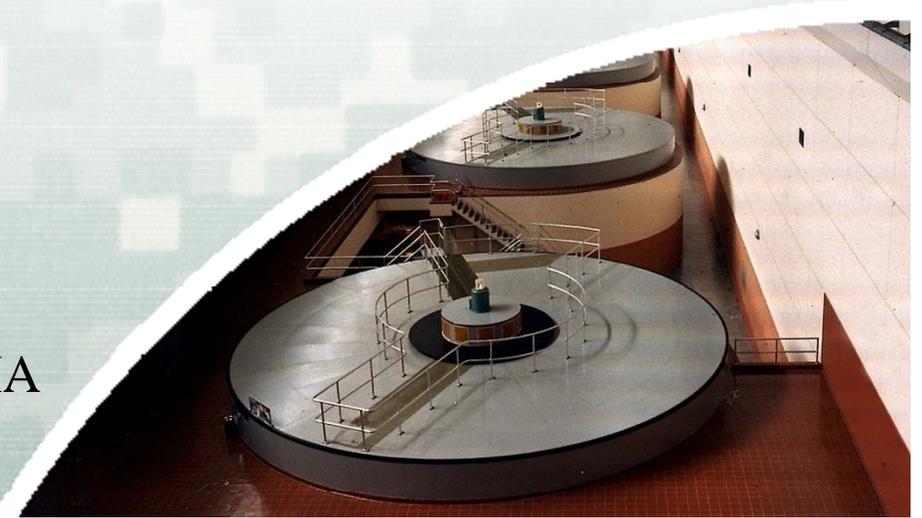


Missouri River Basin Water Management Spring 2015 Public Meetings

April 7 th	11:00 a.m.	Pierre, SD
April 7 th	6:00 p.m.	Bismarck, ND
April 8 th	11:00 a.m.	Fort Peck, MT
April 9 th	11:00 a.m.	Smithville, MO
April 9 th	6:00 p.m.	Council Bluffs, IA

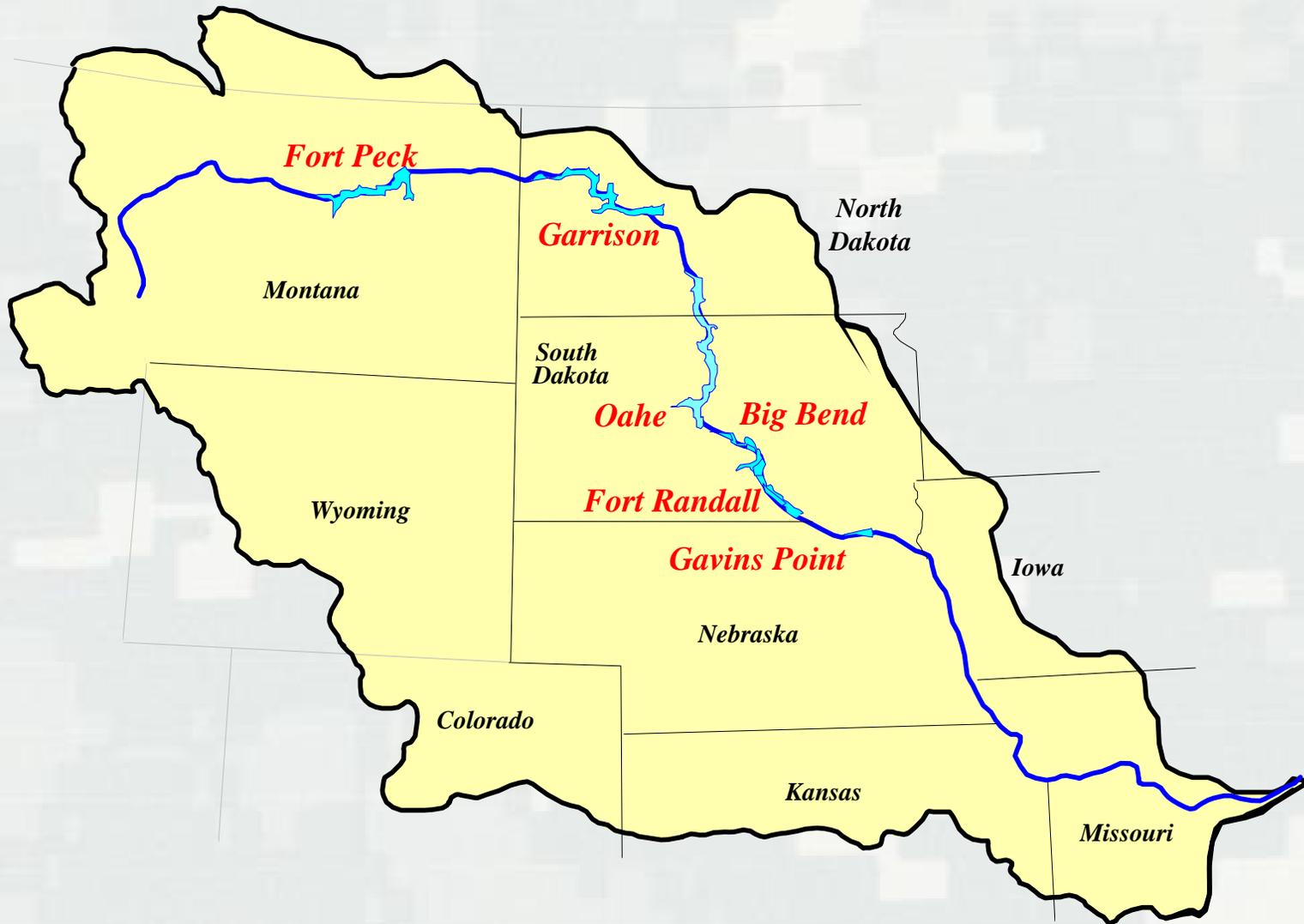


U.S. ARMY



US Army Corps of Engineers
BUILDING STRONG

Missouri River Mainstem Reservoir System



Our Mission

Regulate Missouri River Mainstem Reservoirs to Support Congressionally Authorized Purposes

Flood Control



Hydropower



Water Supply



Water Quality Control



Recreation



Navigation



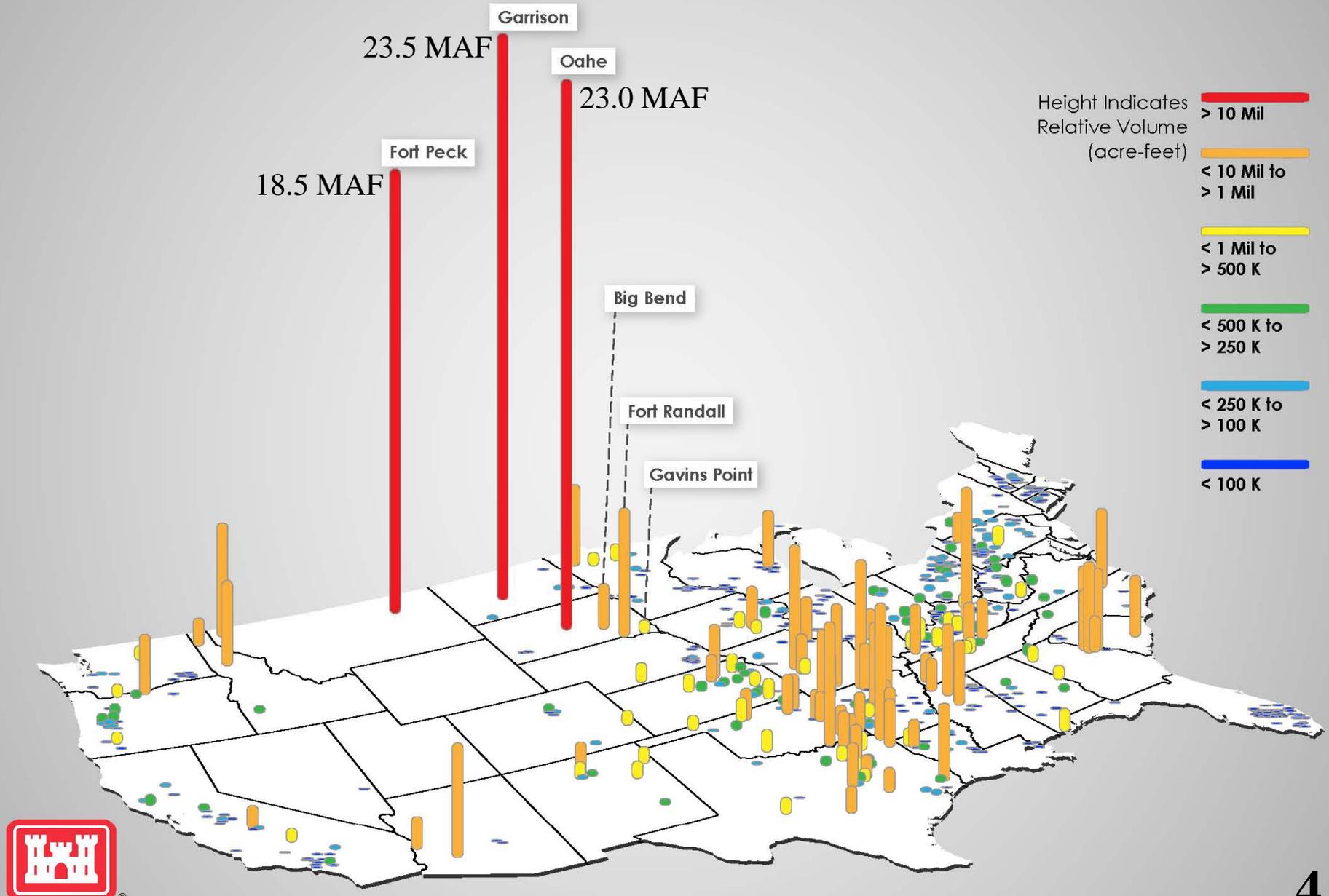
**Fish and Wildlife
Including Threatened and
Endangered Species**



