The Midwest Drought Early Warning System (DEWS) Planning Process, Launch and Next Steps

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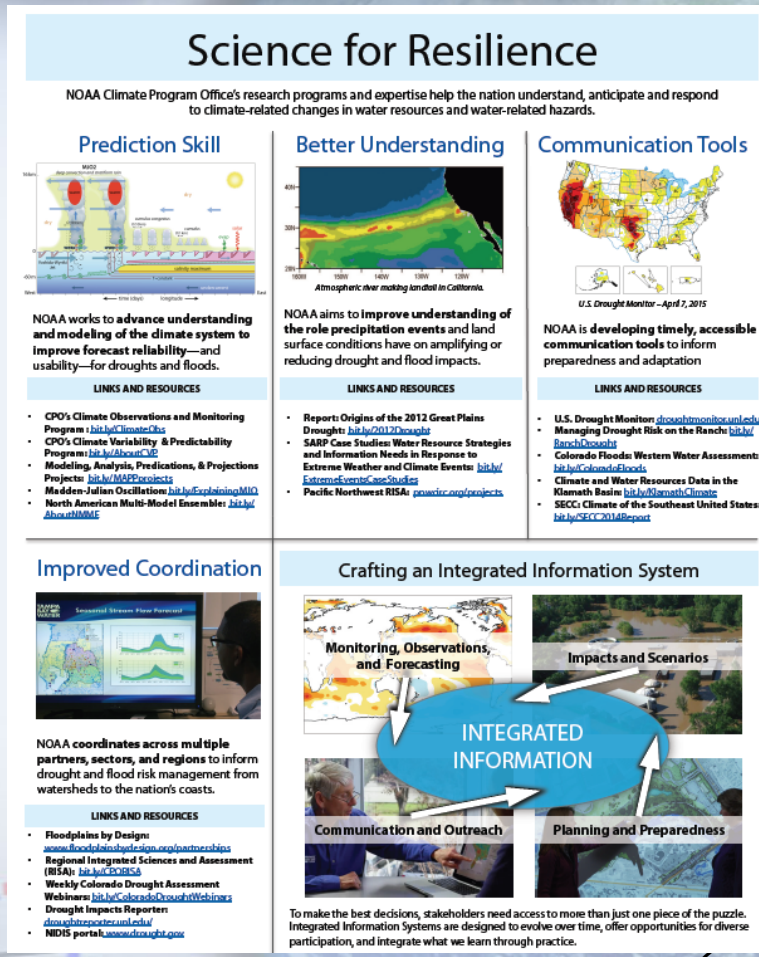
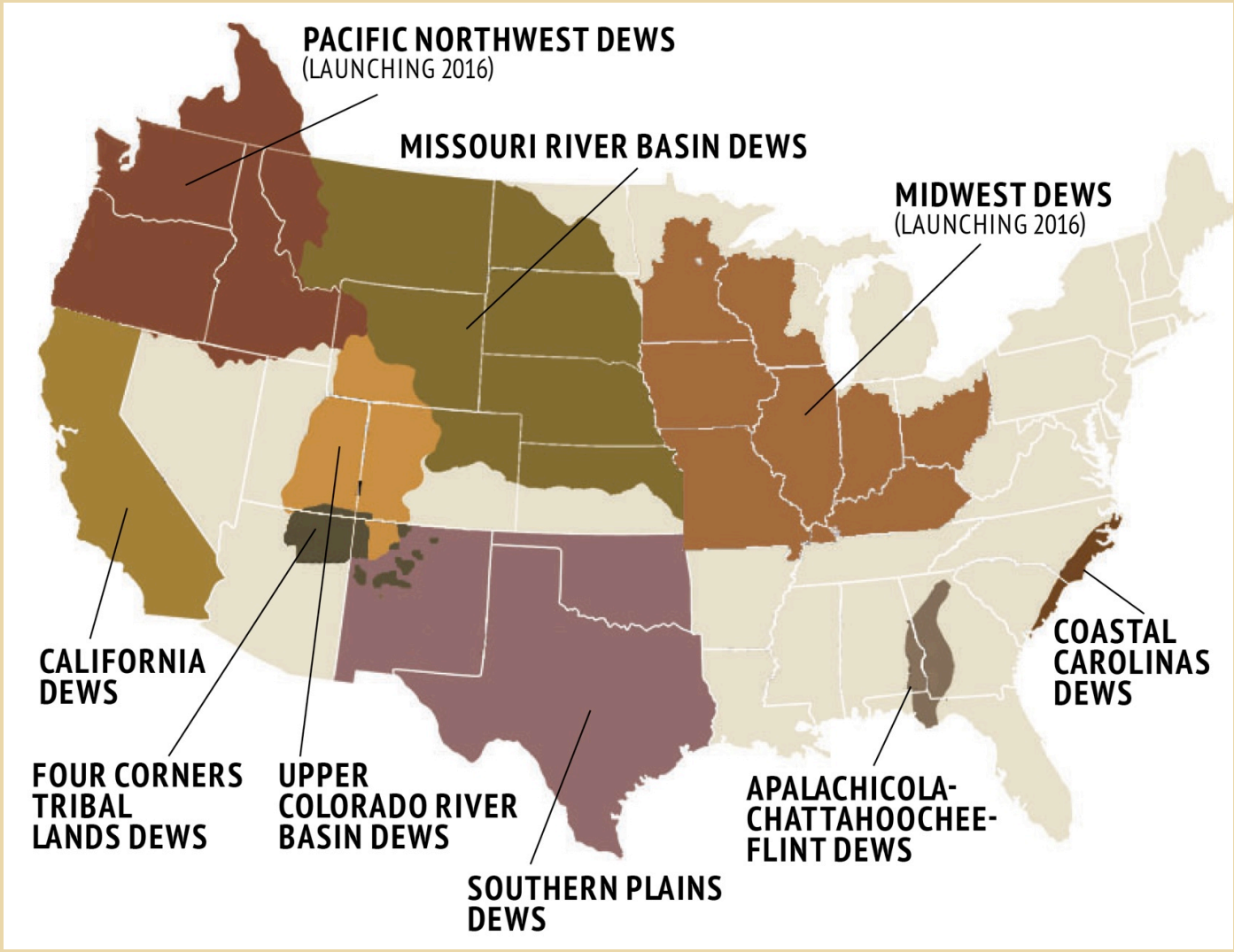
From Risk to Resilience:
Research-based Integrated Information Systems

