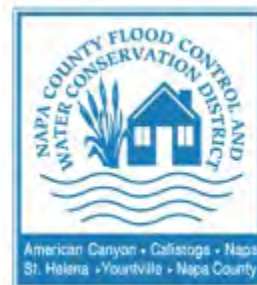


# 2021 Napa County Water Supply Outlook



Christopher Silke, P.E.  
Engineering Manager-Water Resources



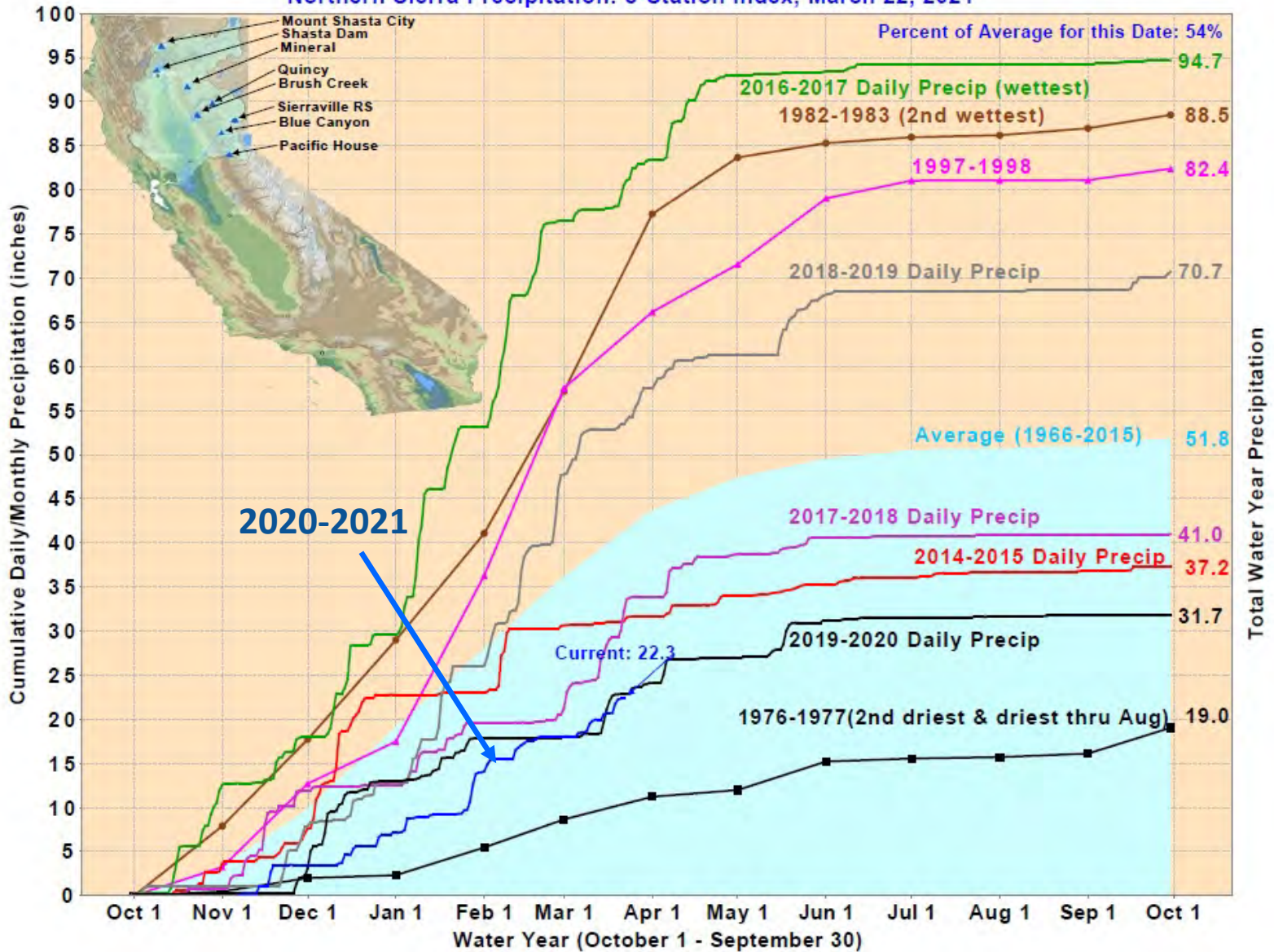
**It's A Dry Year.  
Let's Work Together To  
Save Our Water.**



