Memorandum

DATE: June 15, 2018

TO: Member Agencies – MWDOC Divisions Two & Three

FROM: Larry Dick, Director – Division Two
Wayne S. Osborne, Director – Division Three

SUBJECT: Monthly Water Usage Data, Tier 2 Projection & Water Supply Information

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The attached figures show the recent trend of water consumption in Orange County (OC), an estimate of Imported Water Sales for MWDOC, and selected water supply information.

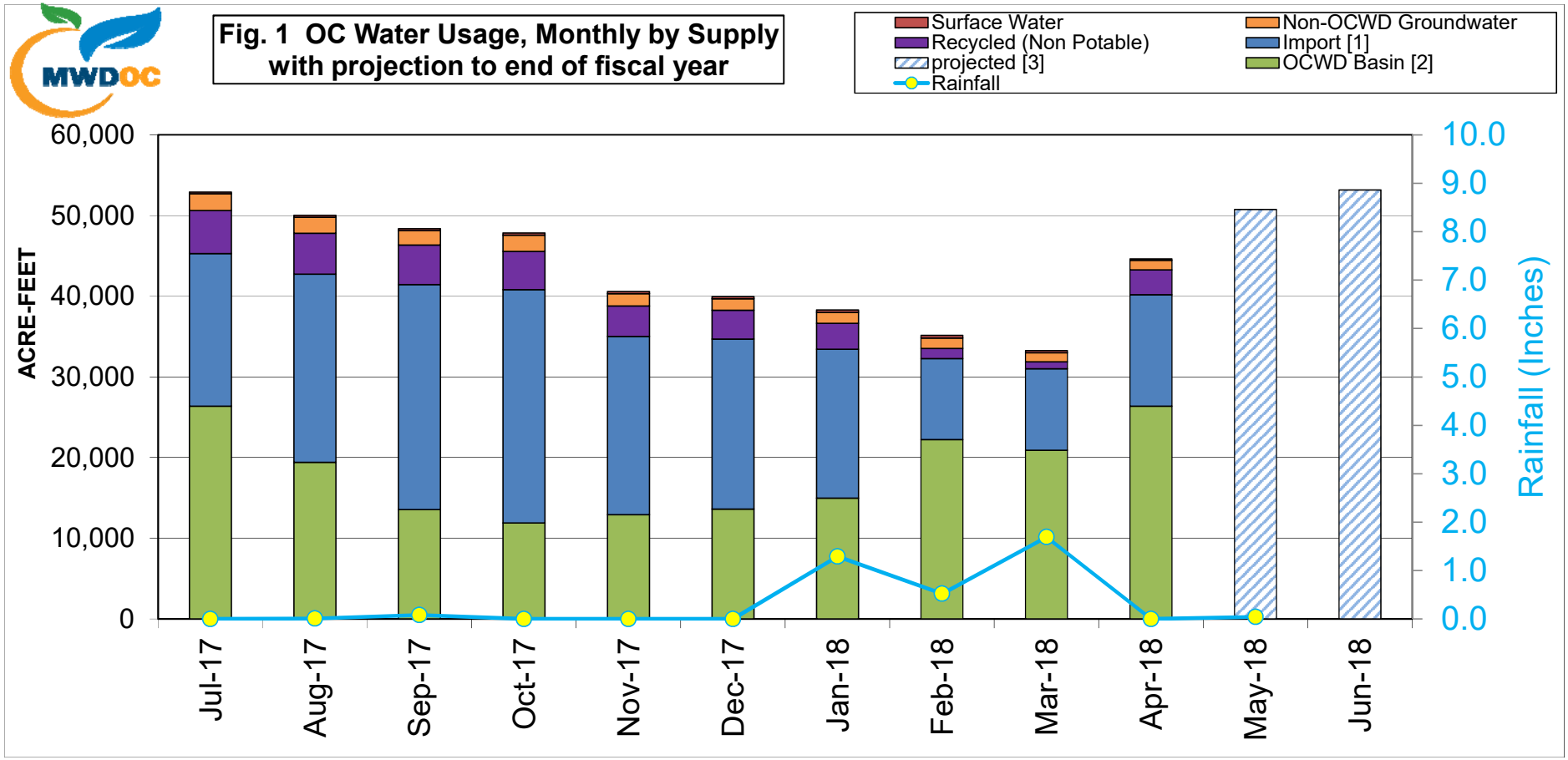
- OC Water Usage, Monthly by Supply OCWD Groundwater was the main supply in April.
- OC Water Usage, Monthly, Comparison to Previous Years Water usage in April 2018 was slightly below average compared to the last 5 years. We are seeing a slight increase in overall water usage compared to the previous two Fiscal Years. In June 2016, all water conservation became voluntary for MWDOC agencies and the Great California Drought was declared over by the Governor in April 2017.
- Historical OC Water Consumption OC water consumption is projected to be 535,000 AF in FY 2017-18 *(this includes ~15 TAF of agricultural usage and non-retail water agency usage).* This is about 16,000 AF more than FY 2016-17 and is about 44,000 AF more than FY 2015-16 (During the SWRCB mandatory water restrictions). Water usage per person is projected to be slightly higher than in FY 2017-18 for Orange County at 149 gallons per day (This includes recycled water). Although OC population has increased 20% over the past two decades, water usage has not increased, on average. A long-term decrease in per-capita water usage is attributed mostly to Water Use Efficiency (water conservation) efforts

