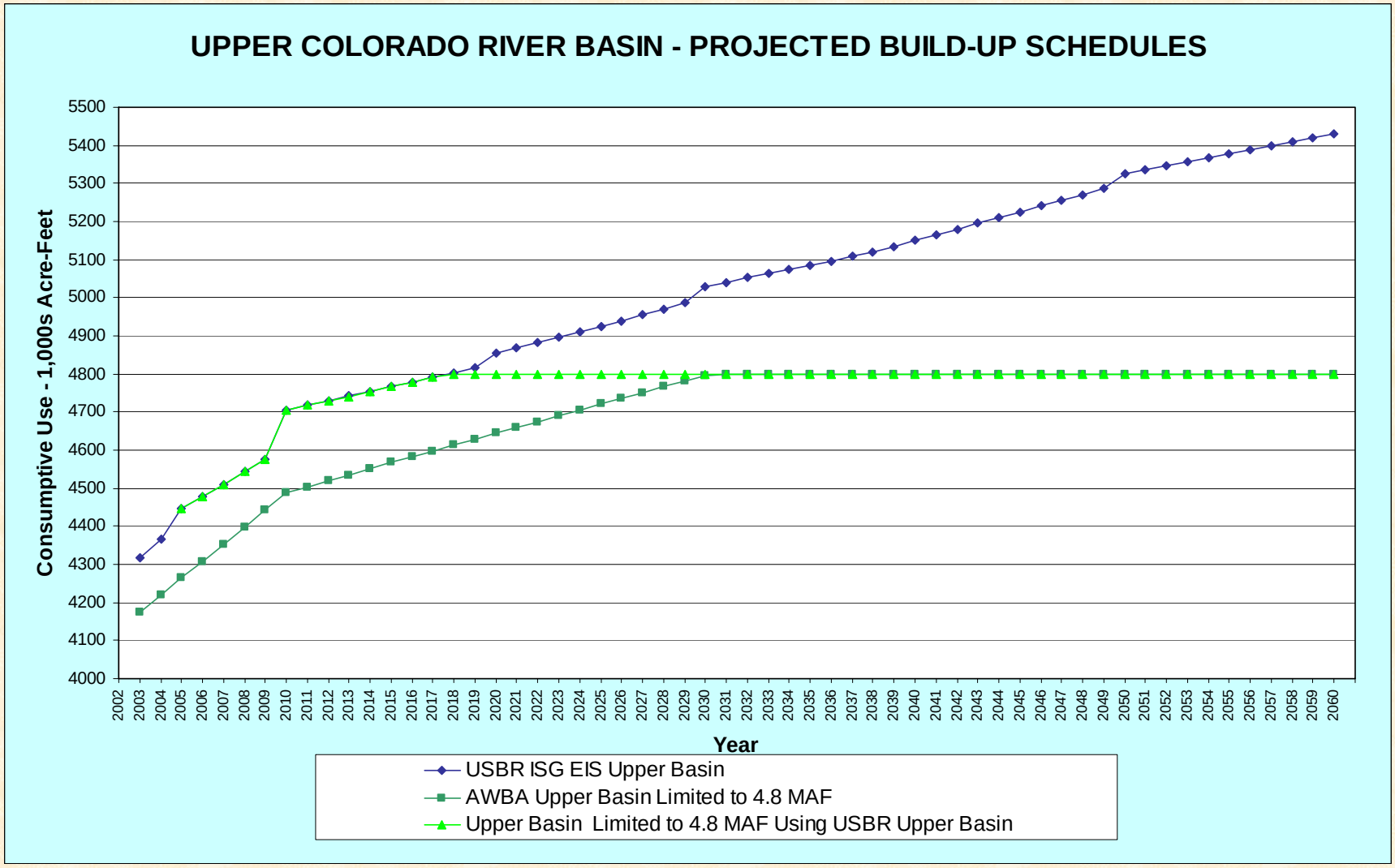
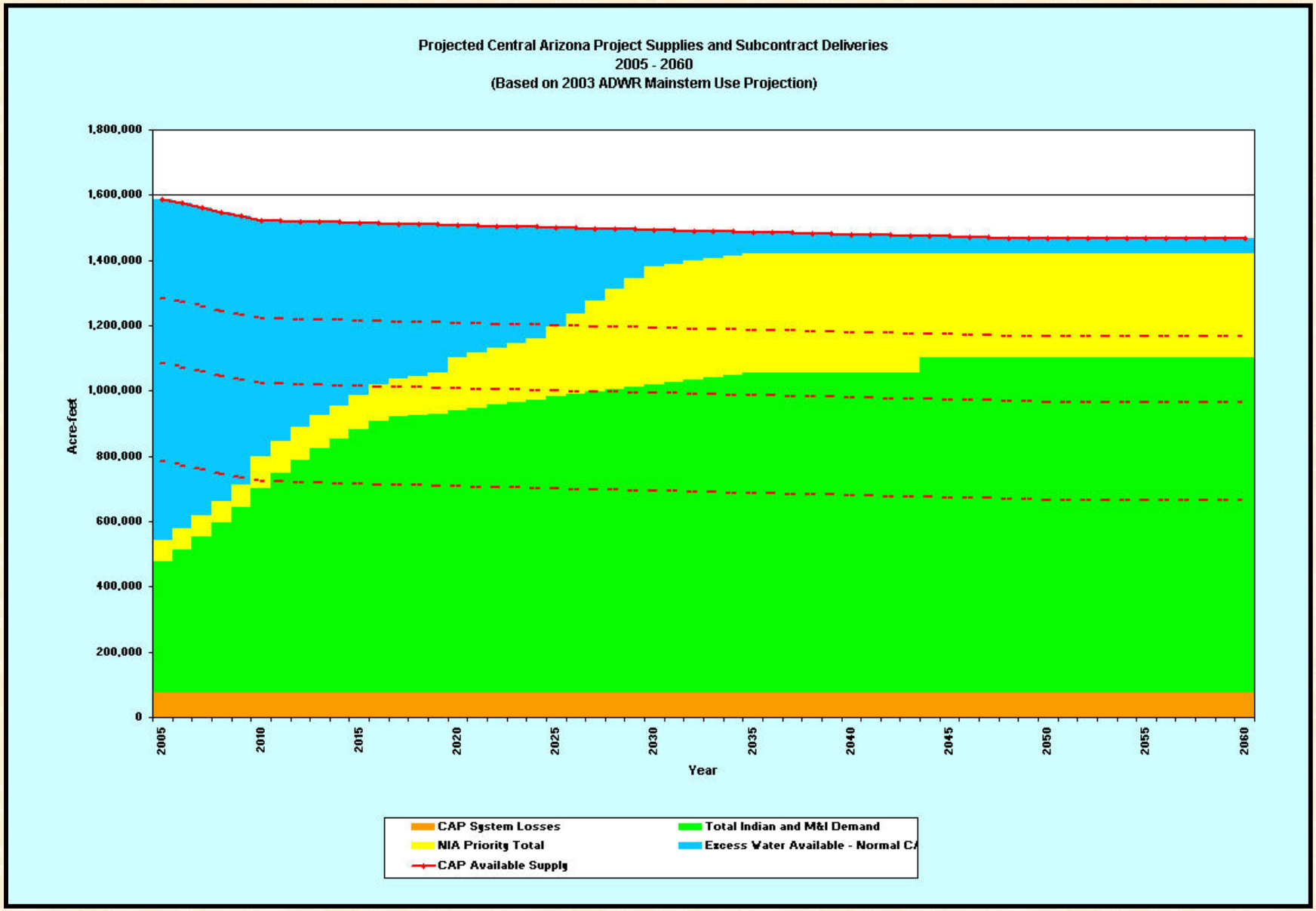
Arizona Colorado River Shortage Sharing
Key Assumptions

