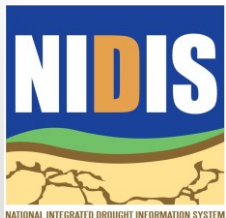


# Role of NIDIS in Measuring, Quantifying, & Reporting Drought Impacts

Western States Water Council

August 5 - 7, 2013, San Diego, CA

Veva Deheza, NIDIS Regional Drought  
Information Coordinator



There is no unique definition!

# What is Drought?

National Drought Policy Commission:

**“ A persistent abnormal moisture deficiency having adverse impacts on vegetation, animals, and people.”**  
*and..... more.....*

Key ingredients: Persistent water deficiency + adverse impacts

***Meteorological*** - Rainfall deficit

***Agricultural*** - Topsoil moisture deficit, agricultural impacts

***Hydrological*** - Surface or sub-surface water supply shortage

***Socio-economic – Inadequate supplies for social and economic activities***

# Drought differs from other natural hazards

- slow onset, “creeping phenomenon” , a non-event
- difficult to determine drought onset and end
- absence of a precise, universal definition
- impacts are nonstructural and spread over large areas—makes assessment and response difficult
- severity and impacts best defined by multiple indicators
- no consistent methodology for assessing impacts or data base for archiving impacts
- impacts are complex, affect many people, and vary on spatial and temporal timescales, multiple and migrating epicenters
- mitigation interventions are less obvious
- water shortages increase conflict—regulatory, legal authority (interstate and transboundary issues)

# U.S. Billion-Dollar Disasters, 1980-2012

|     |                   |      |         |
|-----|-------------------|------|---------|
| 1.  | Hurricane Katrina | 2005 | \$146.3 |
| 2.  | Drought           | 1988 | \$ 77.6 |
| 3.  | Drought           | 2012 | \$ ??.  |
| 4.  | Superstorm Sandy  | 2012 | \$ ??.  |
| 5.  | Drought           | 1980 | \$ 55.6 |
| 6.  | Hurricane Andrew  | 1992 | \$ 44.3 |
| 7.  | Flooding          | 1993 | \$ 33.4 |
| 8.  | Hurricane Ike     | 2008 | \$ 28.9 |
| 9.  | Hurricane Wilma   | 2005 | \$ 18.7 |
| 10. | Hurricane Rita    | 2005 | \$ 18.7 |

Source: National Climatic Data Center (<http://www.ncdc.noaa.gov/billions/>)

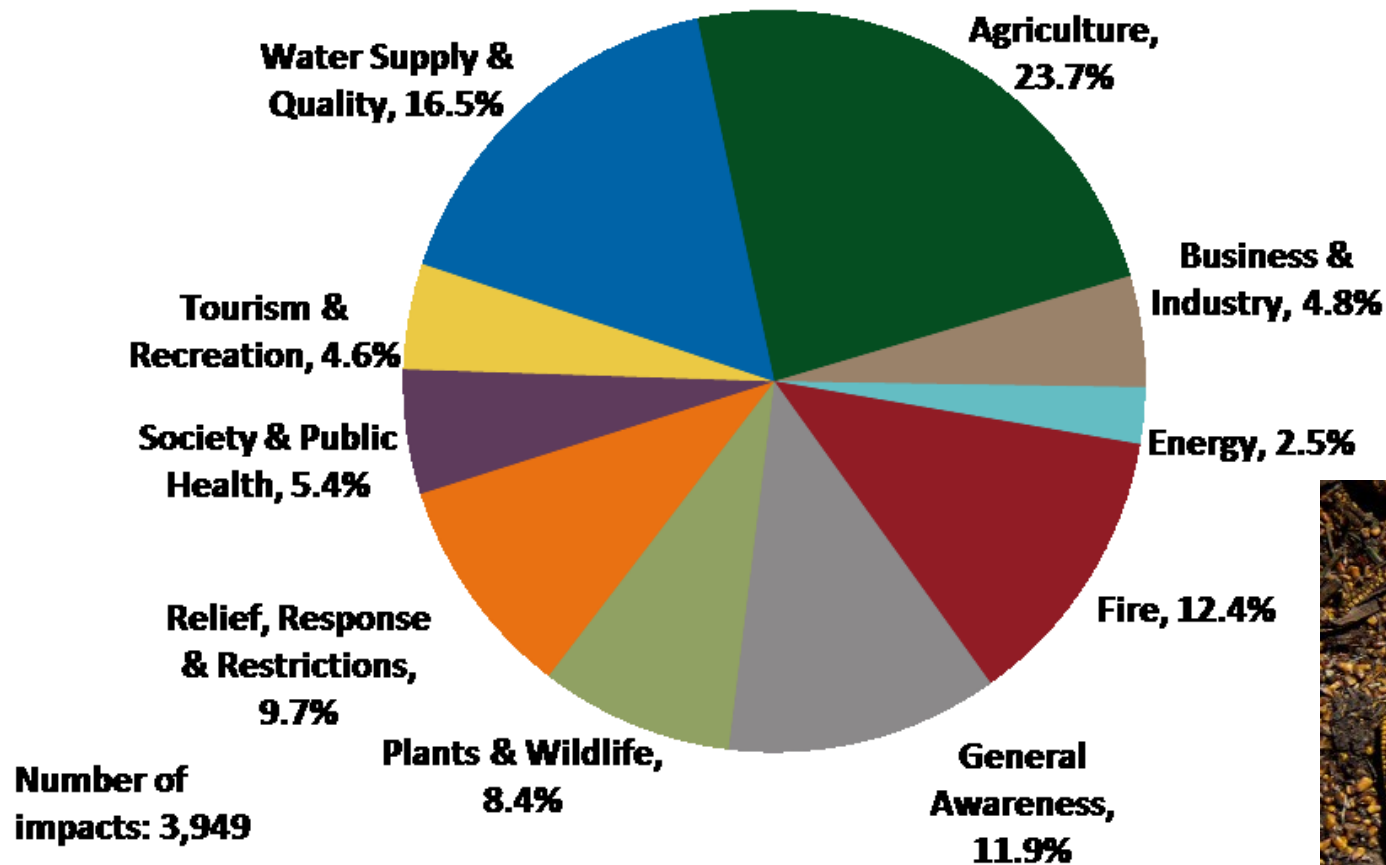
# U.S. Billion-Dollar Disasters, 1980-2011

| Disaster Type    | Number of Events | Percent Frequency | CPI-Adjusted Damages<br>(Billions of Dollars) | Percent Damage |
|------------------|------------------|-------------------|-----------------------------------------------|----------------|
| Severe Storm     | 43               | 32.3%             | 94.6                                          | 10.8%          |
| Tropical Cyclone | 31               | 23.3%             | 417.9                                         | 47.5%          |
| Drought          | 16               | 12%               | 210.1                                         | 23.9%          |
| Flooding         | 16               | 12%               | 85.1                                          | 9.7%           |
| Wildfire         | 11               | 8.3%              | 22.2                                          | 2.5%           |
| Winter Storm     | 10               | 7.5%              | 29.3                                          | 3.3%           |
| Freeze           | 6                | 4.5%              | 20.5                                          | 2.3%           |

This table reflects the total number of Billion dollar events to affect the U.S. since 1980, including percent frequency and percent damage, by disaster type.