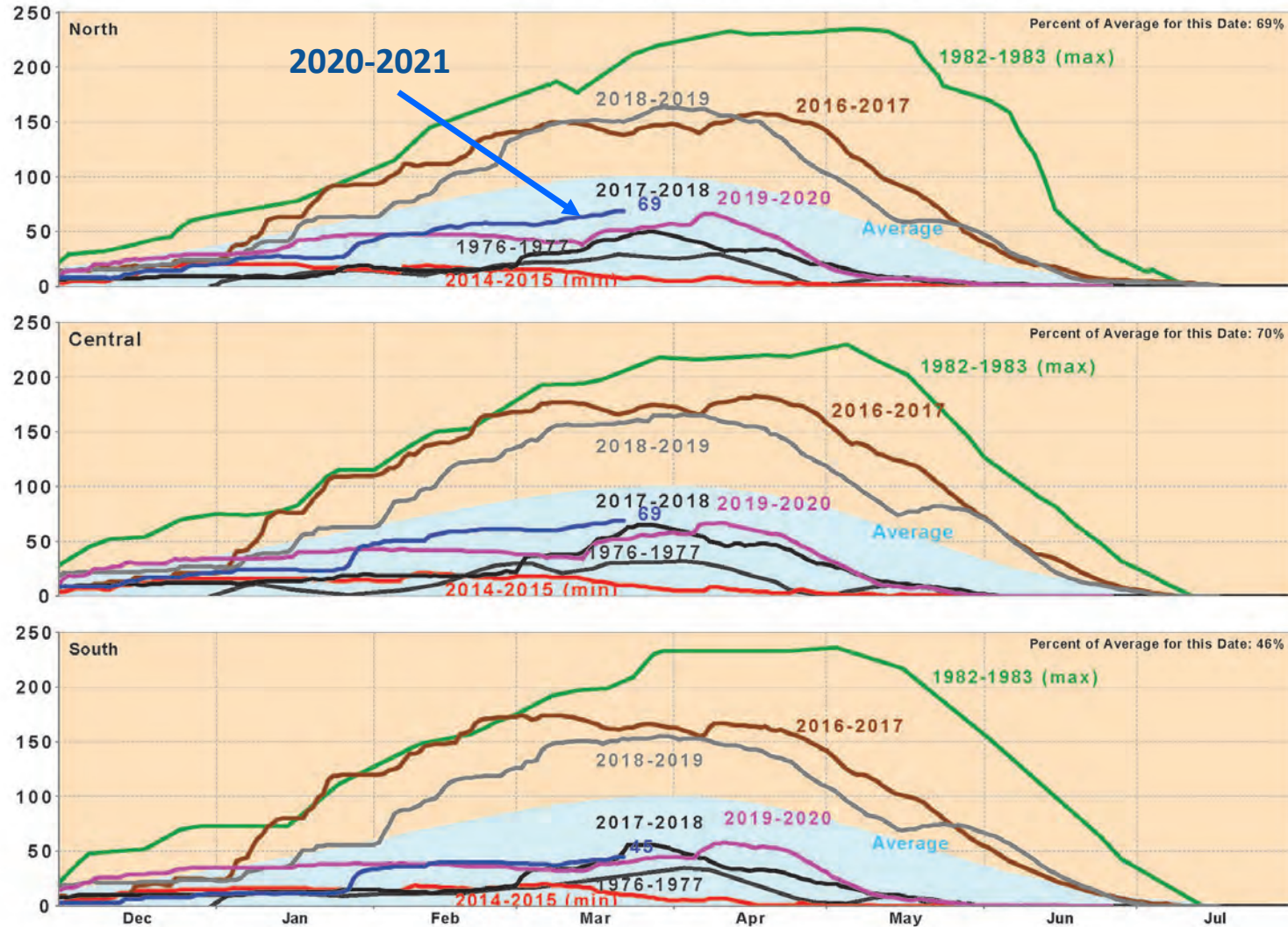
# Presentation Topics

- Climate & Hydrology Statistics
- State Water Project Update
- Dry Year Water Supply Rebalance
- Countywide Reservoir Levels & Storage