- **Upper Basin Water Demand Build-Up**
  - ***Limited to 4.8 Million Acre-feet (AWBA or USBR Projection)***
- **Lake Powell Minimum Release**
  - ***8.23 Million Acre-feet***
- **Starting Reservoir Elevations**
  - ***Projected January 2006 Elevations***
- **Surplus Operations**
  - ***Interim Surplus Guidelines Ending 2016, "70R" Surplus Thereafter***
- **Shortage Operations**
  - ***80P1050***
- **Minimum Lake Mead Elevation (Absolute Protection)**
  - ***1,000 Feet***
- **Shortage to Arizona**
  - ***300 KAF, 500 KAF, 800 KAF***
- **Operation of the Yuma Desalter**
  - ***Starts in 2009***
- **On-River Uses Build-Up**
  - ***Based on Arizona Department of Water Resources 2003 Projection – 1.33 Million Acre-feet***

Upper Basin Depletion Schedule




Projected Central Arizona Project Supplies and Subcontract Deliveries
2005 - 2060
(Based on 2003 ADWR Mainstem Use Projection)
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Acre-feet
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
Year
CAP System Losses
Total Indian and M&I Demand
NIA Priority Total
Excess Water Available - Normal CA
CAP Available Supply

Arizona Colorado River Shortage Sharing

Shortage Methods

- **80P1050**
  - ***Reduce deliveries to the Lower Basin to protect Lake Mead at elevation 1050'***
  - ***Arizona shortage volumes modeled***
    - ***300 kaf***
    - ***500 kaf***
    - ***800 kaf***

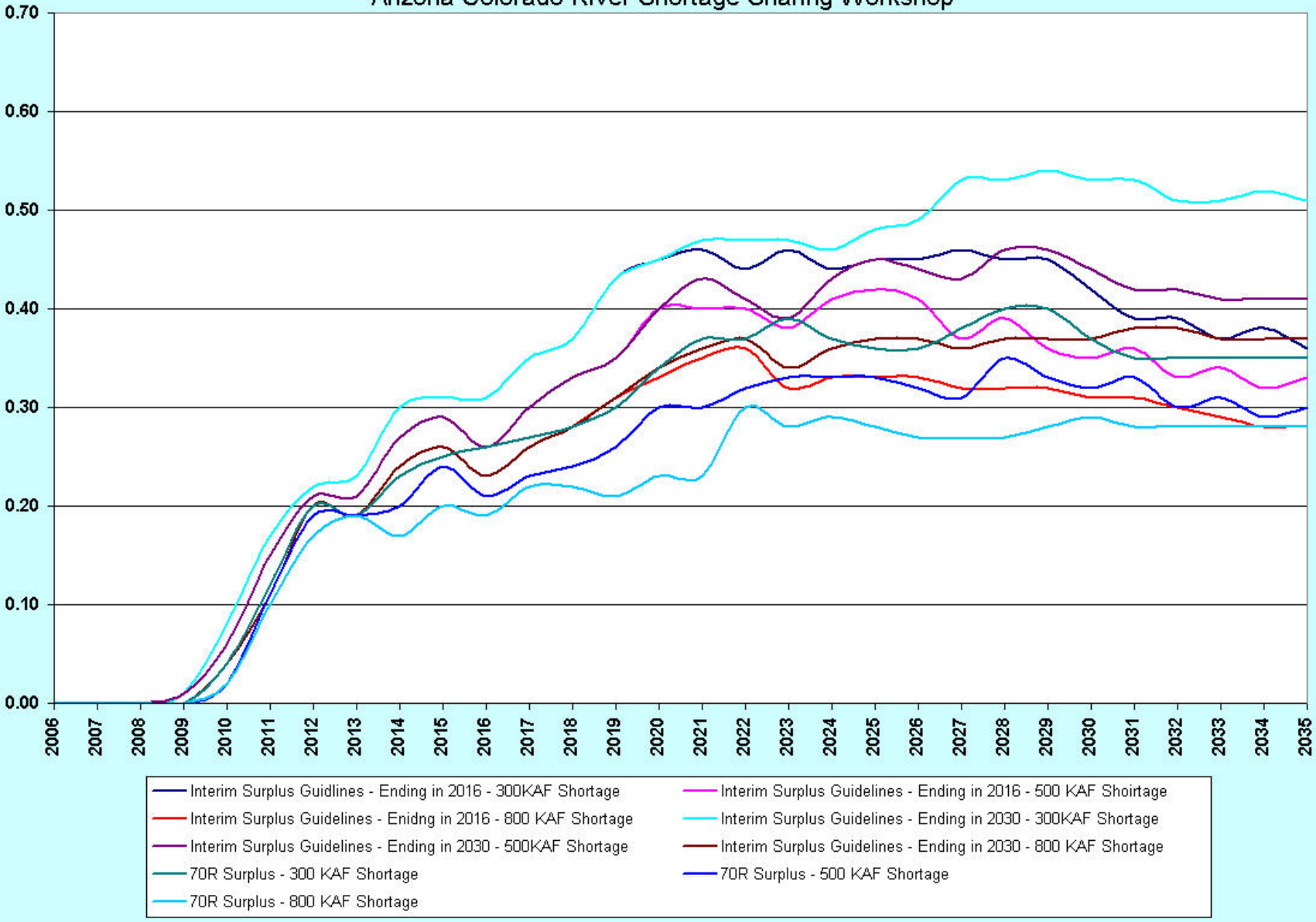
- **Lake Mead Absolute Protect**
  - ***Absolute protection of Lake Mead Elevation 1000'***