Irrigation

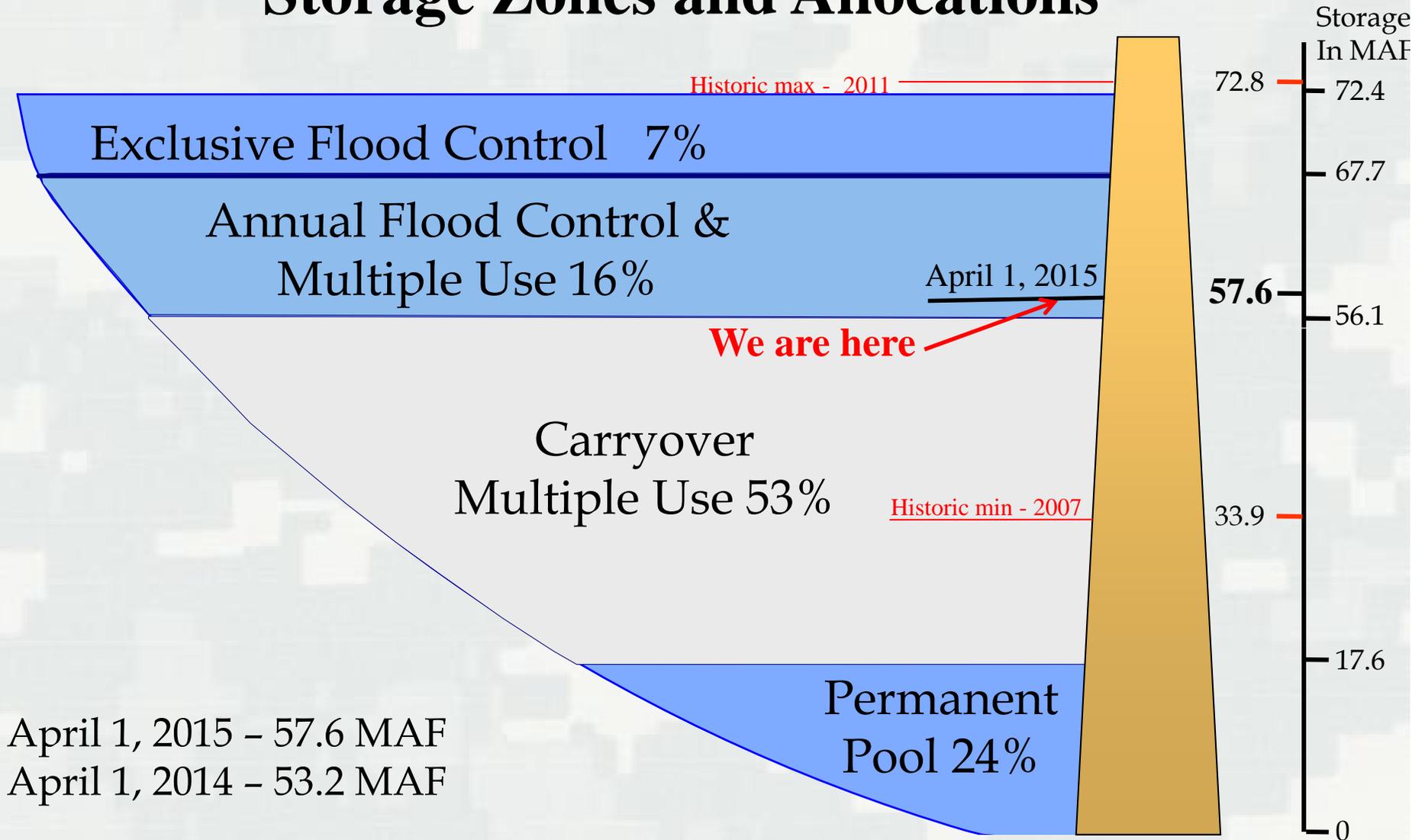


Storage Capacity of Corps Reservoirs

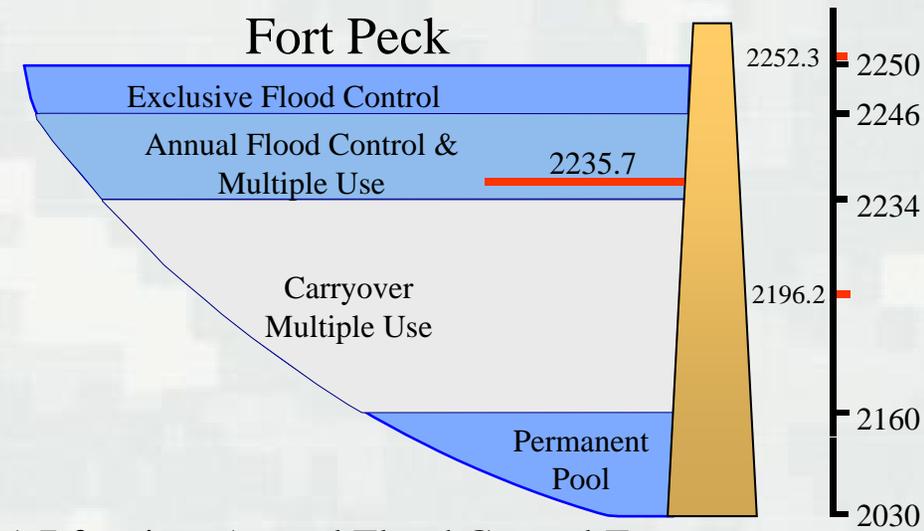


US Army Corps of Engineers
BUILDING STRONG

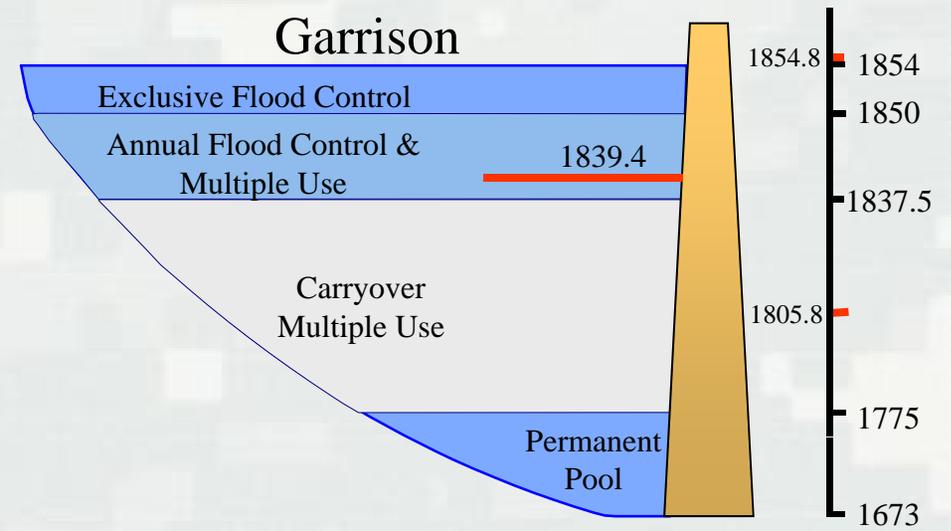
Missouri River Mainstem System Storage Zones and Allocations