# Northern Sierra Precipitation: 8-Station Index, March 22, 2021

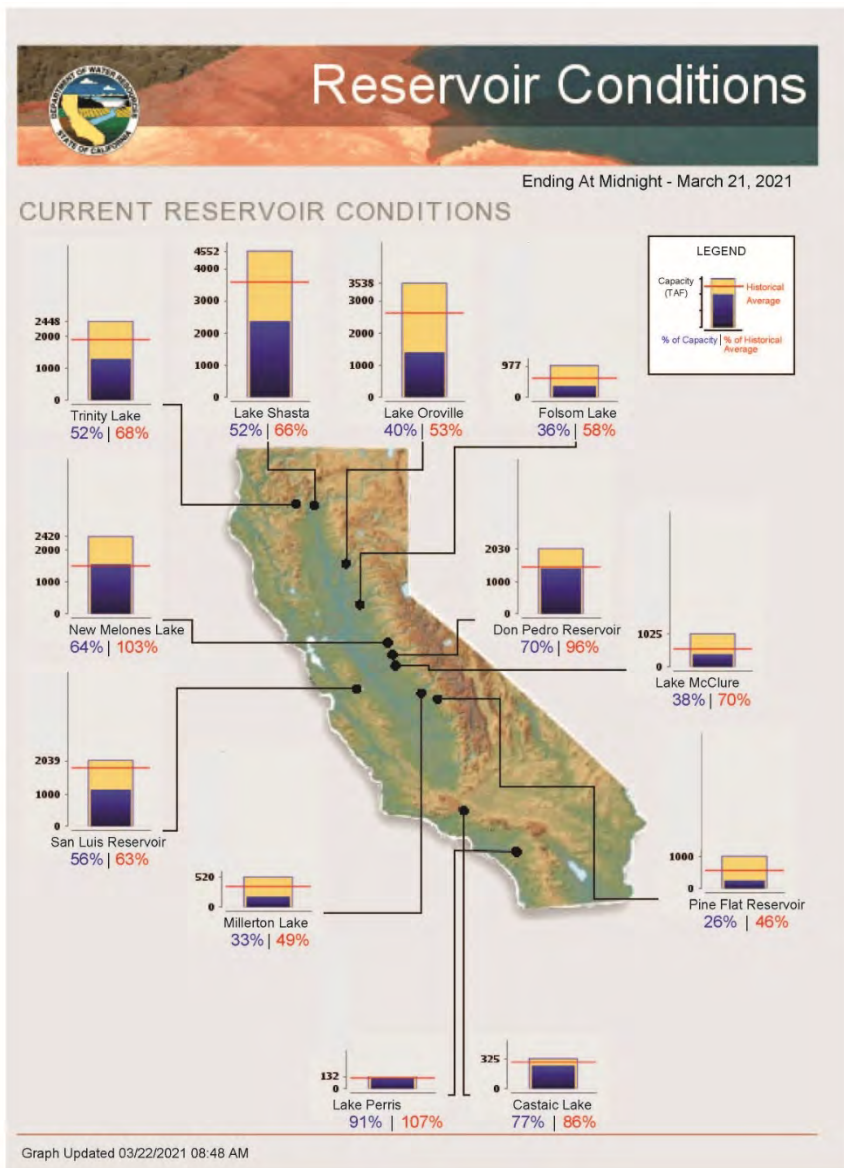


# California Snow Water Content, March 22, 2021, Percent of April 1 Average



Statewide Percent of April 1: 63%

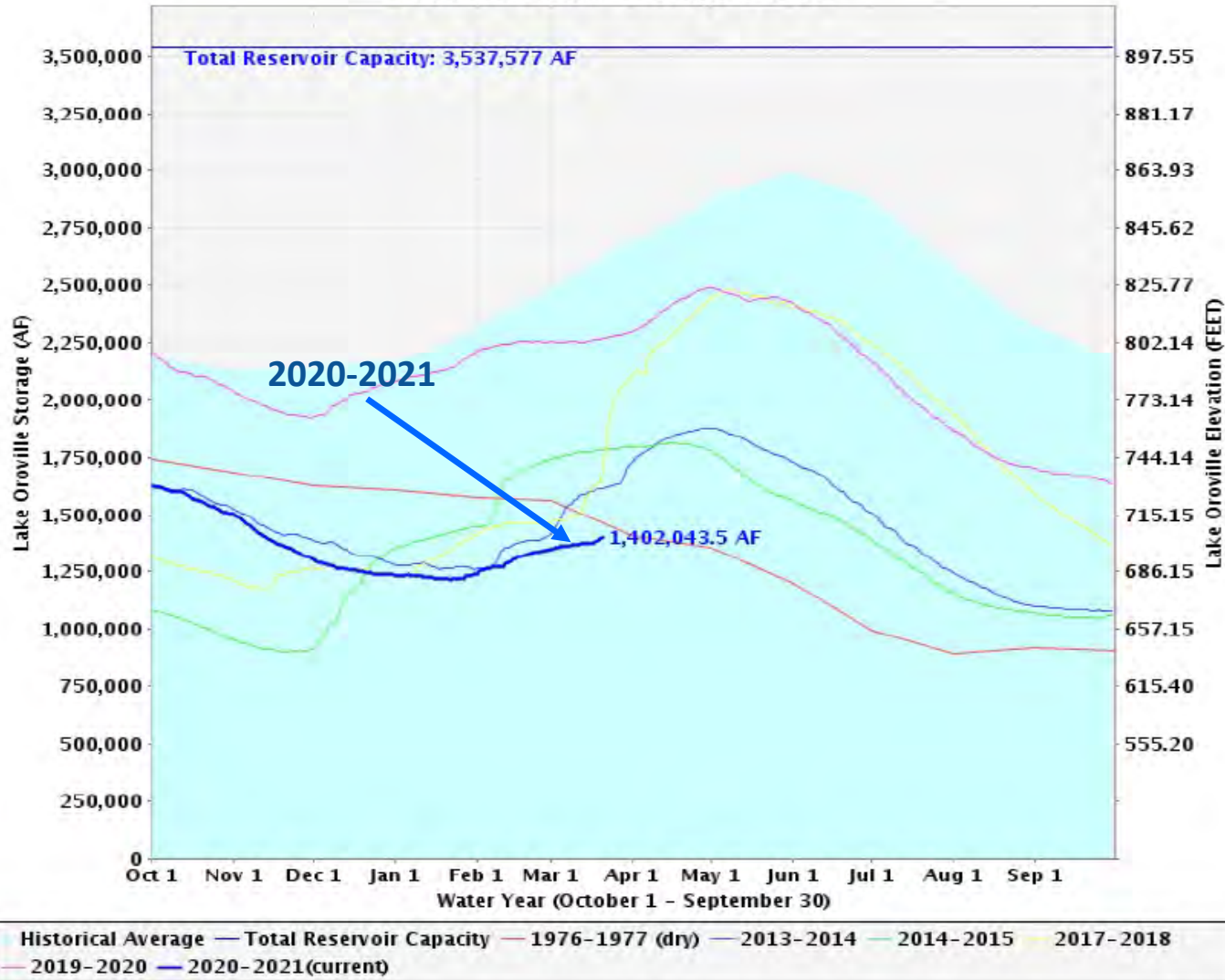
Statewide Percent of Average for Date: 64%



## NorCal Reservoirs

- Below Historical Averages
- Oroville < 50% Capacity
- 900 kAF Fall Storage Goal
- BiOps & ITP Requirements

## Lake Oroville Storage Levels



2021 STATE WATER PROJECT ALLOCATION  
(ACRE-FEET)

| SWP CONTRACTORS               | TABLE A          | INITIAL REQUEST  | APPROVED ALLOCATION | PERCENT INITIAL REQUEST APPROVED |
|-------------------------------|------------------|------------------|---------------------|----------------------------------|
|                               | (1)              | (2)              | (3)                 | (3)/(2)<br>(4)                   |
| <b>FEATHER RIVER</b>          |                  |                  |                     |                                  |
| County of Butte               | 27,500           | 27,500           | 3,000               | 11%                              |
| Plumas County FC&WCD          | 2,700            | 2,700            | 135                 | 5%                               |
| City of Yuba City             | 9,600            | 9,600            | 480                 | 5%                               |
| Subtotal                      | 39,800           | 39,800           | 3,615               |                                  |
| <b>NORTH BAY</b>              |                  |                  |                     |                                  |
| Napa County FC&WCD            | 29,025           | 29,025           | 1,451               | 5%                               |
| Solano County WA              | 47,756           | 47,756           | 2,388               | 5%                               |
| Subtotal                      | 76,781           | 76,781           | 3,839               |                                  |
| <b>SOUTH BAY</b>              |                  |                  |                     |                                  |
| Alameda County FC&WCD, Zone 7 | 80,619           | 80,619           | 4,031               | 5%                               |
| Alameda County WD             | 42,000           | 42,000           | 2,100               | 5%                               |
| Santa Clara Valley WD         | 100,000          | 100,000          | 5,000               | 5%                               |
| Subtotal                      | 222,619          | 222,619          | 11,131              |                                  |
| <b>SAN JOAQUIN VALLEY</b>     |                  |                  |                     |                                  |
| Oak Flat WD                   | 5,700            | 5,700            | 285                 | 5%                               |
| County of Kings               | 9,305            | 9,305            | 465                 | 5%                               |
| Dudley Ridge WD               | 41,350           | 41,350           | 2,068               | 5%                               |
| Empire West Side ID           | 3,000            | 3,000            | 150                 | 5%                               |
| Kern County WA                | 982,730          | 982,730          | 49,137              | 5%                               |
| Tulare Lake Basin WSD         | 87,471           | 87,471           | 4,374               | 5%                               |
| Subtotal                      | 1,129,556        | 1,129,556        | 56,479              |                                  |
| <b>CENTRAL COASTAL</b>        |                  |                  |                     |                                  |
| San Luis Obispo County FC&WCD | 25,000           | 25,000           | 1,250               | 5%                               |
| Santa Barbara County FC&WCD   | 45,486           | 45,486           | 2,274               | 5%                               |
| Subtotal                      | 70,486           | 70,486           | 3,524               |                                  |
| <b>SOUTHERN CALIFORNIA</b>    |                  |                  |                     |                                  |
| Antelope Valley-East Kern WA  | 144,844          | 144,844          | 7,242               | 5%                               |
| Santa Clarita Valley WA       | 95,200           | 95,200           | 4,760               | 5%                               |
| Coachella Valley WD           | 138,350          | 138,350          | 6,918               | 5%                               |
| Crestline-Lake Arrowhead WA   | 5,800            | 5,800            | 290                 | 5%                               |
| Desert WA                     | 55,750           | 55,750           | 2,788               | 5%                               |
| Little Rock Creek ID          | 2,300            | 2,300            | 115                 | 5%                               |
| Metropolitan WDSC             | 1,911,500        | 1,911,500        | 95,575              | 5%                               |
| Mojave WA                     | 89,800           | 89,800           | 4,490               | 5%                               |
| Palm Dale WD                  | 21,300           | 21,300           | 1,065               | 5%                               |
| San Bernardino Valley MWD     | 102,600          | 102,600          | 5,130               | 5%                               |
| San Gabriel Valley MWD        | 28,800           | 28,800           | 1,440               | 5%                               |
| San Geronimo Pass WA          | 17,300           | 17,300           | 865                 | 5%                               |
| Ventura County WPD            | 20,000           | 20,000           | 1,000               | 5%                               |
| Subtotal                      | 2,633,544        | 2,633,544        | 131,678             |                                  |
| <b>TOTAL</b>                  | <b>4,172,786</b> | <b>4,172,786</b> | <b>210,266</b>      |                                  |

