



National Integrated Drought Information System

Forecast-informed Reservoir Operations (FIRO) and Water Resources Management in the States of Oklahoma and Texas

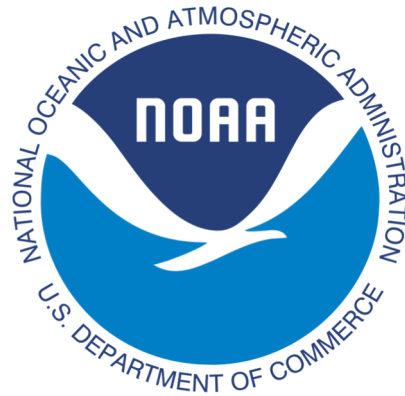
VEVA DEHEZA | SEPTEMBER 2019

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)


OVERVIEW

- What is NIDIS?
- Updates on Activities at the National Level
- Update on the Southern Plains Drought Early Warning System

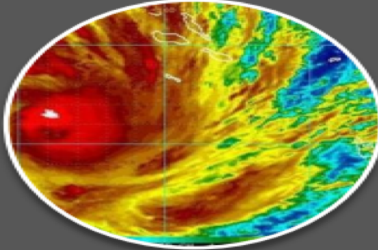





National Weather Service (NWS)



Oceanic and Atmospheric Research (OAR)



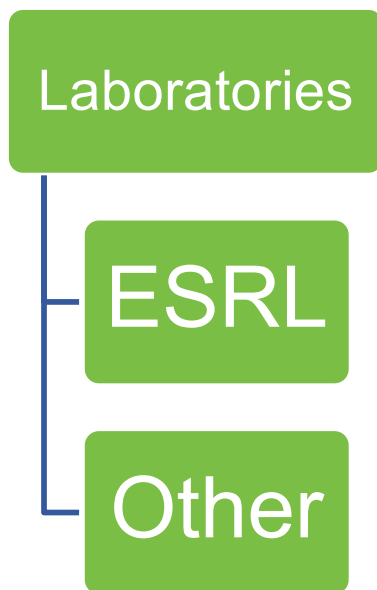
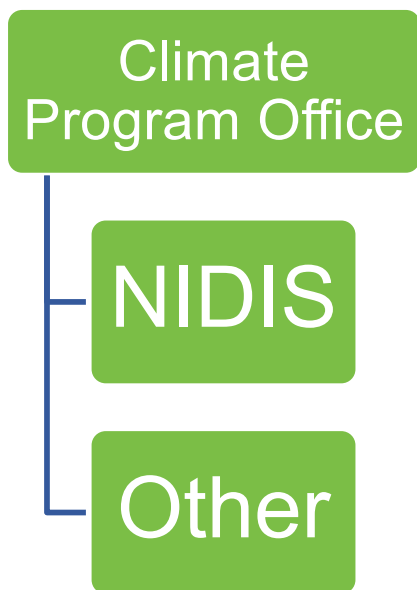
National Environmental, Satellite, Data, & Information Service (NESDIS)



National Ocean Service (NOS)



National Marine Fisheries Service (NMFS)



NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

MISSION + ACTIVITIES



**Regional Drought Early
Warning Systems**



**Prediction and
Forecasting**



**Integrated Research
and Monitoring**



**Drought Planning and
Preparedness**



**Collaboration with Existing
Programs and Partners**



**The U.S. Drought Portal
(www.drought.gov)**



Reauthorization

On January 7, 2019, the President signed S.2200 into law, the National Integrated Drought Information System (NIDIS) Reauthorization Act (Pub. L. 115-423):

- Authorizes funding for NIDIS to increase from \$13.5 million in fiscal year 2019 to \$14.5 million in fiscal year 2023
- Authorizes NIDIS to engage in partnerships with the private sector, academic institutions, and citizen scientists
- NIDIS will provide timely data, information, and products that reflect watershed differences in drought conditions
- Calls for NIDIS to support improvements in seasonal, subseasonal, and low flow water prediction
- Directs NOAA to develop a strategy for a national soil moisture monitoring network.