Water Supply Information Includes data on Rainfall in OC; the OCWD Basin overdraft; Northern California and Colorado River Basin hydrologic data; the State Water Project (SWP) Allocation, and regional storage volumes. The data have implications for the magnitude of supplies from the three watersheds that are the principal sources of water for OC. Note that a hydrologic year is Oct. 1st through Sept. 30th.

- Orange County's accumulated rainfall through early May was well below average for this period. Water year to date rainfall in Orange County is 3.66 inches which is 29% of normal.

- Northern California accumulated precipitation through early June was around 85% of normal for this period. Water Year 2017 was the wettest water year on record. The Northern California snowpack was 43% of normal as of April 1st. The State of California was in a declared Drought Emergency that started January 2014 and just recently ended in April of 2017. As of late May, 37.1% of California is experiencing moderate or severe drought conditions while 69.5% of the state is experiencing abnormally dry conditions. The State Water Project Contractors Table A Allocation has increased to 30% as of late April.

- Colorado River Basin accumulated precipitation through early June was 70% average for this period. The Upper Colorado Basin snowpack was 71% of normal as of April 3. Lake Mead and Lake Powell combined have about 64% of their average storage volume for this time of year and are at 45.7% of their total capacity. If Lake Mead's level falls below a "trigger" limit 1,075 ft. at the end of a calendar year, then a shortage will be declared by the US Bureau of Reclamation (USBR), impacting Colorado River water deliveries to the Lower Basin states. As of late May, Lake Mead levels were 5.4' above the "trigger" limit. The USBR predicts that the start of 2019 will not hit the "trigger" level but there is a 52% chance that the trigger level will be hit in 2020.

