Forecasting For The Colorado River

December 15-17, 2004

Caesar’s Palace

Las Vegas

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Colorado Basin River Forecast Center
Who We Are
Advanced Hydrologic Prediction Service
Current Water Conditions in the Colorado Basin
Forecast Water Conditions For 2005

THE BIG QUESTION ?
Who We Are …
Colorado Basin River Forecast Center

Colorado Basin River Forecast Center
National Weather Service
National Oceanic and Atmospheric Administration
Floods kill more people than any other form of severe weather

Damages Are in Excess of $3.5 Billion a Year

Three quarters of all presidentially declared disasters are a result of flooding

The need to effectively manage water resources is rapidly increasing
Advanced Hydrologic Prediction Service (AHPS)

Leveraging NOAA’s Infrastructure and Expertise

Precipitation Estimates → AHPS
Satellite Data → AHPS
Radar Data → AHPS
River Gauge Data → AHPS
Weather Observations → AHPS
AWIPS → AHPS
Reservoir Releases → AHPS

Climate Predictions

Valuable Data and Forecasts Satisfy Diverse Customer Needs
Interactive Hydrographs Can Be Tailored To Individual Needs

Precipitation Maps Built From Radar, Rain Gage and Satellite
Advanced Hydrologic Prediction Service

Probability Forecast Graphics

Expected Value Forecast

Exceedance Probability
Inflow Volume To Lake Powell For April-July Period
Ranked From Smallest to Largest Volumes

Year

Apr-Jul Volume (1000s AF)

The Good Old Days
Precipitation Summary for October 2003 - September 2004
Seasonal Precipitation, October 2003 - September 2004

% Average

- > 100%
- 125 - 100%
- 110 - 125%
- 100 - 110%
- 75 - 100%
- 70 - 75%
- 50 - 70%
- < 50%
- Not Reported

Water Year 2004
Oct-Sep

Precipitation Summary for October 2004 - November 2004
Seasonal Precipitation, October 2004 - November 2004

% Average

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- 75 - 100%
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- 50 - 70%
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Water Year 2005
Oct-Nov
Snow Water Equivalent From 116 Stations Above Lake Powell – December 13 2005

To Date: 124% (6.7 / 5.4)
Seasonal: 37% (6.7 / 18.1)
Accumulation rate 0.0 in/day averaged over last 3 days.

Dec 12th
Percent of Normal Storage for Main USBR Reservoirs in Upper Basin

As of: December 13, 2004

FLAMING GORGE: 86%
NAVAJO: 71%
BLUE MESA: 85%
LAKE POWELL: 46%

COMBINED: 54%
Precipitation Patterns From an El Nino Over the Colorado Basin

9/12/04 thru 12/11/04
1 Degree Temperature Anomaly
Weak El Nino
2005 Forecast for April-July Volume
Lake Powell

10% Chance To Be Above: 13.4 MAF

25% Chance To Be Above: 9.7 MAF

50% Chance To Be Above: 7.3 MAF, Most Probable

75% Chance To Be Above: 5.4 MAF

90% Chance To Be Above: 4.1 MAF

Average: 7.9 MAF
Is the drought over?

What do you think?
U.S. Seasonal Drought Outlook
Through March 2005
Released December 16, 2004

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

Depicts general, large-scale trends based on subjectively derived probabilities guided by numerous indicators, including 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, so use caution if using this outlook for applications such as crops that can be affected by such events.

“Ongoing” drought areas are schematically approximated from the Drought Monitor (D1 to D4). For weekly drought updates, see the latest Drought Monitor map and text. 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.
Are their indications that the drought may be waning?
Possible Indicators

Statistics: 5 years below Average Flow

Higher Fall Flows

Higher Fall Soil Moisture

Weak El Nino

Ocean/Atmospheric Adjustments
(1) 16th coolest summer on record - lower contiguous states
(2) 7th coolest August on record - lower contiguous states
(3) 10th wettest August on record - lower contiguous states
(4) Wettest summer on record in Texas, Louisiana, Mississippi, Arkansas, Oklahoma and Kansas
(5) 8 named tropical cyclones in August broke a record
(6) 3 major hurricanes hit Florida

The End …