



## MEMO

### Northern Front Range and C-BT Project Snow Pack & Storage Conditions

#### NRCS Colorado SNOTEL Snow Water Equivalent (SWE) Map:

- **Indicates the South Platte Basin is at 86% of Median SWE (1981-2010)**
- Overall Statewide we are currently at 60% of Median SWE

#### Locations of Bear Lake & Lake Irene SNOTEL Sites:

- Bear Lake SNOTEL site is in the upper Big Thompson River Basin
- Lake Irene SNOTEL site is in the upper Colorado River Basin

#### Bear Lake NRCS SNOTEL Site:

- First Graph shows the SWE from October 2017 through January 16, 2018 (red) compared to 2002, 2015, 2016, 2017, and the 30-year Median (1981-2010)
- As of January 15, 2018, the SWE was 5.5 inches
- Second Graph shows the entire snow accumulation and melt-off period from October through mid-June
- 2018 thus far, is trending between the 30-year median SWE and the 2002 drought.
- SWE usually peaks out in April, so we are still fairly early in the snow accumulation season and we could get some major spring snows like what occurred in 2017.

#### Northern Native Supplies Report:

- SWSI – Northern Water Surface Supply Index (consolidates reservoir storage, SWE, and precipitation)
- **SWSI Graph Indicates District 4 (Thompson River Basin) is currently at an index value of +2, or “Above Normal Supply”**
- The map “Departure from Normal Precipitation (in.) – December 2017” shows the watershed above the Northern Front Range, particularly in Rocky National Park area, in a better place compared to the rest of the State.
- The local storage volume of the Thompson River Basin is at 122% of average.

#### Next Two Graphs - NRCS SNOTEL as of January 8, 2018

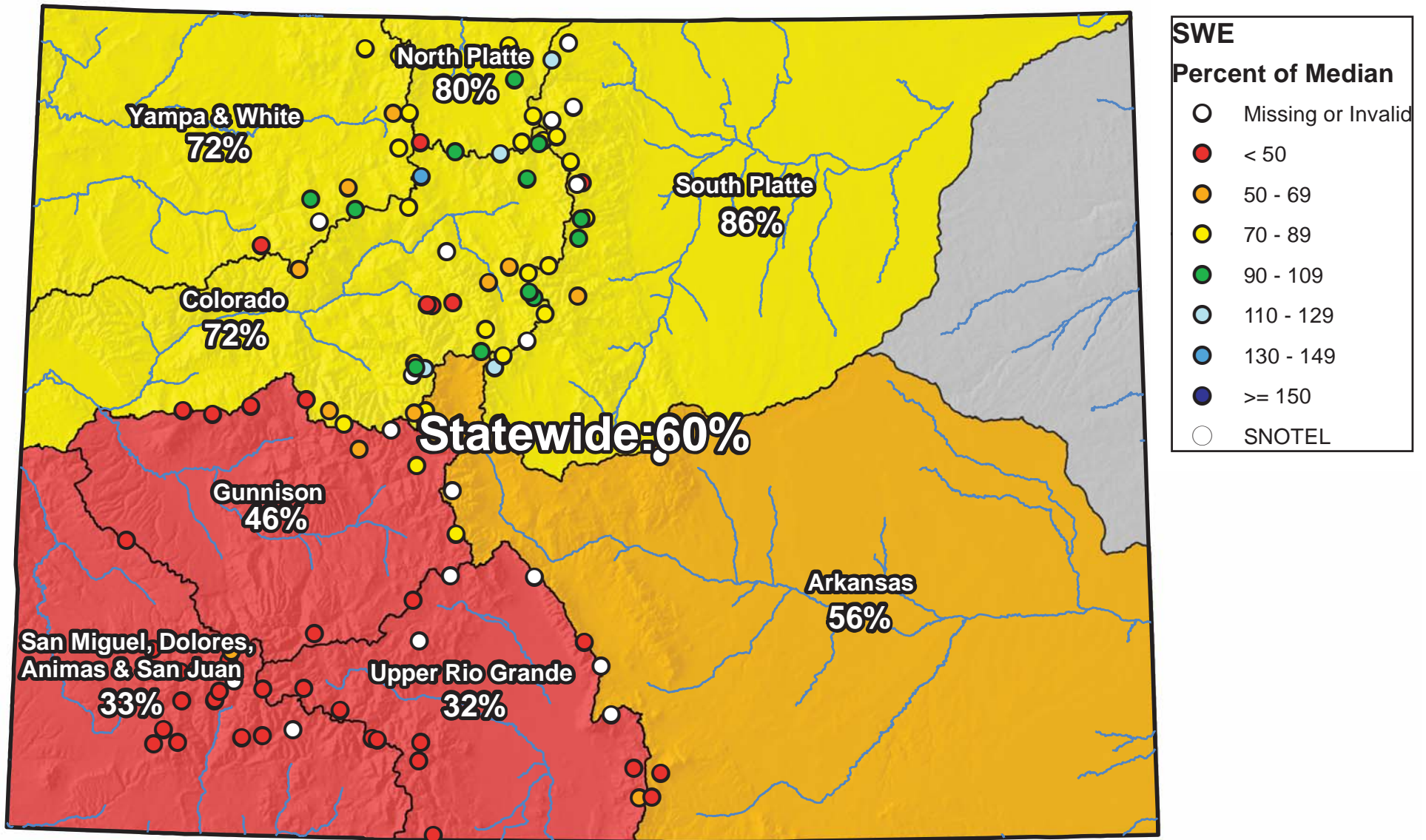
- Lake Irene SWE at 7.9 inches, or 72% of Median
- Bear Lake SWE at 4.5 inches, or 71% of Median

