



# *Risk-based Drought Management in the U.S.: A Progress Report*

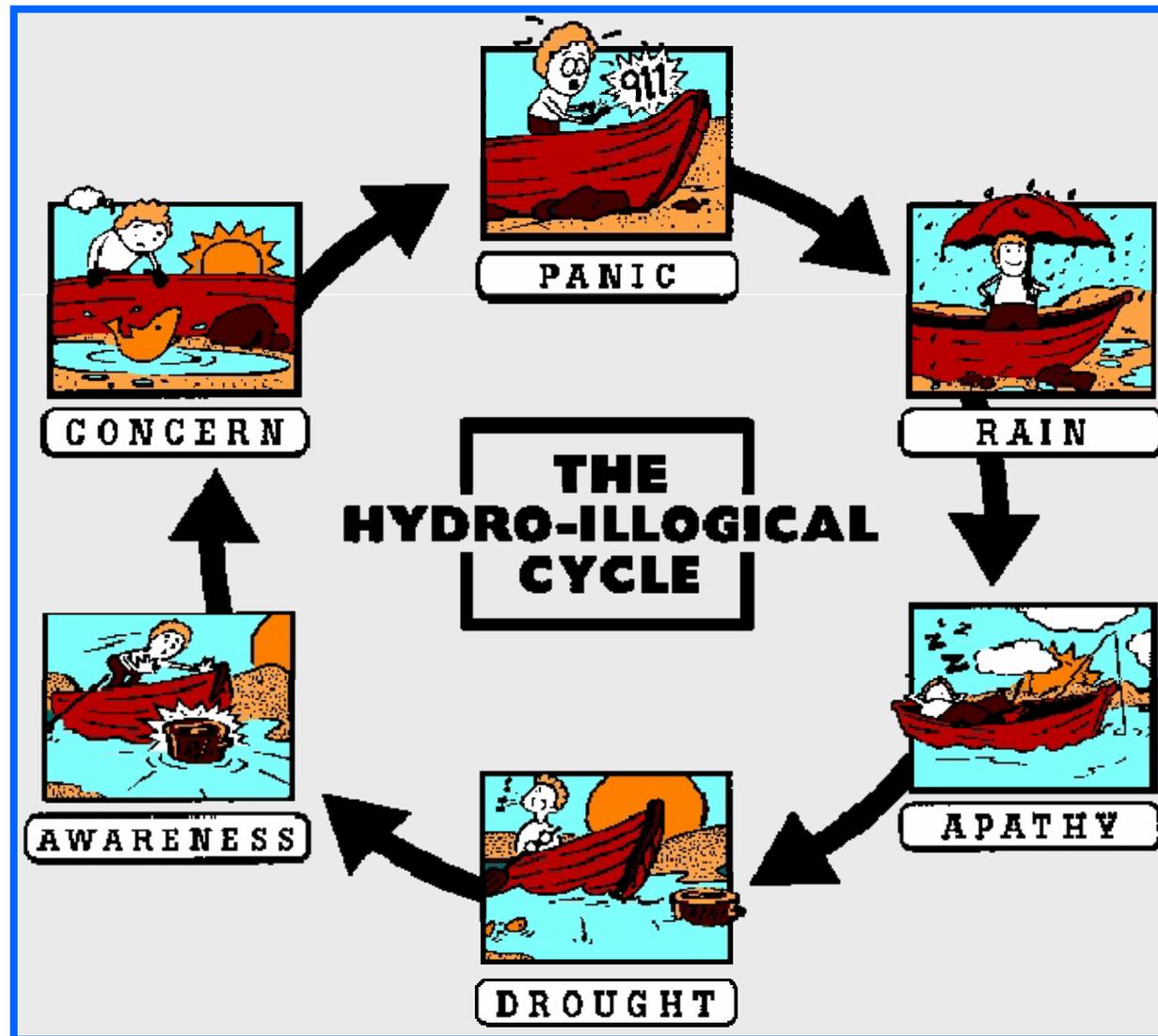
Managing Drought and Water  
Scarcity in Vulnerable Environments:  
A Roadmap for Change in the U.S.  
(2006)