CRSSEZ MODELING SCENARIOS FOR ARIZONA COLORADO RIVER SHORTAGE SHARING STAKEHOLDER WORKSHOP
January 2006 Starting Elevations for Colorado River Reservoirs
Lake Mead Protect Level = 80P 1050, Absolute of 1000 ft

	Demand Strategy	Surplus Strategy			Shortage Strategy		
RUN	Upper Basin Demands	ISG 2016	ISG 2030	70R	300 KAF	500 KAF	800 KAF
1	4.8 AWBA	✓			✓		
2	4.8 AWBA	✓				✓	
3	4.8 AWBA	✓					✓
4	4.8 AWBA		✓		✓		
5	4.8 AWBA		✓			✓	
6	4.8 AWBA		✓				✓
7	4.8 AWBA			✓	✓		
8	4.8 AWBA			✓		✓	
9	4.8 AWBA			✓			✓
10	4.8 USBR	✓			✓		
11	4.8 USBR	✓				✓	
12	4.8 USBR	✓					✓
13	4.8 USBR		✓		✓		
14	4.8 USBR		✓			✓	
15	4.8 USBR		✓				✓
16	4.8 USBR			✓	✓		
17	4.8 USBR			✓		✓	
18	4.8 USBR			✓			✓
19	5.4 USBR	✓			✓		
20	5.4 USBR	✓				✓	
21	5.4 USBR	✓					✓
22	5.4 USBR		✓		✓		
23	5.4 USBR		✓			✓	
24	5.4 USBR		✓				✓
25	5.4 USBR			✓	✓		
26	5.4 USBR			✓		✓	
27	5.4 USBR			✓			✓

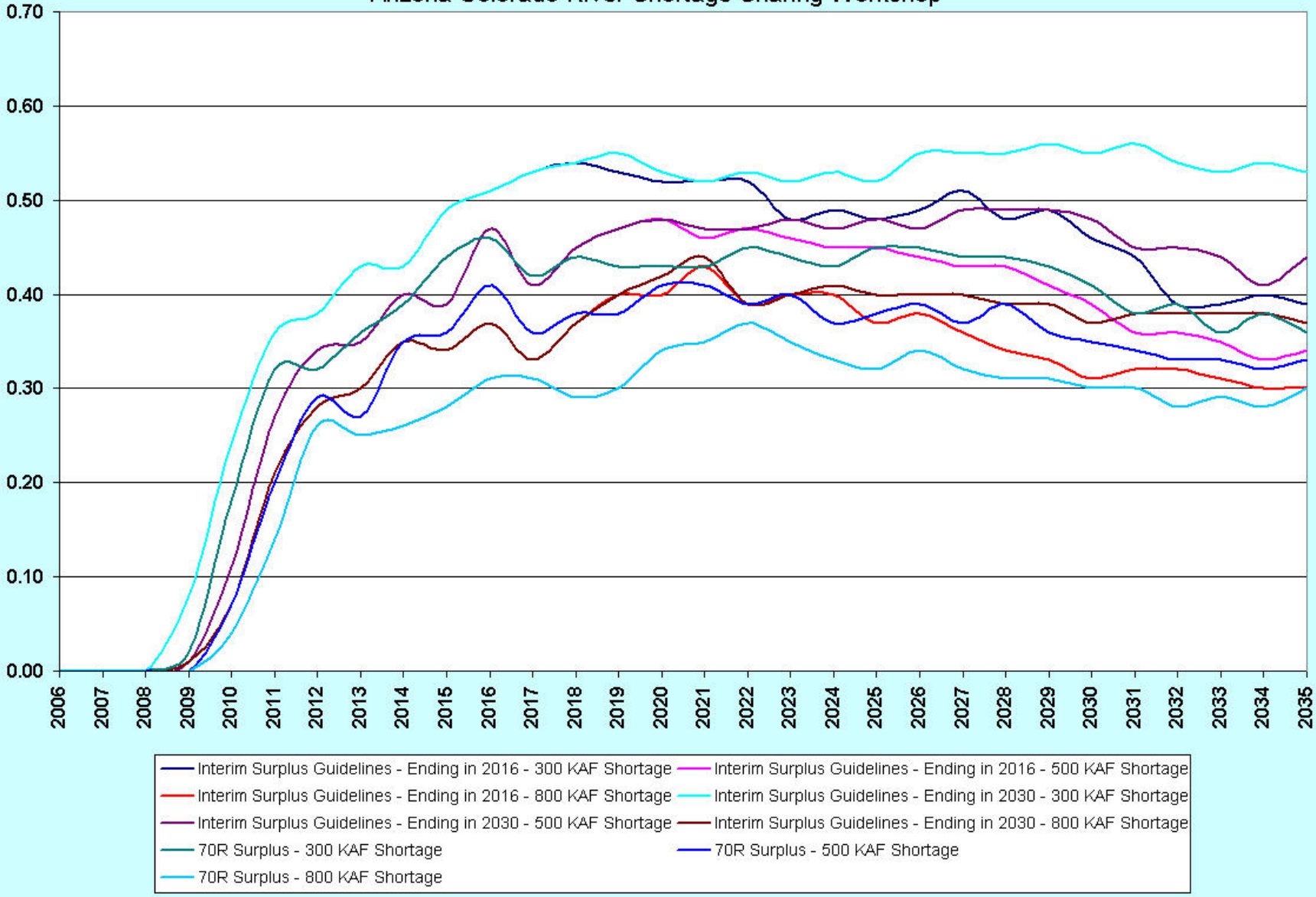
PROBABILITY OF SHORTAGE
UPPER BASIN LIMITED TO 4.8 MILLION ACRE-FEET - AWBA PROJECTION

