



Experimental Boise River Long-Lead Time Streamflow Models


Mel Kunkel


Data Used

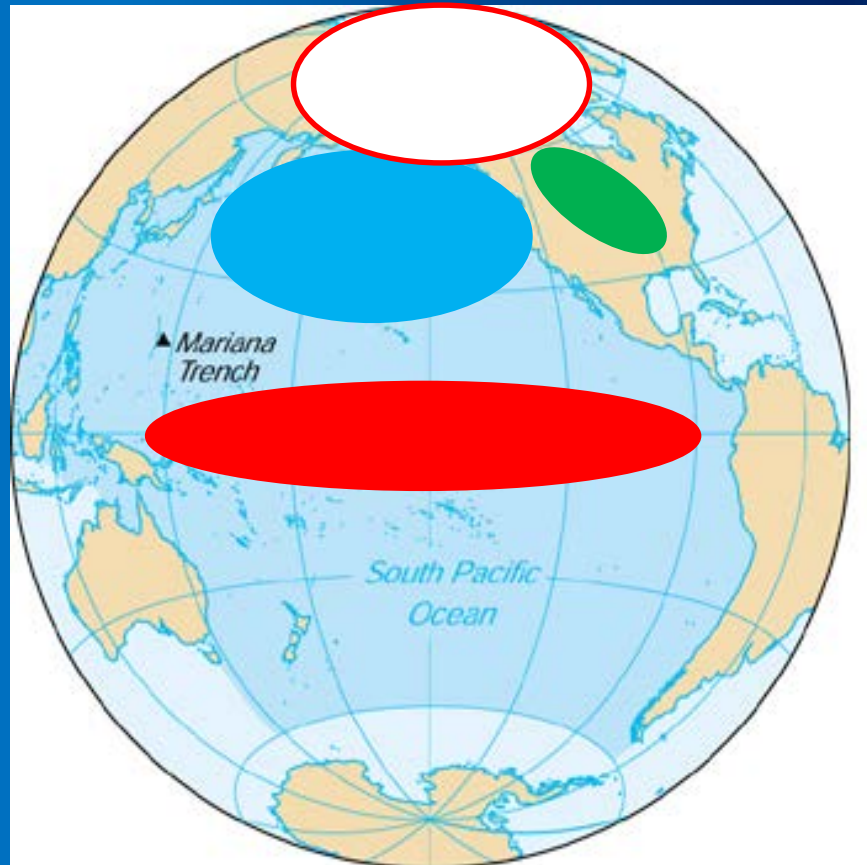
- Lucky Peak Inflow Data – Published Reclamation Historical data (1982-2008)
 - Qu: Unregulated (calculated natural) Flow (Acre Feet)

