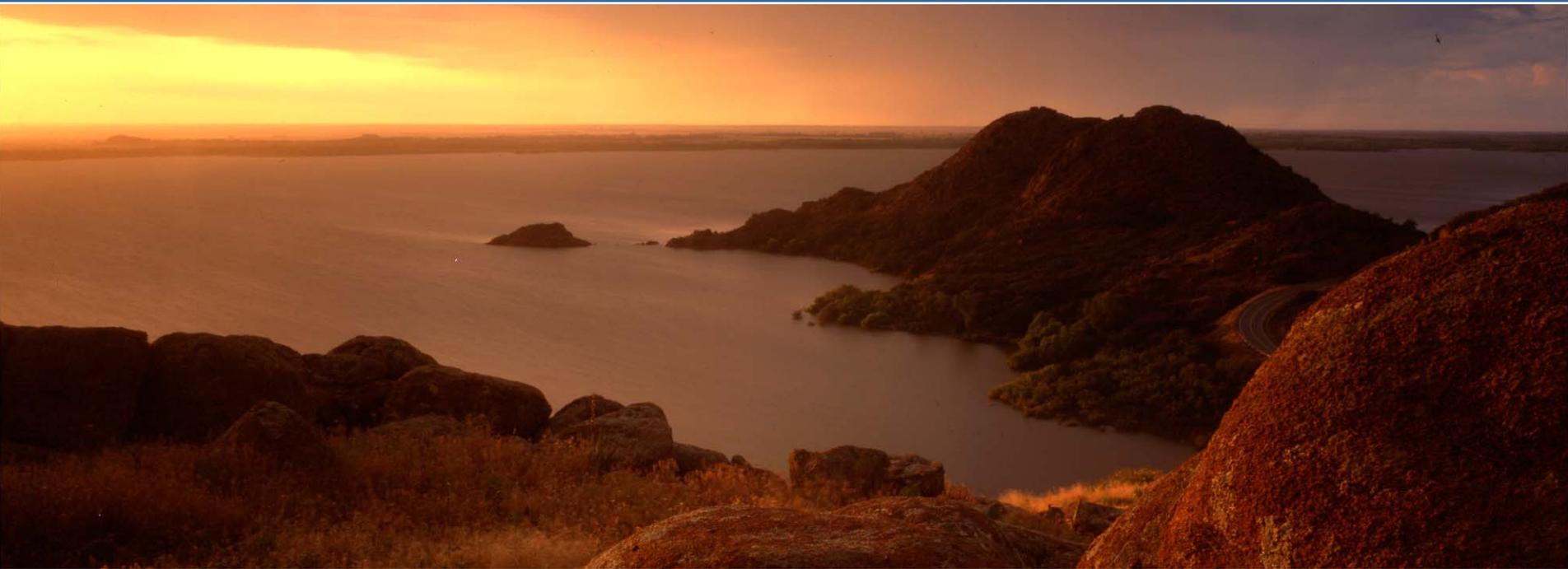


Update ***Activities of the OWRB's*** ***Planning & Management Division***

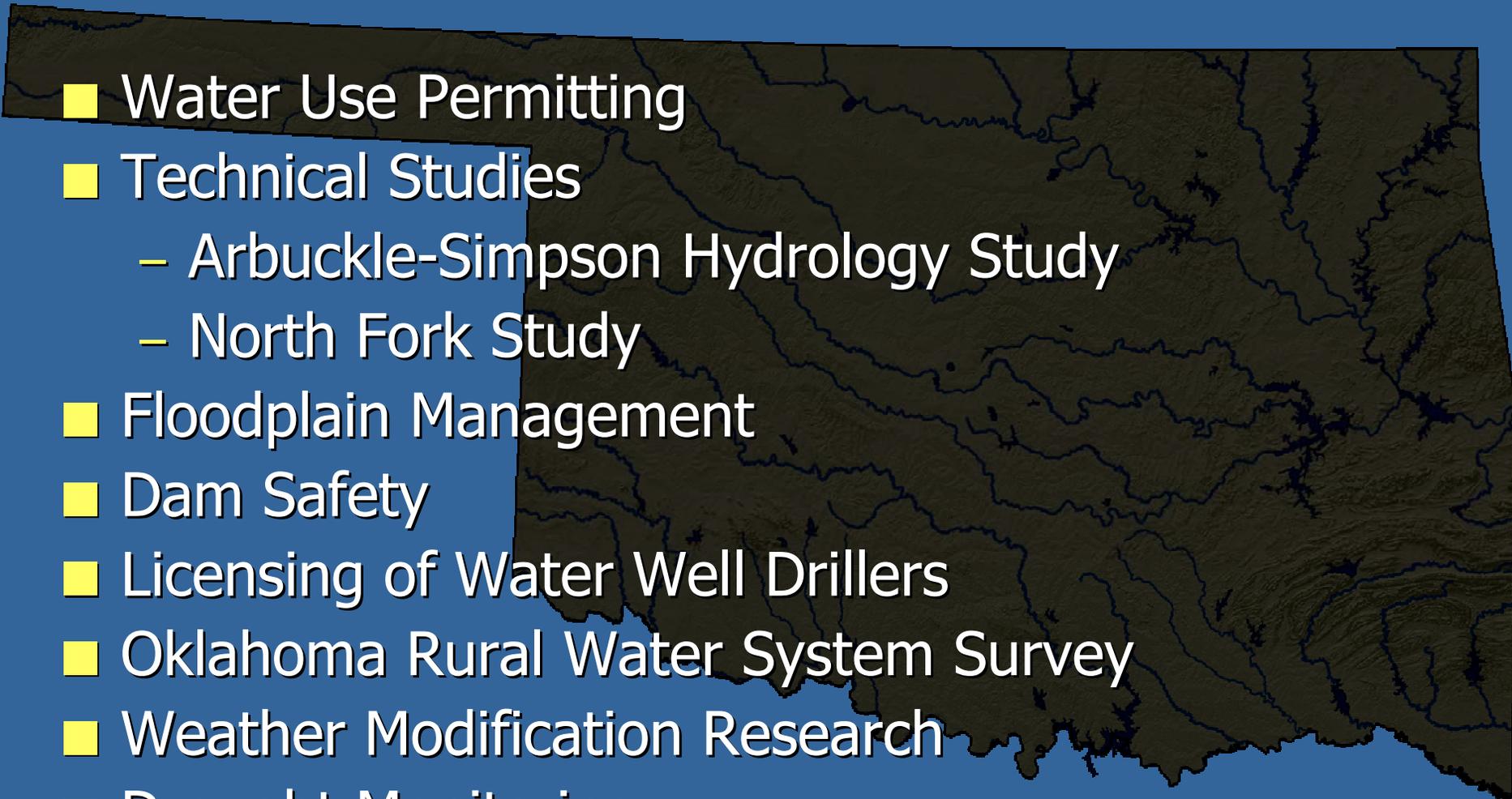


OWRB Monthly Meeting
May 10, 2005

Mike Mathis
Chief
Planning & Management



OWRB Planning & Management Division Update

- 
- Water Use Permitting
 - Technical Studies
 - Arbuckle-Simpson Hydrology Study
 - North Fork Study
 - Floodplain Management
 - Dam Safety
 - Licensing of Water Well Drillers
 - Oklahoma Rural Water System Survey
 - Weather Modification Research
 - Drought Monitoring

OWRB Planning & Management Division Update

Water Use Permitting

■ Stream Water Permits (2004):

- 1,100 permits issued
- 119,540 ac-ft/yr

Stream water is considered to be publicly-owned and subject to appropriation by the OWRB...

■ Groundwater Permits (2004):

- 586 permits issued
- 42,283 ac-ft/yr

Groundwater is considered private property that belongs to the overlying surface owner, although it is subject to reasonable regulation by the OWRB...

■ Total Permits

- 10,279 GW (3.3 Million AF) / 2,702 SW (2.8 Million AF)
- 1.5 Million AF reported water use in 2004

■ Permit Reduction/Cancellation (2004):

- 489 stream water permits reviewed
- 70 permit reductions/cancellations
- 30,834 ac-ft/yr reverted back for public's use

OWRB Planning & Management Division Update

Technical Studies

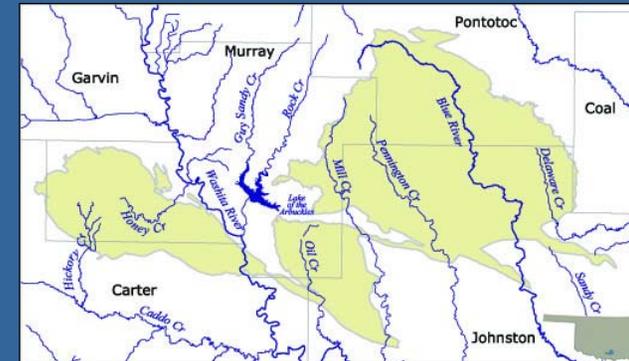
Arbuckle-Simpson Hydrology Study:

■ Field Investigations:

- Have resumed weekly stage measurements at 13 sites on Blue River, Pennington Creek, Mill Creek, Honey Creek, Delaware Creek, and Oil Creek
- Conducted aquifer-wide seepage run (January):
 - Discharge and water quality measurements collected at 108 sites
- Conducted seepage run on 13 Blue River sites (March)
- Groundwater data loggers installed on 10 water level measurement wells
- Measured water levels in 63 wells (March)

\$5.7 million cost-share
(OWRB & Bureau of Reclamation)

- \$320,000 included in Bureau's FY-2005 budget



OWRB Planning & Management Division Update

Technical Studies

Arbuckle-Simpson Hydrology Study:

■ Climate:

- New OCS Mesonet weather station (May)
- Tree ring analysis underway:
 - Dr. Tarhule (OU) coring trees and preparing samples

■ Well Evaluation:

- Study team developing plan for drilling a deep test well:
 - 2,000-3,000-foot well (USGS, September)

■ Geochemistry Investigation:

- USGS has received preliminary results from last year's study:
 - Water from Vendome Well may be more than 10,000 years old



OWRB Planning & Management Division Update

Technical Studies

Arbuckle-Simpson Hydrology Study:

■ Modeling:

- Model simulations by USGS determined optimal location for deep well would be in the discharge area of Blue River:
 - Higher contrast in vertical head gradient and groundwater age
- Dr. Vieux (OU) is calibrating hydrologic (rainfall/runoff) model with measured streamflow:
 - Infiltration estimates over recharge area will be input to the MODFLOW groundwater model

