



DROUGHT-OF-RECORD

What does it mean?

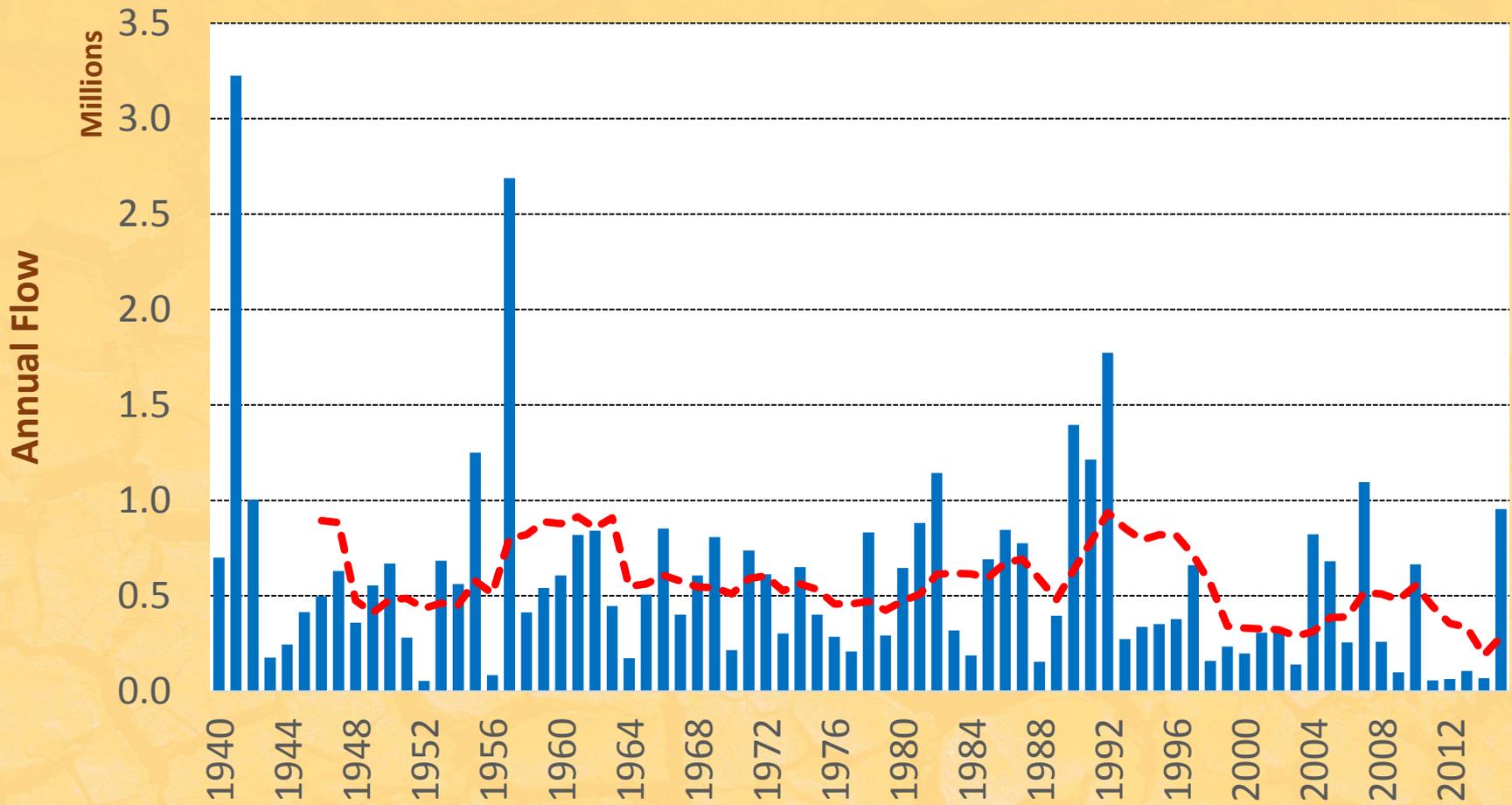
Jon S. Albright Freese and Nichols, Inc. WATER FOR TEXAS 2017
Texas Water Development Board January 23-25, 2017

Topics

- What is a drought of record (DOR)?
- How is the DOR used quantify water supplies?
- How to identify new DOR conditions?
- What regions potentially have a new DOR?

What is a DOR?