#### Windy Gap Data:

- City of Loveland has ordered 4,000 acre-feet for delivery, but this water has not been delivered or taken yet as end of December 2017.

# Colorado SNOTEL Snow Water Equivalent (SWE) Update Map with Site Data

Current as of Jan 17, 2018

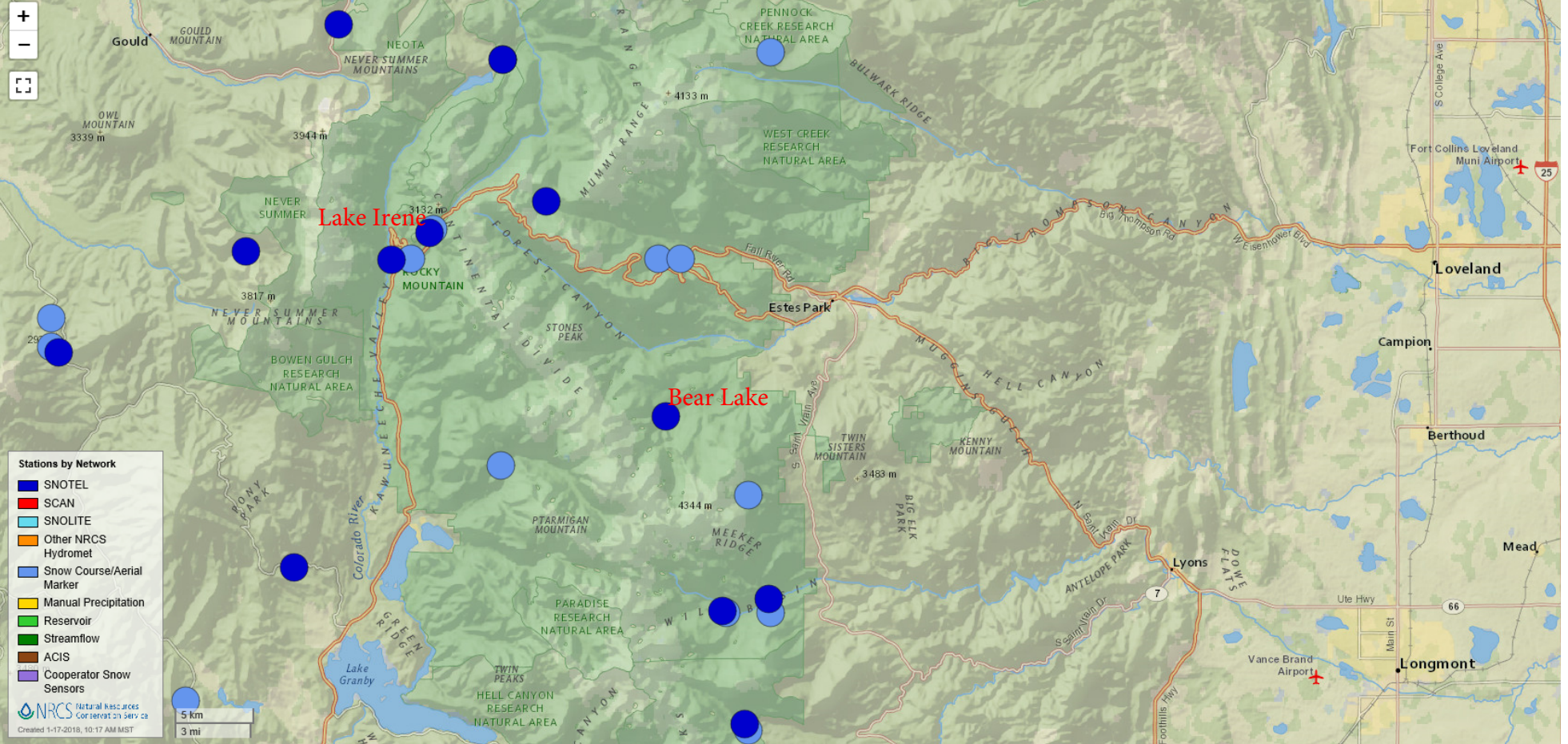


United States Department of Agriculture

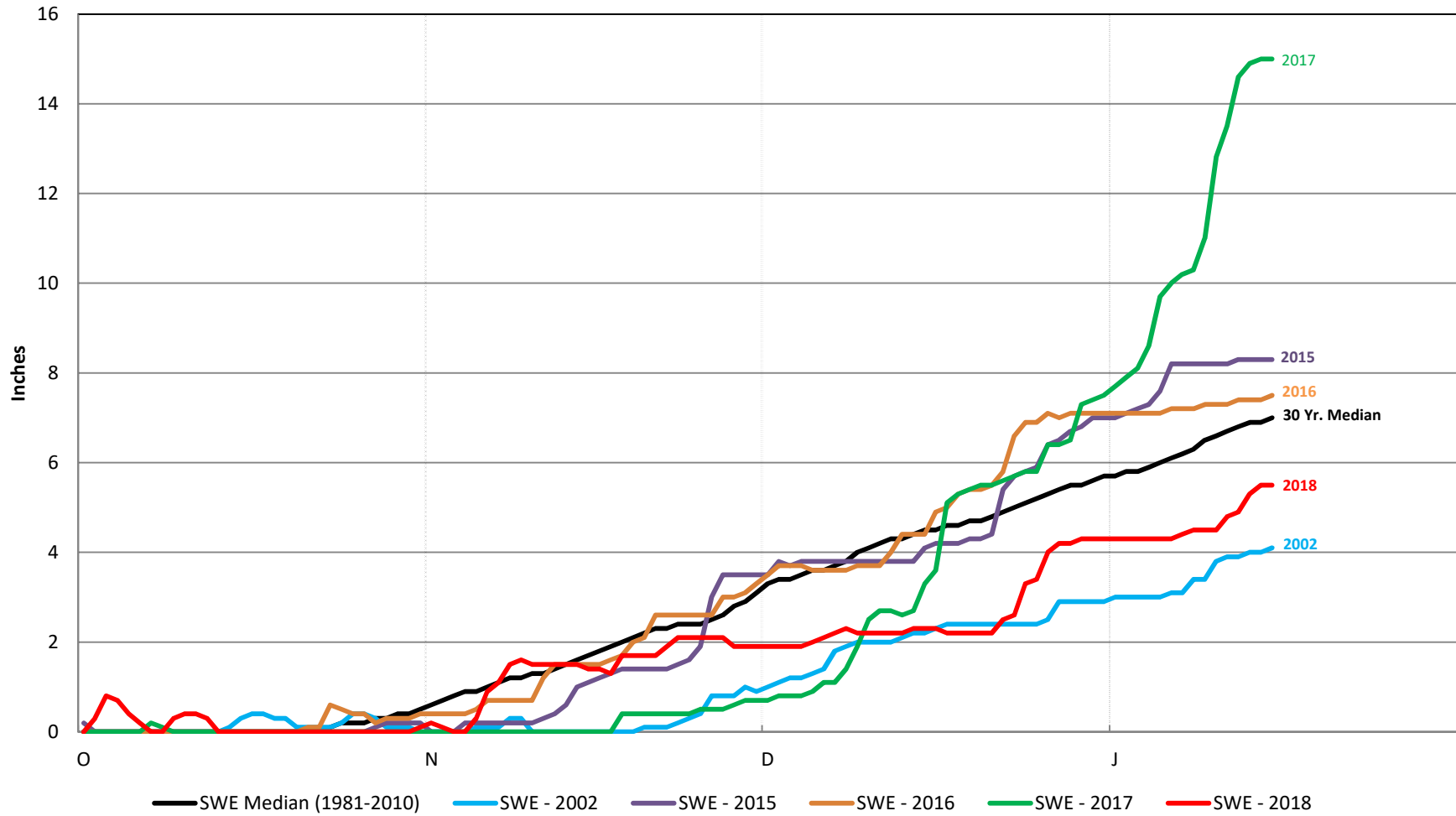
Natural Resources Conservation Service



