities
Treated Water Monthly Summary
2021**

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U.S. Drought Monitor Colorado

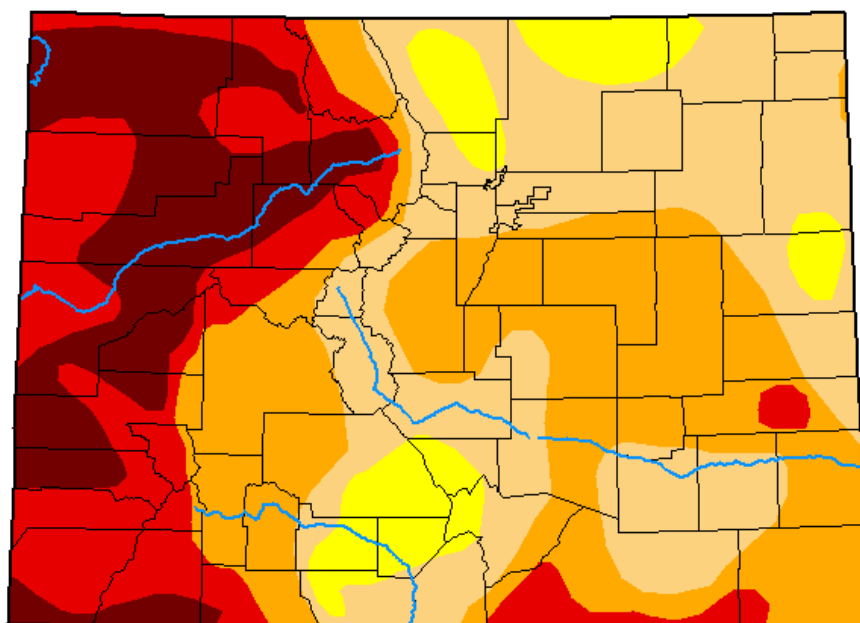
March 30, 2021

(Released Thursday, Apr. 1, 2021)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	92.31	61.69	32.13	14.65
Last Week 03-23-2021	0.00	100.00	92.62	62.13	32.13	15.10
3 Months Ago 12-29-2020	0.00	100.00	100.00	93.73	76.17	27.60
Start of Calendar Year 12-29-2020	0.00	100.00	100.00	93.73	76.17	27.60
Start of Water Year 09-29-2020	0.00	100.00	99.29	89.35	52.88	2.64
One Year Ago 03-31-2020	32.23	67.77	47.33	3.25	0.00	0.00



Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate 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>