# 2012 Drought Impacts by Sector

## Reports by category in the Drought Impact Reporter, January - August 2012



[ 6 ]

# Drought Mitigation

Drought mitigation refers to actions taken in advance of a drought that reduce potential drought-related impacts when the event occurs. Measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and environment (U.N. 1992, 4). Examples of drought mitigation steps include community drought response plans, mutual aid agreements, and drought legislation.

But what informs those  
advance actions and measures?

**INFORMATION.....**  
**early information**

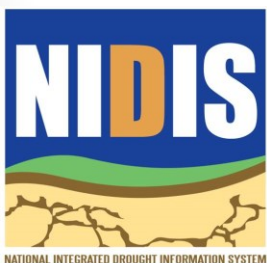
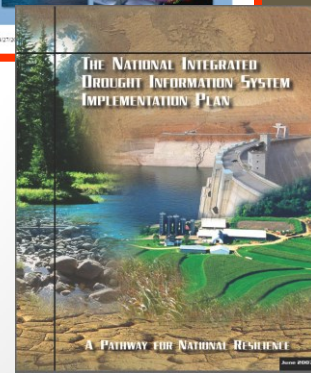
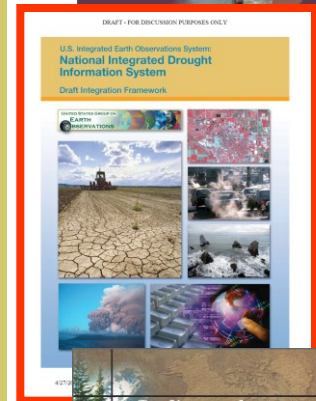
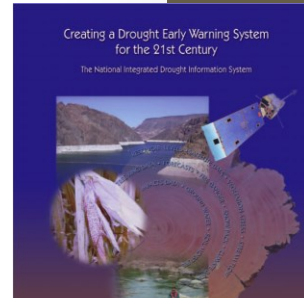
# National Integrated Drought Information System

## 2000-2004 drought in the Colorado Basin

**“No systematic collection and analysis of social, environmental, and economic data focused on the impacts of drought within the United States exists today” Western Governors Association 2004**

## The NIDIS Act of 2006 (Public Law 109-430)

**“Enable the Nation to move from a reactive to a more proactive approach to managing drought risks and impacts”**



# National Integrated Drought Information System

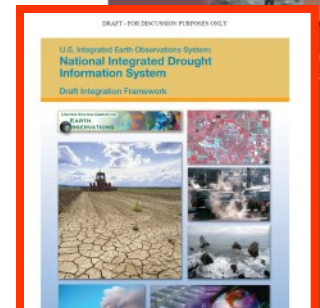
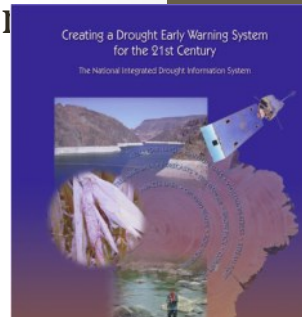
‘Drought is the most obstinate and pernicious of the dramatic events that Nature conjures up. It can last longer and extend across larger areas than hurricanes, tornadoes, floods and earthquakes...causing hundreds of millions of dollars in losses, and dashing hopes and dreams.’

US National Drought Policy Commission Report, May 2000

Public Law 109-430 (The NIDIS Act 2006)

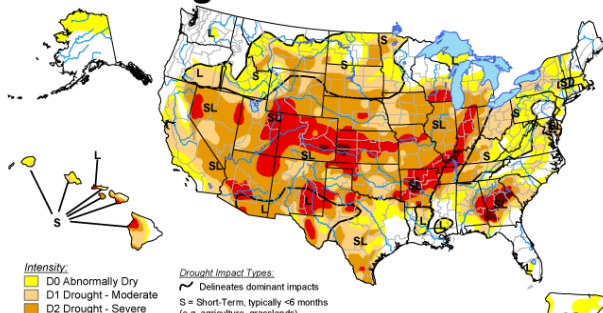
**“Enable the Nation to move from a reactive to a more proactive approach to managing drought risks and impacts”**

**“...better informed and more timely drought-related decisions leading to reduced impacts and costs...”**



## U.S. Drought Monitor

July 17, 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:**  
~ 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, July 19, 2012

Author: Richard Heim/Liz Love-Brotak, NOAA/NESDIS/NCDC

[www.drought.gov](http://www.drought.gov)

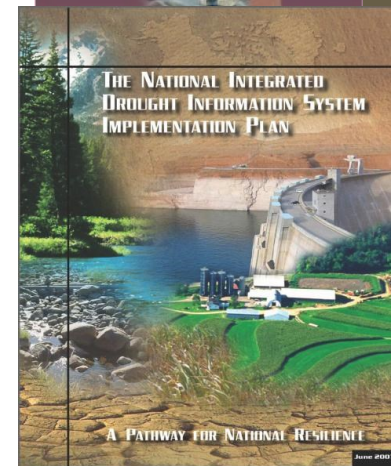
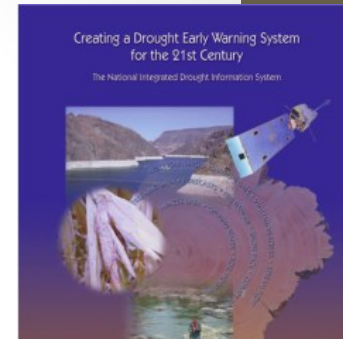
Experts  
say rainfall  
may lessen  
drought

By Julia Glick  
The Associated Press

DALLAS — Heavy rainfall that  
flooded roads, drenched prop-

# Public Law 109-430

- (i) Provide an effective drought early warning system that: (a) collects and integrates information on the key indicators of drought and drought severity; and (b) provides timely information that reflect state and regional differences in drought conditions;
- (ii) Coordinate Federal research in support of a drought early warning system; and,
- (iii) Build upon existing forecasting and assessment programs and partnerships



NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM

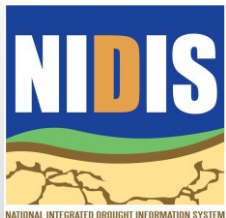
# National Integrated Drought Information System (NIDIS)

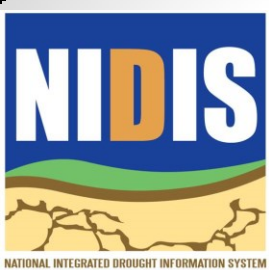
An interagency and interstate effort to establish a **national drought early warning information system**

