# Today's Drought: Monitoring and Response

## Overview of State Approaches

Kirsten Lackstrom
Carolinas Integrated Sciences and Assessments (CISA)
University of South Carolina

Southeast DEWS Partners Dialogue
August 9-10, 2022


# Acknowledgements


- Funding
  - National Integrated Drought Information System
  - NOAA Regional Integrated Sciences and Assessments (RISA) program
  - University of South Carolina, Advanced Support for Innovative Research Excellence (ASPIRE) program

- Partners, project participants, interviewees
  - SC and NC State Climate Offices
  - SC Drought Response Committee
  - NC Drought Management Advisory Committee
  - Drought coordinators, water managers, and others from across the Southeast

# Objective & areas of inquiry

- Document and compare drought response and preparedness planning in the Southeast

  - Key elements of drought plans and programs
  - Coordination mechanisms, within and between states
  - What works well; needs, gaps, challenges
  - Opportunities: activities that could be taken or supported by NIDIS, state, and regional partners

# Framework

## Type of Policy / Plan / Program

**Post-Impact**
disaster assistance

**Preparedness**
“today’s drought”
tactical / operational

**Mitigation**
“tomorrow’s drought”
strategic

## Level

**Federal**

**State**
university / SCOs

**Sub-state**
river basin / regions

**Local**
county / municipality / water system

## Sector

Agriculture

Fire / Forestry

Water

Industry

Health

Environment

Energy

# Framework

**Type of Policy / Plan / Program**

Post-Impact
disaster assistance

**Preparedness**
"today's drought"
tactical / operational

Mitigation
"tomorrow's drought"
strategic

**Level**

Federal

**State**
university / SCOs

Sub-state
river basin / regions

Local
county / municipality / water system

**Sector**

Agriculture

Fire / Forestry

**Water**

Industry

Health

Environment

Energy

# Framework

**Type of Policy / Plan / Program**

Post-Impact
disaster assistance

**Preparedness**
"today's drought"
tactical / operational

**Mitigation**
"tomorrow's drought"
strategic

**Level**

Federal

**State**
university / SCOs

**Sub-state**
river basin / regions

**Local**
county / municipality / water system

**Sector**

Agriculture

Fire / Forestry

**Water**

Industry

Health

Environment

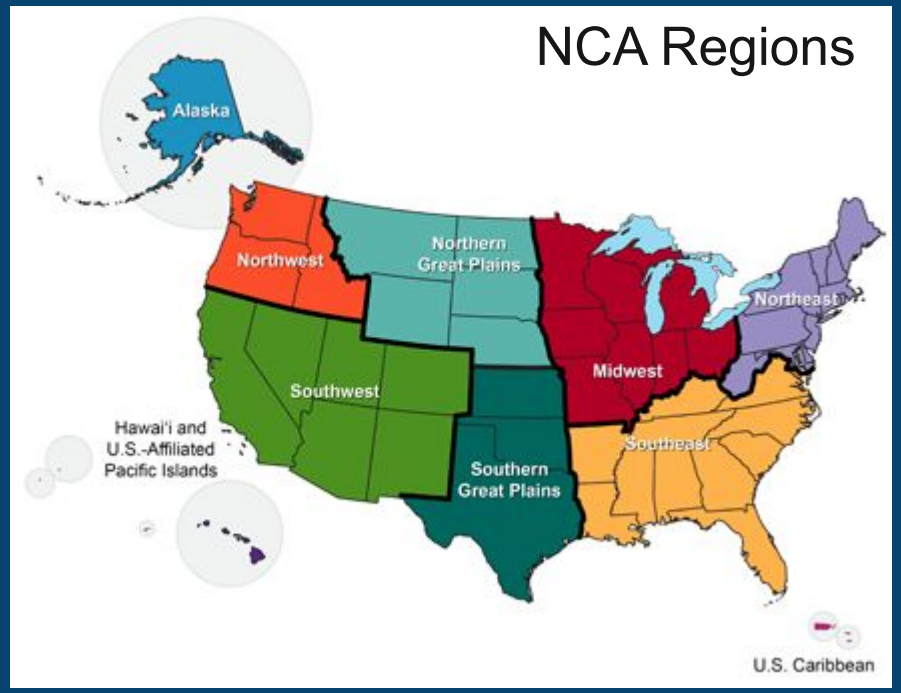
Energy

# Approach & methods

- State-level documents
  - Statutes, regulations, plans
    - Drought-specific
    - Drought-relevant
  - Emergency operations plans
  - Hazard mitigation plans

