SC Drought Monitoring & Management

Pee Dee River Basin Council

Elliot D. Wickham & Hope Mizzell
South Carolina State Climatology Office
SC Department of Natural Resources
September 27th, 2022

Drought: The Enigma Natural Hazard

Let’s define drought. Drought is…

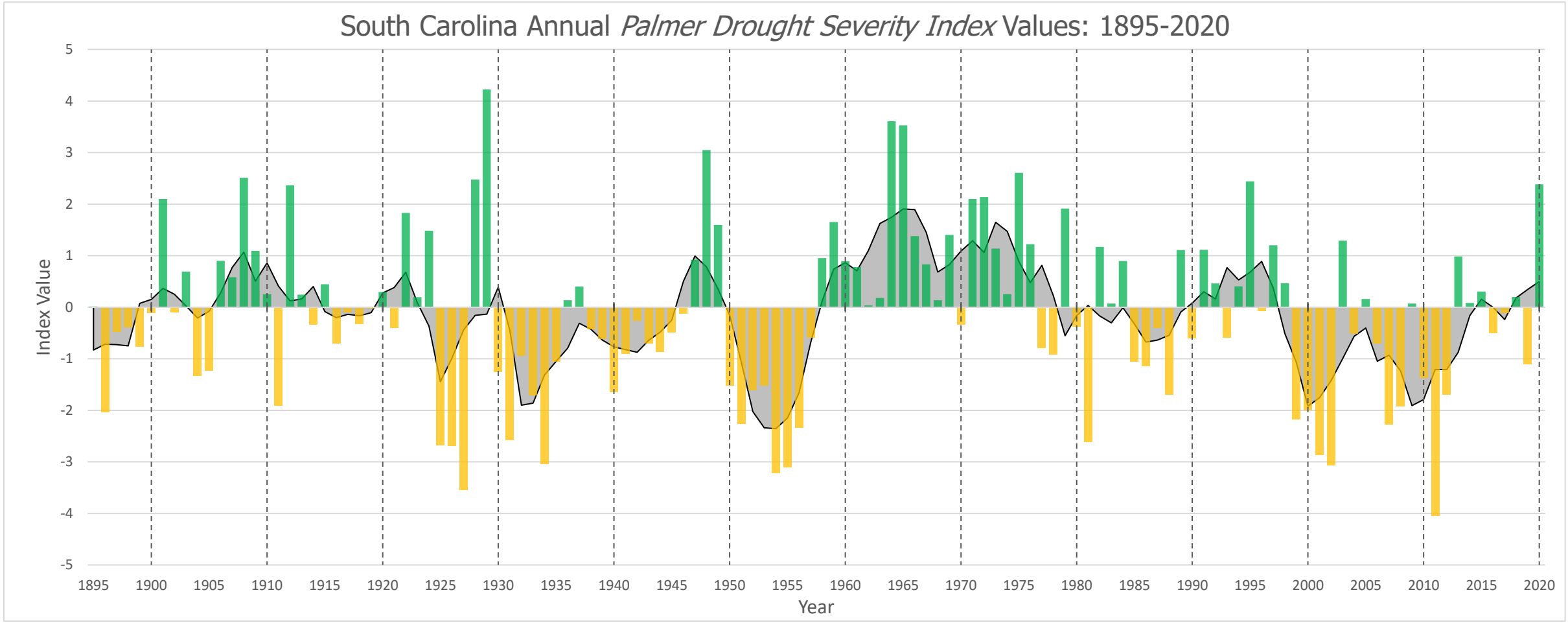
Is there a definition?
Yes! But also, no.

Clear as mud?

Conceptual Definitions & Operational Definitions

One of the values of this process for the Broad RBC is to better understand how different stakeholders think about drought. It also provides a more robust approach to protecting water resources for all users in the basin.

Past Droughts in South Carolina

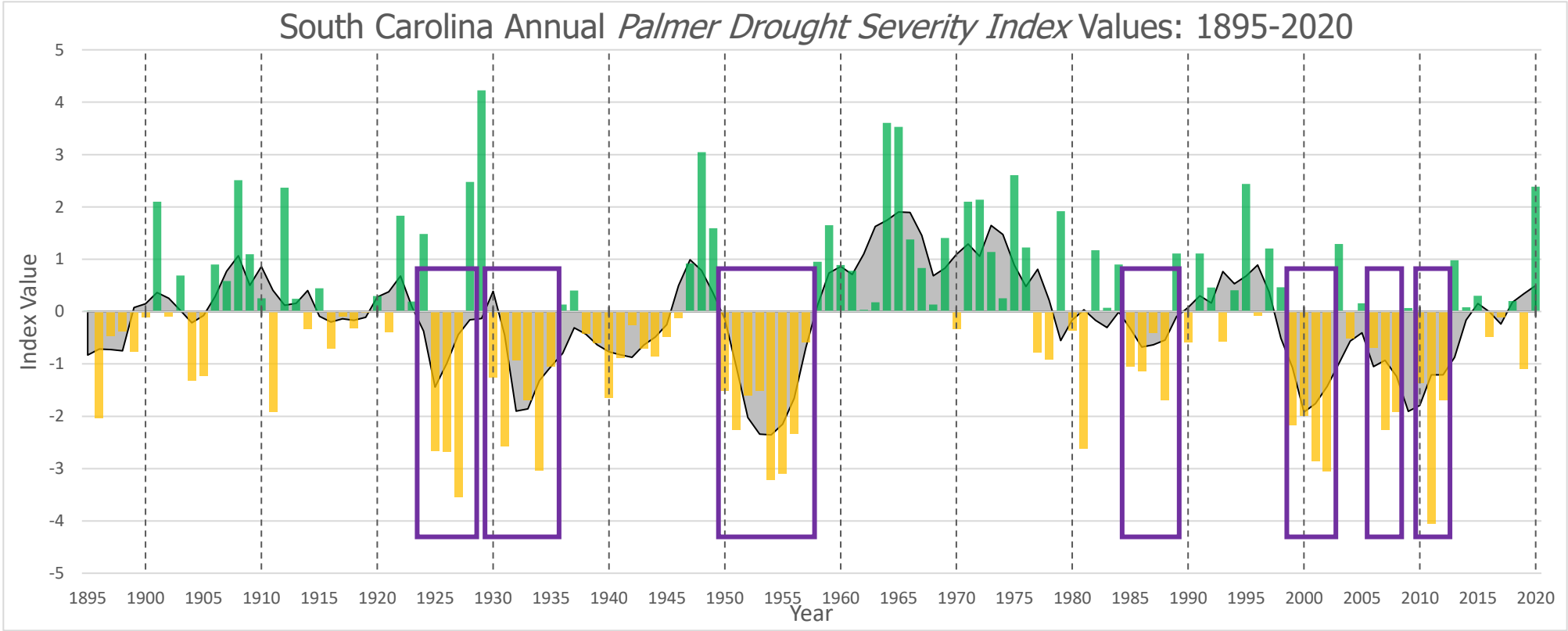


SCDNR | State Climatology Office

Past Droughts in South Carolina (PDSI)

Notable Droughts

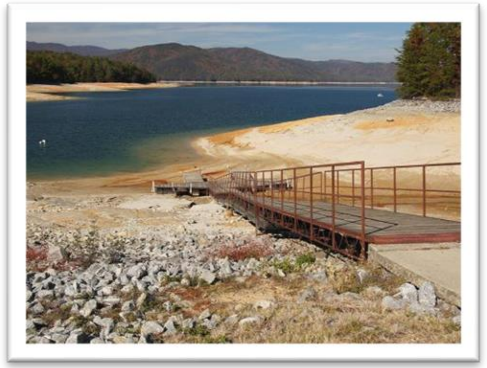
- 1925-1927
- 1930-1935
- 1950-1957
- 1985-1986
- 1998-2002
- 2007-2008
- 2010-2012