■ Geologic Interpretation:

- Dr. Puckette (OSU) is reviewing petroleum-related information in study region
- Dr. Sahai has investigated properties of seismic lines across aquifer

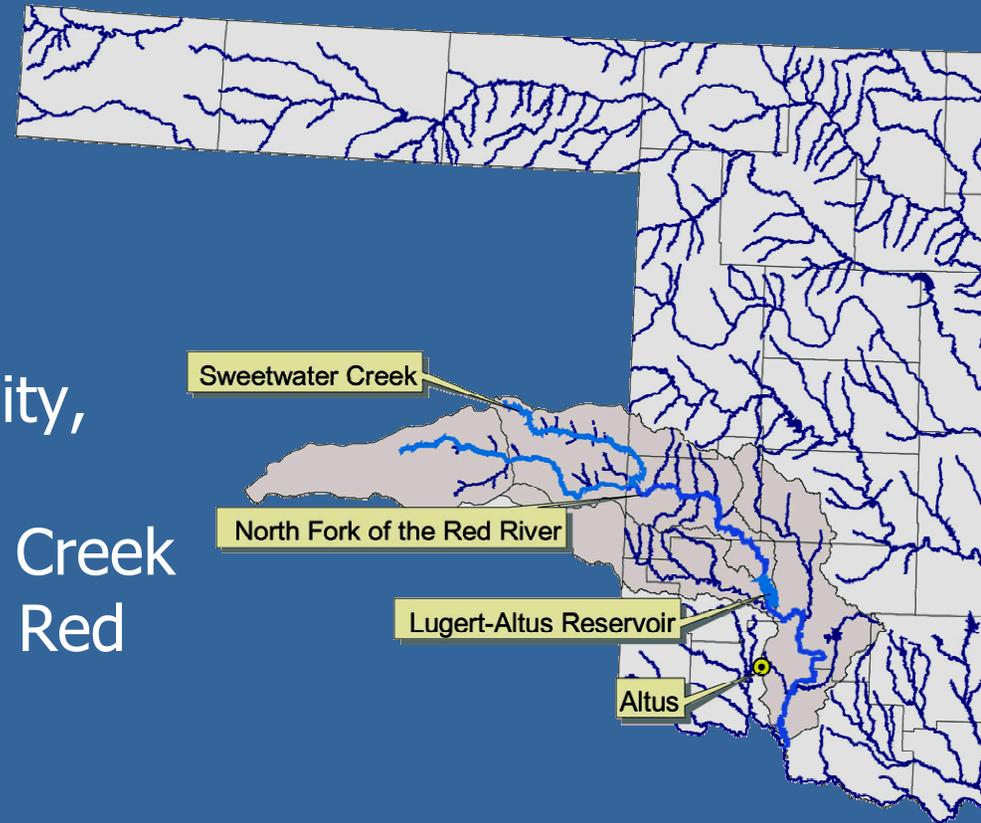


OWRB Planning & Management Division Update

Technical Studies

■ North Fork Study:

- OWRB/Bureau of Reclamation/Lugert-Altus Irrigation District
- Assessment of water quality, quantity, and base flow hydrology on Sweetwater Creek and the North Fork of the Red River watersheds

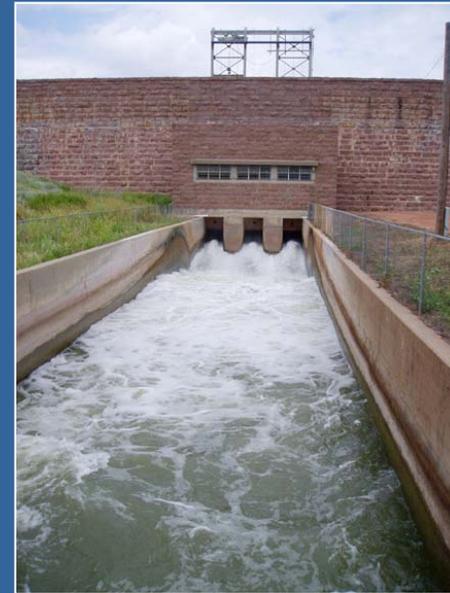


OWRB Planning & Management Division Update

Technical Studies

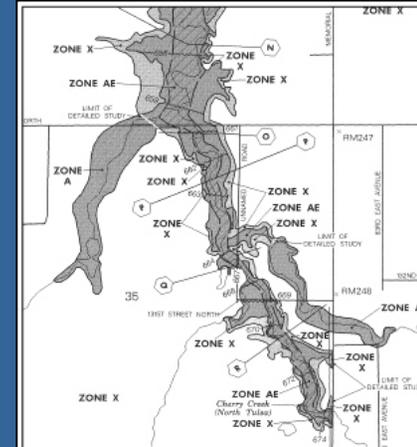
■ North Fork Study:

- Options for District water conservation and augmentation:
 - Reuse municipal wastewater for irrigation
 - Reservoir construction above Lugert-Altus Reservoir for sediment control and additional capacity
 - Downstream reservoir construction
 - Improvements in hydraulic connection (pool at Lugert-Altus Reservoir)
 - Improving system controls driving irrigation deliveries
 - Determining feasibility of chloride control on Elm Fork for additional source of supply



