NIDIS
Pacific Northwest Drought Early Warning System Update

Pacific Northwest Tribal Climate Change Network

Britt Parker (NOAA NIDIS/CU-Boulder CIRES) | November 20, 2019

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM (NIDIS)

Overview

- What is NIDIS?
- Update on the Pacific Northwest Drought Early Warning System
  - PNW DEWS Regional Implementation Plan 2020-2022
  - NIDIS Tribal Engagement Strategy
  - Redesign of www.drought.gov
- Opportunities for Input

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)

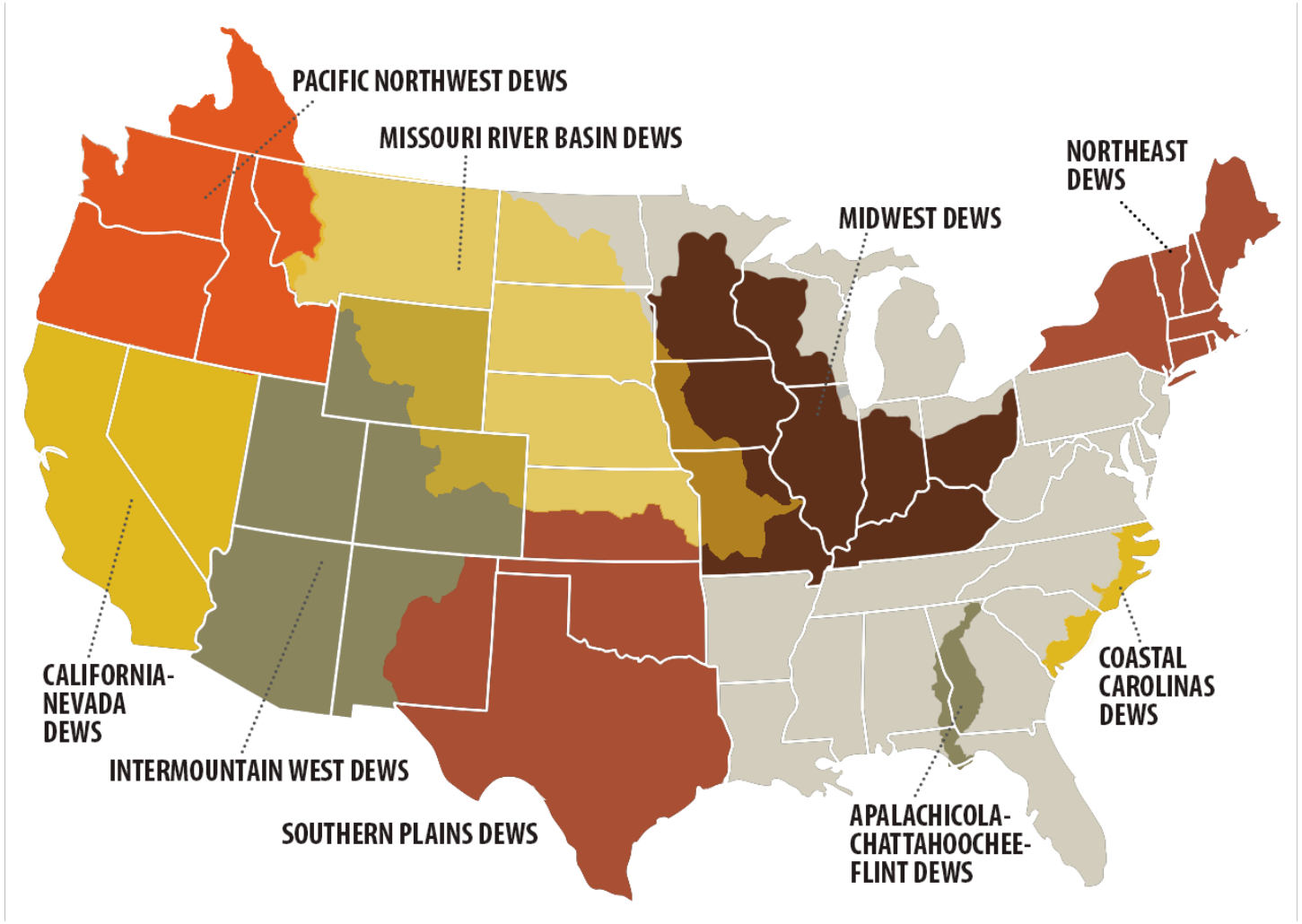
REGIONS

Drought Early Warning

A Drought Early Warning System (DEWS) utilizes new and existing networks of federal, tribal, state, local and academic partners to make climate and drought science accessible and useful for decision makers.