Provides better coordination of monitoring, forecasting, and impact assessment efforts at national, watershed, state, and local levels

Provides a better understanding of how and why droughts affect society, the economy, and the environments

Improves accessibility, dissemination, and use of early warning information for drought risk management





Integrated  
Monitoring and  
Forecasting

NRCS, USGS  
River Forecast Center, BoR  
Climate *Prediction* Center  
USDA

NIDIS Technical  
Working  
Groups

Interdisciplinary  
Needs Assess.,  
Research,  
Applications

Regional Integrated Sciences  
and Assessments  
Regional Climate Centers  
NCAR

Regional Drought  
Early  
Warning Systems

U.S.  
Drought Portal

NCDC  
NDMC-NOAA, USGS, USDA,  
USBoR

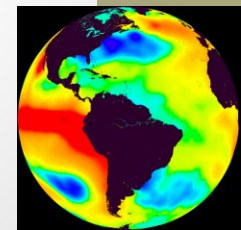
Public Awareness  
And Education

State Climatologists, NWS-  
CSD  
USDA Extension

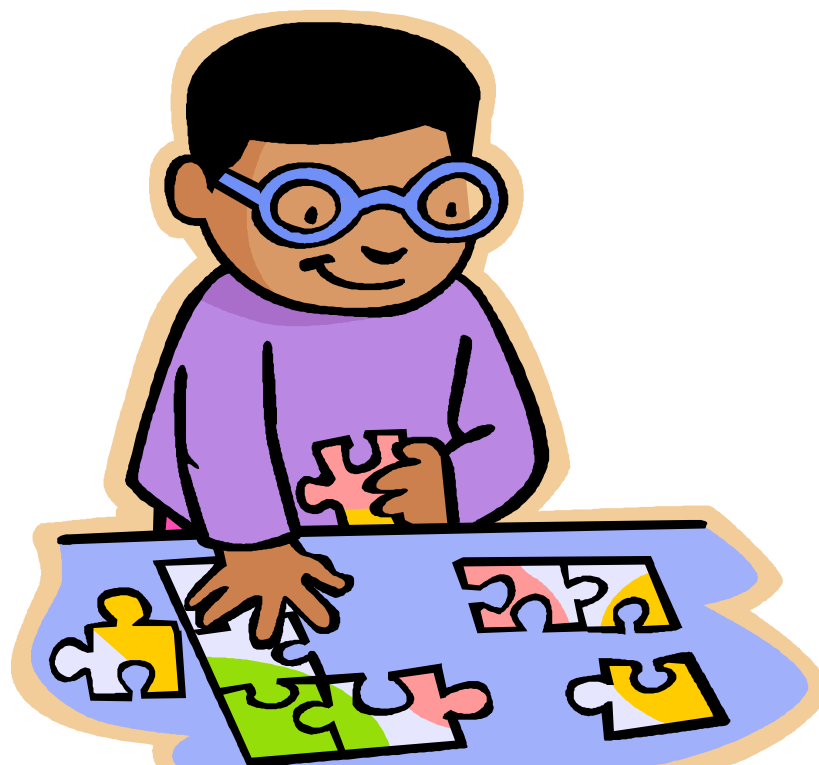
**NIDIS  
Implementation**  
Over 50 Federal, state,  
tribal and private  
sector representatives  
nationally

Engaging  
Preparedness  
Communities

NDMC  
State and Tribal Offices,  
RISAs  
US BoR, USACE, Counties



Building an effective **drought early warning system** is like putting together the pieces of a puzzle.

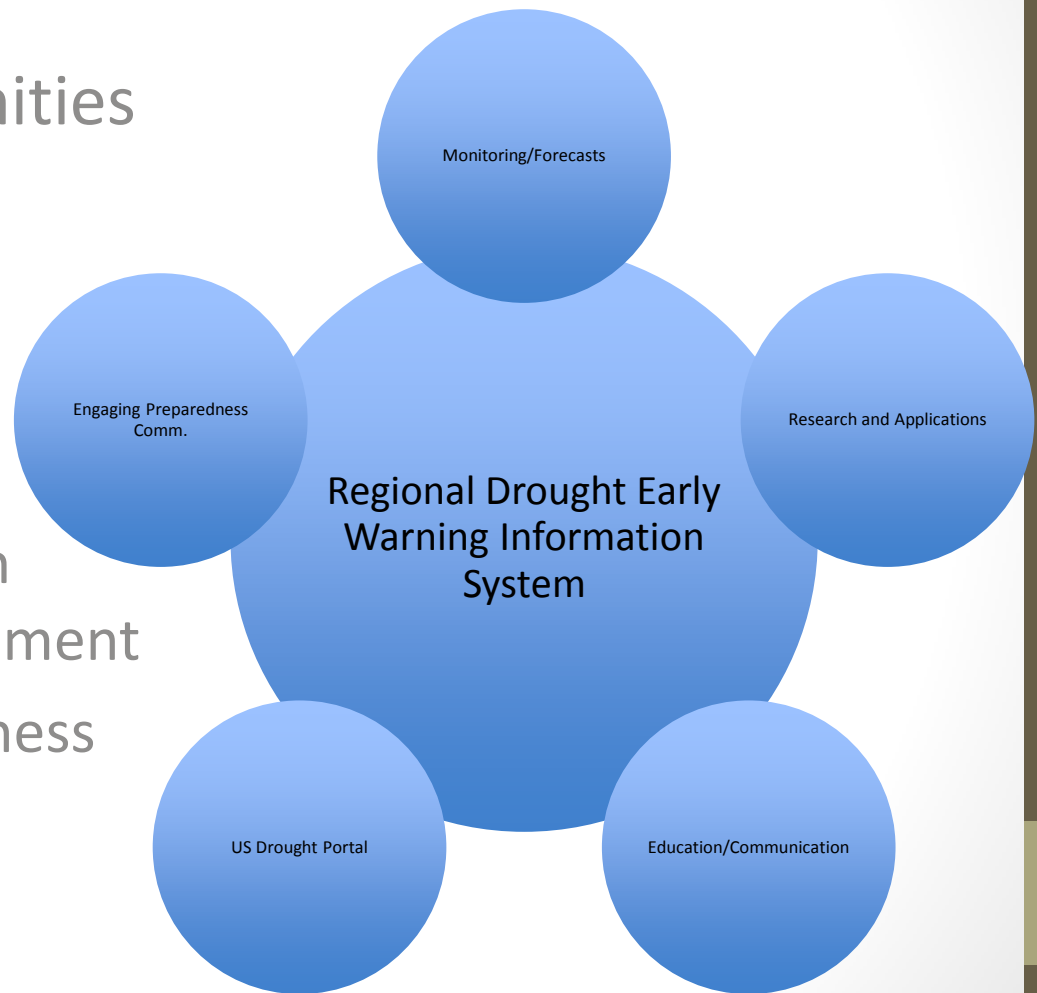


Each **indicator and index** represents a valuable piece of information to assess the severity of drought and its potential impact on people and the environment. The complete picture emerges when all pieces are in place.

