

Are We Prepared for Drought?

Pima County
Local Drought Impact Group
November 14, 2012

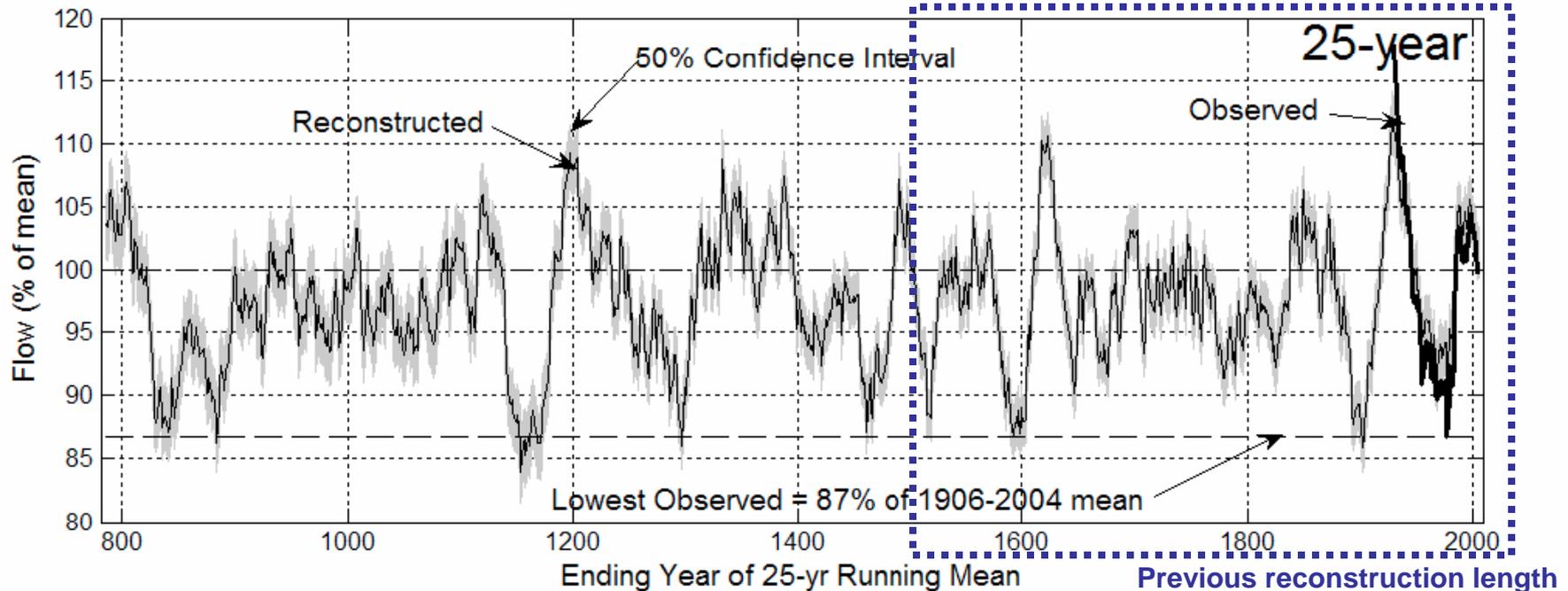
Kathleen M. Chavez, P.E.
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Regional Wastewater Reclamation Department
Pima County, Arizona

What is Drought?

A Natural Occurrence
Originating from a Lack of
Precipitation Over an Extended
Period of Time*

* National Drought Mitigation Center

Reconstruction of Colorado River at Lees Ferry, AD 762 - 2005



25-yr running means of reconstructed and observed annual flow of the Colorado River at Lees Ferry, expressed as percentage of the 1906-2004 observed mean (Meko et

al. 2007). Drought History of the Southwest Reconstructed from Tree Rings, Connie Woodhouse, School of Geography and Development and Laboratory of Tree-Ring Research, University of Arizona, presented to Pima County LDIG, January 12, 2011.

Drought Actions

- 1999 Governor Declares Drought Emergency
- 2003 Governor Creates Drought Task Force
- 2004 Arizona Adopts Drought Preparedness Plan
- 2007 Legislature Requires Community Water System Plans
- 2007 Shortage Sharing Agreement Among Lower Colorado River Basin States
- 2012 USDA Designates All Arizona Counties as Disaster Areas due to Drought