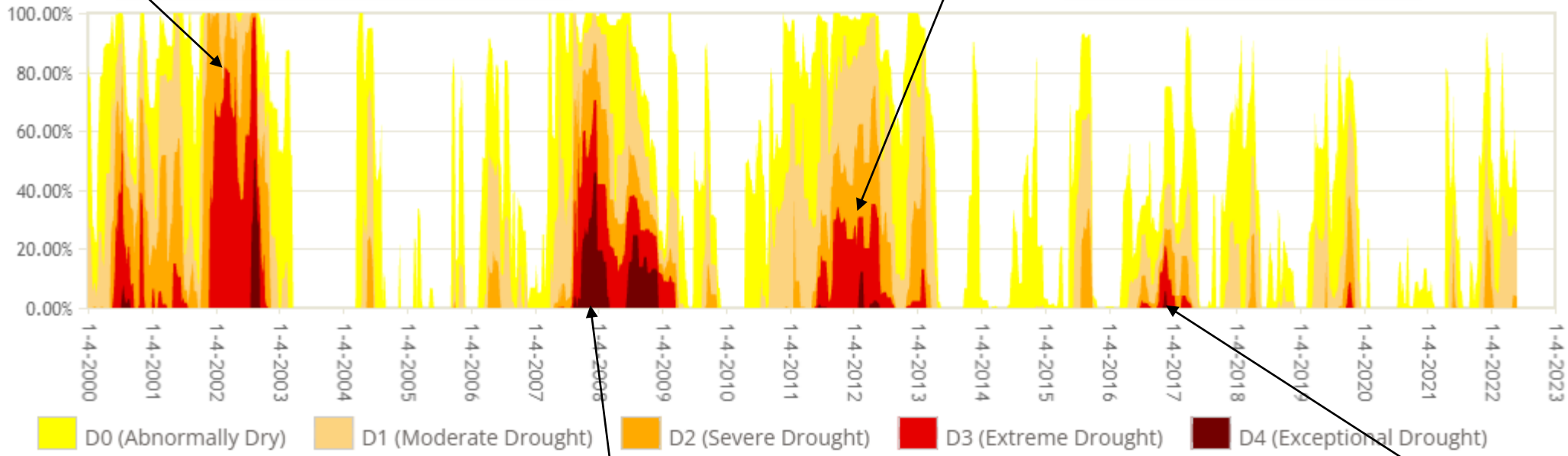


SCDNR | State Climatology Office

2002

2012



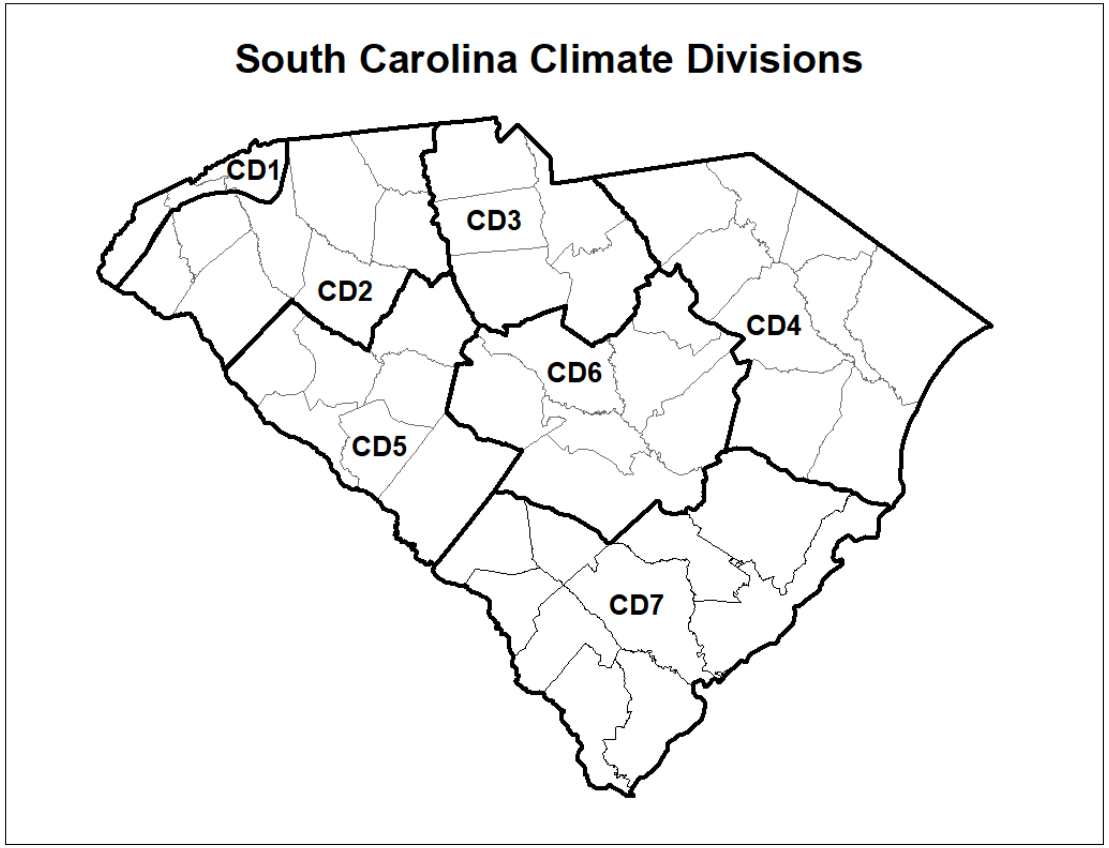


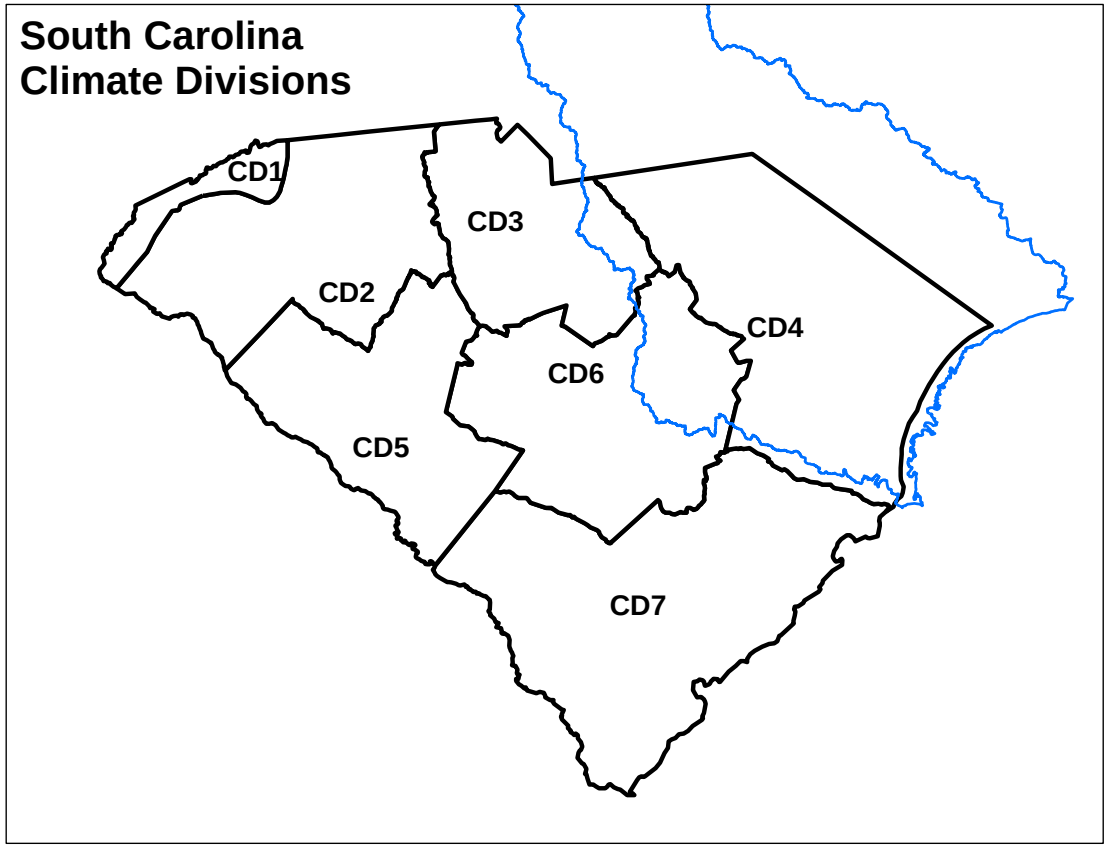
2007

2016

South Carolina Climate Divisions

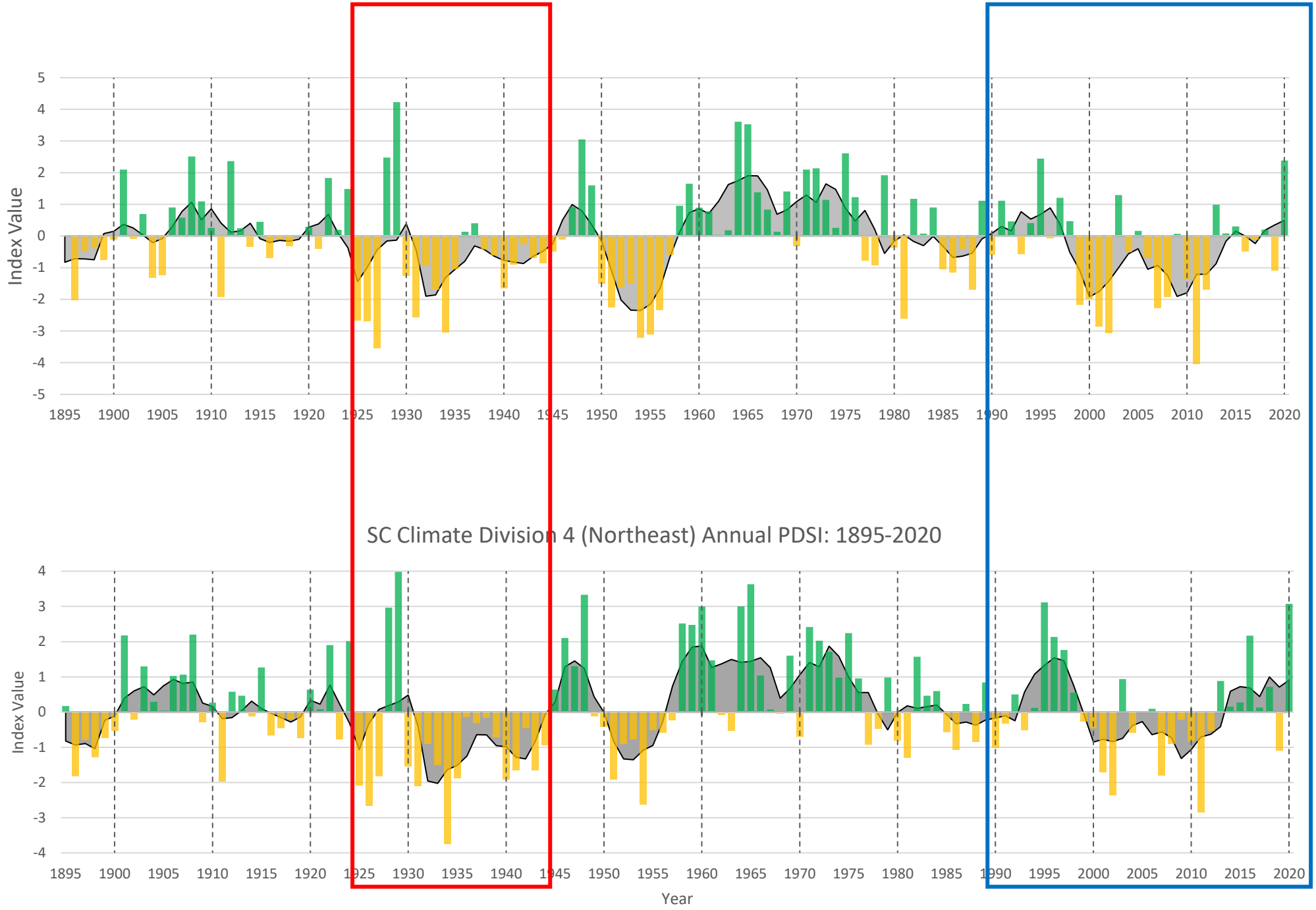
1. Mountains
2. Northwest
3. North Central
4. Northeast
5. West Central
6. Central
7. Southern