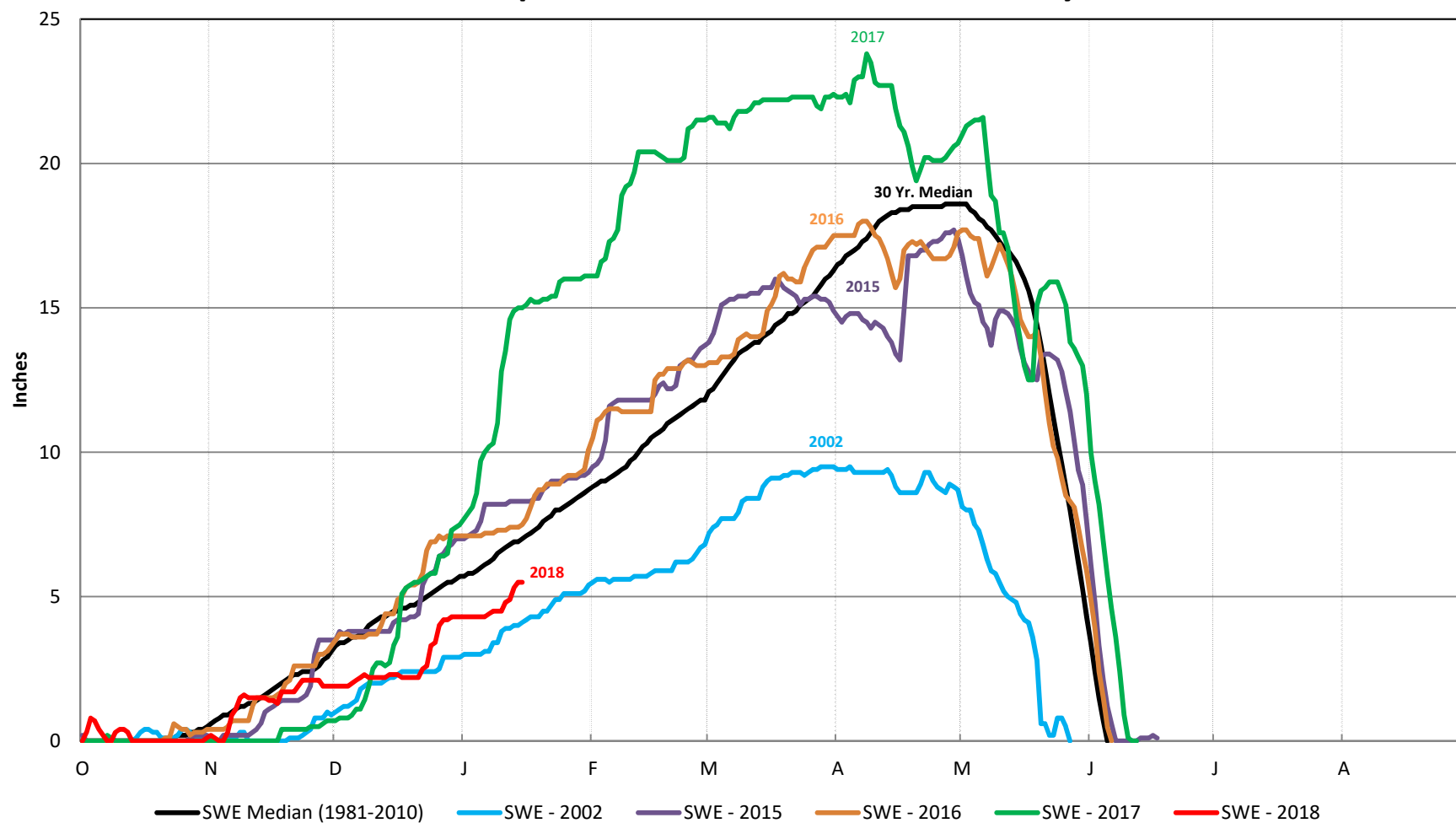
Selected Stations: 2395



# Snow - Water Equivalent at Bear Lake as of January 15, 2018



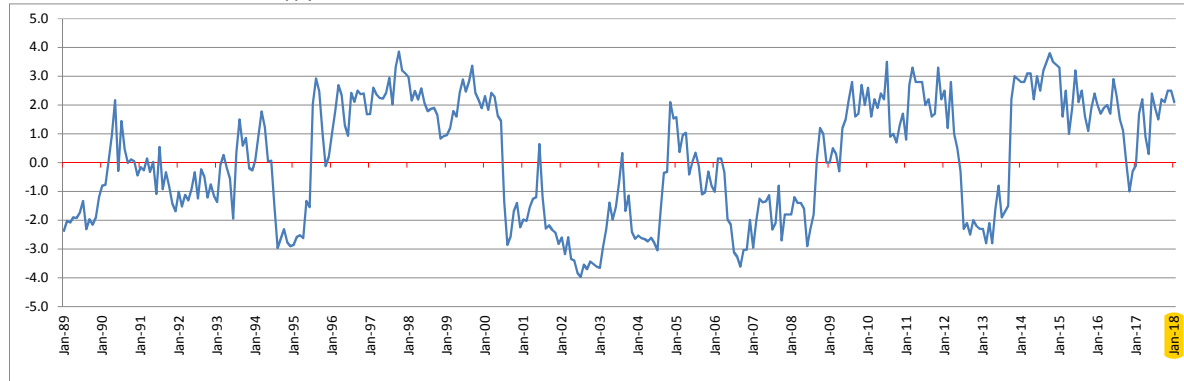
# Snow - Water Equivalent at Bear Lake as of January 15, 2018



