

Missouri River Basin Water Management

US Army
Corps of Engineers

Missouri River Navigator's Meeting

February 13, 2013

Kevin Grode, P.E.

Reservoir Regulation Team Lead

Missouri River Basin Water Management



®

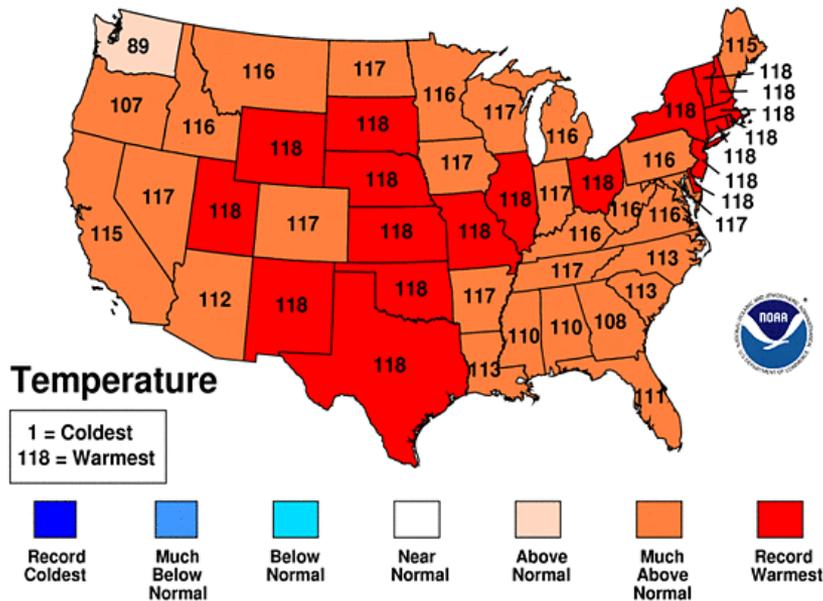
US Army Corps of Engineers
BUILDING STRONG®



2012 – Climate Summary

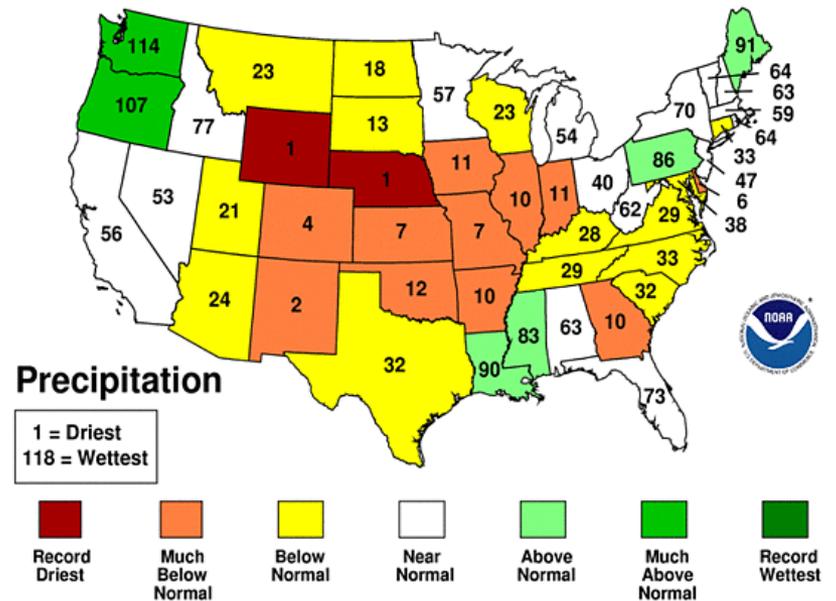
January-December 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



January-December 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



Very Hot

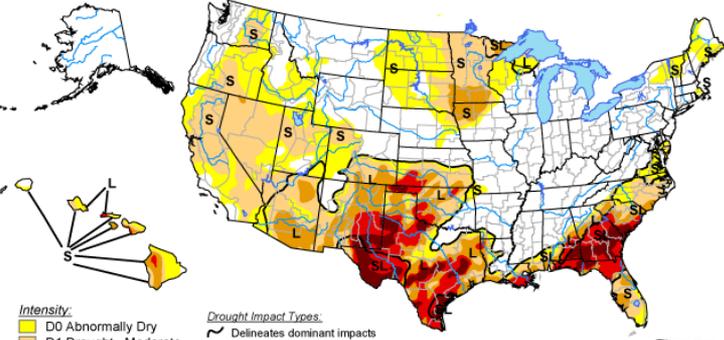
&

Very Dry

U.S. Drought Monitor (comparison)

U.S. Drought Monitor

February 14, 2012
Valid 7 a.m. EST



Intensity:
 D0 Abnormally Dry
 D1 Drought - Moderate
 D2 Drought - Severe
 D3 Drought - Extreme
 D4 Drought - Exceptional

Drought Impact Types:
 ~ Delineates dominant impacts
 S = Short-Term, typically <6 months
 (e.g. agriculture, grasslands)
 L = Long-Term, typically >6 months
 (e.g. hydrology, ecology)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