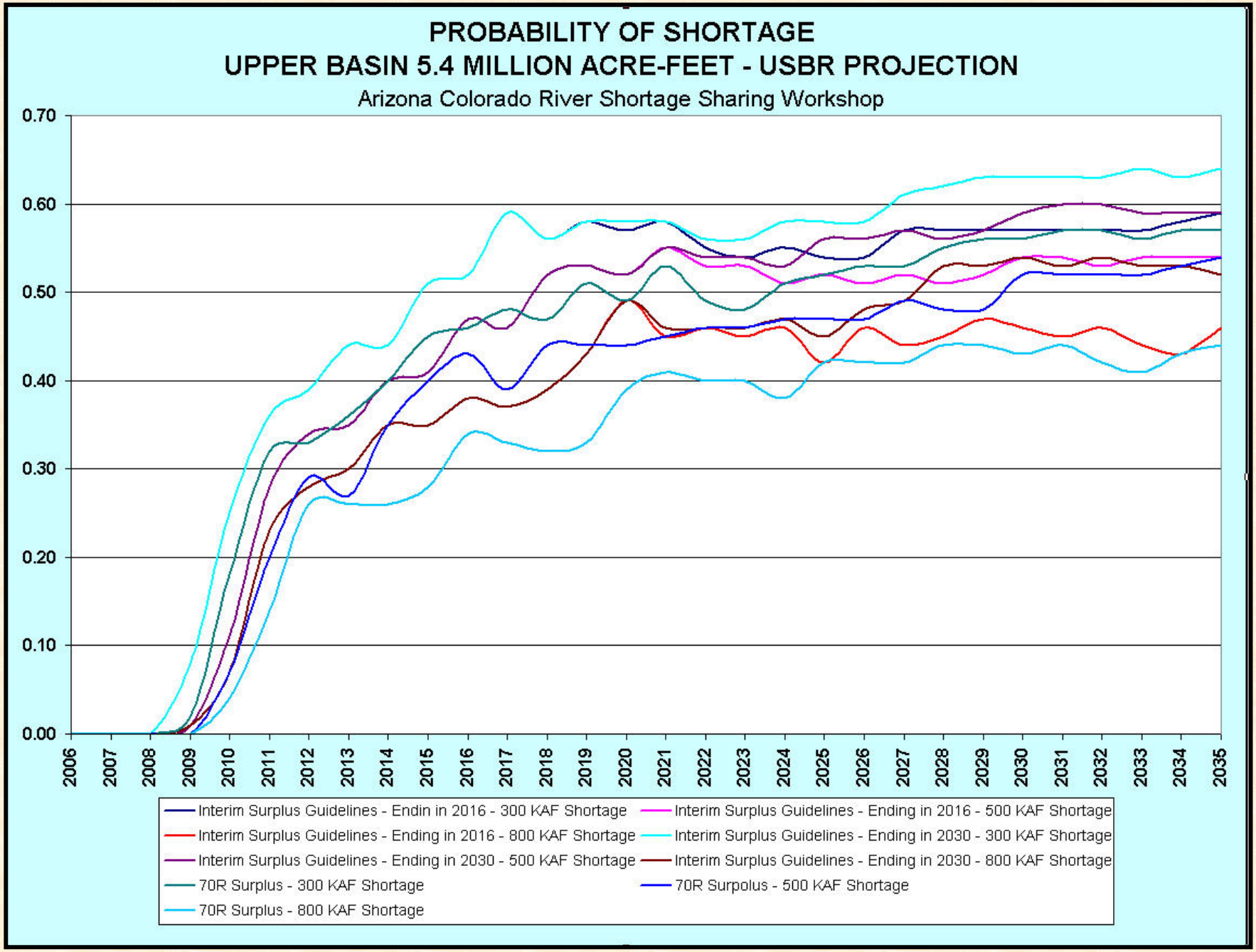
Arizona Colorado River Shortage Sharing Workshop