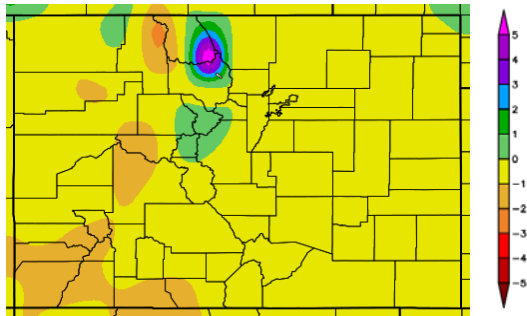
# Native Water Supplies Report

## January 1, 2018

Northern Water Surface Water Supply Index Current Value= 2.50



Departure from Normal Precipitation (in.) - December 2017



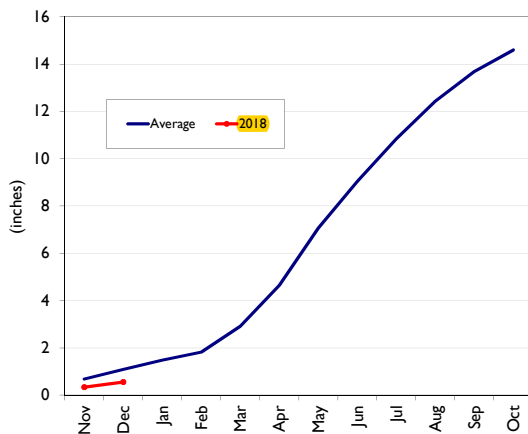
map source: NOAA Regional Climate Center

The Northern Water Surface Water Supply Index (SWSI) consolidates reservoir storage, streamflow (or Snow Water Equivalent during the winter), and precipitation into a single index value which ranges between -4.2 and +4.2.

The SWSI scale can be subjectively described as follows:

SWSI	Designation
+4	Abundant Supply
+2	Above Normal Supply
0	Near Normal
-2	Moderate Drought
-4	Severe Drought

District Mean Areal Precipitation - Cumulative Year to Date



### Local Storage Summary

(acre-feet)	January 1	Average	% Average
Districts 1, 2 & 64 (So Platte)	230,608	190,589	121%
District 3 (Poudre)	158,715	123,102	129%
<b>District 4 (Thompson)</b>	<b>84,345</b>	<b>69,258</b>	<b>122%</b>
District 5 (St. Vrain & Left Hand)	43,762	41,390	106%
District 6 (Boulder Creek)	24,896	21,731	115%
<b>Total Native Storage</b>	<b>542,326</b>	<b>446,070</b>	<b>122%</b>

### December Precipitation Summary

(inches)	Dec	YTD
District Mean Areal Precipitation*	0.21	0.55
<b>Key Northern Water Weather Stations</b>		
Fort Collins	0.15	0.63
Greeley	0.39	0.93
Longmont	0.40	0.98
Fort Morgan	0.14	0.29
Sterling	0.17	0.45

\*computed using CoCoRaHS and Northern Water stations.

# Snow Update

Based on Data from NRCS SNOTEL Sites

1/8/2018

Upper Colorado River Basin						
Station Name	Basin	Elevation (ft)	Snow Water Equivalent (SWE)			
			Current (in)	Last Year (in)	Median (in) <sup>1</sup>	Current as % of Median
Berthoud Summit	Fraser	11,300	6.2	9.3	8.5	73%
Fool Creek	Fraser	11,150	8.8	10.6	--	--
Fremont Pass	Blue	11,400	7	8.7	7.6	92%
Grizzly Peak	Blue	11,100	7	11.5	7.2	97%
High Lonesome	Upper Colorado	10,620	4.7	9.8	--	--
Hoosier Pass	Blue <sup>2</sup>	11,400	6.2	7.2	7.1	87%
Jones Pass	Fraser <sup>2</sup>	10,400	4.7	7.4	6.6	71%
Lake Irene	Upper Colorado	10,700	7.9	12.9	11	72%
Never Summer	Willow Creek <sup>2</sup>	9,540	8.4	10.4	9.8	86%
Phantom Valley	Upper Colorado	9,030	4.6	6.3	4.8	96%
Stillwater Creek	Upper Colorado	8,720	3.5	6.4	3.8	92%
Willow Creek Pass	Willow Creek	9,540	6.6	8.7	5.9	112%

