CBRFC
Operations Update
Water Year 2018

CRFS November 16, 2017

Brenda Alcorn
Senior Hydrologist

CBRFC Operations Update

- Model calibration efforts
- Staff assignments

Calibration

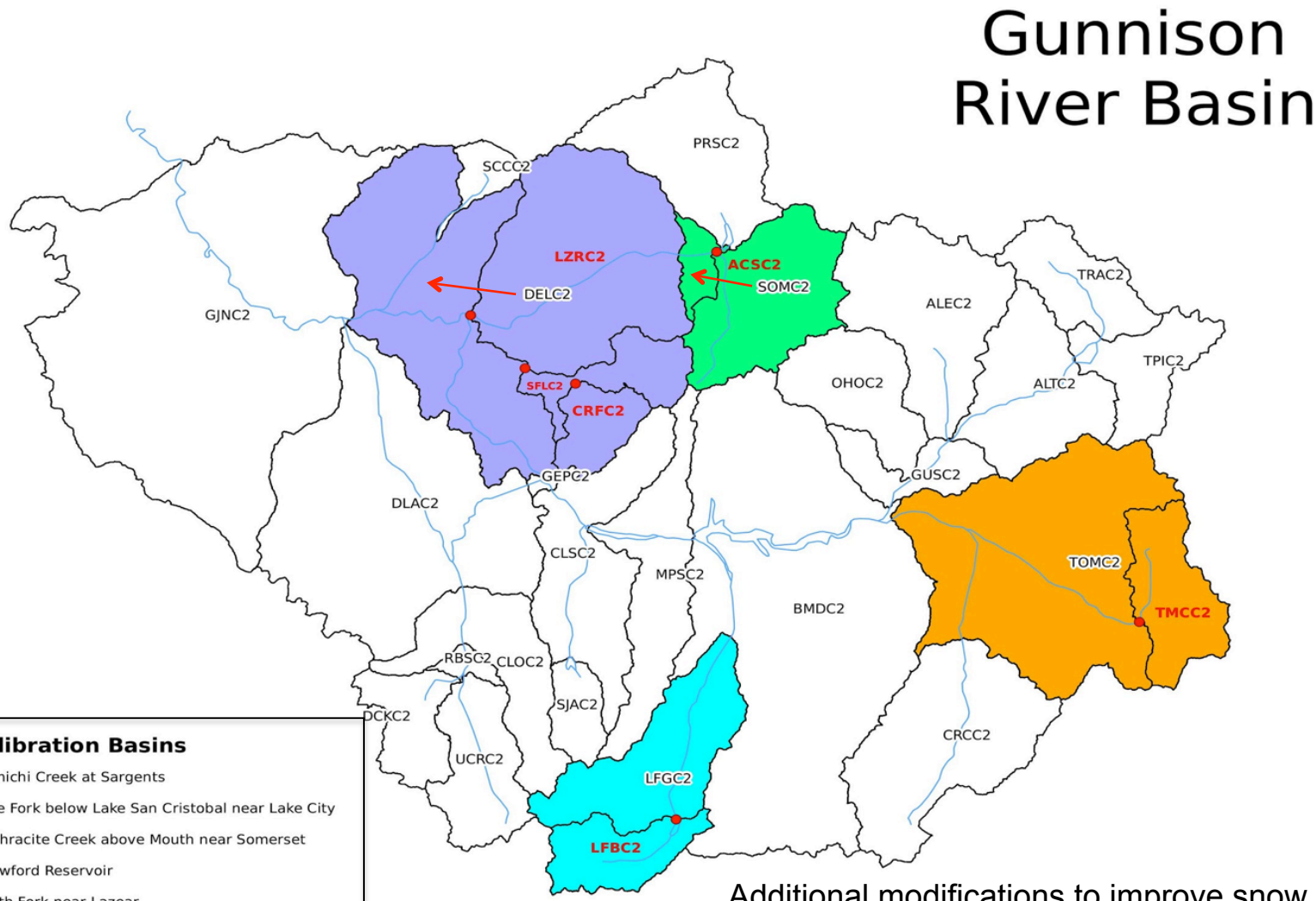
Ongoing work:

- Great Basin 5 year extension
  - Adding 2011-2015 to calibration period
  - Hope to have in place by mid-December
- Gunnison basin recalibration and new segments
- Lower Colorado recalibration

Completed:

- Upper Colorado 5 year extension
  - Implemented mid-December 2016 for all segments above Lake Powell
  - ESP forced by 35 years of historical precipitation and temperature (1981-2015) → 35 trace output

Gunnison Basin: *New Segments*



New Calibration Basins

TMCC2 - Tomichi Creek at Sargents

LFBC2 - Lake Fork below Lake San Cristobal near Lake City

ACSC2 - Anthracite Creek above Mouth near Somerset

CRFC2 - Crawford Reservoir

SFLC2 - Smith Fork near Lazear

LZRC2 - North Fork Gunnison River above Mouth near Lazear

Additional modifications to improve snow modeling:
- standardize elevation zone breaks
- investigate use of newer SNOTEL sites