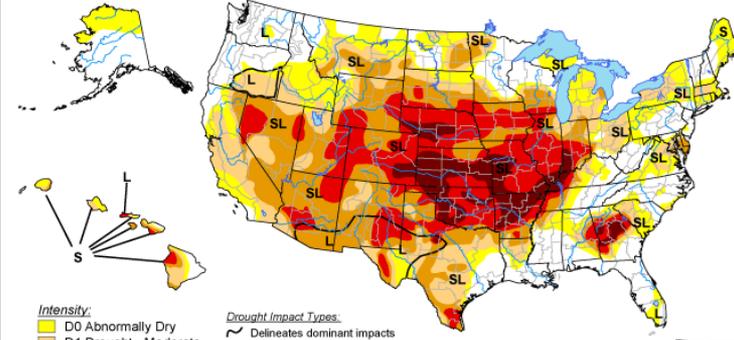
<http://droughtmonitor.unl.edu/>



Released Thursday, February 16, 2012
Author: Rich Tinker, NOAA/NWS/NCEP/CPC

U.S. Drought Monitor

August 14, 2012
Valid 7 a.m. EDT



Intensity:
 D0 Abnormally Dry
 D1 Drought - Moderate
 D2 Drought - Severe
 D3 Drought - Extreme
 D4 Drought - Exceptional

Drought Impact Types:
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<http://droughtmonitor.unl.edu/>

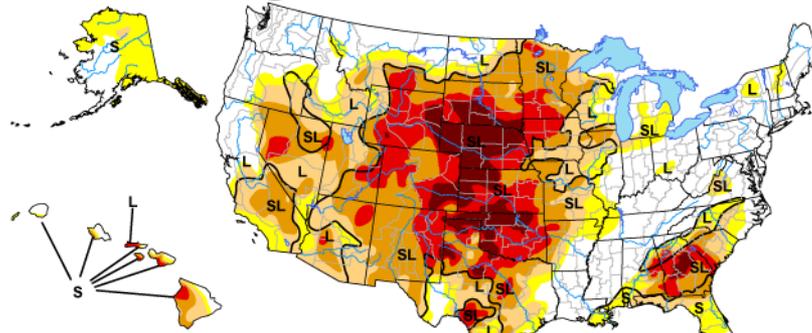


Released Thursday, August 16, 2012
Author: Michael Brewer/Liz Love-Brotak, NOAA/NESDIS/NCDC

1 Year ago

U.S. Drought Monitor

January 29, 2013
Valid 7 a.m. EST



Intensity:
 D0 Abnormally Dry
 D1 Drought - Moderate
 D2 Drought - Severe
 D3 Drought - Extreme
 D4 Drought - Exceptional

Drought Impact Types:
 ~ Delineates dominant impacts
 S = Short-Term, typically <6 months
 (e.g. agriculture, grasslands)
 L = Long-Term, typically >6 months
 (e.g. hydrology, ecology)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu/>



Released Thursday, January 31, 2013
Author: Mark Svoboda, National Drought Mitigation Center

6 Months ago

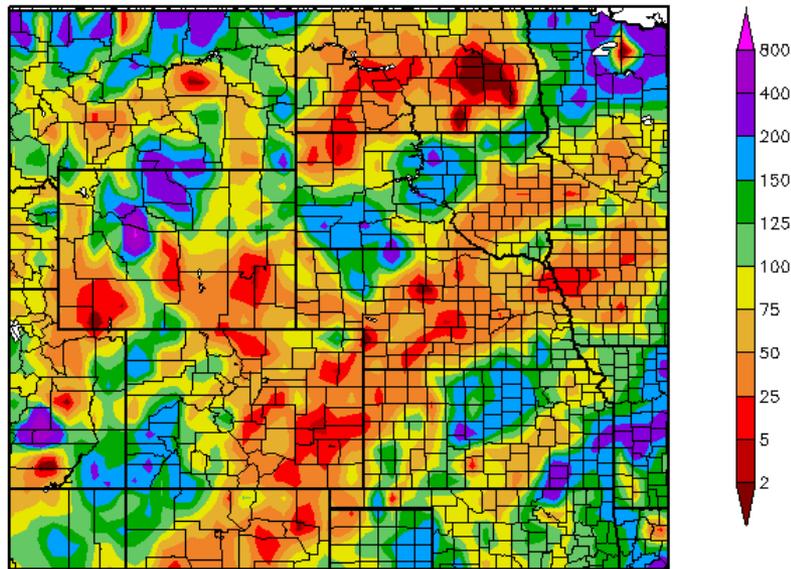
Drought conditions have developed or expanded dramatically throughout the Missouri River Basin over the past 12 months.

Graphics courtesy of National Drought Mitigation Center

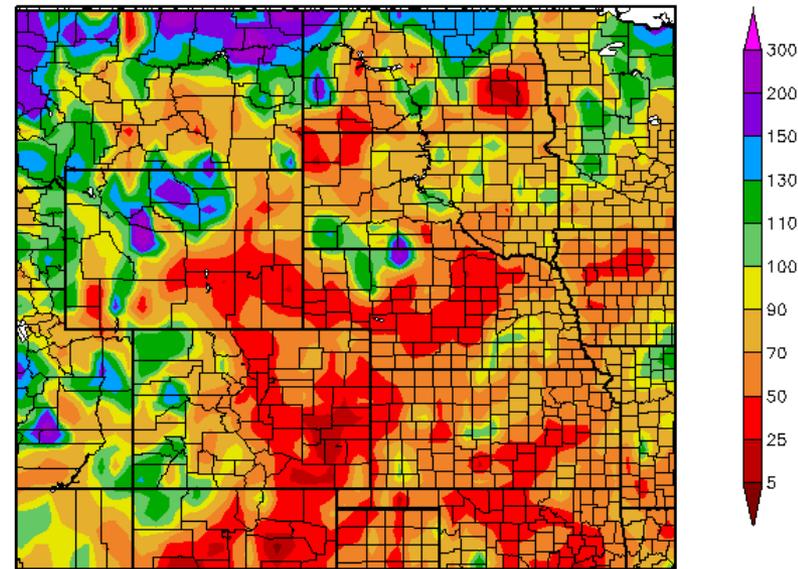
Most recent...

