

Reservoir Operations Potential for FIRO

Kansas Water Office

Key Principals



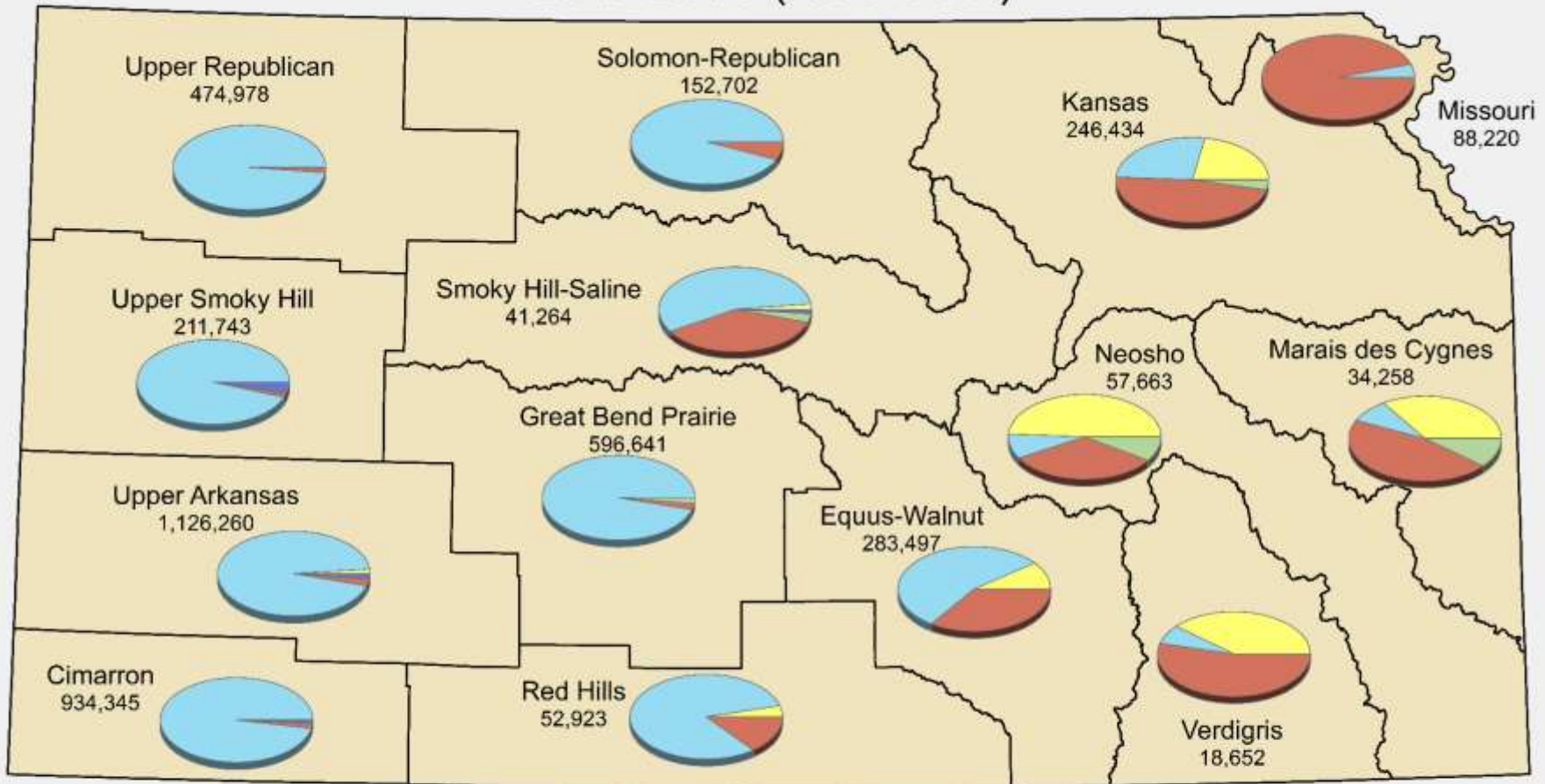
- ▶ KWO is responsible for ensuring reservoir storage is sufficient to meet demands through drought, now and in the future
- ▶ Eligible water supply demands to be supported by releases from storage are primarily municipal and industrial
- ▶ Maintaining streamflow is also an authorized and required use of reservoir storage

Legal Framework

- ▶ **Water Appropriation Act**
 - ▶ Water rights – priority (first in time)
- ▶ **State Water Plan Storage Act**
 - ▶ Water reservation rights – also priority based
- ▶ **System Operations – KWO, WAD, & DWR**
 - ▶ Water Assurance Program Operations Agreement
 - ▶ Mandatory & restricts use of storage to M & I
 - ▶ Water Supply Access District
 - ▶ Voluntary & allows IRR, IND, MUN, and REC
 - ▶ Memorandum of Agreement
 - ▶ Require target flows
- ▶ **Water Marketing Program**
 - ▶ Contract for annual quantity – limited to drought yield

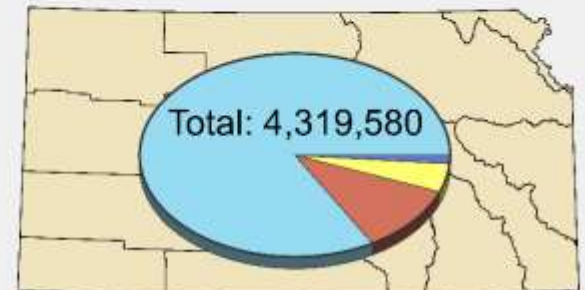


Average Water Use By Regional Planning Area 2011-2015 (Acre-Feet)