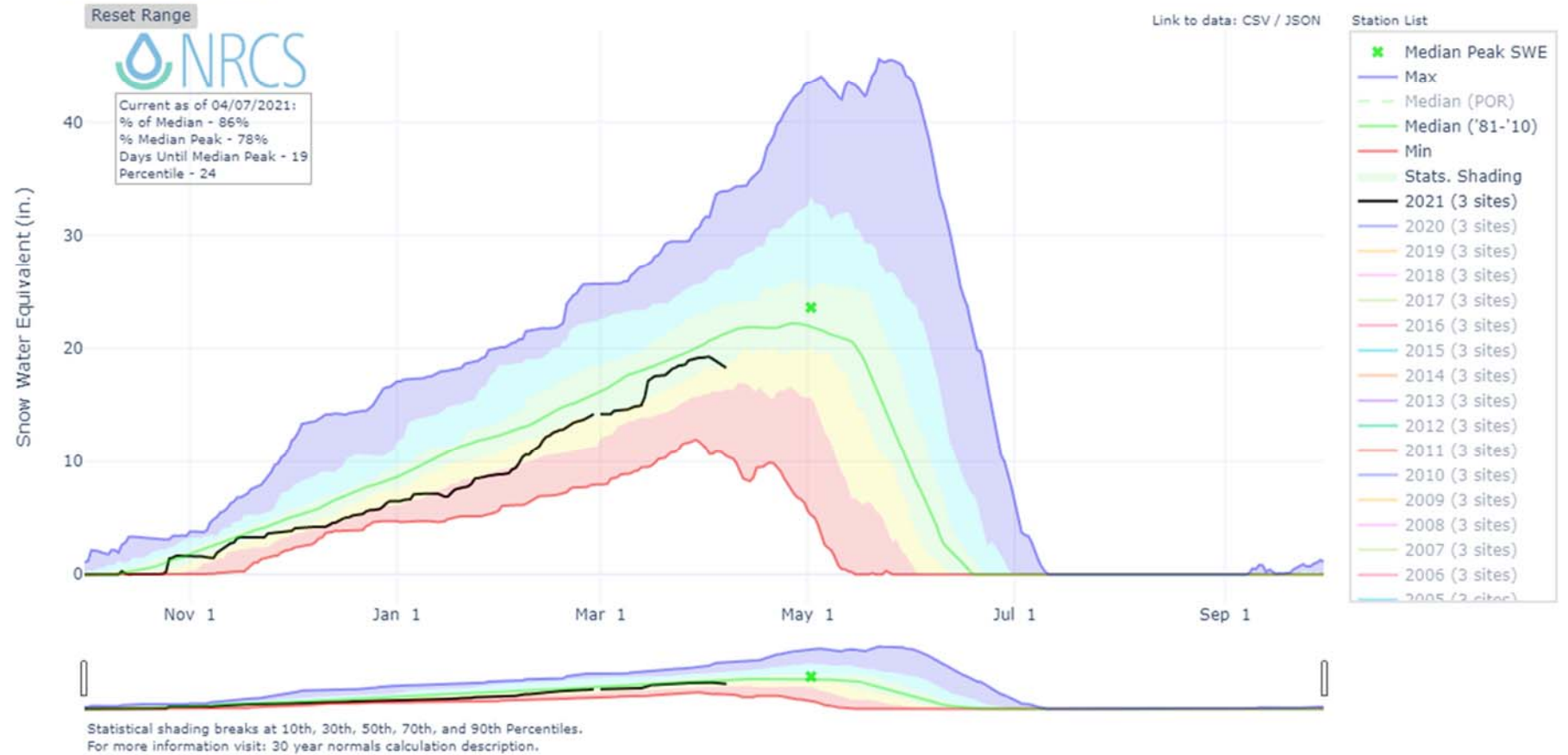
Author:

Brad Pugh
CPC/NOAA



droughtmonitor.unl.edu

SNOW WATER EQUIVALENT IN CACHE LA POUDRE



Snowpack and Streamflow Comparisons April 1, 2021



Snow Water Content

% of Average

Colorado's Statewide Snowpack	93%
Upper Colorado River ⁽¹⁾	88%
South Platte Tributaries ⁽²⁾	104%

Snow-Water Content Comparisons (inches)

Watershed	April 1, 2021 Snow-Water Content			April 1 Comparative Snow-Water Content			
	2021	Average	% Avg	2020	2019	2018	2002
Blue River	12.2	14.0	87%	115%	136%	78%	69%
Upper Colorado River	13.3	15.2	88%	114%	104%	72%	64%
Willow Creek	8.5	10.3	83%	106%	121%	81%	68%
Fraser River	14.1	14.7	96%	121%	116%	75%	59%
Poudre River	13.5	13.8	98%	116%	107%	87%	64%
Big Thompson River	14.8	14.5	102%	122%	109%	68%	61%
St. Vrain River	11.9	10.9	110%	120%	115%	72%	49%
Boulder Creek	12.4	11.5	108%	128%	109%	77%	56%

Apr-Jul Maximum, Minimum and Most Probable Streamflow Forecasts (1000 af)