PDO – 

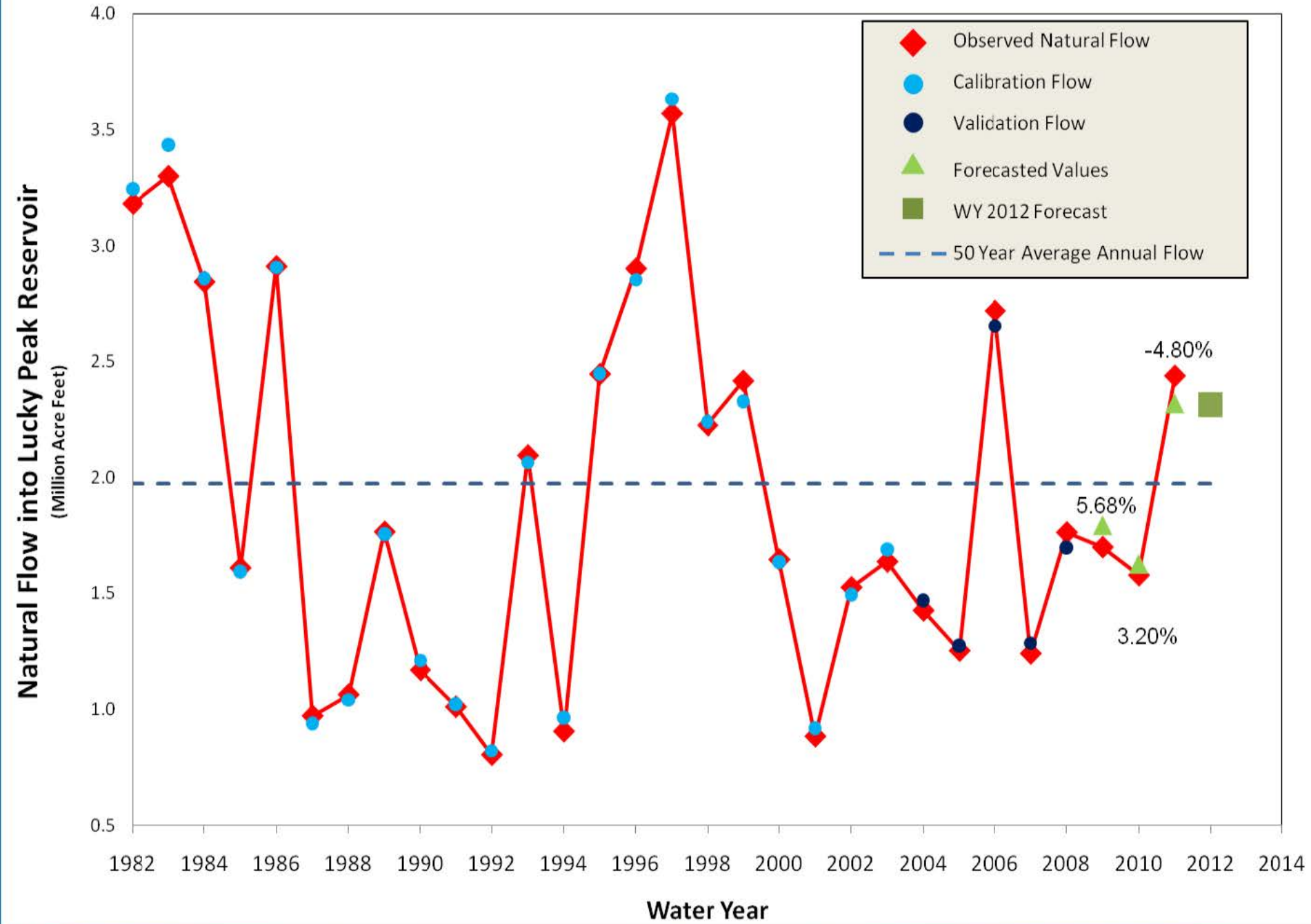
AO – 

MEI – 

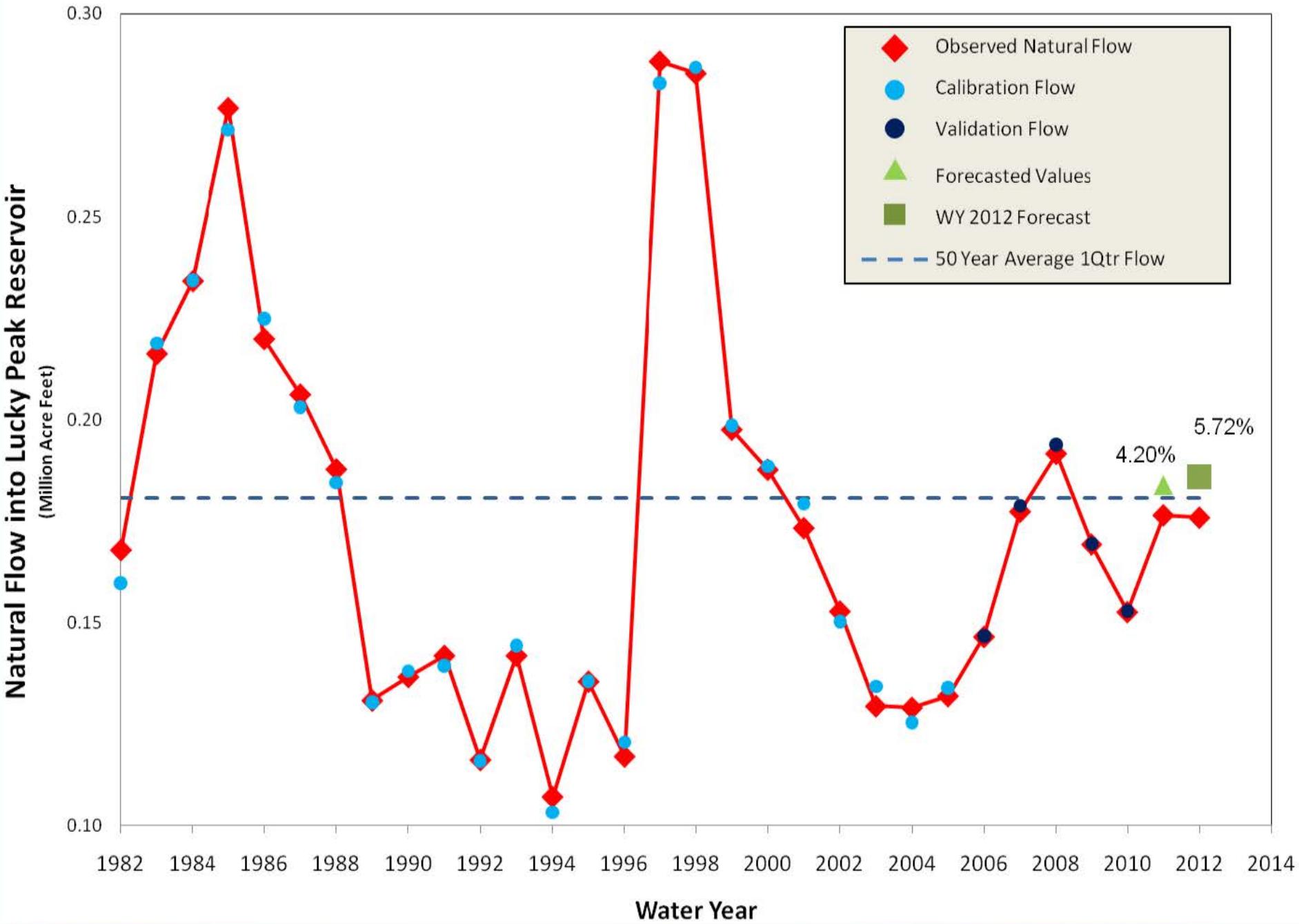