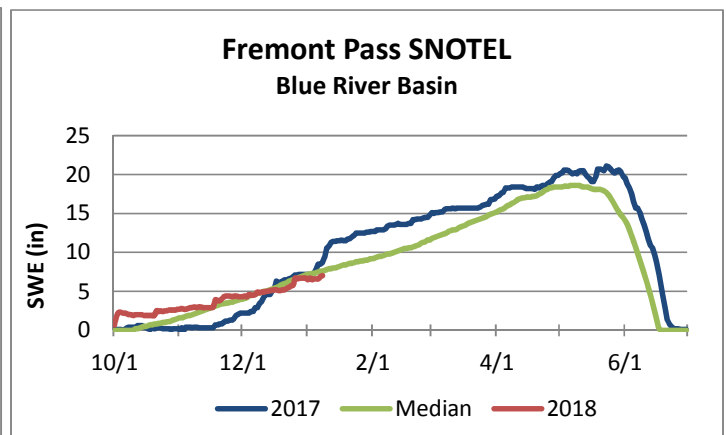
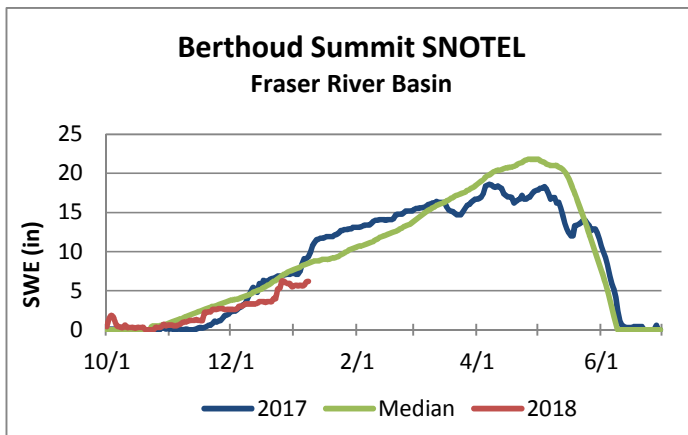
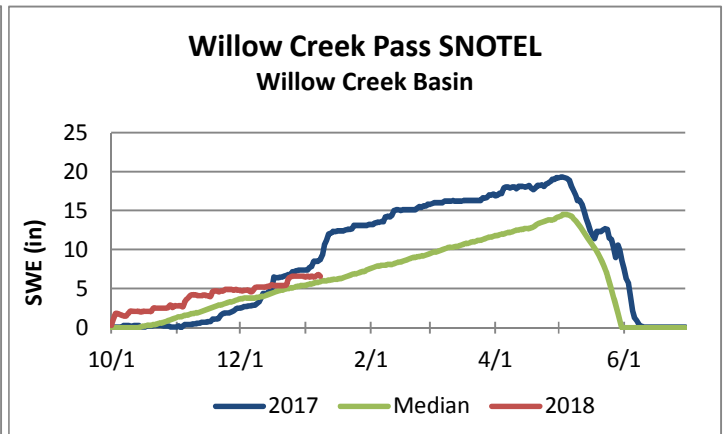
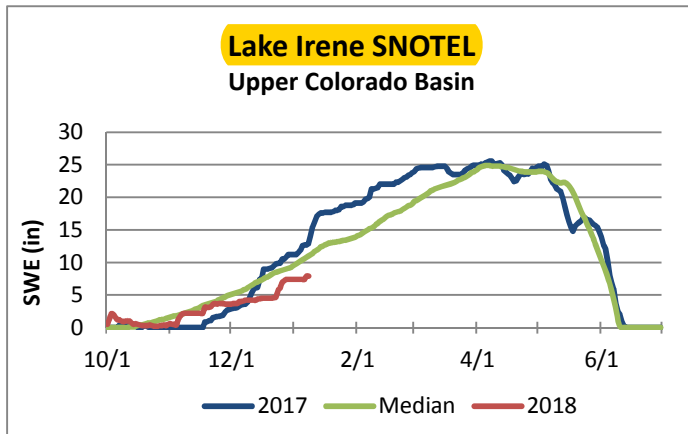
<sup>1</sup> Median Snow Water Equivalent (1981-2010)

<sup>2</sup> SNOTEL stations are outside of, but near the basin.

Notes:

- Fool Creek Station began data collection October 2011; there is not enough data to compute a median.

- High Lonesome Station began data collection October 2013; there is not enough data to compute a median.