Recent Precipitation (Percent of Normal)

Percent of Normal Precipitation (%)
1/1/2013 – 1/31/2013



Percent of Normal Precipitation (%)
11/1/2012 – 1/31/2013



Generated 2/5/2013 at HPRCC using provisional data.

Regional Climate Centers Generated 2/5/2013 at HPRCC using provisional data.

Regional Climate Centers

Last 30 Days (January 1 – January 31)

> 200% of normal

- Northern Montana/Northern Wyoming
- Isolated parts of South Dakota
- Isolated parts of Missouri

< 25% of normal

- Portions of all upper basin states

Last 90 Days (November 1 – January 31)

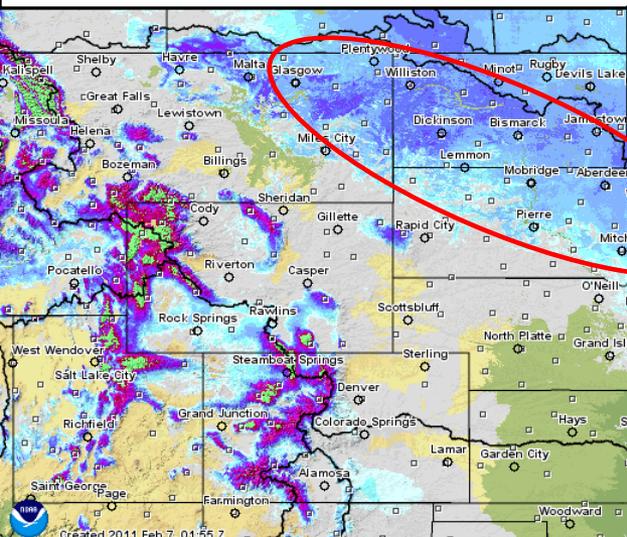
> 150% of normal

- Northern Montana/Northern Wyoming
- Northern North Dakota

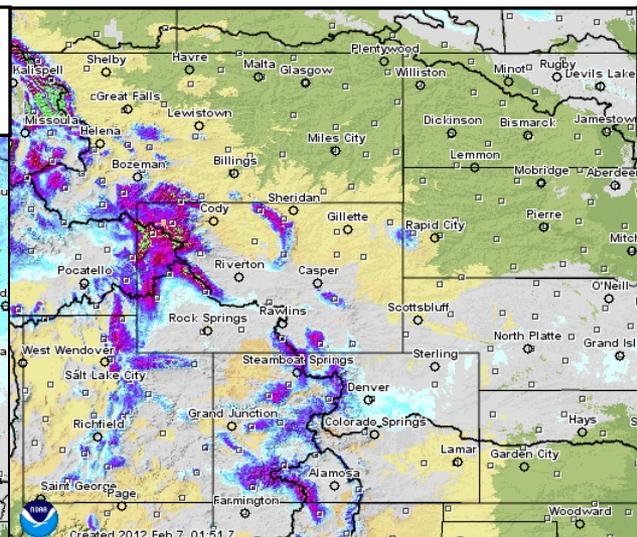
< 50% of normal

- Isolated parts of the Dakotas/Wyoming
- Large parts of Nebraska/Western Iowa/Kansas/Southern Wyoming/Colorado

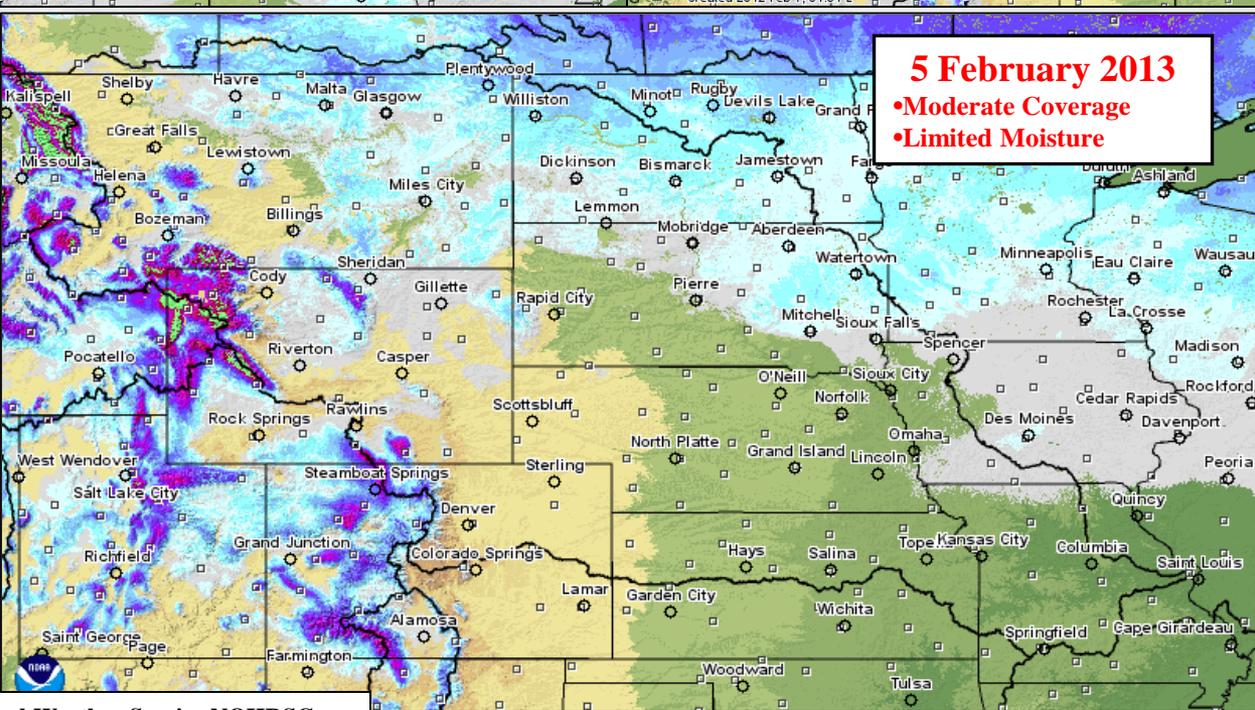
Plains Snowpack (comparison)