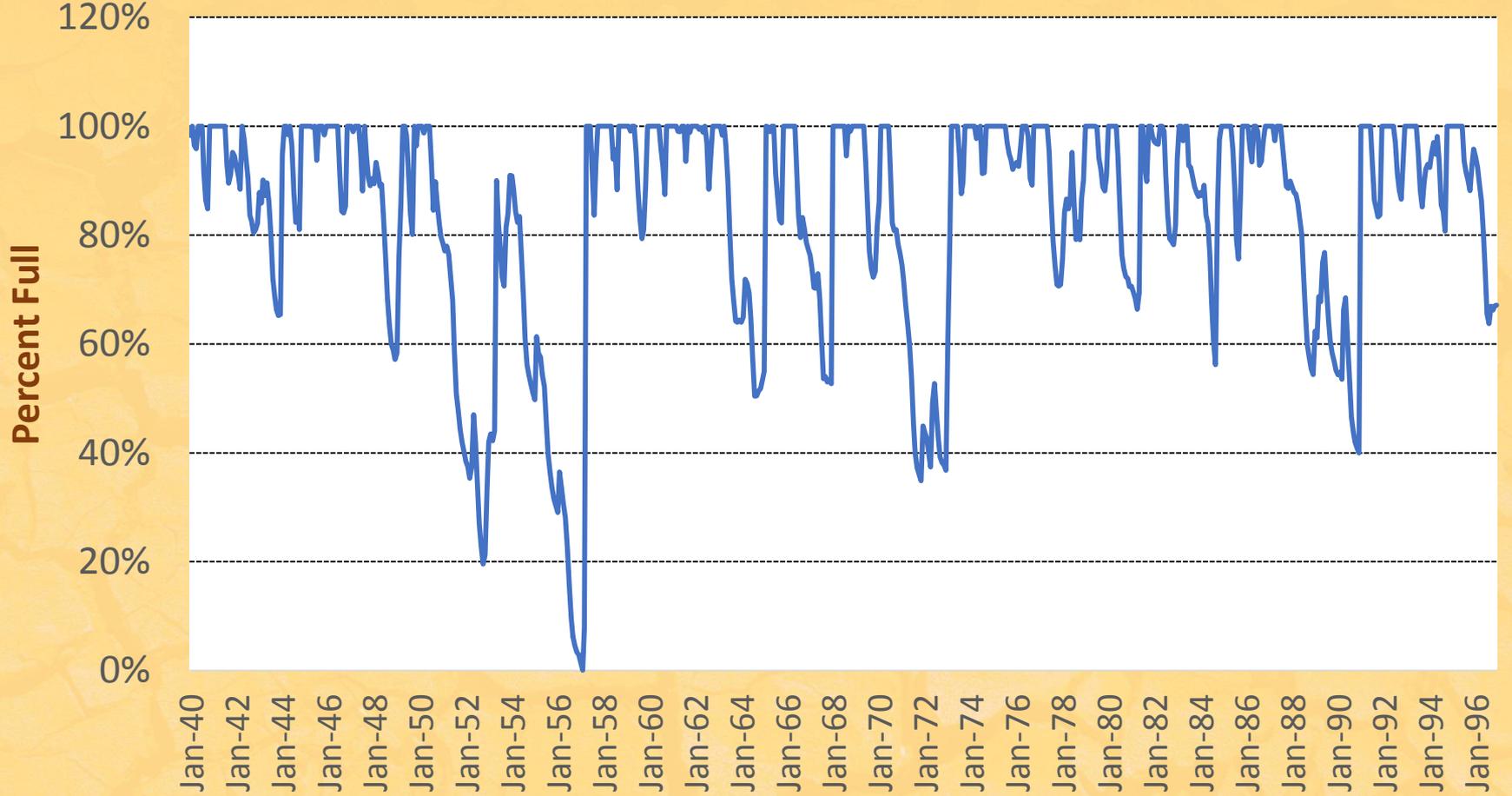
- *The historic period of record for a watershed in which the lowest flows were known to have occurred based on naturalized streamflow (30 TAC §297.1).*
- *The period of time when historical records indicate that natural hydrological conditions would have provided the least amount of water supply (31 TAC §357.10).*



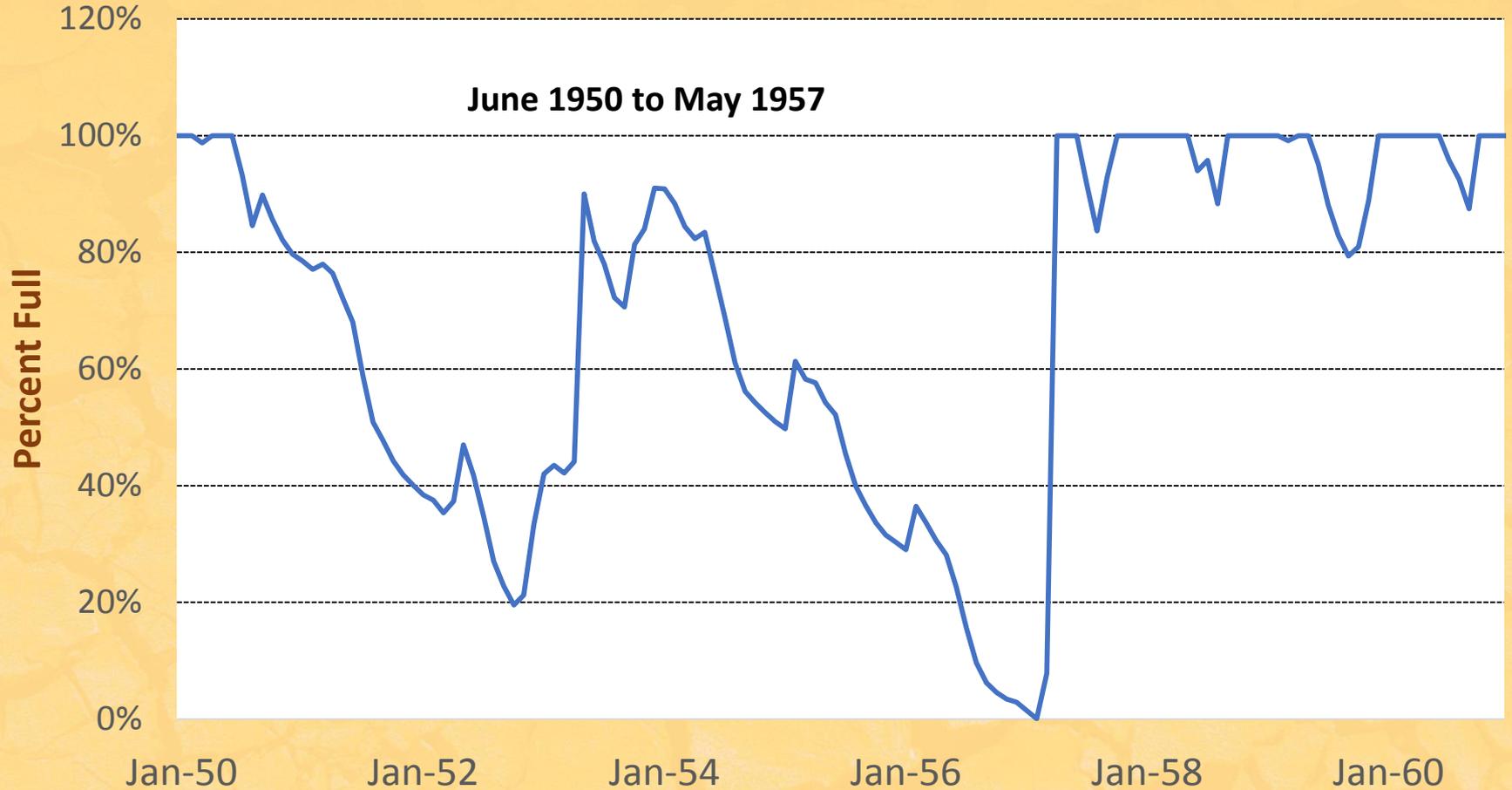
How is the DOR used quantify water supplies?