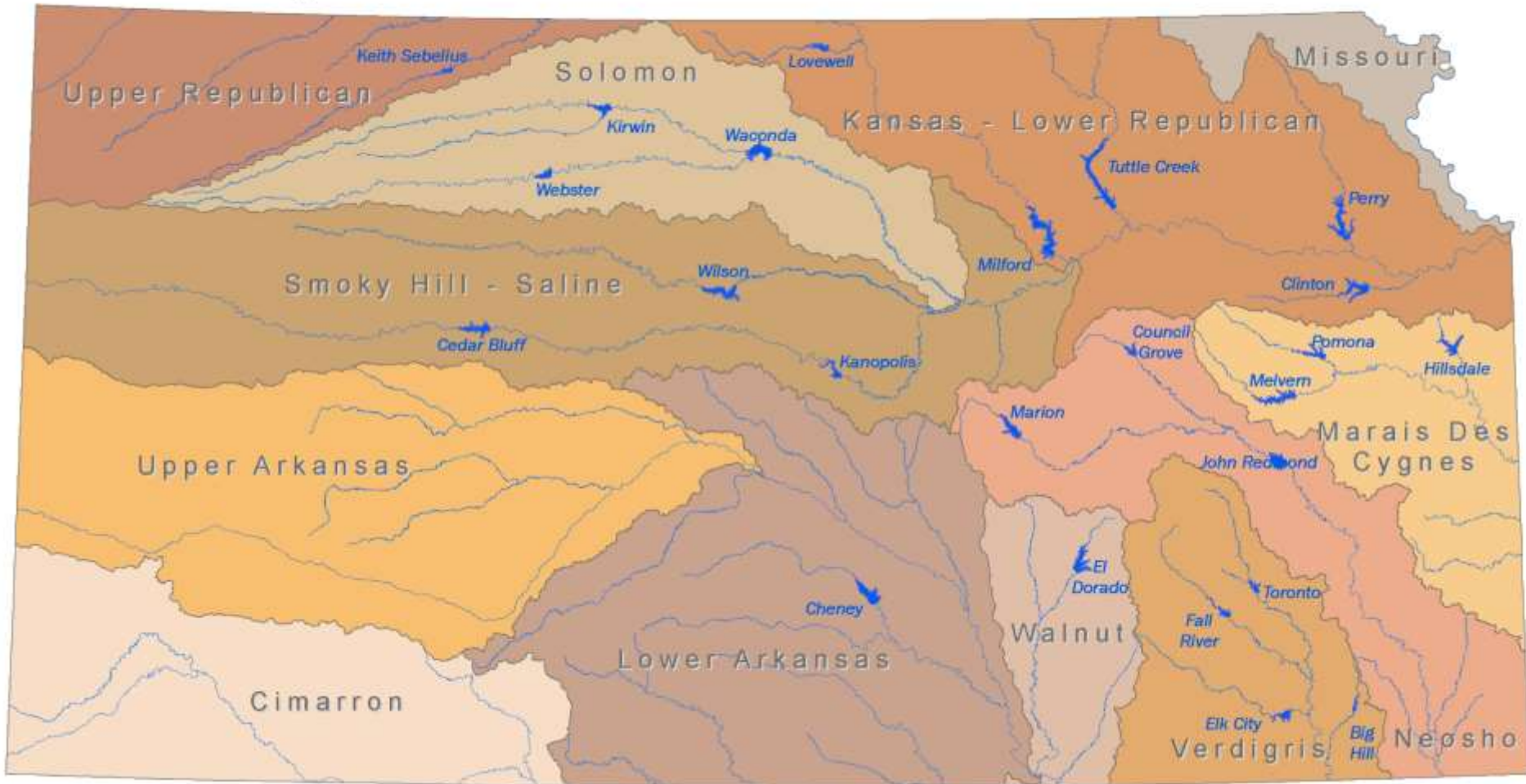
Kansas Water Office April 2017

Water Use by Type

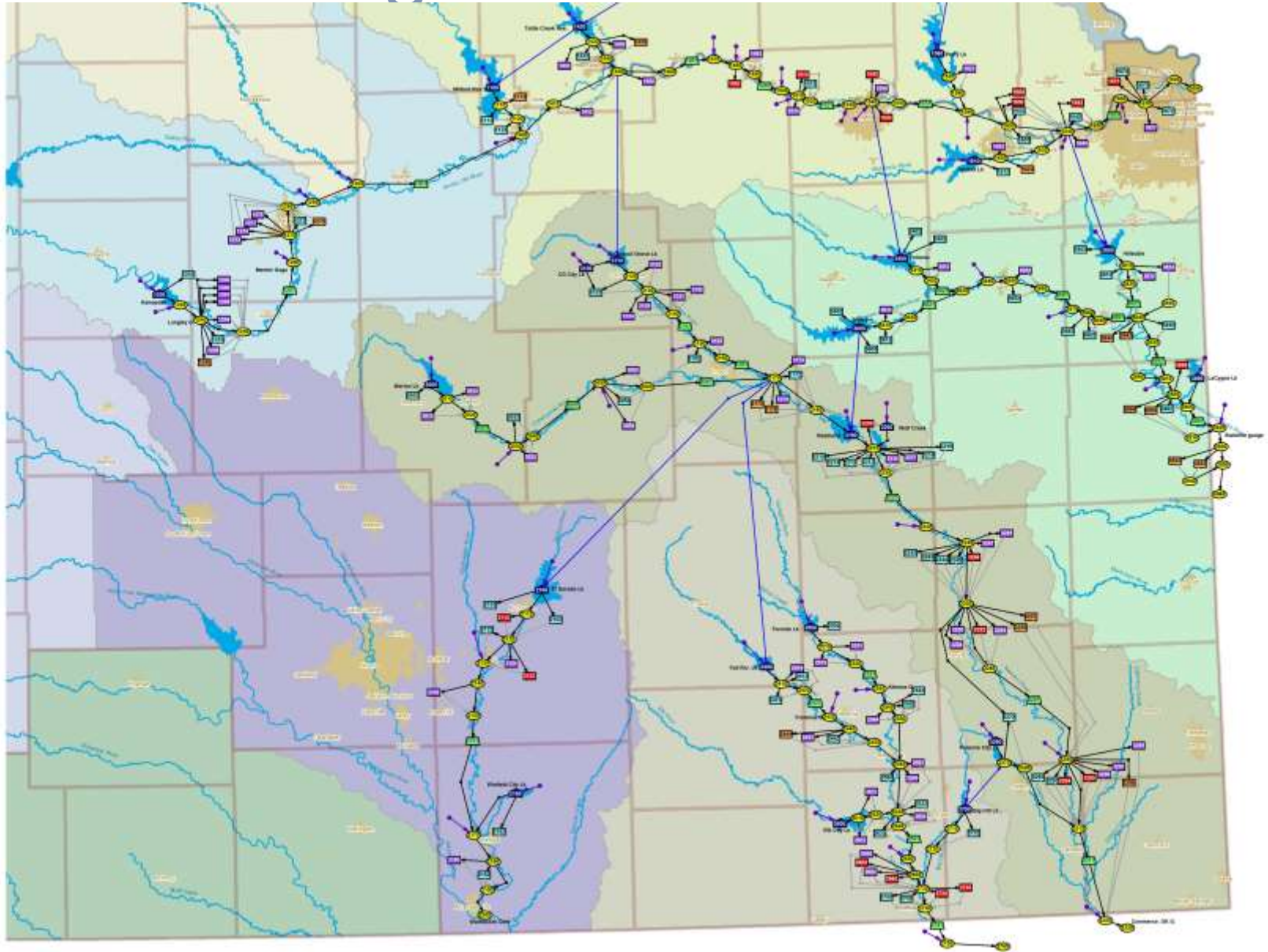


Reservoirs

Major River Basins and Federal Reservoirs in Kansas



Managed WS Reservoirs



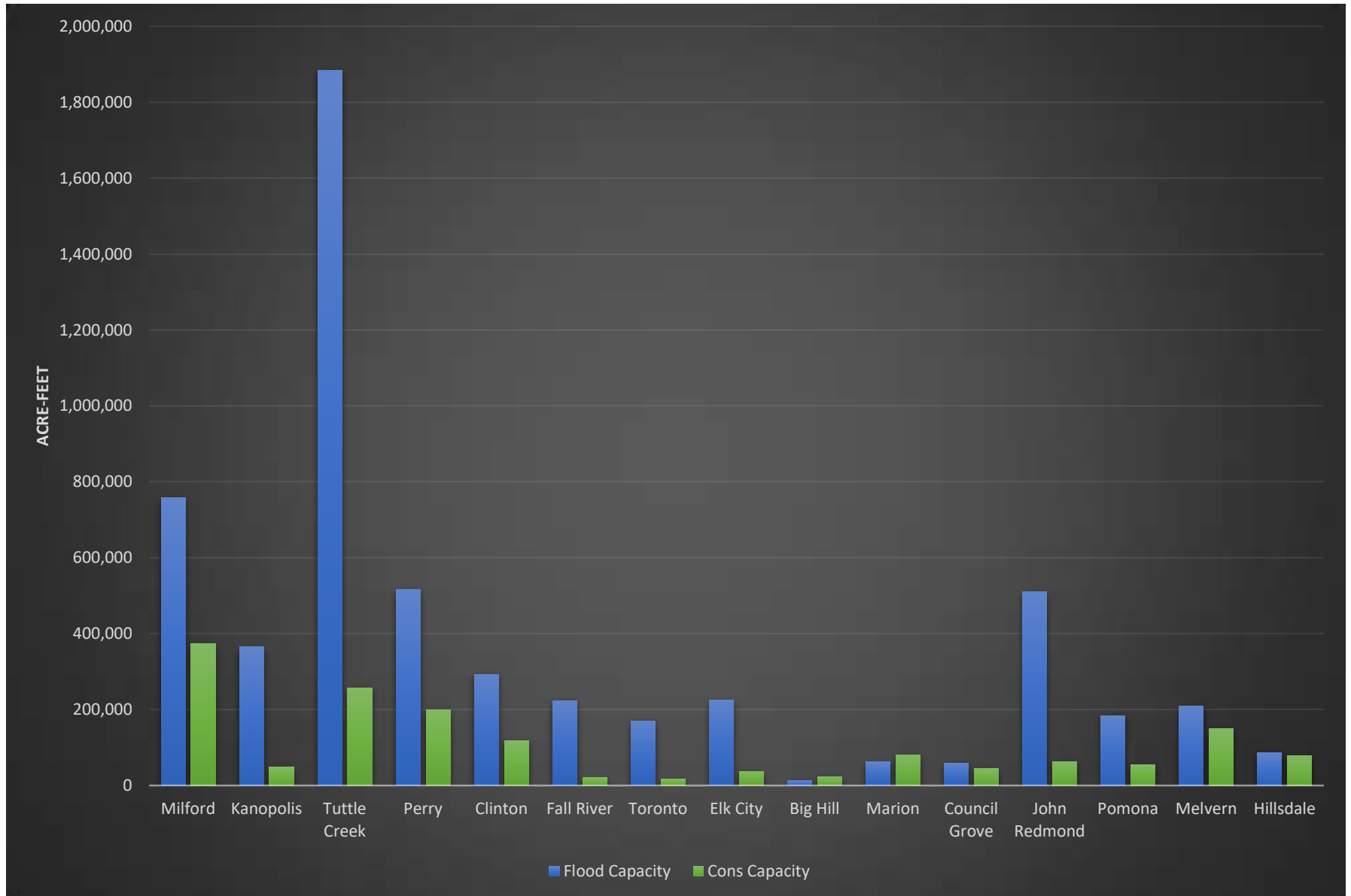
FIRO

- ▶ What criteria are necessary to determine if Kansas reservoirs are viable candidates for FIRO?