PNA – 



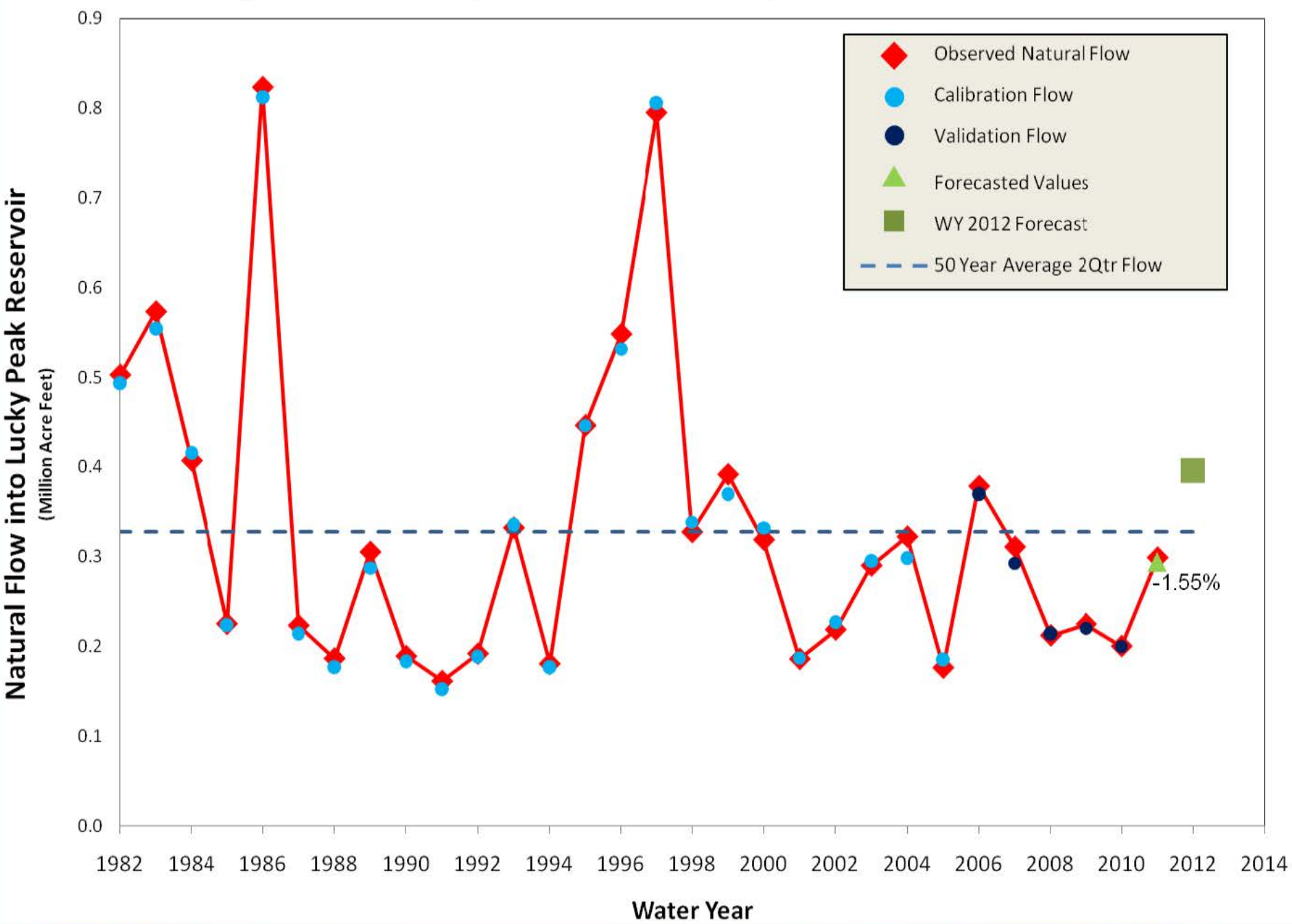
Lucky Peak Annual Natural Flow / Observed Vs Predicted