APPROACH

Drought Early Warning

“A system that collects and integrates information on the key indicators of drought in order to make usable, reliable, and timely drought forecasts and assessments of drought....

...and communicates drought forecasts, conditions, and impacts on an ongoing basis to decision makers, the private sector, and the public.”

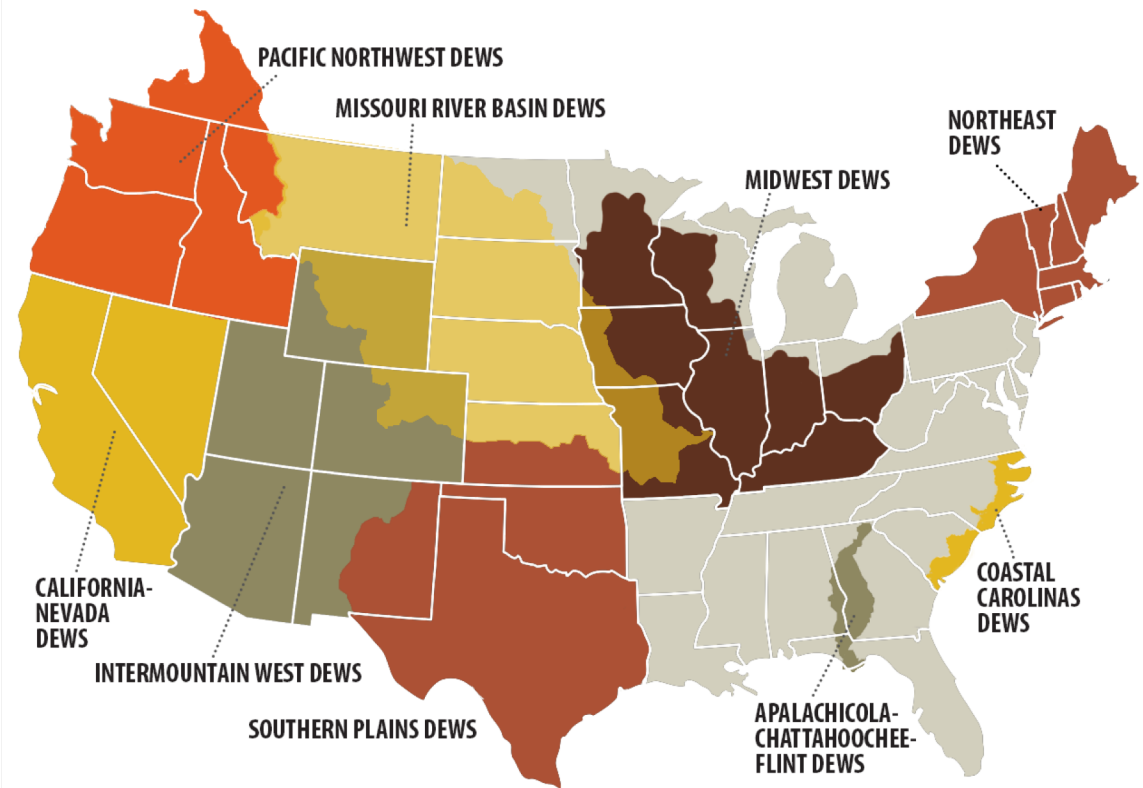
NIDIS Public Law

109-430



REGIONS

Drought Early Warning



NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

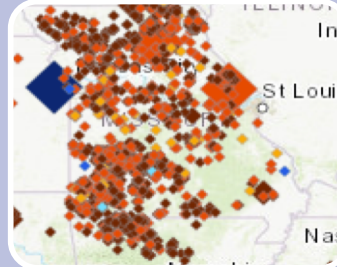
NIDIS in Action Across Regions



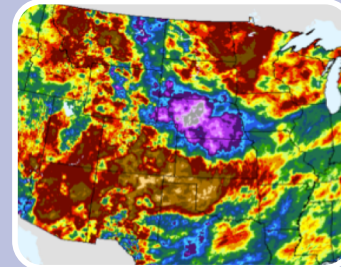
Drought &
Public
Health



Drought
and
Wildfire



Drought
Impact
Reporting
and
Analysis



Drought
Indicators
and
Triggers



National
Soil
Moisture
Network

2019 National Drought Forum July 30-31, 2019 • Washington, D.C.

To assess the status of national drought readiness, to take stock of progress since the 2012 National Drought Forum, and to help provide new information and guidance for coordination to improve the nation's preparedness to drought.