# Regional Drought Early Warning Information Systems

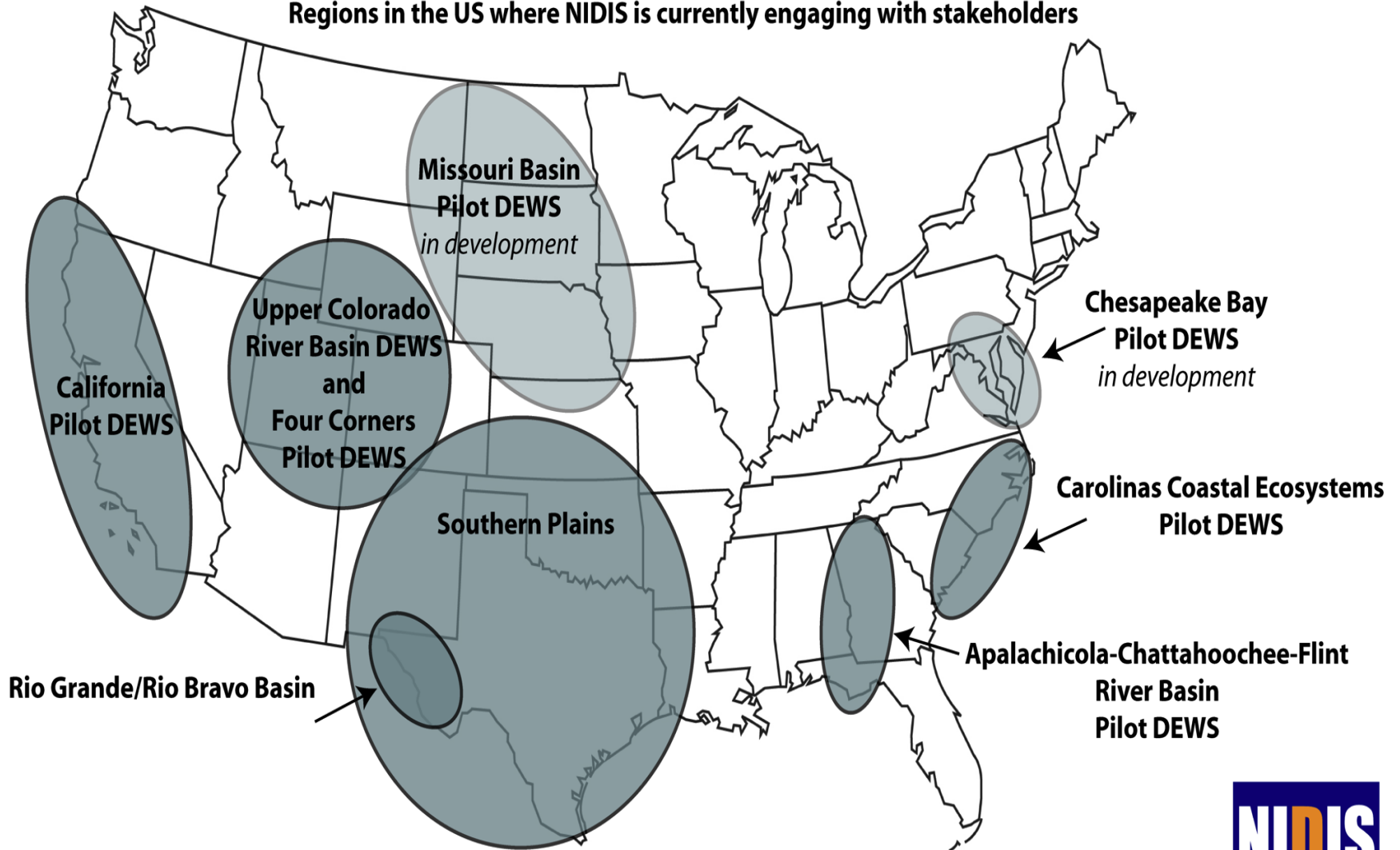
Working with communities and existing networks through:

- ❑ Drought assessments
- ❑ Climate outlook forums
- ❑ Education and outreach webinars – risk management
- ❑ Engaging the preparedness community



# National Integrated Drought Information System (NIDIS)

Regions in the US where NIDIS is currently engaging with stakeholders



The diagram consists of four overlapping ovals, each representing a functional area in climate change adaptation, with various federal agency logos inside:

- Monitoring & Forecasting (Top Left, Brown Oval):** Includes logos for the Forest Service (U.S. Department of Agriculture), NASA, NSF, U.S. Environmental Protection Agency, NRCS (Natural Resources Conservation Service), U.S. Department of the Interior, U.S. Department of Defense, US Army Corps of Engineers, AAU, and NOAA.
- Drought and Flood Impacts Assessments and Scenarios (Top Right, Orange Oval):** Includes logos for NASA, AAU, NSF, Forest Service (U.S. Department of Agriculture), USGS, NOAA, U.S. Environmental Protection Agency, U.S. Department of Defense, and U.S. Department of Energy.
- Information Systems in support of Adaptation (Center, Blue Oval):** This central oval is labeled with the text "Information Systems in support of Adaptation".
- Engaging Preparedness & Adaptation (Bottom Right, Purple Oval):** Includes logos for FEMA, USDA, U.S. Department of Transportation, U.S. Department of Health & Human Services, U.S. National Governors' Association, U.S. Department of Homeland Security, CDC, U.S. Department of Energy, U.S. Environmental Protection Agency, U.S. Department of Defense, NOAA, and U.S. Department of the Interior.
- Communication and Outreach (Bottom Left, Green Oval):** Includes logos for U.S. Environmental Protection Agency, U.S. Department of the Interior, Forest Service (U.S. Department of Agriculture), AAU, U.S. Department of the Interior, NOAA, National Park Service, US Army Corps of Engineers, and U.S. Department of the Interior.