- Semi-structured interviews
  - State drought coordinators
  - Others with drought-specific or related water planning responsibilities

- Other documents
  - Reports, research articles, web-based information



# Interviews

- 33 interviews
- 41 individuals
- 1 webinar with FL WMDs (~30 people)

By state

| AL | AR | FL | GA | KY | LA | MS | NC | SC | TN | VA | >1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3 | 3 | 2 | 1 | 5 | 3 | 2 | 3 | 3 | 2 | 4 |

By level

| State | University | Region | Federal |
|---|---|---|---|
| 19 | 11 | 5 | 7 |

By role

| Drought lead | Monitoring | SCO-drought lead | SCO-monitoring | Water |
|---|---|---|---|---|
| 5 | 3 | 2 | 8 | 24 |

# Key elements

- ✔ Roles & responsibilities
- ✔ Monitoring
- ✔ Indicators & triggers
- ✔ Response actions
  - Agency tasks
  - Triggers or guidance for local action
- Enforcement, mediation, & variances

- ✔ Communication
- ✔ Coordination
  - Impacts & risk assessment
  - Post-drought assessment
  - Mitigation

✔ = addressed by most states in formal drought documents

Adapted from Fontaine et al. (2014)

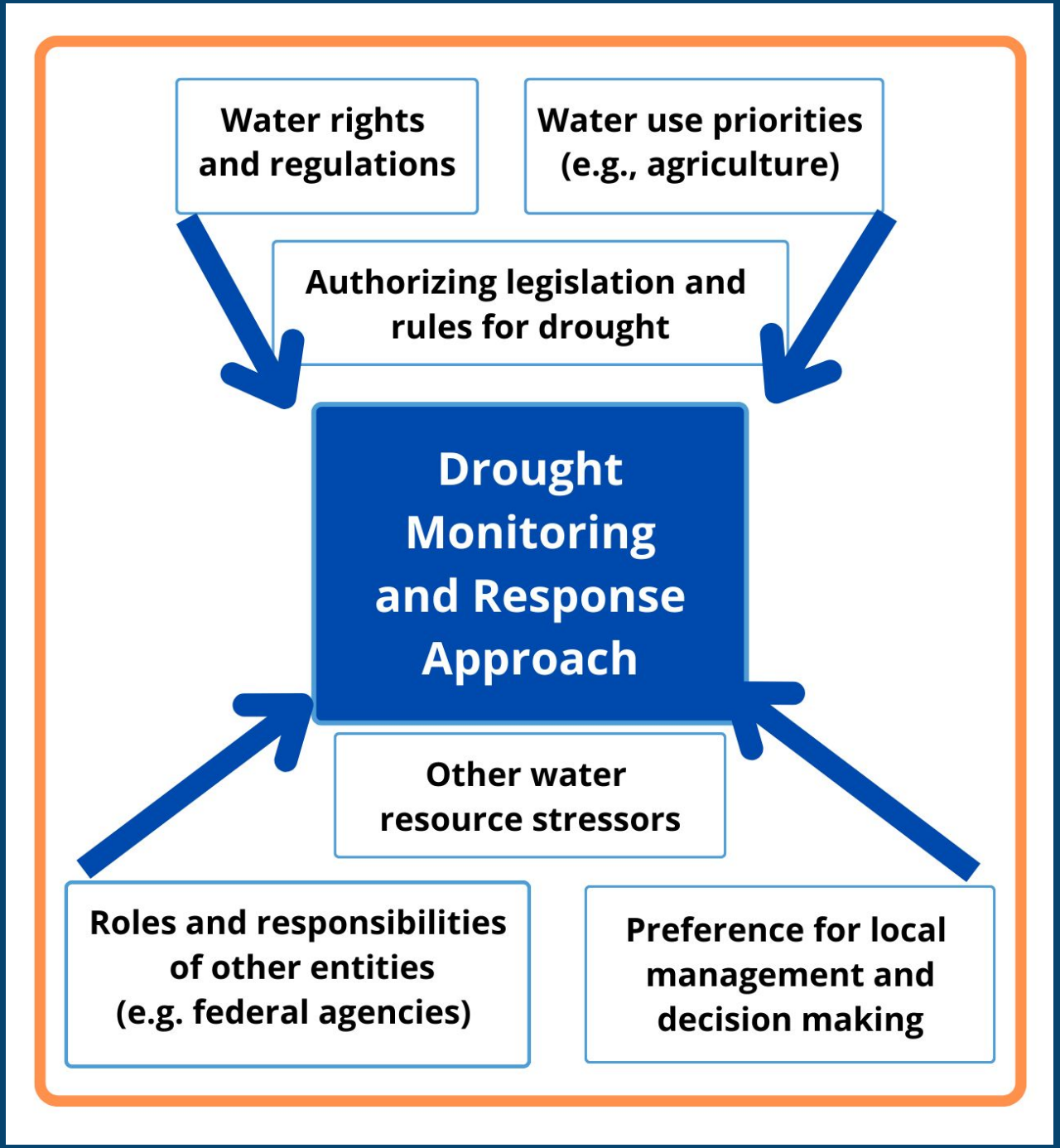
# The “big picture”

