



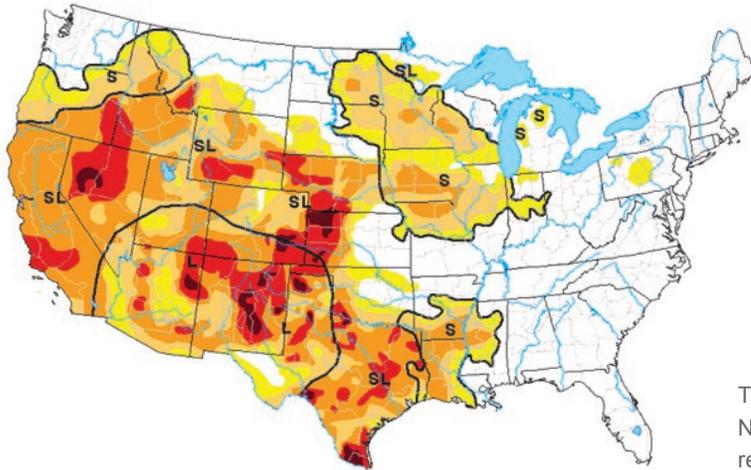
NOAA and the National Integrated Drought Information System (NIDIS)



Up-to-Date Assessments

Drought Products and Tools

Regional Programs and Resources



Providing an “Early Warning System” for Drought

“Drought is a slow-onset natural hazard that is a normal part of climate affecting all regions of the U.S. Effective planning and response will allow us to reduce our environmental risks and to secure our economic investments into the future.” - Roger Pulwarty, Director, NIDIS

Drought is one of the most costly natural disasters affecting the U.S. The National Integrated Drought Information System (NIDIS) was established in 2006 to help begin to move society from a reactive response to drought to a proactive stance. As NIDIS is envisioned, to be a dynamic and readily accessible system that provides users with actionable information and the ability to quantify the potential impacts of drought and associated risks. NIDIS provides decision support tools to better prepare for and mitigate drought effects.

US Billion Dollar Disasters (1980-2012)

1.	Hurricane Katrina	2005	\$146.3
2.	Drought	1998	\$77.6
3.	Drought	2012	\$???.?
4.	Sandy	2012	\$65.0
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

*<http://www.ncdc.noaa.gov/billions>

The National Integrated Drought Information System (NIDIS) origin involved a number of activities and events. In November 1996, the Western Governors’ Association (WGA) published a Drought Response Action Plan, together with the Western States Water Council (WSWC).

“Basic weather and streamflow data is vital to project river operations during droughts and floods, for controlling water use and releases, protecting water quality, and many other purposes. Also, the administration of state water rights and interbasin compacts and agreements are based on this information.”

-WGA 1996 Drought Response Action Plan report, pg. 9

The National Drought Policy Act of 1998 gave rise to the National Drought Policy Commission, which provided recommendations on the creation of an integrated, coordinated Federal policy to prepare for and respond to serious drought emergencies. The Commission’s groundbreaking report, *Preparing for Drought in the 21st Century*, concluded that, “drought-related data can be better marshaled, interpreted, and disseminated to all parties with an interest to help lessen the impacts of drought.” Further, the report called for the Congress to “...authorize and fund a comprehensive information gateway to provide users with free and open access to observational network data and drought monitoring, prediction, impact, assessment, preparedness, and mitigation measures.”

In 2004, WGA and NOAA released a visionary report, *Creating A Drought Early Warning System for the 21st Century: The National Integrated Drought Information System*. The NIDIS Act was signed into law in 2006. According to the Act, NIDIS is designed to integrate information and key indicators, “in order to make usable, reliable, and timely drought forecasts and assessments of the severity of drought conditions and impacts,” and “to engender better informed and more timely decisions thereby leading to reduced impacts and costs.”

The NIDIS Implementation Plan outlines how to:

- Create an “early warning system” for drought to provide accurate, timely and integrated information;
- Develop interactive systems, such as a web portal, as part of the early warning system;
- Provide a framework for public awareness and education about droughts;
- Foster and support a research environment focusing on risk assessment, forecasting and management;
- Develop the leadership and networks to implement an integrated drought monitoring and forecasting system at the federal, state and local levels.

WGA/WSWC Support for the NIDIS Program

The **Western Governors' Association** first envisioned the concept of an early-warning system for drought in 2004 and has continually supported the NIDIS program.