The Pacific Northwest DEWS kicked off in 2016 with a meeting in Portland , OR following the 2015 drought.

Discussions centered on improving the capacity to meet the drought early warning information needs of decision makers in the region.

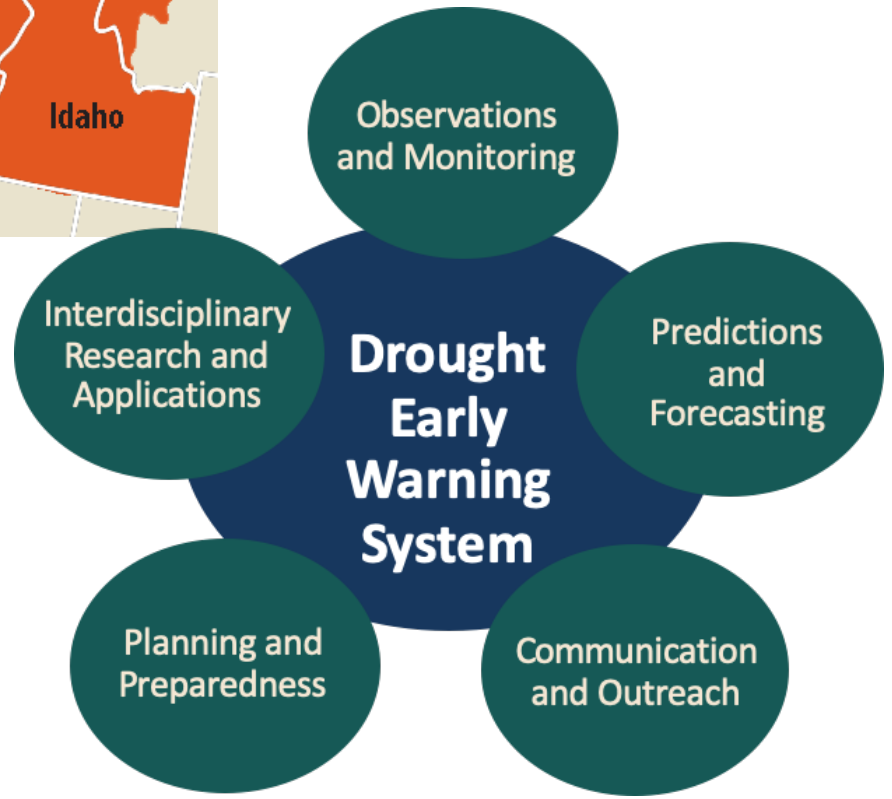


WHERE WE ARE NOW

PNW DEWS Regional Implementation Plan 2020-2022

- Develop 2020-2022 Regional Implementation Plan
- Develop 3-4 goals
- Series of Activities Based on the 5 Components of Drought Early Warning
- Consider sectors that we may not have addressed before & new partnerships in the Region

October 8, 2019
PNW DEWS Meeting in Portland, OR



PNW DEWS Priorities

Improve early warning for the region by understanding which indices, when, and for what sector should be used and communicated throughout the region.

Increase understanding of drought impacts across sectors by continuing to build a robust reporting and analysis system to include citizen science monitoring programs.

Improve communication across the partners in the Pacific Northwest DEWS network, through the network to the public and across other regional DEWS.

Increase the ability to share lessons learned both within and across DEWS, sectors and tribal, state and local agencies pertaining to drought preparedness and response.

PREDICTIONS & FORECASTING + OBSERVATIONS & MONITORING

Example Outcomes

Outcome 1.1: Products and tools that convey the probability of drought expanding or recovering are available; looking at both drought onset and drought termination.

Outcome 2.1: The understanding and use of drought indices and indicators across the region is improved.

Outcome 2.3: The collection and use of citizen science monitoring in improved.

Outcome 2.4: Local monitoring and observational data are incorporated into products and decisions both locally and nationally.

Example Outcomes

Outcome 3.1: Communication across the states and region is improved with a focus on key partners within the DEWS.

Outcome 3.2: Outreach and communication with the public pertaining to drought is improved.

Outcome 3.4: A drought learning network to encourage the exchange of best practices, lessons learned, etc. both within and across regions is in place.

Outcome 4.1: The tribal nations and communities of the Pacific Northwest have the drought information products and resources they need to adequately plan for and respond to drought.

Example Outcomes

Outcome 5.1: Actions that can be taken to reduce the impact of drought to various sectors are understood and shared and barriers to implementing those actions have been removed.

Outcome 5.3: Secondary and tertiary impacts or effects of drought that should be included in drought planning and preparedness are identified and better understood.