**Donald A. Wilhite,  
Director  
School of Natural  
Resources**



**UNIVERSITY OF NEBRASKA-LINCOLN**

# Breaking the Hydro-illogical Cycle: An Institutional Challenge

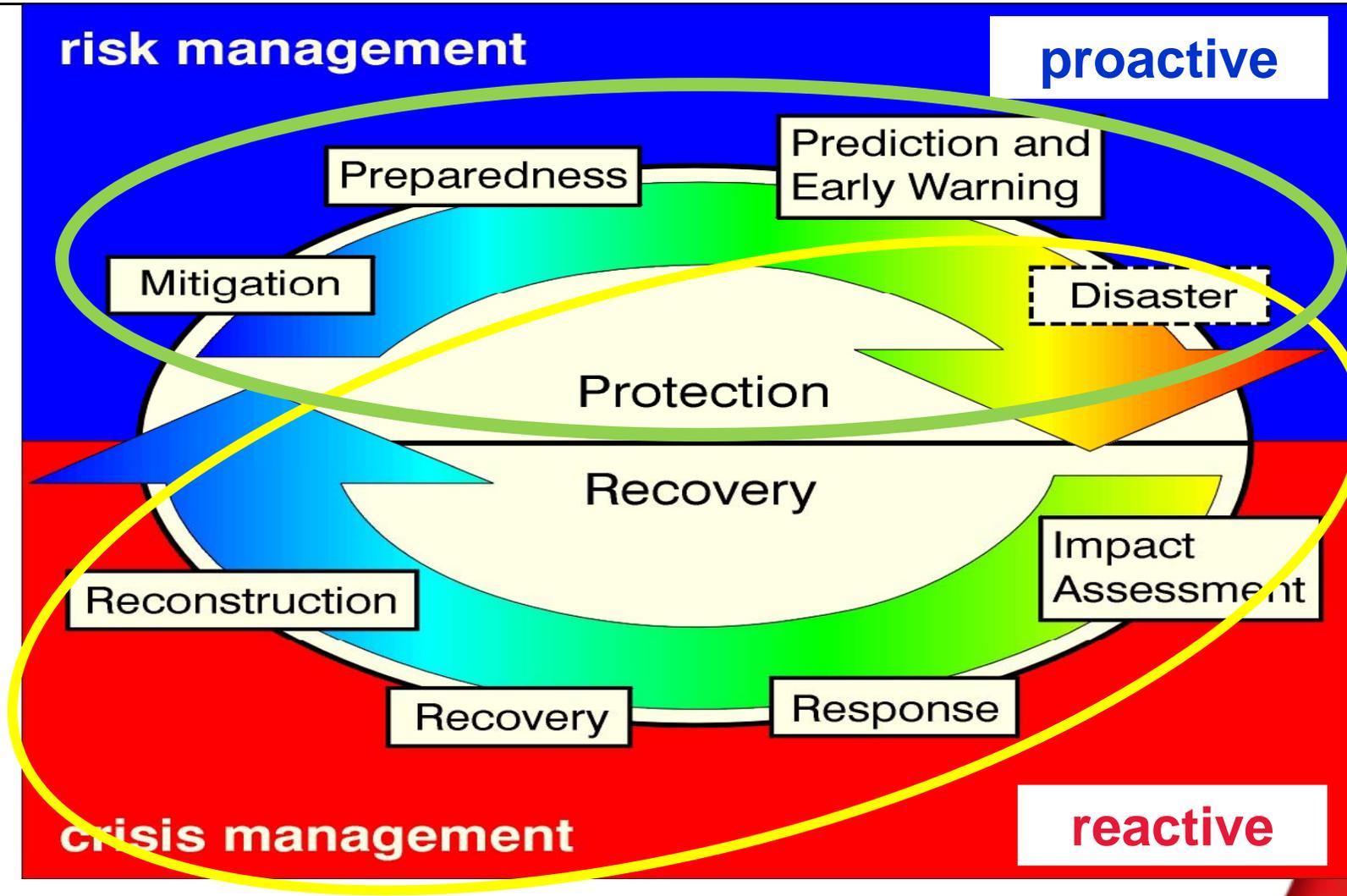


Crisis  
Management



# The Cycle of Disaster Management

Risk management increases coping capacity, builds resilience.