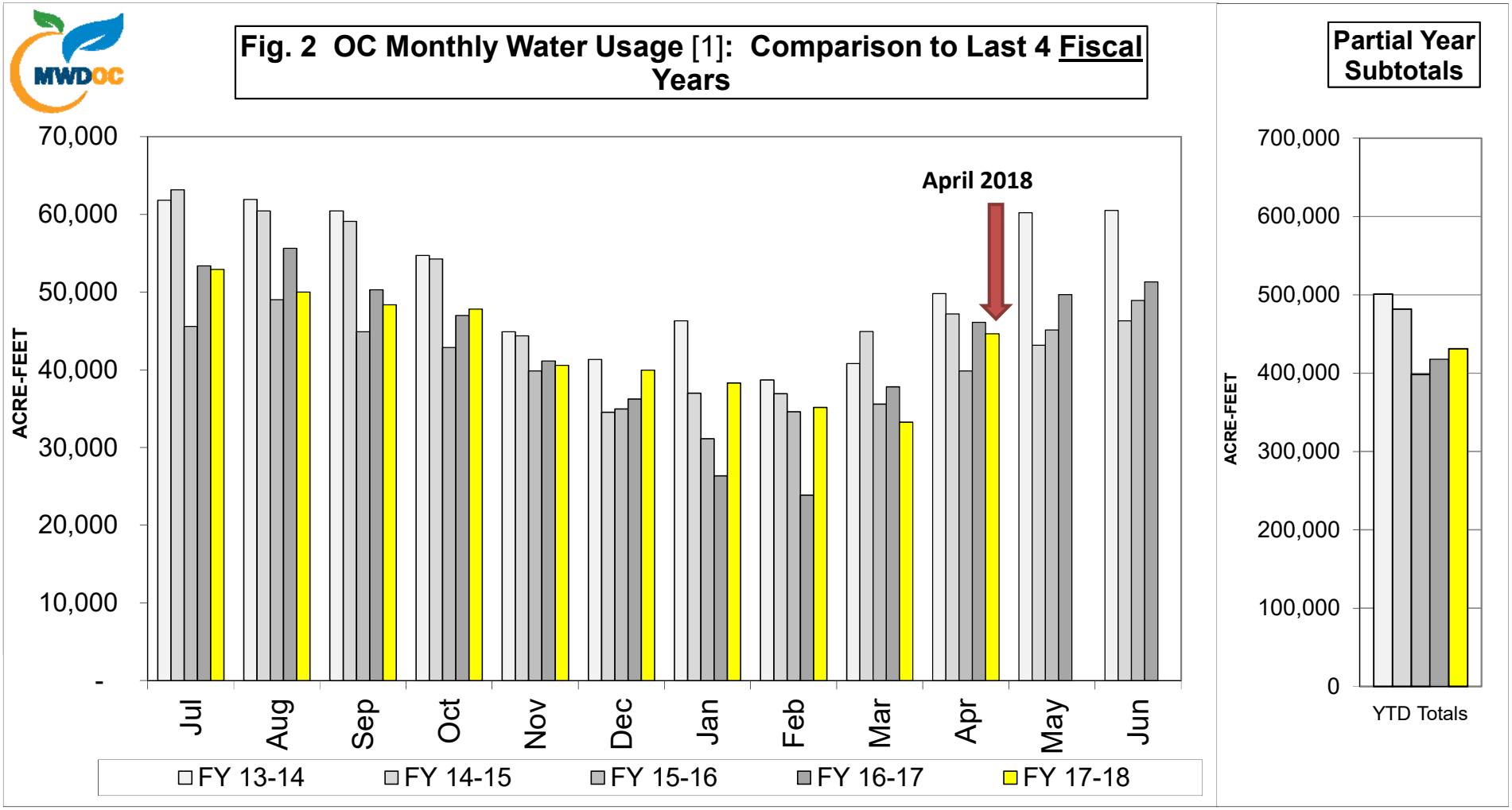


[1] Imported water for consumptive use. Includes "In-Lieu" deliveries and CUP water extraction. Excludes "Direct Replenishment" deliveries of spreading water, "Barrier Replenishment" deliveries, and deliveries into Irvine Lake.

[2] GW for consumptive use only. Excludes In-Lieu water deliveries and CUP water