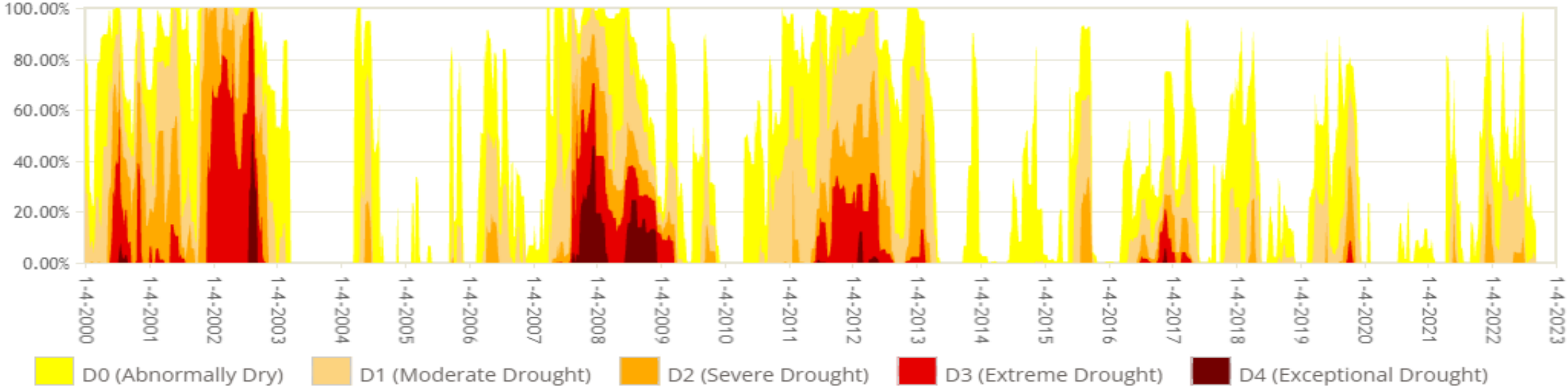


State PDSI

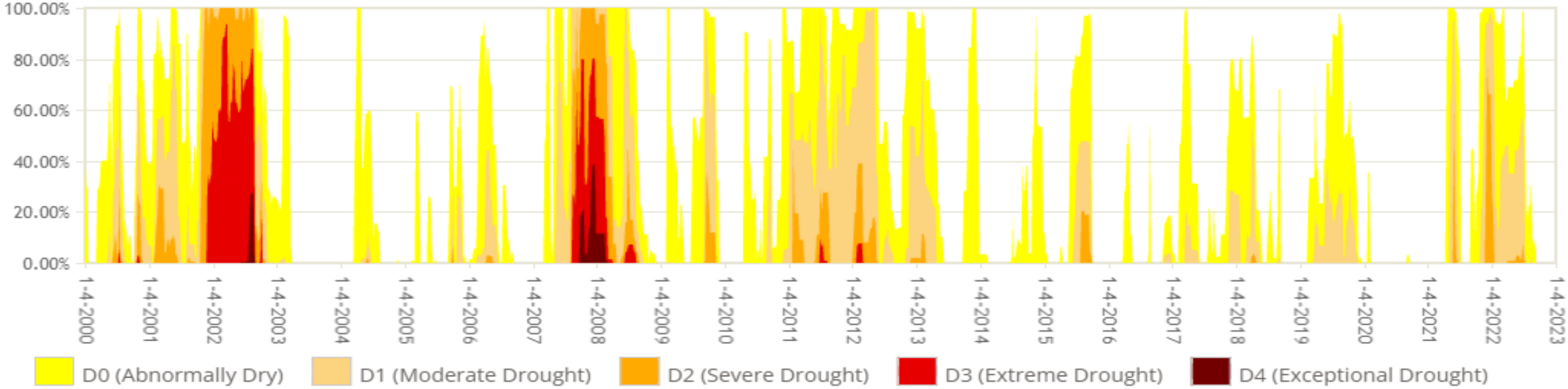
Climate Division 4 (northeast) PDSI



South Carolina Percent Area in U.S. Drought Monitor Categories



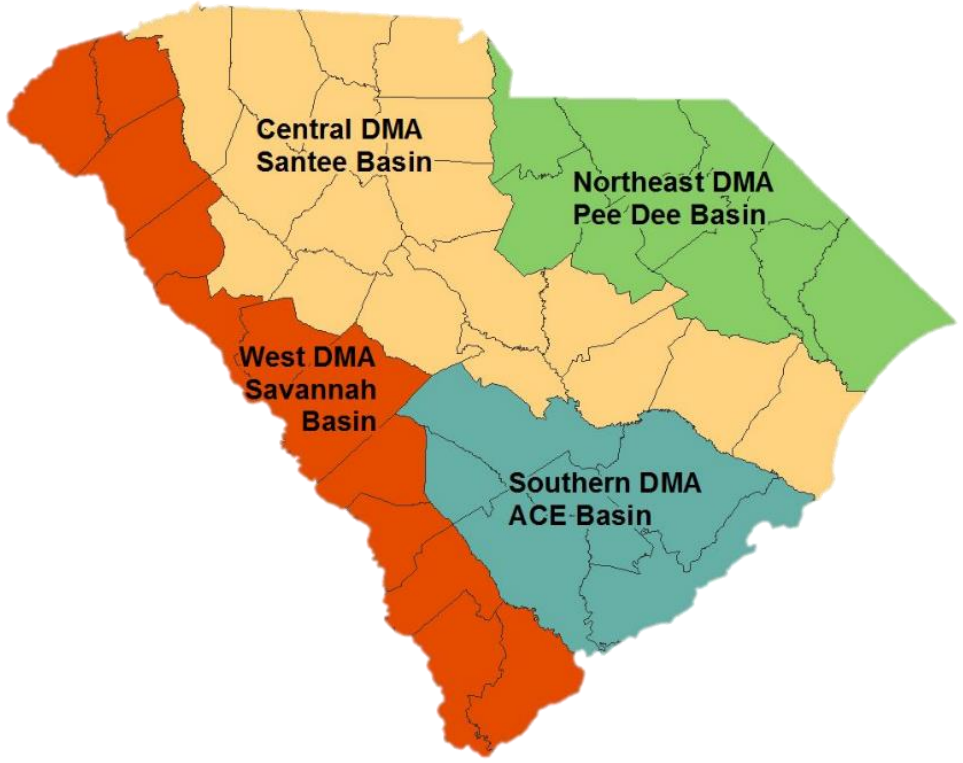
030402 (Lower Pee Dee) Percent Area in U.S. Drought Monitor Categories



Drought Monitoring and Response in SC

South Carolina Drought Response Program consists of legislation, regulations, and procedures that establish recommended and required response.

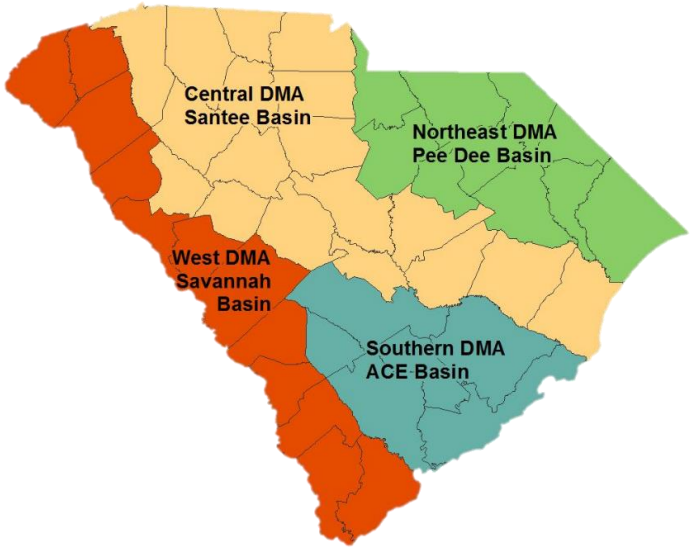
The **South Carolina Drought Response Act (2000)** and the **supporting regulations** formally establish and describe the responsibilities of the South Carolina State Climatology Office and the South Carolina Drought Response Committee, the major drought decision-making entities in the State.

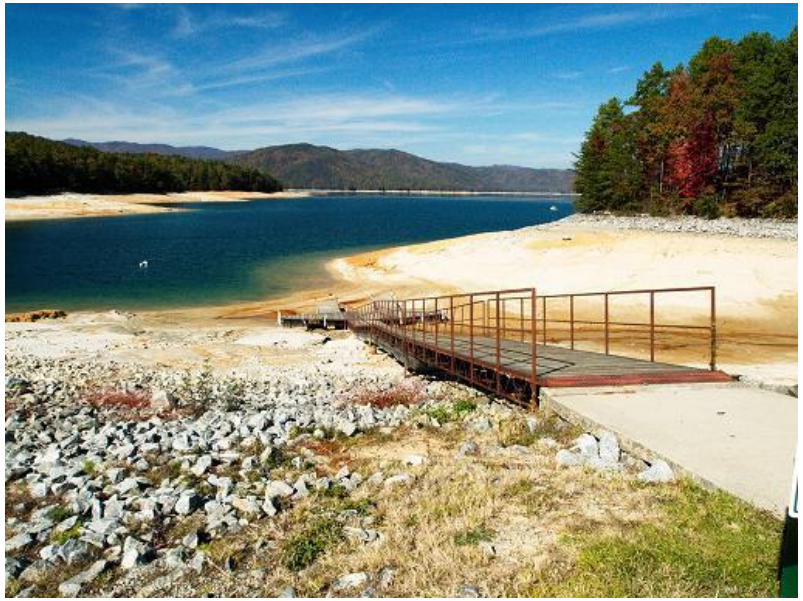


Drought Monitoring and Response in SC

Why: To carefully and closely monitor, conserve, and manage the State's water resources in the best interest of all South Carolinians.

Who: Drought Response Committee and Department of Natural Resources – State Climatology Office





Statewide members

- Forestry Commission
- Department of Agriculture
- Emergency Management Division
- Department of Health and Environmental Control
- Department of Natural Resources

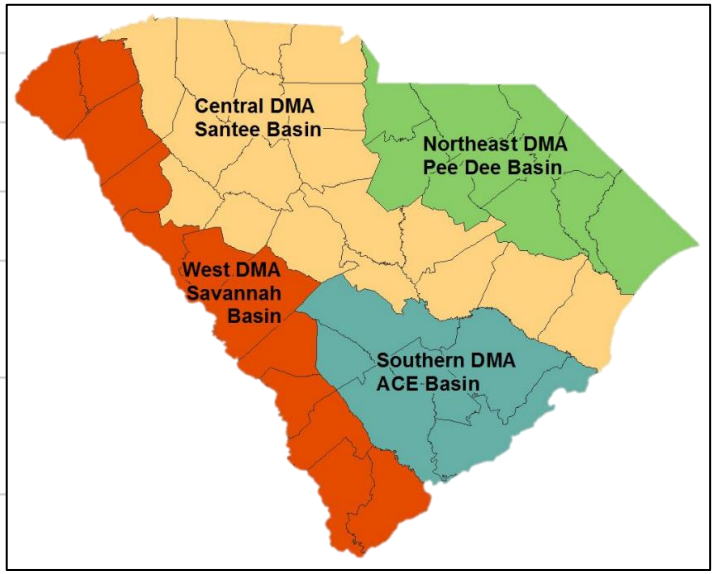
Local members (12 per DMA)

- Water Utilities
- Regional Council of Governments
- Power Generation Facilities
- Soil and Water Conservation Districts

Northeast Drought Management Area

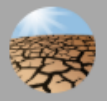
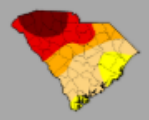
Counties: Kershaw, Lancaster, Lee, Chesterfield,Darlington, Dillon, Marlboro, Florence, Marion, Horry

Group	Committee Member	County	Contact Information
Agriculture	Caleb Miller - Appointment Pending		
Commission of Public Works	Vacant		
Counties	Vacant		
Domestic User	Vacant		
Industry	Athena Strickland - Appointment Pending	Marlboro	
Regional Council of Gov.	Lindsay Privette - Appointment Pending	Florence	
Municipalities	Clint Elliot - Appointment Pending	Horry	
Power Generation Facilities	Vacant		
Private Water Supplier	Robert L. Brock	Marlboro	
Public Service District	Elbert Warren	Darlington	
Soil & Water Conservation Dist.	Vacant	Florence	
Special Purpose District	Michael E. Hancock	Kershaw	



Drought Monitoring and Response in SC

How: The State uses multiple indicators and indices to monitor drought and determine drought severity levels.