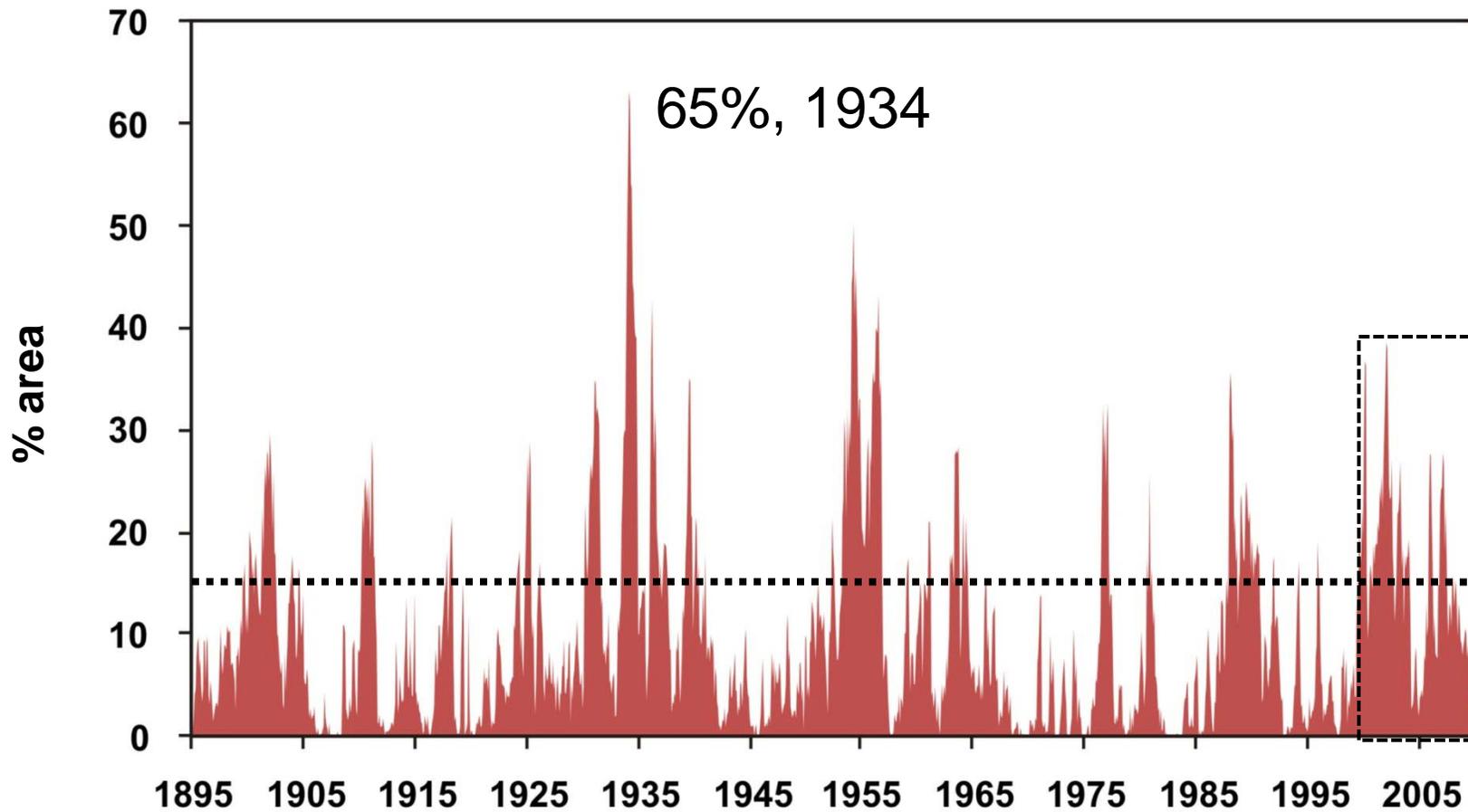


Crisis management treats the symptoms, not the causes.