Policy resolutions adopted by the Western Governors:

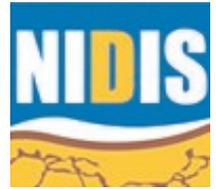
- Encourage continued investment in the Nation's water measurement and monitoring data networks and research and development of information services;
- Support several federal programs that are critical and provide important water supply information;
- Support federal efforts to coordinate water data gathering and information programs across agencies; and
- Call on the federal government to work with States to develop tools and models that better enable the synthesis, visualization and evaluation of water data

The **Western States Water Council**, an affiliate of WGA, has also long supported NIDIS, citing the continuing need for a federal role in coordination of research programs related to drought early warning and prediction. WSWC member states are partners in cooperative federal water and climate data collection, and have passed several position statements in support of authorizing and prioritizing funding. See <http://www.westgov.org>.



The NIDIS Drought Portal

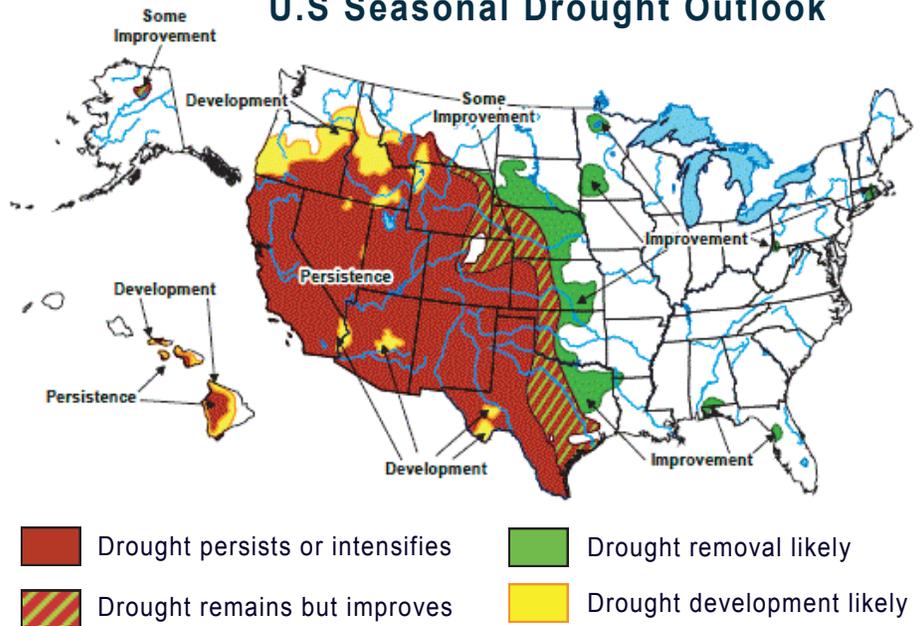
A clearinghouse for drought information is available at <http://www.drought.gov>



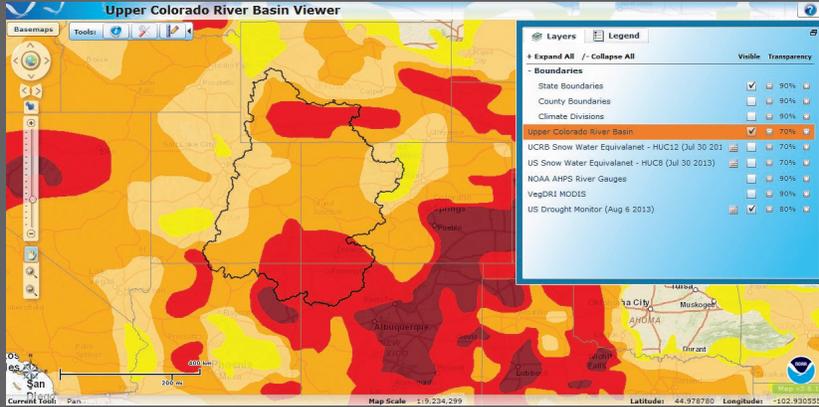
[Drought.gov](http://www.drought.gov) brings together and archives drought information, resources and products. It makes monitoring emerging and ongoing droughts and related impacts a much simpler task. The portal features data from federal and non-federal partners on both a regional and national scale. The gateway contains some summary drought information, but greater detail can be found using tabs that describe the site's four main categories of information: Products, Tools, Resources and Regional Programs. The Products page is where the current US Drought Monitor, the Drought Impact Reporter, and the US Seasonal Outlook can be accessed. The Tools tab links to state level drought information, a GIS-enabled map viewer of drought related spatial data, drought

graphics, and soil moisture and temperature data and more information from NOAA's Regional Climate Centers. The Resources tab provides more in-depth research and planning tools, while the Regional Programs item accesses drought news, events, webinars and the "Early Warning System" pilots. Users can search the NIDIS database to find specific products and scroll through recent national and regional drought-related news. The site explains the NIDIS program and also provides drought planning and educational materials. Users can even customize their experience on [Drought.gov](http://www.drought.gov) by accessing the "My Page," feature. Using "My Page" they can select and save drought data, maps, or other content that is specific to their requirements.