Percent of Normal Rainfall		• Cumulative dryness or wetness compared to long-term averages
Crop Moisture Index (CMI)		• Agricultural growing season short-term (up to 4 weeks) dryness or wetness
Palmer Drought Severity Index (PDSI)		• Prolonged (month, years) abnormally dry or wet conditions
Water Resources		• Streamflow levels • Lake levels • Groundwater levels
Keetch-Byram Drought Index (KBDI)		• Daily forest fire potential
U.S. Drought Monitor for South Carolina		• General areas of drought, labeled by intensity on a weekly basis

Conditions and Response

SC Drought Response Act and Regulations

Incipient

- Drier than normal
- Soil moisture declines
- Water demand increases

Moderate

- Water levels decrease
- Crops and plants wither
- Irrigation increases

Severe

- Water levels continue to drop
- Number of wildfires increases
- Poor grazing and agricultural conditions

Extreme

- Widespread impacts to agriculture, forestry, water utilities, and water dependent businesses

SCDNR, SCO and DRC monitor conditions, share information, and make recommendations to manage drought.
State and federal agencies, water utilities, and reservoir managers monitor conditions.

Water utilities review drought plans and ordinances.

Water utilities implement drought plans and ordinances.
DRC may recommend voluntary or mandatory water conservation.

As drought conditions and impacts become more severe, response actions increase accordingly.

State agencies increase monitoring and communications. Citizens may see local notices for burn bans, boat ramp closings, and water use restrictions. The Governor may request voluntary or mandatory water conservation. The Governor may assist with managing impacts, including requesting disaster declarations by the US Dept. of Agriculture and activating the National Guard to assist with wildfire suppression.

State Emergency Operations Plan

Emergency Operations

- Water systems and citizens are without, or losing access to water.
- Public safety, health, and welfare are threatened.
- The State Emergency Response Team (SERT) is activated to lead state-level response to the water shortage emergency.

APPENDIX 10

(SOUTH CAROLINA DROUGHT RESPONSE PLAN)

TO THE SOUTH CAROLINA EMERGENCY OPERATIONS PLAN

I. INTRODUCTION

A. A drought is a slowly developing disaster that may occur over several months or years. Impacts from drought may occur quickly for some sectors while for others it may take years to have an impact.

B. A drought event can have a major impact on the State economy, and will affect everything from agriculture to industry to individuals.

C. Droughts are naturally recurring events in South Carolina. The length and severity has varied greatly over the last 25 years. The worst recorded drought, from 1999 to 2002, was one of the longest and most severe in more than 100 years. The 2007-2008 drought was shorter in duration than the 1999-2002 drought, but it had a stronger intensity, especially for the Upstate region. Parts of the State experienced severe drought again in 2011-2012 and 2016-2017.

II. PURPOSE

A. Establishes policies and procedures for the State and Counties when responding to a drought situation.

B. Identifies follow-on State-level actions to assist with and provide relief from severe or extreme drought conditions that have reached a level of disaster beyond the scope of the South Carolina Drought Response Committee.

C. Provides statewide planning and response strategies that allow State and County Emergency Management officials to effectively and efficiently plan and coordinate the application of local, State, and Federal resources in response to a severe or extreme drought event to prevent loss of life, minimize damage, lessen the economic impact, and protect the environment.

III. ASSUMPTIONS

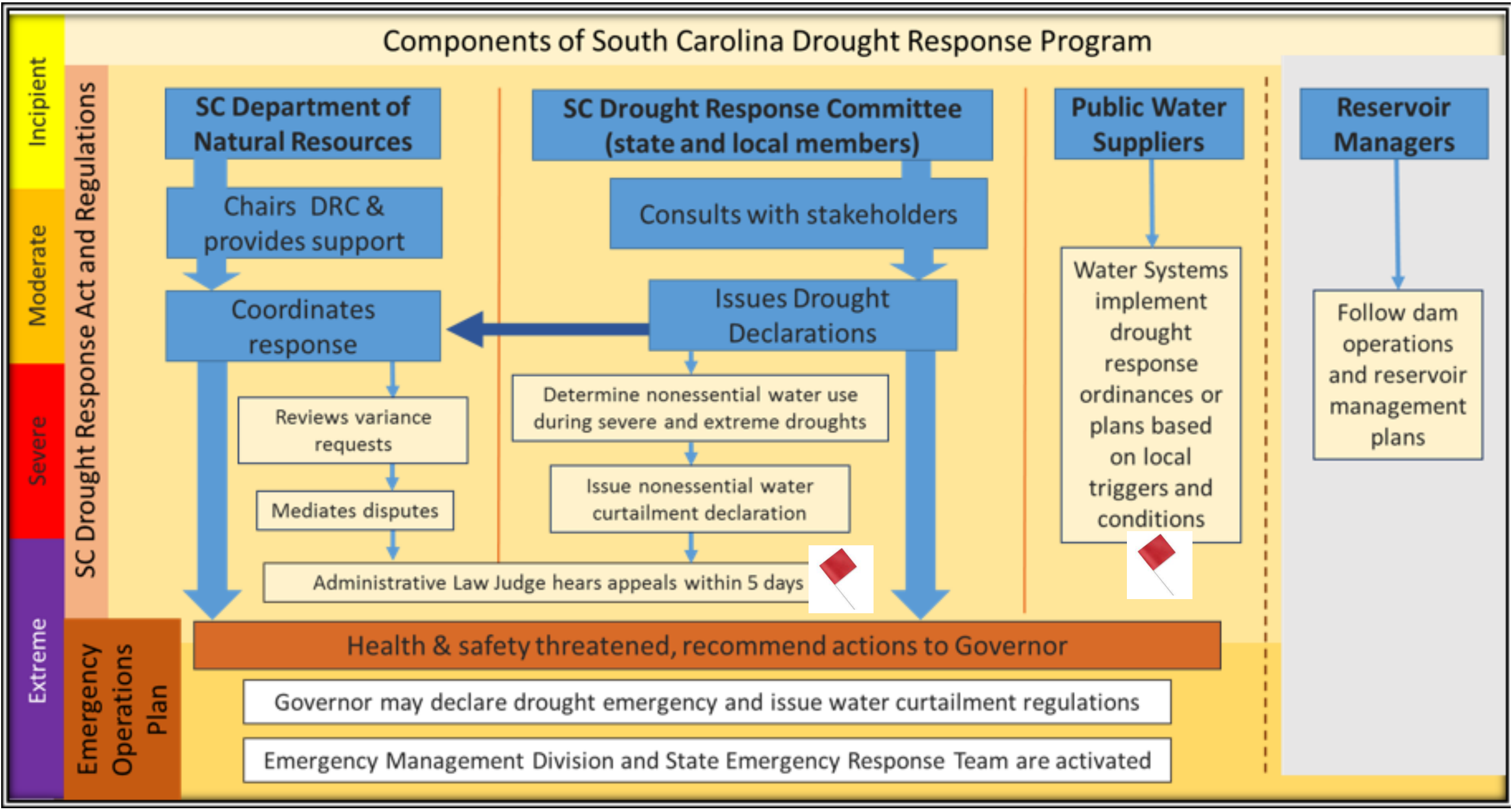
A. Not all areas of the State will be affected the same way at the same time during a drought. Therefore, different types of drought response operations may be occurring simultaneously in the State.

B. State actions in response to "Severe" or "Extreme" drought conditions may be identical as individual communities may be in both conditions in varying degrees.

C. The State Drought Response Plan may be in effect at the same time other measures are being implemented by the SC Drought Response Committee and local water systems.

Identifies follow-on State-level actions to assist with and provide relief from severe or extreme drought conditions that have reached a level of disaster beyond the scope of the South Carolina Drought Response Committee.

https://www.scemd.org/media/1237/appendix-10-sc-drought-response-plan.pdf


Components of South Carolina Drought Response Program
Incipient
Moderate
Severe
Extreme
SC Drought Response Act and Regulations
Emergency Operations Plan
SC Department of Natural Resources
Chairs DRC & provides support
Coordinates response
Reviews variance requests
Mediates disputes
SC Drought Response Committee (state and local members)
Consults with stakeholders
Issues Drought Declarations
Determine nonessential water use during severe and extreme droughts
Issue nonessential water curtailment declaration
Administrative Law Judge hears appeals within 5 days
Public Water Suppliers
Water Systems implement drought response ordinances or plans based on local triggers and conditions
Reservoir Managers
Follow dam operations and reservoir management plans
Health & safety threatened, recommend actions to Governor
Governor may declare drought emergency and issue water curtailment regulations
Emergency Management Division and State Emergency Response Team are activated

Local Level Drought Plans

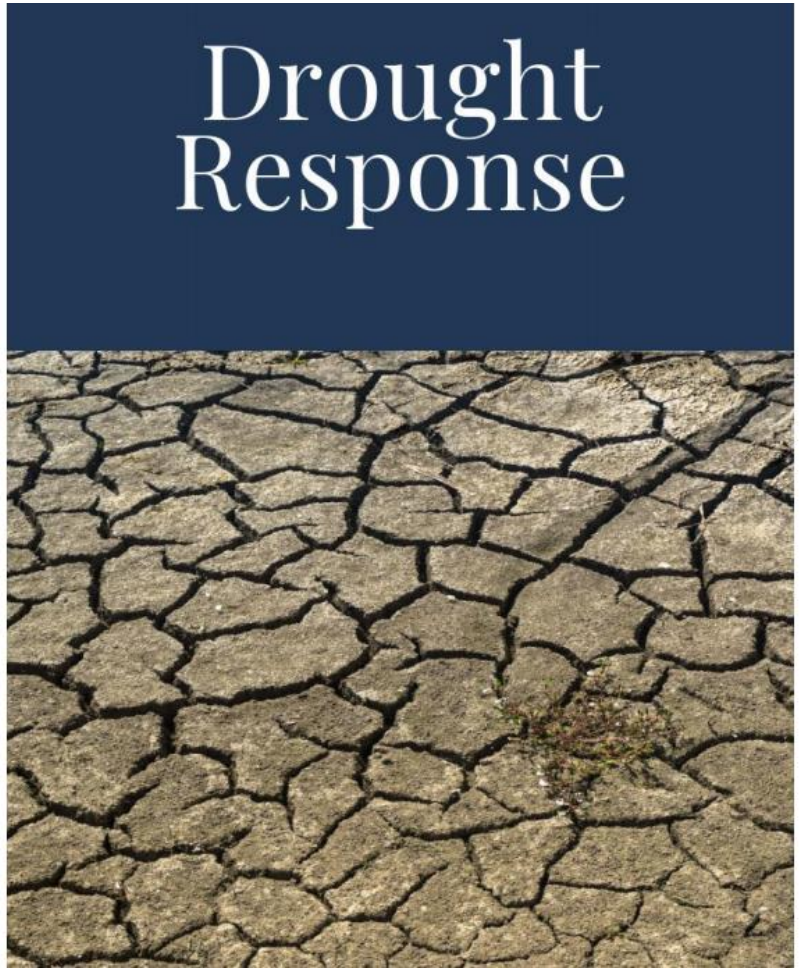
Model Drought Management Plan
and
Response Ordinance

(Provided by the South Carolina Department of Natural Resources as required by the South Carolina Drought Response Act of 2000.)