 - ▶ Large flood pool
 - ▶ Forecast confidence
 - ▶ Normally predictable inflow (seasonality)

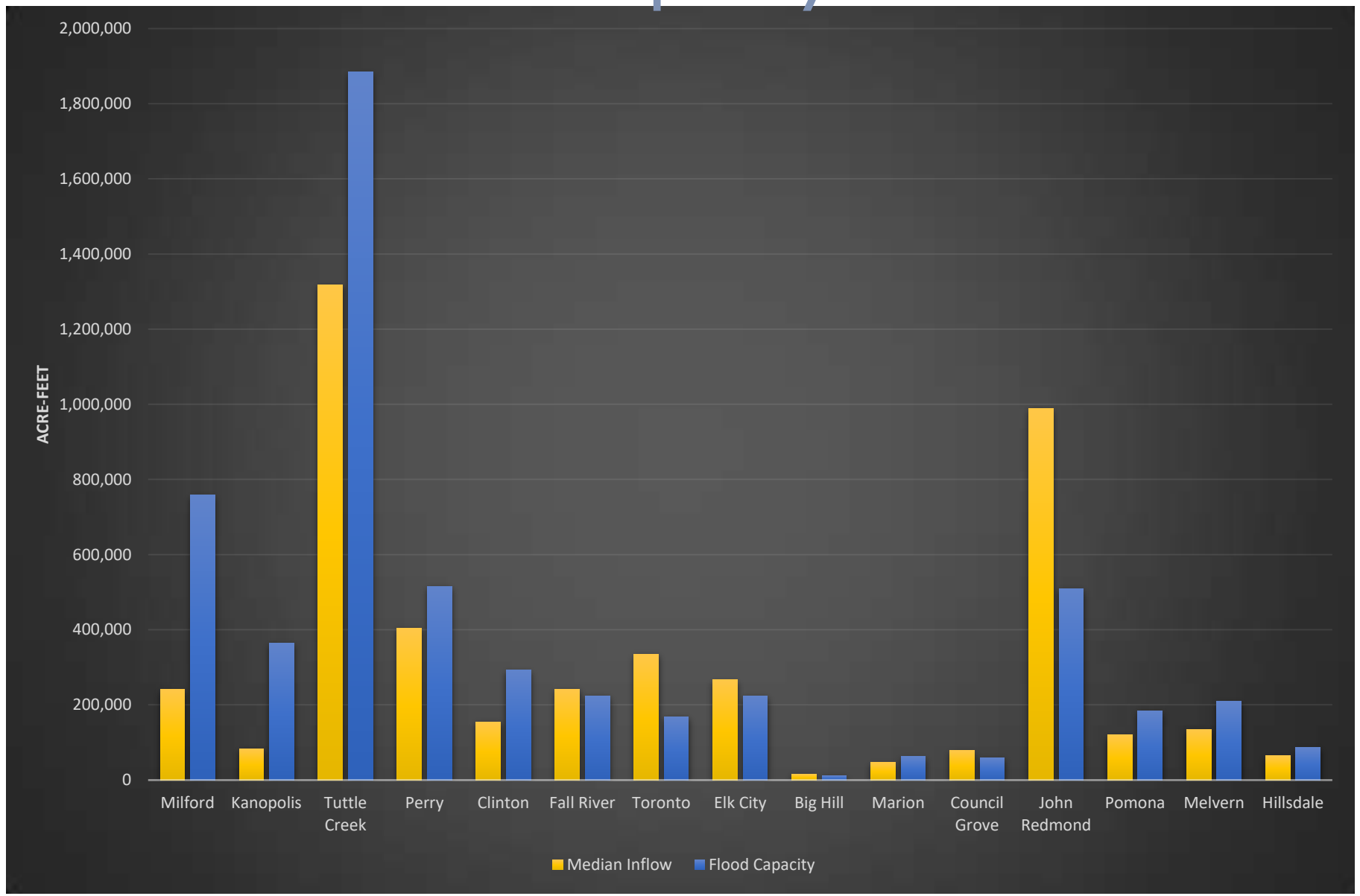
- ▶ Does Kansas need FIRO?
 - ▶ Yes, conservation storage is shrinking fast
 - ▶ Conservation storage / Demand
 - ▶ Potentially less than one year supply



