Memorandum

DATE: January 8, 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 Tier 2 volume for MWDOC, and selected water supply information.

Fig. 1 OC Water Usage, Monthly by Supply MWD imported water was the main supply in November, imported usage has increased due to the In Lieu program.

Fig. 2 OC Water Usage, Monthly, Comparison to Previous Years Water usage in November 2017 was slightly above average compared to the last 5 years with the months of November 2015 and November 2016 showing lower usage. We are seeing a slight increase in overall water usage compared to the previous Fiscal Year. 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.

Fig. 3 Historical OC Water Consumption OC water consumption is projected to be 544,000 AF in FY 2017-18 *(this includes ~15 TAF of agricultural usage and non-retail water agency usage).* This is about 25,000 AF more than FY 2016-17 and is about 53,000 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 152 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.

MWDOC "Firm" Water Purchases, 2016 "Firm" water above the Tier 1 limit will be charged at the higher Tier 2 rate. Tier 2 purchases are zero in 2017.

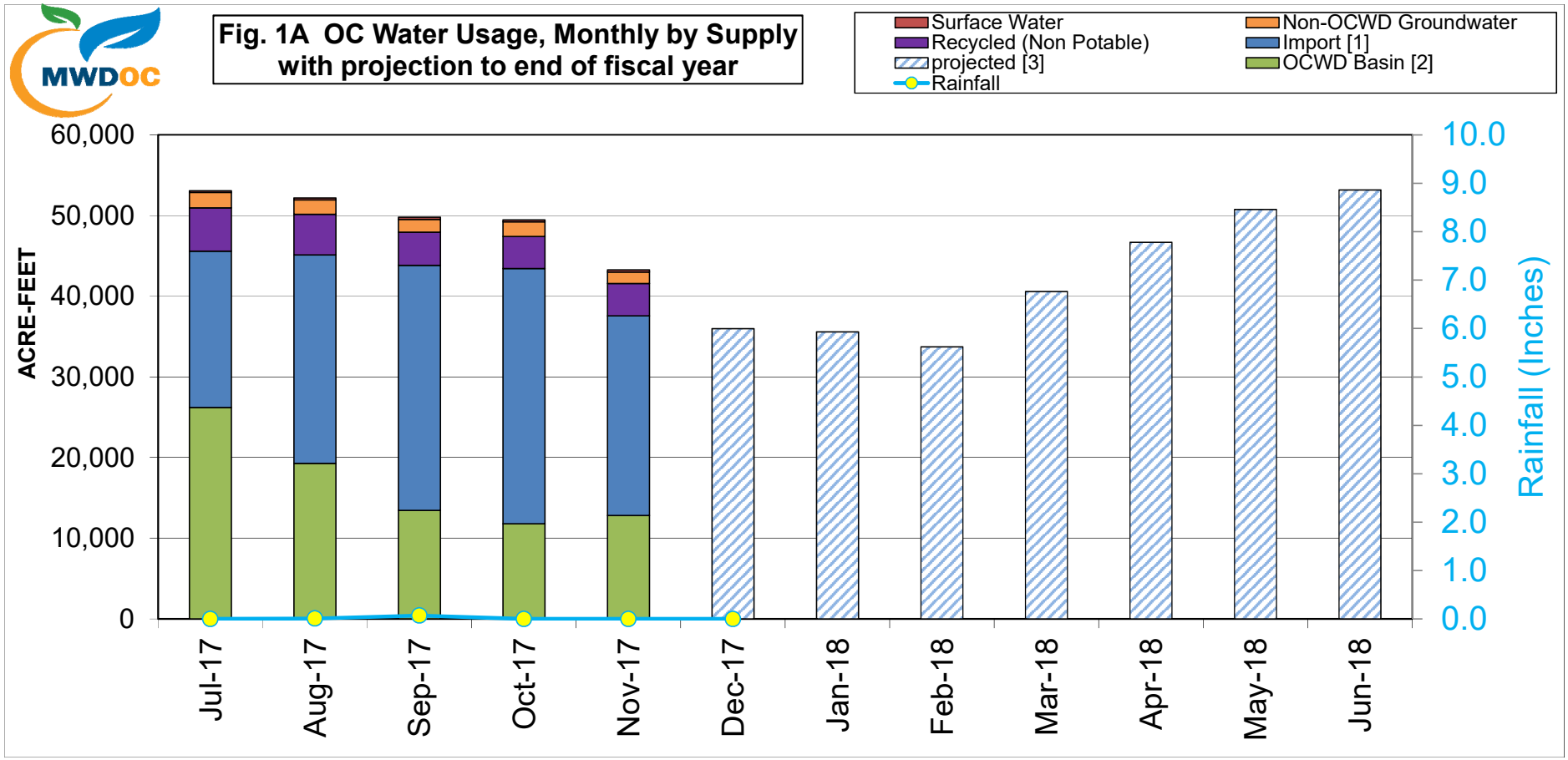
Water Supply Information Includes data on Rainfall in OC; the OCWD Basin overdraft; Northern California and Colorado River Basin hydrologic data; the State Water Project (SWP) Allocation, and regional storage volumes. The data have implications for the

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 December was well below average for this period. Orange County saw rainfall 8 inches above normal in WY 2017.

- Northern California accumulated precipitation through Early January was around 68% of normal for this period. Water Year 2017 was the wettest water year on record. The Northern California snowpack was 21% of normal as of January3rd. The State of California was in a declared Drought Emergency that started January 2014 and just recently ended in April of 2017. As of early January, only 12.7% of California is experiencing moderate drought conditions while 44% of the state is experiencing abnormally dry conditions. The State Water Project Contractors initial Table A Allocation was set at 15% as of the end of November.