## DWR Table A Allocation

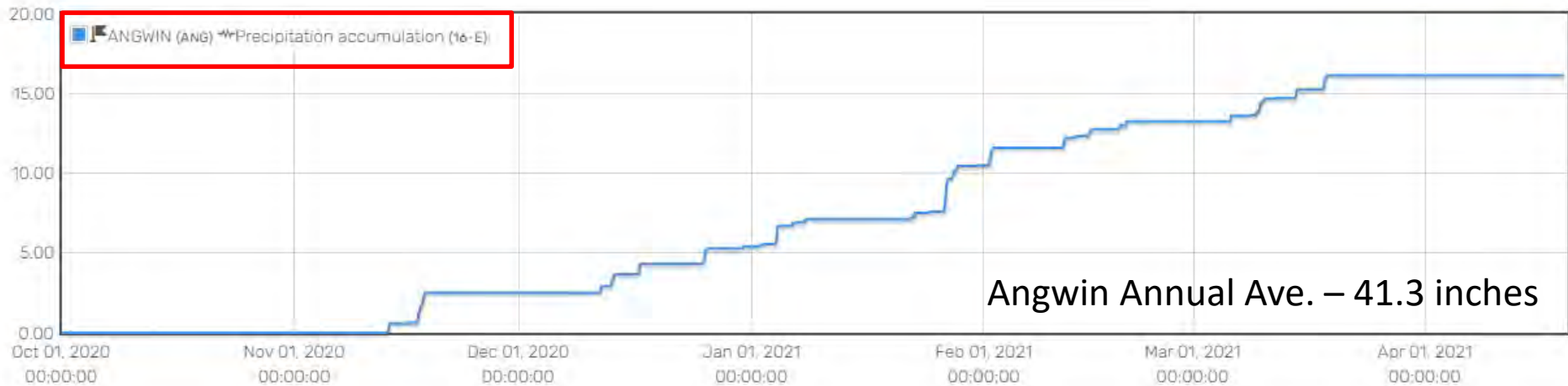
- Napa County FCD – 5%
- NOD Increment – 0%
- NBA Delivery – 12 kAF/yr
- Water Usage >> Allocation



## Dry Year Water Supply Rebalance 12,013 AF

- Table A Allocation – 1,451 AF
- Prior Year Carryover – 4,853 AF
- Groundwater Subs (DYTP) – 190 AF
- Yuba Accord Components 1 to 3 – 519 AF
- Advanced Table A – up to 5,000 AF

# Regional Climate Data Snapshot



| Site                   | Sensor                         | Group | 15 Min | 30 Min | 1 Hour | 3 Hour | 6 Hour | 12 Hour | 24 Hour | 7 Days | 30 Days |
|------------------------|--------------------------------|-------|--------|--------|--------|--------|--------|---------|---------|--------|---------|
| ANGWIN                 | Precipitation increment (16-E) | All   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00    | 0.00   | 0.00    |
| City of Napa Corp Yard | Precipitation increment (2271) | All   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00    | 0.00   | 0.00    |
| Hopper Creek at Hwy 29 | Precipitation increment (0)    | All   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00    | 0.00   | 0.00    |
| Lake Hennessey         | Precipitation increment (2334) | All   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00    | 0.00   | 0.00    |

# Lake Berryessa Elevation

Lake Berryessa - Water Surface Elevation - 90 Day  
Lake Spills @ 440 ft. (1002.502)