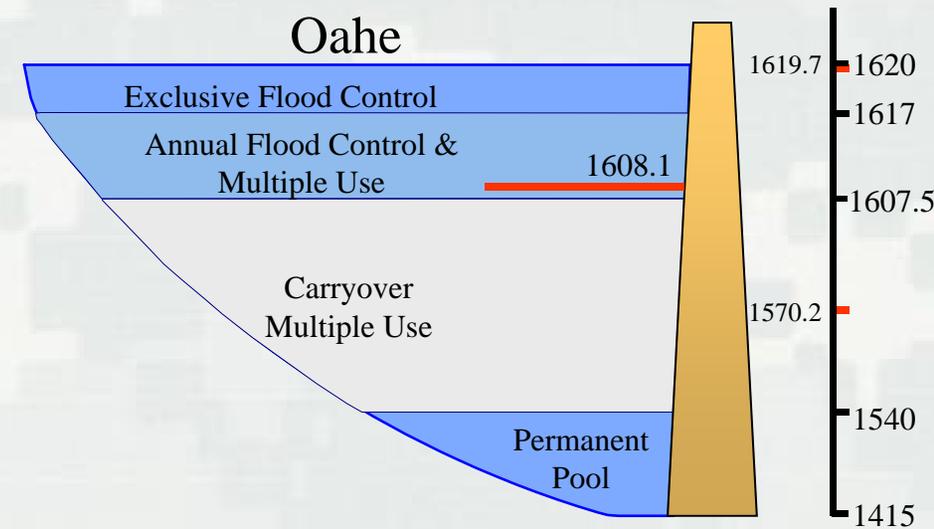
Current Reservoir Levels – Apr 1, 2015



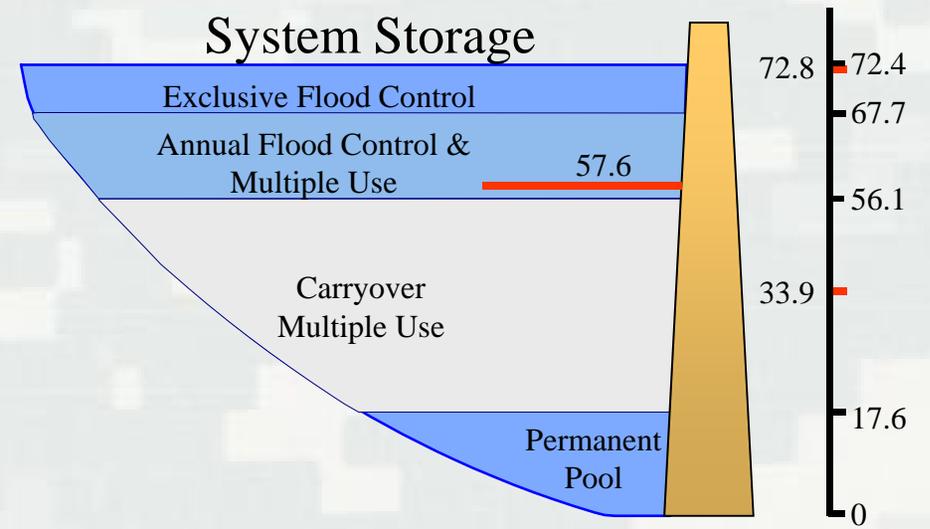
1.7 feet into Annual Flood Control Zone.



1.9 feet into Annual Flood Control Zone.



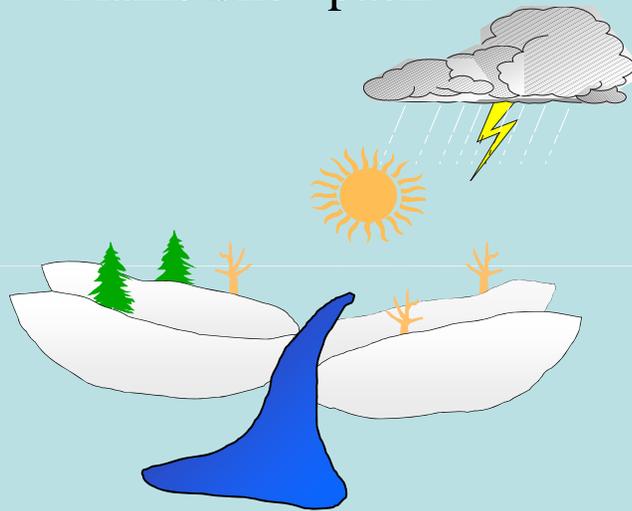
0.6 feet into Annual Flood Control Zone.



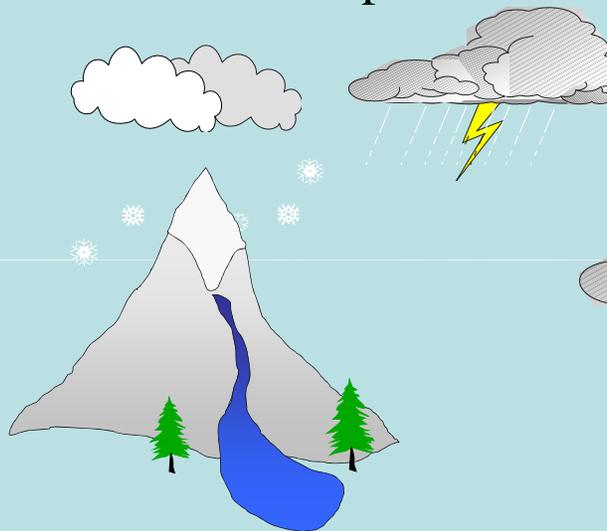
1.5 MAF into Annual Flood Control Zone.