December 12-13, 2012

Washington, DC

National Drought Forum

Summary Report and Priority Actions



2012

Drought and U.S. Preparedness
in 2013 and Beyond

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Drought & Public Health Linkages

2018-2020 Activities:

- ▼ Form a National Drought & Public Health Working Group
- ▼ Host a series of Regional Drought & Public Health Workshops
- ▼ Hold a 2019 Public Health Summit (**completed**)
- ▼ Support research & communication of linkages
- ▼ Create a public health sector space on the U.S. drought portal
- **2020 NIDIS Drought & Public Health Strategy**



+Growing List of Partners

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

NIDIS and Fire Community Release Drought and Wildland Fire Nexus Strategic Plan: 2018-2022

THE NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM DROUGHT AND WILDLAND FIRE NEXUS (NDAWN) STRATEGIC PLAN: 2018-2022

*Improving the utilization
of drought information in
wildland fire management
for ecological health, public
health, and firefighter safety.*

SEPTEMBER 2018

To improve the utilization of drought information in wildland fire management for ecological health, public health, and firefighter safety.



NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

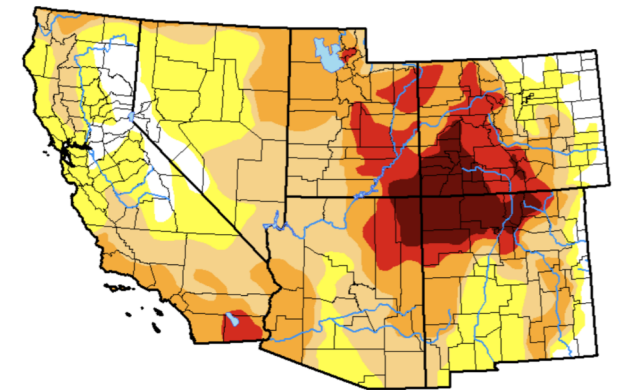
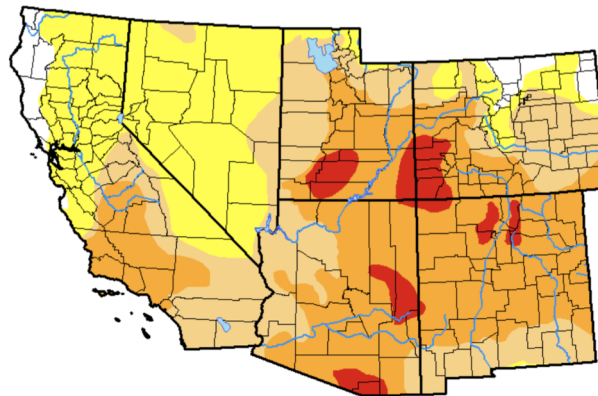
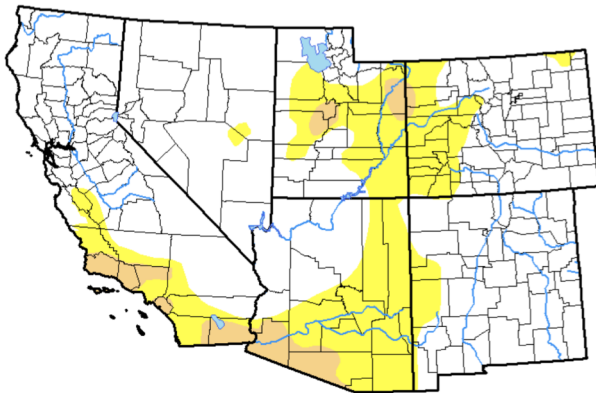
Drought Impact Assessments: The Southwest

An analysis of the scope and severity of the 2017-2018 drought to understand whether conditions influenced economic, health, and crime outcomes in individual states and in the regional as a whole.