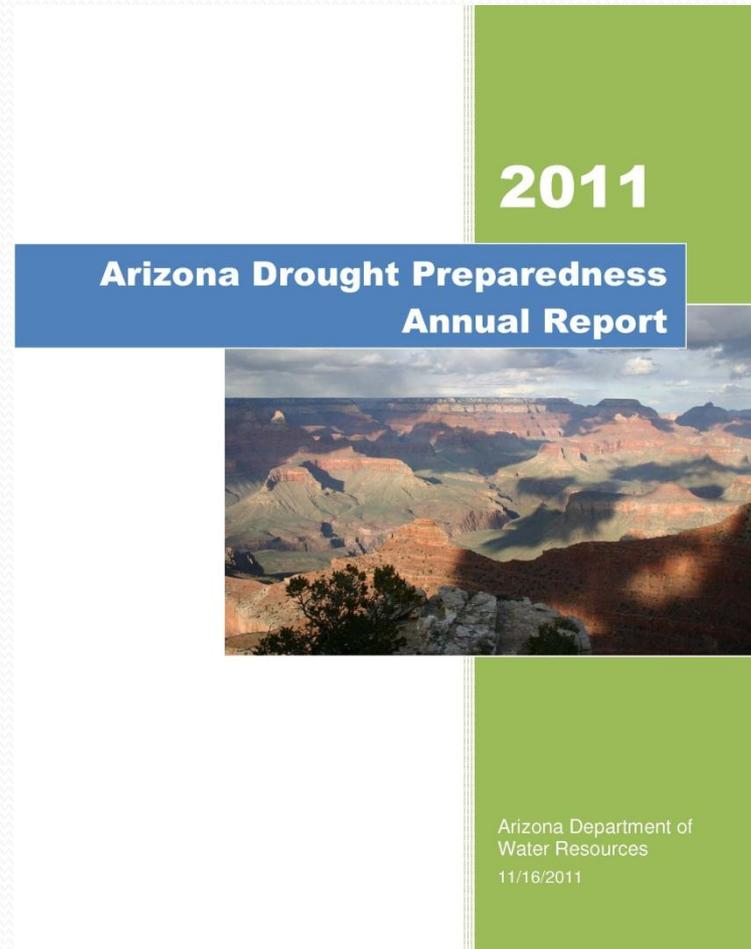
ADWR Drought Preparedness Plan

MTC – Gathers and
Evaluates Early Warning of
Changes

ICG – Recommends
Declaration to Governor

LDIG – Coordinates
Awareness, Conducts Impact
Assessments, Local
Mitigation and Response

**Community Water System
Plans** – Prepare Annual
Water Use Reports, Water
Supply Plans, Water
Conservation Plans, Drought
Preparedness Plans



Short Term Drought Status

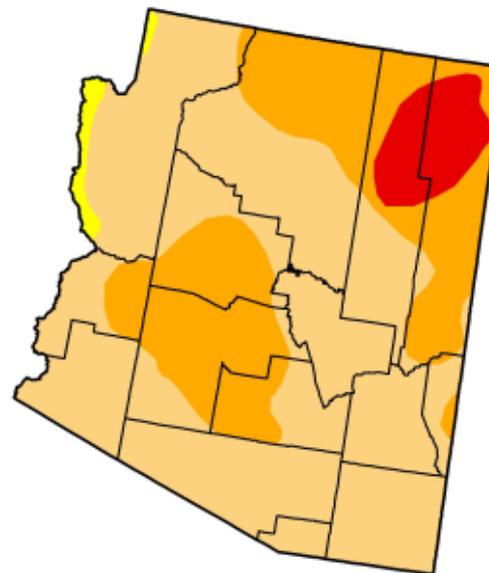
U.S. Drought Monitor Arizona

November 6, 2012

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	98.66	35.51	5.67	0.00
Last Week (10/30/2012 map)	0.00	100.00	98.66	34.89	5.67	0.00
3 Months Ago (08/07/2012 map)	0.00	100.00	100.00	93.97	24.91	0.00
Start of Calendar Year (12/27/2011 map)	16.70	83.30	60.34	36.56	2.78	0.00
Start of Water Year (09/25/2012 map)	0.00	100.00	100.00	31.93	5.67	0.00
One Year Ago (11/01/2011 map)	1.50	98.50	72.03	48.37	29.83	1.24



Intensity:

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

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

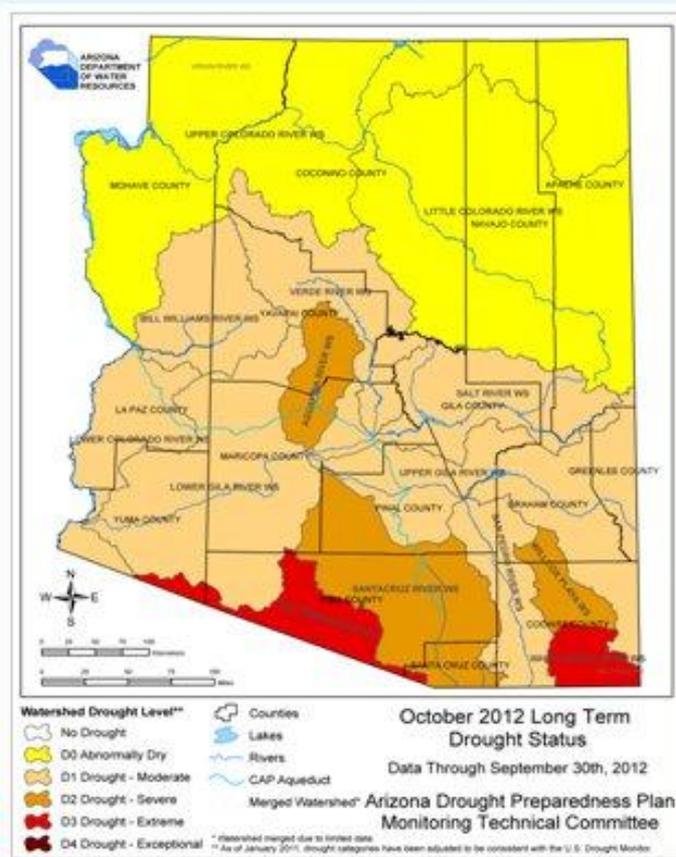
<http://droughtmonitor.unl.edu>



Released Thursday, November 8, 2012

David Miskus, Climate Prediction Center/NCEP/NWS/NOAA

Long Term Drought Status



Long-term Drought Status Update: July–August

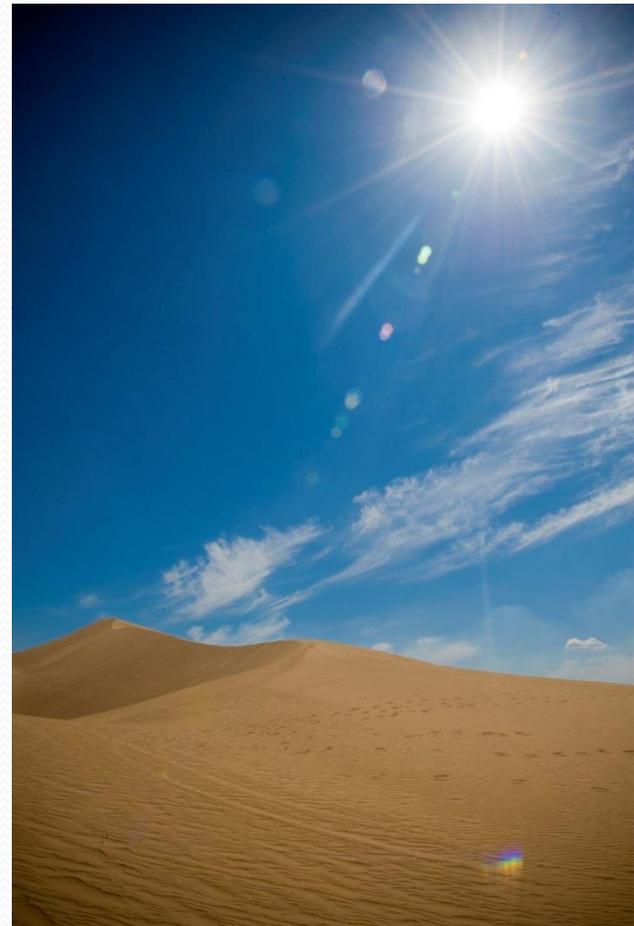
The monsoon of 2012 was wetter than the monsoons of 2009, 2010 and 2011 for many parts of the state, so there was improvement in the long-term drought status in five watersheds. The Little Colorado, Upper Colorado, Upper Gila, Bill Williams and San Pedro watersheds all saw a one category improvement, while White Water Draw in the southeast corner of Arizona dropped from severe drought (D2) to extreme drought (D3).

The other eight watersheds had no change in drought status. This leaves the state with the northern two watersheds abnormally dry while the southern two-thirds of the state is in moderate, severe, or extreme drought. Another dry winter will seriously degrade the situation as groundwater pumping will further deplete the aquifers.

This winter is forecast to be either a weak El Niño or neutral, with no strong indication of wetter or dryer conditions for this winter.

Drought Impacts

- Agriculture & Ranching
- Energy
- Environment
- Society & Public Health
- Water Supply
- Fire
- Tourism & Recreation