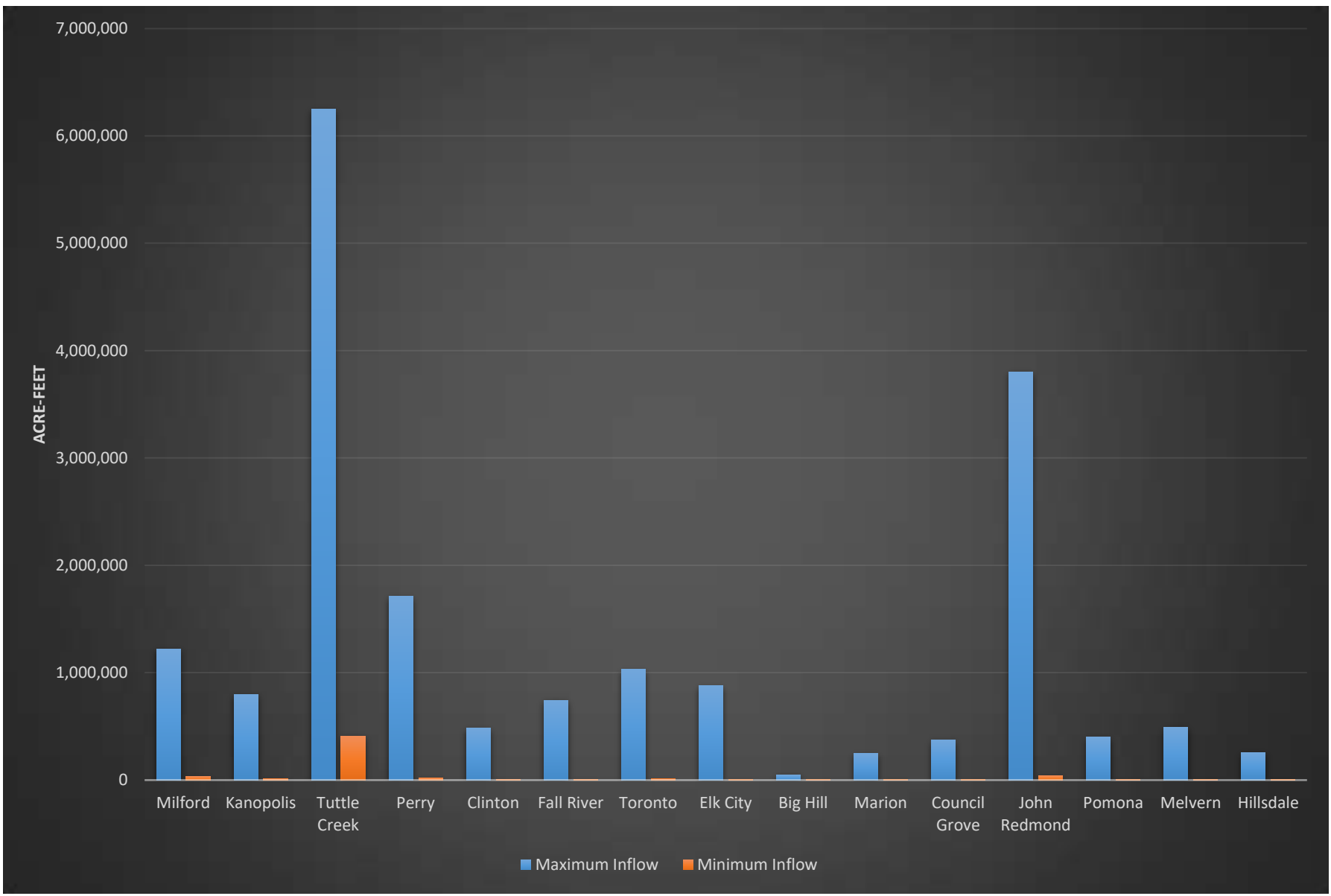
Large Flood Pools



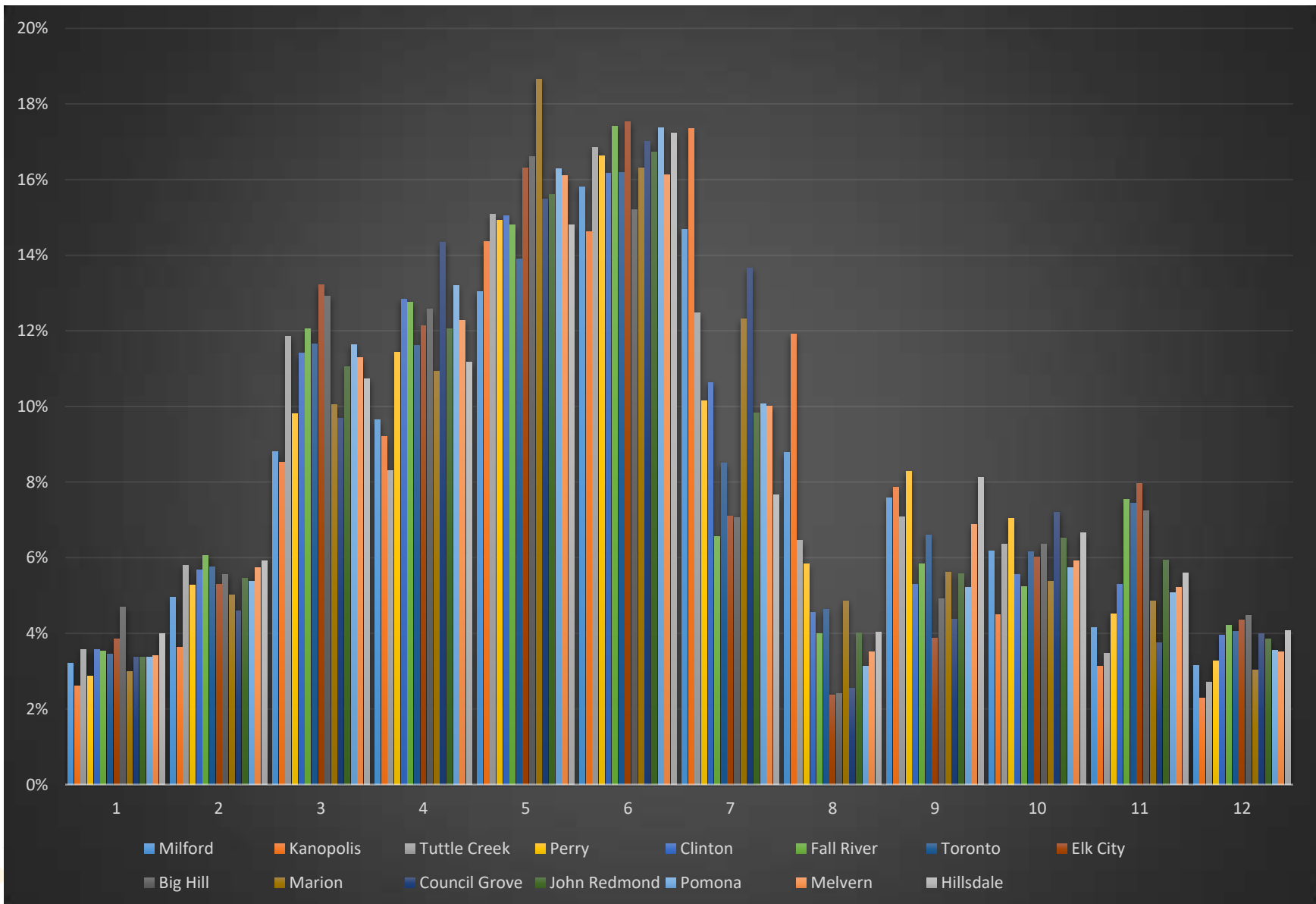