extraction that are counted with Import. BPP in FY '17-18 is 75%.

[3] MWDOC's estimate of monthly demand is based on the projected FY 15-16"Retail" water demand and historical monthly demand patterns.

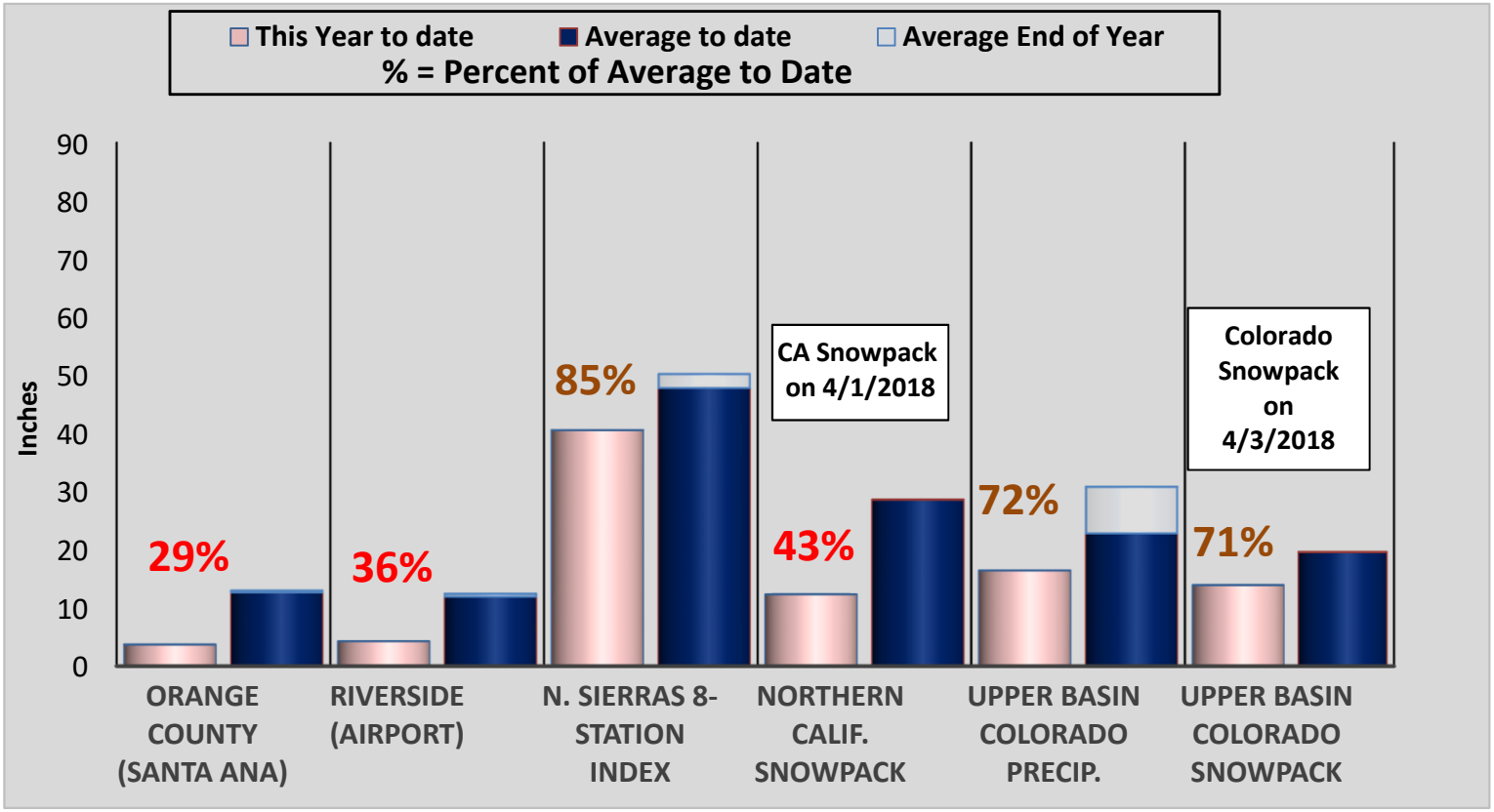
[4] Total water usage includes IRWD groundwater agricultural use and usage by non-retail water agencies.