Runoff Components

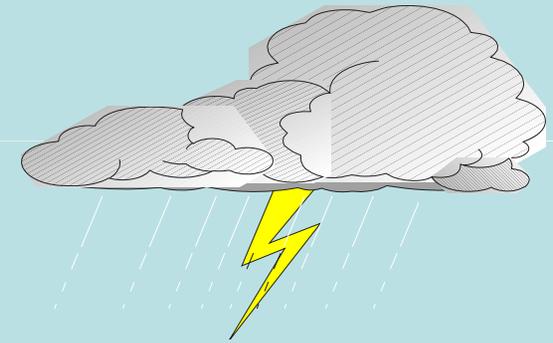
Plains Snowpack



Mountain Snowpack



Rainfall



March and
April

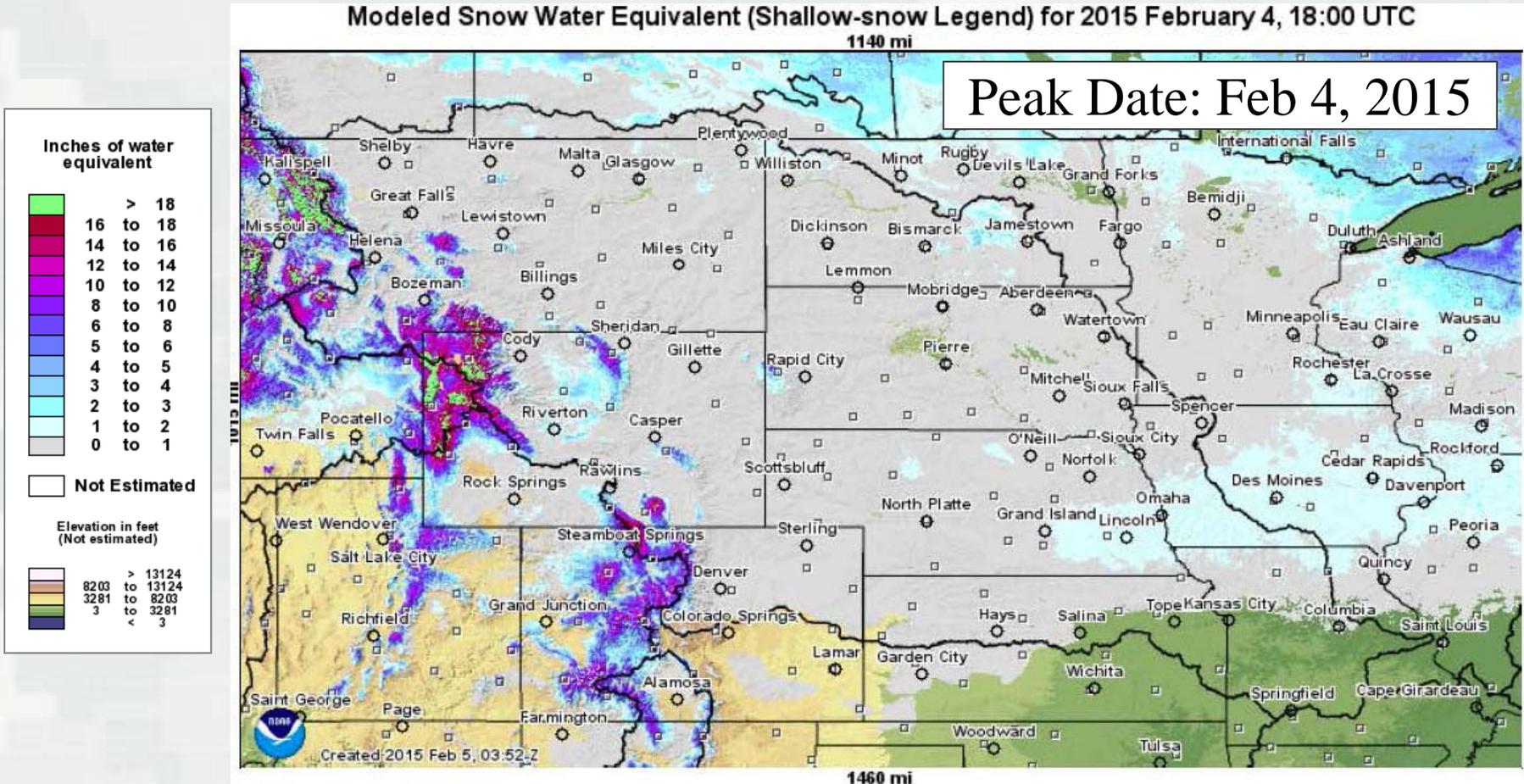
May, June
and July

Throughout
Year

2015 Forecast* = 20.3 MAF

*April 1 Forecast – 80% of average

Plains Snowpack

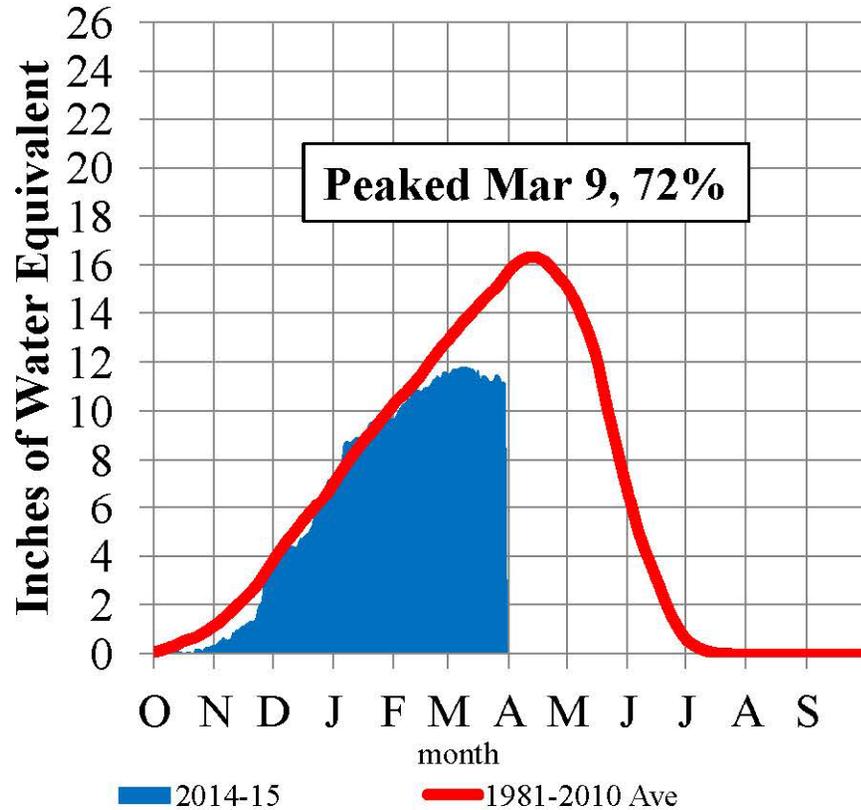


Source: NOAA National Operational Hydrologic Remote Sensing Center (NOHRSC)

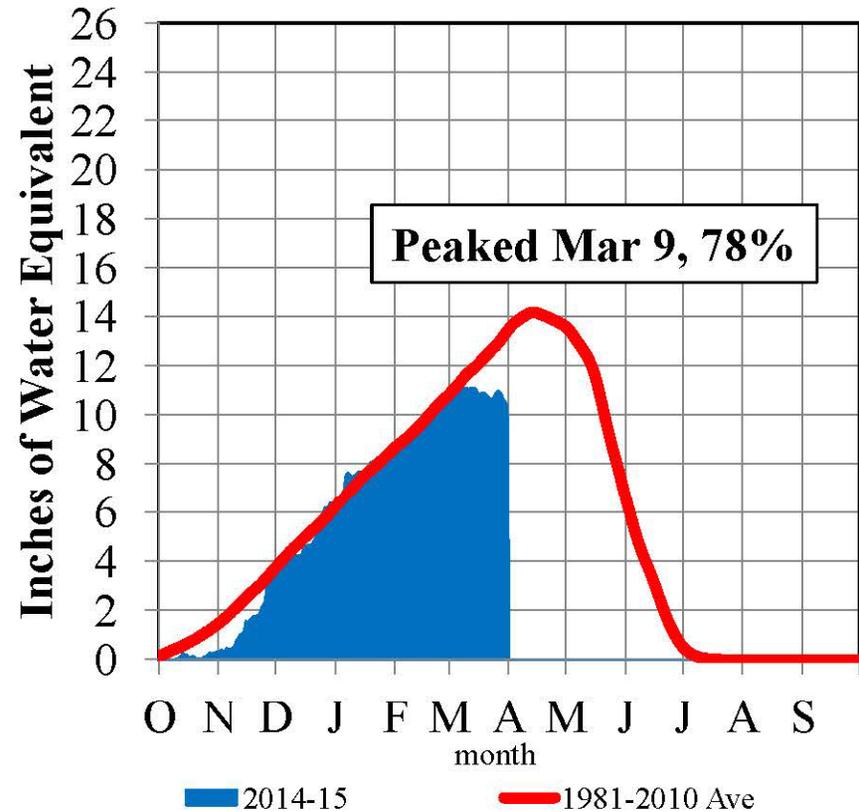
Mountain Snowpack

March 31, 2015

Total above Fort Peck



Total Fort Peck to Garrison



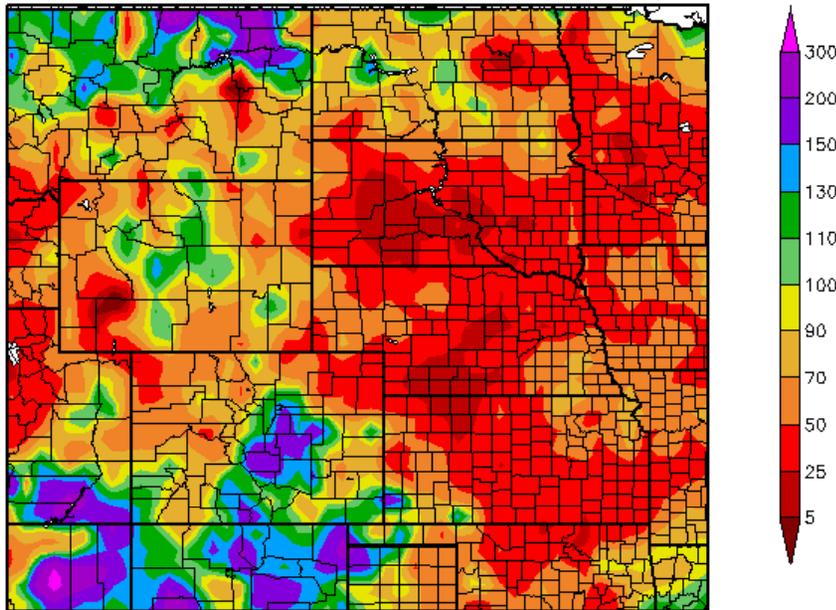
The Missouri River Basin mountain snowpack normally peaks near April 15.