Contents

SCDNR | State Climatology Office

Mount Pleasant Waterworks Drought Management and Response Plan Revised May 2020



D. Identification of Water System Specific Drought or Water Shortage Indicators: Operators of every water system must develop historical trends that are valuable indicators of a system's ability to meet demand when demand begins to outpace supply. Mount Pleasant Waterworks has developed triggers for use during drought or demand water shortages that describe when specific phases of the Drought Response Plan are implemented. Staff will monitor triggers and recommend action. The system triggers are as follows:

Incipient Drought Phase:

1. Drought Response Committee declaration (considering droughts can be localized.)

Moderate Drought Phase:

1. Drought Response Committee declaration (considering droughts can be localized.)
2. Average system storage levels fall below 60% for 48 hours.
3. Well pumping levels less than 100' above pump in one or more wells.

Severe Drought Phase:

1. Drought Response Committee declaration (considering droughts can be localized.)
2. Average system storage levels fall below 40% for 48 hours, and/or
3. Well pumping levels less than 75' above pump in one or more wells.

Extreme Drought Phase:

1. Drought Response Committee declaration (considering droughts can be localized.)
2. Average system storage levels fall below 20% for 48 hours, and/or
3. Well pumping levels less than 50' above pump in one or more wells.

SCDNR | State Climatology Office

Severe Drought Phase

Triggers:

1. Drought Response Committee (DRC) declaration, OR
2. Average system storage levels fall below 40% for 48 hours, OR
3. Well pumping levels less than 75' above pump in one or more wells.
4. Rationing when water pressure has been reduced to 40 psi and water storage levels drop below 20% for 48 hours.

Goals: *To be implemented at Trigger #2 or #3 above*

1. **40% Reduction** of all water use
2. Voluntary reductions from customers in the use of water for all purposes
3. Mandatory restrictions on non-essential usage and restrictions on times when certain water usage is allowed

Note: Actions may be time-based to prescribe certain activities. For example, the request for 40% reduction in water usage may only be necessary after 30 or 45 days within this drought stage depending on other factors.

Administrative Actions:

	Task	*Assignee (ICS Position*)*
❑	Issue a Proclamation to be released to the local media, MPW customers, and to the South Carolina Department of Natural Resources Drought Information Center that Severe drought conditions are present.	General Manager
❑	Provide written notification to the South Carolina Department of Natural Resources Drought Information Center.	General Manager
❑	Communicate with the Southern Drought Management Area (DMA) DRC representative on MPW's drought conditions, impacts, and actions taken so DRC has this information when setting drought levels for the Southern DMA.	General Manager
❑	Consider offering incentives to customers for finding and repairing leaks and/or for complying with voluntary restrictions.	General Manager
❑	Communicate financial impacts of drought to Commissioners and customers.	General Manager
❑	Provide written notification monthly to the South Carolina Department of Natural Resources Drought Information Center regarding the outcomes of the voluntary and mandatory restrictions.	General Manager
❑	Encourage all residential water customers to voluntarily reduce overall monthly water usage to 60% of the customer's monthly average. If voluntary reduction of usage is not successful, the Mount Pleasant Waterworks may, at its option, implement the excessive use rate schedule for water, included at the bottom of this table. (Note: this rate modification is based on a reduction from actual average usage/REU vs. allocated capacity/REU.)	General Manager
❑	Analyze AMI and other data to determine actual water usage reduction vs. goal. Determine customers not meeting 40% goal and generate customized notification to encourage.	Customer Services Manager
❑	Monitor and track daily/weekly call volume in Call Center. Consider invoking Emergency Call Takers to work in Contact Center to handle increased call volume.	Customer Services Manager
❑	Suspend cut-offs.	Customer Services Manager
❑	Activate new tier charges in CIS when decision to implement is made by General Manager. When modified rate structures are implemented, a comparison of actual usage vs. target of modified tier structure should be included in customer bills.	Customer Services Manager
❑	Follow communication guidelines outlined in Mount Pleasant Waterworks Crisis Communication Plan to inform Mount Pleasant Waterworks' customers of the water system condition and voluntary and mandatory conservation measures that the customers are requested to follow during Severe drought conditions. See Appendix G for guidelines. Encourage self-policing by residents to alert the utility of system leaks.	PIO
❑	Add bill inserts with conservation measures and updates on actual water usage reduction vs goal.	PIO
❑	Collaborate and communicate with other water utilities and entities within the Southern Drought Management Area to ensure consistent messaging.	PIO
❑	Work with CWS for consistent messaging to customers and public.	PIO
❑	Develop and update ongoing list of Frequently Asked Questions (and answers) from Contact Center calls and Marketing/Communications.	PIO
❑	Conduct regular (at least weekly) communications meetings between dispatch, customer service, and communications to review FAQ and develop consistent messaging.	PIO
❑	Communicate to customers in advance when to expect higher water bills.	PIO
❑	Publicize widely the penalties to be imposed for violations of mandatory restrictions and the procedures to be followed if a variance in the restrictions is requested.	PIO
❑	Expand the use of education and public relations efforts and emphasize the penalties associated with violating the mandatory restrictions.	PIO
❑	Conduct financial analysis of capacity buy-in vs. wholesale rates from CWS to determine the most cost-effective way to purchase additional water.	Finance Section Chief
❑	Track and report billed revenues vs. collected revenues.	Finance Section Chief
❑	Email and update all staff on current drought stage and conservation measures.	Planning Section Chief
❑	Keep staff updated with current conditions on Canteen display board.	Planning Section Chief
❑	Report drought-related conditions and impacts weekly to the National Drought Mitigation Center: http://bit.ly/droughtreport19	Planning Section Chief
❑	Adjust regular meeting schedule (see schedule below).	Planning Section Chief
❑	Attend DRC conference calls for updates.	Planning Section Chief

Severe Drought Phase Excessive Use Rate Schedule

Tier I	0 – 3,000 gallons/REU	regular rate
Tier II	3,001 –6,000 gallons/REU	2 times regular rate
Tier III	6,001 – 9,000 gallons/REU	3 times regular rate
Tier IV	Greater than 9,000 gallons/REU	4 times regular rate

Meeting Schedule (Severe Drought):

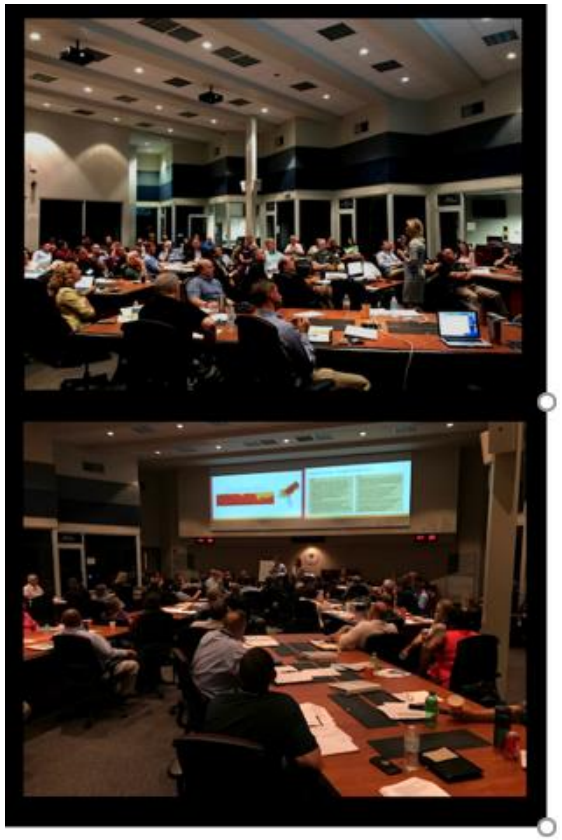
Day of Week	*Time*	*Location*	*Attendees*
Mondays	10:00 AM	MPW Conference Room	MPW ICS Team MPW Commissioners Town Staff (e.g., Public Services) CWS representatives
Thursdays, as determined by DRC	TBD	Conference Call	Drought Response Committee, MPW IC, Planning Section Chief & Operations Branch Director
Fridays	3:00 PM	Conference Call	MPW ICS Team MPW Commissioners Town Staff (e.g., Public Services) CWS representatives

Operations Actions:

	Task	***Assignee (ICS Position*)***
❑	Utilize AMI and field inspections to identify water leaks and intensify maintenance efforts to correct water leaks in the distribution system.	Field Service Branch Director
❑	Cease installation of new irrigation taps on the water system.	Field Service Branch Director
❑	Contact all permitted hydrant users to cease using water until further notice. Notify all hydrant metered customers that meters will be pulled for the duration. Restoration of the meters will commence once conditions are favorable for normal use.	Field Service Branch Director
❑	Communicate to all fire stations the reduction in pressures and procedure to follow to increase pressures during firefighting.	Field Service Branch Director
❑	Adjust auto blowoffs to maintain minimum water quality goals.	Field Services Branch Director
❑	Consider making provisions for emergency cooling/improved ventilation of critical machinery due to the stress increased demand and/or elevated environmental temperatures may place on the machinery.	Field Services Branch Director
❑	Coordinate with Town, utilities and their associated contractors to enact/enforce restrictions on directional drilling to minimize damage risk to water lines during severe and/or extreme drought.	Field Services Branch Director
❑	Maintain regular (at least weekly) contact with CWS to receive updates on their assets and operational conditions. Provide updates to MPW staff during regular team meetings.	Operations Branch Director
❑	Monitor usage, storage levels, and operation status of critical assets and report to regular management meetings.	Operations Branch Director
❑	Consider increase in blending of raw water to increase production as needed.	Operations Branch Director
❑	Reduce distribution pressures to ~40 psi. Per the AWWA M60 manual, lower water pressures typically result in an average of 6% reduction in water usage.	Operations Branch Director
❑	Backfill storage tanks at night from CWS.	Operations Branch Director
❑	Consider recycled water from wastewater treatment plants for commercial companies to collect and distribute to customers for irrigation.	Operations Branch Director
❑	Consider increasing the frequency of monitoring and testing of water quality.	Operations Branch Director
❑	Measure & report water levels in each of the deep wells weekly.	Water Supply Group Supervisor
❑	Monitor fluoride levels for potential public notification.	Water Supply Group Supervisor

**** See Table 13.5 of the MPW Emergency Management Plan for the ICS Positions referenced above.***

SC Drought and Water Shortage Tabletop Exercise
September 2017 and 2019 – SC Emergency Operations Center



	2017	2019
Attendees	80	93
Organizations	40	48

Objectives of the Tabletop Exercise

1. Identify and understand the breaking points in the *SC Drought Response Act*, *SC Drought Regulations*, *SC Emergency Response Plan Drought Annex*, and local drought plans and procedures.