Annual Inflow / Capacity



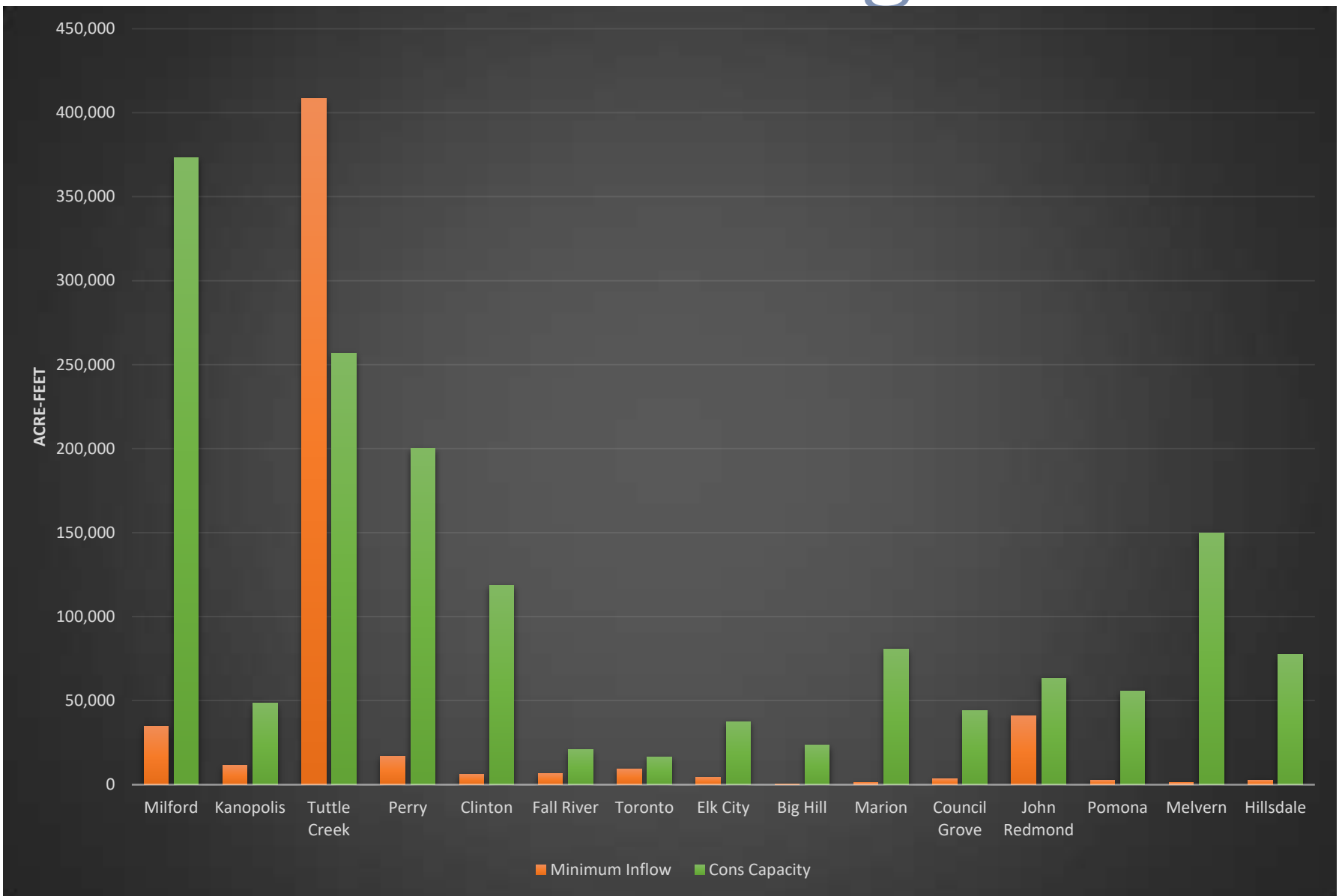
Max and Min Inflow



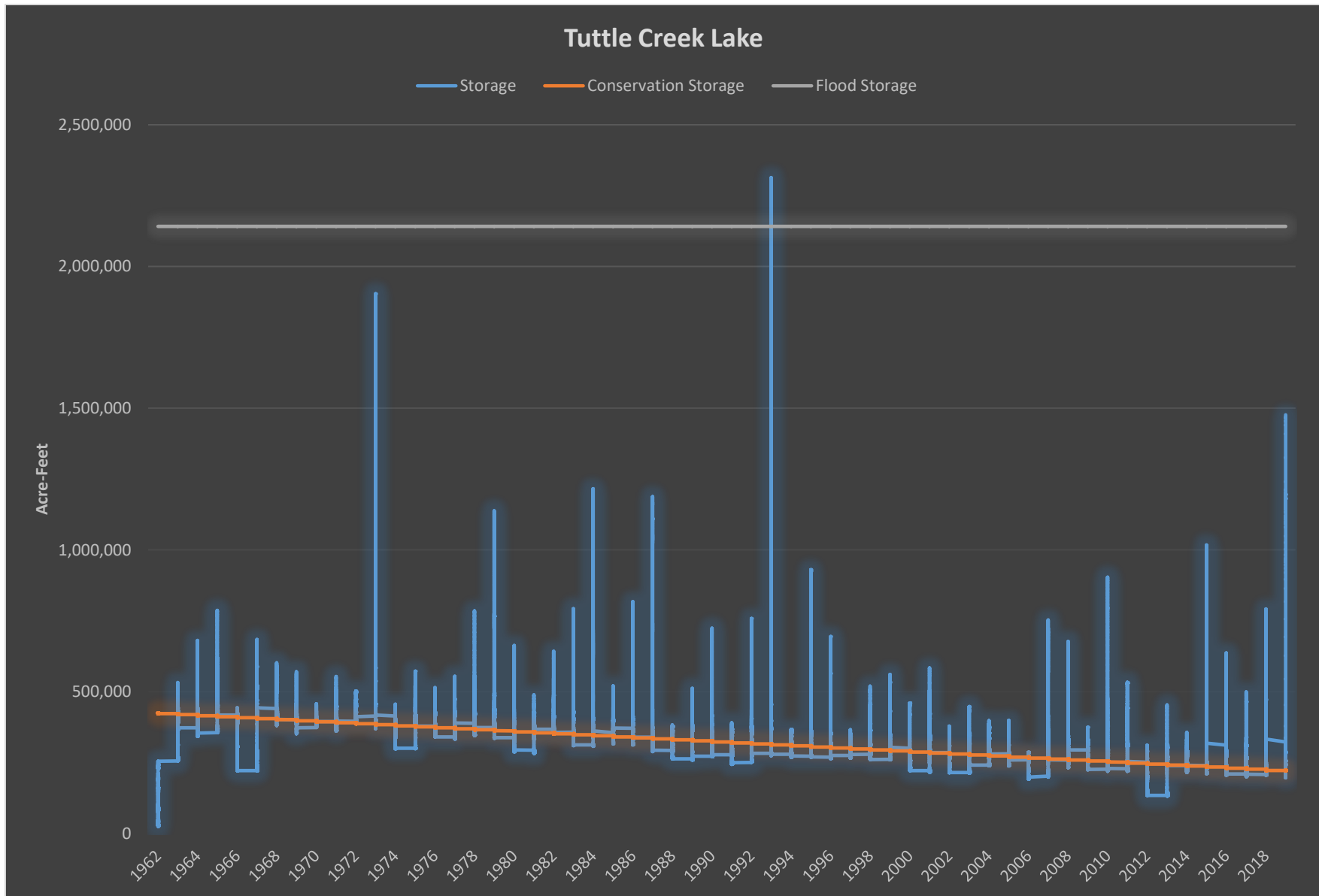