# Engaging Preparedness & Adaptation

# Moving Beyond Impact Assessments (and Reports)

Integrated Climate,  
Ecosystems,  
Hydrology: Technical  
Info & Data

Watershed, state, tribal, local:  
Experience & Knowledge

**Climate information:  
Needs, usability, evaluation**

Entry points for proactive  
Planning-triggers and indicators



**Enabling adaptation:**

Best available drought risk  
& water supply information  
Input to drought planning,  
preparedness and adaptation

# *Translation?.....Transfer?..... Transformation*



Transitions from applications

Private vs public

Applied

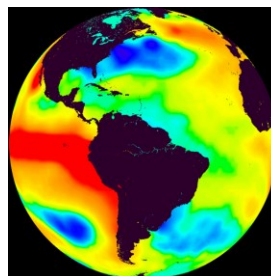
Social-ecological

Path dependence

Across organizational boundaries

Joint monitoring and joint fact-finding

Adaptive



Proactive  
Planning

Impact  
Mitigation

Improved  
Adaptation

Identifying and transferring indicators, decision support tools and innovative **local** strategies for risk assessment, communication and preparedness

Integrating Tools-scenarios  
Information Portals

Monitoring

Analogs/  
Predictions

Applications  
Research

Coordinate existing national, state, and local climate-related data and information support activities (e.g., within watersheds and states)

# The U. S. Drought Monitor

The drought monitor represents a consolidation of indices and indicators, considering:

- Climate data
- Soil moisture
- Stream flow
- Ground water
- Reservoirs and lake levels
- Snowpack
- Short, medium and long range forecasts
- Vegetation health
- Fire danger
- IMPACTS

The intent is to capture the characteristics of drought:

- Magnitude (duration and intensity)
- Spatial extent
- Probability of occurrence
- Impacts

## Drought is rated by percentile ranks

|                                                                                       |                                                  |
|---------------------------------------------------------------------------------------|--------------------------------------------------|
|    | D0 – <b>Abnormally Dry</b> (30th percentile)     |
|  | D1 Drought – <b>Moderate</b> (20th percentile)   |
|  | D2 Drought – <b>Severe</b> (10th percentile)     |
|  | D3 Drought – <b>Extreme</b> (5th percentile)     |
|  | D4 Drought – <b>Exceptional</b> (2nd percentile) |

# Drought Assessment Groups

## States

- Arizona
- Hawaii
- Texas
- New Mexico
- Alabama
- Colorado
- North Carolina
- Florida
- South Dakota

- Oklahoma

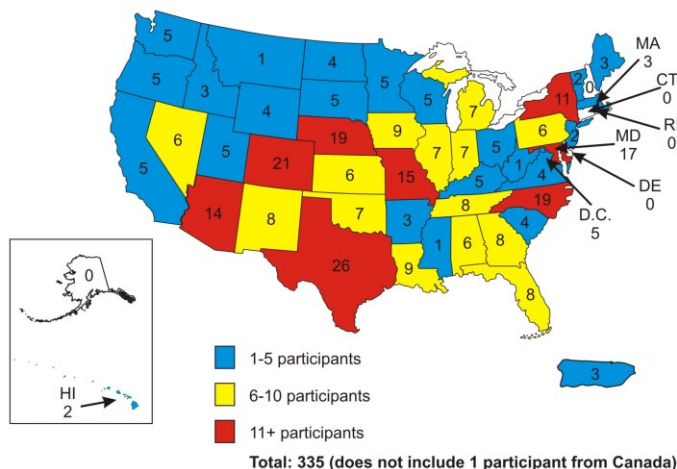
## River Basins

- Upper Colorado
- Apalachicola-Chattahoochee-Flint

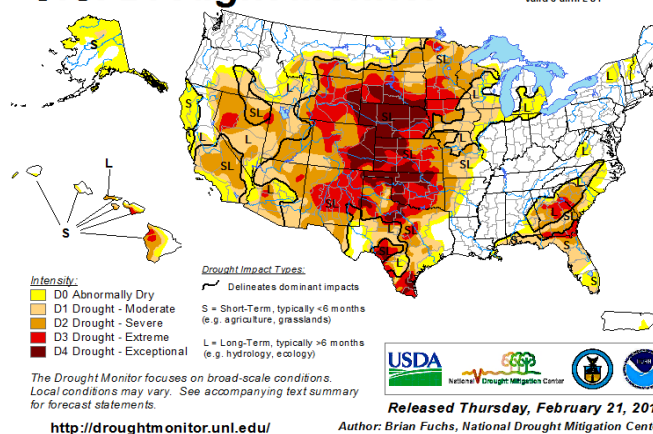
## Tribes

- Navajo Nation

USDM Listserve Subscribers  
(as of August 10, 2012)



**U.S. Drought Monitor** February 19, 2013  
Valid 9 a.m. EST



# Key questions in terms of how to improve decision-making systems

- What is the quality of information available to decision-makers at all levels?
- What factors influence whether or not such information will be used?
- What factors influence whether risk communications are trusted?
- What governance structures may facilitate better decision-making practice?
- How to adapt the decision-making systems to the different levels of decision makers?

# Summer 2012

## MANAGING DROUGHT IN THE SOUTHERN PLAINS

You are invited to join us in a webinar (web-based seminar) series to discuss drought conditions, impacts and resources available to help manage drought in the Southern Plains. Webinars will be held on the 2nd Thursday of each month at 11:00 A.M. Central Time. A shortened briefing will also be offered on the 4th Thursday. The content is geared toward a general audience – anyone who has responsibility to manage or assist others in managing drought and its related impacts.

If you would like to join in these webinars, you need to register via the SCIPP website: <http://www.southernclimate.org> or e-mail [scipp@mesonet.org](mailto:scipp@mesonet.org). For each webinar, you will receive an e-mail with the link to access the webinar. Each webinar will last 45-60 minutes.

Each webinar will include an overview of the current drought assessment and outlook, summary of impacts across the region, and a topic or resource, such as La Niña or wildfire conditions. You will have an opportunity to suggest topics for following webinars. The primary focus is in the states most heavily impacted from the current drought – Texas, Oklahoma and New Mexico – but participation from surrounding states is encouraged.

The webinar series is sponsored by a partnership of the National Integrated Drought Information System (NIDIS), National Oceanic and Atmospheric Administration (NOAA), National Drought Mitigation Center, Southern Climate Impacts Planning Program, Climate Assessment for the Southwest, and the region's State Climatologists.

Information from the webinars will be posted on a website linked through <http://www.southernclimate.org>. A two-page summary will be produced and posted for each webinar. Please pass on this announcement to relative organizations or groups that are involved in managing or monitoring drought and its related impacts.

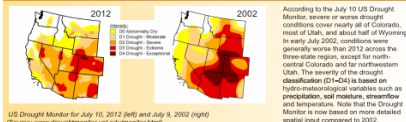
To register or for more information, contact:

### The 2012 Drought in Colorado, Utah and Wyoming

A July 2012 update from the Western Water Assessment and the National Integrated Drought Information System.

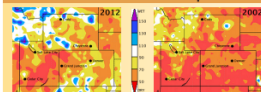
Under a second winter of La Niña, drought conditions emerged midway through the 2012 water year, with low snowpacks melting out early during a very dry and warm spring. Spring and early summer runoff over most of the region was well below average, with flows similar to 2002 and other historically drought years. Continued dry and hot conditions in June dried out vegetation and led to very large and intense wildfires in all three states, along with widespread rangeland, pasture, and dryland crop losses.