OWRB Planning & Management Division Update Floodplain Management

- Map Modernization Program:
 - FEMA effort to upgrade nation's 100,000 panel flood map inventory
 - update flood hazard data
 - convert maps/data to digital format
 - integrate community and state partners into mapping process
 - improve map update process
 - improve customer service



Oklahoma's Floodplain Management Program:

- consistently recognized by FEMA and others as having the best program in this region and one of the top programs in the country

National Flood Insurance Program:

- federal initiative that provides communities with a mechanism for implementing sound floodplain management techniques

OWRB Planning & Management Division Update Floodplain Management

- Accreditation of Local Floodplain Officials:
 - House Bill 2284 (2004):
 - Amends Oklahoma Floodplain Management Act to facilitate accreditation of community floodplain officials
 - Requirements:
 - Examination
 - Completion of Board approved training
 - Certification by nationally-recognized floodplain management organization
 - Annual training for continued accreditation



OWRB Planning & Management Division Update

Floodplain Management

- Education:
 - A cornerstone of OWRB floodplain management
 - Annual Floodplain Administrator Workshops (377 Communities)
- Public Awareness:
 - Governor Proclamations:
 - March Flood Insurance Month
 - May Flood Awareness Month
 - Of the 38 Presidential Disaster Declarations in Oklahoma since 1955, 28 have involved flooding

2005 Floodplain Management 101 Workshops:

- May 3, Bartlesville
- May 5, Woodward
- May 10, Lawton
- May 12, McAlester
- May 17, Midwest City



OWRB Planning & Management Division Update

Dam Safety

■ OWRB Dam Safety Program

- High Hazard dams (184) are inspected annually
- Significant Hazard dams (87) are inspected once every 3 years
- Low Hazard dams (4175) are inspected once every 5 years
- Issued 8 permits for construction, alteration or repair of dams in 2004
- Developed conduit camera inspection capability

4,483 dams in the OWRB's Dam Safety Program database:

- 97% under OWRB jurisdiction
- 184 are "high-hazard" dams



OWRB Planning & Management Division Update

Water Well Drillers Program

■ Water Well Drillers/Pump Installers Licensing Program (2004):

- 11 new firms licensed
- 15 new operators licensed
- 272 renewals for operators
- 154 renewals for firms
- 165 construction inspections
- 29 firm visits
- 22 enforcement inspections

■ Training for continuing education:

- Partner with Oklahoma Ground Water Association (OGWA)

628 water well drillers and pump installers (336 firms) are currently licensed in Oklahoma

OWRB maintains a database of 92,000 well logs submitted by drillers/pump contractors and operators:

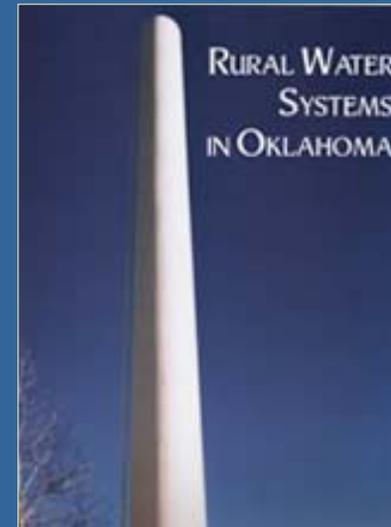
- Online Water Well Log Submission Program & Record Search (2003)



OWRB Planning & Management Division Update

Oklahoma Rural Water System Survey

- Continuous comprehensive survey of more than 700 rural water systems in the state
- OWRB database contains information on water line sizes, treatment and distribution facilities, water quality and related factors



OWRB Planning & Management Division Update

Weather Modification Research

- Oklahoma/Texas/New Mexico regional effort to verify weather modification technology (Bureau of Reclamation):
 - \$800,000 in BuRec budget
- Initial Tasks/Goals:
 - Analyze case studies
 - Utilize radars to understand seeded vs non-seeded cloud behavior
 - Quantify impact of seeded vs. nonseeded clouds and storms
 - Utilize blind testing