Seasonal Inflow Pattern



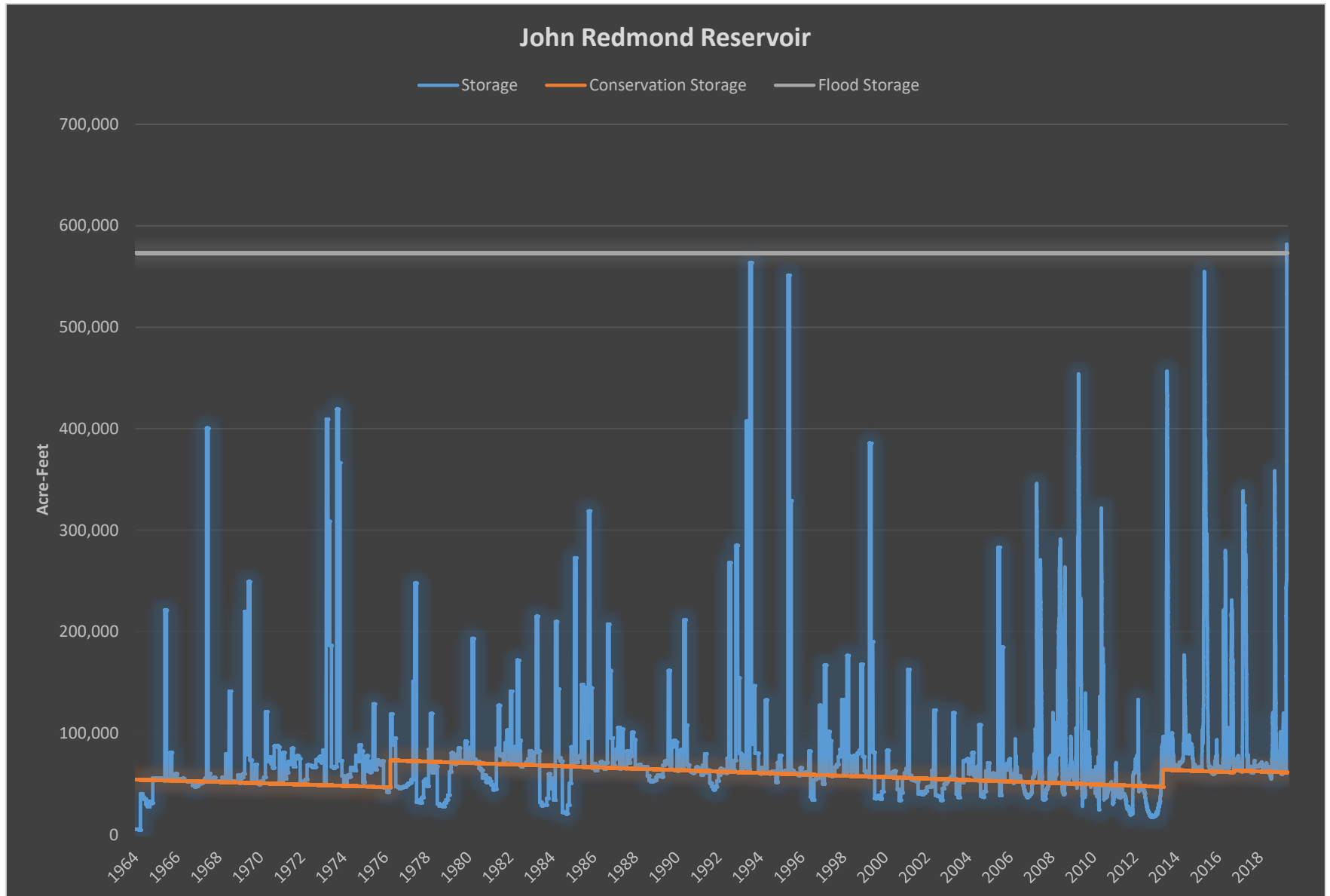
Conservation Storage