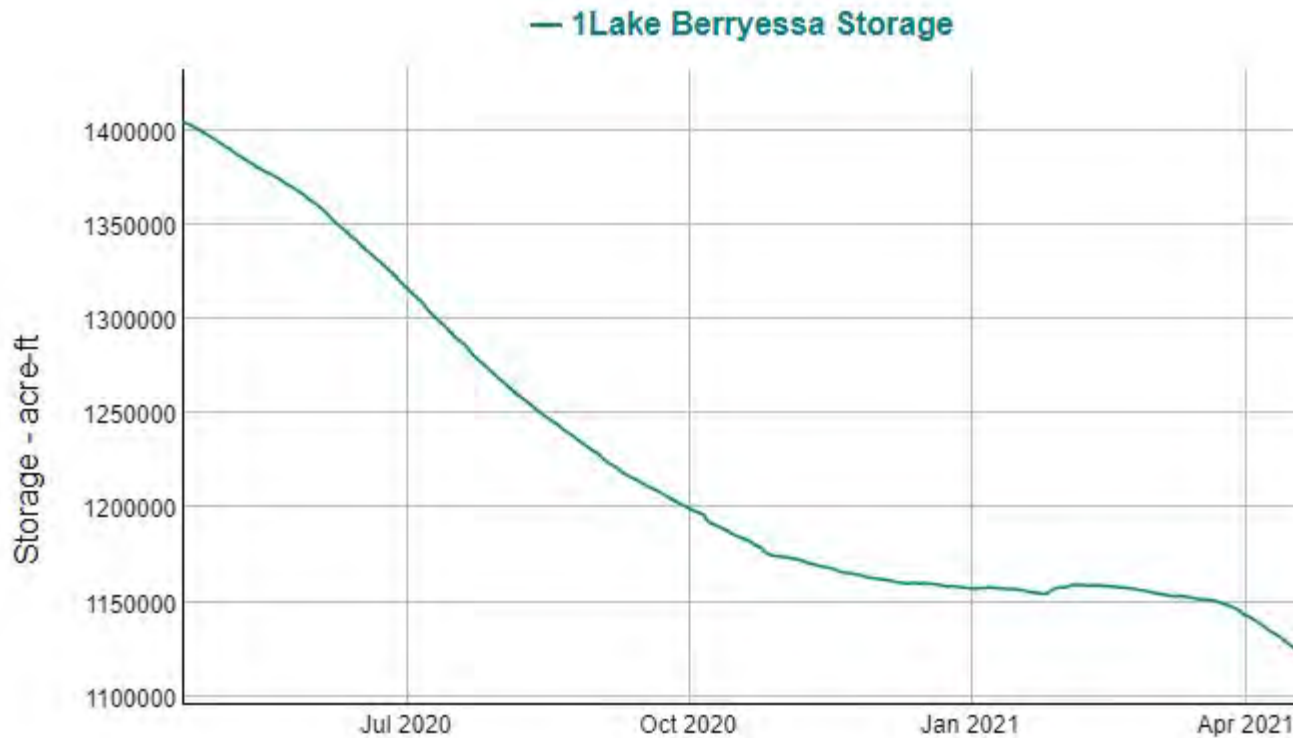
2021/04/19 01:00: 1Lake Berryessa WSE: 415.8



2014 / 2015 Dry Years Low Elevation – 395.8 ft

# Lake Berryessa Storage

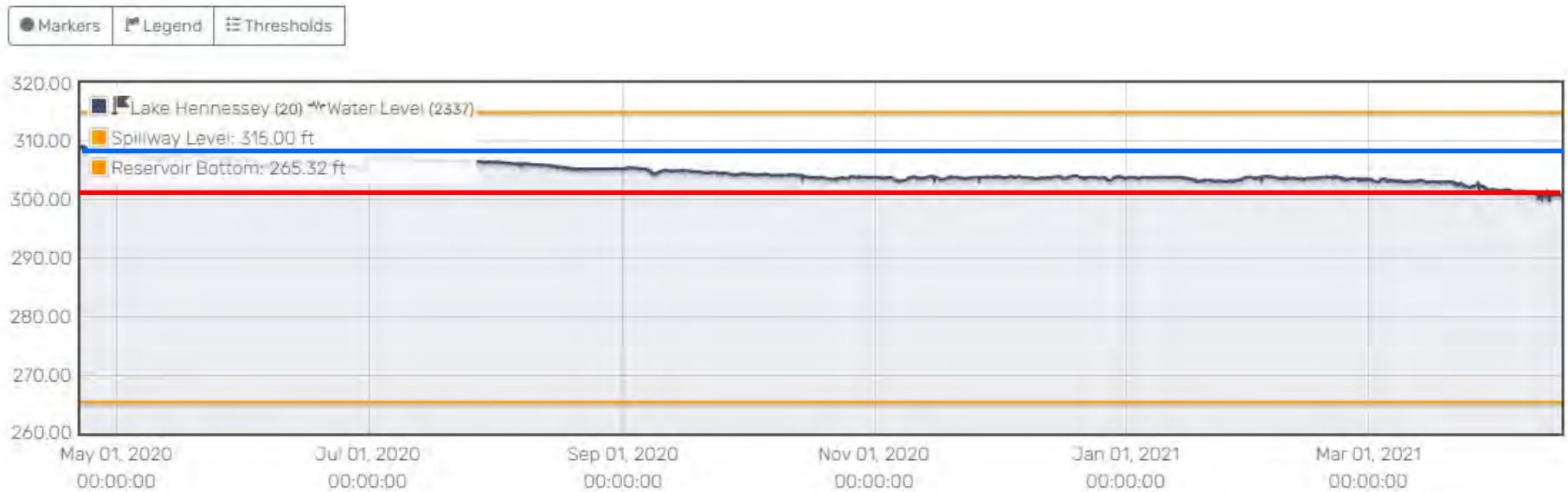
Lake Berryessa - Storage - 1/2 Year  
(1002.504)



Full Pond Volume – 1,602,000 AF

70% Capacity April 20, 2021

# Lake Hennessey Elevation



Full Pond Volume – 31,000 AF

November 2014 Dry Year Elevation Low – 301 ft

October 2015 Dry Year Elevation Low – 308 ft

# Milliken Reservoir

Milliken Reservoir Storage Volume in Acre-Feet (AF) by Elevation (feet)