- Colorado River Basin accumulated precipitation through early December was 56% average for this period. The Upper Colorado Basin snowpack was 57% of normal as of January 2nd. The Colorado River Basin saw above average conditions in WY 2017 but the region has been still trying to rebound from the previous long term drought. Lake Mead and Lake Powell combined have about 68% of their average storage volume for this time of year. 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 December, Lake Mead levels were 5.9' above the "trigger" limit. The USBR predicts that the end of 2017 or the end of 2018 will not hit the "trigger" level.



[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 '16-17 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.

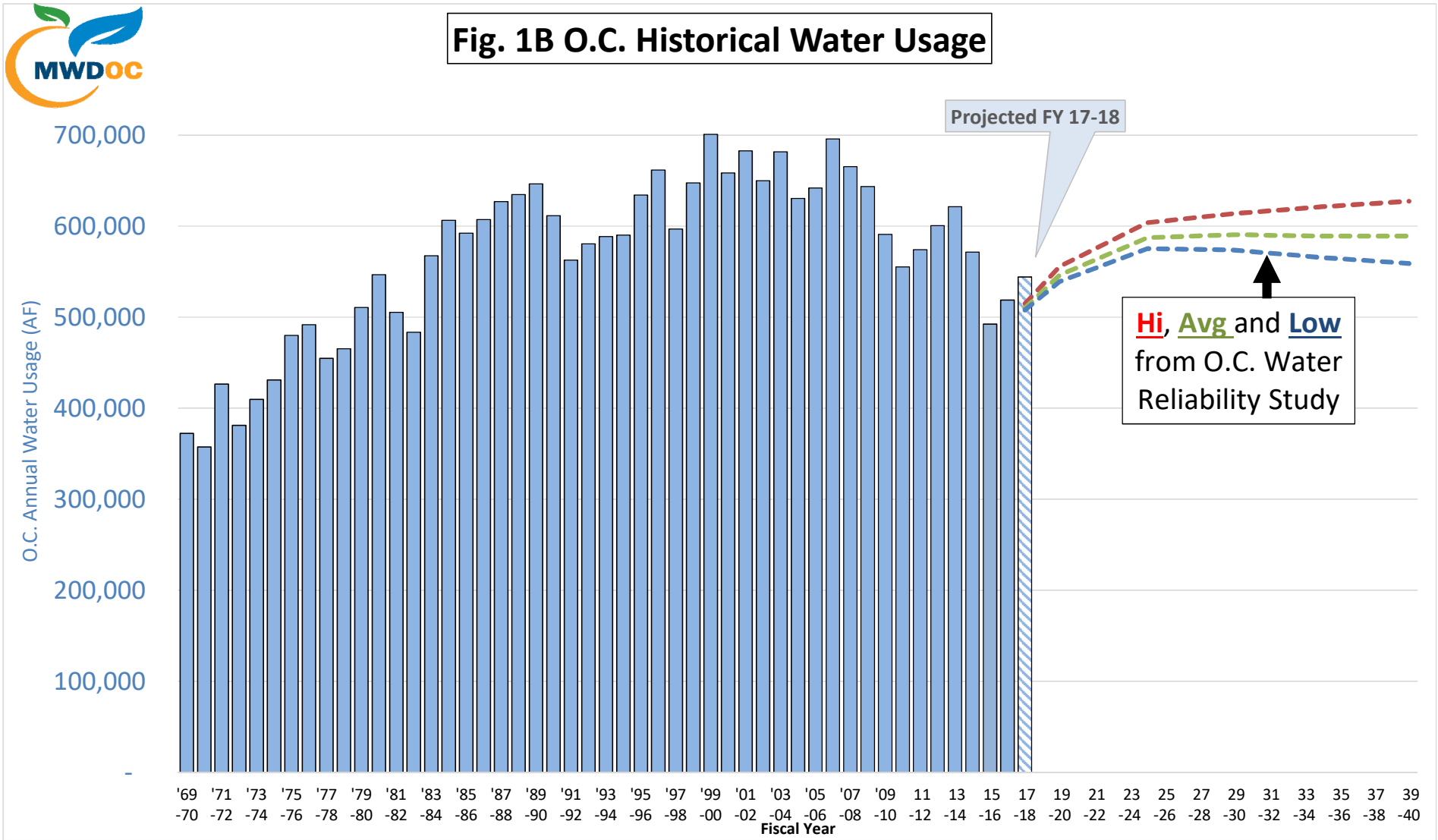
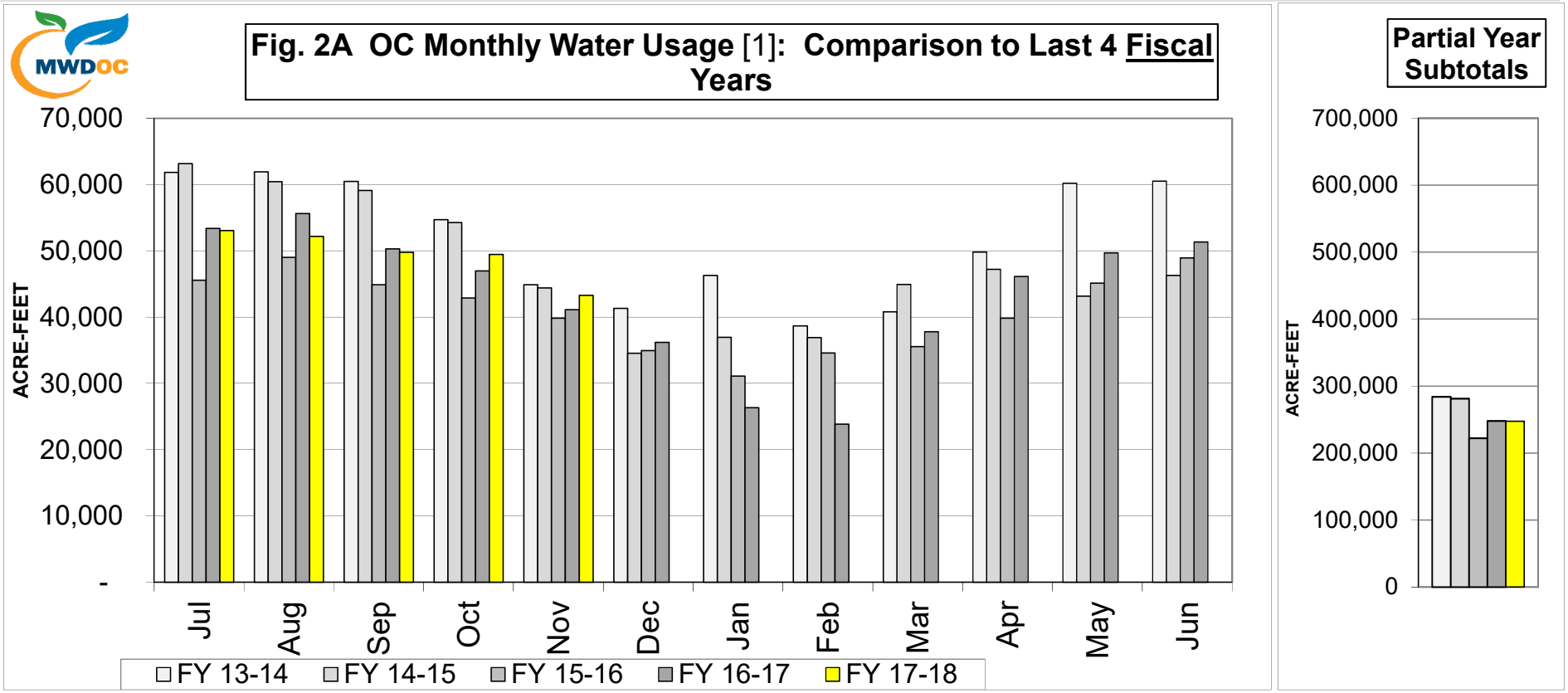
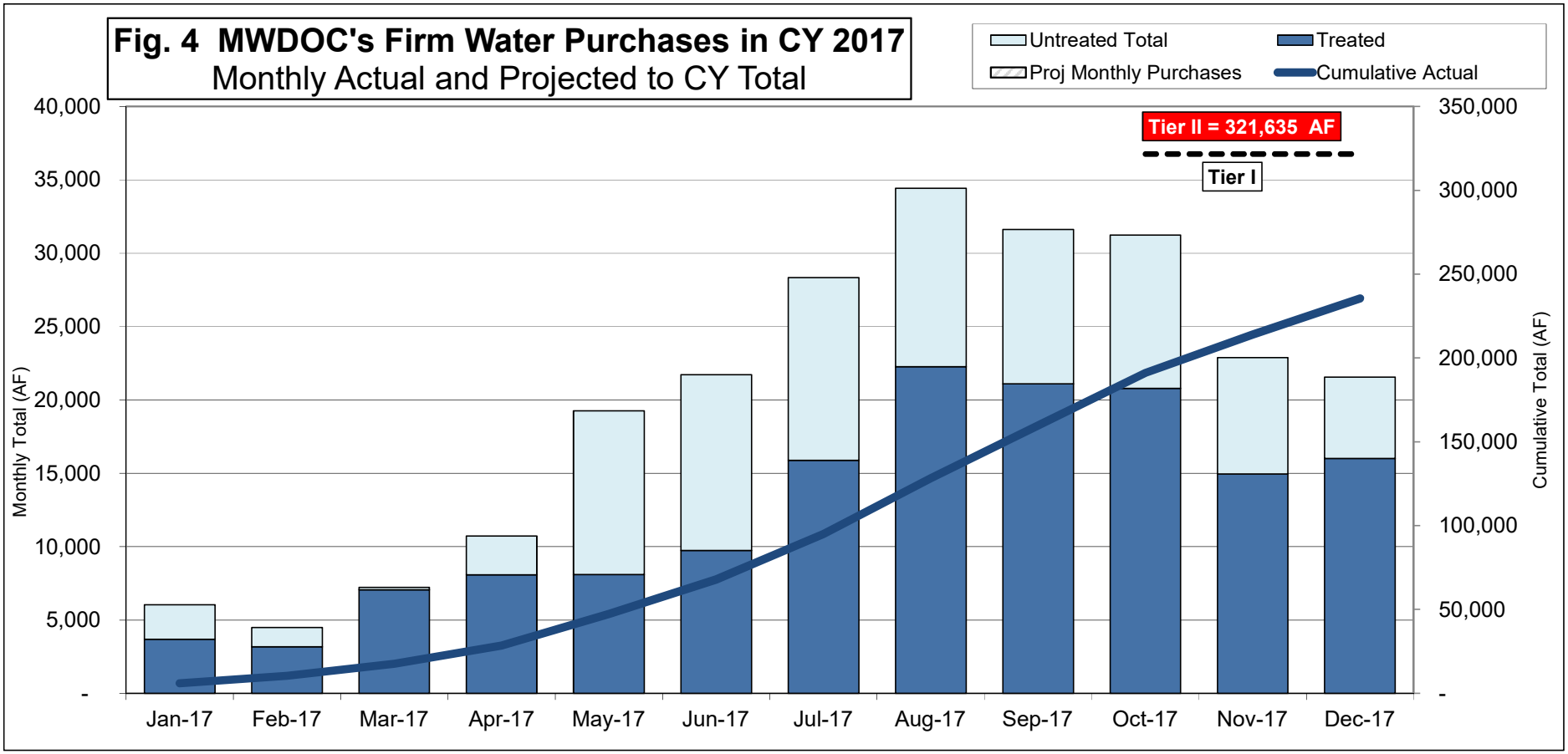