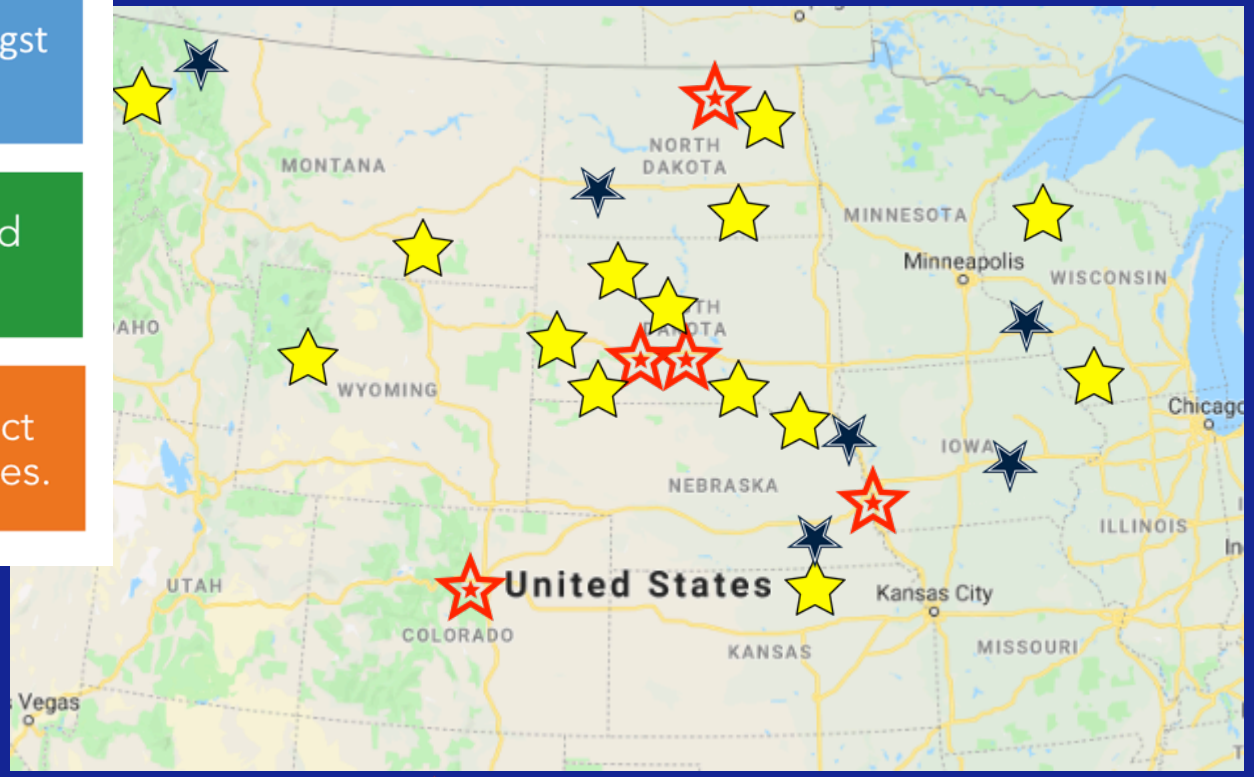
Tribal Engagement in the Missouri River Basin and Midwest DEWS

To increase engagement through face-to-face contact with Tribal Resource Managers.

To increase NIDIS' (including drought.gov) visibility amongst tribes

To map and identify key drought vulnerabilities and capacity gaps.

To ensure that future engagement maximises impact and prioritizes the most vulnerable tribal communities.



Reservation Visit

Conference/ Workshop

Other engagement

TRIBAL ENGAGEMENT

NIDIS Tribal Engagement Project: Final Products

SAC AND FOX NATION OF MISSOURI
TRIBAL DROUGHT

1. INTRODUCTION

The Sac and Fox Nation of Missouri in K
Nebraska is one of three federally recog
Native American tribes of Sac and Mesk
people.[1]

Originally two distinct tribes, the Sac a
joined forces during the 18th century t
attacks by the French. The Sac traditio
referred to themselves as "People of th
Earth," while the Foxes called themselv
Earth People.[2]

*Climate Change Workshop facilitated by Sac an
Nation of Missouri, KS and NE 2019 © Mark Junk*

The Sac and Fox Nation of Missouri pec
been historically located in Canada, Mi
Wisconsin, Illinois, Iowa, Missouri, Kans
Nebraska. The Treaty of 1837 moved th
Fox Nation of Missouri into Kansas acro
Missouri river to the Great Nemaha Res

The Sac and Fox reservation has access
surface water from the Big Nemaha Riv
Major groundwater sources are lacking
Reservation and wells in the area are g
low yield.