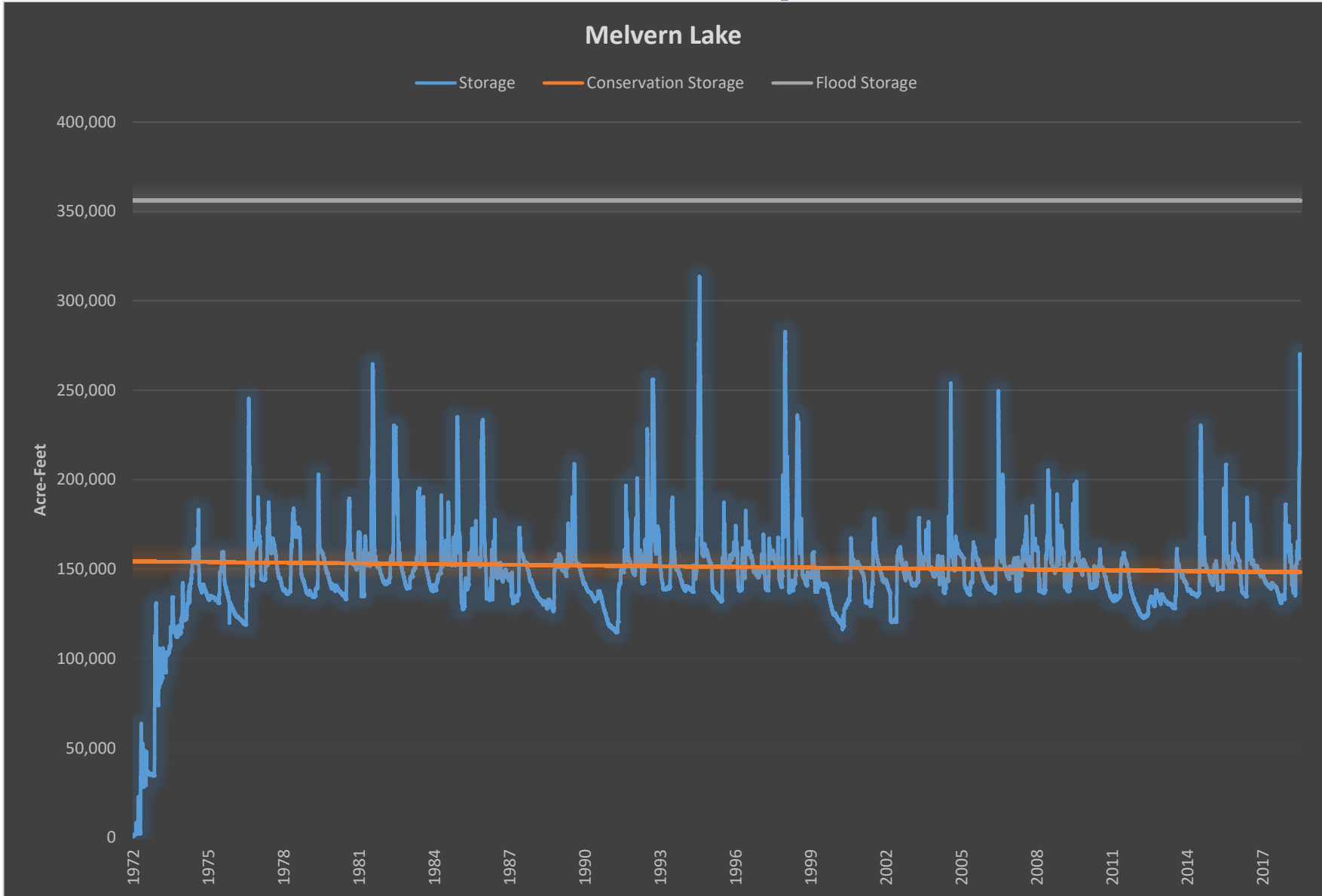
Shrinking Storage & History



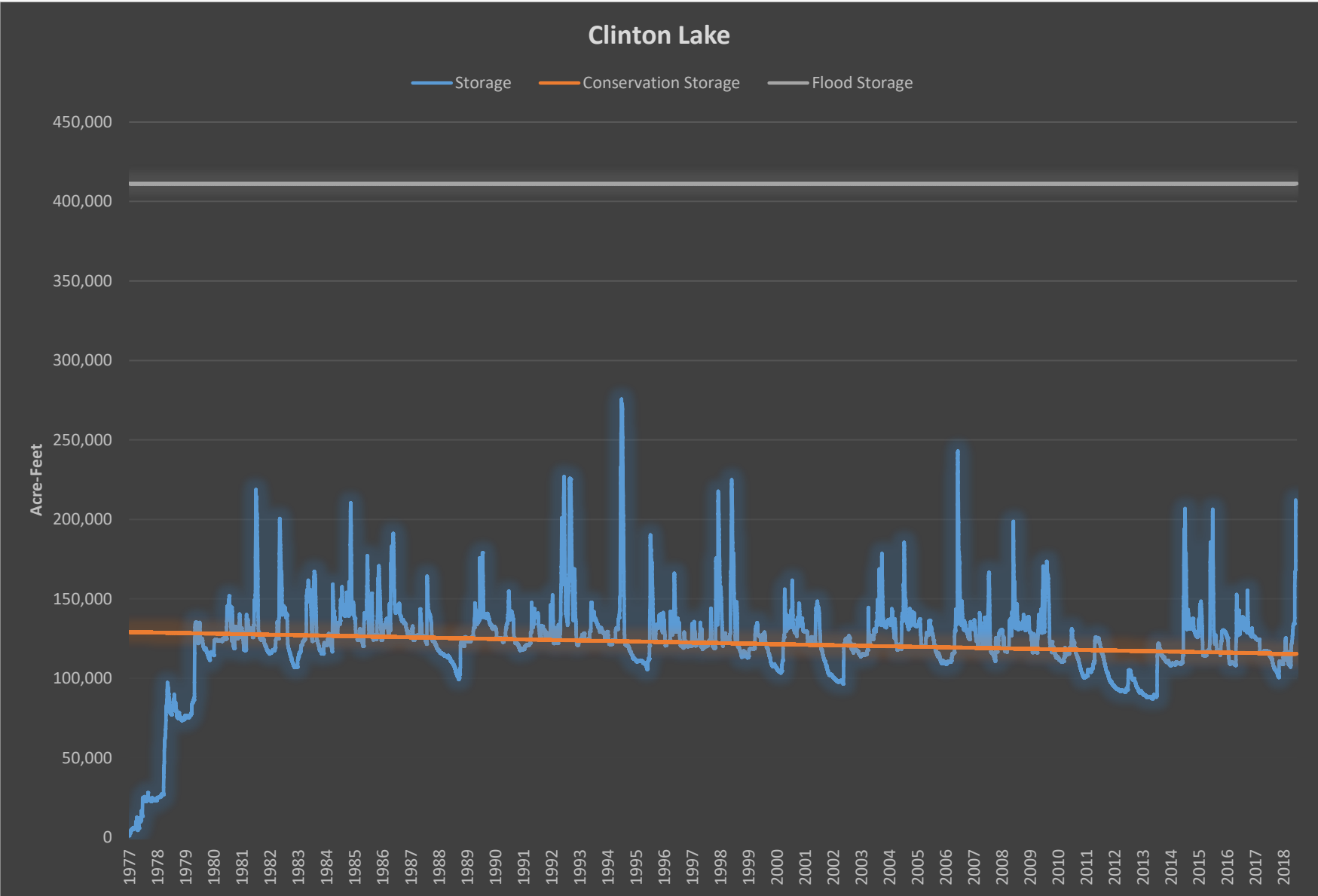
Problem child...