# Percent Area of the United States in Severe and Extreme Drought

January 1895–May 2010

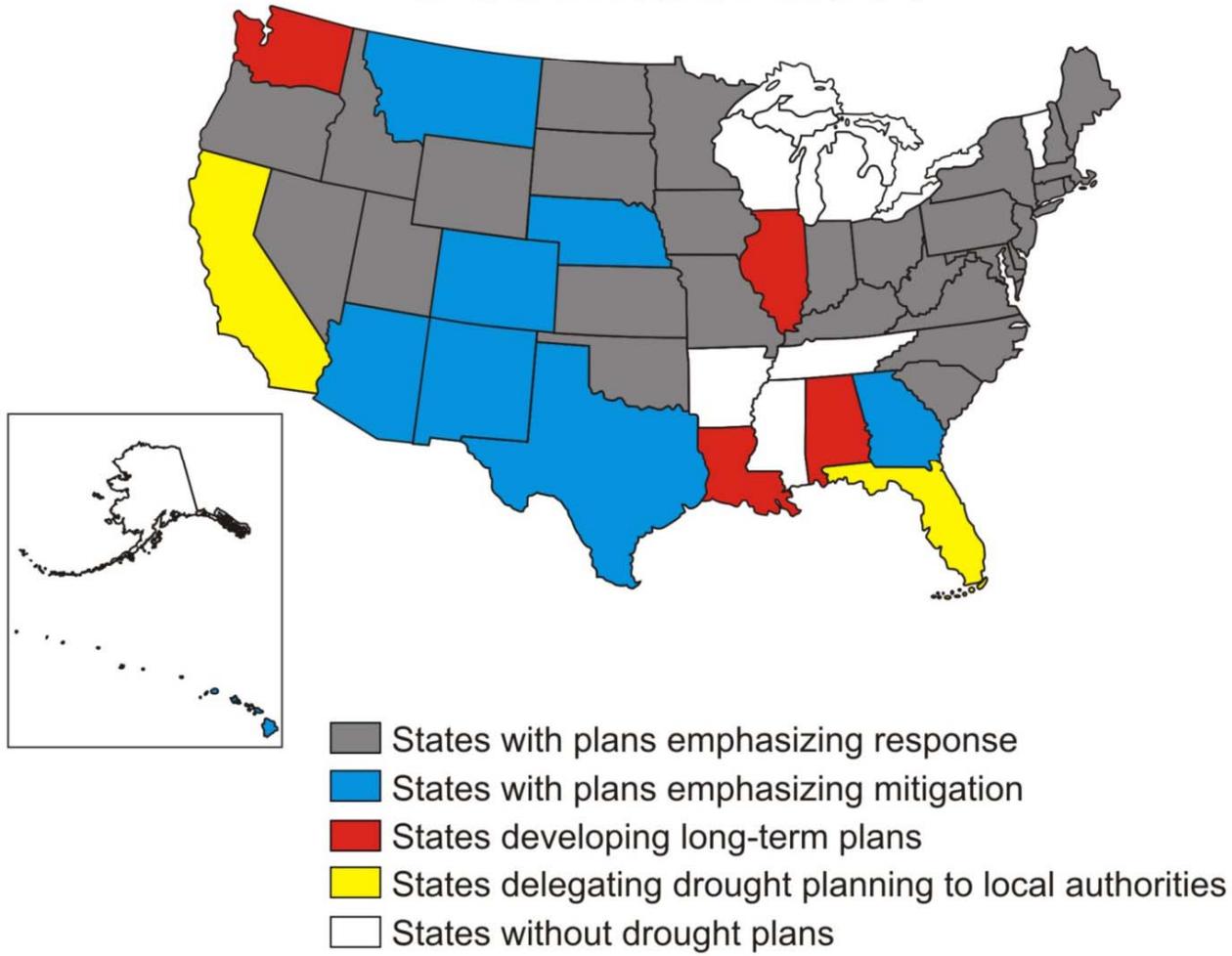


Based on data from the National Climatic Data Center/NOAA



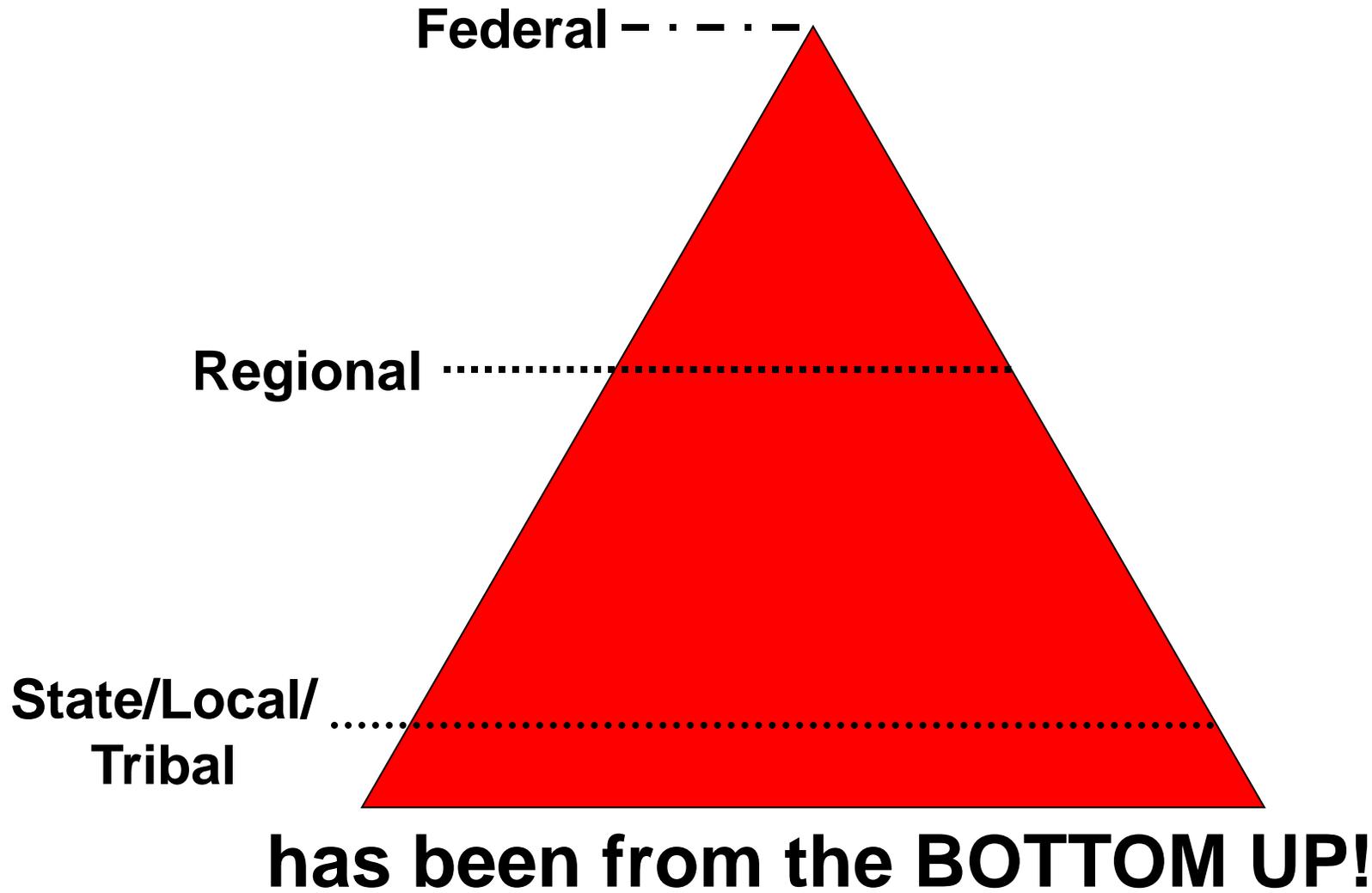
# Status of Drought Planning

## December 2009

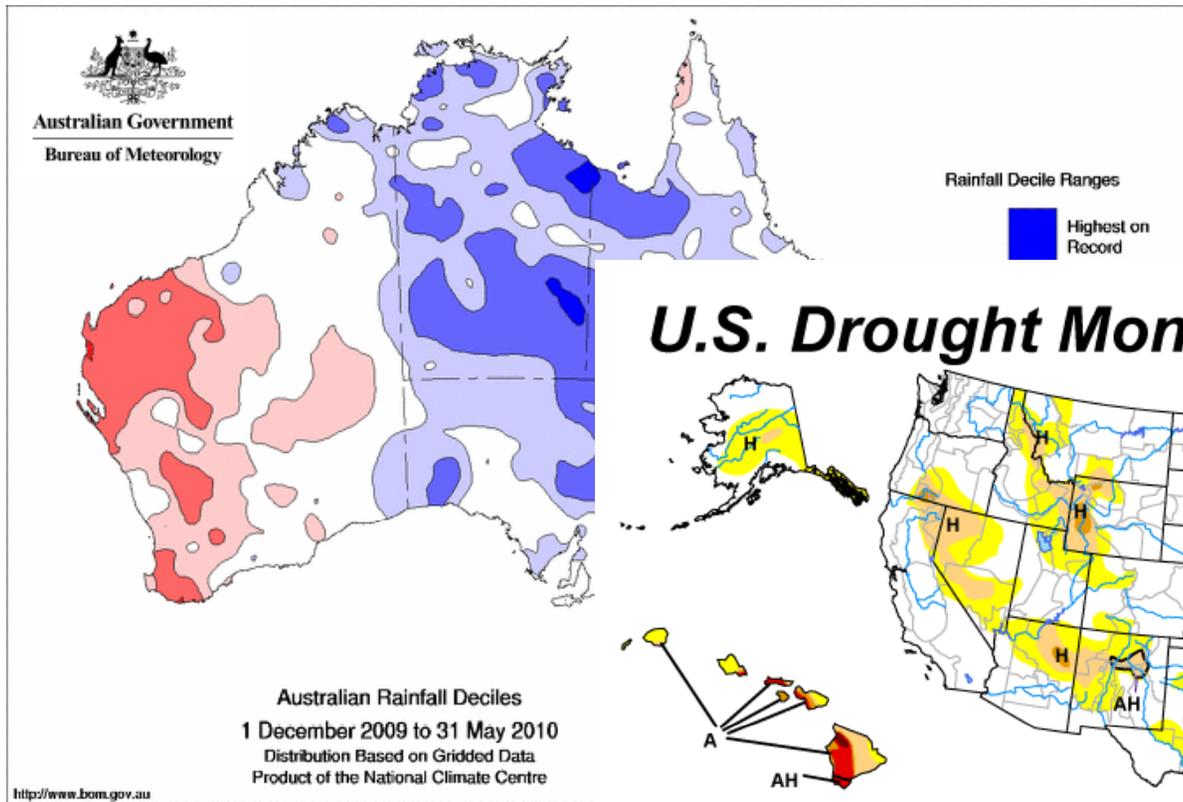


# Support for RISK-BASED DROUGHT MITIGATION PLANNING in the U.S.

---



# Drought Monitoring: Australia vs. U.S.

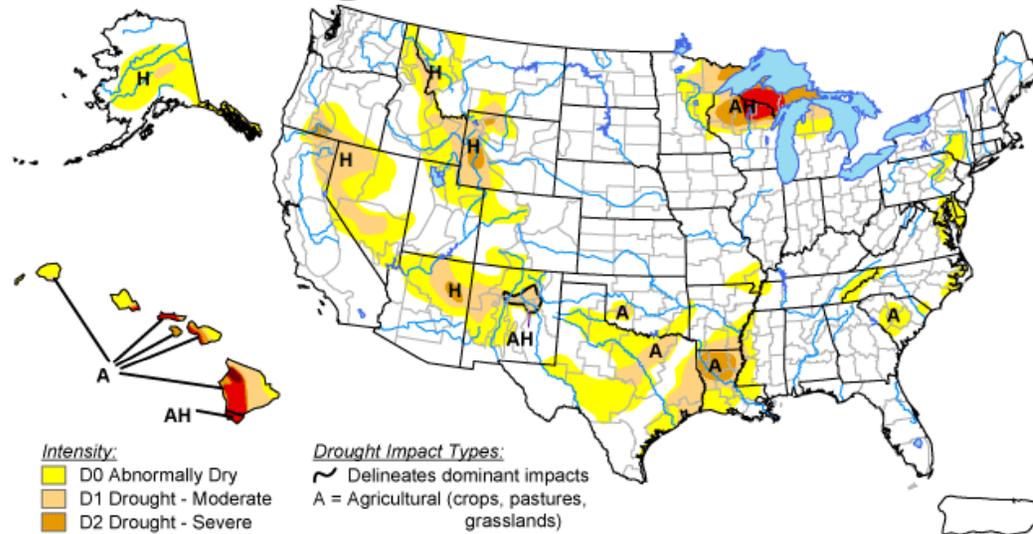


Rainfall-based  
approach

Composite index/  
indicator-based  
approach

## U.S. Drought Monitor

June 22, 2010  
Valid 8 a.m. EDT

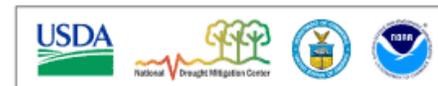


- Intensity:**
- D0 Abnormally Dry
  - D1 Drought - Moderate
  - D2 Drought - Severe
  - D3 Drought - Extreme