A collaboration between:

SAC AND FOX NATION OF MISSOURI — TRIBAL DROUGHT SNAPSHOT — PAGE 2

2. DROUGHT TRENDS AND IMPACTS

Citizens of the Sac and Fox Nation live in a highly variable climate. However, overall the incidence of drought on the Reservation is a relatively rare phenomenon compared to other tribes in the Missouri River Basin region.

Over the past ten years, the tribe suffered from moderate (D1) drought during the summers of 2012 and 2018, with limited cultural and economic impacts for the tribe.

A more common occurrence has been flooding. Spring 2019 saw extensive flooding across the Reservation causing widespread damage and economic impact for the Tribe.

3. KEY DROUGHT INDICATORS

a) Monitoring on the Reservation

During the last major drought (2012-2013), the White River, the major source of water for the reservation, ran dry and ground levels dropped significantly.

Table 1. Drought Indicators currently used for monitoring

Standard Precipitation Index (SPI)	Not being measured on Reservation.
Soil moisture Index	Measured on Reservation - but data not being used yet.
Snowpack	Not being measured on Reservation.
River flow	Measured on Reservation.

b) Resilience

The Sac and Fox Nation of Missouri is thought to possess a high level of social resilience to drought, in comparison to other tribes in the region. This is due to its relatively low absolute poverty rate (16%, compared to a regional tribal average of 31%) and a relatively high level of healthcare coverage (95%, compared to the regional tribal average of

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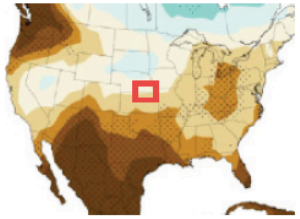
SAC AND FOX NATION OF MISSOURI — TRIBAL DROUGHT SNAPSHOT — PAGE 3

Figure 1.
Key capacity gaps identified during tribal consultations in relation to each Drought Early Warning System (DEWS) indicator



Change in Maximum Number of Consecutive Dry Days

5. FUTURE ENGAGEMENT OPPORTUNITIES

- Native American Fish & Wildlife Society, Great Plains Regional Conference (held annually)
- Great Plains Tribal Water Alliance Annual Conferences (held annually)
- Missouri River Basin Drought Early Warning System Annual Meeting (held annually)
- The MRB Drought Early Warning System Annual Meeting Rising Voices (held annually)
- North Central U.S. Monthly Climate and Drought Summary and Outlook (monthly webinar series)

6. FUNDING OPPORTUNITIES

- FEMA: Pre Disaster Mitigation Grant, and Climate Mitigation Action Grant.
- BoR: Drought Response Program
- EPA: Environmental Justice Grant, Environmental General Assistance Program, Wetland Program Development Grants, Tribal Grants Under Section 106 of the Clean Water Act, Drinking Water Infrastructure Grant, Underground Injection Control Grant, Tribal Public Water System Supervision Program, Lead Testing in School and Child Care Program, Multipurpose Grant for Tribes, and Environmental Education Grants.
- BIA: Tribal Resilience Grants

7. KEY DROUGHT RESOURCES

- High Plains Regional Climate Center: The Rosebud Sioux Tribe Decision Dashboard
- NOAA: US Seasonal Drought Outlook
- NIDIS: Drought In Nebraska and Kansas
- The National Climate Assessment: Provides an analysis of current and future trends, plus a section on Indigenous Peoples.
- US Drought Monitor Map (interactive map, updated monthly).

A collaboration between: University of Colorado Boulder

Masters of the Environment
UNIVERSITY OF COLORADO BOULDER

ANTICIPATED LAUNCH: SPRING 2020

Drought.gov Redesign

- ➔ New sector pages
- ➔ New up-to-date drought statistics
- ➔ Updated content
- ➔ Improved site navigation
- ➔ U.S. Web Design Standards

Data and Maps By Sector By Lo

BY LOCATION

Tribal Nations

Indian reservations, particularly in the Sou
to drought and even small changes in prec
conditions. The subsistence farming and h
practice can be adversely affected by dry c

Drought in your area?
Report Impacts

Tribal Drought Condition

U.S. Drought Monitor Temperatu

The U.S. Drought Monitor is a map that
Thursday to show the location and inter

32,870
acres of tribal land in drought.