Firm Yield--Maximum water volume a reservoir can provide each year under a repeat of the Drought of Record using anticipated sedimentation rates and assuming that all senior water rights will be totally utilized and all applicable permit conditions met (31 TAC §357.10).

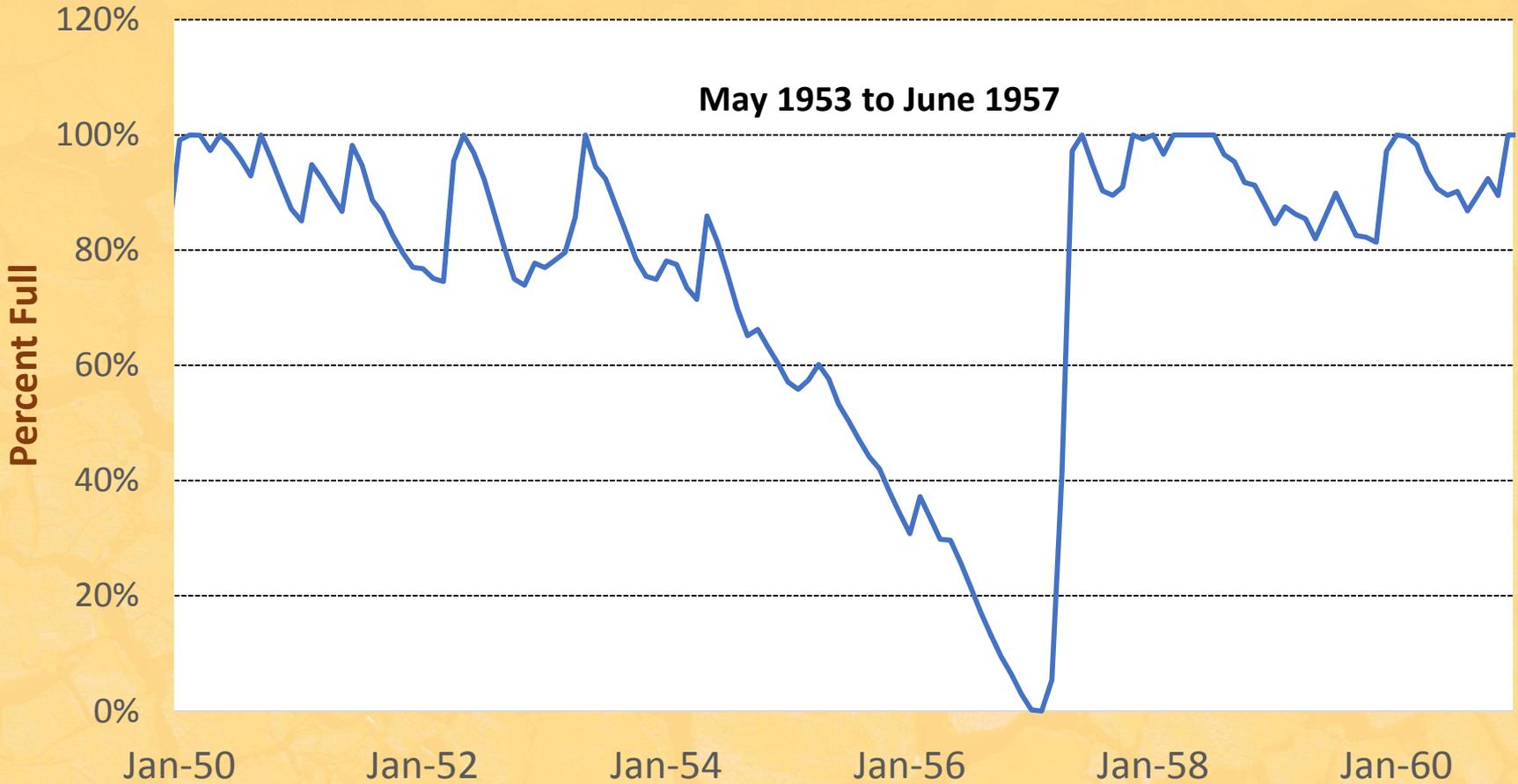
Firm Yield Analysis



Drawdown over Entire 50s Drought

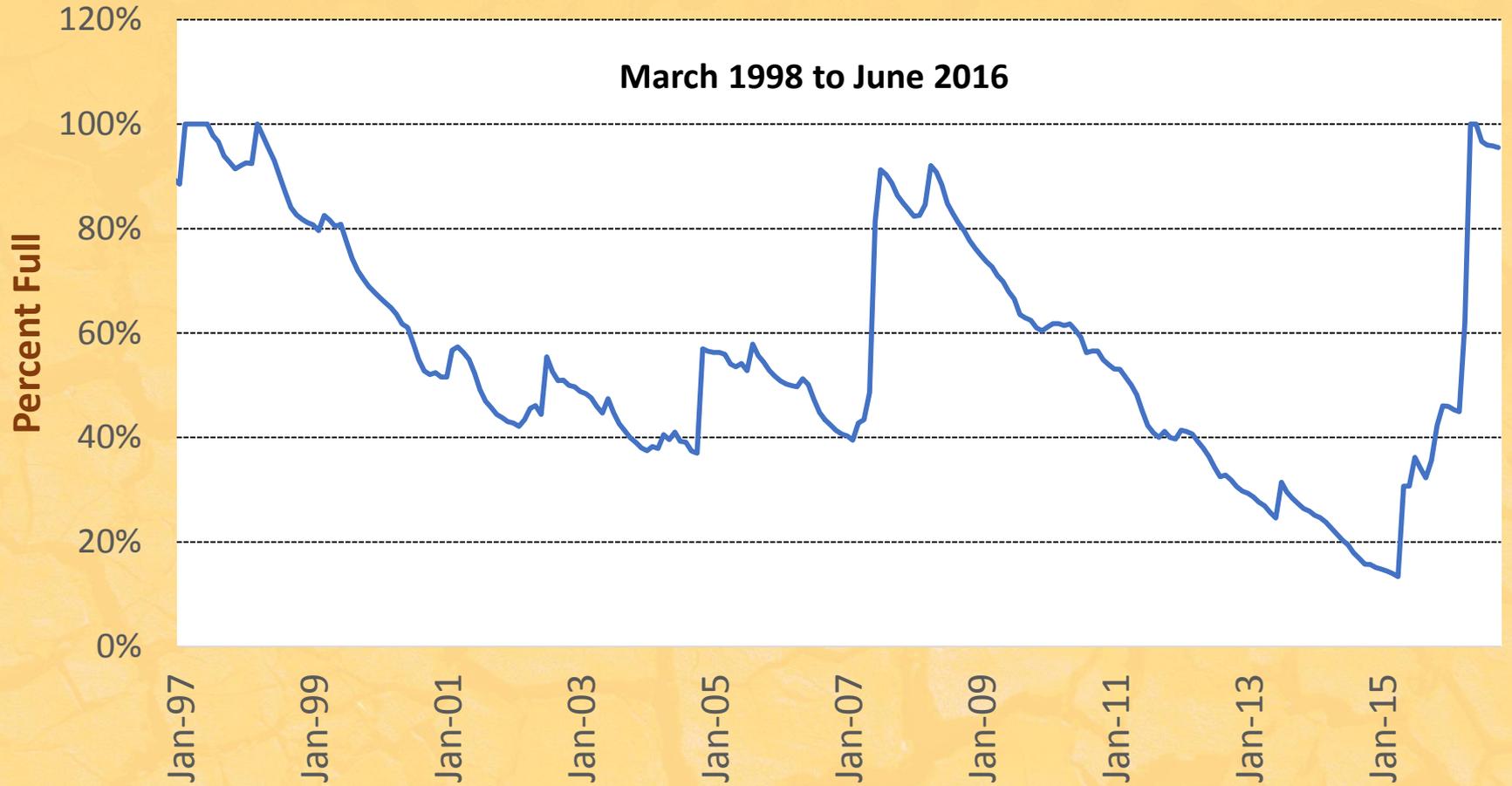