Watershed	Forecast Minimum	Most Probable	Forecast Maximum	Apr-Jul Avg ⁽³⁾	Most Prob % Average
Blue River	128	191	253	275	69%
Upper Colorado River	133	167	228	220	76%
Willow Creek	15	31	61	47	66%
Fraser River	70	101	131	117	86%
Poudre River	120	199	279	225	88%
Big Thompson River	43	80	118	90	89%
St. Vrain River	44	77	110	88	88%
Boulder Creek	37	52	67	54	96%
South Platte Tributaries	--	408	--	457	89%

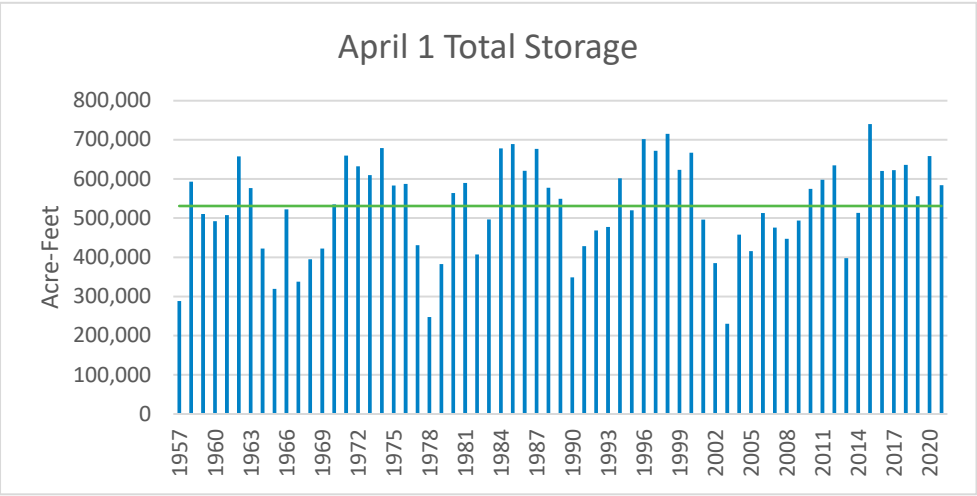
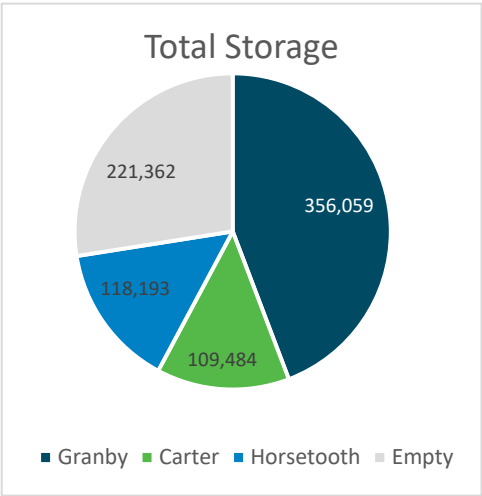
Precipitation within District Boundaries ⁽⁴⁾