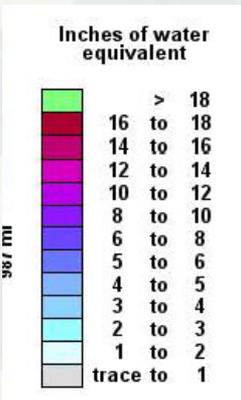
5 February 2011
 •Extensive Coverage
 •2"-5" Widespread



5 February 2012
 •Limited Coverage
 •Very Limited Moisture



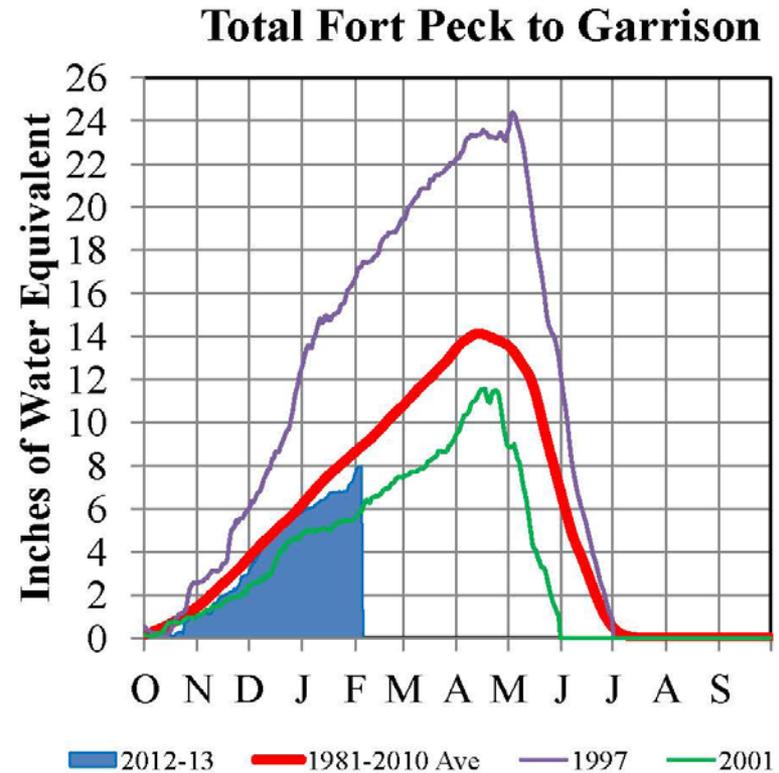
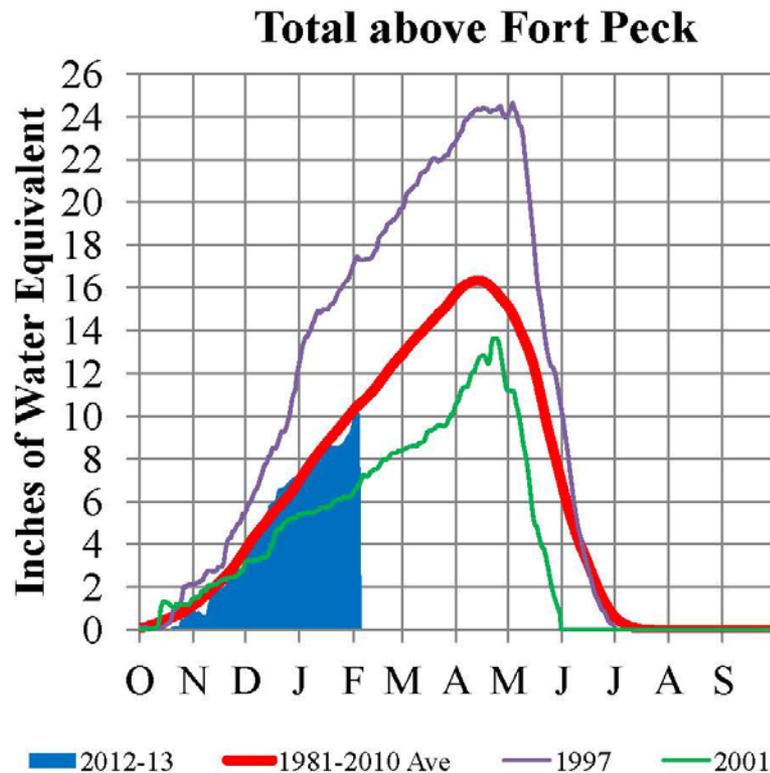
5 February 2013
 •Moderate Coverage
 •Limited Moisture