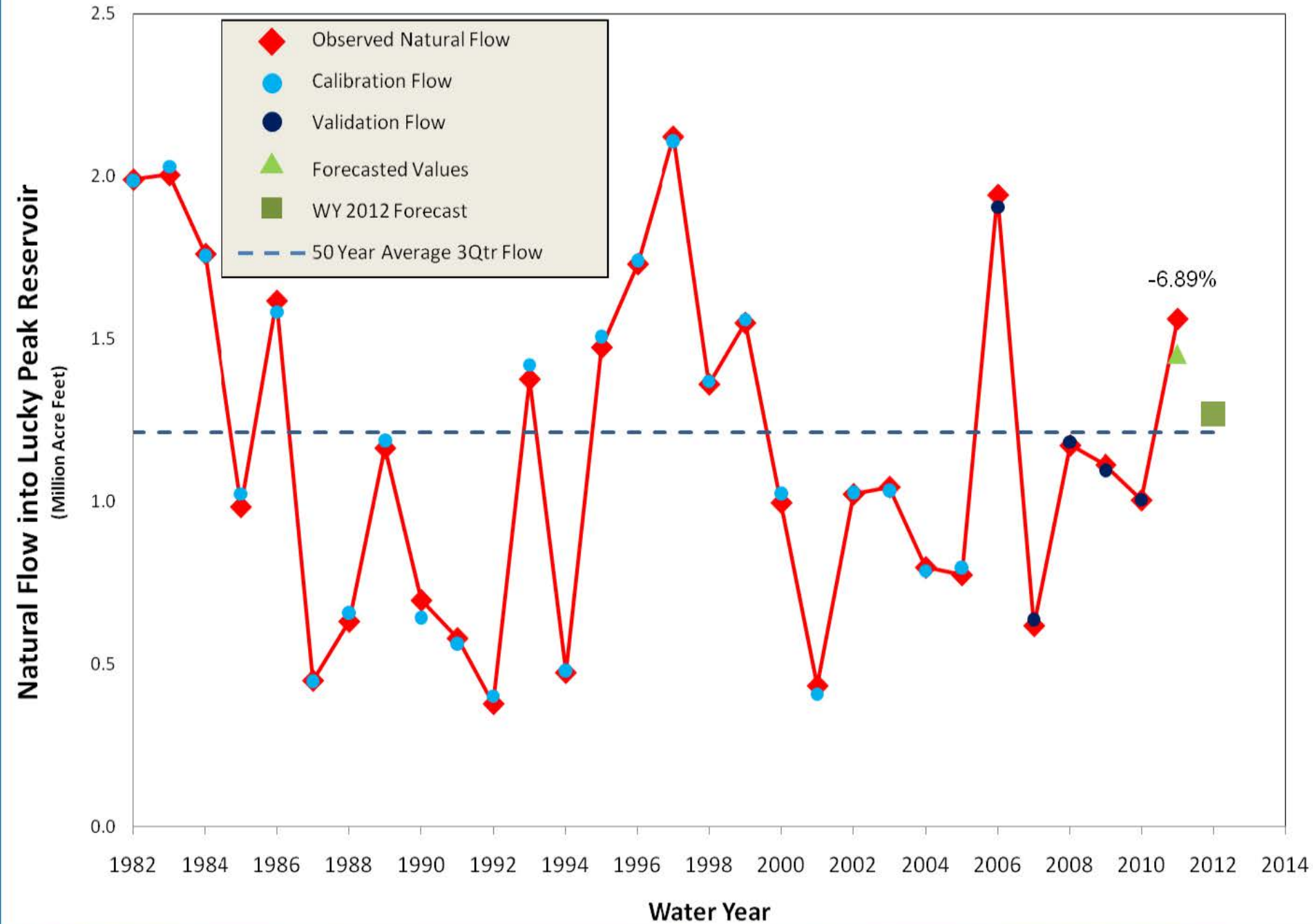
Lucky Peak First Quarter Natural Flow / Observed Vs Predicted



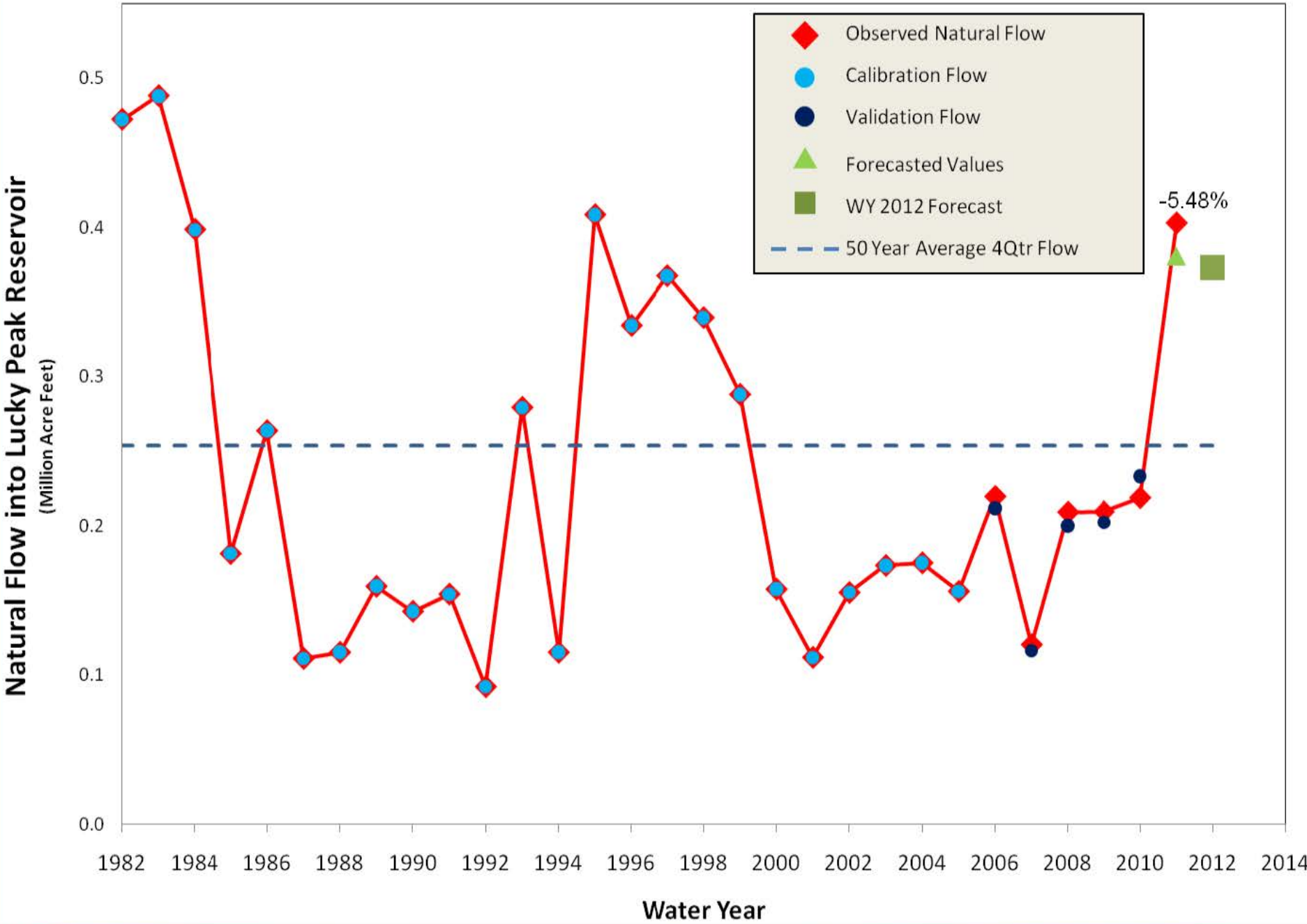
Lucky Peak Second Quarter Natural Flow / Observed Vs Predicted