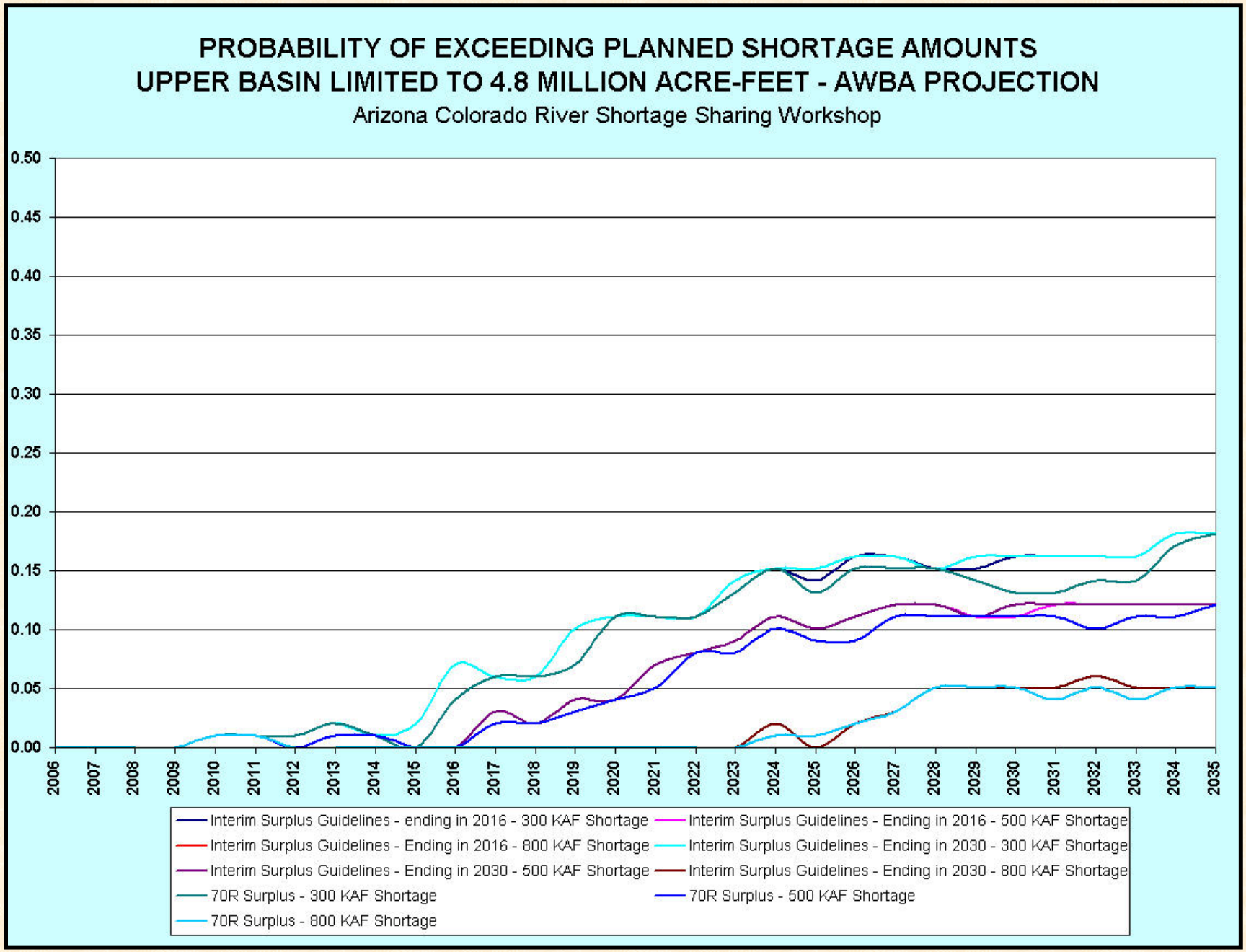


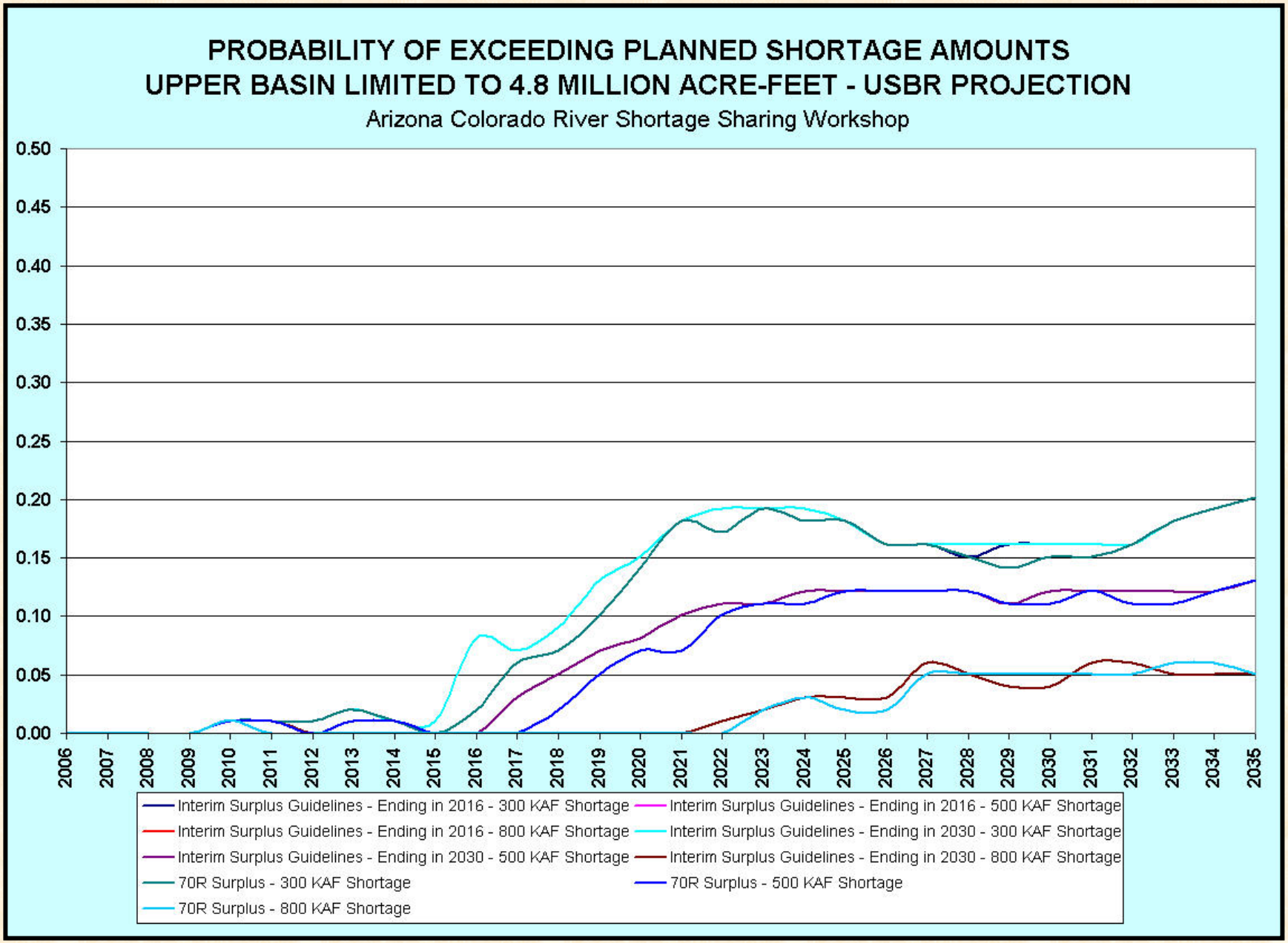
PROBABILITY OF SHORTAGE
UPPER BASIN LIMITED TO 4.8 MILLION ACRE-FEET - USBR PROJECTION