- In general, similar state approaches, differences in the details
  - 6 of 7 states have an institutional structure to guide drought monitoring and response planning
    - Includes FL: Florida Water Resources Act of 1972 (Chapter 373, Florida Statutes) established responsibilities of five Water Management Districts (WMDs) for water supply, water quality, flood protection and floodplain management, natural system protection. Each WMD develops and routinely updates water shortage, conservation, supply, and strategic plans.
    - Does not include TN: Tennessee Drought Management Plan (2010) outlines the state approach to water management during drought, agency coordination, and requirements for water system response plans, but it is not an operational plan

- What works well within the states
  - Known and established roles & responsibilities
    - Especially those pertaining to monitoring, making declarations, communications, agency information-sharing and tasks
  - Balance between structure and flexibility

# Factors shaping state approaches

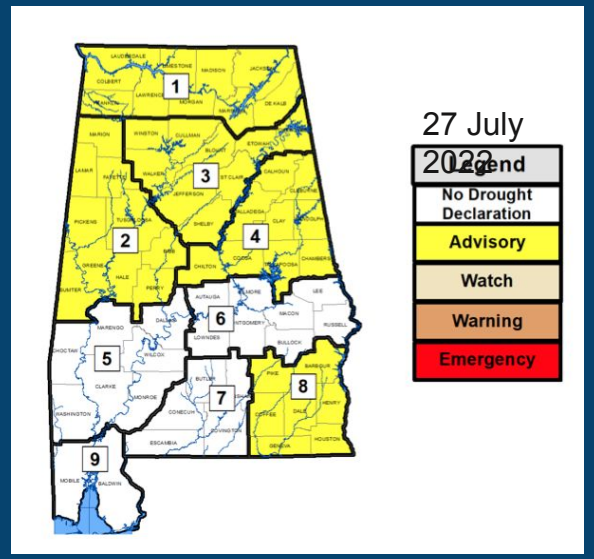
(and differences)