Fig. 1B O.C. Historical Water Usage
MWDOC
Projected FY 17-18
Hi, Avg and Low from O.C. Water Reliability Study
O.C. Annual Water Usage (AF)
700,000
600,000
500,000
400,000
300,000
200,000
100,000
-
'69 -70
'71 -72
'73 -74
'75 -76
'77 -78
'79 -80
'81 -82
'83 -84
'85 -86
'87 -88
'89 -90
'91 -92
'93 -94
'95 -96
'97 -98
'99 -00
'01 -02
'03 -04
'05 -06
'07 -08
'09 -10
11 -12
13 -14
15 -16
17 -18
19 -20
21 -22
23 -24
25 -26
27 -28
29 -30
31 -32
33 -34
35 -36
37 -38
39 -40
Fiscal Year



[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; excludes GWRS production, groundwater pumped to waste, and waste brine from water treatment projects.) Recent months numbers include some estimation.



Notes

1. "Firm" includes Full Service (both Treated and Untreated) and Barrier water.

2. Basin Pumping Percentage (BPP) is the percentage of a retail water agency's total water demand that they are limited to pump from the OCWD-managed groundwater basin. BPP pertains to Basin agencies only. For example, if a Basin agency's total demand is 10,000 AF/yr and OCWD sets the BPP at 72%, then the agency is limited to 7,200 AF of groundwater that year. There may be certain exceptions and/or adjustments to that simple calculation. OCWD sets the BPP for the Basin agencies, usually as of July 1st.

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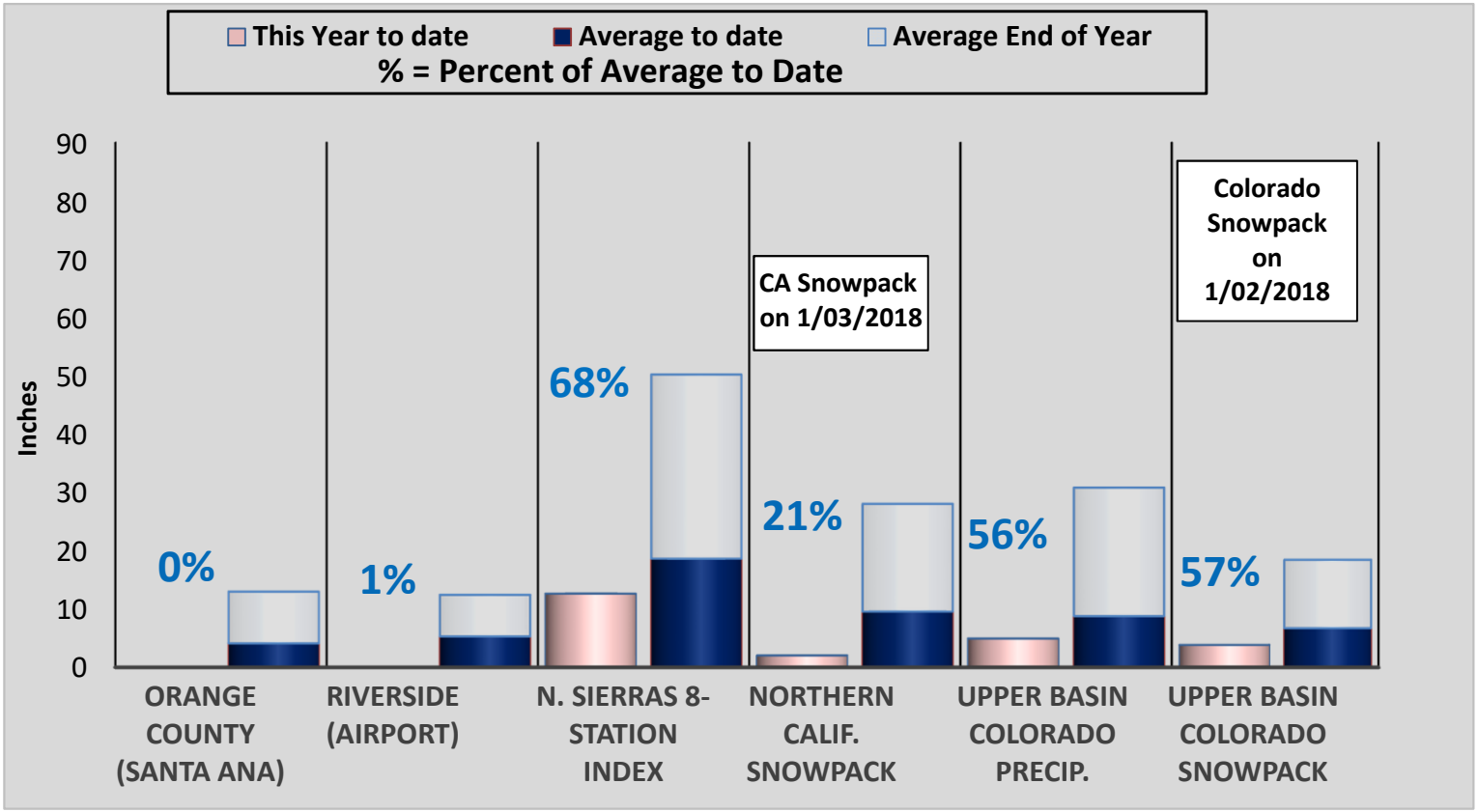
**numbers are subject to change*