  - D4 Drought - Exceptional

- Drought Impact Types:**
- ~ Delineates dominant impacts
  - A = Agricultural (crops, pastures, grasslands)
  - H = Hydrological (water)

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

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



Released Thursday, June 24, 2010

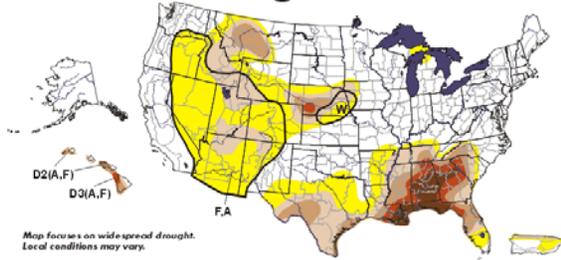
Author: Laura Edwards, Western Regional Climate Center



2000

August 8, 2000 Valid 8 a.m. EDT

# U.S. Drought Monitor



Map focuses on wide-spread drought. Local conditions may vary.

**Drought type used only when impacts differ**

A = Agriculture  
W = Water  
F = Volatile danger



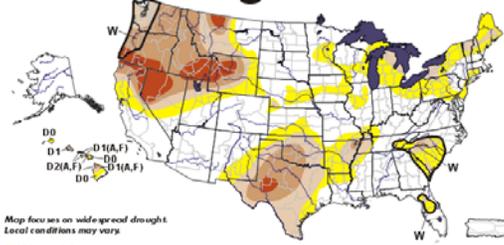
Released Thursday, August 10, 2000

See accompanying text summary for forecast statements.

2001