Source: USDA, Natural Resource Conservation Service

Observed Precipitation

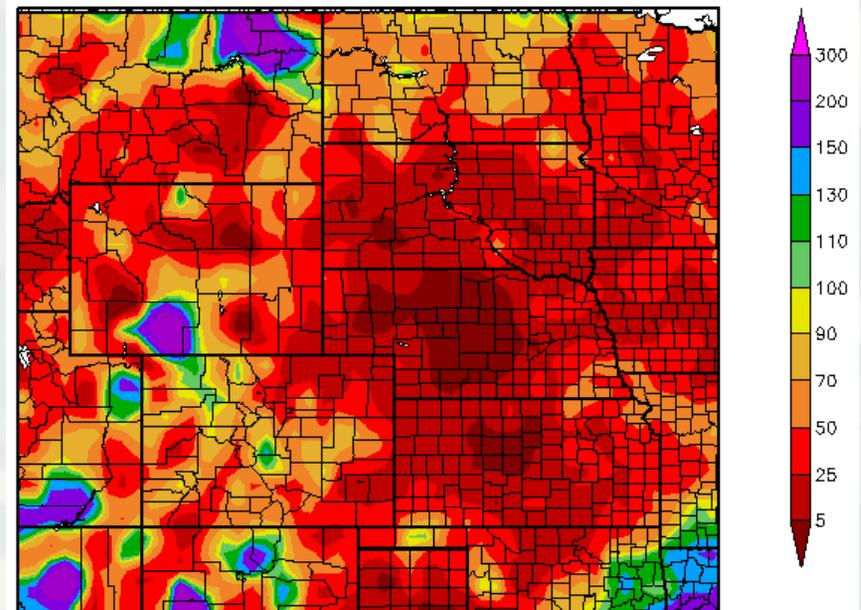
last 90 days

Percent of Normal Precipitation (%)
1/1/2015 – 3/31/2015



last 30 days

Percent of Normal Precipitation (%)
3/1/2015 – 3/31/2015

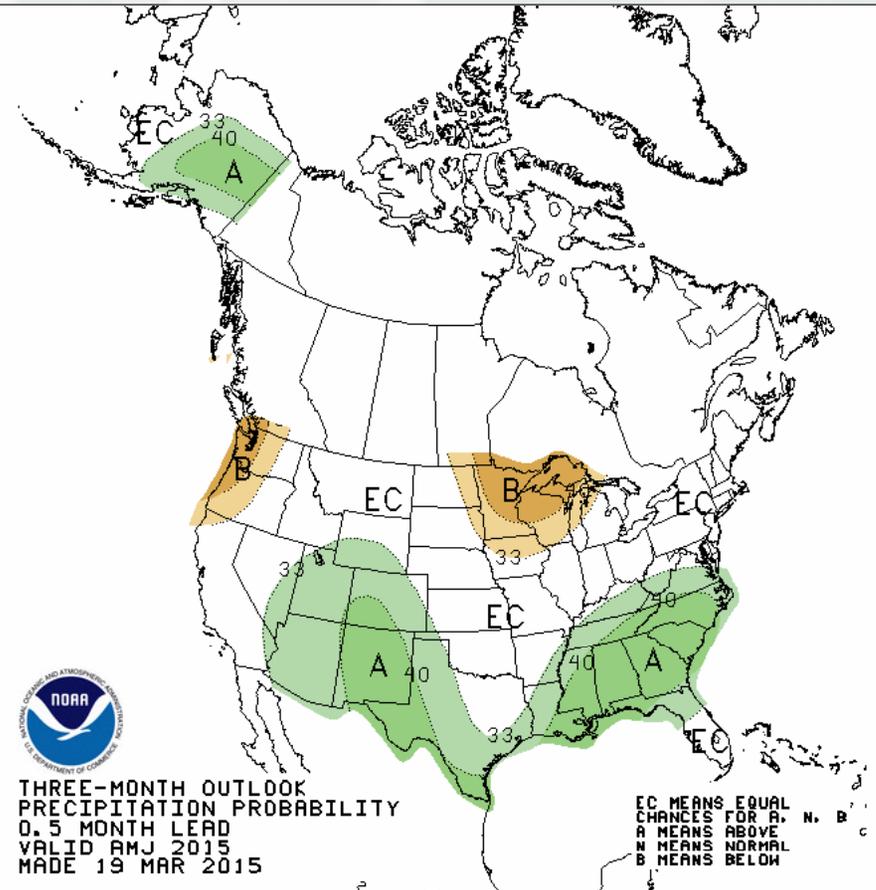
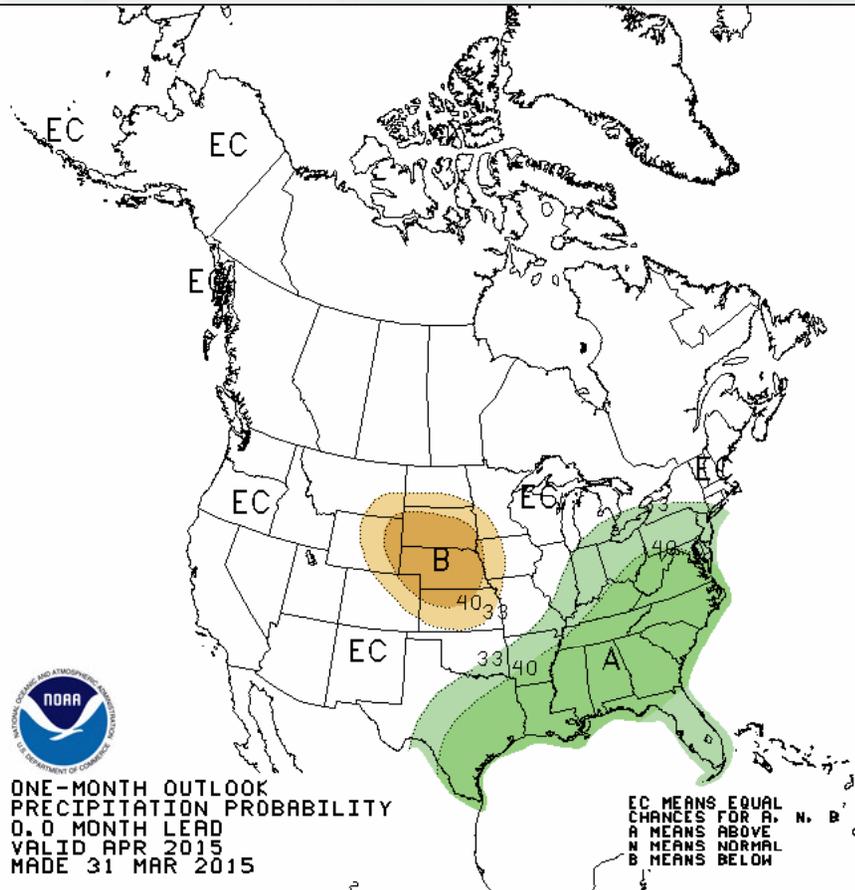