Lower Colorado Calibration

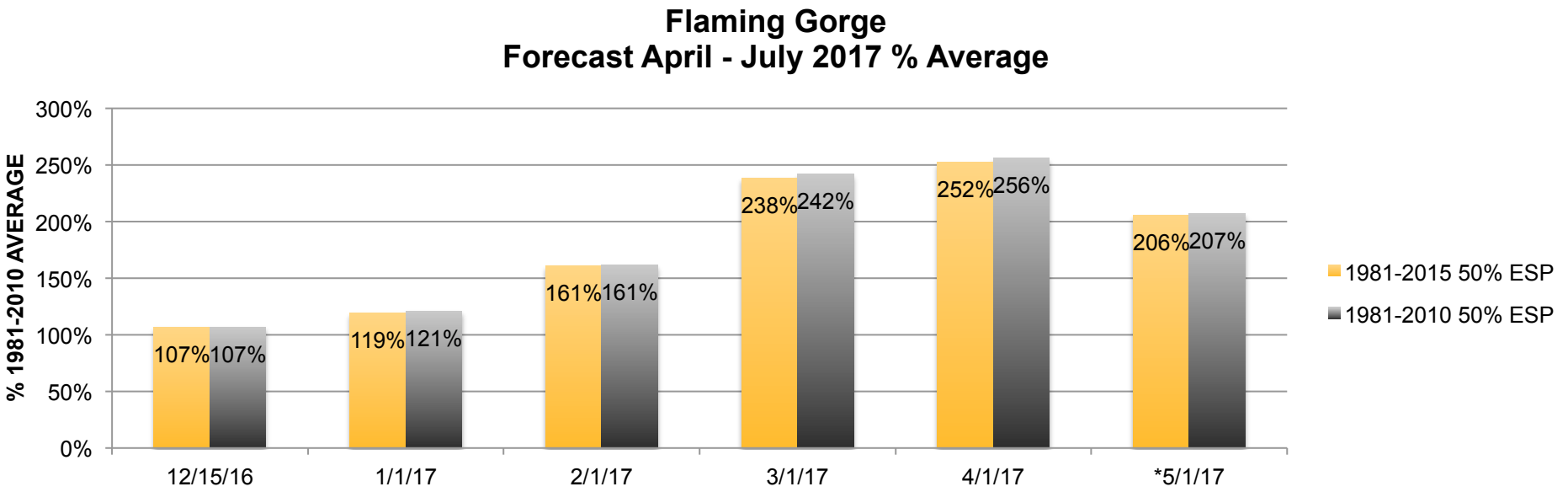
- Working on creating a calibration quality gridded precipitation and temperature data set for use in the lower basins.
  - Uses all available gages to create a grid that is then converted to Mean Areal values
    - Can do this because runoff is primarily precipitation driven vs. snow melt
  - Will be able to easily add years to the calibration/ESP data set
  - The grids that are being created can be used in the next generation of distributed hydrologic models
  - Ensures that calibrations and operations are identical
    - Current operational model is driven by grids converted to mean areal values in the lower basin, but was calibrated on station weighting method

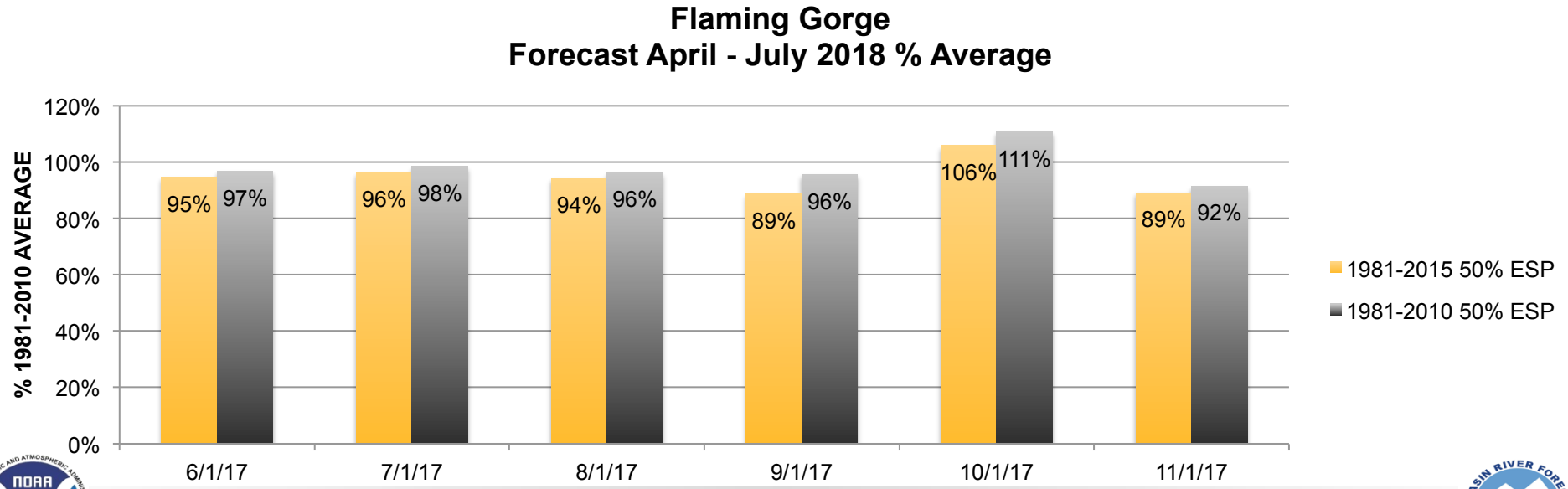
UC Calibration Extension: *Impact on ESP*