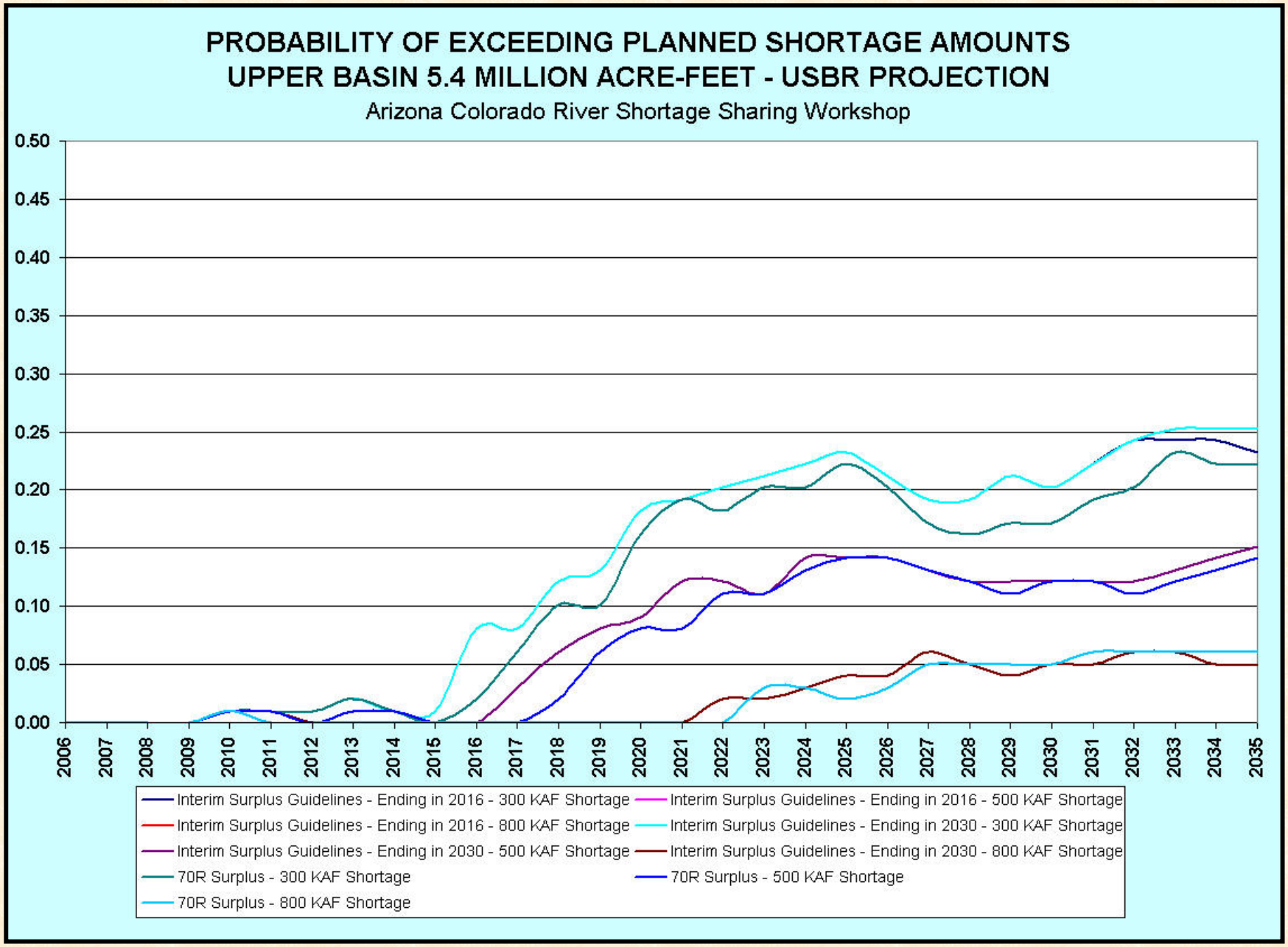
Arizona Colorado River Shortage Sharing Workshop