1 AF = 325,851 Gallons

| Elevation (feet) | 0.90  | 0.80  | 0.70  | 0.60  | 0.50  | 0.40  | 0.30  | 0.20  | 0.10  | 0.00  | Elevation (feet) | Percent of Storage Capacity at each 1.0 foot |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|----------------------------------------------|
| 923.00           |       |       |       |       |       |       |       |       |       | 1,986 | 923.00           | 142.88%                                      |
| 922.00           | 1,982 | 1,978 | 1,974 | 1,970 | 1,966 | 1,961 | 1,957 | 1,953 | 1,949 | 1,945 | 922.00           | 139.93%                                      |
| 921.00           | 1,941 | 1,937 | 1,933 | 1,929 | 1,925 | 1,920 | 1,916 | 1,912 | 1,908 | 1,904 | 921.00           | 136.98%                                      |
| 920.00           | 1,900 | 1,896 | 1,892 | 1,888 | 1,884 | 1,879 | 1,875 | 1,871 | 1,867 | 1,863 | 920.00           | 134.03%                                      |
| 919.00           | 1,860 | 1,856 | 1,852 | 1,848 | 1,844 | 1,840 | 1,836 | 1,833 | 1,829 | 1,825 | 919.00           | 131.29%                                      |
| 918.00           | 1,821 | 1,818 | 1,814 | 1,810 | 1,806 | 1,802 | 1,798 | 1,795 | 1,791 | 1,787 | 918.00           | 128.56%                                      |
| 917.00           | 1,783 | 1,779 | 1,776 | 1,772 | 1,768 | 1,764 | 1,760 | 1,757 | 1,753 | 1,749 | 917.00           | 125.83%                                      |
| 916.00           | 1,745 | 1,741 | 1,738 | 1,734 | 1,730 | 1,726 | 1,722 | 1,719 | 1,715 | 1,711 | 916.00           | 123.09%                                      |
| 915.00           | 1,707 | 1,703 | 1,700 | 1,696 | 1,692 | 1,688 | 1,684 | 1,681 | 1,677 | 1,673 | 915.00           | 120.36%                                      |
| 914.00           | 1,670 | 1,666 | 1,663 | 1,659 | 1,655 | 1,652 | 1,648 | 1,644 | 1,641 | 1,637 | 914.00           | 117.77%                                      |
| 913.00           | 1,633 | 1,629 | 1,626 | 1,622 | 1,618 | 1,615 | 1,611 | 1,607 | 1,604 | 1,600 | 913.00           | 115.11%                                      |
| 912.00           | 1,597 | 1,593 | 1,589 | 1,586 | 1,582 | 1,578 | 1,575 | 1,571 | 1,568 | 1,564 | 912.00           | 112.52%                                      |
| 911.00           | 1,560 | 1,556 | 1,553 | 1,549 | 1,545 | 1,542 | 1,538 | 1,534 | 1,531 | 1,527 | 911.00           | 109.86%                                      |
| 910.00           | 1,524 | 1,520 | 1,516 | 1,513 | 1,509 | 1,505 | 1,502 | 1,498 | 1,495 | 1,491 | 910.00           | 107.27%                                      |
| 909.00           | 1,488 | 1,485 | 1,481 | 1,478 | 1,474 | 1,471 | 1,467 | 1,464 | 1,460 | 1,457 | 909.00           | 104.82%                                      |
| 908.00           | 1,454 | 1,450 | 1,447 | 1,443 | 1,440 | 1,437 | 1,433 | 1,430 | 1,426 | 1,423 | 908.00           | 102.37%                                      |
| 907.00           | 1,420 | 1,417 | 1,413 | 1,410 | 1,407 | 1,403 | 1,400 | 1,397 | 1,393 | 1,390 | 907.00           | 100.00%                                      |
| 906.00           | 1,367 | 1,363 | 1,360 | 1,357 | 1,354 | 1,350 | 1,347 | 1,344 | 1,340 | 1,337 | 906.00           | 97.63%                                       |
| 905.00           | 1,353 | 1,350 | 1,347 | 1,343 | 1,340 | 1,337 | 1,333 | 1,330 | 1,326 | 1,323 | 905.00           | 95.18%                                       |
| 904.00           | 1,321 | 1,317 | 1,314 | 1,311 | 1,308 | 1,305 | 1,301 | 1,298 | 1,295 | 1,292 | 904.00           | 92.95%                                       |
| 903.00           | 1,269 | 1,265 | 1,262 | 1,259 | 1,256 | 1,253 | 1,250 | 1,246 | 1,243 | 1,240 | 903.00           | 90.65%                                       |
| 902.00           | 1,257 | 1,254 | 1,251 | 1,248 | 1,245 | 1,241 | 1,238 | 1,235 | 1,232 | 1,229 | 902.00           | 88.42%                                       |
| 901.00           | 1,226 | 1,222 | 1,219 | 1,216 | 1,213 | 1,210 | 1,207 | 1,203 | 1,200 | 1,197 | 901.00           | 86.12%                                       |
| 900.00           | 1,194 | 1,191 | 1,188 | 1,185 | 1,182 | 1,178 | 1,175 | 1,172 | 1,169 | 1,166 | 900.00           | 83.88%                                       |
| 899.00           | 1,164 | 1,161 | 1,158 | 1,155 | 1,152 | 1,149 | 1,146 | 1,143 | 1,140 | 1,137 | 899.00           | 81.80%                                       |
| 898.00           | 1,134 | 1,131 | 1,128 | 1,125 | 1,123 | 1,120 | 1,117 | 1,114 | 1,111 | 1,108 | 898.00           | 79.71%                                       |
| 897.00           | 1,106 | 1,103 | 1,100 | 1,097 | 1,094 | 1,091 | 1,088 | 1,086 | 1,083 | 1,080 | 897.00           | 77.70%                                       |
| 896.00           | 1,077 | 1,074 | 1,071 | 1,068 | 1,065 | 1,063 | 1,060 | 1,057 | 1,054 | 1,051 | 896.00           | 75.61%                                       |
| 895.00           | 1,048 | 1,045 | 1,042 | 1,039 | 1,036 | 1,034 | 1,031 | 1,028 | 1,025 | 1,022 | 895.00           | 73.53%                                       |
| 894.00           | 1,020 | 1,017 | 1,014 | 1,011 | 1,009 | 1,006 | 1,003 | 1,000 | 998   | 995   | 894.00           | 71.58%                                       |
| 893.00           | 992   | 990   | 987   | 984   | 982   | 979   | 976   | 973   | 971   | 968   | 893.00           | 69.64%                                       |
| 892.00           | 965   | 963   | 960   | 957   | 955   | 952   | 949   | 946   | 944   | 941   | 892.00           | 67.70%                                       |
| 891.00           | 938   | 936   | 933   | 930   | 928   | 925   | 922   | 919   | 917   | 914   | 891.00           | 65.76%                                       |
| 890.00           | 911   | 909   | 906   | 903   | 901   | 898   | 895   | 892   | 890   | 887   | 890.00           | 63.81%                                       |
| 889.00           | 885   | 882   | 880   | 877   | 875   | 872   | 870   | 867   | 865   | 862   | 889.00           | 62.01%                                       |
| 888.00           | 860   | 857   | 855   | 852   | 850   | 847   | 845   | 842   | 840   | 837   | 888.00           | 60.22%                                       |
| 887.00           | 834   | 832   | 829   | 826   | 824   | 821   | 819   | 816   | 814   | 811   | 887.00           | 58.35%                                       |
| 886.00           | 809   | 806   | 804   | 801   | 799   | 796   | 794   | 791   | 789   | 786   | 886.00           | 56.55%                                       |
| 885.00           | 784   | 781   | 779   | 776   | 774   | 771   | 769   | 766   | 764   | 761   | 885.00           | 54.75%                                       |
| 884.00           | 759   | 757   | 754   | 752   | 750   | 747   | 745   | 743   | 740   | 738   | 884.00           | 53.09%                                       |
| 883.00           | 735   | 733   | 731   | 728   | 726   | 724   | 721   | 719   | 716   | 714   | 883.00           | 51.37%                                       |