- Develop and coordinate partnerships: networks of practitioners public-private: map decision-making arrangements
- Advance earth system observations and prediction capabilities
  - Construct risk profiles: the role of rates of change in trends, frequency, and magnitude of extremes at different scales
- Capacity and Coordination: Integrate Research, Observations, and Assessments into early warning information on critical transitions and capacity for response
- **Overcoming impediments**
  - **Do this for a long time**



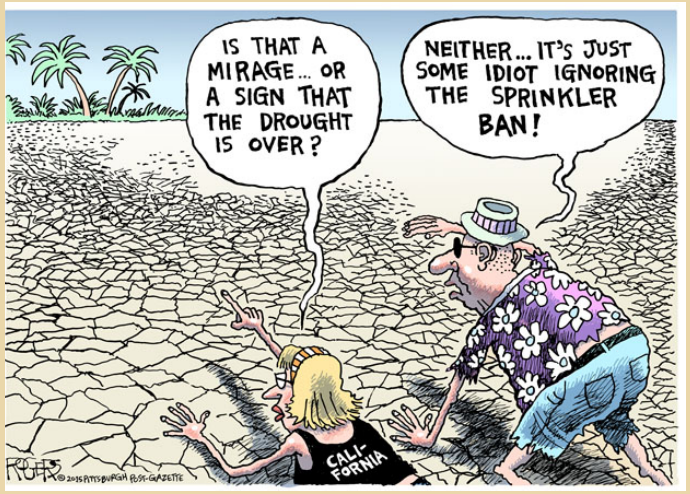
This is what we want to avoid!

NIDIS Regional Drought Early Warning Information Systems



Objectives of the Midwest DEWS

- Provide a forum for a diverse group of federal, tribal, state, and local stakeholders that represent the water and land resource management communities, to strategize and develop appropriate, relevant, useful and readily available drought, climate, weather and water-related information.



- Develop an understanding of the existing observation and monitoring networks, data, tools, research and other planning and mitigation resources available for a DEWS.

- Identify the economic sector-specific and geographic needs for future monitoring, prediction, planning and information resources.

Midwest DEWS Planning Process

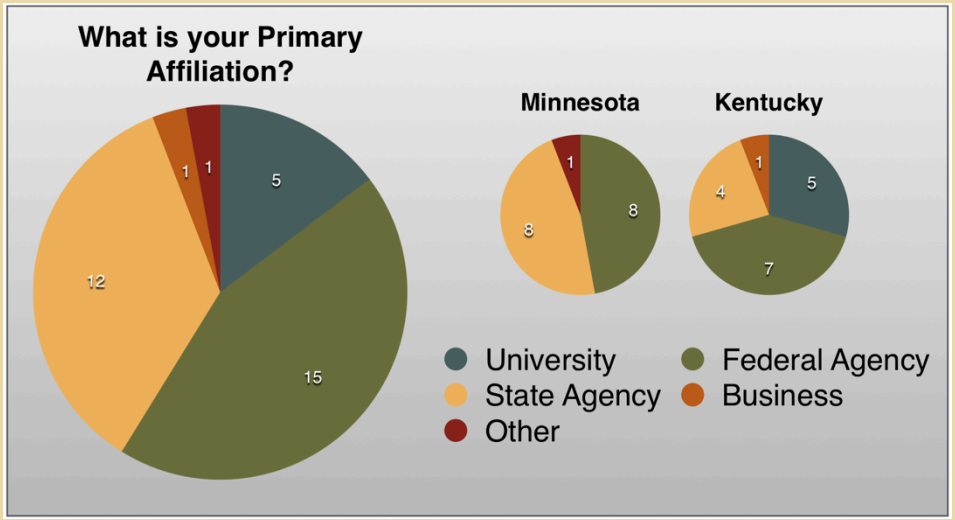
- Midwest Climate and Agriculture Workshop
  - Champaign, IL – Sept 29 through Oct 1, 2015