Never used full flood pool



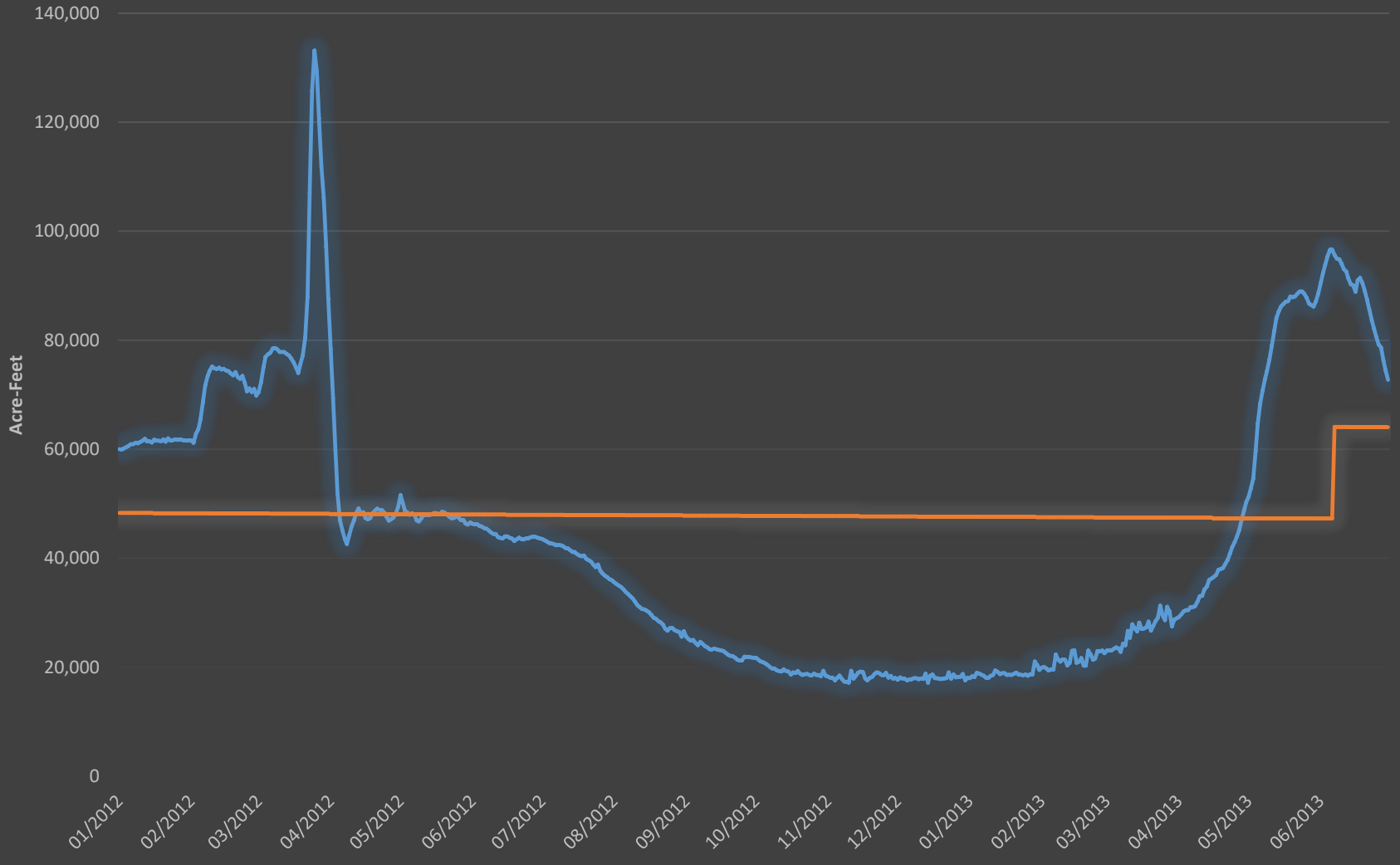
Another one...

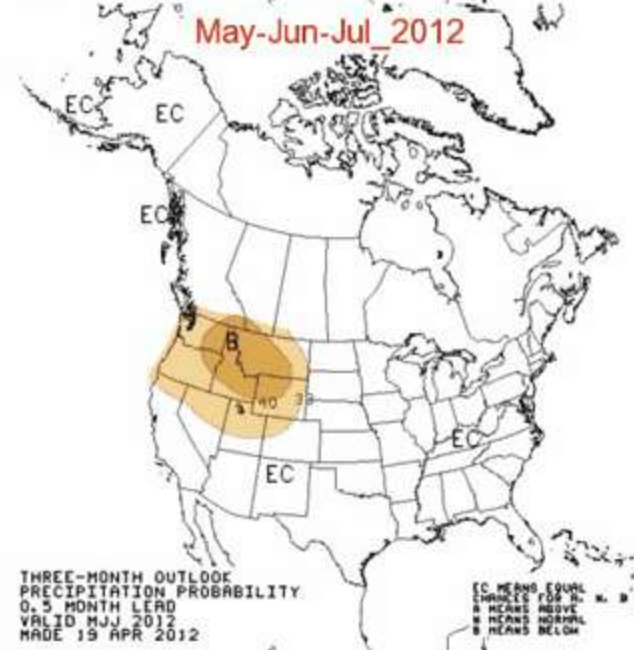
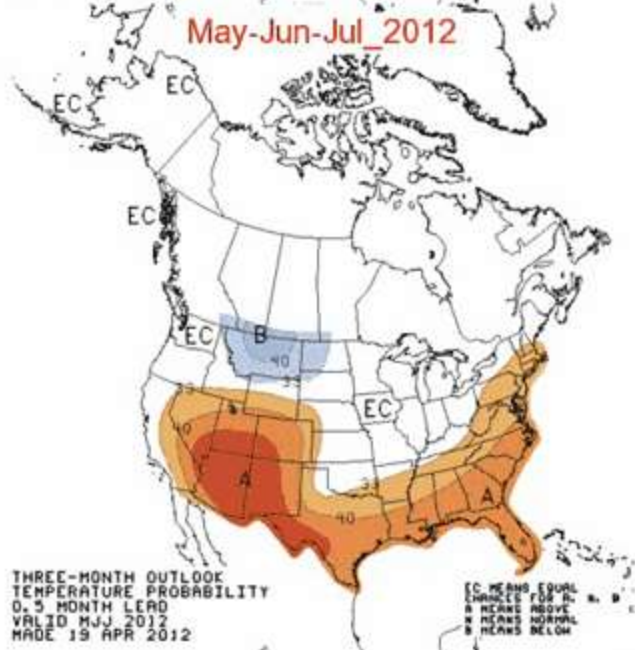
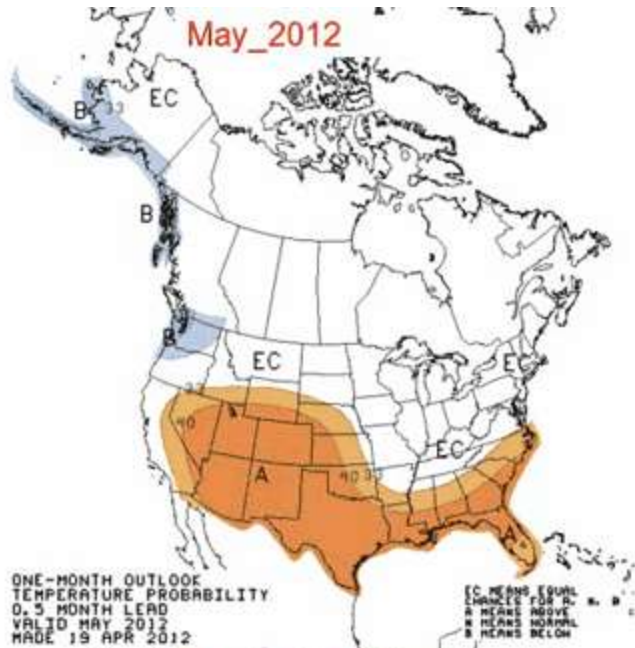


Drought of 2012

John Redmond Reservoir

Storage Conservation Storage





Questions?