August 7, 2001 Valid 8 a.m. EDT

# U.S. Drought Monitor



Map focuses on wide-spread drought. Local conditions may vary.

**Drought Impact Types:**  
A = Agriculture  
W = Water (Hydrological)  
F = Fire danger (Volatile)  
(No type = All 3 impacts)

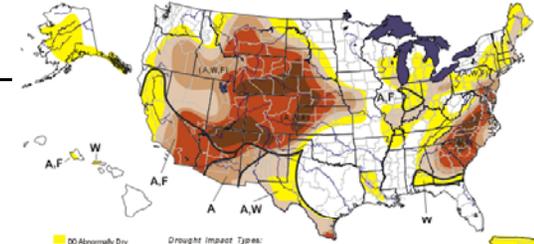


Released Thursday, August 9, 2001

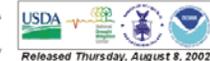
See accompanying text summary for forecast statements.

2002

U.S. Drought Monitor August 6, 2002 Valid 8 a.m. EDT



**Drought Impact Types:**  
A = Agriculture  
W = Water (Hydrological)  
F = Fire danger (Volatile)  
(No type = All 3 impacts)

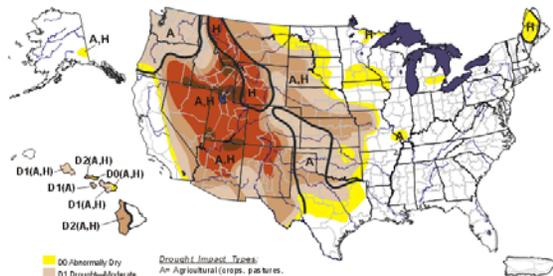


Released Thursday, August 8, 2002

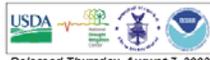
See accompanying text summary for forecast statements.