October 17, 2017

February 27, 2018

October 30, 2018



Drought Classification

None D0 (Abnormally Dry) D1 (Moderate Drought) D2 (Severe Drought) D3 (Extreme Drought) D4 (Exceptional Drought)

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Drought Impact Assessments: The Mississippi River

- Understand the sensitivity of the Mississippi River corridor to drought.
- Assess impacts and opportunities for reducing risks to small communities.

Focus Areas

- Agricultural production
- Commercial navigation & transportation
- Manufacturing
- Recreation and tourism



Drought Impact Assessments: The Northern Plains Drought of 2017

U.S. agricultural losses of over \$2.6 billion.

Livestock production was especially hard-hit due to the widespread scarcity of feed and water.

4,837,599 acres burned across the U.S. Northern Plains and Canadian Prairies.

Despite near-normal stream flows for the entire 2017 season, water supply to rural water providers was reduced in some areas.

Tribal cultural resources were impacted, putting these resources at risk for future generations.



National Soil Moisture Monitoring Network

- **National, multi-platform soil moisture gridded products** from existing soil moisture data sources across federal and state in-situ monitoring networks, satellite remote sensing missions, and numerical modeling capabilities
- **Consistent methodology** for data collection and installation of in-situ probes including metadata standards
- Improve **collaboration and identify funding** opportunities to build the national network



NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Coping with Drought FY20 Grant Program

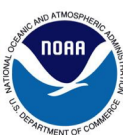
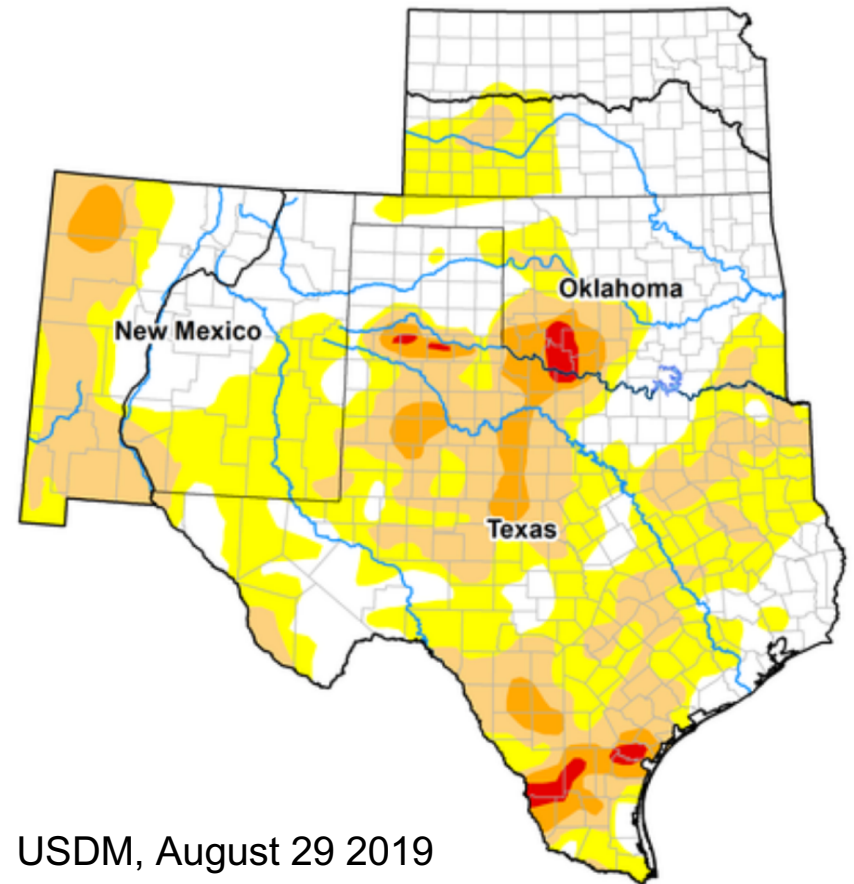
Research to improve our understanding and use of drought indicators, thresholds, and triggers, and drought impacts.