#### Drought Conditions as of early July



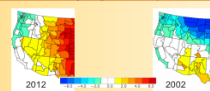
US Drought Monitor for July 10, 2012 (left) and July 9, 2002 (right). (Source: [www.droughtmonitor.unh.edu/monitor.html](http://www.droughtmonitor.unh.edu/monitor.html)).

#### Water Year Precipitation through June



Percent of average (1981-2010) precipitation for the current water year to date, October 2011–June 2012 (left), with October 2001–June 2002 (right) for comparison. (Source: NWS COOP and SNOTEL data; Gray Bates, NOAA ES&P, Physical Science Division).

#### Spring and Early Summer Temperatures



March-May temperatures in 2012 (left) were 2° to 7° F above normal across the 3-state region, much warmer than the same period in 2002 (right). (Source: NOAA ES&P, PSD Climate Analysis Branch, plotted from NOAA NCEP reanalysis data; <http://www.esrl.noaa.gov/psd/reanalysis/>).

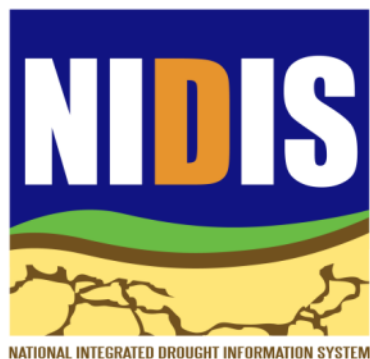
For an expanded version of this overview, including additional graphics and text, see the Special Issue of the Western Water Assessment Interim Report West Climate Summary at [www.colorado.edu/wcas/WWSI2012\\_July.html](http://www.colorado.edu/wcas/WWSI2012_July.html).

[http://ccc.atmos.colostate.edu/drought\\_webinar\\_registration.php](http://ccc.atmos.colostate.edu/drought_webinar_registration.php)

## Central Region Drought Outlook 20 September 2012

Jenniss Today  
South Dakota State Climatologist  
South Dakota State University  
August, 2012  
[jis.today@sdsstate.edu](mailto:jis.today@sdsstate.edu)  
688-5141

Corn near Beresford, SD—9 Aug. 2012  
Author photo



## NIDIS - UPPER COLORADO BASIN PILOT PROJECT

# Weekly Climate, Water & Drought Assessment

# Drought Portal Regional Pages

## National Integrated Regional Drought

## Water System (NIDIS)

### Quarterly Climate Impacts and Outlook

#### Western Region

September 2012

#### National - Significant Events for June - August 2012

##### Regional Impacts for June - August 2012

##### Climate and Weather

##### Drought and Water Resources Impacts

##### Natural Resources

##### Agriculture

##### Health

##### Regional Outlook for Fall 2012

##### Western Region Partners

##### NIFC Monthly and Seasonal Fire Potential

##### NOAA Seasonal Climate Outlook

##### Comments: National Press Product is Intended for

##### Quarterly Climate Impacts and Outlook

##### Southern Great Plains Region

##### Regional Outlook for Fall Season

##### Southern Plains Partners

##### Official NOAA October Precipitation Outlook

##### Looking Forward Regional Fall Forecast

##### Map courtesy of the USGS/Michael Budde

#### Highlights for the West

#### Climate and Weather

#### Drought and Water Resources Impacts

#### Natural Resources

#### Agriculture

#### Health

#### Regional Outlook for Fall 2012

#### Western Region Partners

#### NIFC Monthly and Seasonal Fire Potential

#### NOAA Seasonal Climate Outlook

#### Comments: National Press Product is Intended for

#### Quarterly Climate Impacts and Outlook

#### Southern Great Plains Region

#### Regional Outlook for Fall Season

#### Southern Plains Partners

#### Official NOAA October Precipitation Outlook

#### Looking Forward Regional Fall Forecast

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

#### Map courtesy of the USGS/Michael Budde

### Quarterly Climate Impacts and Outlook

### Central Region

September 2012

#### National - Significant Events for June - August 2012

#### Significant Events for August and Summer 2012

#### Highlights for the Central Region

#### Temperature and Precipitation Anomalies

#### Drought

#### Regional Outlook for Fall 2012

#### Southern Great Plains Region

#### Regional Outlook for Fall Season

#### Southern Plains Partners

#### Official NOAA October Precipitation Outlook

#### Looking Forward Regional Fall Forecast

#### Map courtesy of the USGS/Michael Budde

#### Significant Events for August and Summer 2012

#### Highlights for the Central Region

#### Temperature and Precipitation Anomalies

#### Drought

#### Regional Outlook for Fall 2012

#### Southern Great Plains Region

#### Regional Outlook for Fall Season

#### Southern Plains Partners

#### Official NOAA October Precipitation Outlook

#### Looking Forward Regional Fall Forecast

#### Map courtesy of the USGS/Michael Budde

### Quarterly Climate Impacts and Outlook

### Eastern Region

September 2012

#### National - Significant Events for June - August 2012

#### Regional Impacts for June - August 2012

#### Climate and Weather

#### Drought and Water Resources Impacts

#### Natural Resources

#### Agriculture

#### Health

#### Regional Outlook for Fall 2012

#### Eastern Region Partners

#### NIFC Monthly and Seasonal Fire Potential

#### NOAA Seasonal Climate Outlook

#### Comments: National Press Product is Intended for

#### Quarterly Climate Impacts and Outlook

#### Southern Great Plains Region

#### Regional Outlook for Fall Season

#### Southern Plains Partners

#### Official NOAA October Precipitation Outlook

#### Looking Forward Regional Fall Forecast

#### Map courtesy of the USGS/Michael Budde

#### Significant Events for June - August 2012

#### Regional Impacts for June - August 2012

#### Climate and Weather

#### Drought and Water Resources Impacts

#### Natural Resources

#### Agriculture

#### Health

#### Regional Outlook for Fall 2012

#### Eastern Region Partners

#### NIFC Monthly and Seasonal Fire Potential

#### NOAA Seasonal Climate Outlook

#### Comments: National Press Product is Intended for

#### Quarterly Climate Impacts and Outlook

#### Southern Great Plains Region

#### Regional Outlook for Fall Season

#### Southern Plains Partners

#### Official NOAA October Precipitation Outlook

#### Looking Forward Regional Fall Forecast

#### Map courtesy of the USGS/Michael Budde

### Apalachicola River Basin

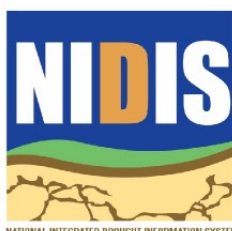
### Elevation

High

Low

### Rivers

0 75 150 300 450 600 Miles



### Regional Drought Warning Systems

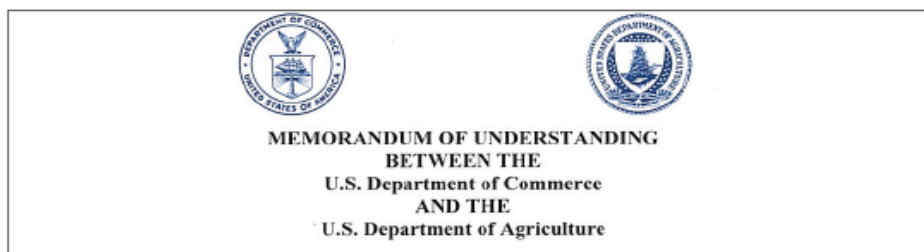
- California ( )
- Upper Colo ( )
- Four Corne ( )
- Apalachicola ( )
- Chattanooga ( )
- Flint ( )
- watershed ( )