Graphics courtesy of National Weather Service NOHRS (National Operational Hydrologic Remote Sensing Center)

Missouri River Basin – Mountain Snowpack Water Content 2012-2013 with comparison plots from 1997* and 2001*

February 5, 2013



The Missouri River basin mountain snowpack normally peaks near April 15. By February 1, normally 64% of the peak has accumulated. On February 5, 2013 the mountain snowpack SWE in the “Total above Fort Peck” reach is currently 10.1”, 96% of average. The mountain snowpack SWE in the “Total Fort Peck to Garrison” reach is currently 8.0”, 89% of average.

*Generally considered the high and low year of the last 20-year period.

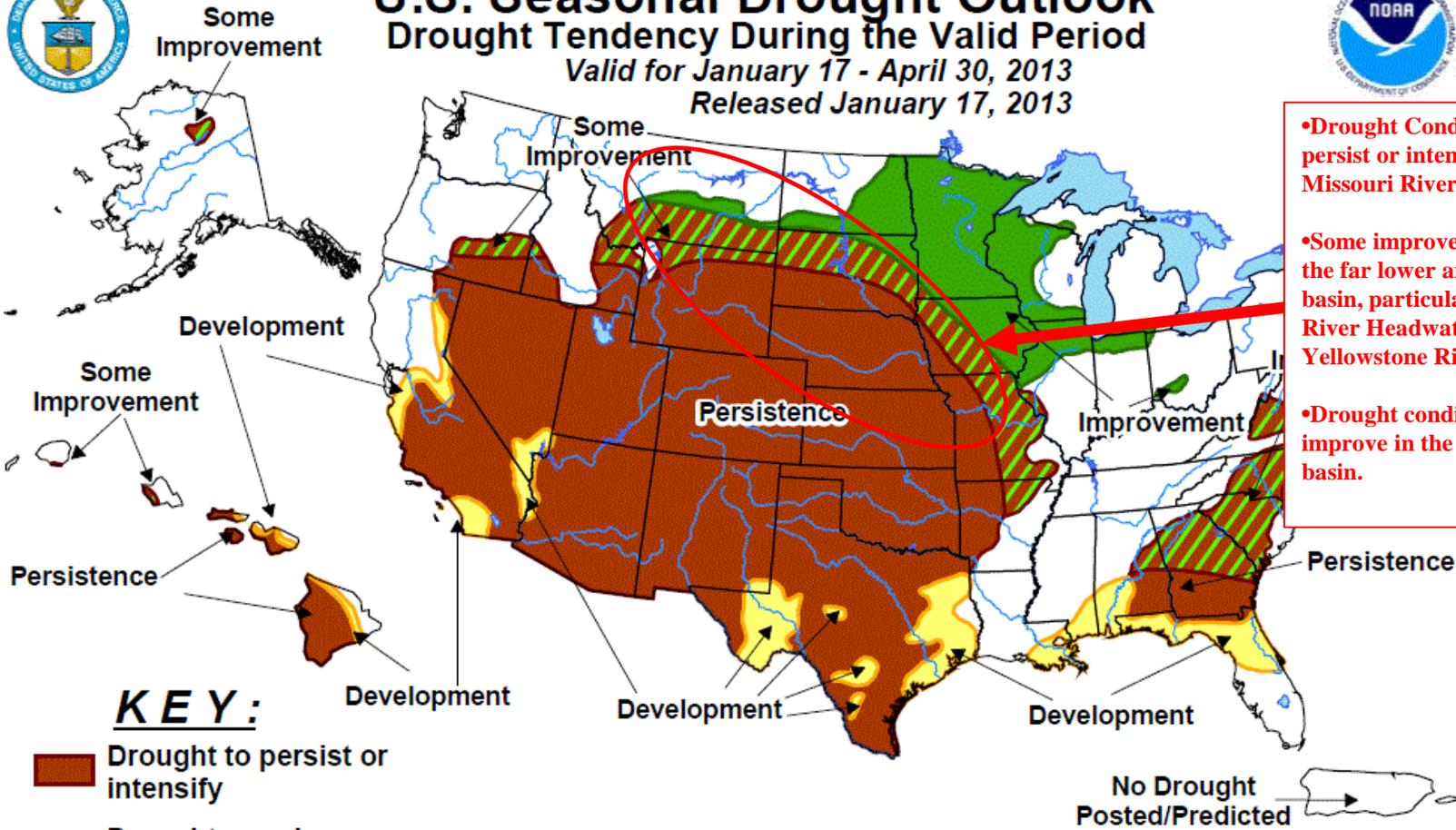
Provisional data. Subject to revision.