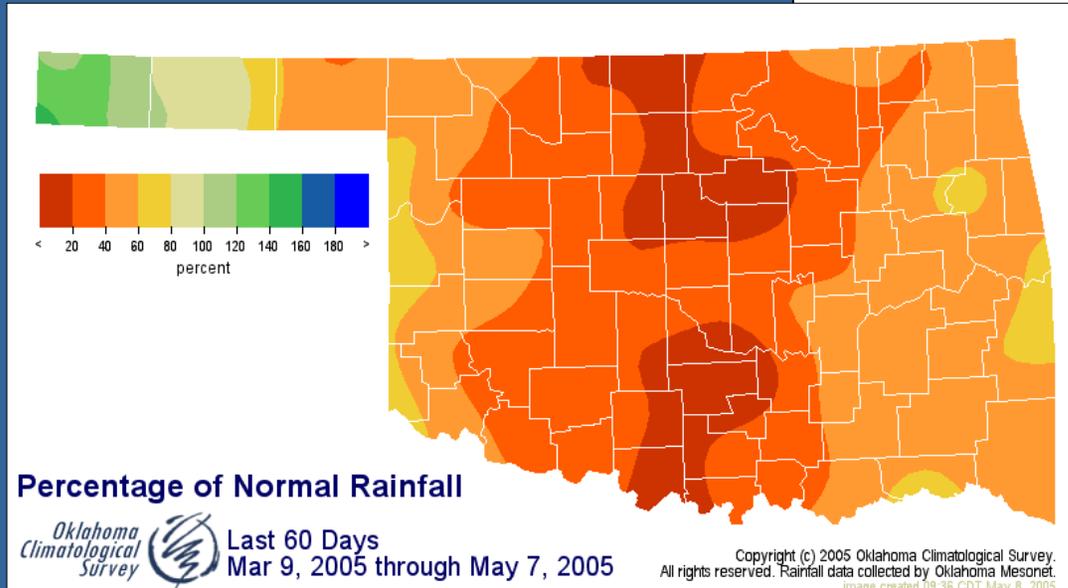
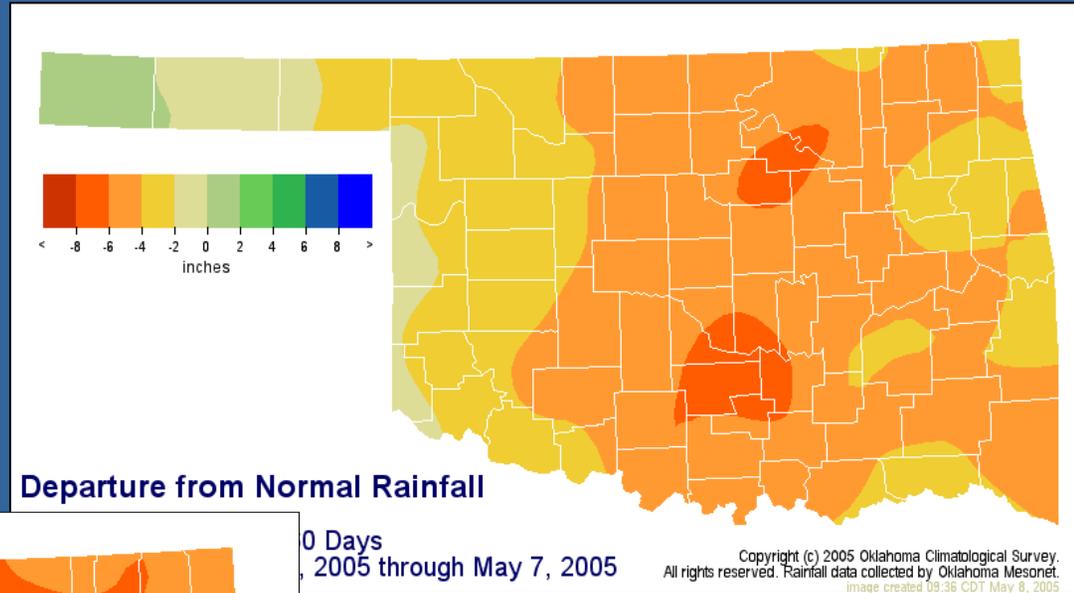


OWRB Planning & Management Division Update

Drought Monitoring

■ OWRB is chair agency of the Water Availability and Outlook Committee (WAOC) of the Oklahoma Drought Management Team:

— *Water Resources Bulletin*

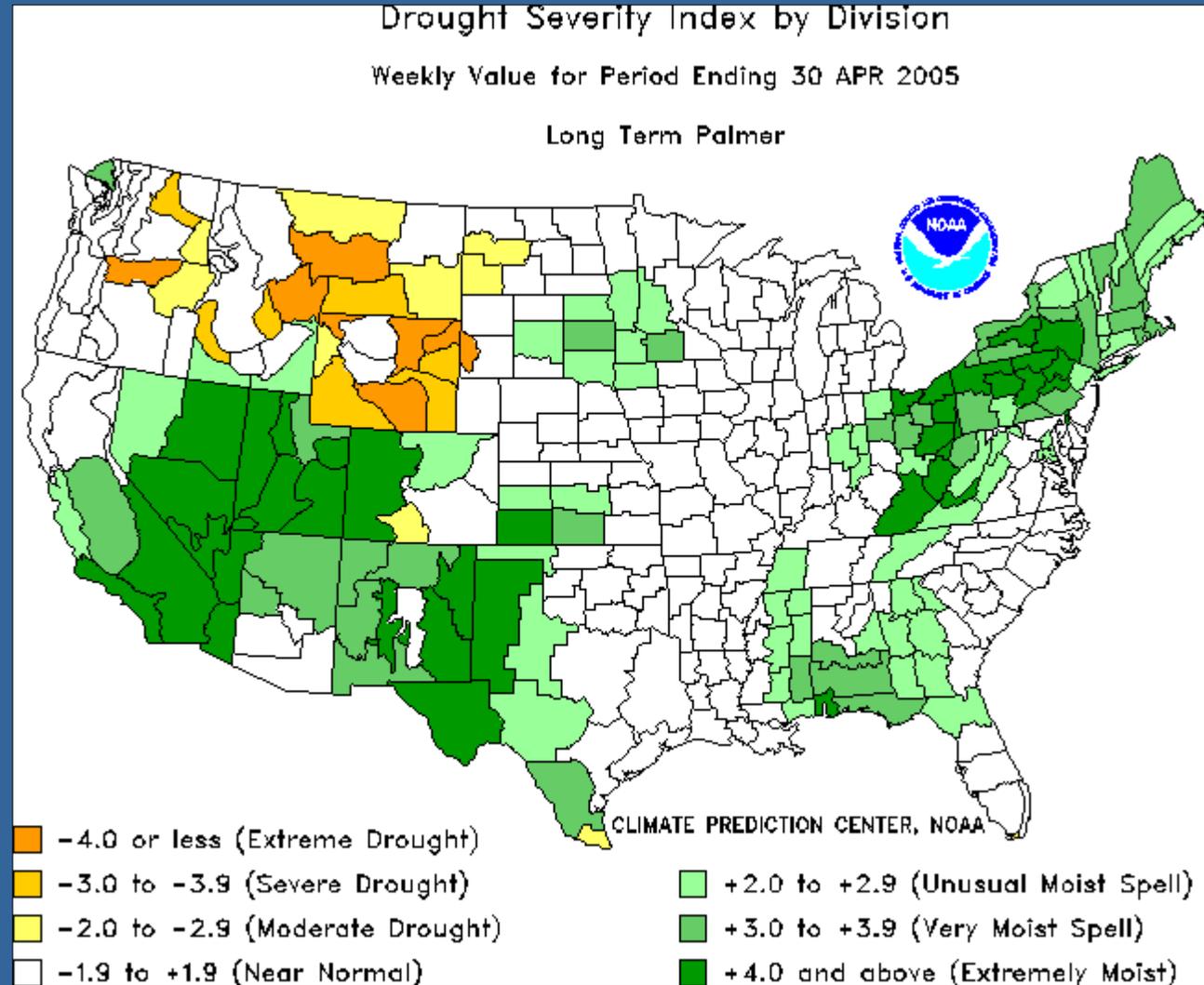


Rainfall - Last 60 Days (OCS)

OWRB Planning & Management Division Update

Drought Monitoring

**Palmer Drought
Severity Index
(Climate Prediction
Center-NOAA)**



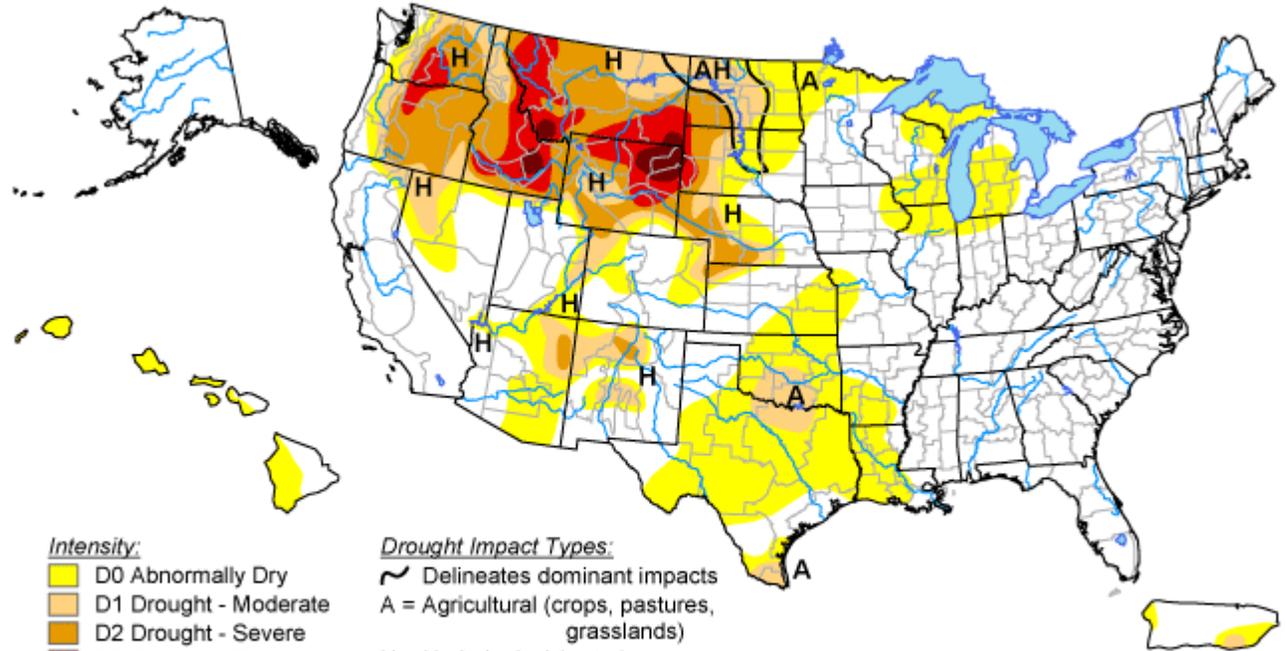
OWRB Planning & Management Division Update

Drought Monitoring

U.S. Drought Monitor
(National Drought Mitigation Center, USDA, NOAA)

U.S. Drought Monitor

May 3, 2005
 Valid 8 a.m. EDT



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

- Drought Impact Types:
- Delineates dominant impacts
 - A = Agricultural (crops, pastures, grasslands)
 - H = Hydrological (water)
 - (No type = Both impacts)