- Observed impact on ESP guidance
  - Median (50%) value of 35 year (1981-2015) ESP traces is lower than or similar to the median of the 30 year (1981-2010) traces
    - Differences are bigger the further south the basin is
    - Differences are biggest at longer lead times
    - Differences could also depend on 'current' conditions (dry vs. wet)
  - Max/Min and 10%/90% traces indicate a wider range for some lead times
    - Addition of 2011 and 2012 affected the extreme possibilities

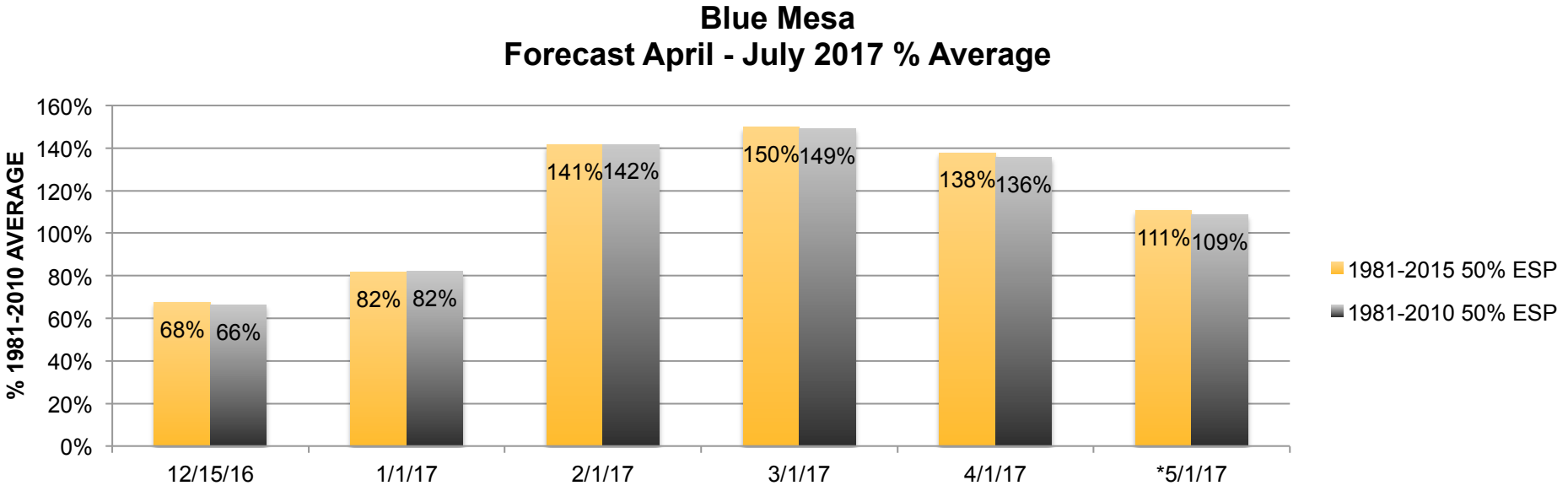
Note about how ESP works as the run crosses the water year boundary:
- Traces are labeled by the ***starting water year*** of the forcings
- When it hits the end of the forcing period (9/30/2015), it wraps back around to the beginning (10/1/1980)
- Example: Run beginning prior to 10/1 looking at runoff for the next year
  - trace labeled as 2010 uses WY2011 winter forcings
  - trace labeled as 2015 uses WY1981 winter forcings