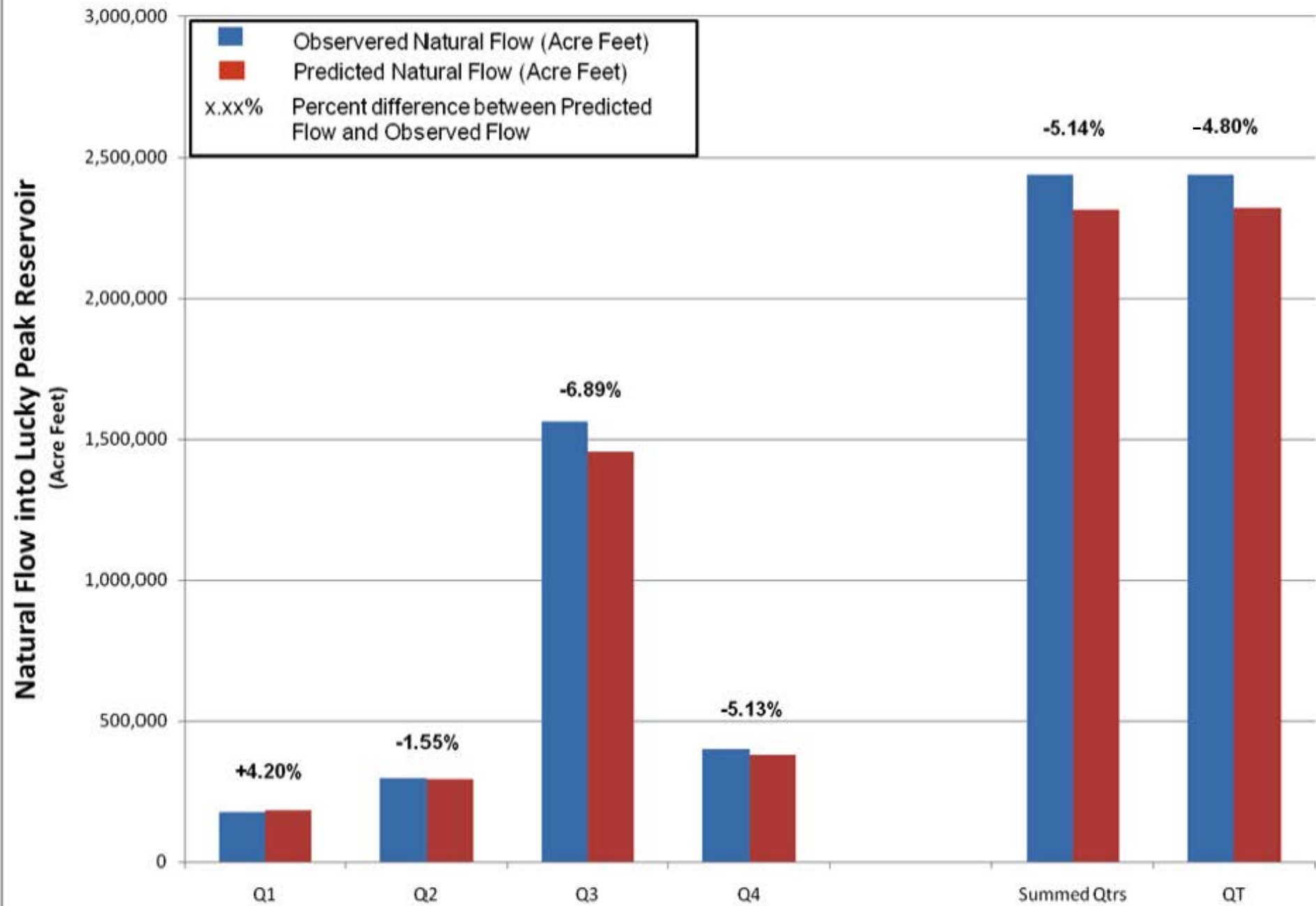
Lucky Peak Third Quarter Natural Flow / Observed Vs Predicted