Feb 2021  
→

Full Pond Volume – 1,400 AF

# Bell Canyon Reservoir

April 2020

| Date      | Elevation | Storage (acre-feet) | Computed Inflow (cfs) | 7 Day Average Inflow (cfs) | Actual Release (cfs) |
|-----------|-----------|---------------------|-----------------------|----------------------------|----------------------|
| 4/1/2020  | 411.17    | 1608.006            | 0.692                 | 0.625                      | 0.84                 |
| 4/2/2020  | 411.13    | 1605.398            | 0.705                 | 0.661                      | 0.83                 |
| 4/3/2020  | 411.11    | 1604.094            | 0.802                 | 0.658                      | 0.81                 |
| 4/4/2020  | 411.10    | 1603.442            | 0.569                 | 0.626                      | 0.81                 |
| 4/5/2020  | 411.14    | 1606.050            | 0.336                 | 0.569                      | 0.86                 |
| 4/6/2020  | 411.14    | 1606.050            | 0.666                 | 0.621                      | 1.60                 |
| 4/7/2020  | 411.14    | 1606.050            | 1.134                 | 0.701                      | 1.53                 |
| 4/8/2020  | 411.11    | 1604.094            | 1.028                 | 0.749                      | 1.02                 |
| 4/9/2020  | 411.09    | 1602.790            | 0.761                 | 0.757                      | 0.97                 |
| 4/10/2020 | 411.08    | 1602.138            | 0.799                 | 0.756                      | 0.91                 |
| 4/11/2020 | 411.07    | 1601.486            | 0.864                 | 0.798                      | 0.89                 |
| 4/12/2020 | 411.06    | 1600.834            | 0.744                 | 0.857                      | 0.80                 |
| 4/13/2020 | 411.04    | 1599.530            | 0.621                 | 0.850                      | 0.86                 |
| 4/14/2020 | 411.02    | 1598.226            | 0.760                 | 0.797                      | 0.88                 |
| 4/15/2020 | 410.98    | 1595.618            | 0.820                 | 0.767                      | 0.84                 |
| 4/16/2020 | 410.95    | 1593.662            | 0.920                 | 0.790                      | 0.91                 |
| 4/17/2020 | 410.93    | 1592.358            | 0.587                 | 0.759                      | 0.84                 |
| 4/18/2020 | 410.91    | 1591.054            | 0.517                 | 0.710                      | 0.82                 |
| 4/19/2020 | 410.89    | 1589.750            | 0.512                 | 0.677                      | 0.83                 |
| 4/20/2020 | 410.87    | 1588.446            | 0.503                 | 0.660                      | 0.83                 |
| 4/21/2020 | 410.85    | 1587.142            | 0.568                 | 0.632                      | 0.83                 |
| 4/22/2020 | 410.83    | 1585.838            | 0.615                 | 0.603                      | 0.84                 |
| 4/23/2020 | 410.81    | 1584.534            | 0.720                 | 0.575                      | 0.84                 |
| 4/24/2020 | 410.76    | 1581.274            | 0.597                 | 0.576                      | 0.84                 |
| 4/25/2020 | 410.72    | 1578.666            | 0.865                 | 0.626                      | 0.84                 |
| 4/26/2020 | 410.68    | 1576.058            | 0.844                 | 0.673                      | 0.86                 |
| 4/27/2020 | 410.64    | 1573.449            | 0.843                 | 0.722                      | 0.81                 |
|           |           |                     |                       |                            |                      |
|           |           |                     |                       |                            |                      |
|           |           |                     |                       |                            |                      |