	Totals	Average	% Average
March	2.10	1.10	191%
Nov - Mar	3.65	2.92	125%

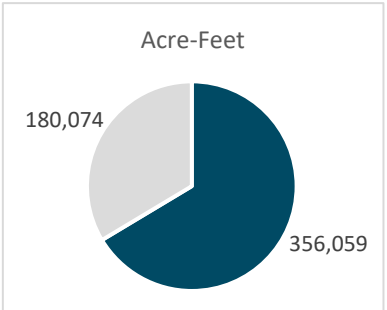
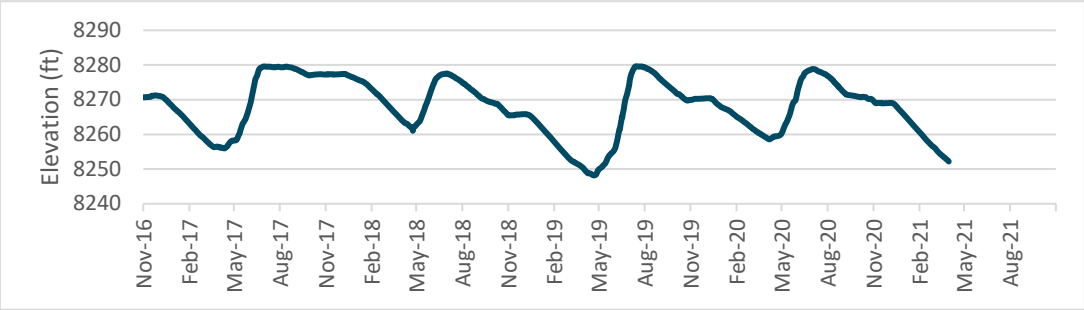
- (1) Includes the Colorado, Willow Creek, Fraser and Blue River Watersheds
- (2) Includes the Poudre, Big Thompson, Saint Vrain and Boulder Creek Watersheds
- (3) Average for the period 1981-2010
- (4) Computed using CoCoRaHS and Northern Water Stations

C-BT Project Storage

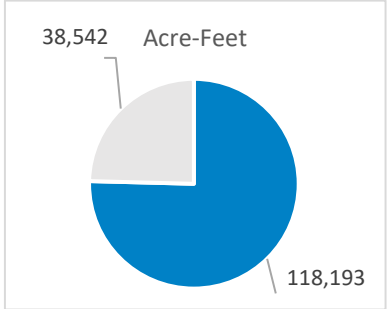
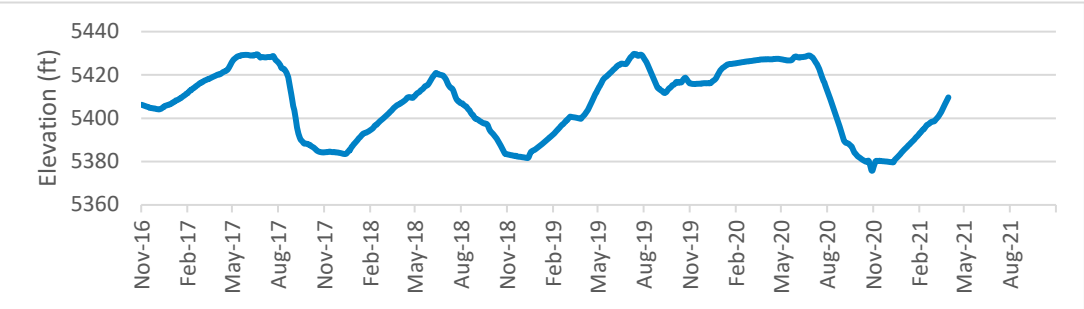
April 1, 2021



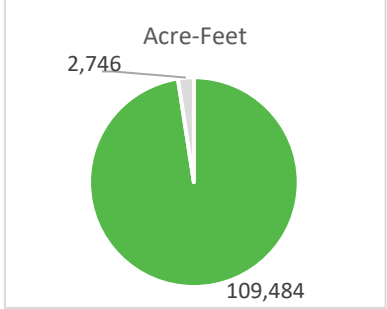
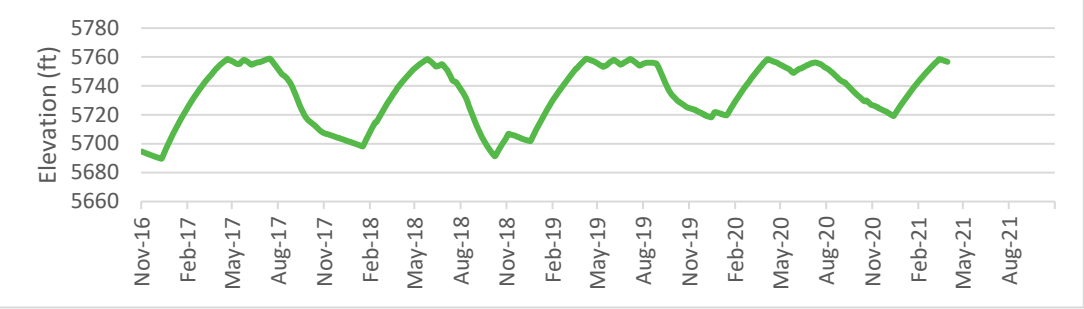
Lake Granby Storage in Lake Granby decreased 25,733 acre-feet last month