Lucky Peak Fourth Quarter Natural Flow / Observed Vs Predicted



WY 2011 Lucky Peak Natural Flow / Observed Vs Predicted



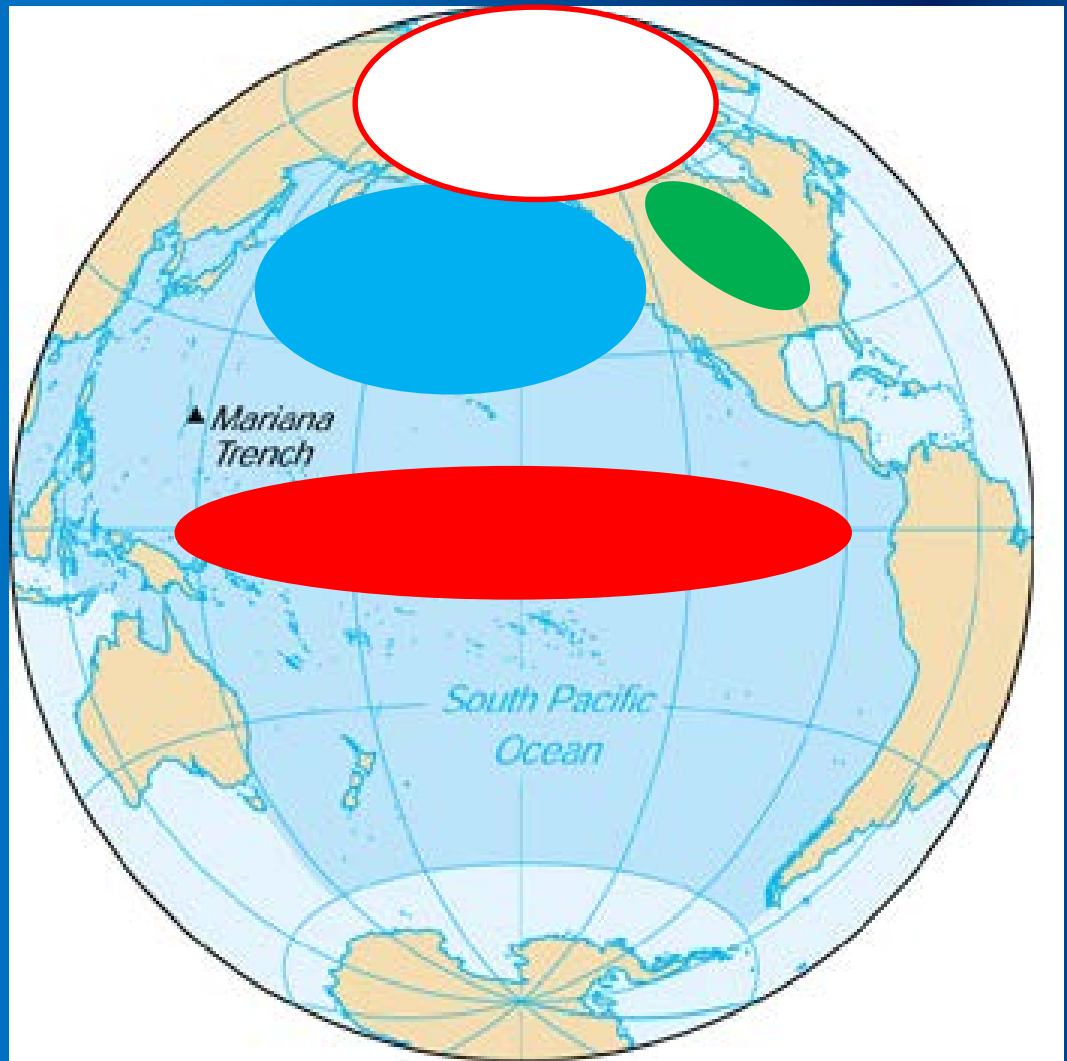
How Long Are These Types
of Models Good For?

PDO – 

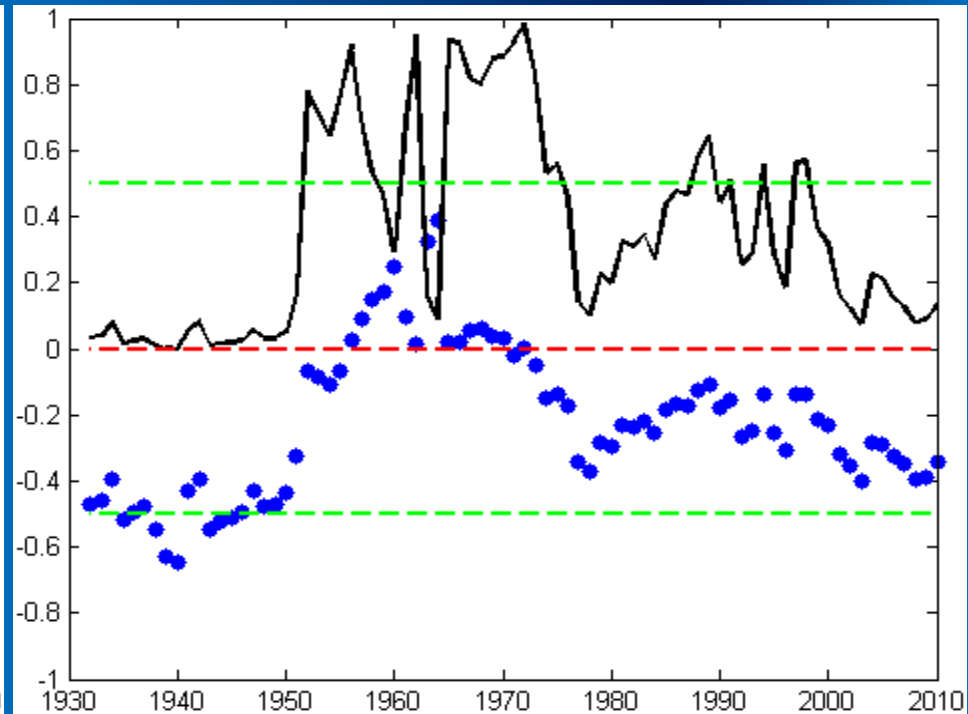
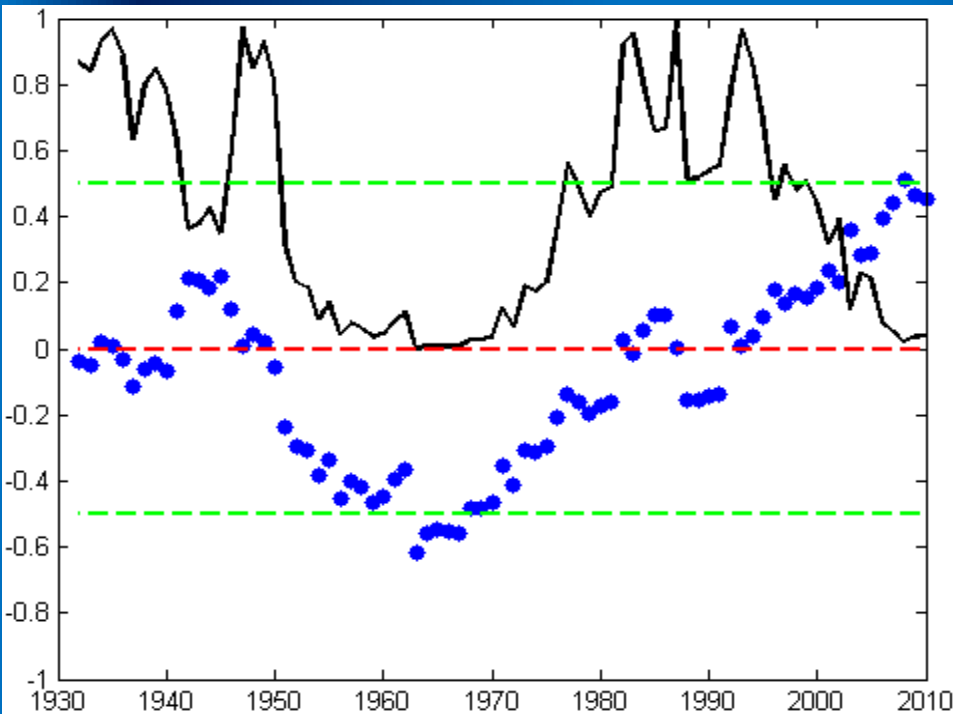
AO – 