[1] Sum of Imported water for consumptive use (includes "In-Lieu" deliveries; excludes "Direct Replenishment "and "Barrier Replenishment") and Local water for consumptive use (includes recycled and non-potable water and excludes GWRS production) Recent months numbers include some estimation.

Accumulated Precipitation

for the *Oct.-Sep.* water year, through late May 2018



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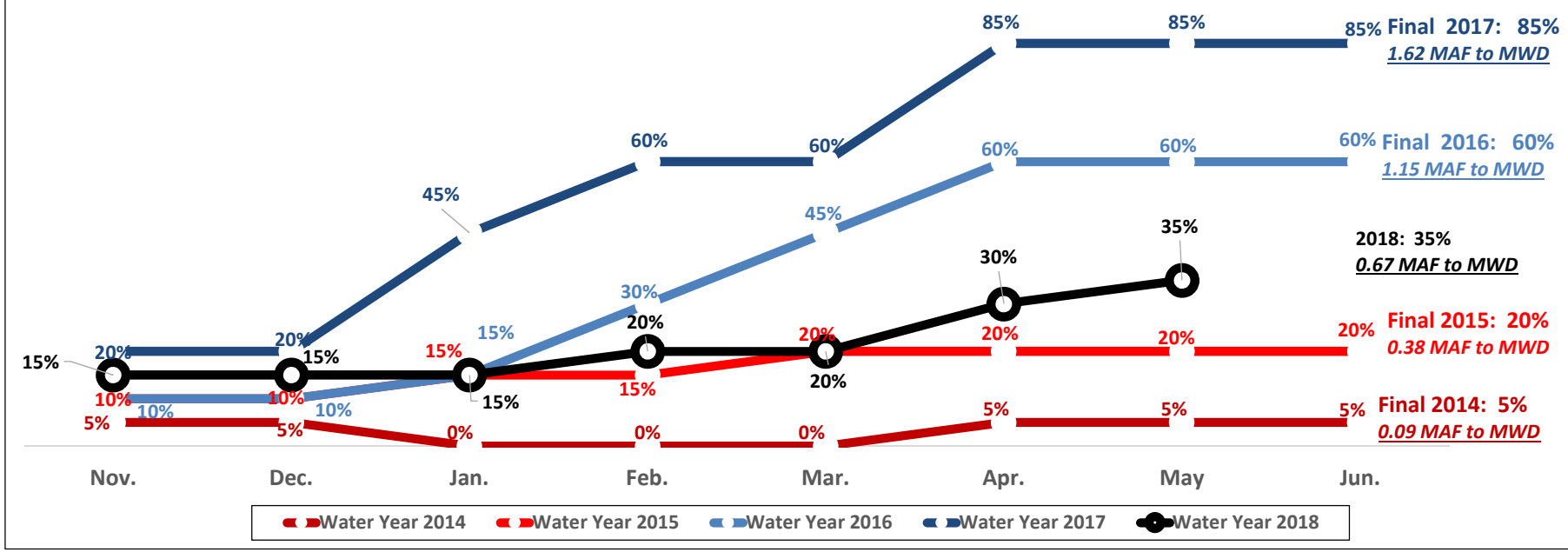
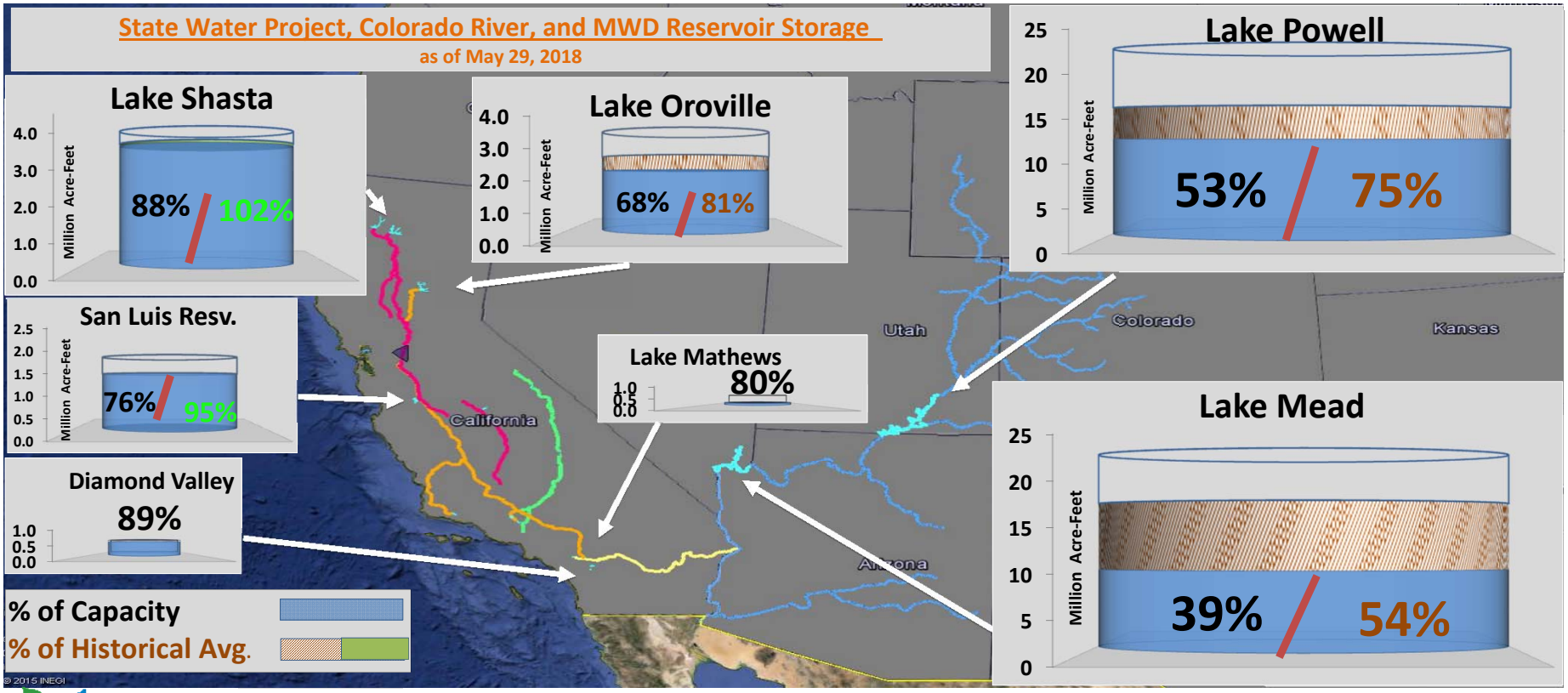
* The date of maximum snowpack accumulation (April 1st in Northern Calif. , April 15th in the Upper Colorado Basin) is used for year to year comparison.