April 19, 2021 Elevation – 402 ft  
43% Capacity – 1,011 AF

April 2014

| Date      | Elevation | Storage (acre-feet) | Computed Inflow (cfs) | 7 Day Average Inflow (cfs) | Actual Release (cfs) |
|-----------|-----------|---------------------|-----------------------|----------------------------|----------------------|
| 3/24/2014 | 415.10    | 1874.787            | 0.737                 | 1.037                      | 0.93                 |
| 3/25/2014 | 415.06    | 1871.957            | 0.764                 | 0.993                      | 0.91                 |
| 3/26/2014 | 415.10    | 1874.787            | 1.018                 | 0.904                      | 1.03                 |
| 3/27/2014 | 415.09    | 1874.079            | 0.808                 | 0.912                      | 1.02                 |
| 3/28/2014 | 415.07    | 1872.664            | 1.003                 | 0.932                      | 1.06                 |
| 3/29/2014 | 415.16    | 1879.032            | 1.552                 | 0.997                      | 1.02                 |
| 3/30/2014 | 415.91    | 1932.092            | 27.825                | 4.815                      | 1.01                 |
| 3/31/2014 | 416.08    | 1944.292            | 8.327                 | 5.900                      | 1.05                 |
| 4/1/2014  | 416.71    | 1990.224            | 22.108                | 8.949                      | 1.04                 |
| 4/2/2014  | 418.78    | 2141.924            | 75.128                | 19.536                     | 1.04                 |
| 4/3/2014  | 419.44    | 2190.702            | 26.560                | 23.215                     | 1.03                 |
| 4/4/2014  | 419.75    | 2213.613            | 12.621                | 24.875                     | 1.02                 |
| 4/5/2014  | 420.11    | 2240.428            | 14.848                | 26.774                     | 1.06                 |
| 4/6/2014  | 420.30    | 2254.830            | 9.564                 | 24.165                     | 1.05                 |
| 4/7/2014  | 420.40    | 2262.410            | 6.234                 | 23.866                     | 1.01                 |
| 4/8/2014  | 420.45    | 2266.200            | 4.165                 | 21.303                     | 1.01                 |
| 4/9/2014  | 420.49    | 2269.232            | 3.967                 | 11.137                     | 1.01                 |
| 4/10/2014 | 420.49    | 2269.232            | 2.376                 | 7.682                      | 1.04                 |
| 4/11/2014 | 420.49    | 2269.232            | 2.308                 | 6.209                      | 1.01                 |
| 4/12/2014 | 420.49    | 2269.232            | 1.421                 | 4.291                      | 1.02                 |
| 4/13/2014 | 420.49    | 2269.232            | 1.537                 | 3.144                      | 1.05                 |
| 4/14/2014 | 420.48    | 2268.474            | 1.266                 | 2.434                      | 1.04                 |
| 4/15/2014 | 420.45    | 2266.200            | 1.059                 | 1.991                      | 1.12                 |
| 4/16/2014 | 420.41    | 2263.168            | 0.885                 | 1.550                      | 1.15                 |
| 4/17/2014 | 420.37    | 2260.136            | 1.011                 | 1.355                      | 1.19                 |
| 4/18/2014 | 420.33    | 2257.104            | 1.049                 | 1.175                      | 1.15                 |
| 4/19/2014 | 420.28    | 2253.314            | 0.871                 | 1.097                      | 1.17                 |
| 4/20/2014 | 420.23    | 2249.524            | 0.757                 | 0.985                      | 1.12                 |
| 4/21/2014 | 420.18    | 2245.734            | 0.880                 | 0.930                      | 1.11                 |
| 4/22/2014 | 420.14    | 2242.702            | 0.984                 | 0.920                      | 1.03                 |
| 4/23/2014 | 420.09    | 2238.911            | 0.643                 | 0.885                      | 0.91                 |

Full Pond Volume – 2,350 AF

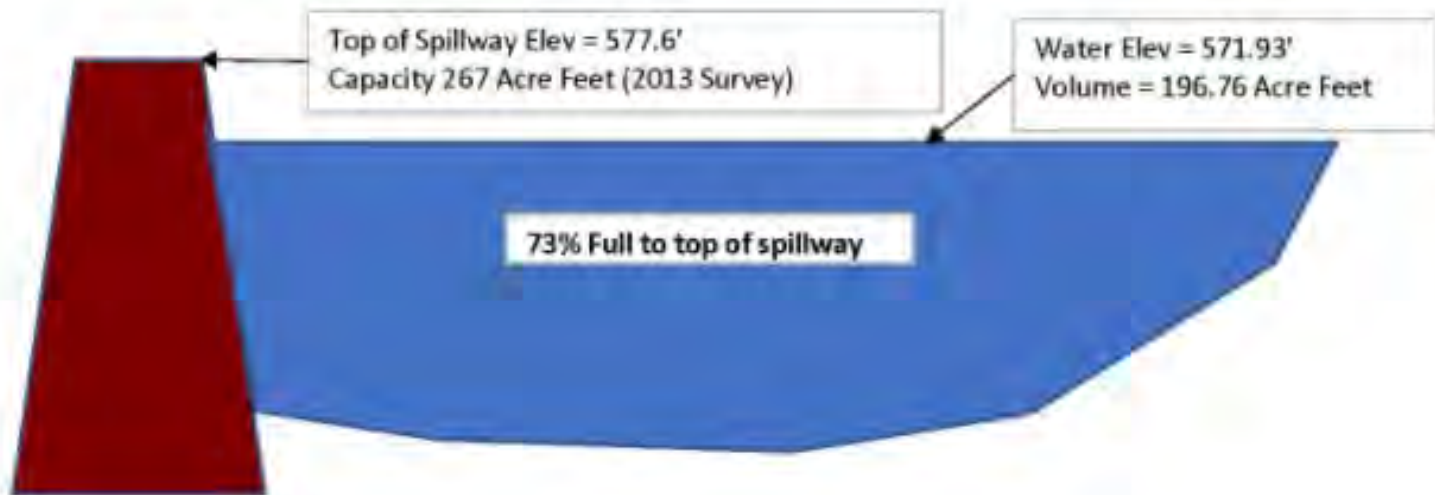
# Kimball Reservoir

## Kimball Reservoir Supply Status

Last Update: 4/12/2021

Seasonal Rainfall Total = 16.32"

Average Rainfall Total = 38"



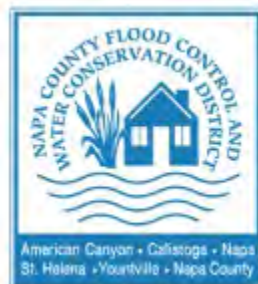
Full Pond Volume – 275 AF

# Rector Reservoir



Full Pond Volume – 4,535 AF

# Questions / Comments



**It's A Dry Year.  
Let's Work Together To  
Save Our Water.**