MEI – 

PNA – 



Boise River



PDO -- Previous June, May, Apr

- 20-Yr Running Average Pearson's Correlation Coefficients
- Significance Level (Pearson Correlation Analysis)

MEI -- Previous Sep, Aug, Jul

- 20-Yr Running Average Pearson's Correlation Coefficients
- Significance Level (Pearson Correlation Analysis)

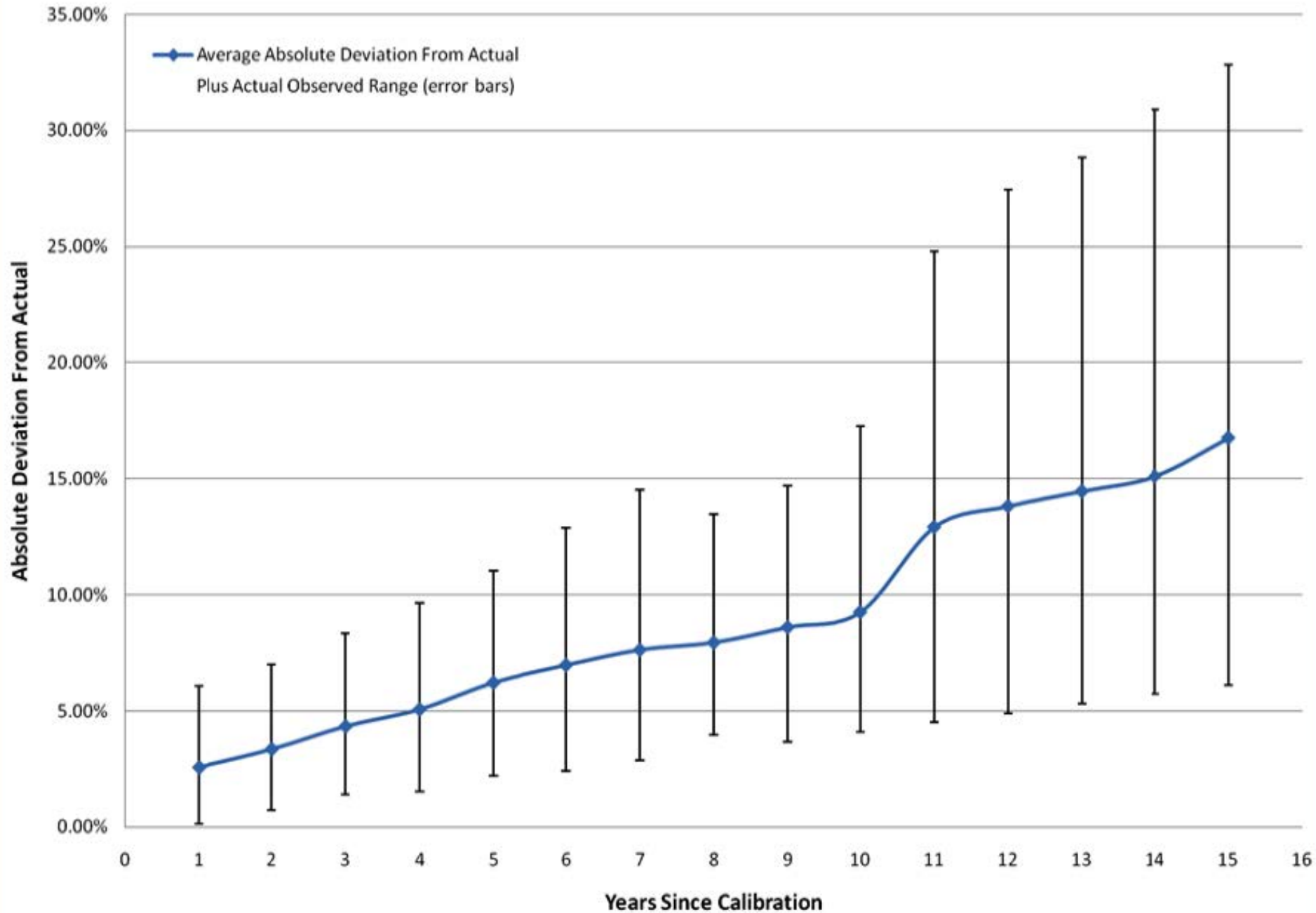
- In an effort to establish how these varying correlations might effect the modeling technique developed.