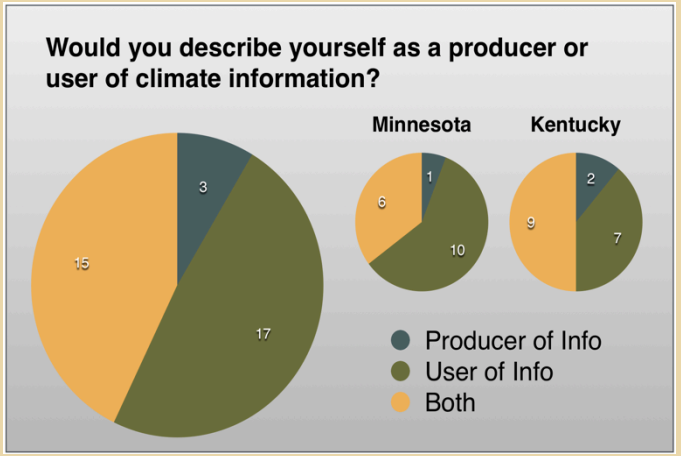
- Midwest Climate Outlook and DEWS Planning Workshops
  - **Ohio Valley** - Louisville, KY - Nov 3, 2015
  - **Upper Mississippi Basin** - Bloomington, MN - Nov 5 and 6, 2015

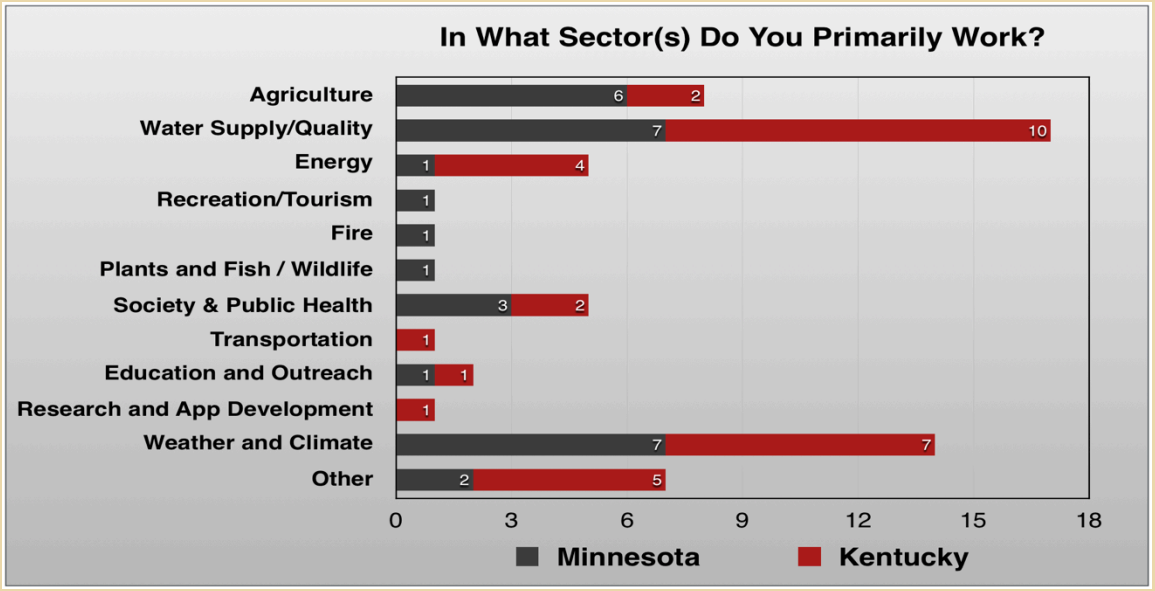
- DEWS Kick-off Workshop
  - St. Louis – Feb 9 – 11, 2016