2. Improve awareness of local, state, and federal players in South Carolina's drought response.

3. Identify key mission areas for Each State Emergency Support Function.

4. Collect ideas and strategies for future exercises.

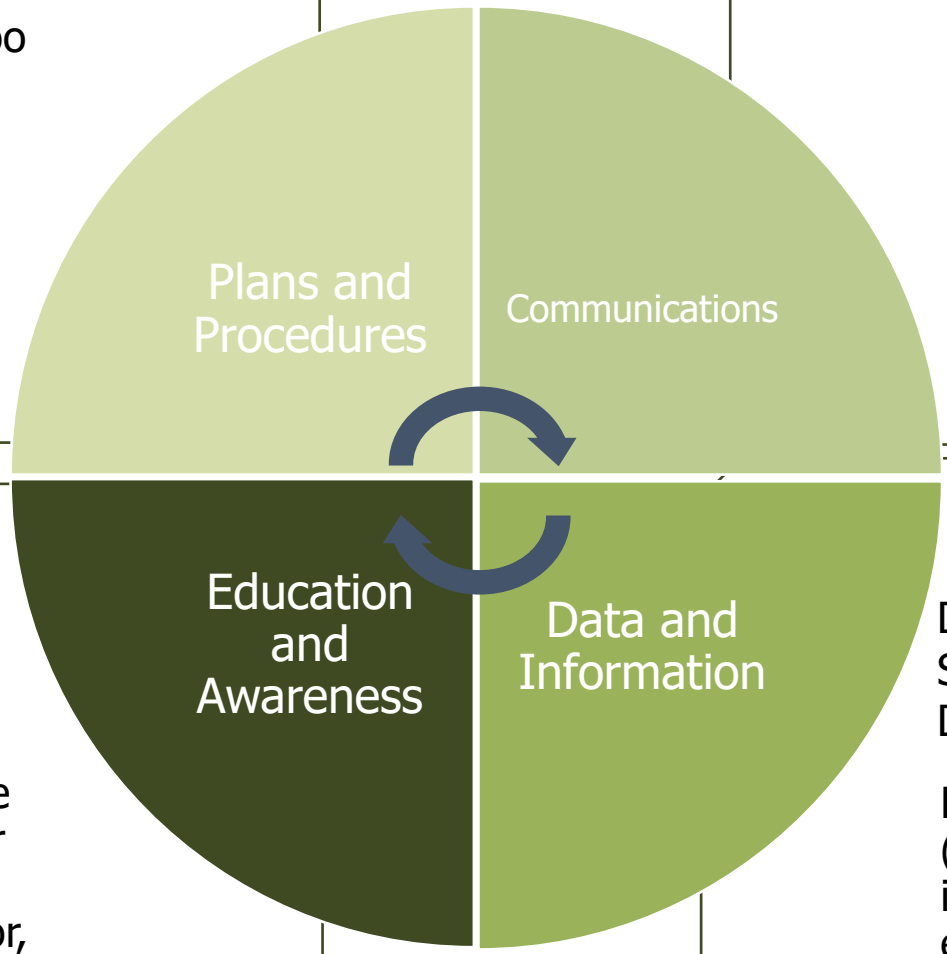
"Breaking Points"

DRC vacancies

EMD and Governor's Office involved too Late

Local plans need updating

Lack of consistent messaging about drought conditions and water conservation, particularly across local communities

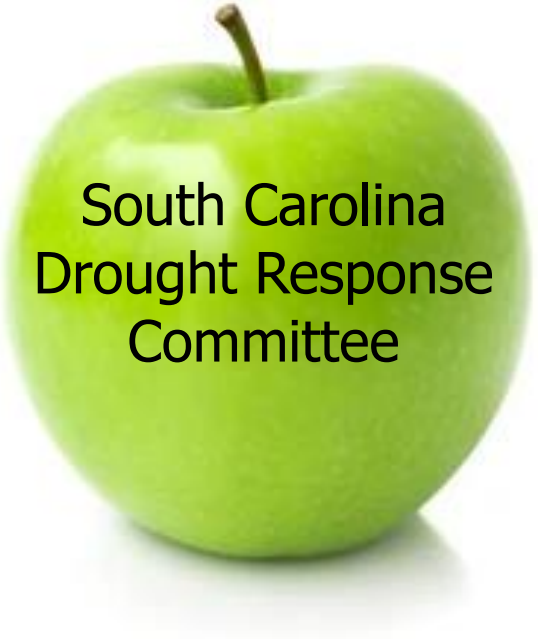


Many agencies unaware of the drought response process and their role in, and responsibilities for, drought response

Drought Monitor vs SC Drought Response Declaration

Lack of information (water system interconnections, economic effects) that would be helpful for planning and mitigation

Understanding the USDM and the South Carolina Drought Response Committee



Understanding the USDM and the South Carolina Drought Response Committee

USDM

https://droughtmonitor.unl.edu/

USDM authors work at NDMC, USDA, and NOAA. Authors take turns making the weekly map, which is based on drought indicators and input from contributions. Contributors include:

- NOAA
- USDA
- Other federal agencies
- State agencies
- Universities

Authors use a "convergence of evidence" approach to review and synthesize a wide range of information. The website lists the various products that are used to develop the weekly map.

The Drought Classification table shows numeric values for selected indicators and how they relate to USDM drought categories.

Five classifications

- D0 = abnormally dry
- D1 = moderate
- D2 = severe
- D3 = extreme
- D4 = exceptional

SC DRC

http://www.scdrought.com/

SC Department of Natural Resources, State Climatology Office and the SC Drought Response Committee (DRC)
SC Drought Response Act (amended 2000); SC Drought Regulations (2001)

Drought Management Areas (DMAs) include representatives from:

- Local government
- Private and public water suppliers
- Power generation facilities
- Agricultural, industrial, and domestic water users
- Soil and Water Conservation Districts

The SC DRC convenes when conditions warrant. Drought Management Area committees make county drought designations.

SC Regulations specify the indicators to be used to monitor conditions and the numeric values that correspond to each drought alert phase.

Drought Alert Phases

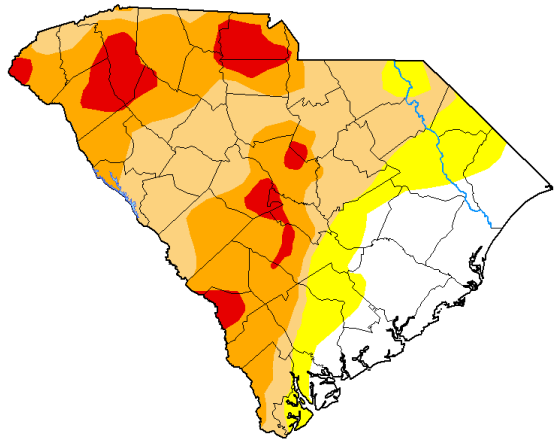
- Incipient
- Moderate
- Severe
- Extreme

USDM vs SC DRC Drought Indicators

USDM Inputs

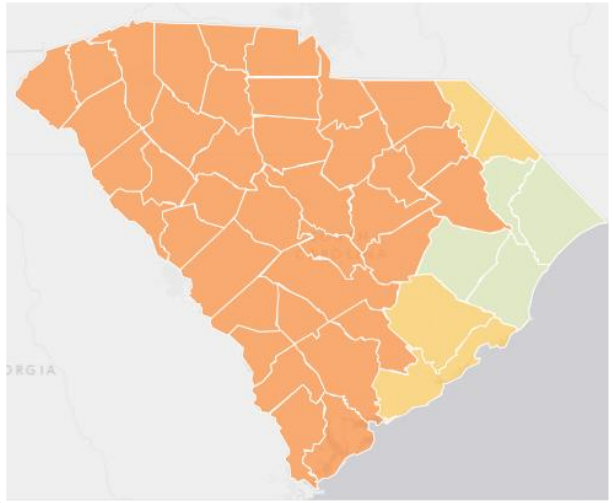
- Precipitation
- Soil Moisture
- Vegetation Health
- Surface Water
- Evaporation
- Groundwater
- Impacts & Condition Monitoring reports

USDM Map 10/15/2019



Intensity:
- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

SC Drought Declaration Map by County (10/17/2019)



Normal | Incipient | Moderate | Severe | Extreme

Other Indicators used for SC

- Palmer Drought Severity Index (PDSI)
- Crop Moisture Index (CMI)
- Standard Precipitation Index (SPI)
- Keetch-Byram Drought Index (KBDI)
- Average daily streamflow
- Groundwater Levels

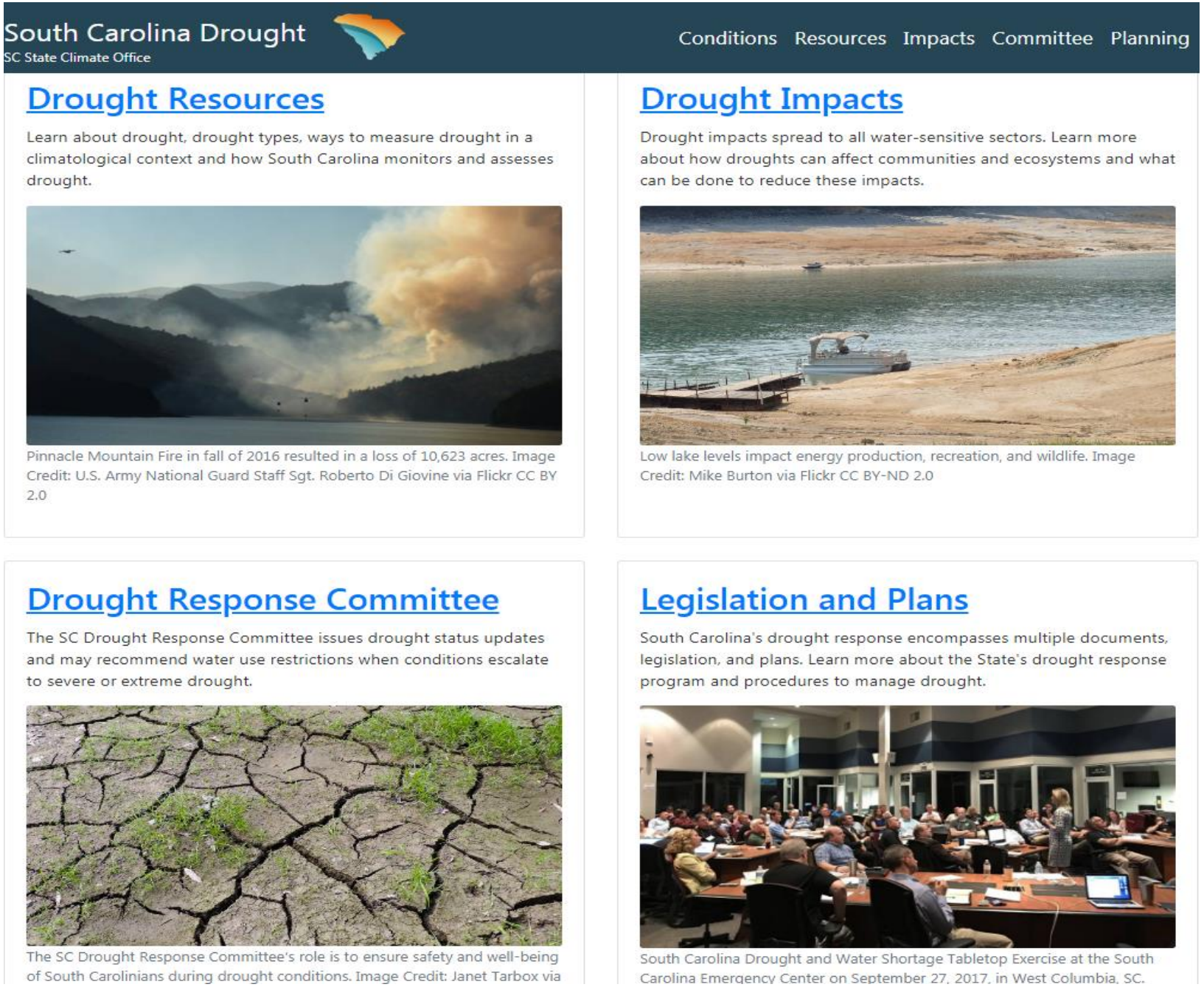
SCDNR | State Climatology Office

SCdrought.com

SCDNR | State Climatology Office

Home Page

- 5 Main Tabs:
  - Conditions
  - Resources
  - Impacts
  - Conditions
  - Planning