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



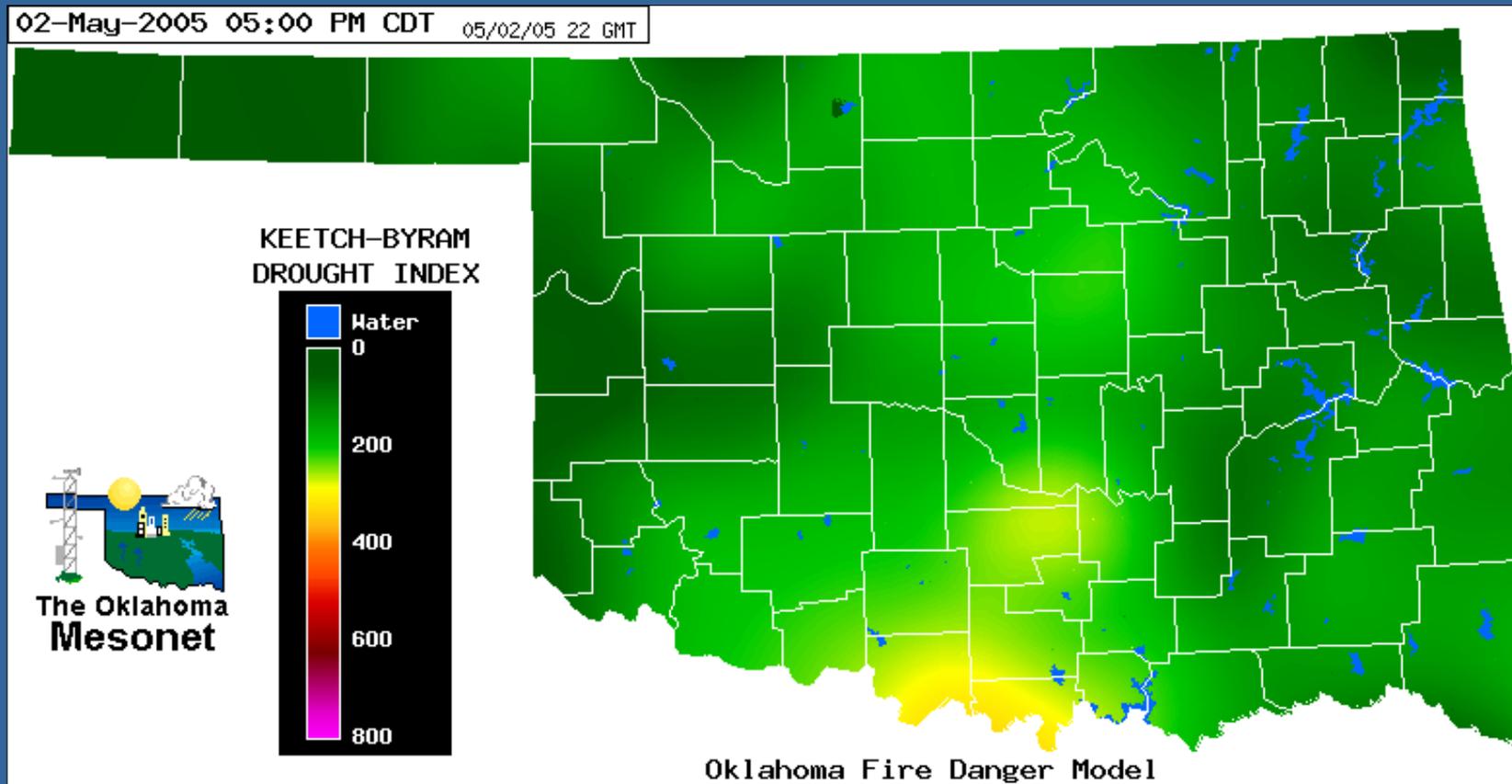
Released Thursday, May 5, 2005
 Author: Mark Svoboda, NDMC