Horsetooth Reservoir Storage in Horsetooth Reservoir increased 18,660 acre-feet last month



Carter Lake Storage in Carter Lake increased 3,573 acre-feet last month

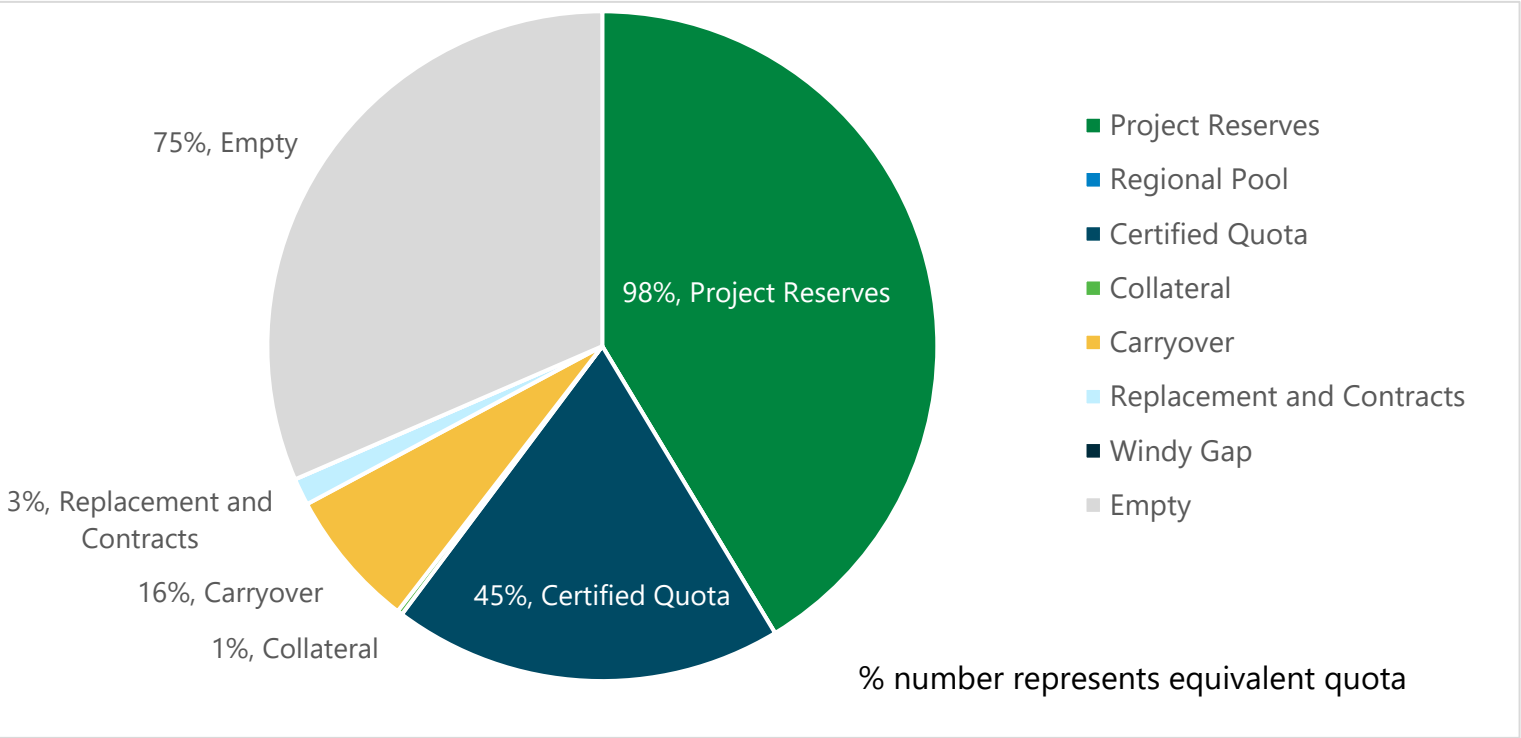


C-BT Project Allocated Water

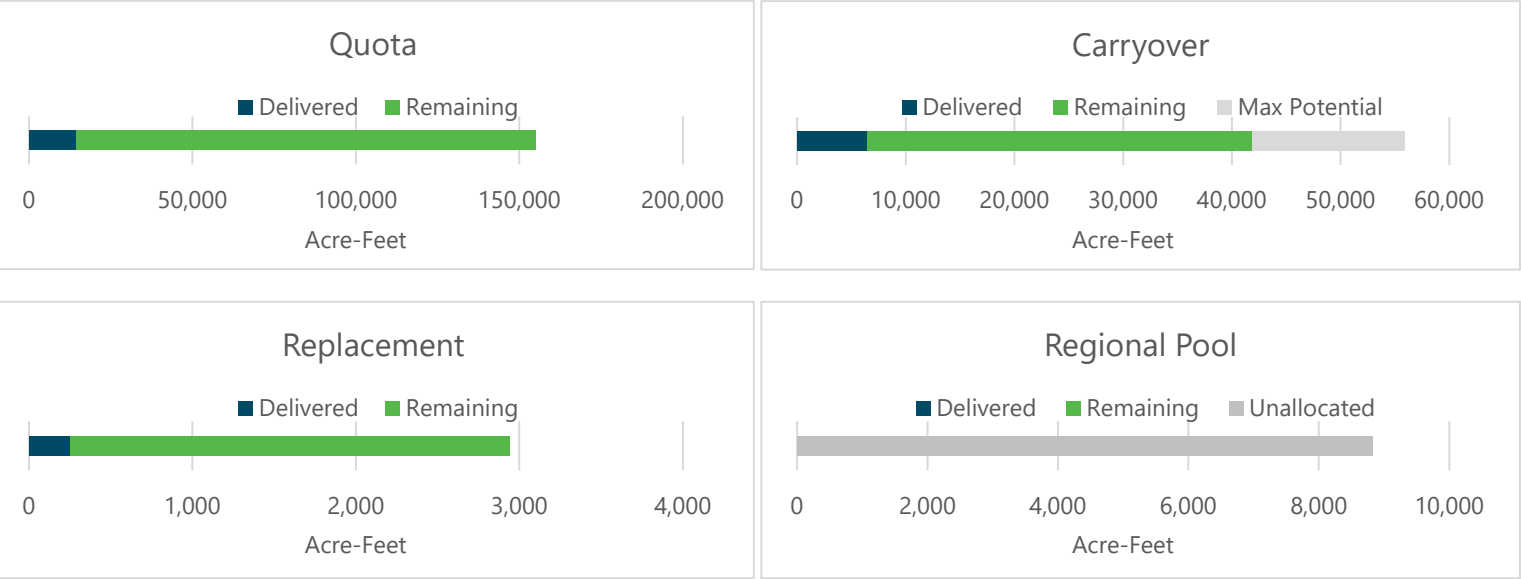
April 1, 2021



C-BT Active Storage



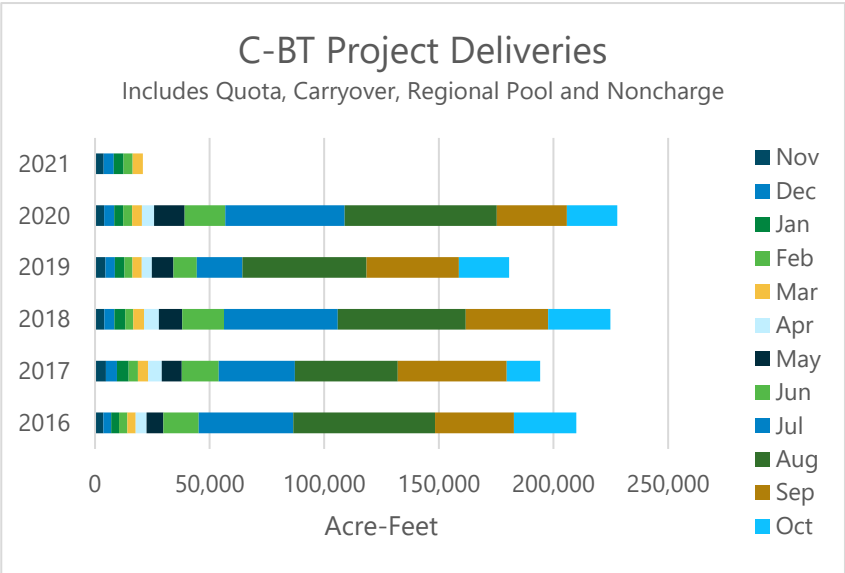