U.S. Drought Forecast



U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for January 17 - April 30, 2013
Released January 17, 2013



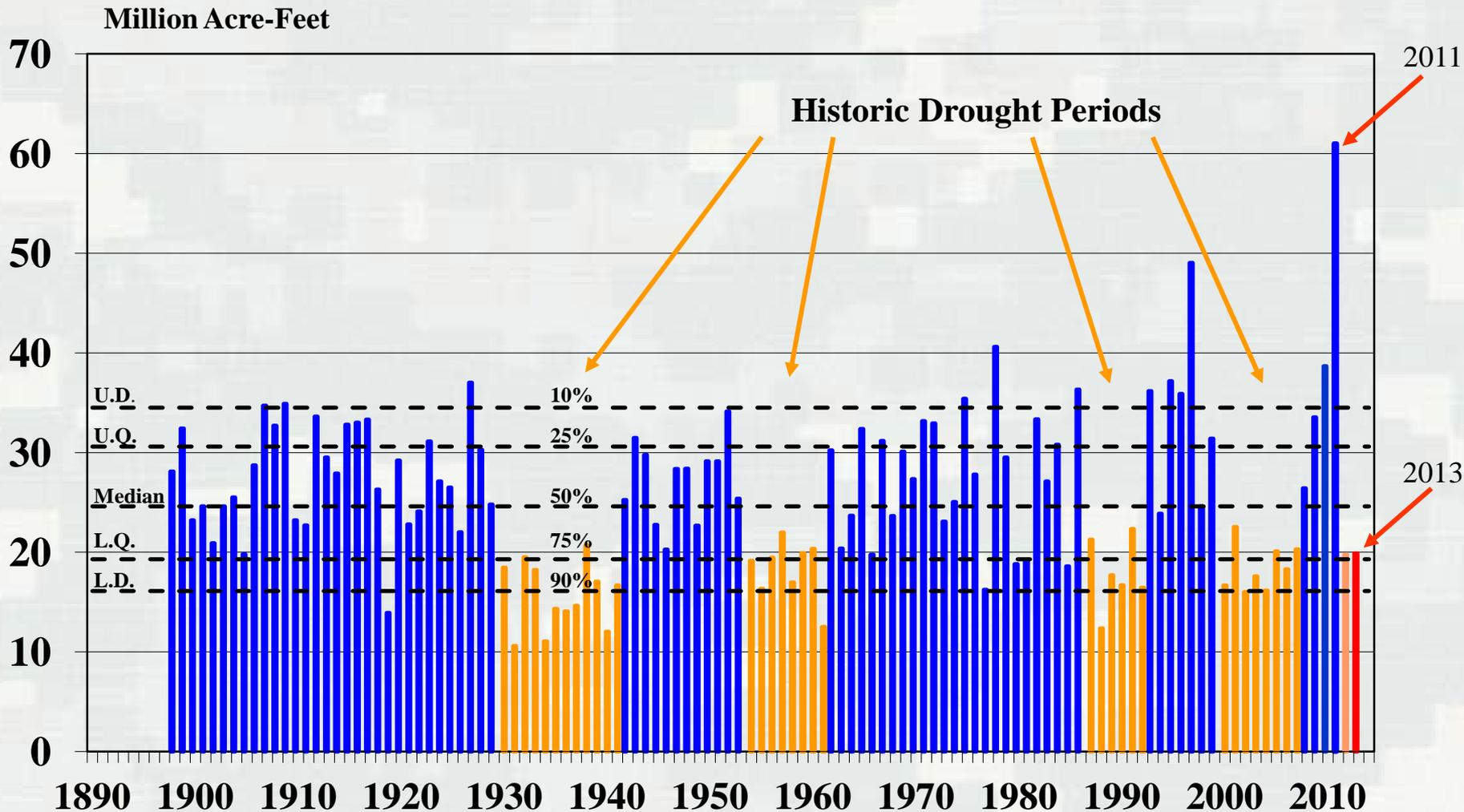
- Drought Conditions are forecasted to persist or intensify across most of the Missouri River Basin into spring 2013.
- Some improvement will be possible in the far lower and upper portions of the basin, particularly near the Missouri River Headwaters and in the Yellowstone River basin.
- Drought conditions are more likely to improve in the upper James River basin.

KEY:

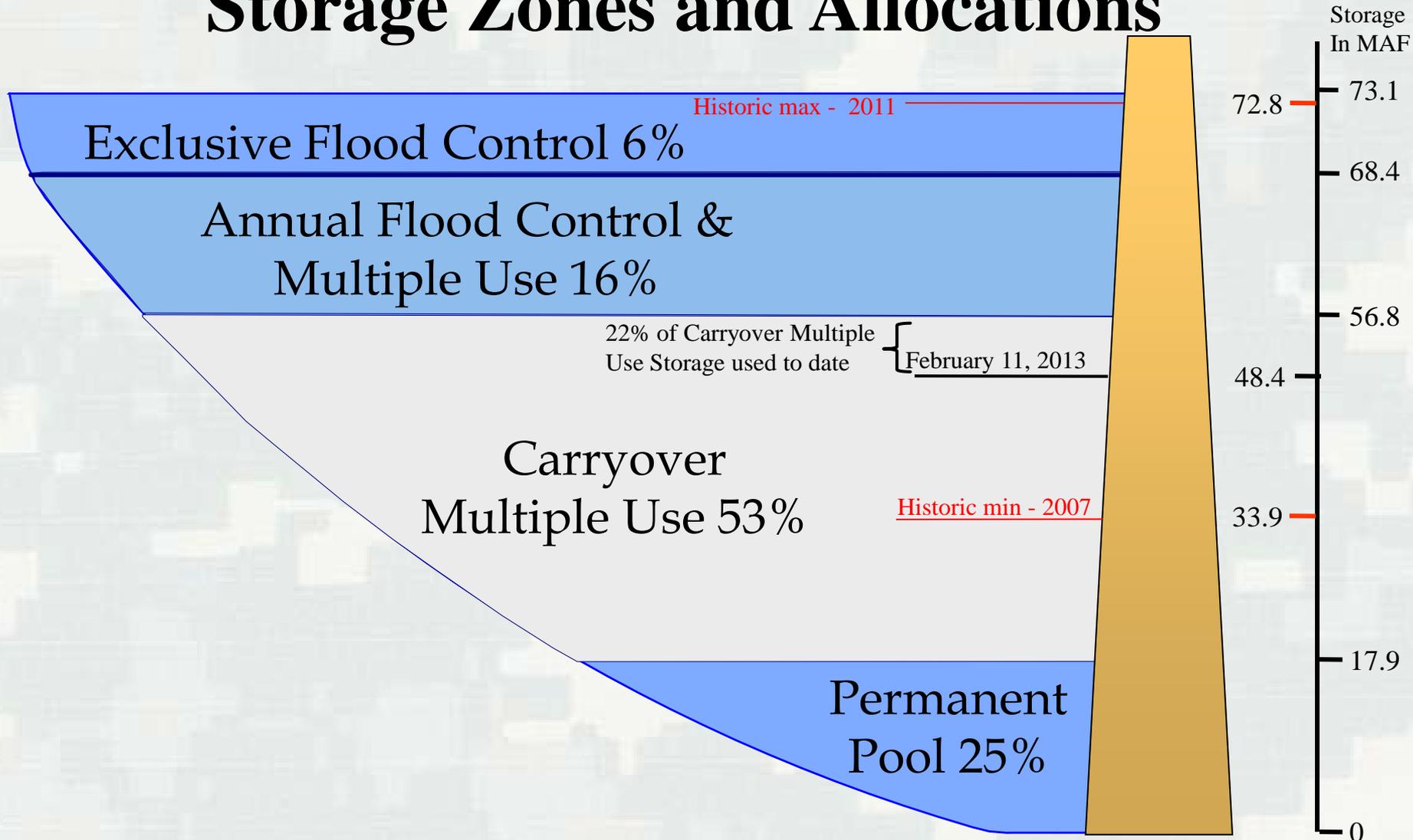
- Drought to persist or intensify
- Drought likely to improve, impacts ease
- Drought development likely
- Drought ongoing, some improvement

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

Missouri River Mainstem System Annual Runoff above Sioux City, IA

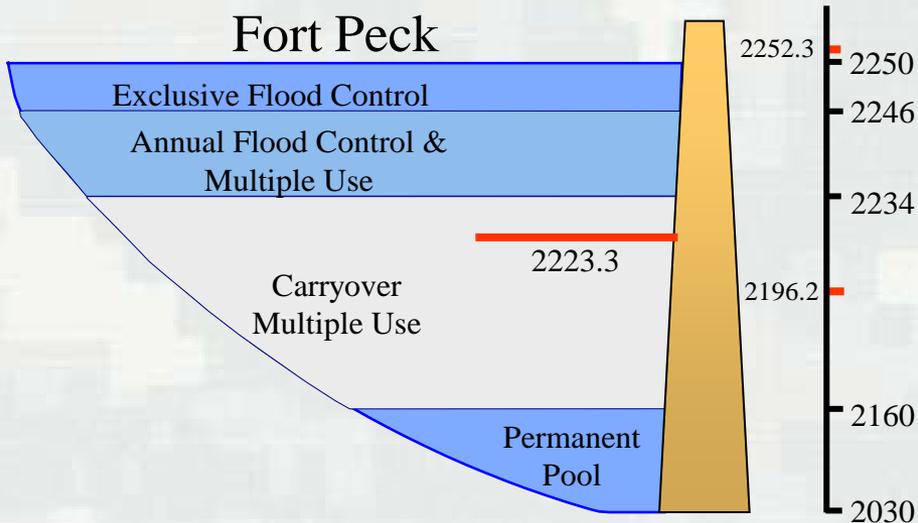


Missouri River Mainstem System Storage Zones and Allocations



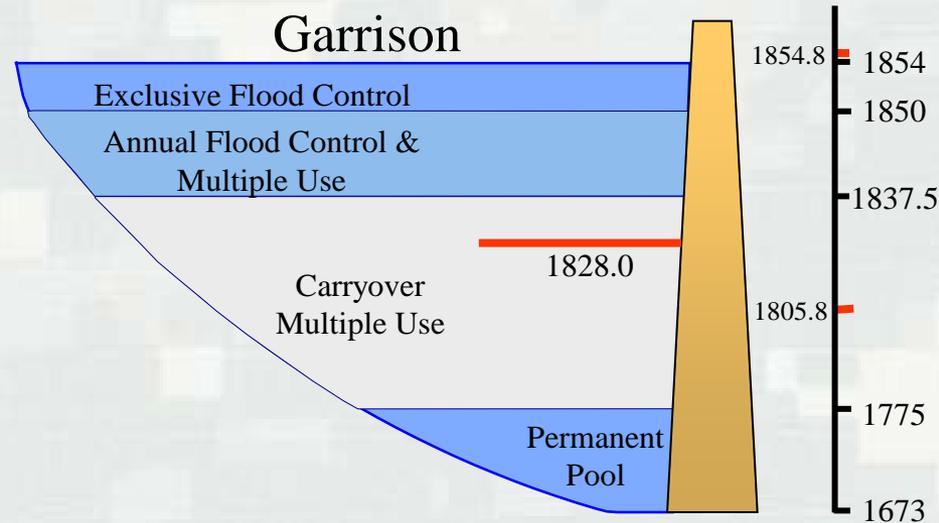
Current Reservoir Levels – February 11, 2013