<http://drought.unl.edu/dm>

OWRB Planning & Management Division Update

Drought Monitoring

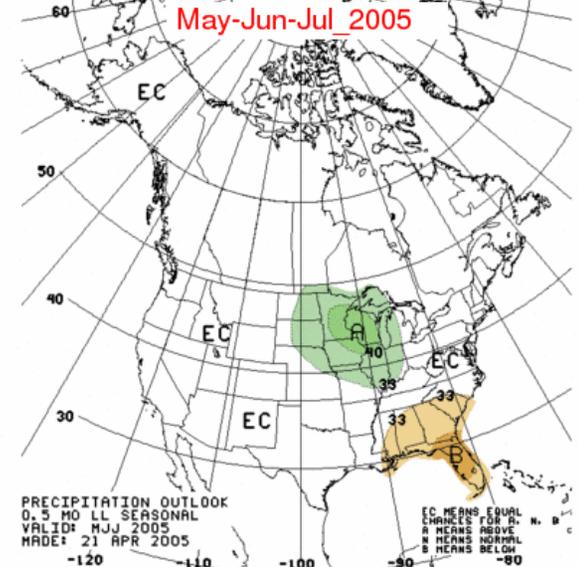
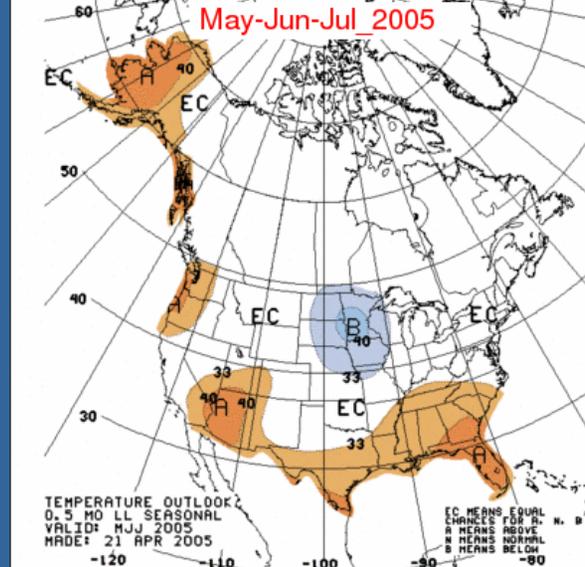
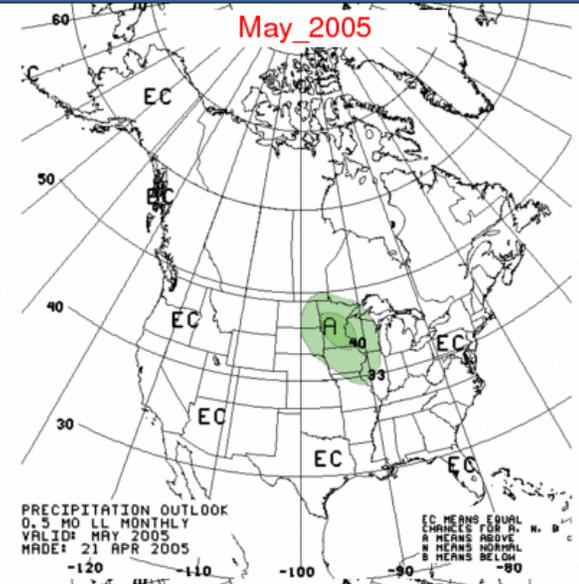
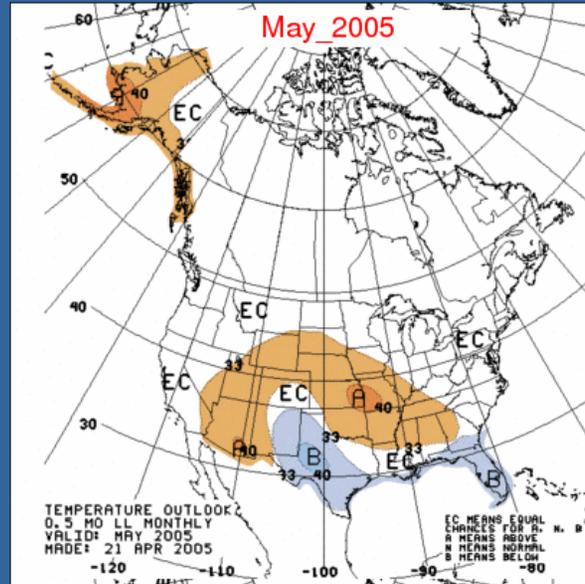
Keetch-Byram Drought Index (OCS/OSU)



OWRB Planning & Management Division Update

Drought Monitoring

Long-Term Precipitation Forecast (30- and 60-day)

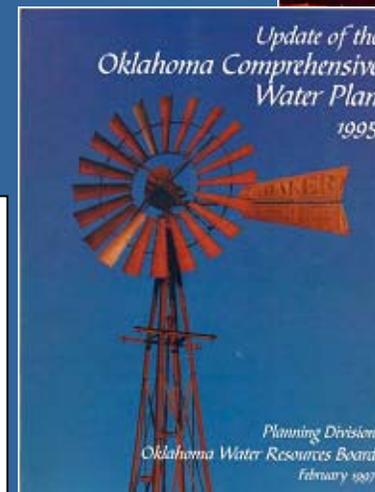
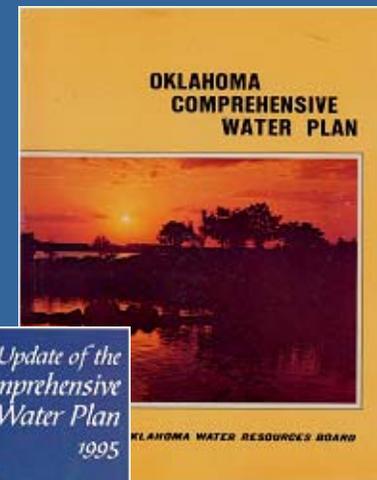


OWRB Planning & Management Division Update Water Planning?

- Oklahoma requires an effective and comprehensive plan to meet future water supply challenges:
 - Growing population
 - Competing interests
 - Balancing economic development and the environment
 - Financing

Oklahoma Comprehensive Water Plan:

- Original plan created in 1980
- Last updated in 1995
- 10-year updates mandated by State Legislature



State of Oklahoma

OWWRB

WATER RESOURCES BOARD
the water agency

www.owrb.state.ok.us