U.S. Seasonal Drought Outlook



Upper Colorado River Basin Early Warning System Pilot



NIDIS selected the Upper Colorado River Basin as a pilot project in 2008

The purpose was to develop an early warning system for drought, and to enhance local, state and regional expertise and capabilities. The pilot also worked to address the basin's stakeholder needs by building better partnerships and identifying what a regional 'drought portal' would need to look like to have the greatest utility to its users.

Dozens of stakeholder interviews and focus groups were conducted to explore drought indicators, triggers and data needs by sector. The findings from this exploratory effort suggested that users want more data in one place for "one stop data shopping." They also needed better local monitoring using streamgages

and snow telemetry (SNOTEL) sites, and more accurate forecasts with a multitude of timelines. Users needed better interpretation of complex drought information and a better way to visualize historic streamflow and reservoir data.

The pages at Drought.gov now allocated to the Upper Colorado River Basin contain a wealth of information tailored for the region—Wyoming, Colorado and Utah—that reflects the expertise provided by local agencies—streamflow by US Geological Survey, weather forecasts by the National Weather Service, water supply from the Colorado Basin River Forecast Center, snowpack assessments from the National Resource Conservation Service, drought indices, outlook maps and many other clear and easy-to-use data products.

NATIONAL DROUGHT FORUM

In December of 2012, NIDIS and many other sponsors came together to understand the extent of 2012 drought impacts and response, and help provide guidance to improve the nation's preparedness for 2013 and beyond.

High-level experts and stakeholders from all levels of government and the private sector convened to engage in a candid conversation about drought. The Forum resulted in a list of 'Action Items' that could improve US drought readiness in the years ahead.

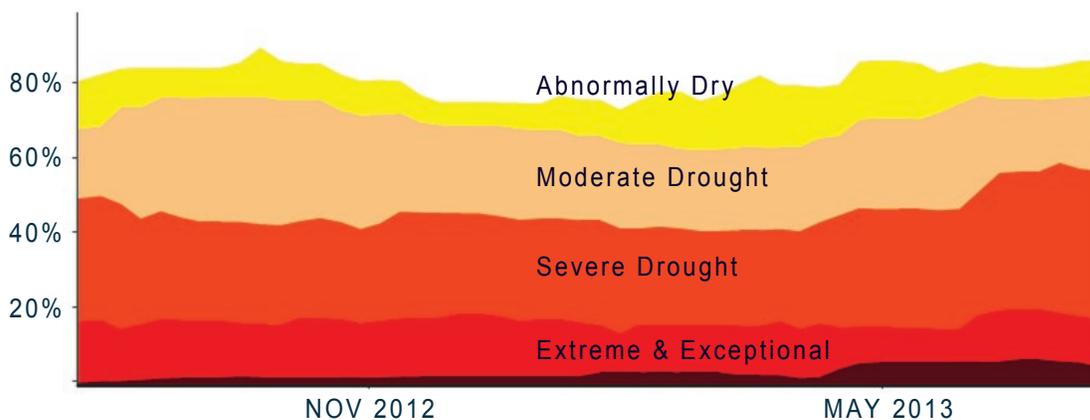
These and much more information about the drought can be found under the "Resources > Reports" tabs at Drought.gov

THE ROAD AHEAD

The focus for the NIDIS program looking ahead will be on:

- Developing the US Drought Portal even further
- Integrating and fostering coping strategies through research, preparedness, education and public awareness
- Integrating data and predictions
- Developing pilot programs for more "early warning systems" in selected locations.