Drought Conditions in South Carolina

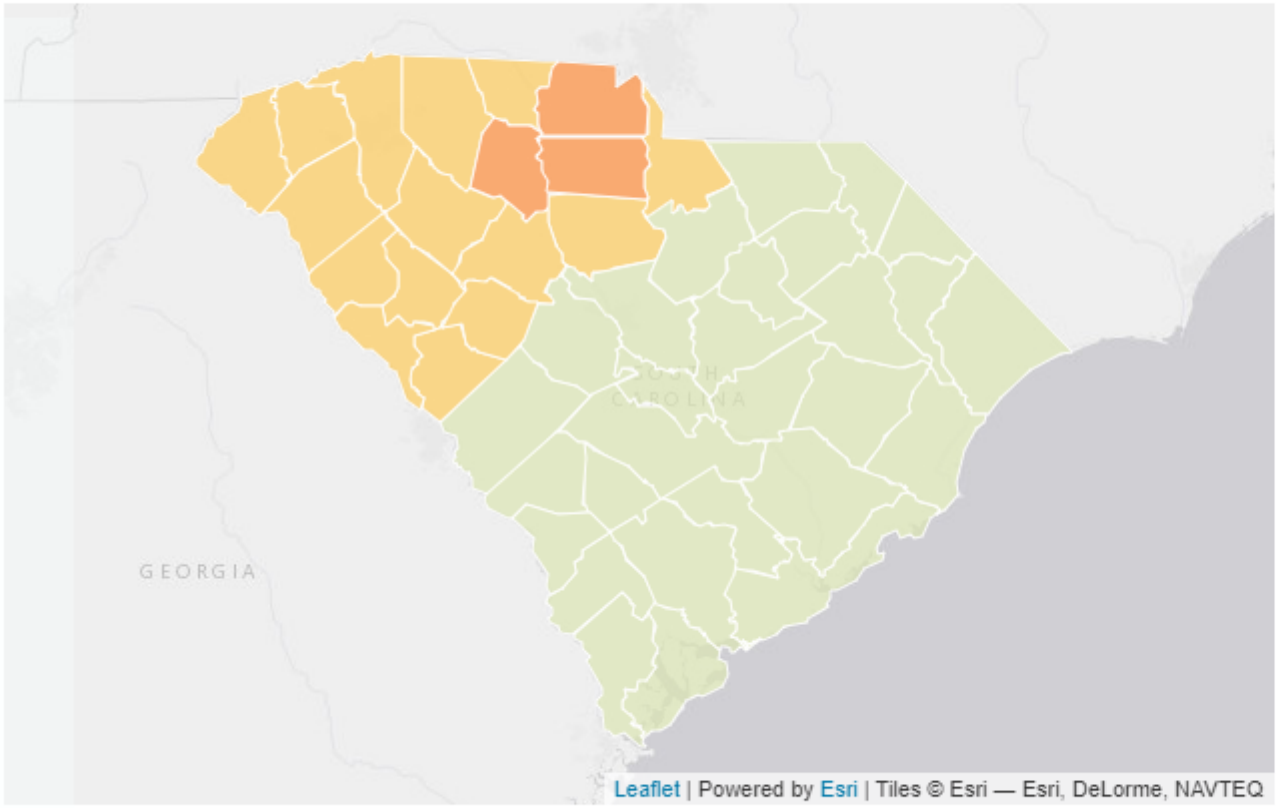


Table View | Save Map as Image | Drought Status Report

Current Status as of 09-01-2022

Last Drought Response Meeting: 09-01-2022

Normal	28
Incipient	15
Moderate	3
Severe	0
Extreme	0

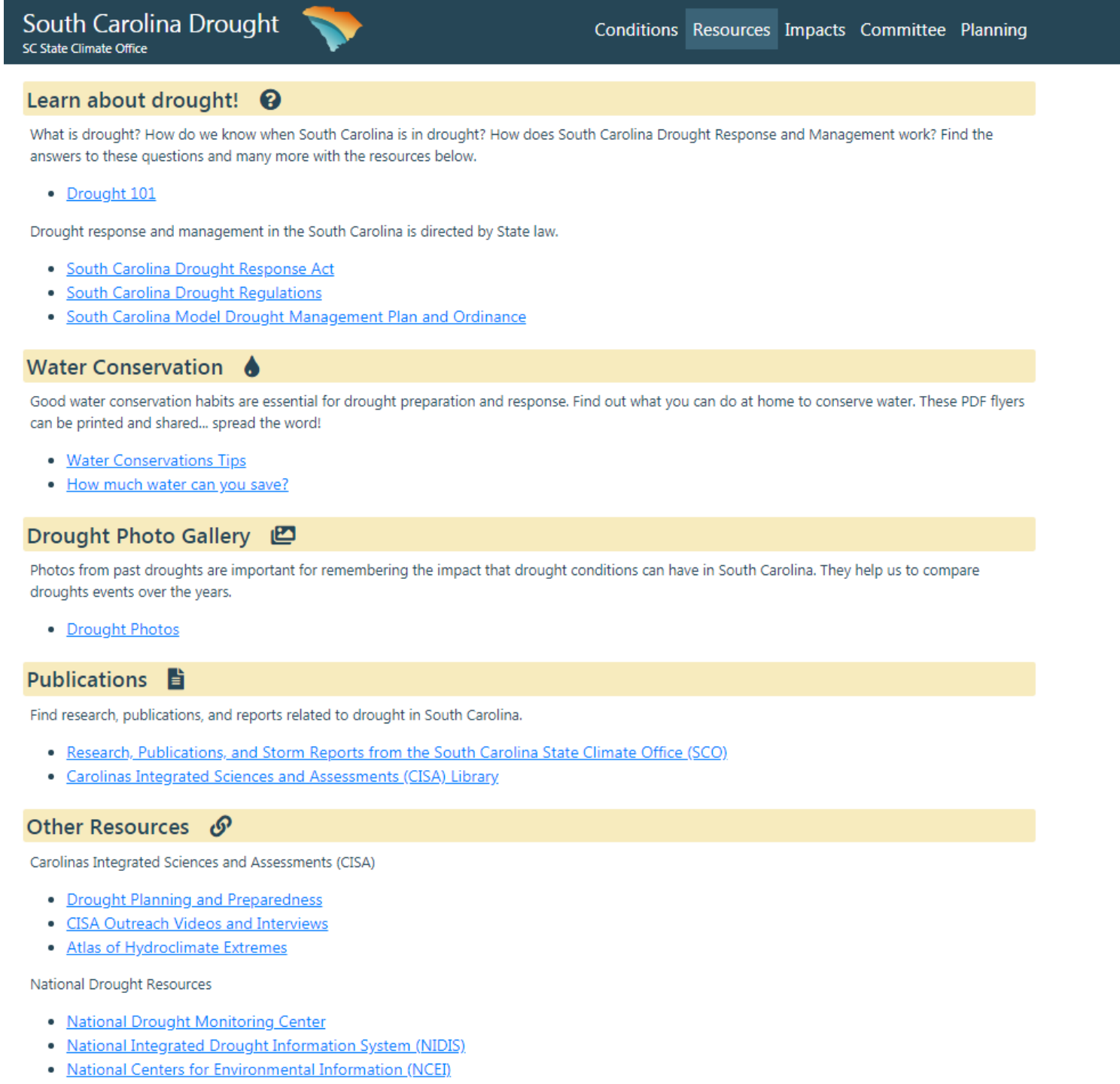
Number of Counties in Each Category

Archived Drought Status

Current

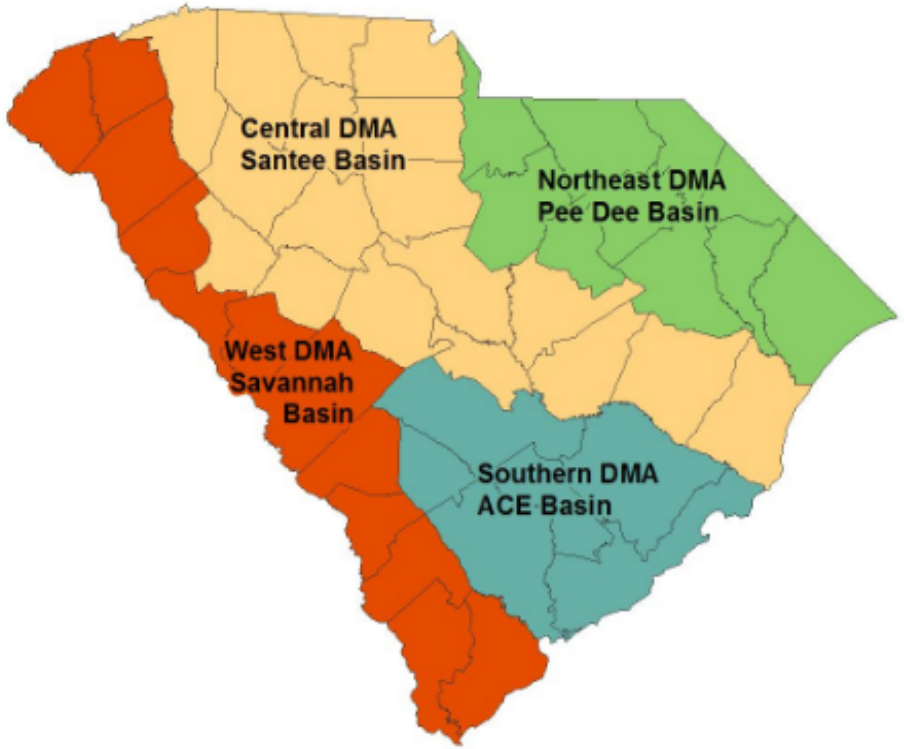
SC Drought Resources

- Learn about drought
- Water Conservation Tips and infographics
- Drought Photos from the 2007, 2008, and 2011 droughts
- Publications from both the SC SCO and Carolinas Integrated Sciences and Assessments (CISA)
- Other resources from CISA, National Drought Monitoring Center (NDMC), National Integrated Drought Information System (NIDIS), and National Centers for Environmental Information (NIDIS)



South Carolina Drought Response Committee

The SC Drought Response Committee consists of state and local members and governs drought related issues and response in South Carolina. Local members are organized according to Drought Management Areas. The DRC is chaired and supported by the South Carolina Department of Natural Resources and the SC State Climatology Office. The DRC monitors climatic conditions, evaluates drought indicators, and consults with stakeholders to issue drought status updates. During severe or extreme drought, the DRC determines nonessential water use and issues declaration for water curtailment.