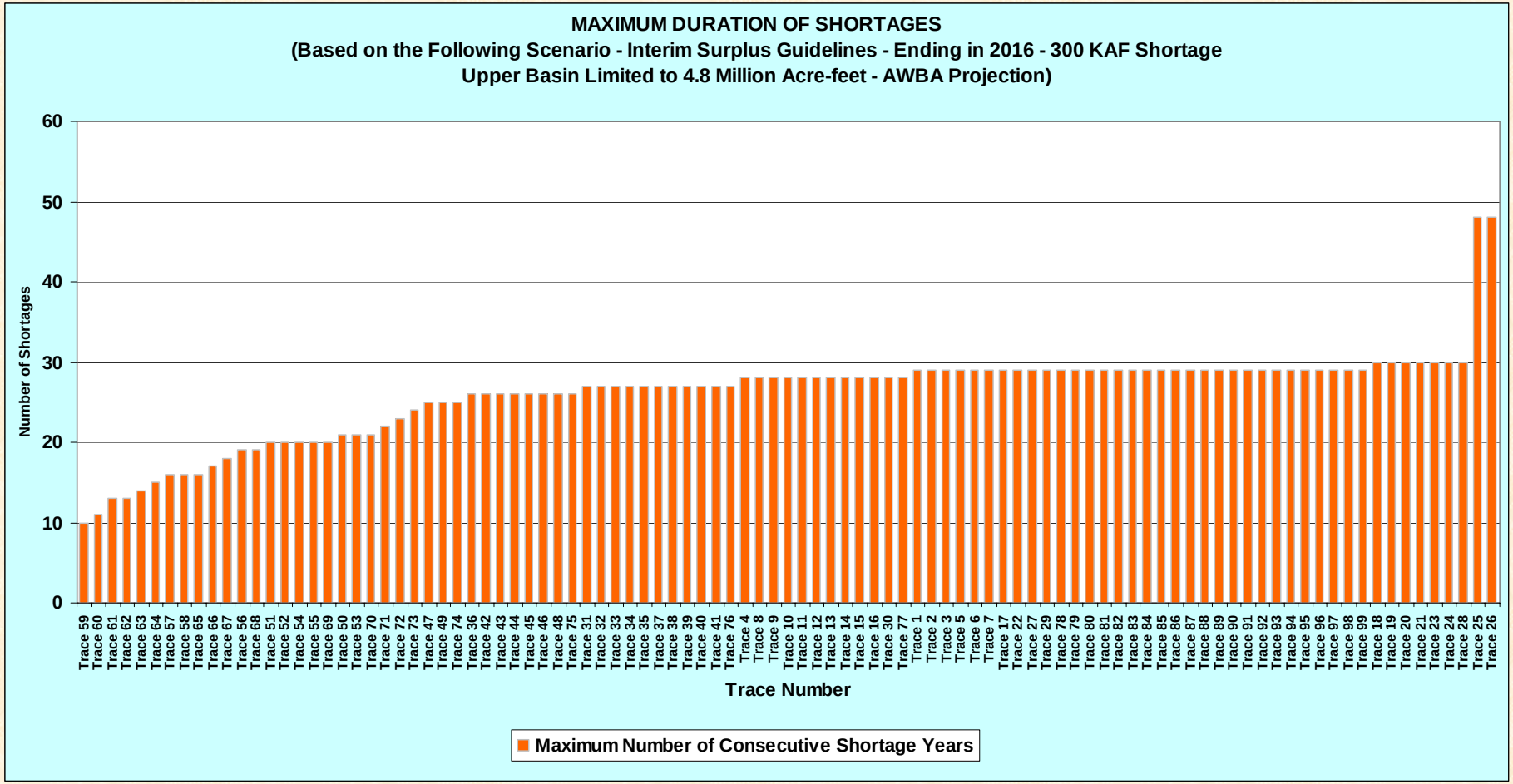


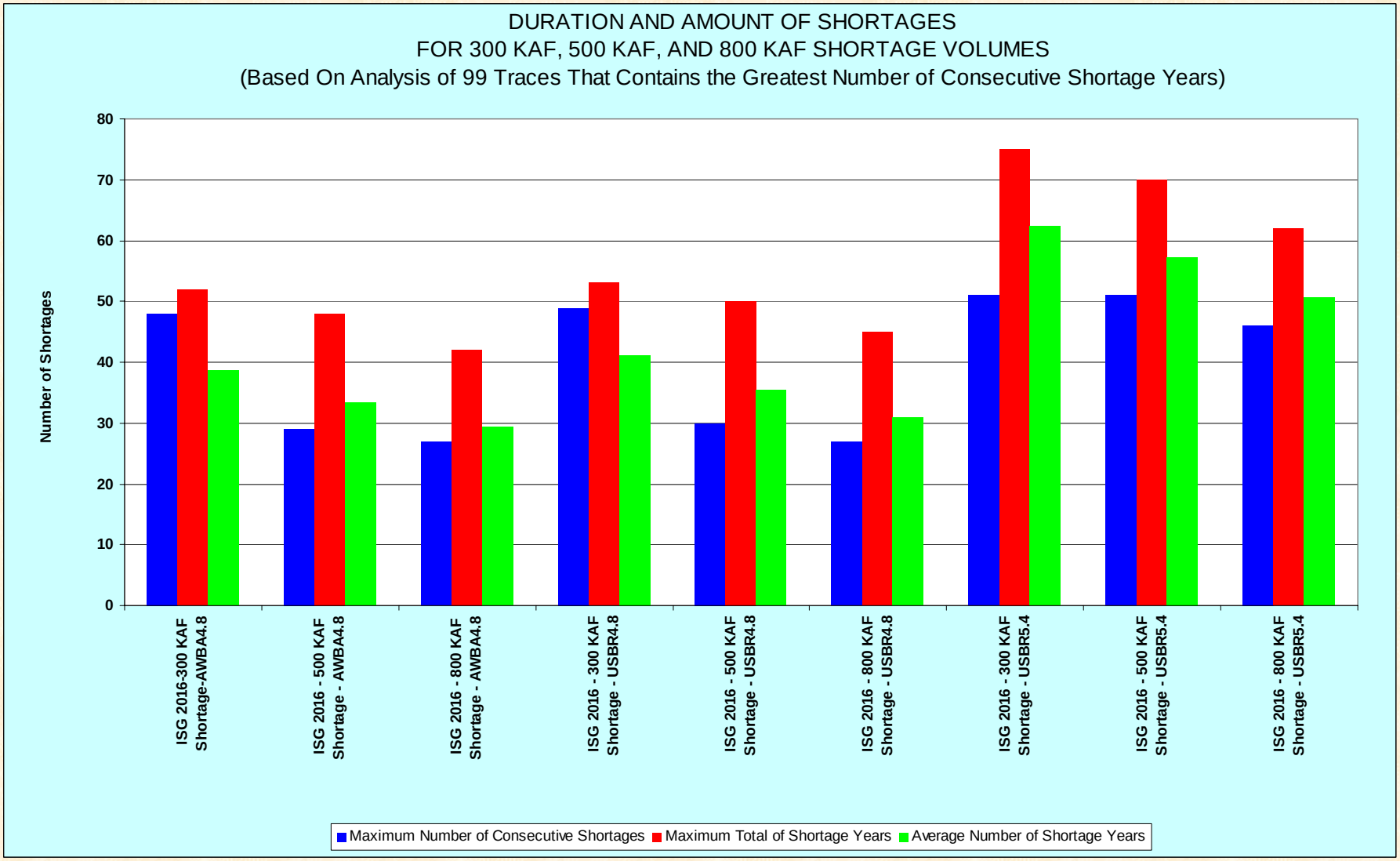

PROBABILITY OF SHORTAGE
UPPER BASIN 5.4 MILLION ACRE-FEET - USBR PROJECTION
Arizona Colorado River Shortage Sharing Workshop
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
Interim Surplus Guidelines - Endin in 2016 - 300 KAF Shortage
Interim Surplus Guidelines - Ending in 2016 - 500 KAF Shortage
Interim Surplus Guidelines - Ending in 2016 - 800 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 300 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 500 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 800 KAF Shortage
70R Surplus - 300 KAF Shortage
70R Surpolus - 500 KAF Shortage
70R Surplus - 800 KAF Shortage


PROBABILITY OF EXCEEDING PLANNED SHORTAGE AMOUNTS
UPPER BASIN LIMITED TO 4.8 MILLION ACRE-FEET - AWBA PROJECTION
Arizona Colorado River Shortage Sharing Workshop
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
Interim Surplus Guidelines - ending in 2016 - 300 KAF Shortage
Interim Surplus Guidelines - Ending in 2016 - 500 KAF Shortage
Interim Surplus Guidelines - Ending in 2016 - 800 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 300 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 500 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 800 KAF Shortage
70R Surplus - 300 KAF Shortage
70R Surplus - 500 KAF Shortage
70R Surplus - 800 KAF Shortage


PROBABILITY OF EXCEEDING PLANNED SHORTAGE AMOUNTS
UPPER BASIN LIMITED TO 4.8 MILLION ACRE-FEET - USBR PROJECTION
Arizona Colorado River Shortage Sharing Workshop
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
Interim Surplus Guidelines - Ending in 2016 - 300 KAF Shortage
Interim Surplus Guidelines - Ending in 2016 - 500 KAF Shortage
Interim Surplus Guidelines - Ending in 2016 - 800 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 300 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 500 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 800 KAF Shortage
70R Surplus - 300 KAF Shortage
70R Surplus - 500 KAF Shortage
70R Surplus - 800 KAF Shortage


PROBABILITY OF EXCEEDING PLANNED SHORTAGE AMOUNTS
UPPER BASIN 5.4 MILLION ACRE-FEET - USBR PROJECTION
Arizona Colorado River Shortage Sharing Workshop
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