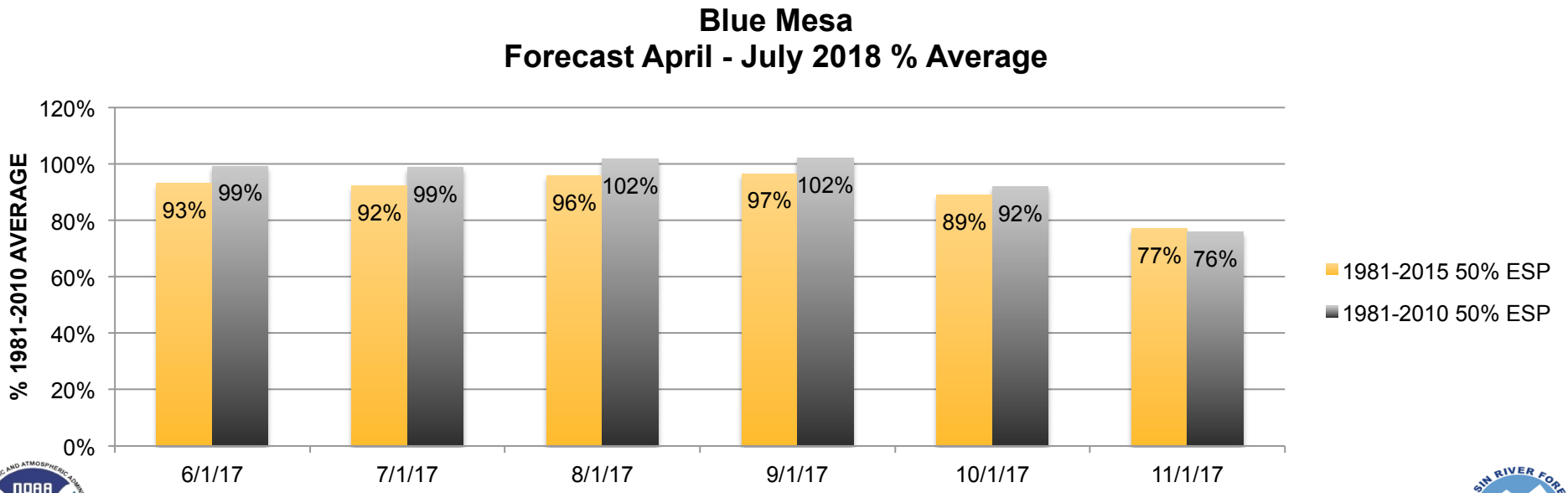
35 vs. 30 Year ESP 50%: *Flaming Gorge*



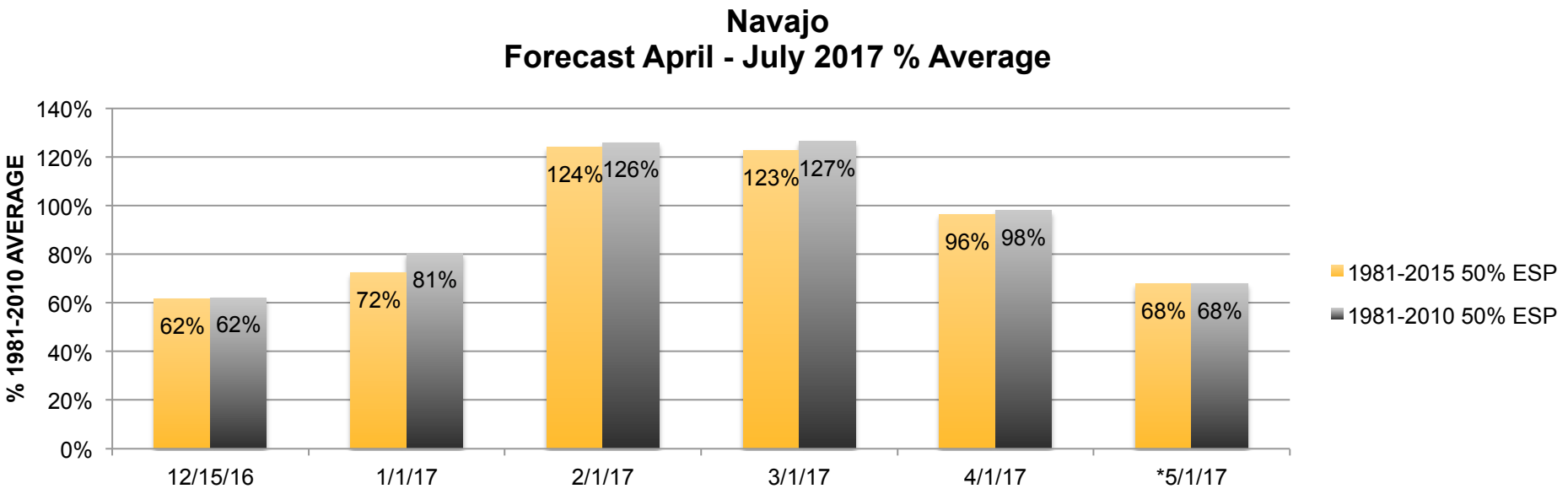


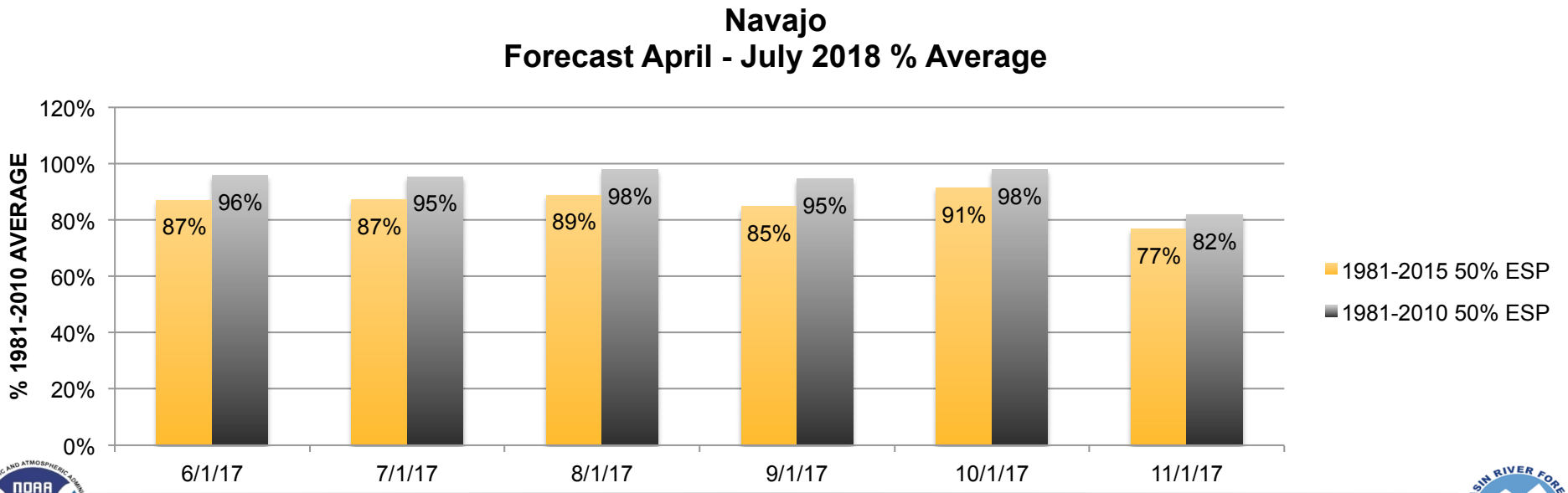
35 vs. 30 Year ESP 50%: *Blue Mesa*



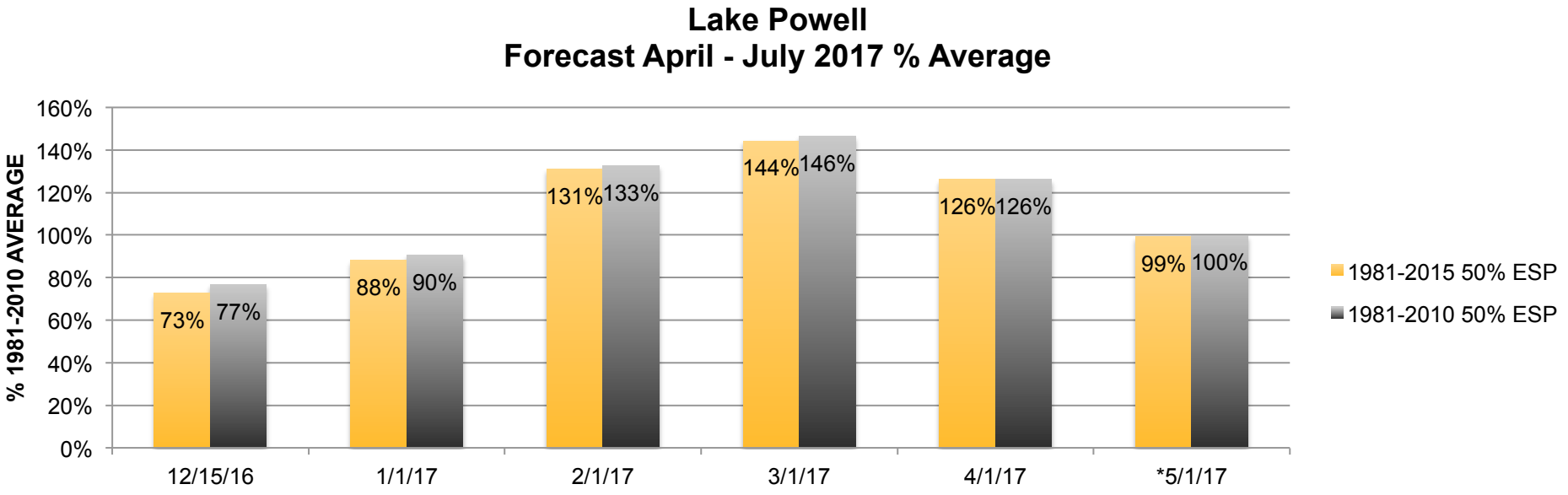