Drought Management Areas

West Drought Management Area
Central Drought Management Area
Northeast Drought Management Area
Southern Drought Management Area

Statewide Members

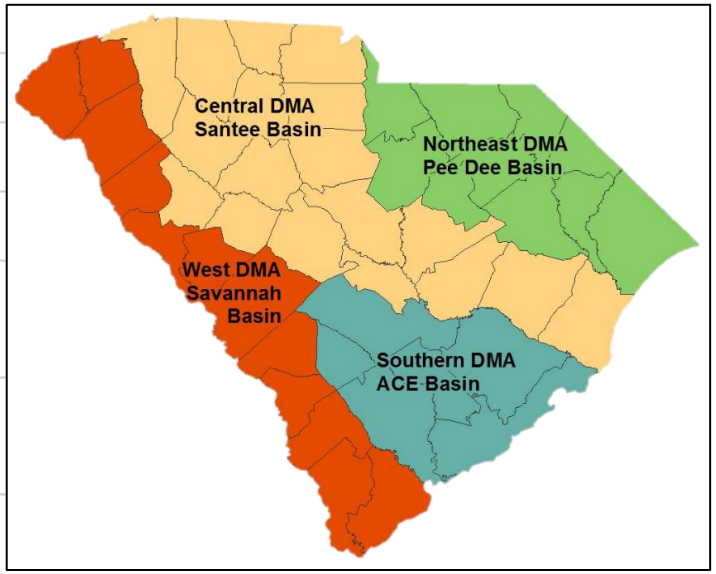
State Agency Members

To learn more about how the committee monitors and identifies drought, visit the South Carolina Drought 101 page.

Northeast Drought Management Area

Counties: Kershaw, Lancaster, Lee, Chesterfield,Darlington, Dillon, Marlboro, Florence, Marion, Horry

Group	Committee Member	County	Contact Information
Agriculture	Caleb Miller - Appointment Pending		
Commission of Public Works	Vacant		
Counties	Vacant		
Domestic User	Vacant		
Industry	Athena Strickland - Appointment Pending	Marlboro	
Regional Council of Gov.	Lindsay Privette - Appointment Pending	Florence	
Municipalities	Clint Elliot - Appointment Pending	Horry	
Power Generation Facilities	Vacant		
Private Water Supplier	Robert L. Brock	Marlboro	
Public Service District	Elbert Warren	Darlington	
Soil & Water Conservation Dist.	Vacant	Florence	
Special Purpose District	Michael E. Hancock	Kershaw	



South Carolina Drought Planning

The South Carolina Drought Response Program consists of legislation, regulations, and procedures that establish recommended and required response at moderate, severe, and extreme drought alert phases. The South Carolina Drought Response Act and the supporting regulations formally establish and describe the responsibilities of the South Carolina Drought Response Committee (DRC), the major drought decision-making entity in the State. The DRC is composed of statewide and local members, and state agency members include:

- Emergency Management Division
- Department of Health and Environmental Control
- Department of Agriculture
- The Forestry Commission
- Department of Natural Resources

Watch an interview with South Carolina State Climatologist Hope Mizzell. Dr. Mizzell discusses the State Climate Office's role in administration of the South Carolina Drought Response Act.

SC State Climatologist, Dr. Hope Mizzell, and SC Emergency Management Division Dam Safety Coordinator, Marshall Sykes, walk attendees through a series of intensifying drought scenarios at South Carolina's first Drought and Water Shortage Tabletop Exercise in September 2017. Photo courtesy of CISA

The Drought Response Act requires all public water suppliers to develop and implement local drought plans and ordinances. *The Drought Regulations recognize that local governments have primary responsibility for alleviating drought impacts and encourage cooperation among neighboring water systems.* DNR created a sample drought plan and ordinance for local governments and water systems to use in developing their own documents.

> You can search for and view approved water system drought plans and ordinances through the Drought Management Plan and Response Ordinance Inventory.

The South Carolina Drought Response Plan is located in Appendix 10 of the State's Emergency Operations Plan (EOP). The Drought Response Plan describes actions when drought conditions have reached a level of severity beyond the scope of the DRC and local communities. The South Carolina Emergency Management Division (EMD) maintains the EOP and leads multi-agency response to hazard events. Upon an activation of the EOP, EMD and the State Emergency Response Team (SERT) assemble in the South Carolina Emergency Operations Center to coordinate the State's response.

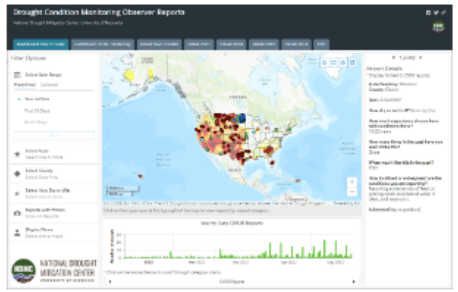
Side Plug: Contribute to Drought / Condition Reporting!

Drought Impacts Toolkit

Home | Tools | Emerging Impacts | Impact Assessments

Home > Tools > CMOR

Submit and view Condition Monitoring Observer Reports (CMOR)



2022 Map

Archive

Download Factsheet

Download Factsheet En Español

Watch Video

Social Media Resources

CMOR use in North Dakota

Report drought-related conditions and impacts within the U.S. This is a nation-wide service provided by the National Drought Mitigation Center, based at the University of Nebraska, in partnership with the National Integrated Drought Information System. Information submitted by this form appears on a map and becomes part of a permanent public record. Please note that this form is not part of the process to apply for assistance. To participate, you must legally be an adult, at least 18 years old in most states, 19 in Nebraska or Alabama, or 21 in Mississippi. By submitting information, you agree that it may be used in drought monitoring research. Questions? Please email DIRinfo@unl.edu.

Submit a Report | Submit Report by App

For further assistance in using the app, see the factsheet.

https://droughtimpacts.unl.edu/Tools/ConditionMonitoringObservations.aspx

Side Plug: Contribute to Drought / Condition Reporting!

Drought Condition Monitoring Observations and Reports 2022

Seleccione un idioma

Para utilizar este formulario en español, utilice el menú en la parte superior izquierda.

Introduction

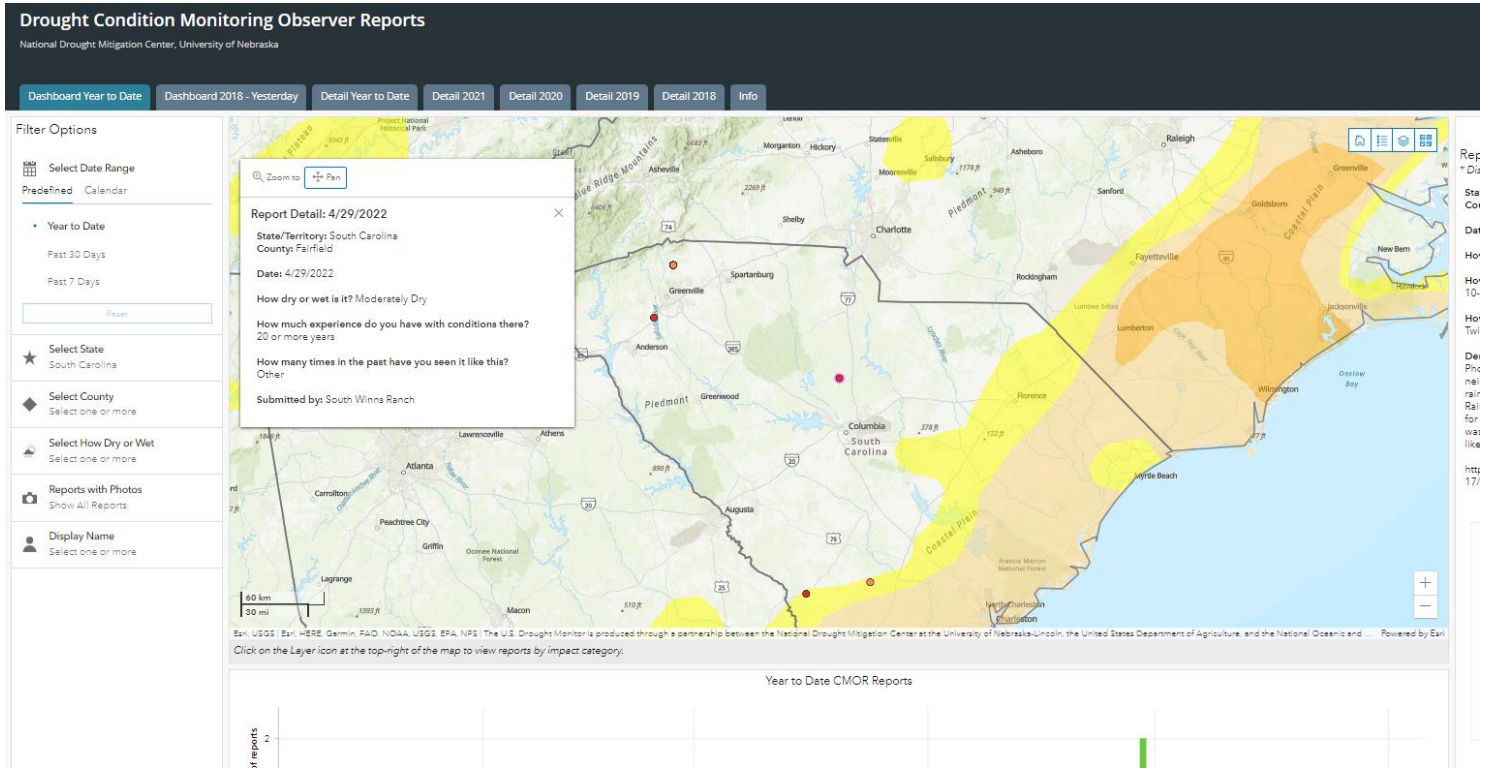
Report drought-related conditions and impacts within the U.S. This is a nation-wide service provided by the National Drought Mitigation Center, based at the University of Nebraska, developed in partnership with the National Integrated Drought Information System and the U.S. Department of Agriculture. Please note that this form is not part of the process to apply for assistance. To participate, you must legally be an adult, at least 18 years old in most states, 19 in Nebraska or Alabama, or 21 in Mississippi. By submitting information, you agree that it may be used in drought monitoring research. Questions? Please email DIRinfo@unl.edu.

Find your report(s) on the map

Information submitted via this form appears on a map and becomes part of a permanent public record. See your mapped reports at https://go.unl.edu/cmormap.

Where are you?*

Use the search box to enter the city or county of your observation. If you are using the mobile app, you have the option to enable location and use that instead. From a computer, clicking on the compass icon may work if you are not using a VPN, depending on your configuration.



Thank You!

Questions?

Elliot:
wickhame@dnr.sc.gov
803-465-1098

Hope:
MizzellH@dnr.sc.gov
803-734-9568