SWP TABLE A ALLOCATION

FOR STATE WATER PROJECT CONTRACTORS





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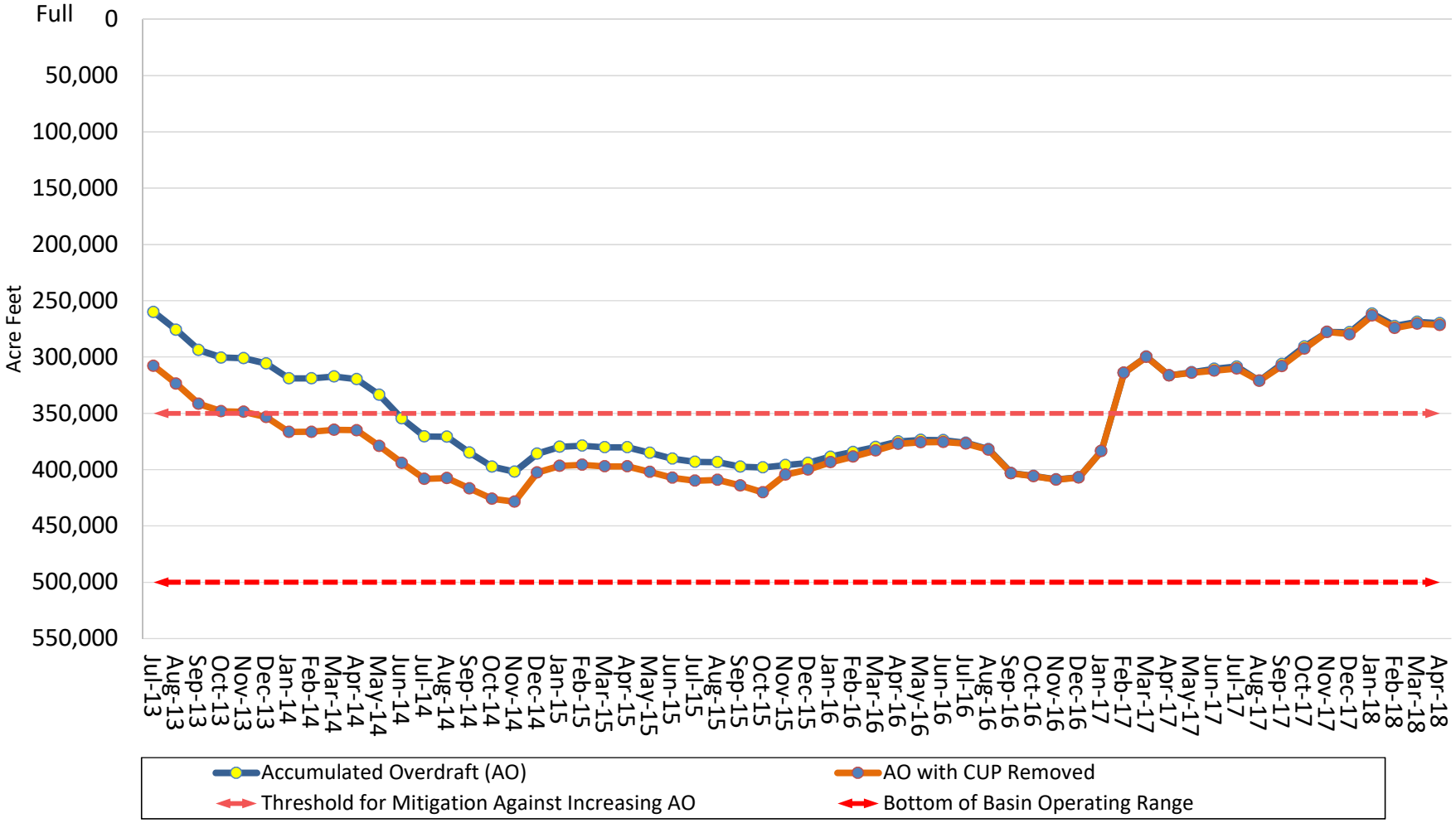
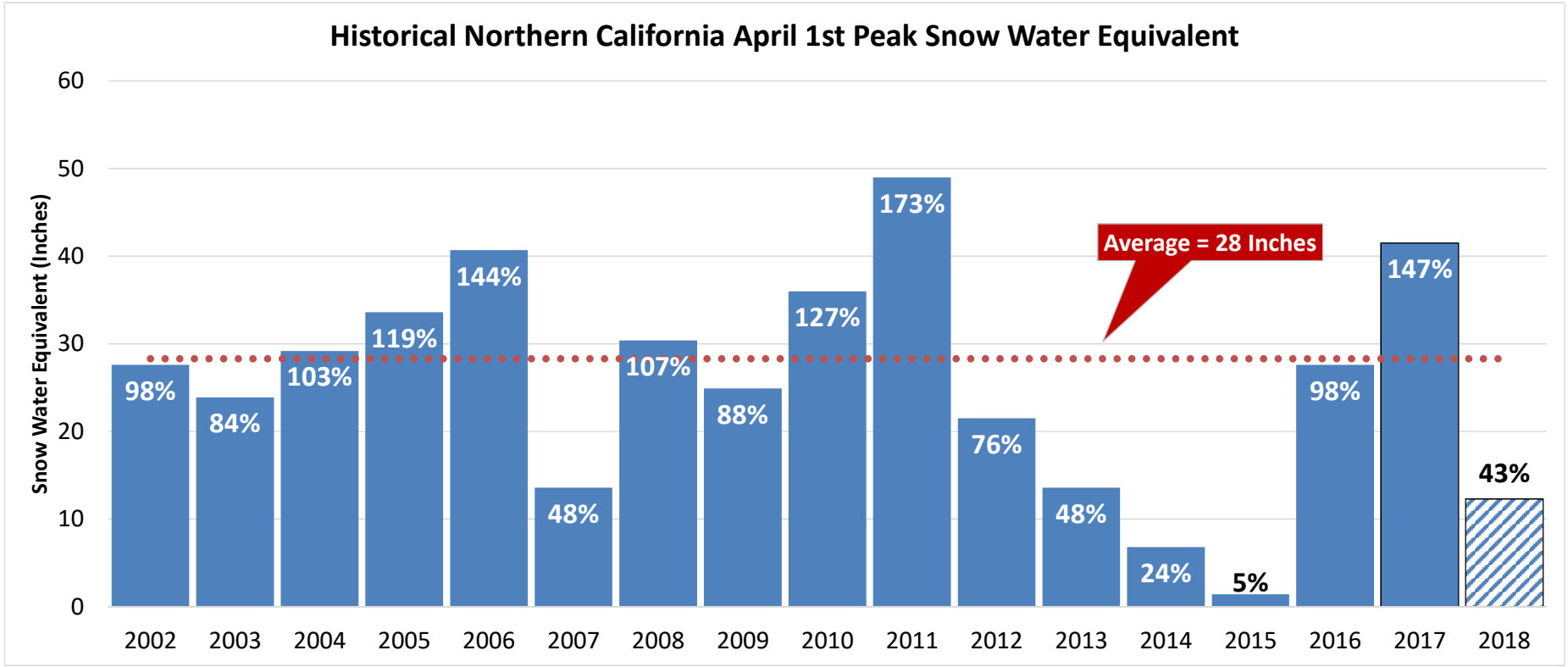
prepared by the Municipal Water District of Orange County
*Number are Subuject to Change