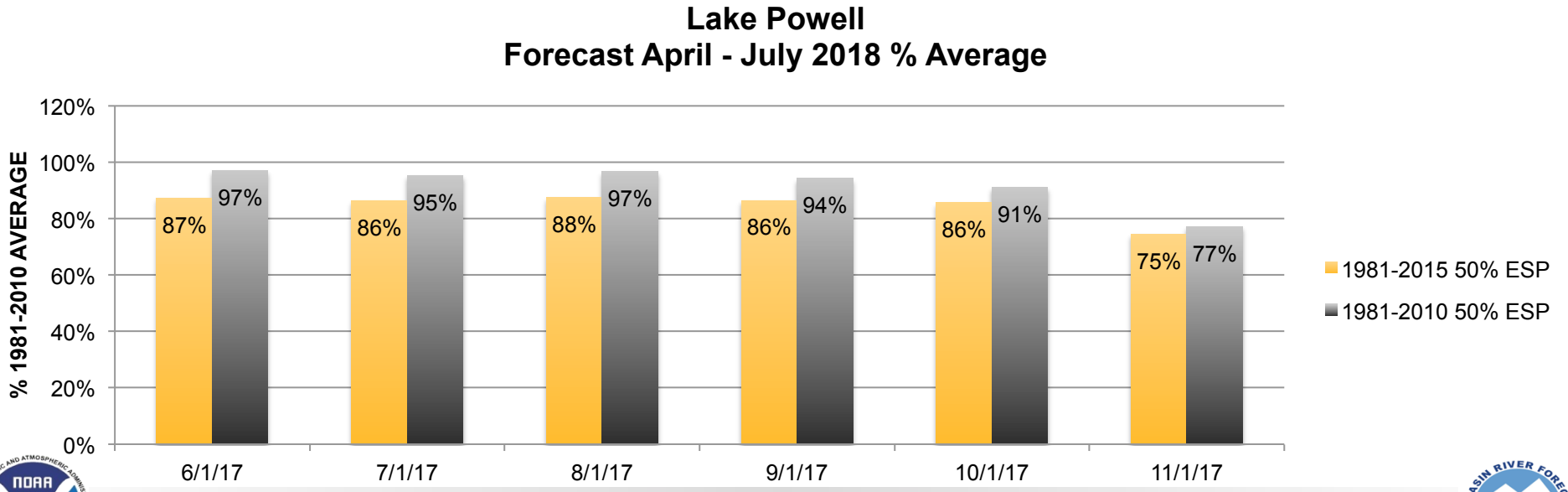
35 vs. 30 Year ESP 50%: *Navajo*





35 vs. 30 Year ESP 50%: *Lake Powell*





35 vs. 30 Year ESP Range: *Flaming Gorge*

Min Diffs = new min trace (2012)
90% Diffs
lower – 2012 and/or 2013 in bottom 4
higher – all new traces above bottom 4