Drawdown Later in 50s Drought



Long Response

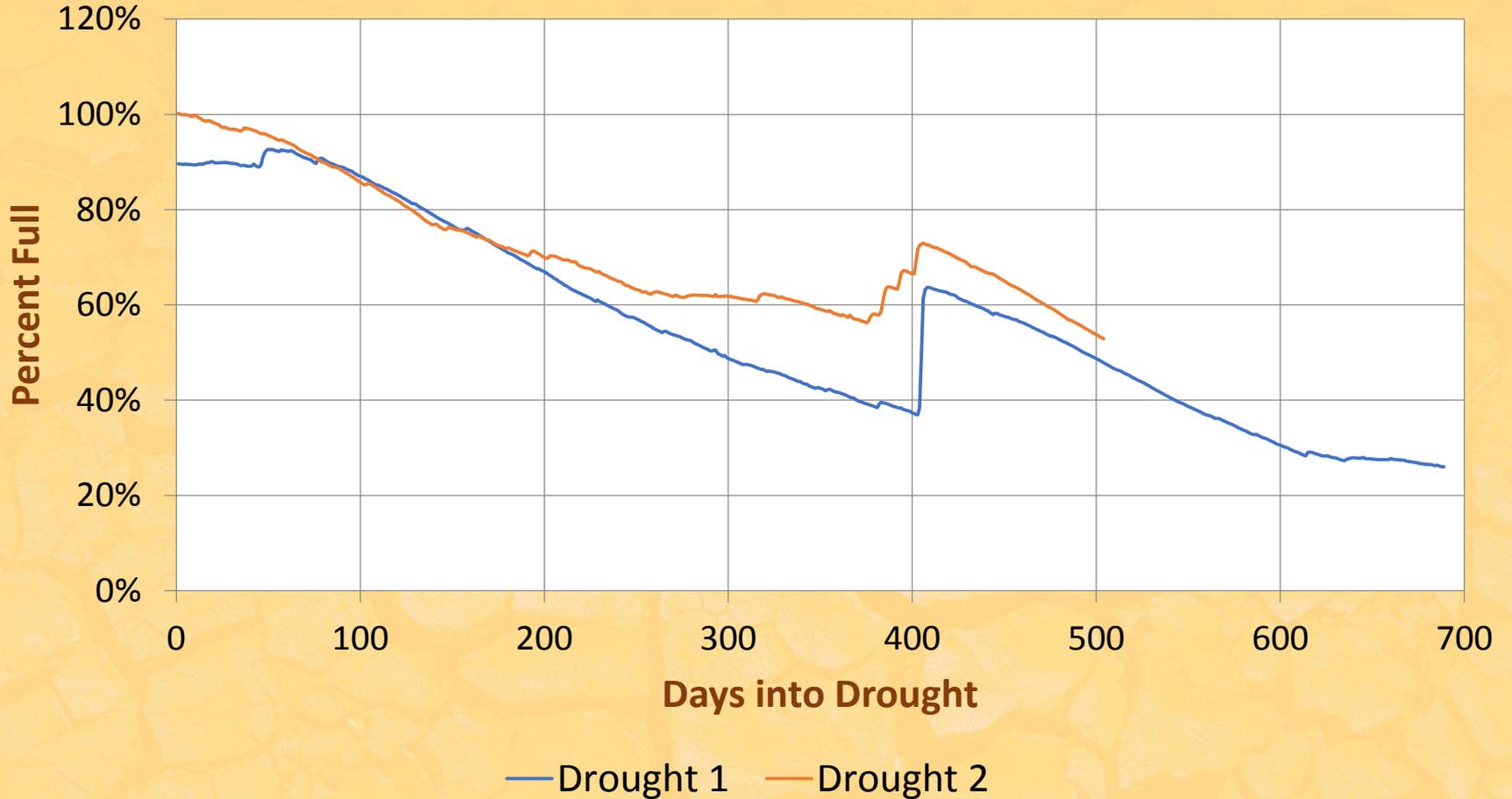
March 1998 to June 2016



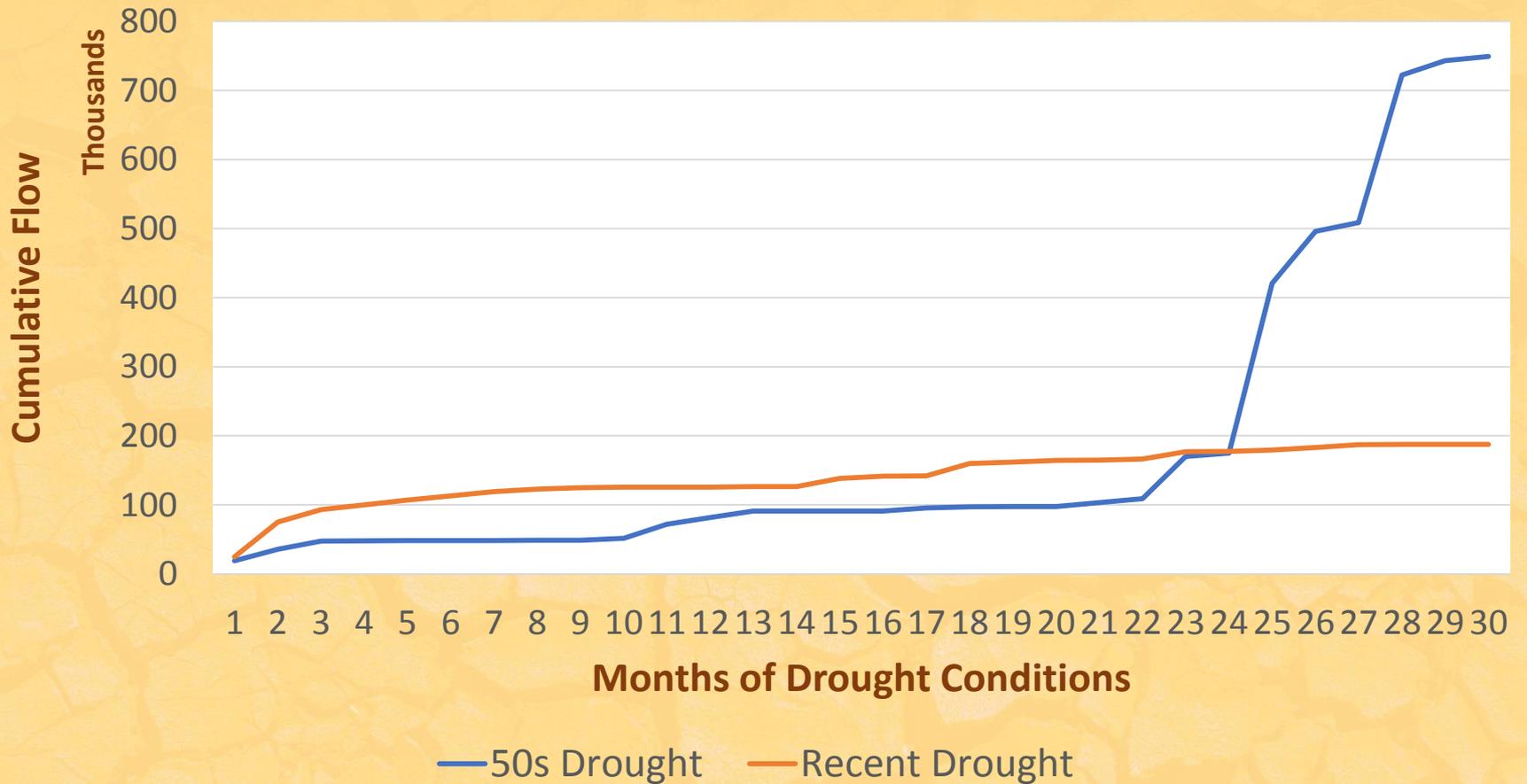
How to identify new DOR conditions?