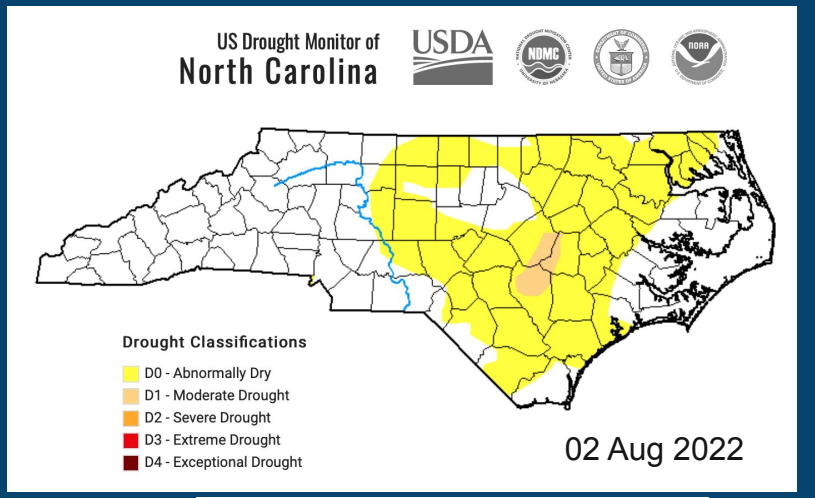


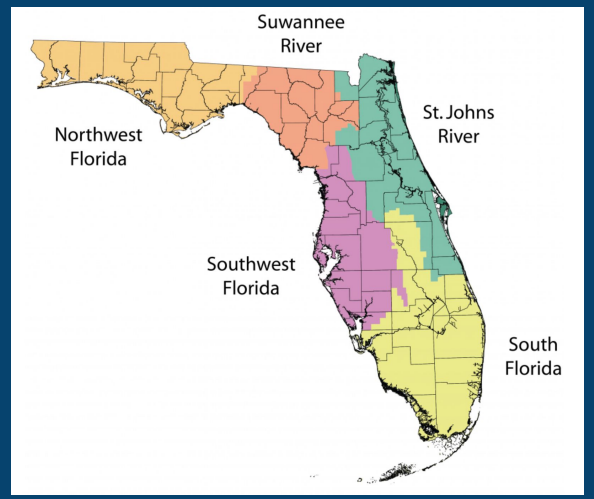
# Implications

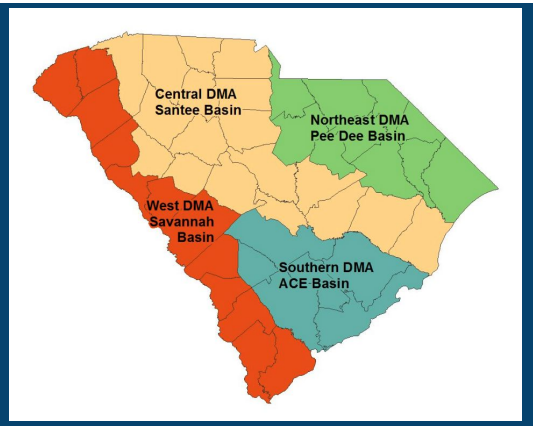
- For who:
  - Monitors
  - Determines levels
  - Makes declarations
  - Responds
- And how

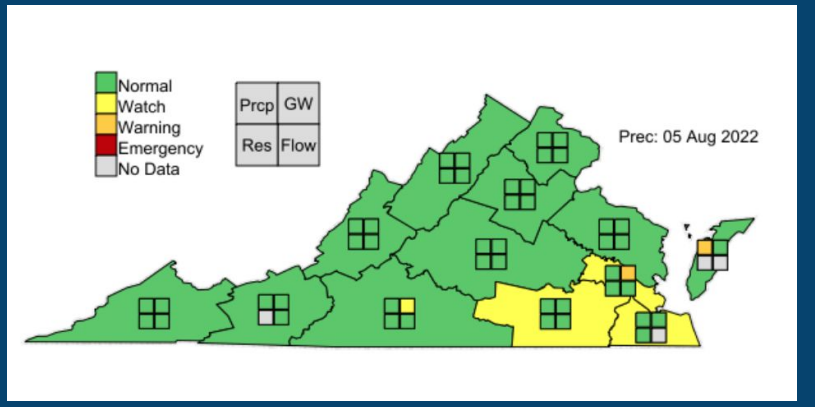
- Nature of other responsibilities
  - Enforce water restrictions
  - Review variance requests
  - Mediate disputes