15
people

Key Drought Impacts on Tribes

Environmental Impacts

A hotter, dryer climate inc
wood to burn. It also drie
to burn more intensely ar
wildfire has had devastati
destroying tribal homes,

Cultural Impacts

Water holds a strong cultu
often used in ceremonies
water impacts the surviva
hold additional cultural in
during a drought, wild rice
and fewer berries are avai
invasive species to take h
destroying ash trees whic

Drought & Tribes Ba

[PLACEHOLDER TEXT] Wildfire
natural (lightning) and human-
is influenced by a complex com
moisture, relative humidity, wi
the relationship between fire f
(such as forest productivity, to

Drought is not a necessary or s
conditions, and drought occur
live and dead fuels can dry out
increases along with rate of fir

Wildfire risk can be reduced in
in the South by reducing stand
fires burn if they will not affect people. Frequent prescribed burning in fire-prone and fire-dependent (forests that require fire to maintain structure and function) southern forests has been a socially accepted practice for decades.

Tribal Drought Resources

General Drought Resources

- BIA Tribal Climate Resilience Program
- BIA Tribal Climate Resilience Resource Guide
- Institute for Tribal Environmental Professionals(ITEP) Tribes and Climate Change Program
- Columbia River Intertribal Fish Commission
- Northwest Indian Fisheries Commission
- Affiliated Tribes of Northwest Indians
- Alaska Native Tribal Health Consortium LEO Network
- U.S. Climate Resilience Toolkit
- Northwest Climate Science Center
- North Pacific LCC
- Great Basin LCC
- Great Northern LCC
- USDA Climate Hubs
- Northwest Climate Hub
- EPA Climate Change Programs
- Climate Adaptation Knowledge Exchange
- USDA Forest Service Climate Change Resource Center
- ITEP Newsletter
- ITEP Tribes and Climate Change Calendar
- NW Climate Magazine

Funding Opportunities

FEMA: Pre Disaster Mitigation Grant, and Climate Mitigation Action Grant.

BoR: Drought Response Program EPA: Environmental Justice Grant,

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BIA: Tribal Resilience Grants

Engagement Opportunities

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Frequently Asked Questions from the Trib

Below are commonly asked questions related to drought and Triba
Don't see your question below? Email us at nidis.questions@noaa.g

View All | Conditions | Agriculture

Filter Results (7 of 50)

Q. Does a shortage of rain mean that a drought will occur?

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A. A period of below-normal rainfall does not necessarily resu
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it to the air through a process called transpiration. The tot
evapotranspiration. Sunlight, humidity, temperature, and
rates are large, soils can lose moisture and dry conditions
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Events

View all events >

Southwest Drought Webinar >
Location

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We want to hear from you!

Let us know how you think Drought.gov is serving you, how you use drought-related information in decision making, and/or what other resources you would like to see available through Drought.gov.

Ask a Question
Get answers from drought experts and NIDIS staff.
Submit a Question

Submit an Event
Add an event to the Drought.gov calendar.
Submit an Event

Report Drought Impacts
Tell us how drought is impacting your Tribe.
Report Impacts

STAY CONNECTED
Get regional and national drought updates.

Sign up for the NIDIS newsletter | Sign up

Drought.gov
National Integrated Drought Information System

A multi-agency partnership that coordinates drought monitoring, forecasting, planning, and information at national, state, and local.

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Principals of Tribal Engagement

Principle 1: Respecting Tribal Sovereignty

- Acknowledging and Respecting Tribal Sovereignty
- Fulfilling Federal Trust Responsibility

Principle 2: Establishing Trust

- Establishing Trust
- Ensuring Reciprocity

Principle 3: Ensuring DEWS is culturally appropriate and useful for tribes

- Encourage the integration of Native American knowledge and values into NIDIS drought policy and programs.
- Respecting Traditional Drought Resilience Strategies
- Ensure the use of appropriate language

We Welcome Your Input – Regional Plan

1. **FEEDBACK ON REGIONAL IMPLEMENTATION PLAN**

-> Access the full text of the draft priorities, outcomes and activities + Review Form
https://www.drought.gov/drought/draft-pacific-northwest-dews-priorities-outcomes-and-activities-2020-2022

Provide input by Tuesday December 3, 2019

-> Pacific Northwest DEWS Regional Implementation Plan 2020-2022 Input Session
Thursday November 21, 2019 - 1pm PT/2pm MT

https://attendee.gotowebinar.com/register/3327523909989213197

We Welcome Your Input – Website

2. USER TESTING US DROUGHT PORTAL

We are looking for partners for user testing - contact me and look for information early in 2020 through the Pacific Northwest Tribal Climate Change Network

3. NATIONAL WEBINAR ON NIDIS TRIBAL ENGAGEMENT STRATEGY

In January of 2020 if you want to learn more! Stay tuned.

National Integrated Drought Information System

Drought.gov

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