# Snow Update

Based on Data from NRCS SNOTEL Sites

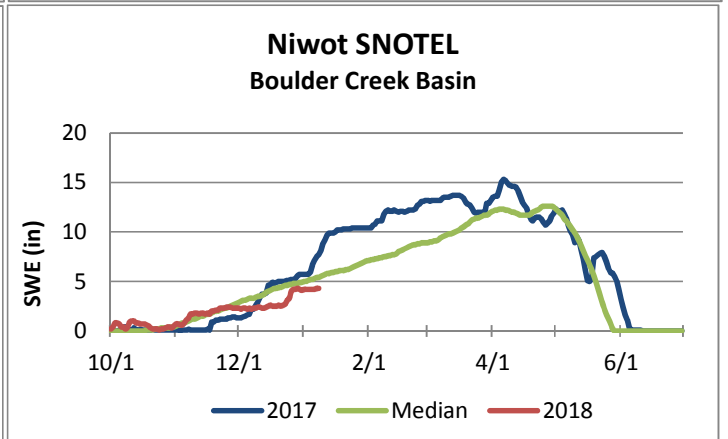
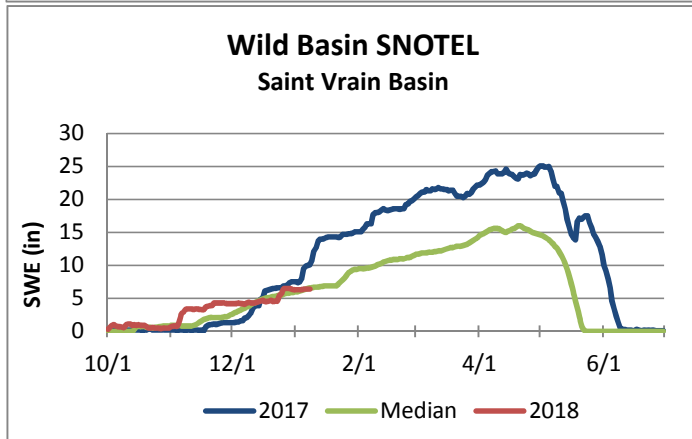
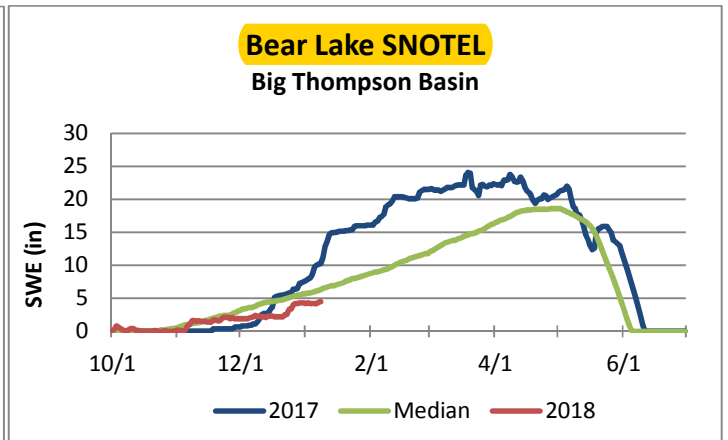
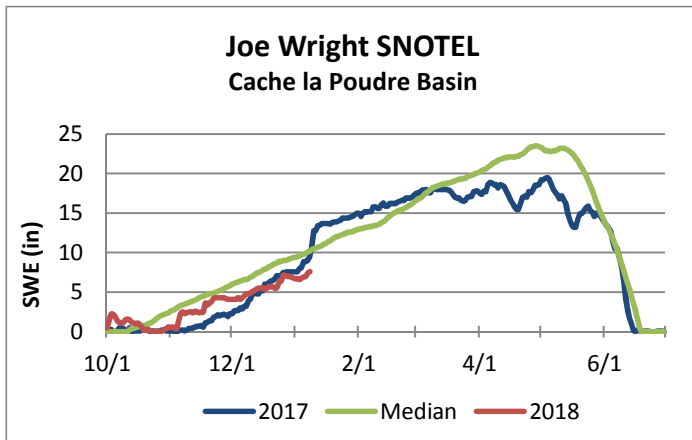
1/8/2018

South Platte River Basin						
Station Name	Basin	Elevation (ft)	Snow Water Equivalent (SWE)			
			Current (in)	Last Year (in)	Median (in) <sup>1</sup>	Current as % of Median
<b>Bear Lake</b>	<b>Big Thompson</b>	<b>9,500</b>	<b>4.5</b>	<b>10.3</b>	<b>6.3</b>	<b>71%</b>
Copeland Lake	Saint Vrain	8,600	1.3	5.4	2.4	54%
Deadman Hill	Cache la Poudre	10,220	10	10.2	7.6	132%
Hourglass Lake	Cache la Poudre	9,380	4	5.9	--	--
Joe Wright	Cache la Poudre	10,120	7.6	9.5	10.2	75%
Lake Eldora	Boulder Creek	9,700	4.6	8.5	5.1	90%
Niwot	Boulder Creek	9,910	4.3	7.7	5.4	80%
University Camp	Boulder Creek	10,300	6.2	9.9	6.4	97%
Wild Basin	Saint Vrain	9,560	6.4	10.1	6.6	97%
Willow Park	Big Thompson	10,700	6.3	8.1	7.6	83%

<sup>1</sup> Median Snow Water Equivalent (1981-2010)

Notes:

-Hourglass Lake Station began data collection October 2008; there is not enough data to compute a median.