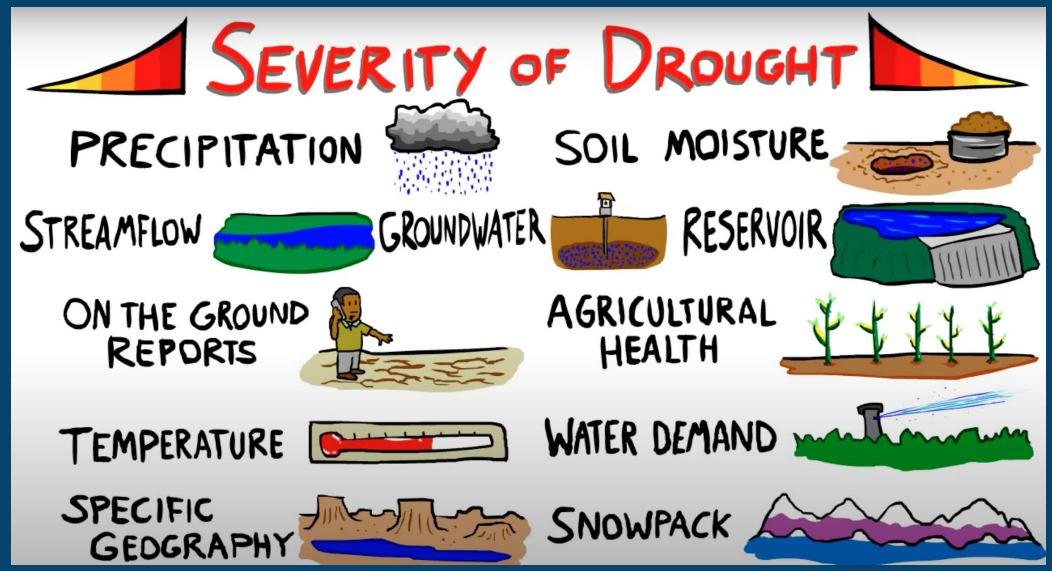



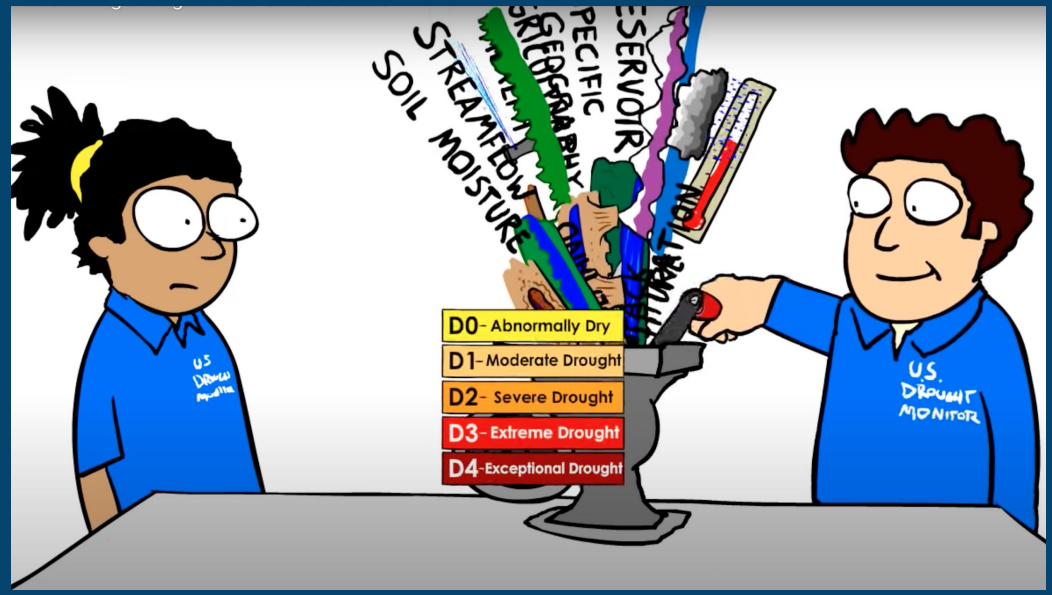



# Implications for coordination between states

- US Drought Monitor
  - Contributions and uses
  - Facilitates interstate coordination?
- State processes
  - Degree and type of flexibility
  - Frequency, timing
  - Keeping up with new science, technologies, and tools?