- Develop two year Work Plan

November Planning Workshops





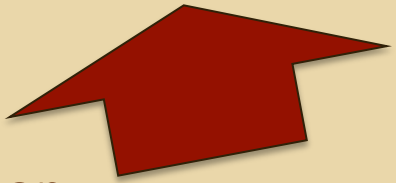


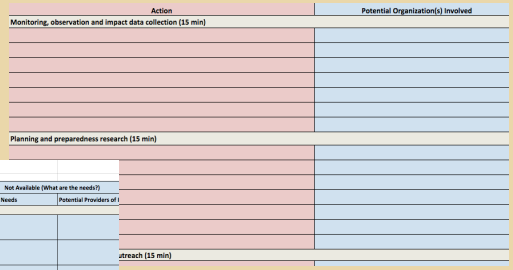
Midwest DEWS Region

Midwest DEWS Work Plan

MISSOURI RIVER BASIN
DEWS WORK PLAN

Table of Contents





- Monitoring, observation and impact data collection
- Planning and preparedness research
- Communication, education and outreach

First Two Years of a DEWS

Year 1

Scoping the DEWS

- Gap analyses
  - What info exists?
  - How is it being coordinated and used?
- Identify 2-3 critical issues
- Characterize and communicate risks across timescales for these critical issues

Year 2

Implementation of the DEWS

- Consider seasonal, multi-year, longer term trends
- Develop drought sub-portals
- Embed information into preparedness & adaptation plans
- Establish network for ongoing briefings on impacts and projections

Themes of this Launch Meeting

- Day 1 – Laying the Foundation for a Midwest DEWS
- Day 2 – Current Climate Outlook and Forecasting, Drought Impacts & Vulnerabilities and Drought Preparedness Resource Needs
- Day 3 - Drought Early Warning and Preparedness Priorities and Action

Questions?

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What is a DEWS?

A DEWS utilizes new and existing partner networks to optimize the expertise of a wide range of federal, tribal, state, local and academic partners in order to make climate and drought science and impact data readily available, easily understandable and usable for decision makers; and to improve the capacity of stakeholders and economic sectors to better monitor, forecast, plan for and cope with the impacts of drought at all spatial and time scales.

Results from Workshops

November Workshops

- Who else to bring to the table
- Geographic area of the DEWS
- Needs for future monitoring, prediction, planning and information resources for the region

Climate Agricultural Workshop

SAMPLE MATRIX CONTENT FOR EACH AGRICULTURAL SECTOR				
SECTOR	**CLIMATE QUESTION**	**AGRICULTURE PRODUCTION DECISION & NEEDED TOOLS**	**INFORMATION NEEDED**	**TIMEFRAME FOR INFORMATION**
PERENNIAL CROPS	What are the climate conditions in the growing season related to insect and disease development?	When will the climate thresholds for insect development and disease outbreaks be crossed in order to apply preventative treatment?	Quantitative assessments of the temperature and humidity relationships for different pests and diseases. Climatological timing of critical threshold exceedence.	Historical climate calendar of probabilities. Forecasts out 10-14 days.
ANNUAL CROPS	What are the expected precipitation patterns for the growing season?	Water management of high-value crops is related to productivity and quality. Any information can enhance management practices to reduce water stress.	Expected precipitation patterns to be incorporated within decision models.	Weekly precipitation amounts for March through September.
LIVESTOCK	What is the potential for occurrence of hot nights during the summer?	When to provide extra cooling for animals to avoid heat stress.	Forecast of high nighttime temperatures that are 10° above normal.	Two weeks advanced warning.

Year 1: Scoping the Drought Early Warning Information System

Gap analyses: What information exists and how is it being coordinated and used? Characterize and communicate risks across timescales-with existing information for 2-3 critical issues

Year 2. Implementation of the Drought Early Warning System (seasonal, multi-year, longer term trends):

Develop drought sub-portals
Embed information into preparedness and adaptation plans
Establish network for ongoing briefings on impacts and projections across climate timescales

Develop subteams to assess (1) Monitoring and forecasting; (2) Impact indicators and triggers (3) Preparedness and education:

Assemble drought-sensitive planning indicators and management triggers database; Assess present drought information coordination partnerships and processes

Identify Federal and state-level partnerships, decision support tools and actions needed (to improve information development, coordination and flow for preparedness and risk reduction)

Develop an operational plan for designing and implementing an EWS process

Initiate development of a region or basin specific Drought Information Monitor and Portal (as a subset of the U.S. Drought Portal)

Develop decision support tools for demand projections and revise triggering criteria
Prototyping: **Given better data and information coordination would responses have been improved for past events? Assess (1) value of improved information using past conditions, (2) responses for projections/ scenarios (decadal, climate change), (3) feedback on priorities (e.g. data gaps) to Executive Council.**
Feedback into regional Drought Monitor and Portal. Early Warning System maintenance (Fed-state-tribal) and transfer to other sub-basins