# Windy Gap Water Resources Report

## January 1, 2018

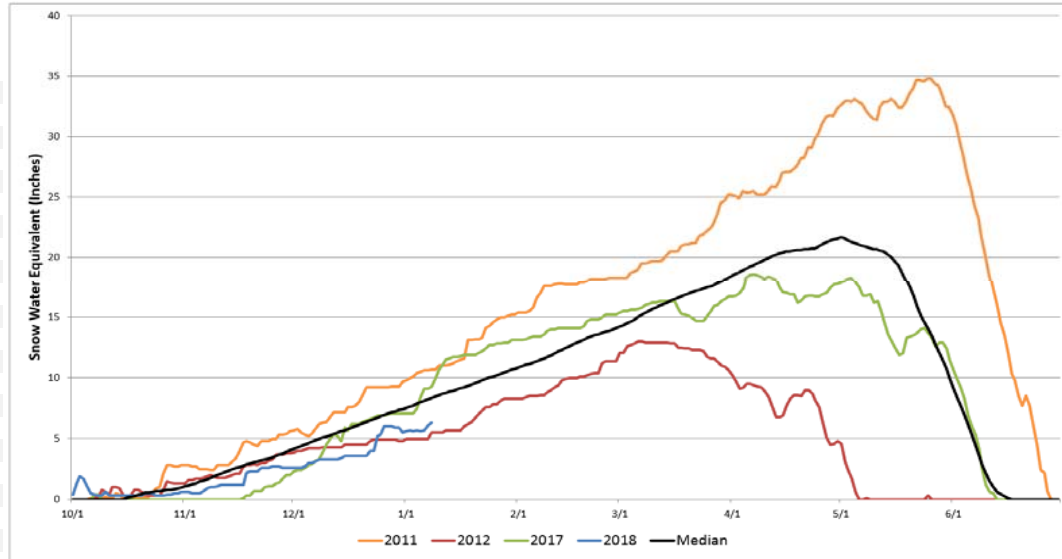


all values in acre-feet

### Windy Gap Deliveries: Oct 2017 - Dec 2017

	Order	Delivered WY 2018
Boulder, City of	700	-
Broomfield, City of	5,600	992
Central Weld County Water District	100	-
Erie, Town of	2,000	378
Estes Park, Town of	300	5
Evans, Town of	-	-
Ft Lupton, City of	300	178
Grand Valley Water Users Association	-	-
Greeley, City of	5,200	-
Lafayette, City of	300	-
Little Thompson WD	60	-
Longmont, City of	1,500	1,165
Louisville, City of	600	-
<b>Loveland, City of</b>	<b>4,000</b>	<b>-</b>
Middle Park WCD	3,000	171
Platte River Power Authority	7,800	77
Ft Collins (Anheuser Busch)	-	-
Ft Collins, City of	-	672
Superior Metropolitan District	1,500	42
Water Supply & Storage	-	-
<b>Total</b>	<b>32,960</b>	<b>3,680</b>

### Berthoud Summit SNOTEL



all values in acre-feet

### Windy Gap: Projected Account Balances

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Beginning Balance- MPWCD	0	0	0	0	0	0	0	2,470	2,829	2,829	2,829	2,059	
Beginning Balance- Others	0	0	-863	-2,563	-3,463	-4,168	-5,068	-5,918	15,059	25,900	24,037	21,490	
Unallocated	0	0	0	0	0	0	0	2,470	25,080	38,095	38,095	38,095	
Allocated	0	0	0	0	0	0	0	0	0	0	0	0	
Use - MPWCD	50	121	0	0	0	0	0	0	0	0	770	665	1,606
Use - Others	947	863	1,700	900	705	900	850	1,210	2,065	1,770	2,420	2,340	16,670
Delivery Shrink	0	0	0	0	0	0	0	-64	-109	-93	-127	-123	-516
Net Quotas and Transfers*	0	0	0	0	0	0	0	0	0	0	0	0	0
Unallocated	0	0	0	0	0	0	0	0	0	0	0	0	0
Allocated	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping	0	0	0	0	0	0	2,600	23,800	13,700	0	0	0	40,100
Pump Shrink	0	0	0	0	0	0	-130	-1,190	-685	0	0	0	-2,005
Net Pumping	0	0	0	0	0	0	2,470	22,610	13,015	0	0	0	38,095
Account Shrink (Mar 31)	0	0	0	0	0	0	0	0	0	0	0	0	0
Unallocated	0	0	0	0	0	0	0	0	0	0	0	0	0
Allocated	0	0	0	0	0	0	0	0	0	0	0	0	0
Spill	0	0	0	0	0	0	0	0	0	0	0	0	0
Rounding Adjustments	0	0	0	0	0	0	0	0	0	0	0	0	0
Collateral Used	947	0	0	0	0	0	0	0	0	0	0	0	947
Ending Balance - MPWCD	0	0	0	0	0	0	2,470	2,829	2,829	2,829	2,059	1,394	
Ending Balance - Others	0	-863	-2,563	-3,463	-4,168	-5,068	-5,918	15,059	25,900	24,037	21,490	19,026	
Ending Balance - Total	0	-863	-2,563	-3,463	-4,168	-5,068	-3,448	17,888	28,730	26,866	23,549	20,421	