printdate 1/3/2018

Accumulated Precipitation

for the *Oct.-Sep.* water year, through Early January 2018



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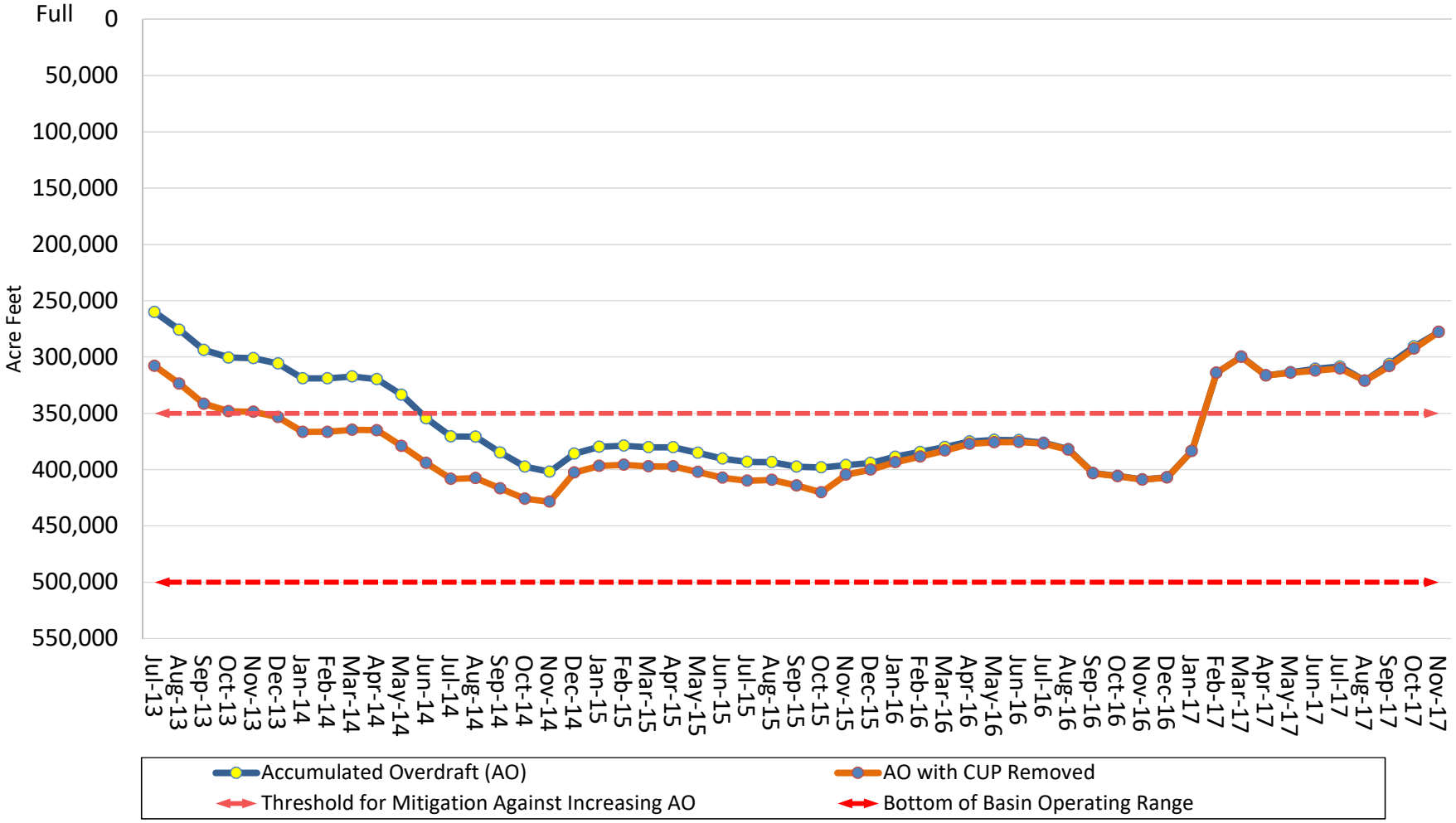