- Comparison of drawdowns
- Gage flows
- Forecasting and modeling

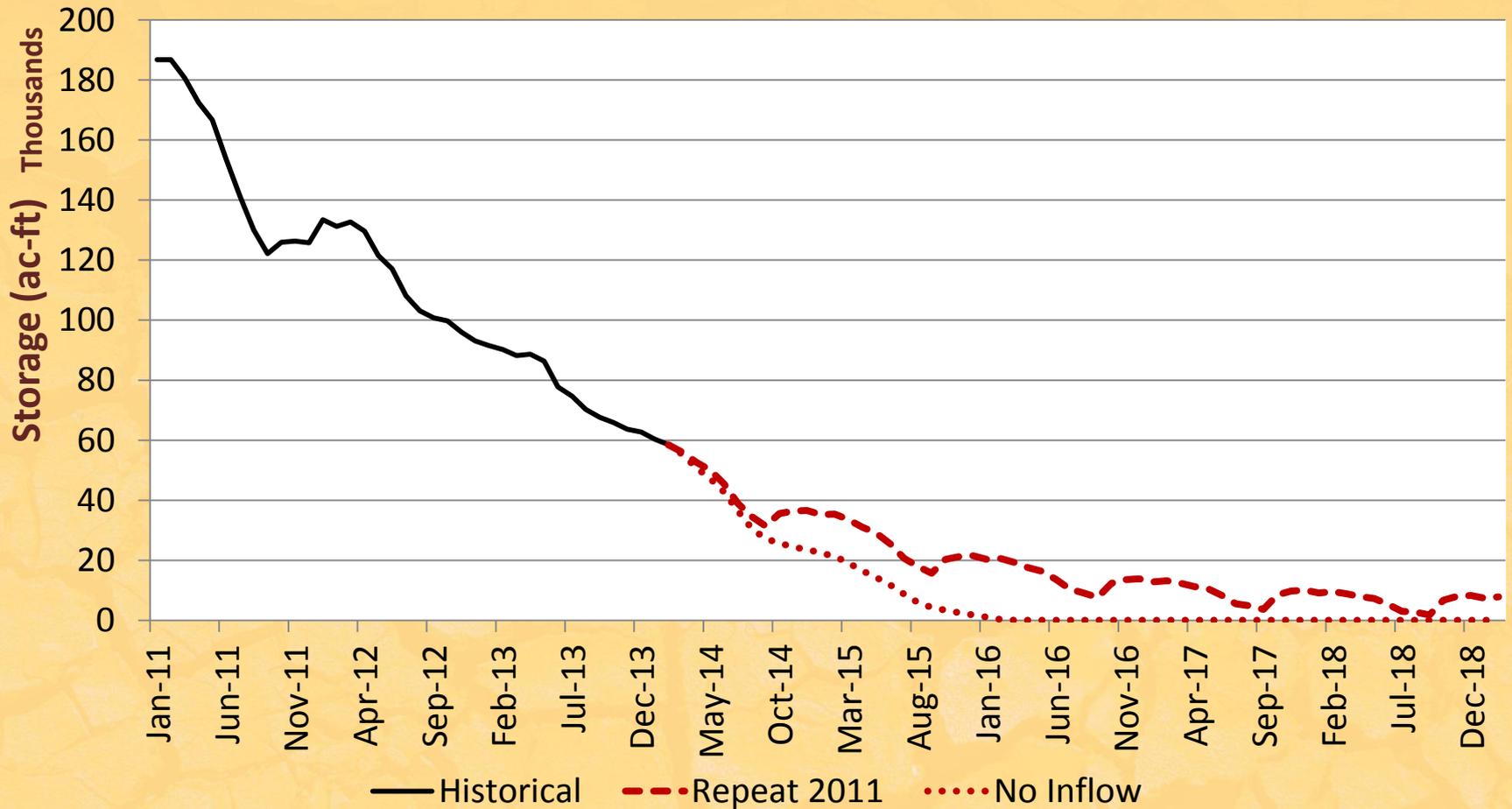
Comparison of Historical Drawdown Periods