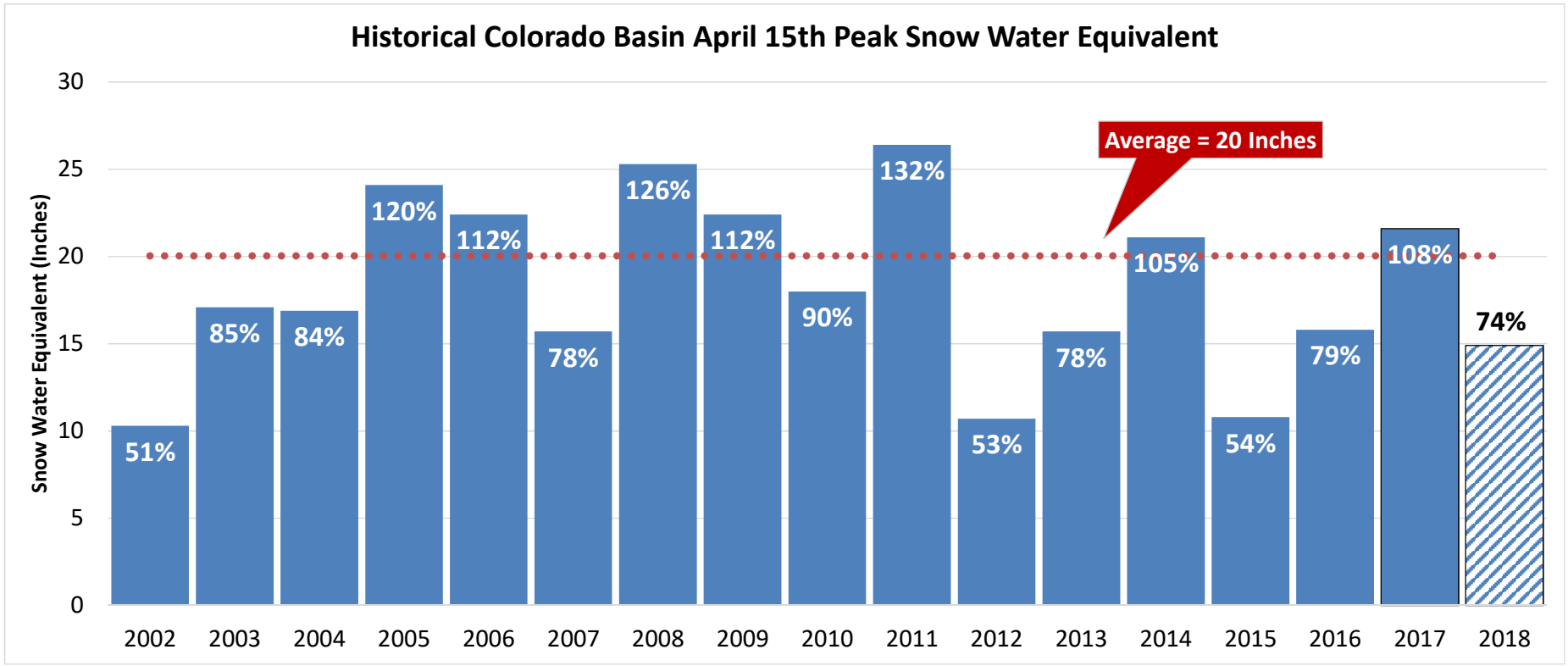
Accumulated Overdraft of the OCWD Groundwater Basin as of April 2018