2003

U.S. Drought Monitor August 5, 2003 Valid 8 a.m. EDT



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

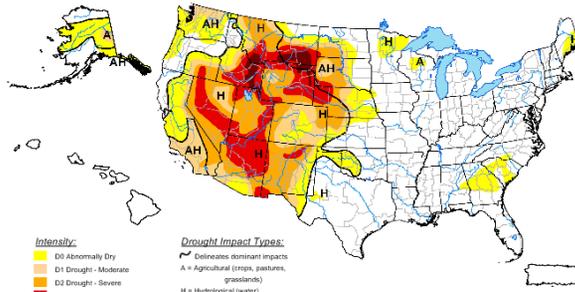


Released Thursday, August 7, 2003

See accompanying text summary for forecast statements.

2004

U.S. Drought Monitor August 3, 2004 Valid 7 a.m. EST



**Drought Impact Types:**  
A = Agricultural (crops, pastures, grasslands)  
H = Hydrological (water)

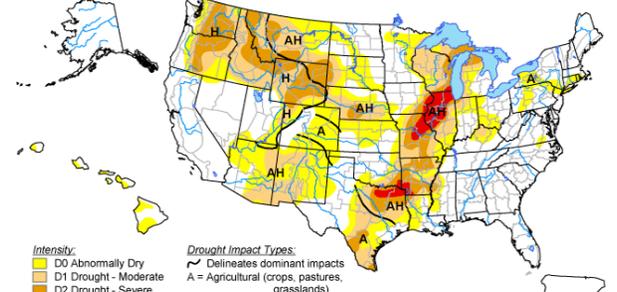


Released Thursday, August 5, 2004

See accompanying text summary for forecast statements.

2005

U.S. Drought Monitor August 2, 2005 Valid 8 a.m. EDT



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

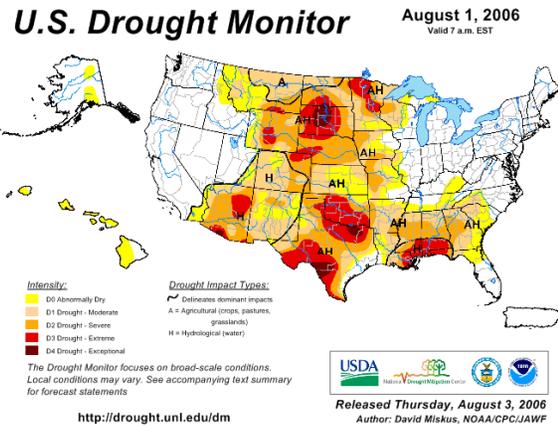


Released Thursday, August 4, 2005

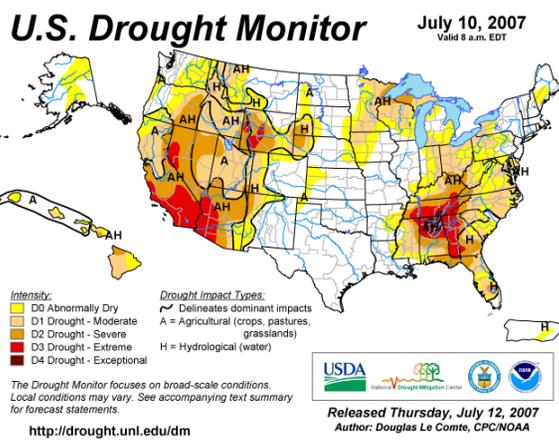
See accompanying text summary for forecast statements.