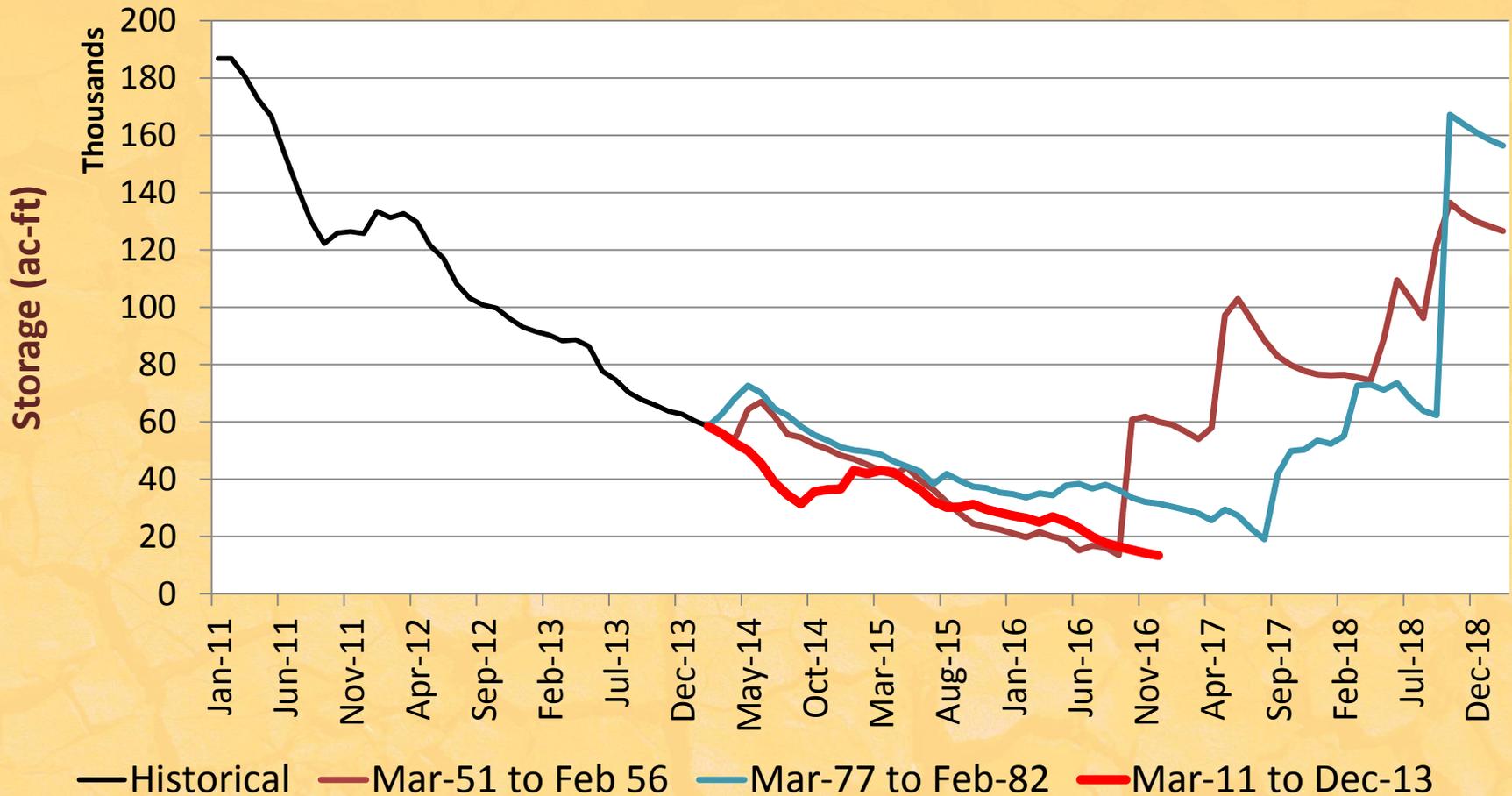
Comparison of Cumulative Flows



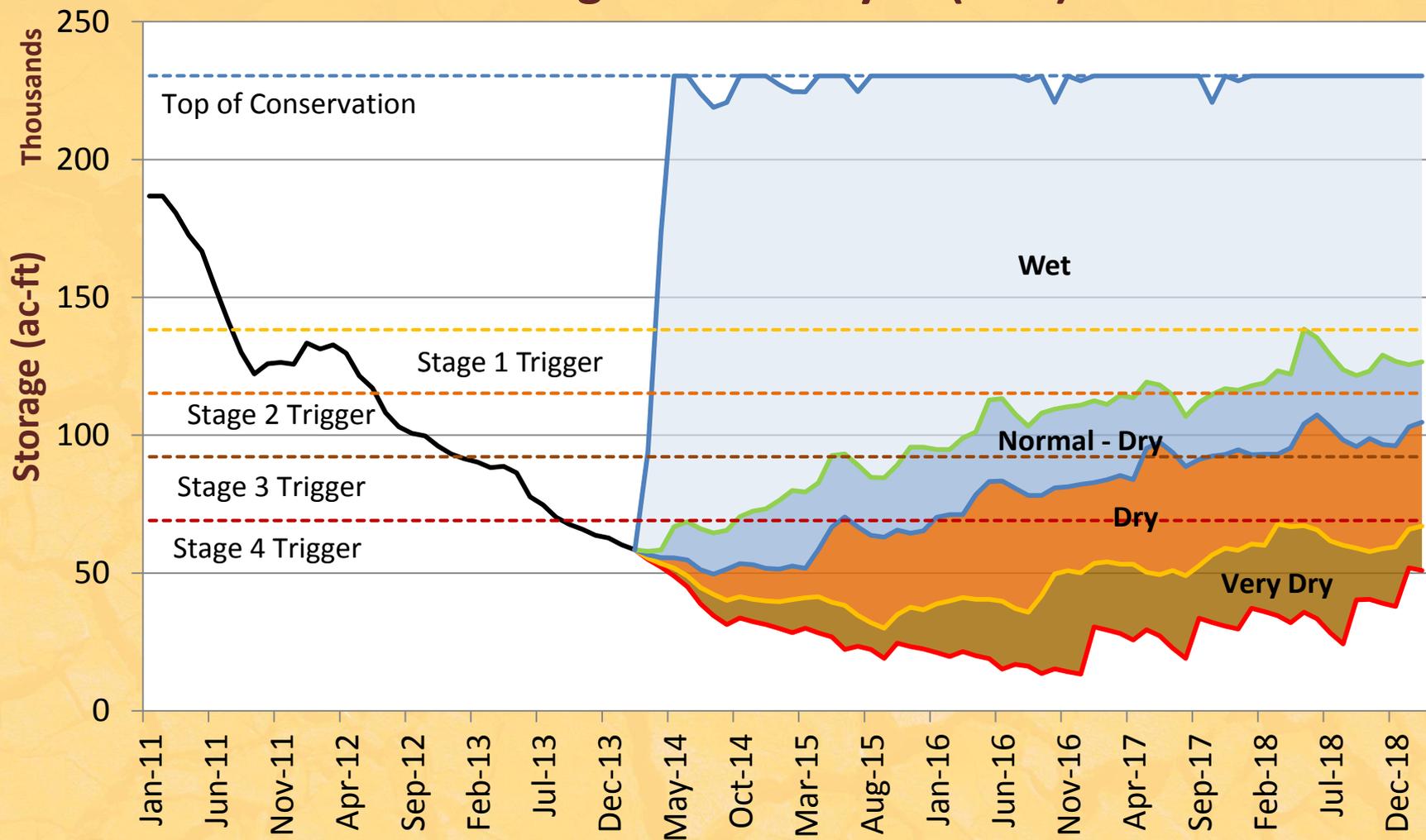
Forecasting – Repeat Worst Drought



Forecasting – Selected Drought Periods



Forecasting – Risk Analysis (CRA)