- 100 forecast models developed (based upon varying lengths of calibration years and starting years).

- Models applied out 15 years from the end of the calibration period.

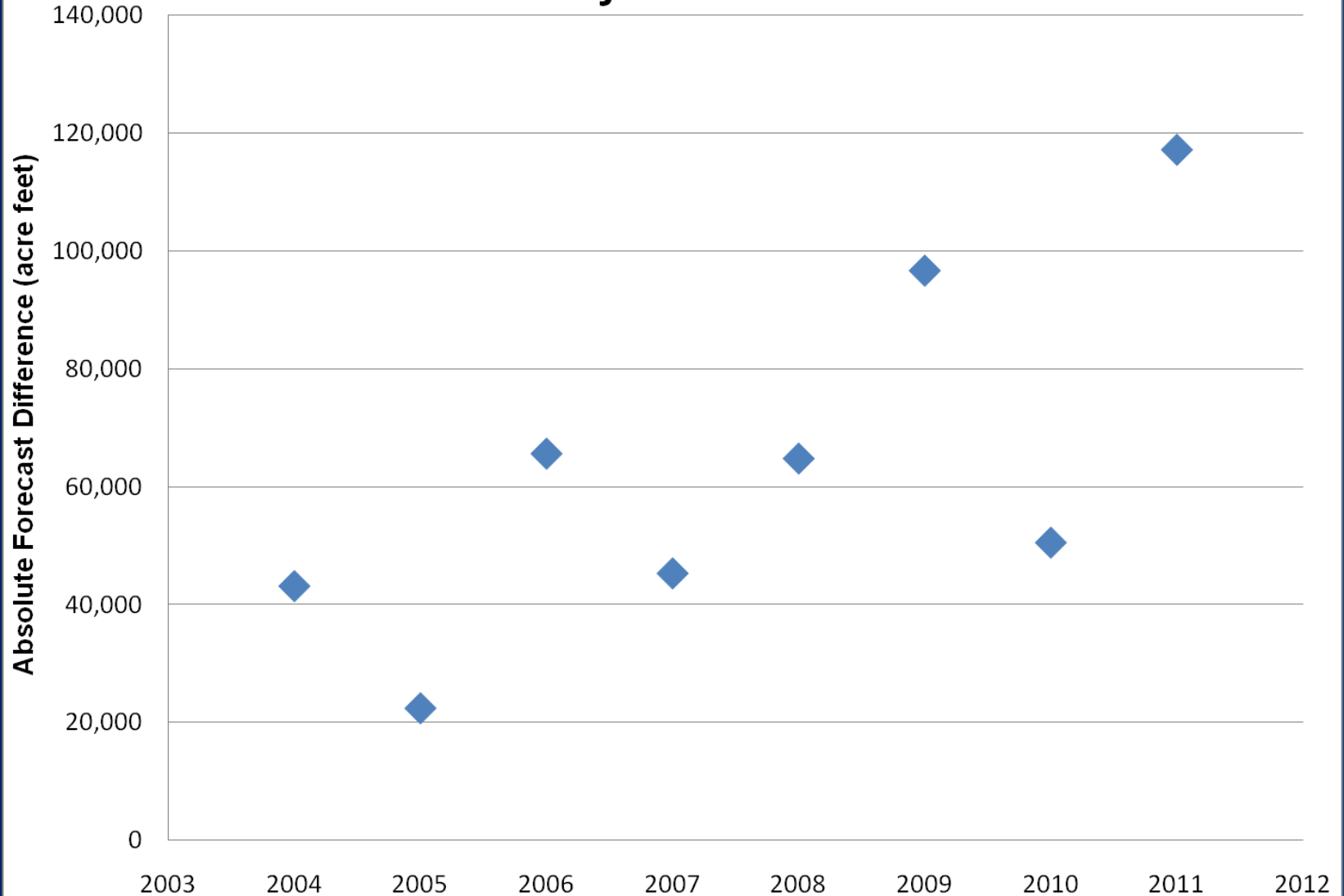
- Results indicate the models generally perform well during the first few years after calibration and then decline in performance quickly.

Deviation From Actual Vs Years Since Model Calibration



What Happens in Reality

Yearly Model Error



End Results

- Our developed modeling technique appears to work well.
- The models developed ARE NOT static. They must be redeveloped on a continuing bases.

Thank You!!

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