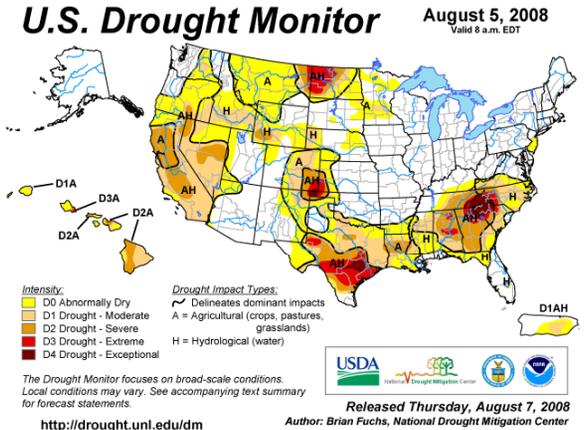
2006



2007



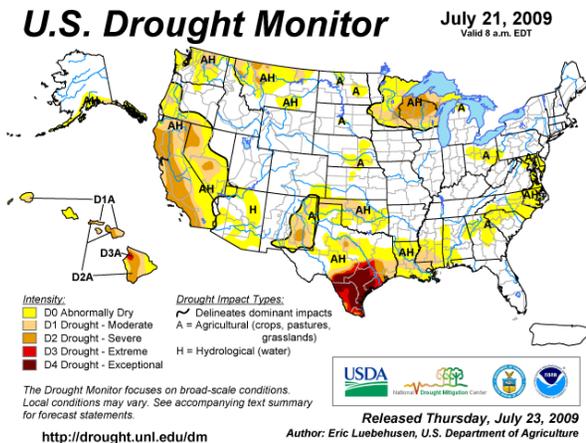
2008



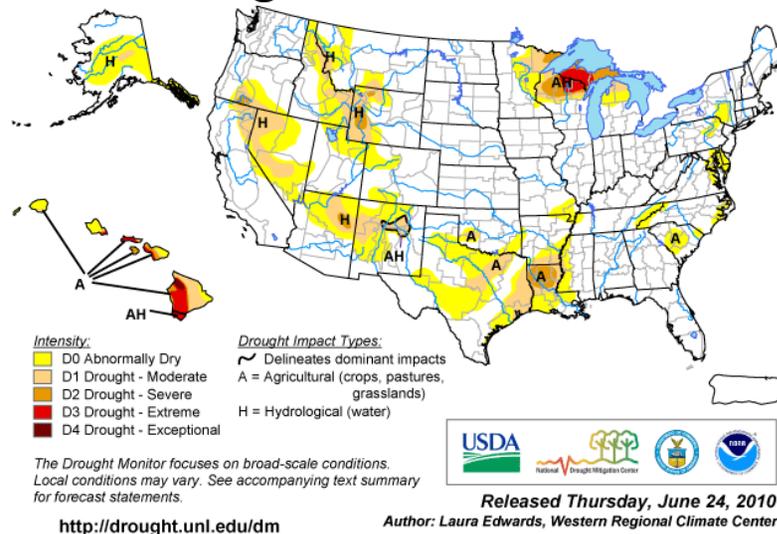
**Improving drought management is a national issue!**

2010

2009



**U.S. Drought Monitor** June 22, 2010  
Valid 8 a.m. EDT



# Science and Policy Recommendations

*Managing Drought and Water Scarcity in Vulnerable Environments: A Roadmap for Change in the U.S. (2006)*

---

- Implement a national drought policy (NDPC).
- Promote drought mitigation planning at all levels of government.
- Include projected changes climate change in drought risk mitigation planning.
- Create a new ‘national water culture’ that promotes sustainable water management practices to meet long-term societal needs.
- Engage stakeholders within common hydrologic basins in water and drought management planning.



# Science and Policy Recommendations

Managing Drought and Water Scarcity in Vulnerable Environments: A Roadmap for Change in the U.S. (2006)

---

- Maintain and enhance existing data networks and data sets, enhance timely delivery of data and information to decision makers and the public.
- Fully fund and implement the National Integrated Drought Information System (NIDIS).
- Support research that improves fundamental scientific understanding of drought, i.e., causes, predictability, impacts, mitigation actions, planning methodologies, and policy alternatives.
- Harmonize roles and responsibilities of cooperating institutions and reduce conflicts to achieve more effective decision making.
  - Fragmentation of responsibilities within and between levels of government constrains effective drought management.



# U.S. Drought Management: Progress Towards a Risk-based Approach

---

- State drought planning—3 states in 1982; 37 in 2010
- Western Drought Conference, 1994
  - National Drought Mitigation Center
  - Integrated climate/drought monitoring
- National Drought Mitigation Center, 1995
- Western Drought Coordination Council, 1997
  - WGA/Federal/University partnership
- National Drought Policy Act, 1998
  - National Drought Policy Commission report, 2000
- Launch of the *U.S. Drought Monitor*, 1999
- National Drought Preparedness Act, 2001/2003/2005
- National Drought Conference, 2006
- National Integrated Drought Information System, 2006

Themes



# Drought Management in the U.S.: Next Steps!

---

- NIDIS is KEY—it provides an opportunity to improve our drought early warning system, linking federal, state, and local efforts. It also provides the opportunity to:
  - Build greater resilience to drought through improve planning and adaptation.
    - More emphasis on drought mitigation planning.
    - Federal government needs to provide leadership/incentives.
  - Increase emphasis on risk management to lessen the need for reactive, costly response measures.
    - Mitigation is more cost-effective than emergency response.
  - Form a coherent national drought policy that ultimately reduces societal vulnerability.
  - Manage for climate variability and change!



# Western Governors' Association

---

- Statement from June 28, 2010,
- “The demand for water across the West is beginning to outstrip supplies, and states have no time to waste in averting a potential crisis, said Montana Gov. Brian Schweitzer, Chairman of the Western Governors' Association, at the opening day of WGA's Annual Meeting on Sunday.”
- "It's a combination of increasing demands for our growing population and the economy, as well as the uncertainty in supply due to drought and climate change," Schweitzer said. "As a region, we have to become more aggressive and a lot smarter in how we manage this resource."



*Thanks!*

<http://www.geosociety.org/>

[dwilhite2@unl.edu](mailto:dwilhite2@unl.edu)

*School of Natural Resources*  
*snr.unl.edu*



UNIVERSITY OF  
Nebraska  
Lincoln