Map courtesy of the USGS/Michael Budde



## National Governors Association Meeting 24-27 February, 2013

### MOU Between DOC and USDA



# National Drought Early Warning Outlook

February 21, 2013

## Current Drought Conditions and the Seasonal Drought Outlook

### U.S. Drought Monitor

February 19, 2013

Much of the central U.S. is still in the grip of long-standing moderate (D3) to exceptional (D4) drought, while recent rain has brought relief to the southeast U.S. Abnormally dry (D0) to exceptional drought (D4) conditions exist over 67% of the contiguous U.S., which, although still serious, is a slight improvement since fall 2012. The 2012/2013 drought has serious implications for agriculture, navigation, recreation and municipal water supplies, costing the nation at least \$35 billion in economic losses.

### U.S. Seasonal Drought Outlook

Drought: January 2013 to May 2013  
Revised February 19, 2013

Drought will persist or intensify in much of the current drought-stricken area (brown shading). Improvement is anticipated in Minnesota and surrounding areas (green and hatched shading), and much of the southeast. This designation of improvement, however, does not imply elimination of drought, just a possible easing of conditions. Drought is anticipated to persist or develop in Florida.

## Temperature, Precipitation and Wildfire Outlooks

### Warmer-than-normal temperatures

are anticipated over much of the U.S. over the next three months. In the northwest, extending northward into Alaska, cooler temperatures are expected. "EC" indicates temperatures have equal chances of being below normal, normal or above normal.

### Much of the western U.S. and parts of the southeast are anticipated to receive below-normal precipitation. Above-normal precipitation is expected in the Great Lakes region and surrounding states. "EC" indicates precipitation amounts have equal chances of being below normal, normal or above normal.

(<http://www.cpc.ncep.noaa.gov>)

### Periodic precipitation across the Mississippi and Ohio Valley, central Gulf States and the mid-Atlantic will keep below normal significant wildfire fire potential in much of the east. The seasonal increase in fire across Florida will be amplified to above normal significant wildfire fire potential by ongoing very dry conditions.

([www.nifc.gov](http://www.nifc.gov))

# Summer 2013 National Drought Outlook

May 16, 2013

## Current Drought Conditions and the Seasonal Drought Outlook

### U.S. Drought Monitor

May 14, 2013

Extreme (D5) to exceptional (D4) drought continues to pose a threat to the agricultural community in the central U.S., while drought conditions continue to ease in the southwest. Exceptional drought (D4) now covers 44% of the state of New Mexico, where significant drought impacts have been observed. Moderate (D3) to exceptional drought (D4) conditions exist over 46% of the contiguous U.S.

### U.S. Seasonal Drought Outlook

Drought: January 2013 to May 2013  
Revised May 14, 2013

Drought is anticipated to intensify or persist in the West, with some possible development in Oregon and Idaho (brown and yellow shading). The Plains tend to receive most of their annual precipitation between May and August, so drought conditions are anticipated to improve in the Plains (green and hatched shading). This designation of improvement, however, does not imply elimination of drought, just a possible easing of conditions.

## Temperature, Precipitation and Wildfire Outlooks

### For the summer months, most of the lower 48 states are expected to have above-normal temperatures. "EC" indicates temperatures have equal chances of being below normal, normal or above normal.

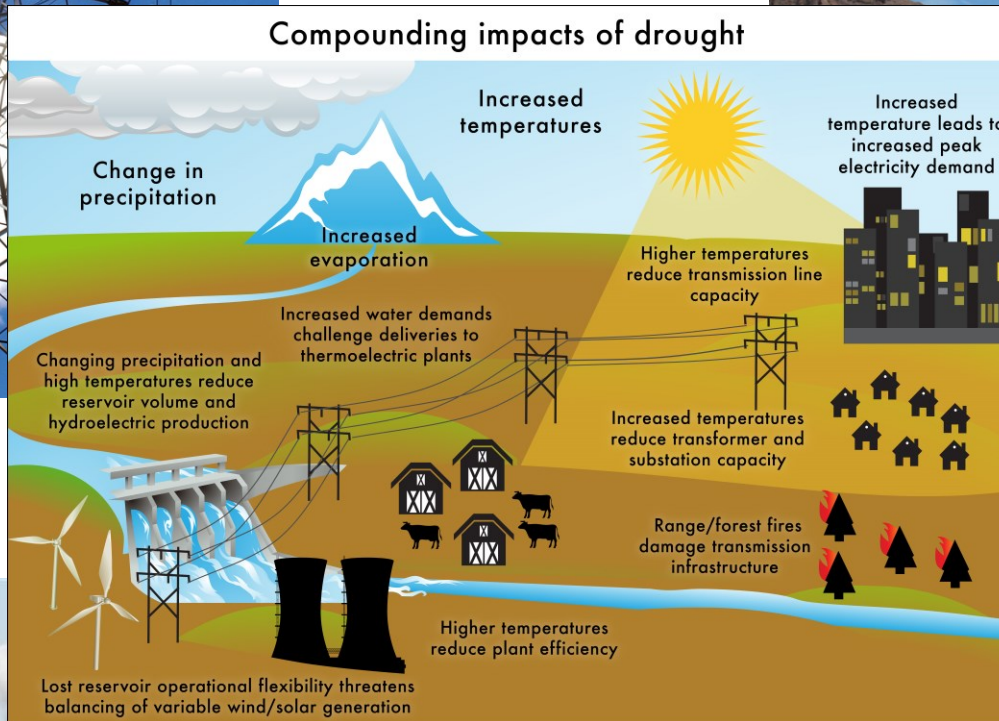
(<http://www.cpc.ncep.noaa.gov>)

### Below-average precipitation is anticipated for the southern and central High Plains and the Pacific Northwest. The central Gulf Coast may receive above-normal precipitation. "EC" indicates precipitation amounts have equal chances of being below normal, normal or above normal. Summertime precipitation is more difficult to predict than springtime precipitation.