Source: High Plains Regional Climate Center

Precipitation Outlooks

April

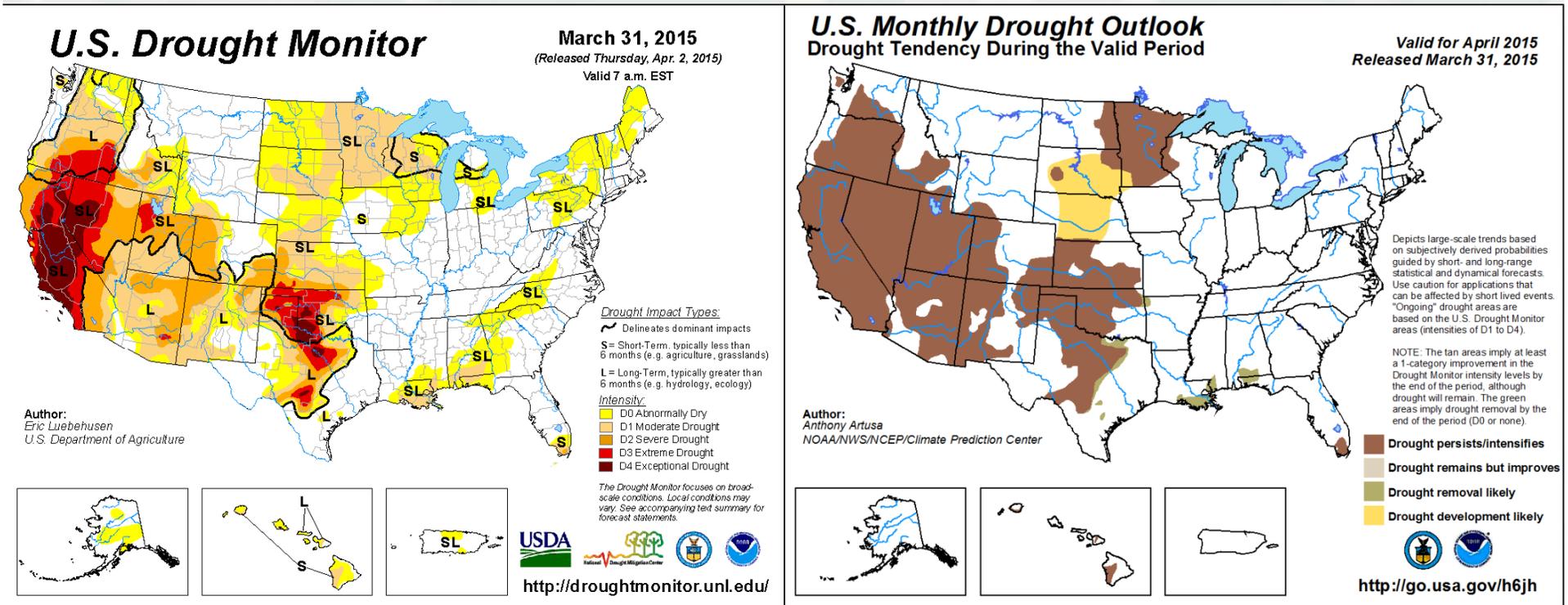
Apr – May - Jun



Source: NOAA Climate Prediction Center

Drought

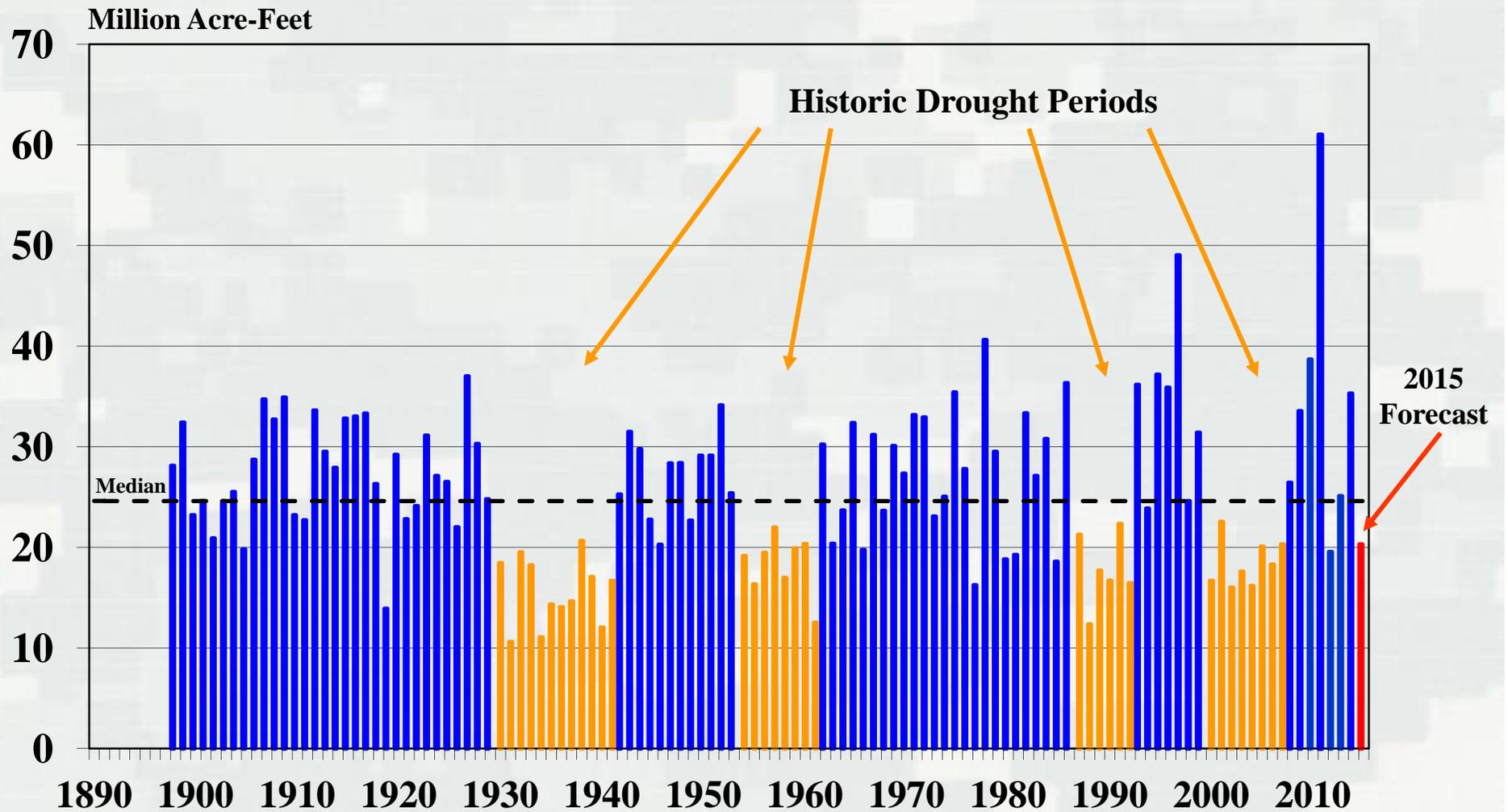
Current Conditions and Outlook



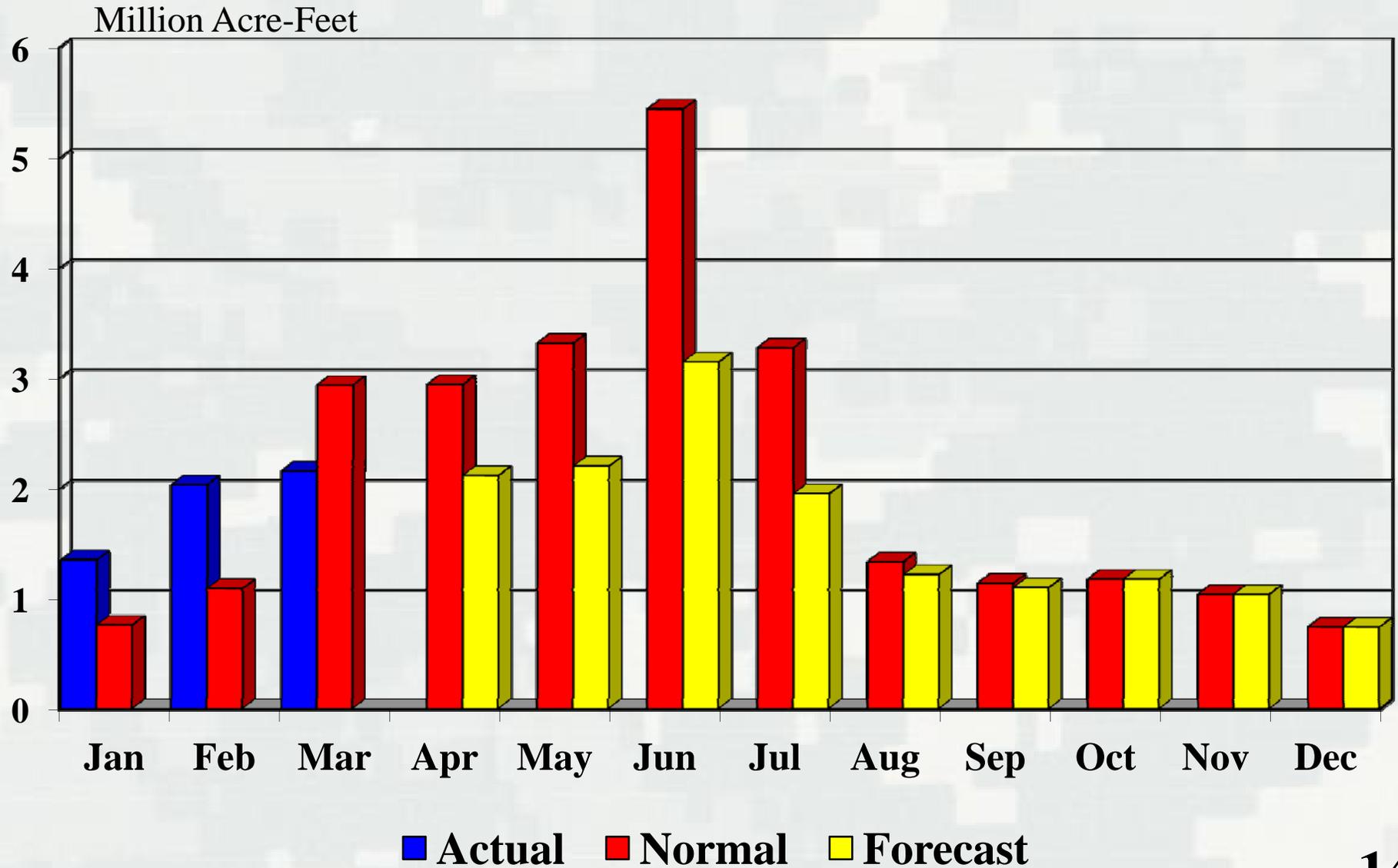
Source: National Drought Mitigation Center