50%Diffs
higher – more new traces above old 50%
lower – more new traces below old 50%
10% Diffs
higher - 2011 in top 4
lower – all new traces below top 4
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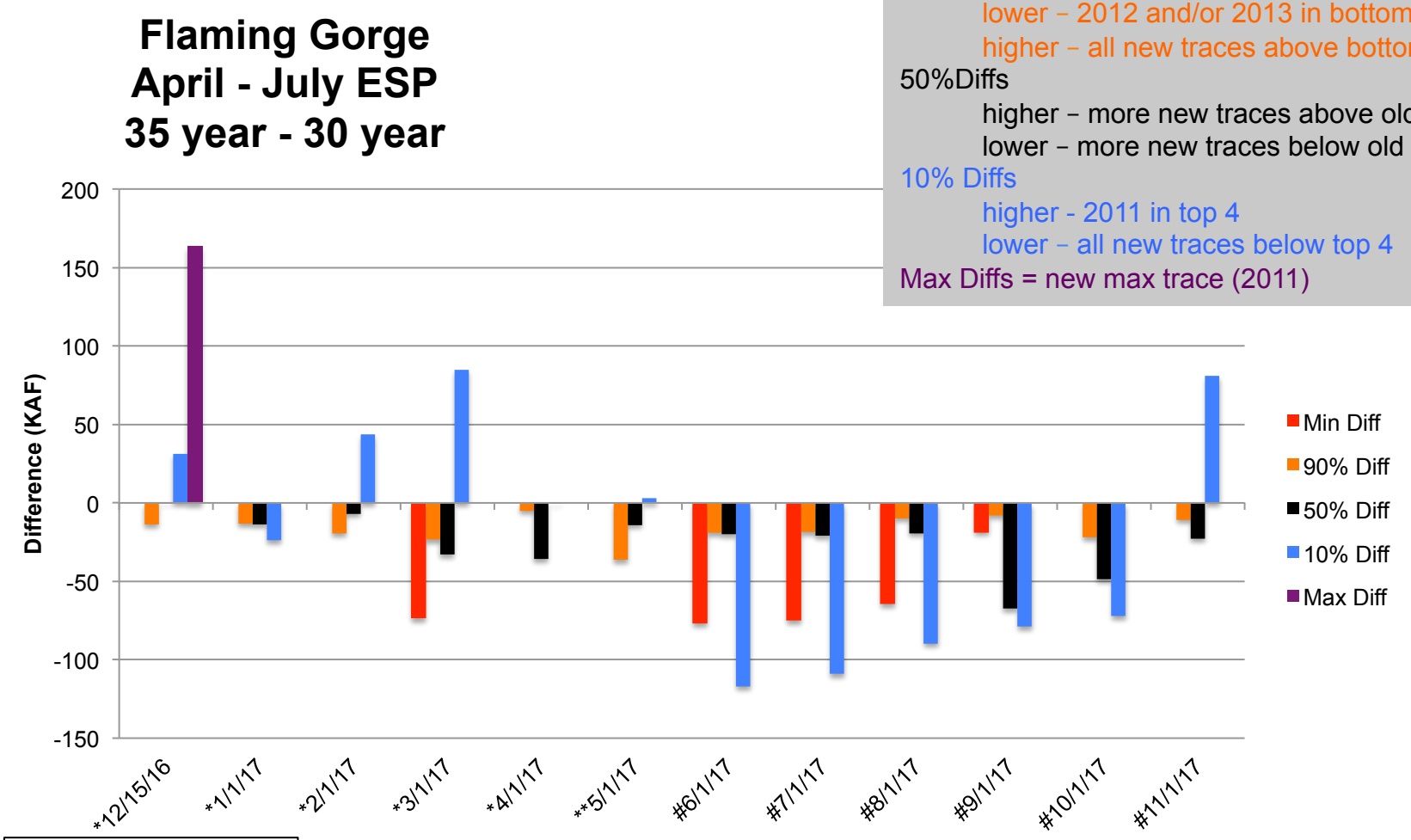