### For June 2013, significant fire potential will be above normal over much of California and Oregon, south central Washington, most of Arizona and New Mexico, and southern Utah and Colorado. Significant fire potential will remain below normal for the central Gulf States and Puerto Rico. Significant fire potential will return to normal in northern Virginia.

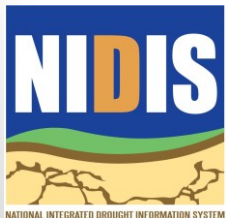
([www.nifc.gov](http://www.nifc.gov))

# Drought/water-Energy impacts



# www.drought.gov

- Provide early warning about emerging and anticipated droughts
- Provide information about risk and impact of droughts to different agencies and stakeholders
- Provide information about past droughts for comparison and to understand current conditions
- Explain how to plan for and manage the impacts of droughts



# The NIDIS Touch

- **Identify appropriate partners and representatives**
- **Set goals and priorities-problem definition**
- **Use professionals from relevant agencies/communities etc. to build common ground**
- **Produce collectively authored gaps assessments for monitoring, forecasting and impacts-agreement on the way forward**
- **Build longer term collaborative partnerships that allows for query of provided information**
- **Determine tradeoffs and characterization: Decision quality vs decision acceptability**

# Are we better off?

- The number of states and other institutions with improved capacity to inform risk management and reduce exposure to drought and flood risks
- The number of staff in or working with those institutions trained to develop and communicate local drought information and help reduce impacts
- The number of research projects that conduct and update drought impacts and user needs assessments in drought-sensitive parts of the US and
- The percentage of the U.S. population covered by adequate drought risk and early warning information systems

# National Drought Forum

## **Goal:**

To understand the extent of the 2012 drought impacts and response, and help provide new information and guidance for coordination to improve the nation's preparedness for drought and more specifically, enhance its drought readiness for 2013 and beyond.

## **Participants:**

High-level drought program experts and stakeholders from all levels of govt, including federal, state, tribal, and local; and research institutions and the private sector.

# Priority Actions – 5 Key Themes

- Drought & Water Supply Monitoring and Prediction
- Communications
- Preparedness Planning
- Reducing the Risk, Mitigating the Impacts & Adapting to the Future
- National Investments & Opportunities

## National Drought Forum

*Summary Report and Priority Actions*



# MOU Between DOC and USDA



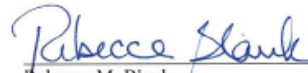
## MEMORANDUM OF UNDERSTANDING BETWEEN THE U.S. Department of Commerce AND THE U.S. Department of Agriculture

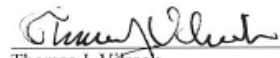
1. Improved forecast reliability and projection of weather and climate extremes (e.g., onset, duration, severity), including studies, applications, and interpretations of agro-meteorological information needed in connection with droughts, flooding, tropical cyclones, storm surges, wildfire, insect pests and diseases, invasive species, and other spreading and intensifying environmental hazards.
2. Improved accessibility, compatibility, and sharing of data, analysis, and expertise by, for example, supporting the development of regional and international drought and disaster early-warning information systems; promoting interagency coordination across economic development and economic statistics offices and datasets; and developing timely, user-friendly communications tools and processes to inform preparedness, response, and adaptation, building on existing information networks in a multiple-hazards framework.
3. Improved drought and water resources data acquisition, monitoring networks, and databases, including the National Soil Moisture Monitoring Network, and continuing the successful collaboration between Commerce and Agriculture in the jointly published Weekly Weather and Crop Bulletin.
4. Enhanced adaptation strategies, and best practices and technologies for at-risk regions throughout the United States and other relevant areas affecting United States commodities and markets and natural resource management; improved integrated weather, climate, and economic research, tools, and models to enhance decisionmaking, risk management, and long-term sustainable development planning such as developing, testing, and evaluating weather and crop-yield models, and formulating integrated projections and scenarios to promote resilient ecosystems and communities in a changing environment.

### APPROVED:

U.S. DEPARTMENT OF COMMERCE

U.S. DEPARTMENT OF AGRICULTURE

  
Rebecca M. Blank  
Acting Secretary of Commerce

  
Thomas J. Vilsack  
Secretary of Agriculture

12-21-12  
Date

12.17.12  
Date

United States Senate Committee on  
**AGRICULTURE  
NUTRITION  
& FORESTRY**

Time 09:30 AM Location  
328A Russell Senate  
Office Building

**Opening Statement of Chairwoman Debbie Stabenow (D-Mich)**

**Drought, Fire and Freeze: The Economics of Disasters for America's Agricultural Producers**

**February 14, 2013**



Witnesses:

Dr. Joe Glauber, chief economist, USDA;  
Dr. Roger Pulwarty, NIDIS, NOAA

Leon LaSalle, rancher, Havre, MT; Angie  
Steinbarger, farmer, Edinburgh, IN;  
Jeff Send, cherry farmer, Leelanau, MI.

# S. 376: Reauthorize NIDIS

NIDIS shall provide an effective drought early warning system that—

- *collects and integrates information* on the key indicators of drought in order *to make usable, reliable, and timely forecasts* of drought;
- provides such information, forecasts, and assessments on both national and regional levels;
- *communicates* drought forecasts, drought conditions, and drought impacts *on an ongoing basis to decision-makers*;

# S. 376: Reauthorize NIDIS

- *provides timely data, information, and products that reflect local, regional, and State differences in drought conditions;*
- *coordinates, and integrates as practicable, Federal research in support of a drought early warning system;*
- *builds upon existing forecasting and assessment programs and partnerships; and*
- *continues ongoing research activities related to drought, including research activities relating to length, severity, and impacts of drought and the role of extreme weather events and climate variability in drought*

# President's Climate Action Plan

Managing Drought: Leveraging the work of the National Disaster Recovery Framework for drought, the Administration will launch a cross-agency National Drought Resilience Partnership as a “front door” for communities seeking help to prepare for future droughts and reduce drought impacts. By linking information (monitoring, forecasts, outlooks, and early warnings) with drought preparedness and longer-term resilience strategies in critical sectors, this effort will help communities manage drought-related risks.



# Questions & Discussion

## **NIDIS Program Office (Boulder)**

|                |                                                                      |
|----------------|----------------------------------------------------------------------|
| Roger Pulwarty | <a href="mailto:roger.pulwarty@noaa.gov">roger.pulwarty@noaa.gov</a> |
| Veva Deheza    | <a href="mailto:veva.deheza@noaa.gov">veva.deheza@noaa.gov</a>       |
| Robin Webb     | <a href="mailto:robert.s.webb@noaa.gov">robert.s.webb@noaa.gov</a>   |
| Chad McNutt    | <a href="mailto:chad.mcnutt@noaa.gov">chad.mcnutt@noaa.gov</a>       |
| Lisa Darby     | <a href="mailto:lisa.darby@noaa.gov">lisa.darby@noaa.gov</a>         |