Source: NOAA Climate Prediction Center

Annual Runoff above Sioux City, IA

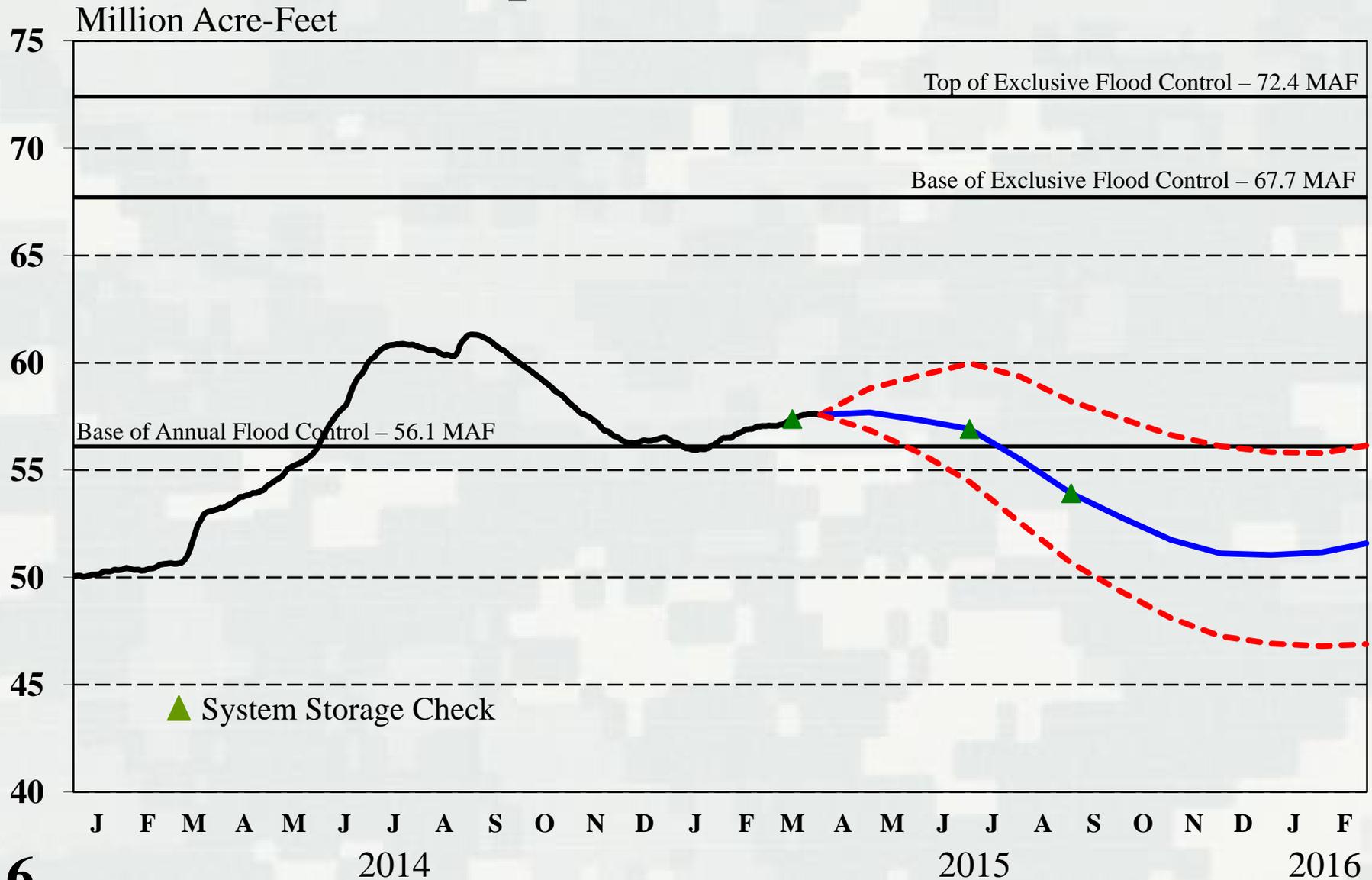


Missouri River Runoff above Sioux City, IA 2015 Actual and Forecasted



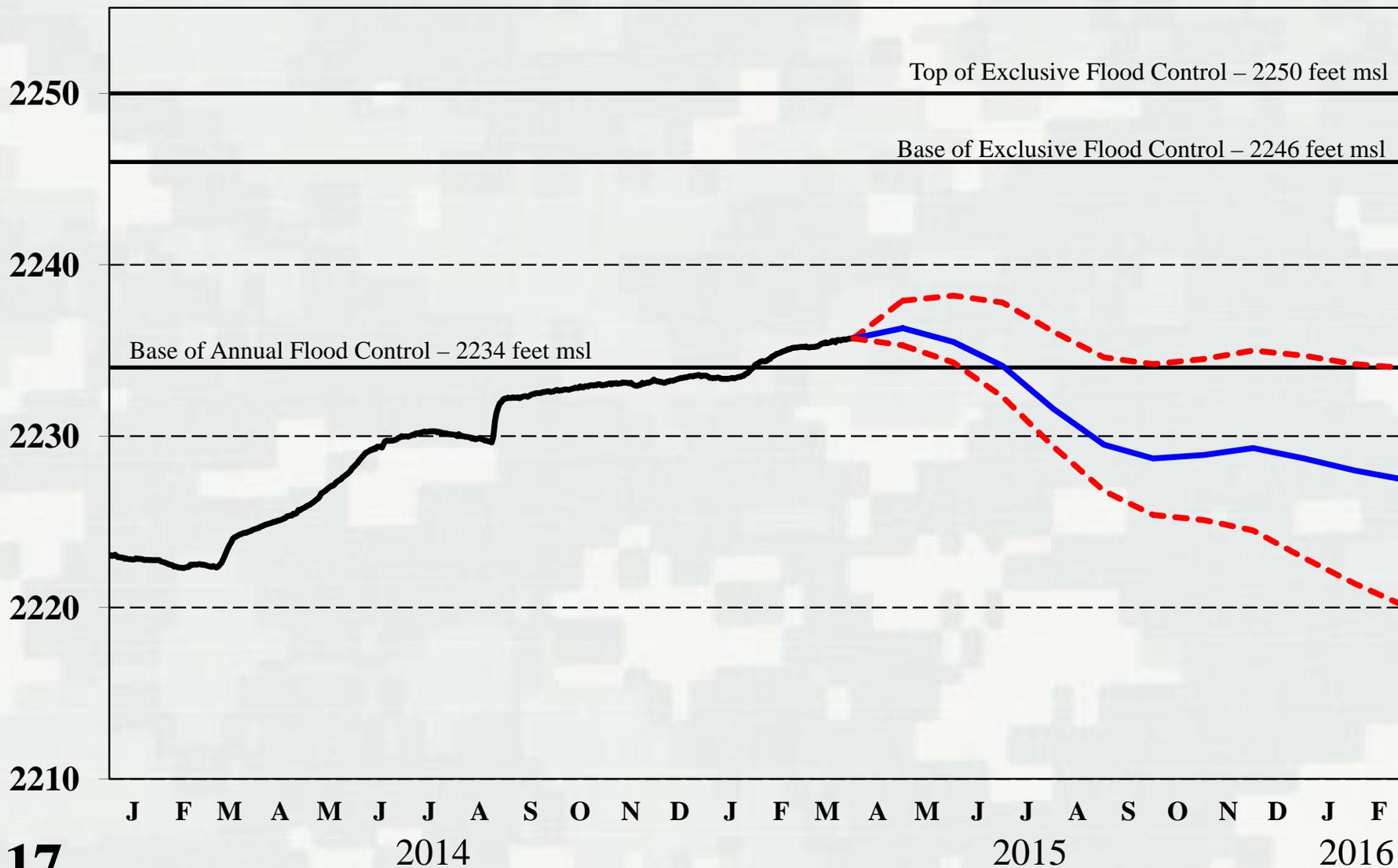
Expected Results for Authorized Purposes in 2015