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**May-July 2017
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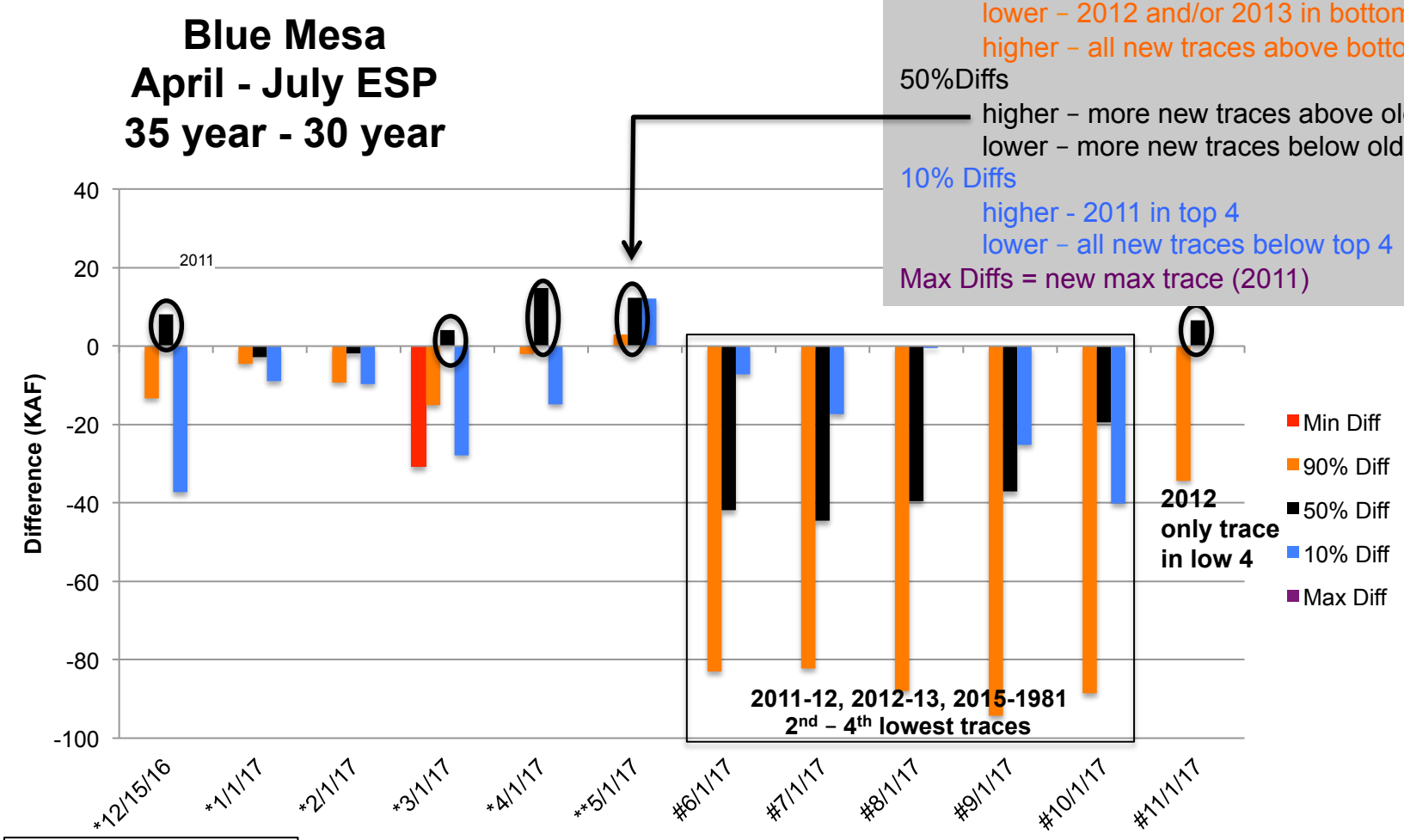

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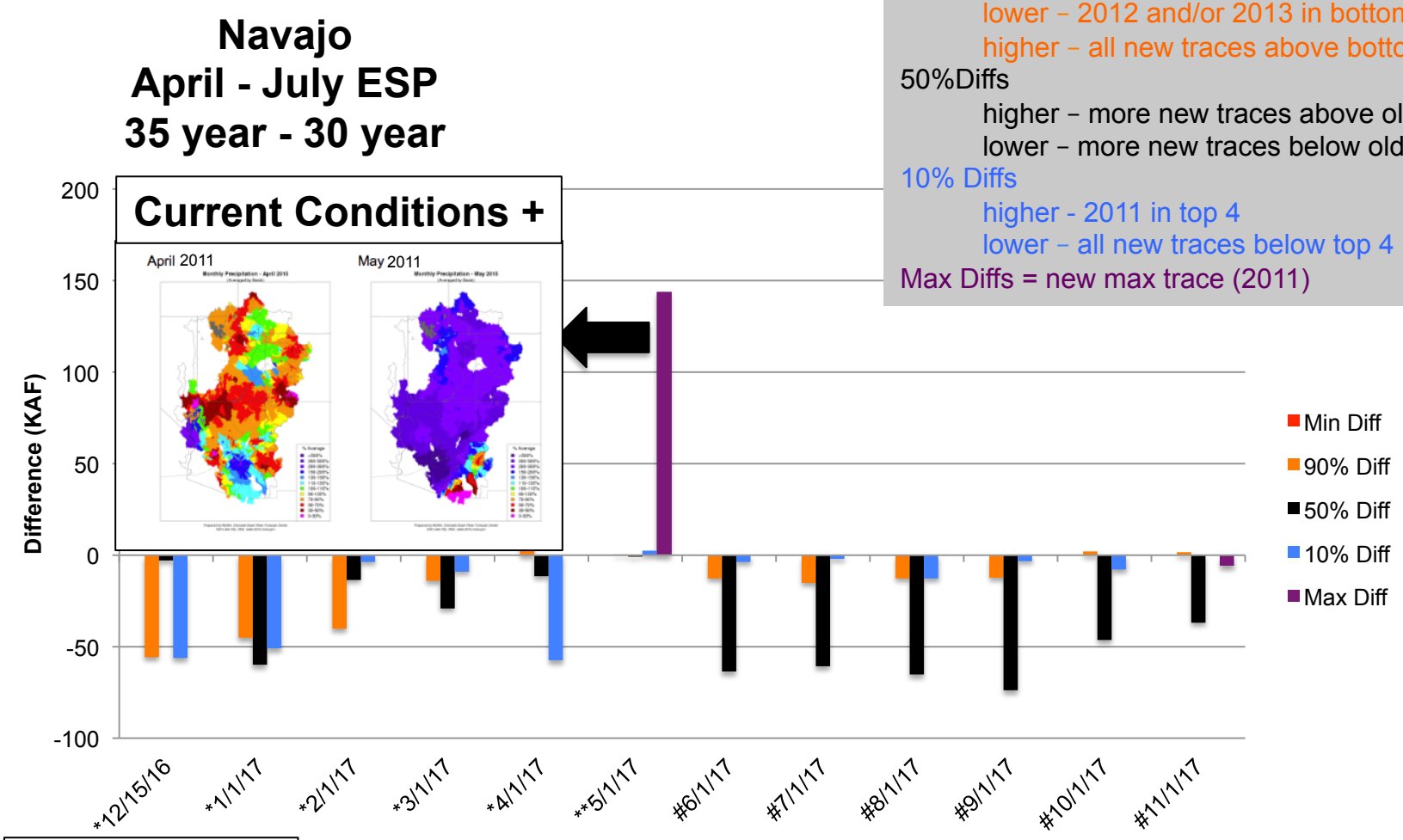