Agriculture

Impacts

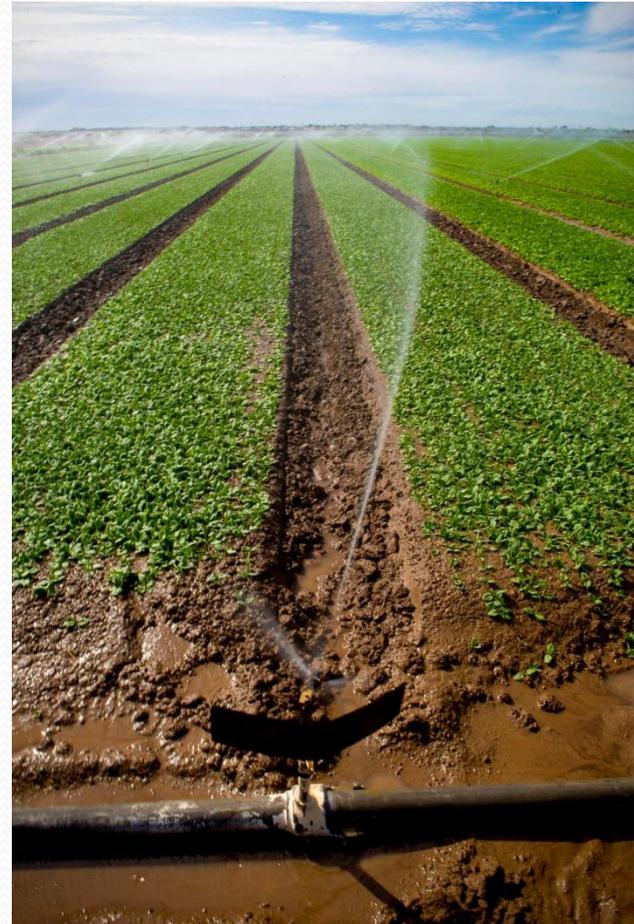
Crop Damage

Increased Groundwater
Pumping

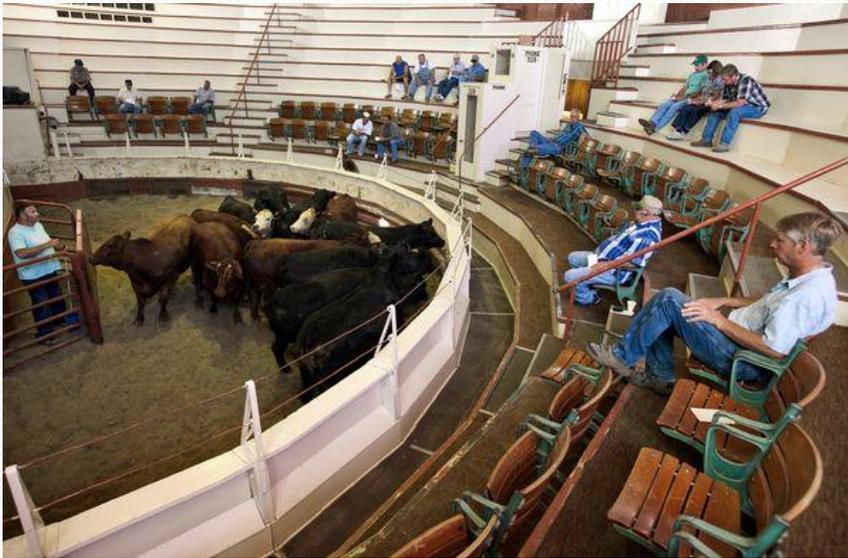
Responses

Postpone Planting

Change Crops Selection



Ranching



Impacts

Lack of Pasture Grasses
Dried Stockponds

Responses

To Market Sooner
Purchase Feed
Haul Water

Energy



Hoover Dam turbine shafts.

C45-300-021043

Impacts

Reduced Power Production
More Energy Use

Responses

Conserve Energy
Increased Rates

Environment-Wildlife

Impacts

Loss of Habitat

Migration

Extinction

Urban Interface

Decreased Streamflow

Responses

Conservation Management

Supplement Water



Environment-Vegetation



Impacts

Change in Type

Invasive Species

Infestation

Responses

Removal of Invasive Plants

Use of Drought Tolerant

Native Plants

Environment-Water



Impacts

Decreased Streamflows

Loss of Endangered
Species

Loss of Wetlands

Responses

Protect Water Rights

Conservation Management



Society & Public Health

Impacts

Dust Storms

Mosquitoes-West Nile

Flooding



Responses

Air Quality Advisories

Mosquito Control

Flood Control

Water Supply



Impacts

Reduced Reservoir Storage

Increase Groundwater Use

Responses

Water Restrictions

Public Outreach for

Conservation

Wildfires

Impacts

Increased Severity &
Extent

Basin Hydrology

Increased Flooding

Responses

Restrictions & Closures

Evacuations

Early Warning Systems



Tourism & Recreation



Impacts

Loss of Boating, Fishing, Recreations, Ecotourism

Responses

Loss of Businesses

Diversify

Are We Prepared?

Sector	Responses
Agriculture & Ranching	Disaster Relief
Energy	Energy Conservation
Environment	Conservation Strategies
Society & Public Health	Health Warnings and Advisories
Water Supply	Preparedness Plans
Wildfires	Forest Management
Tourism & Recreation	Public Awareness



Questions???

AHS Symposium Proceedings
<http://azhydrosoc.org/>

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