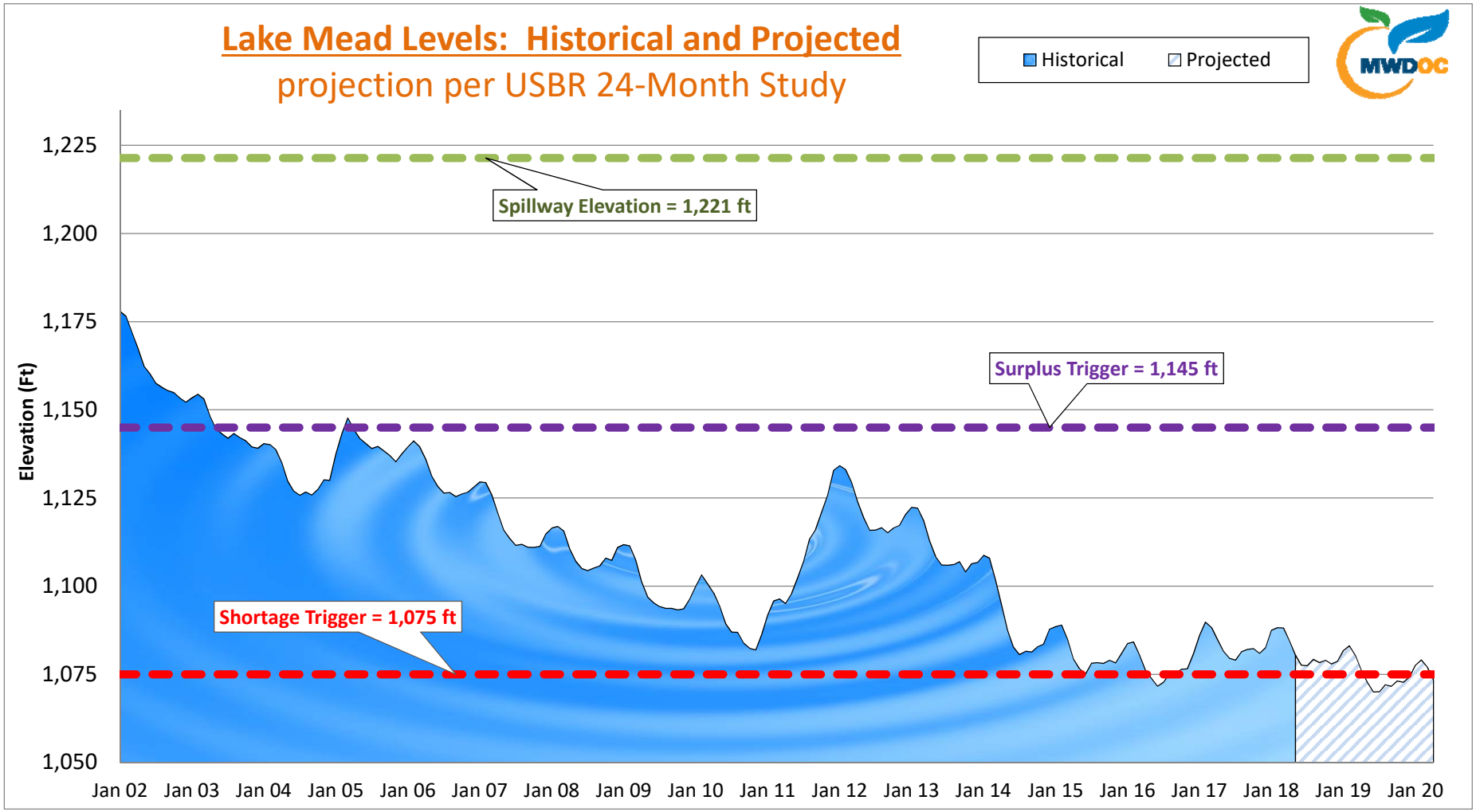


	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
AO (AF)	376,310	381,800	403,047	405,635	408,729	406,832	383,548	314,004	299,755	316,286	313,468	310,434
AO w/CUP removed (AF)	376,864	382,340	403,223	405,811	408,906	407,009	383,548	314,004	299,931	316,462	314,009	312,164
	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
AO (AF)	308,488	321,131	306,280	290,800	277,691	278,056	261,521	272,475	268,752	269,889		
AO w/CUP removed (AF)	310,216	321,131	308,007	292,522	277,691	279,776	263,237	274,188	270,463	271,601		

Source of data = OCWD monthly Water Resources Report in Board meeting packet


Historical Northern California April 1st Peak Snow Water Equivalent
Snow Water Equivalent (Inches)
60
50
40
30
20
10
0
Average = 28 Inches
98%
84%
103%
119%
144%
48%
107%
88%
127%
173%
76%
48%
24%
5%
98%
147%
43%
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018


Historical Colorado Basin April 15th Peak Snow Water Equivalent
Snow Water Equivalent (Inches)
30
25
20
15
10
5
0
Average = 20 Inches
51%
85%
84%
120%
112%
78%
126%
112%
90%
132%
53%
78%
105%
54%
79%
108%
74%
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018


Lake Mead Levels: Historical and Projected
projection per USBR 24-Month Study
Historical
Projected
MWDOC
Spillway Elevation = 1,221 ft
Surplus Trigger = 1,145 ft
Shortage Trigger = 1,075 ft
Elevation (Ft)
1,225
1,200
1,175
1,150
1,125
1,100
1,075
1,050
Jan 02
Jan 03
Jan 04
Jan 05
Jan 06
Jan 07
Jan 08
Jan 09
Jan 10
Jan 11
Jan 12
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20

Lake Powell Levels: Historical and Projected

projection per USBR 24-Month Study