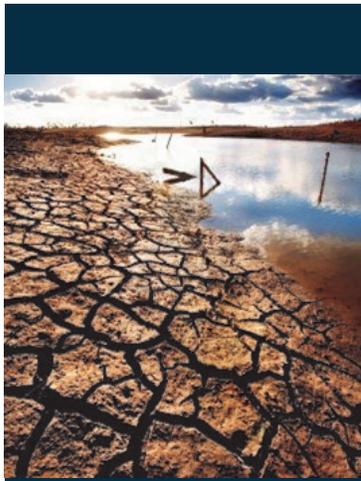
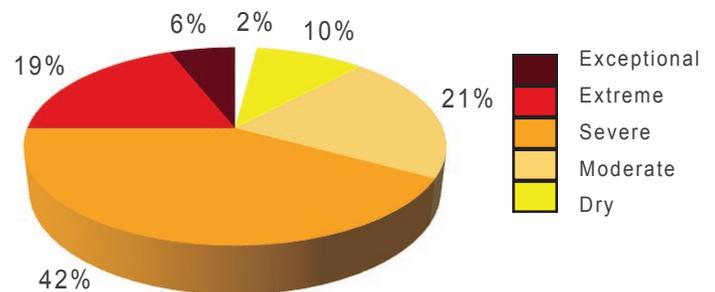
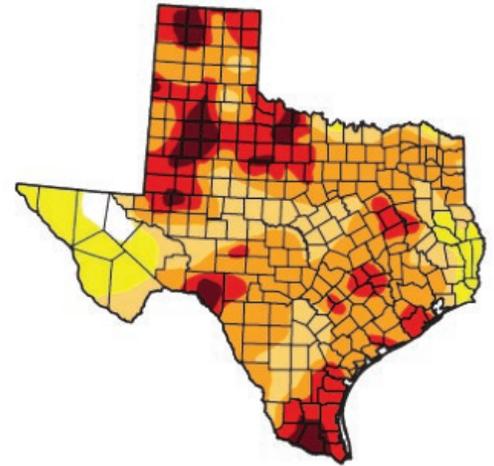
Percentage Area and Severity of Drought in the West



Case Study: The Multi-Year Texas Drought

Severe and Extreme Drought Covers much of the State

2013 represented the third year of drought in Texas, with no relief in sight. Compared to 2012, a significantly larger area of the state was in 'Extreme' or 'Exceptional' drought. The Panhandle and the Southeastern Coast were the hardest hit regions. These impacted regions contribute to the state's economic output significantly with farming and ranching activities. Over 700 public water systems were under mandatory water use restrictions and another 300 were asked to voluntarily restrict their use. The combined economic losses, including job losses, from so many years of sustained drought are as yet unknown, but are likely to be on par with some of the nation's most costly natural disasters.



Texas' Drought of Record—2011

Losses in Texas from the drought in 2011 were estimated to be approximately \$8.4 billion.



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No. 346
POSITION of the WESTERN STATES WATER COUNCIL regarding
REAUTHORIZATION OF THE NIDIS ACT
San Antonio, Texas
October 12, 2012

WHEREAS, the Western States Water Council is a policy advisory body representing eighteen states, and has long been involved in western water conservation, development, protection, and management issues, and the member states and political subdivisions have long been partners in cooperative federal water and climate data collection and analysis programs; and
WHEREAS, drought has been, is, and will be an ongoing fact of life in the relatively arid West; and
WHEREAS, in 2012 drought conditions existed throughout much of the western and central parts of the U.S., covering an area amounting to about two-thirds of the Nation; and
WHEREAS, the NIDIS Act of 2006, Public Law 109-430, was enacted to provide an effective drought early warning system, coordinate federal research in support of a drought early warning system, and build upon existing forecasting and assessment programs; and
WHEREAS, the authorization of appropriations in the 2006 Act extended from fiscal year 2007 through fiscal year 2012; and
WHEREAS, there is a need for maintaining and improving existing monitoring networks that help provide drought early warning as well as tracking impacts of drought; and
WHEREAS, there is a need for developing new monitoring technologies, such as remote sensing, that provide more timely data availability and better spatial coverage for assessing drought impacts; and
WHEREAS, present approaches for intraseasonal to interannual weather/climate forecasting are not capable of providing early warning of drought, a capability that would be immensely useful for managing water resources to lessen drought impacts; and
WHEREAS, the only factor now providing limited understanding of drought prediction is the El Niño-Southern Oscillation (ENSO), and continuing federal research to develop new predictive capability at intraseasonal to interannual time scales – such as research on the influence of other ocean-atmosphere interactions on ENSO is sorely needed; and
WHEREAS, there is a continuing need for a federal role in coordination of research programs related to drought early warning and prediction;
NOW THEREFORE BE IT RESOLVED, that the Western States Water Council supports legislation to reauthorize the National Integrated Drought Information System (NIDIS) Act.