System Storage April 1 Forecast



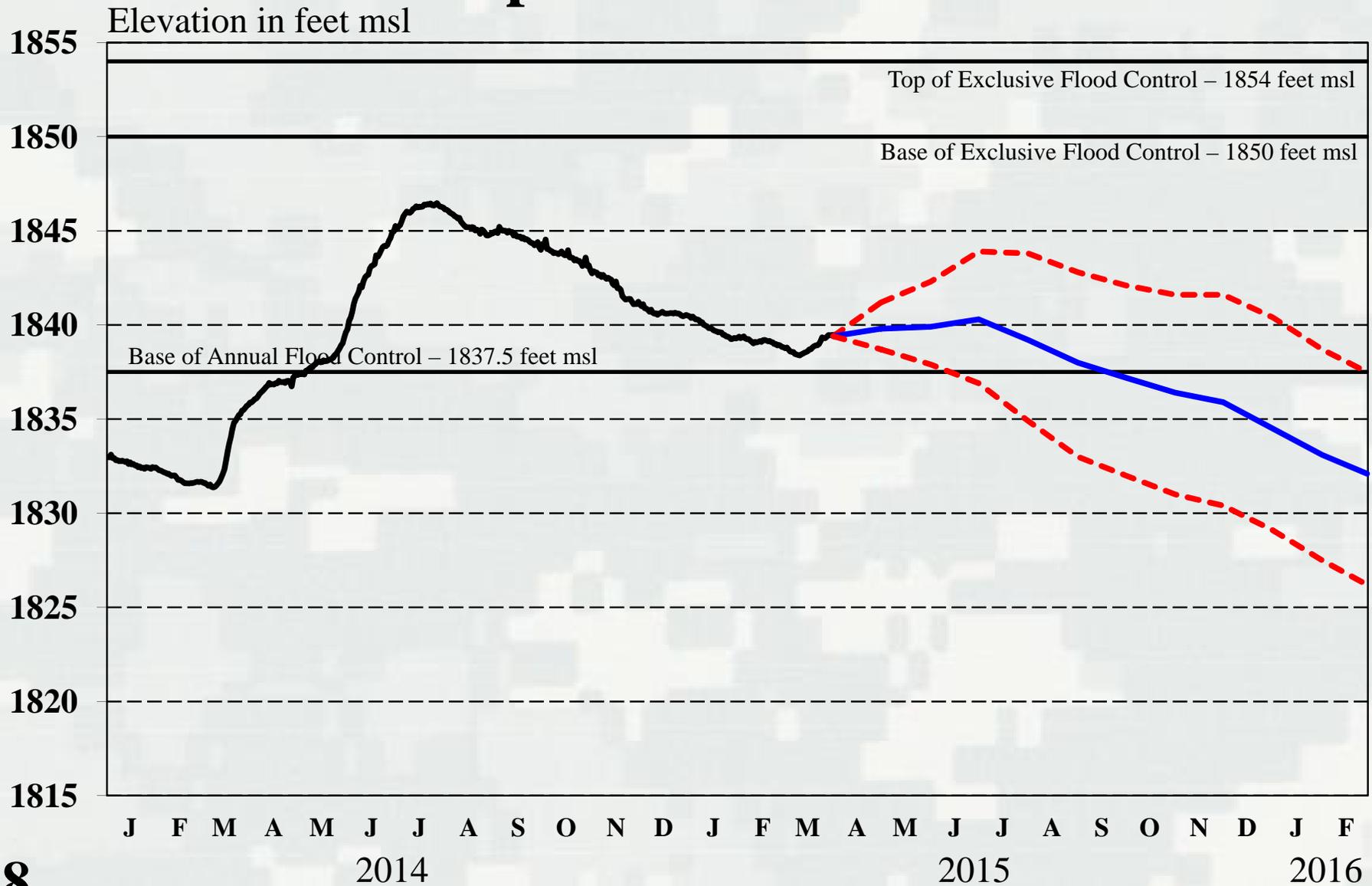
Fort Peck April 1 Forecast

Elevation in feet msl



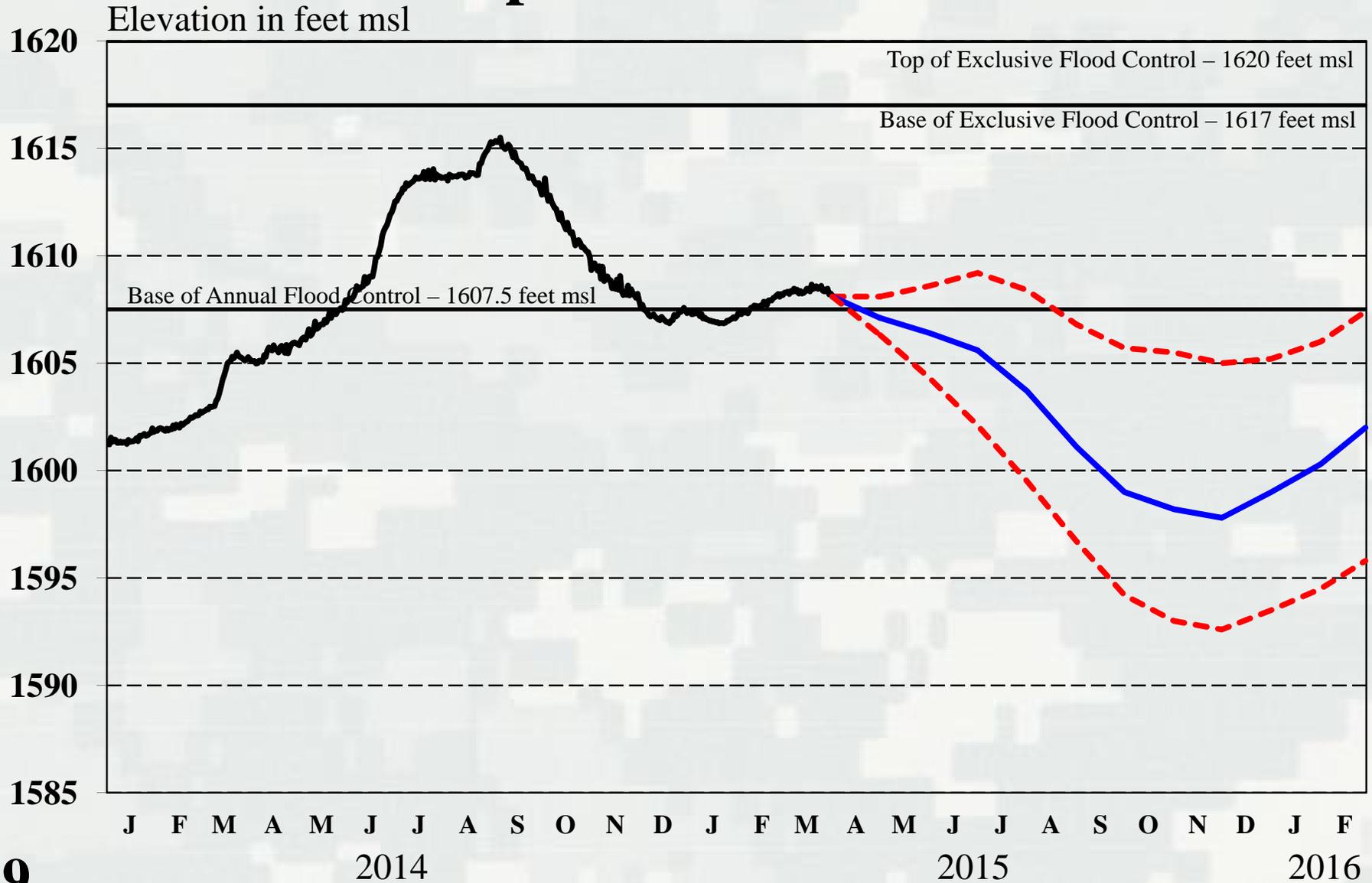
Garrison

April 1 Forecast



Oahe

April 1 Forecast

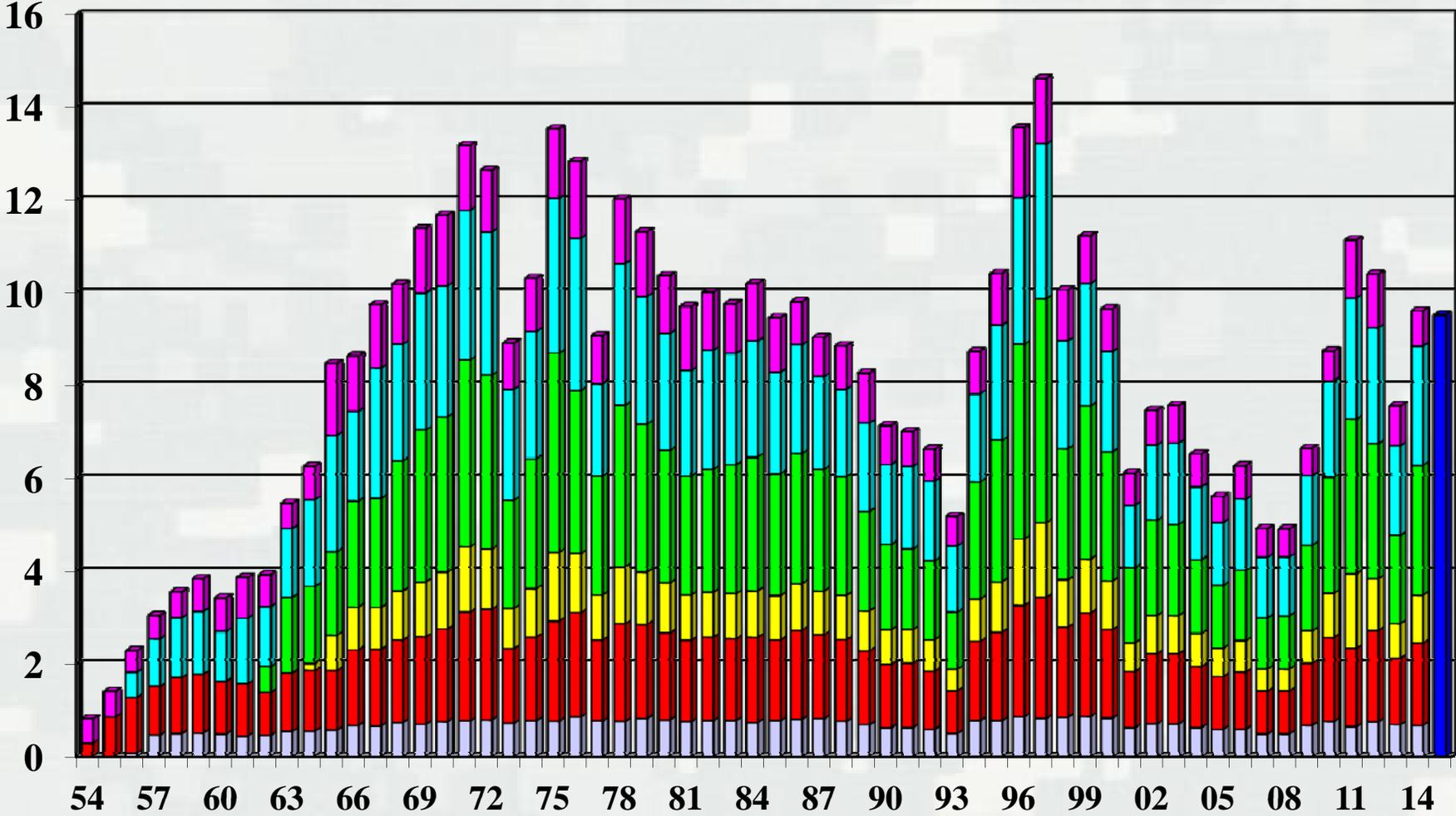


Flood Control

- All 2014 flood water evacuated from reservoir system by early January
- Storage space available to capture runoff and reduce releases for downstream events
- Flooding can still occur due to rainfall
 - ▶ Ability to reduce downstream stages diminishes as you move further from the control point due to increased travel times

Hydropower

Billion kWh



■ Gavins Point
 ■ Fort Randall
 ■ Big Bend
 ■ Oahe
 ■ Garrison
 ■ Fort Peck
 ■ Forecast

Navigation

- March 15 storage check
 - ▶ Full service flow support
 - ▶ Target locations: Sioux City, Omaha, Nebraska City and Kansas City
- July 1 storage check
 - ▶ Full service flow support except for Lower Basic
 - ▶ Full length navigation
- Conservation measures may be implemented if conditions worsen

Water Supply – Water Quality

Irrigation – Recreation

- Normal to slightly below normal elevations and releases
- Lower pools not expected to affect recreation this year
- No impacts expected to irrigation
- Water supply
 - ▶ Gavins Point winter releases of 12,000 cfs under basic and lower basic
 - ▶ Reservoir levels above historic lows
 - ▶ Releases adequate between reservoirs



Fish and Wildlife

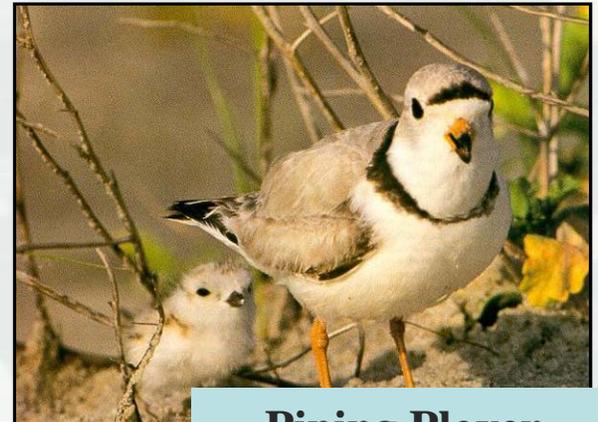
- Steady to rising levels at upper three reservoirs during forage fish spawn
 - ▶ Favor Fort Peck and Oahe if runoff not sufficient
 - ▶ May be difficult to accomplish this year without significant rainfall in the basin
- Minimize hours of zero releases at Fort Randall to the extent possible

Endangered Species Act of 1973

Each Federal Agency shall... ensure that any action authorized, funded, or carried out by such agency... is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat...



Interior Least Tern
Listed "Endangered" 1986



Piping Plover
Listed "Threatened" 1986



Pallid Sturgeon
Listed "Endangered" 1990

Threatened and Endangered Species

Piping Plover and Least Tern

- Gavins Point releases
 - ▶ Steady release – flow to target
 - ▶ Daily release cycle
- Intra-day peaking patterns – Garrison & Fort Randall
- Measures to minimize take



Threatened and Endangered Species

Bi-Modal Spring Pulse – Pallid Sturgeon

- 2003 Amended Biological Opinion – Reasonable and Prudent Alternative
- March and May spring pulses – not implemented in 2015
 - ▶ Independent science advisory panel (ISAP) determined implemented pulses not accomplishing intended outcomes
 - ▶ Forego 2015 spring pulse while pursuing ISAP recommendations



Summary

- Below average runoff forecast
- Reservoir levels expected to decline; begin next year well below base of flood control zone (basic runoff)
- Good service to all authorized purposes in 2015; impacts likely beginning next winter unless basin conditions improve

Thank You!

Missouri.Water.Management@usace.army.mil

Website: www.nwd-mr.usace.army.mil/rcc/
Or Google Corps Missouri River