Fort Peck



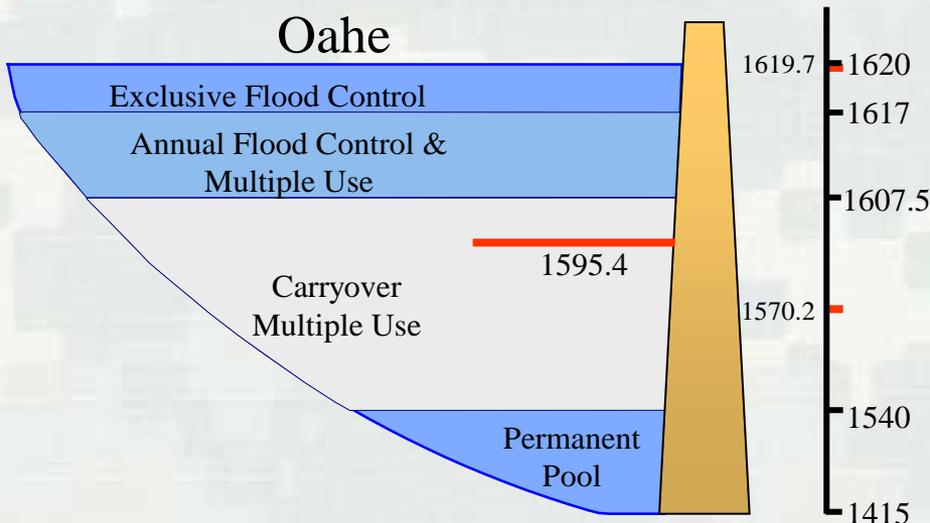
10.7 feet below base of Flood Control

Garrison



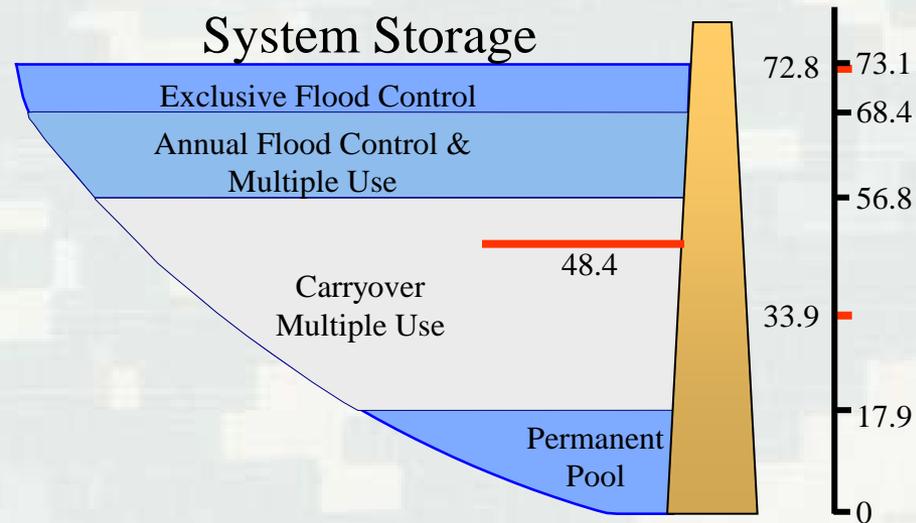
9.5 feet below base of Flood Control

Oahe



12.1 feet below base of Flood Control

System Storage



8.4 MAF below base of Flood Control

Planned Operation for 2013

- 8.4 MAF below the base of the Annual Flood Control zone at the start of the 2013 runoff season
 - ▶ 22 percent of drought storage utilized in 2012
- Drought conservations measures will be implemented
 - ▶ Minimum winter releases, reduced support for navigation, missing navigation targets in reaches without commercial navigation, use of the Kansas Basin reservoirs for navigation support, cycling Gavins Point releases
- Missouri River navigation flow support
 - ▶ Minimum service likely for the first half of the navigation season
 - ▶ Shortening of the navigation season possible if drought persists



Planned Operation for 2013 (cont'd)

- No Gavins Point spring pulse in 2013 per USFWS
- Favor Oahe and Fort Peck during the forage fish spawn if inflows are not sufficient to keep all three upper reservoir rising
- Additional potential for exposure of historic and cultural sites and boat ramp access issues if drought continues
- Public meetings tentatively scheduled week of April 8, 2013
- Monthly calls with Congressional delegations, Tribes, states and local officials and media
 - ▶ Audio file available on website or as podcast on iTunes



Thank You!

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<http://www.nwd-mr.usace.army.mil/rcc/>

Or Google “Corps Missouri River”



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