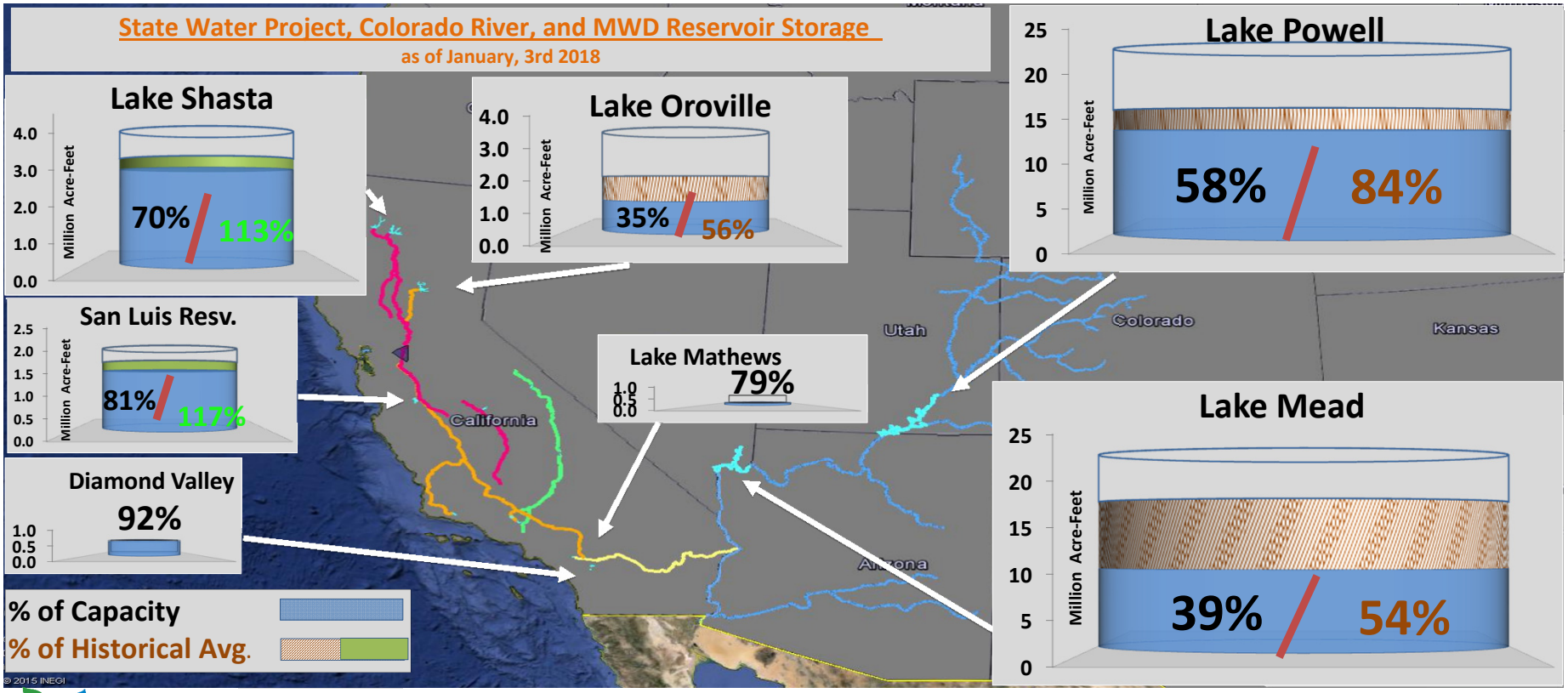
* The date of maximum snowpack accumulation (April 1st in Northern Calif. , April 15th in the Upper Colorado Basin) is used for year to year comparison.