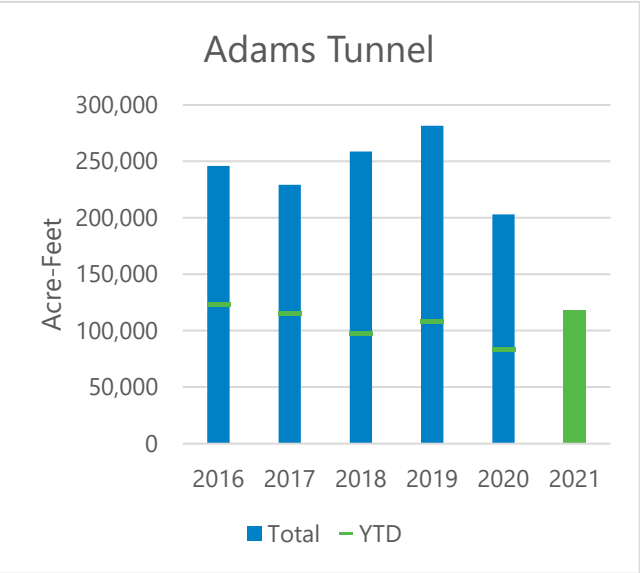
C-BT Delivery Obligations



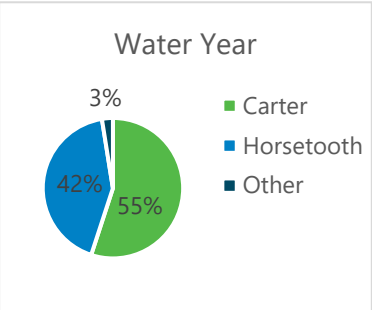
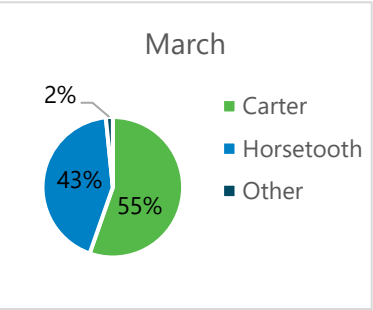
- Notes:**
- 1) Quota - Initial Quota set at 50%
 - 2) Carryover - Carryover will not be certified until April 30. Until that date, the Maximum Potential Carryover is reported for Carryover so that adequate supplies are set aside to fulfill all potential obligations.
 - 3) Regional Pool - Additional water will accrue to the Regional Pool until April 30. The current volume reflects water supplies not eligible for the Carryover Program.

C-BT Project Deliveries

April 1, 2021



Deliveries by Area



Deliveries by Use