- \$1.2 million per year
- 2-year cooperative agreements of up to \$650,000 total

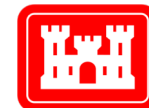


Southern Plains Drought Early Warning System (DEWS)

- **Southern Plains DEWS Strategic Plan 2017-2018**, with extension through 2019
- **Southern Plains Ten-Year Drought Resilience Vision:** NIDIS is providing support to SCIPP and partners to develop a ten-year drought resilience vision that informs regional strategic long-term drought planning



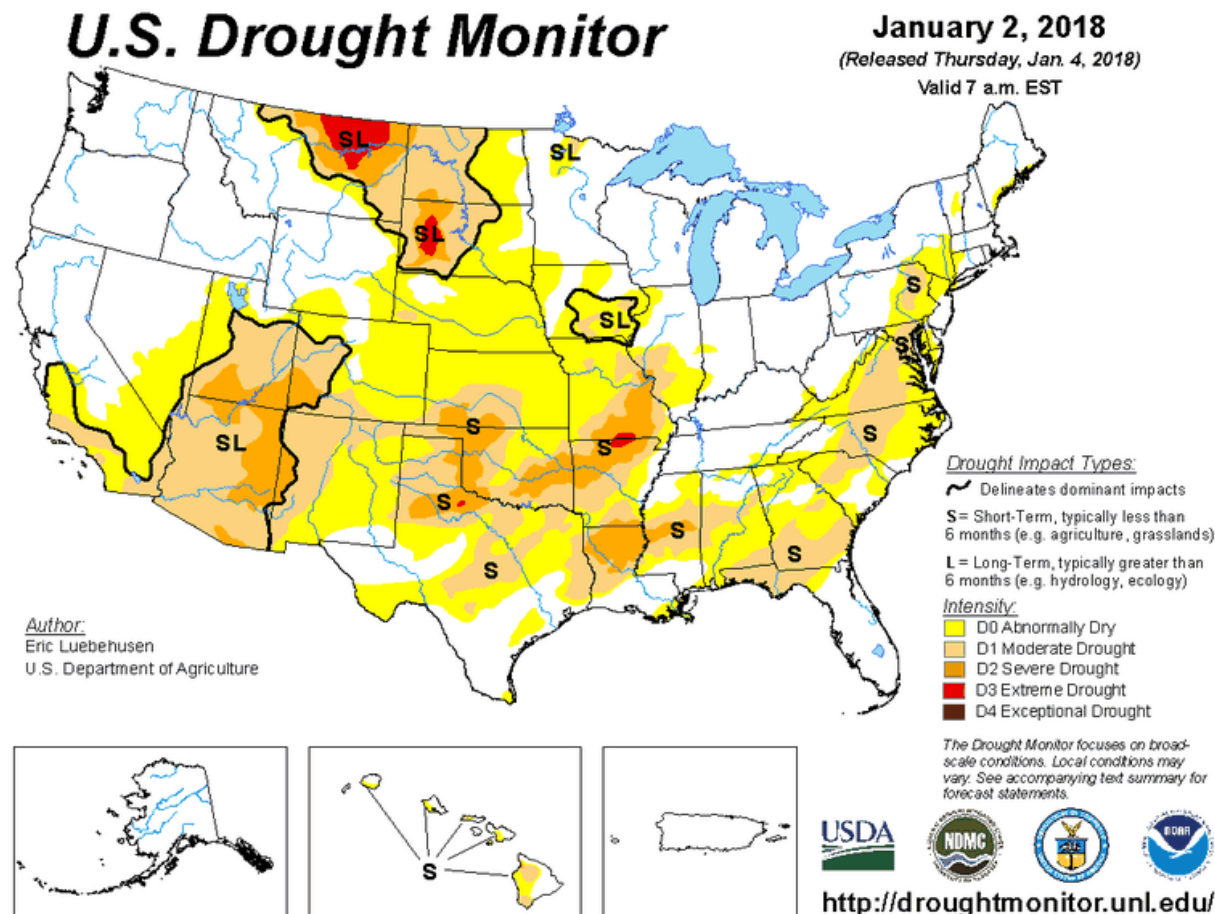
FEMA



NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Southern Plains Drought Early Warning System (DEWS)