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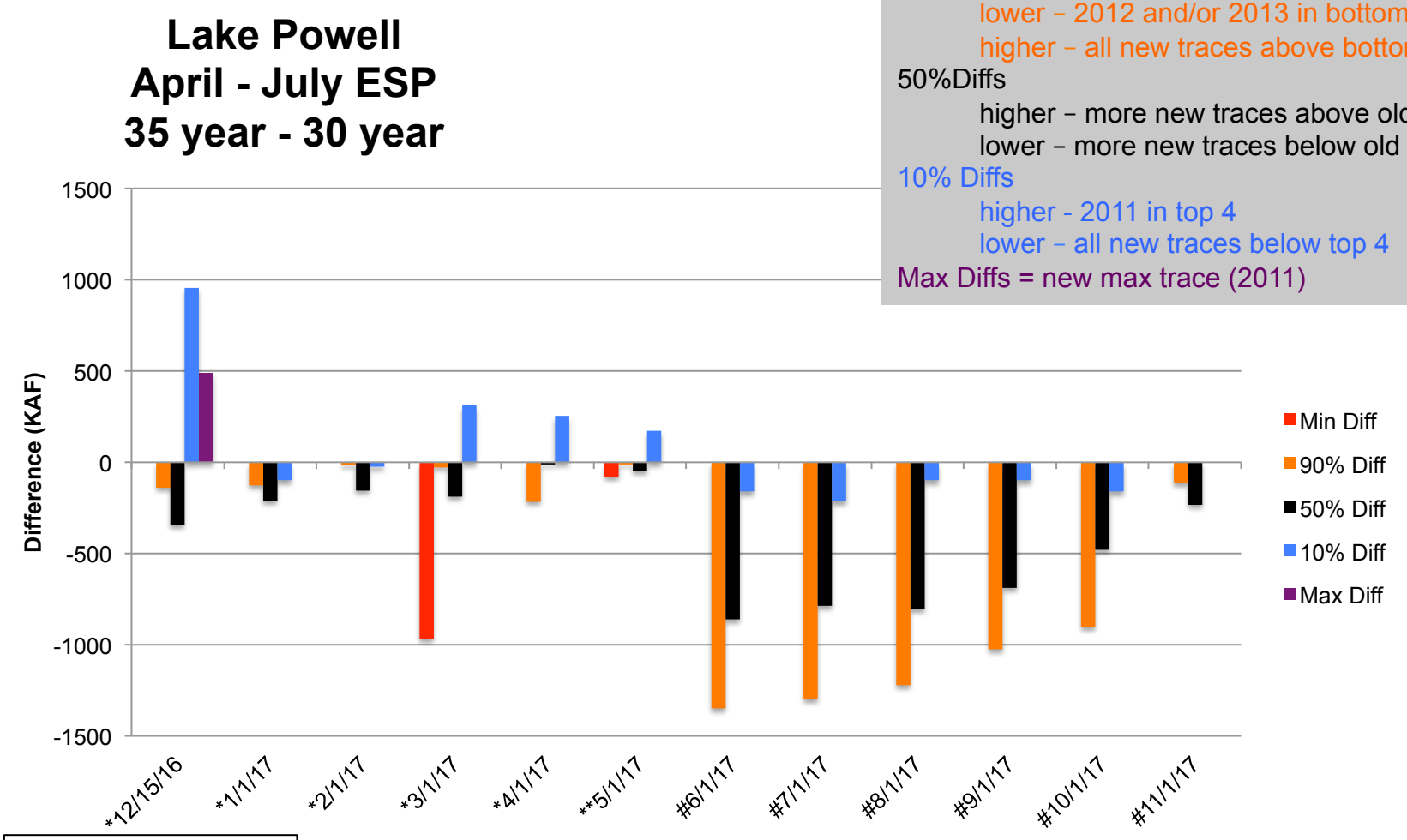

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New Staff and Basin Assignments

Patrick Kormos - Bear and Weber

Cody Moser - Colorado Headwaters

Zach Finch - Lower Colorado Basin

Ashley Nielson - Green River Basin and Lake Powell

Greg Smith - San Juan, Gunnison and Dolores

Tracy Cox - Lower Colorado Basin

Brent Bernard - Six Creeks, Provo, Sevier

Brenda Alcorn – Support and Backup