Interim Surplus Guidelines - Ending in 2016 - 300 KAF Shortage
Interim Surplus Guidelines - Ending in 2016 - 500 KAF Shortage
Interim Surplus Guidelines - Ending in 2016 - 800 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 300 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 500 KAF Shortage
Interim Surplus Guidelines - Ending in 2030 - 800 KAF Shortage
70R Surplus - 300 KAF Shortage
70R Surplus - 500 KAF Shortage
70R Surplus - 800 KAF Shortage


MAXIMUM DURATION OF SHORTAGES
(Based on the Following Scenario - Interim Surplus Guidelines - Ending in 2016 - 300 KAF Shortage
Upper Basin Limited to 4.8 Million Acre-feet - AWBA Projection)
Number of Shortages
0
10
20
30
40
50
60
Trace 59
Trace 60
Trace 61
Trace 62
Trace 63
Trace 64
Trace 57
Trace 58
Trace 65
Trace 66
Trace 67
Trace 56
Trace 68
Trace 51
Trace 52
Trace 54
Trace 55
Trace 69
Trace 50
Trace 53
Trace 70
Trace 71
Trace 72
Trace 73
Trace 47
Trace 49
Trace 74
Trace 36
Trace 42
Trace 43
Trace 44
Trace 45
Trace 46
Trace 48
Trace 75
Trace 31
Trace 32
Trace 33
Trace 34
Trace 35
Trace 37
Trace 38
Trace 39
Trace 40
Trace 41
Trace 76
Trace 4
Trace 8
Trace 9
Trace 10
Trace 11
Trace 12
Trace 13
Trace 14
Trace 15
Trace 16
Trace 30
Trace 77
Trace 1
Trace 2
Trace 3
Trace 5
Trace 6
Trace 7
Trace 17
Trace 22
Trace 27
Trace 29
Trace 78
Trace 79
Trace 80
Trace 81
Trace 82
Trace 83
Trace 84
Trace 85
Trace 86
Trace 87
Trace 88
Trace 89
Trace 90
Trace 91
Trace 92
Trace 93
Trace 94
Trace 95
Trace 96
Trace 97
Trace 98
Trace 99
Trace 18
Trace 19
Trace 20
Trace 21
Trace 23
Trace 24
Trace 28
Trace 25
Trace 26
Trace Number
Maximum Number of Consecutive Shortage Years


DURATION AND AMOUNT OF SHORTAGES
FOR 300 KAF, 500 KAF, AND 800 KAF SHORTAGE VOLUMES
(Based On Analysis of 99 Traces That Contains the Greatest Number of Consecutive Shortage Years)
Number of Shortages
0
10
20
30
40
50
60
70
80
ISG 2016-300 KAF Shortage-AWBA4.8
ISG 2016 - 500 KAF Shortage - AWBA4.8
ISG 2016 - 800 KAF Shortage - AWBA4.8
ISG 2016 - 300 KAF Shortage - USBR4.8
ISG 2016 - 500 KAF Shortage - USBR4.8
ISG 2016 - 800 KAF Shortage - USBR4.8
ISG 2016 - 300 KAF Shortage - USBR5.4
ISG 2016 - 500 KAF Shortage - USBR5.4
ISG 2016 - 800 KAF Shortage - USBR5.4
Maximum Number of Consecutive Shortages
Maximum Total of Shortage Years
Average Number of Shortage Years

QUESTIONS?