Accumulated Overdraft of the OCWD Groundwater Basin as of November 2017



	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							
AO w/CUP removed (AF)	310,216	321,131	308,007	292,522	277,691							

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



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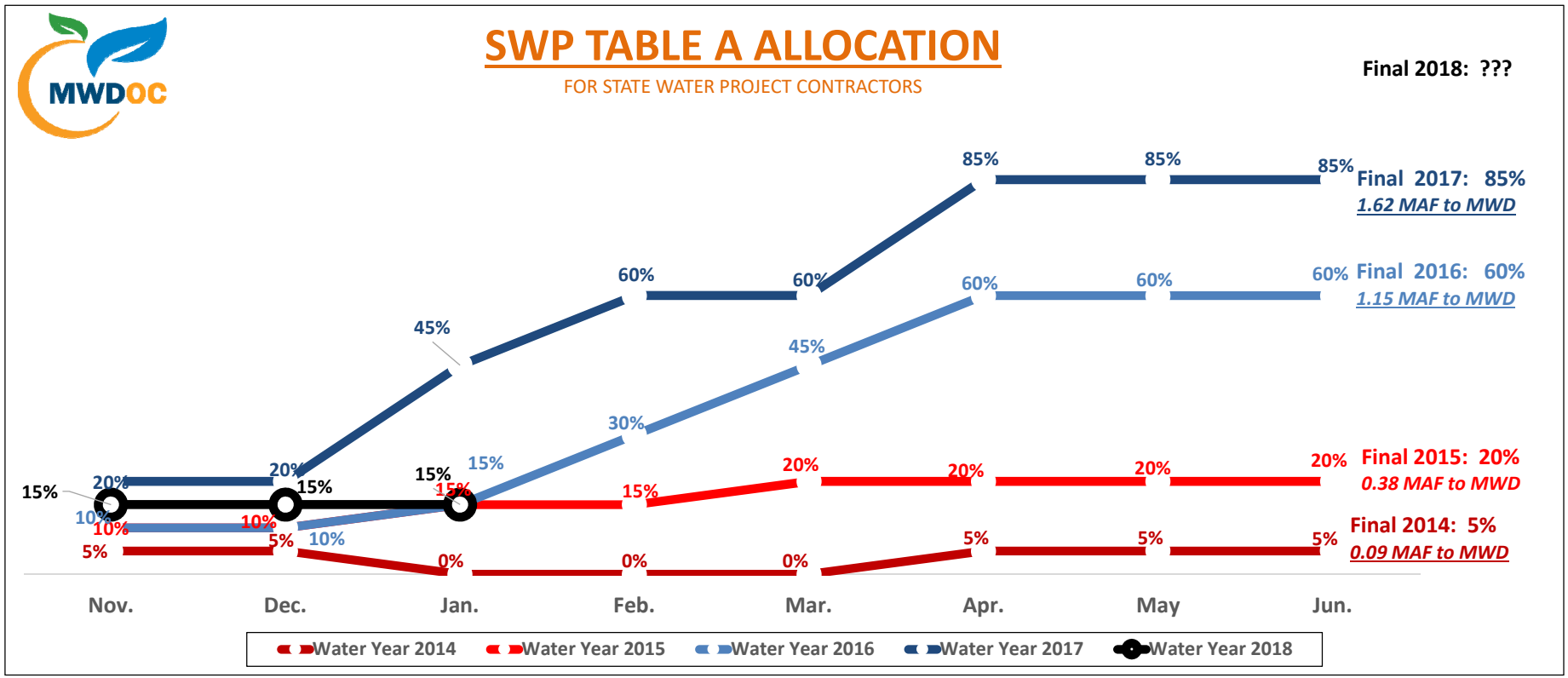
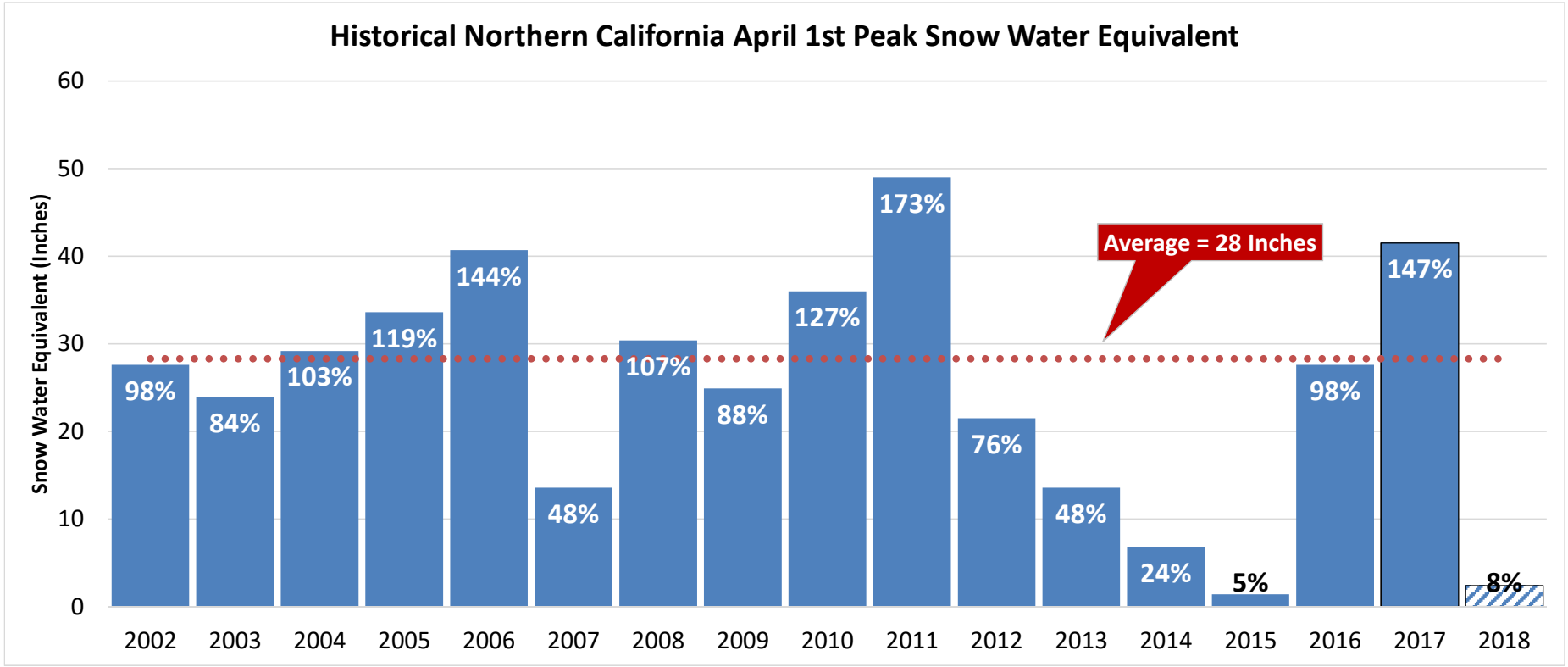
SWP TABLE A ALLOCATION