Potential new DOR (partial listing)

Legend

 Reservoirs

 Counties

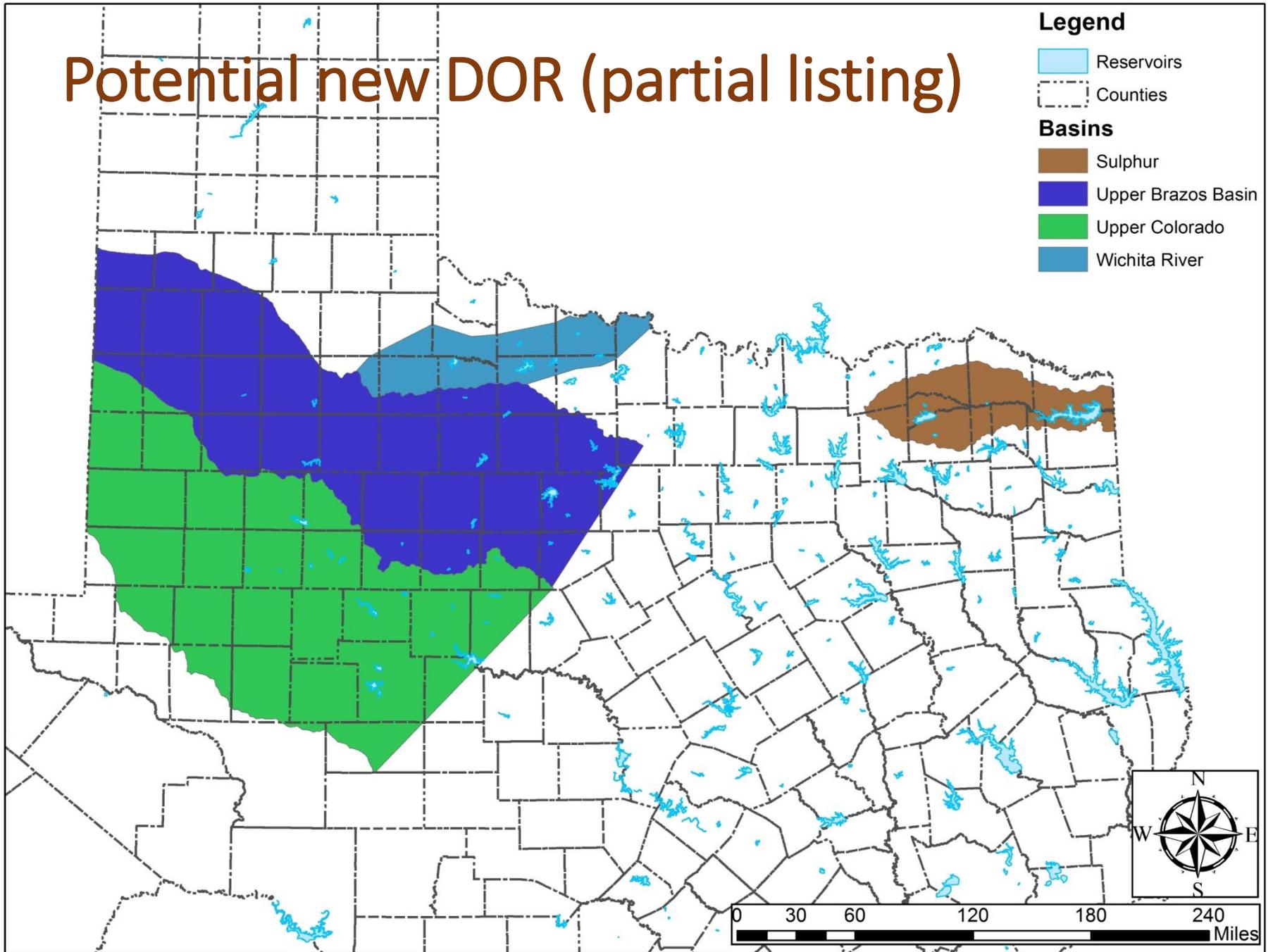
Basins

 Sulphur

 Upper Brazos Basin

 Upper Colorado

 Wichita River



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