2017-2018 NIDIS and Partners Southern Plains Drought Response



NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Southern Plains Drought Early Warning System (DEWS)

El Niño & Drought in the Southern Plains
Monday, October 22, 2018
 1 pm - 2 pm CDT

Expert speakers will provide the most current information on the lingering Southern Plains drought & what impacts a developing El Niño may have this fall/winter.

Featured Speakers
 Kyle Brehe | Southern Regional Climate Center
 Victor Murphy | NWS Southern Region

Drought.gov

SOUTHERN PLAINS DROUGHT UPDATE

OCTOBER 26, 2018

National Integrated Drought Information System
 Drought.gov

Southern Plains Under El Niño Watch

- In Oklahoma and Texas, drought peaked in early May. Only a few small areas in the Texas Panhandle and northeast Oklahoma still show Abnormally Dry Conditions (Fig. 1).
- Major concerns continue for streamflows and reservoir levels in New Mexico. Another snow drought could cause devastating impacts to the state.
- There is a 70% to 75% chance that El Niño will develop and persist through the winter; however, it is expected to be weak.

U.S. Drought Monitor Southern Plains

May 1, 2018 October 23, 2018

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

Fig 1. US Drought Monitor for the Southern Plains Region May 1, 2018, and October 23, 2018. Source: US Drought Monitor.

CURRENT CONDITIONS

- The Southern Plains drought began in October 2017 and peaked in early May 2018. Impacts of the drought included significant wildfires and impacts to winter wheat crops, pasture and rangelands, and low streamflows and reservoir levels.
- Since May 1, 2018, nearly all of western Oklahoma and most of Texas have experienced 130% to 200% of normal precipitation, which has ameliorated the drought. Most of eastern New Mexico has seen 70% to 100% of normal precipitation in this time period, resulting in more spotty improvement (Fig. 2).

Percent of Normal Precipitation (%) 4/29/2018 – 10/28/2018

2017-2018 Southern Plains Drought Response:

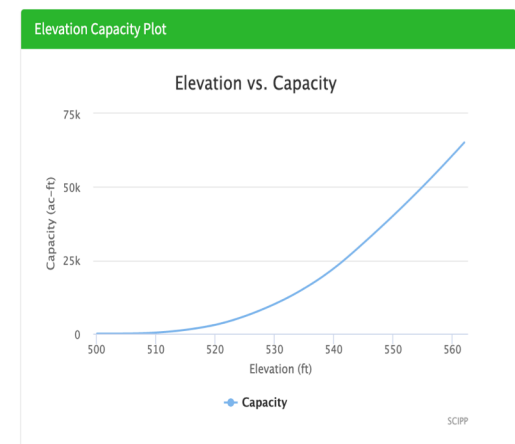
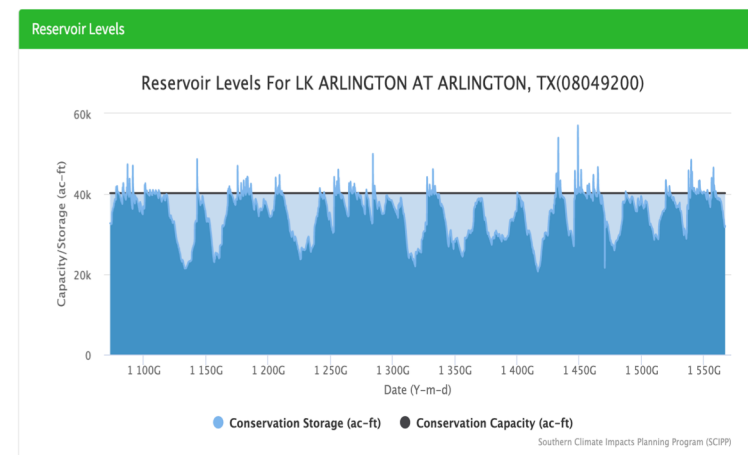
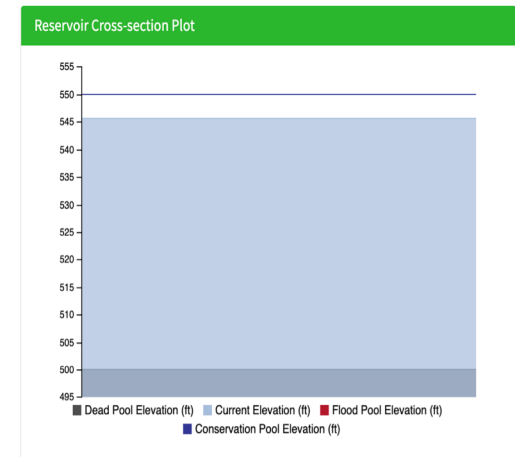
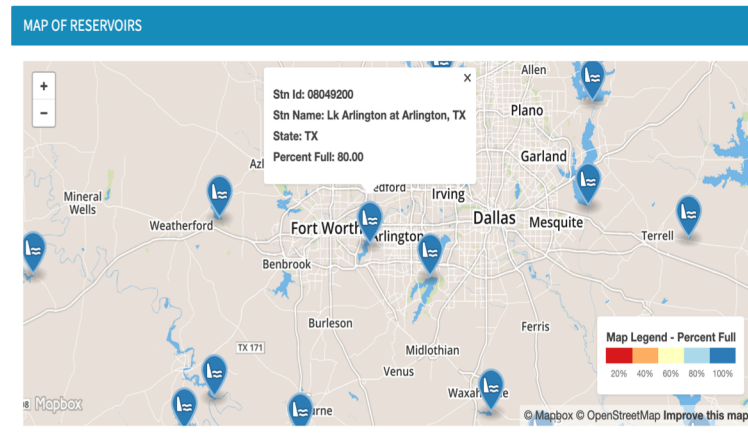
- Monthly webinars and *Southern Plains Drought Updates* to communicate information on drought status, impacts and outlooks (www.drought.gov)
- Wide media coverage, including the New York Times, LA Times, Chicago Tribune, Associated Press and local media outlets in the region
- Meetings with producers and ranchers

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Southern Plains Drought Early Warning System (DEWS)

Examples of Southern Plains DEWS Activities:

- Water Reservoir Data Visualization Tool (SRCC and SCIPP): Provides information on water storage in reservoirs.
- Mapping farm pond locations and volumes, led by SCIPP in support of the Oklahoma Water Resources Board.



<http://reservoir.srcc.lsu.edu>

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Southern Plains Drought Early Warning System (DEWS)

Examples of Southern Plains DEWS Activities:

- US Drought Monitor workshops in Texas and Oklahoma with USDA Southern Plains Climate Hub, NDMC and NIDIS to strengthen capacity of extension agents and other producer support regarding drought forecasting and impact tools and resources.
- 2018 Southern Plains Wildfire Forum, with USDA Southern Plains Climate Hub, SCIPP, Redlands Community College



NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Southern Plains Drought Early Warning System (DEWS)

Local Drought Management: A summary of how counties and parishes use drought information in the South Central United States, led by SCIPP, The University of Oklahoma, Louisiana State University.

Local Drought Management

A summary of how counties and parishes use drought information in the South Central United States



Drought.gov Redesign



Improved site navigation

Enhanced mobile experience

New sector pages

New up-to-date drought statistics

Updated content

U.S. Web Design Standards

Anticipated Launch: Fall 2019



National Integrated Drought Information System

Drought.gov

Veva Deheza | veva.deheza@noaa.gov | 303-497-3431