Assessing Drought in the United States, Credit: CoCoRaHS
https://www.youtube.com/watch?v=i7F6QwRqyVI

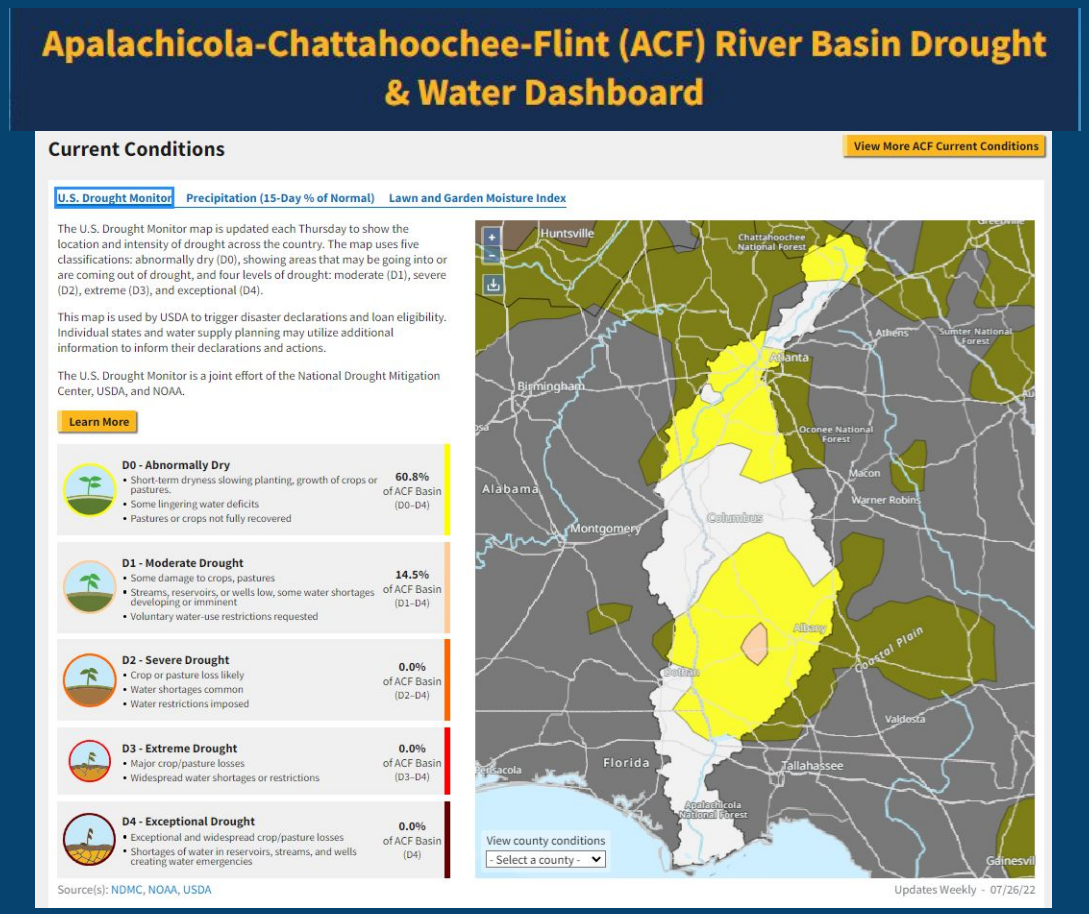
# Needs, gaps, challenges (opportunities?)

- Post-drought assessments
  - Few and far between
  - Plan and/or process review and revisions: required in AL, FL only

- Plan and process implementation
  - Lack of long-lasting, extreme drought conditions in recent years
  - Are plans and processes effective? State level? Local level?
  - Are agencies prepared for emergency water shortages?
    - NC, SC ”drought plans” located in the state EOP

- Drought mitigation
  - Typically separate from response plans, processes, and activities
  - Located within different processes and sectors (e.g., water planning, hazard mitigation)

# What can the SE DEWS do for you?





Convening


Conversations


Assessments

Looking forward