FOR STATE WATER PROJECT CONTRACTORS




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%
8%
2002
2003
2004
2005
2006
2007
2008
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2011
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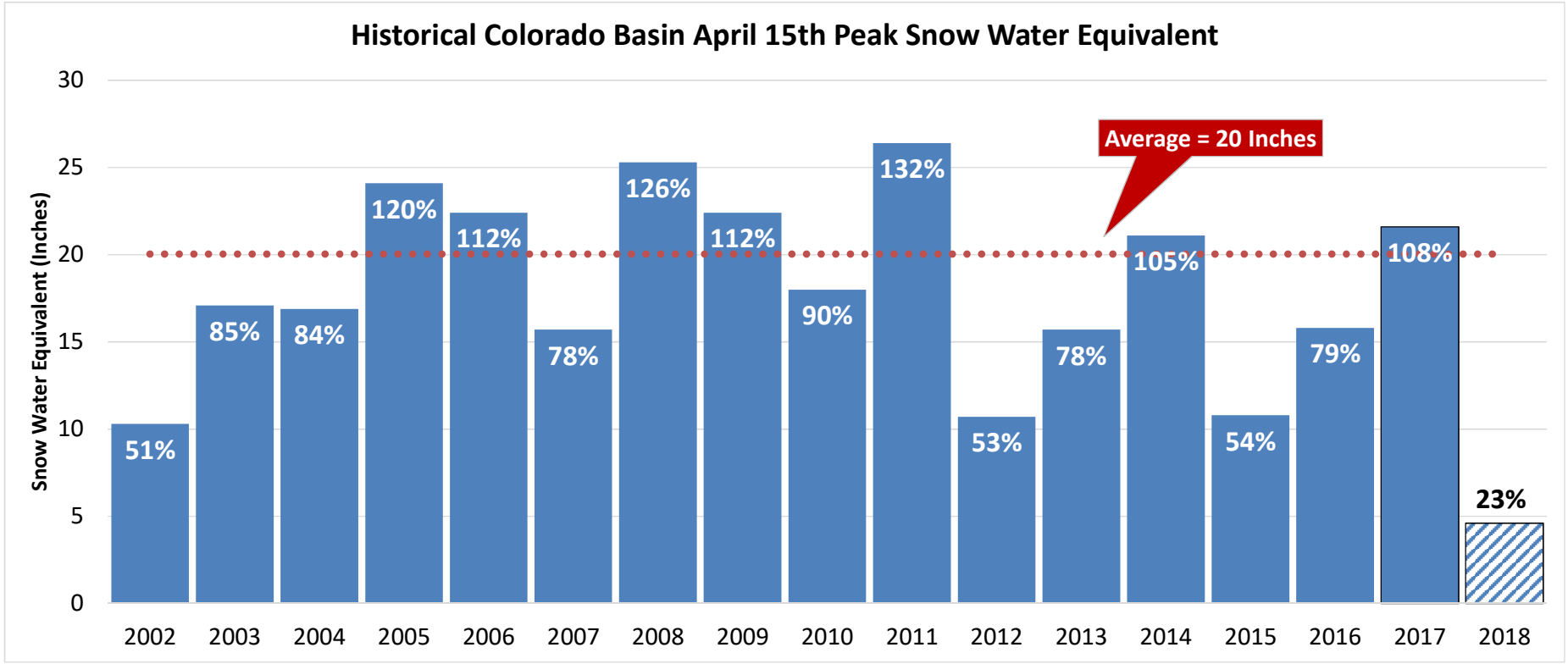
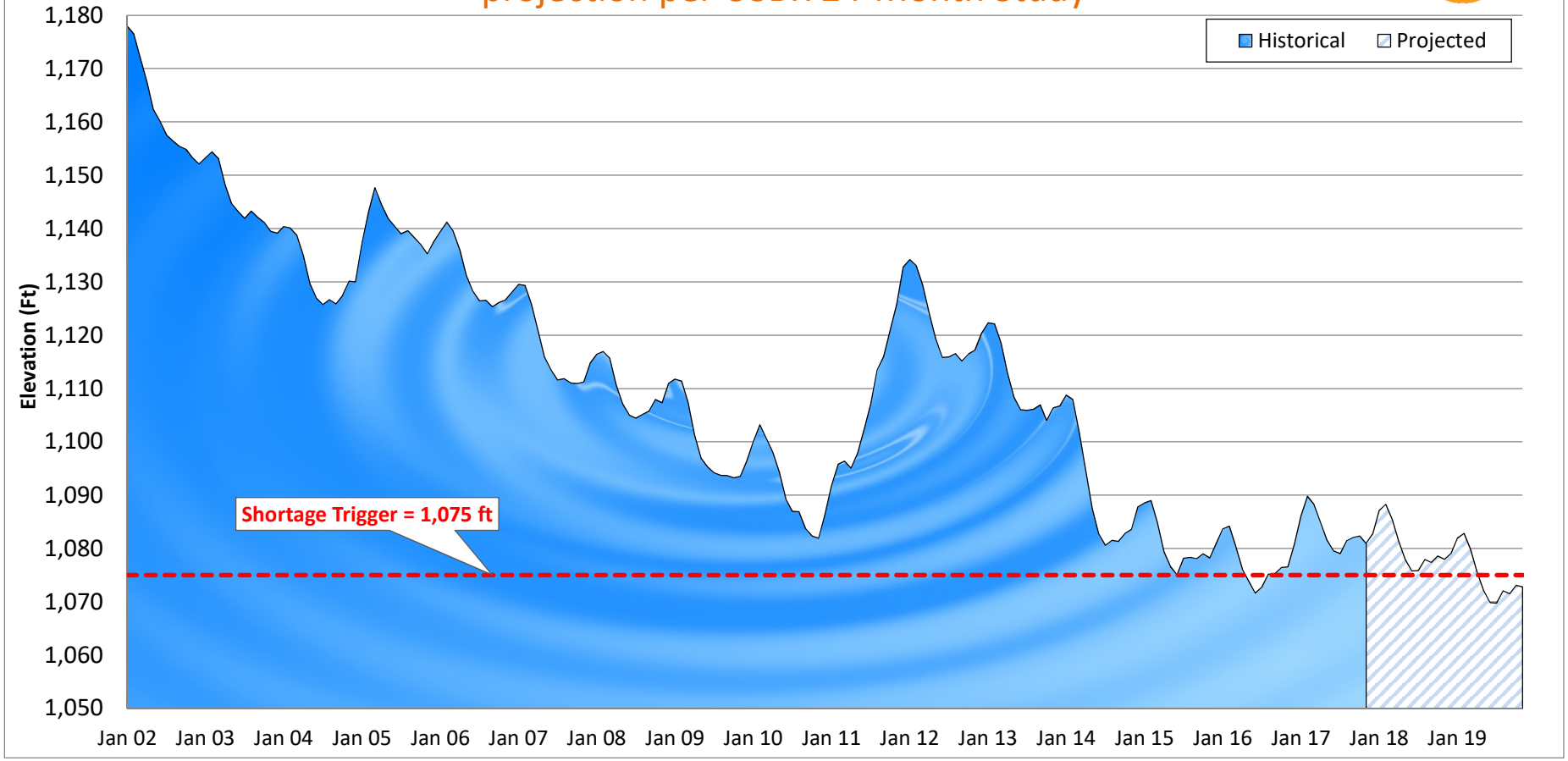
2013
2014
2015
2016
2017
2018


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%
23%
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



Lake Powell Levels: Historical and Projected

projection per USBR 24-Month Study