

# 2022 SE Drought Early Warning System (DEWS) Partners Dialogue

## Alabama Drought Planning and Response Program

Tom Littlepage

Alabama Office of Water Resources

August 10, 2022

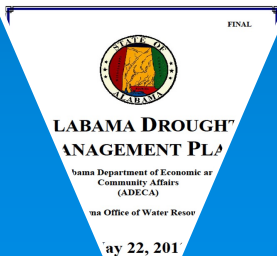
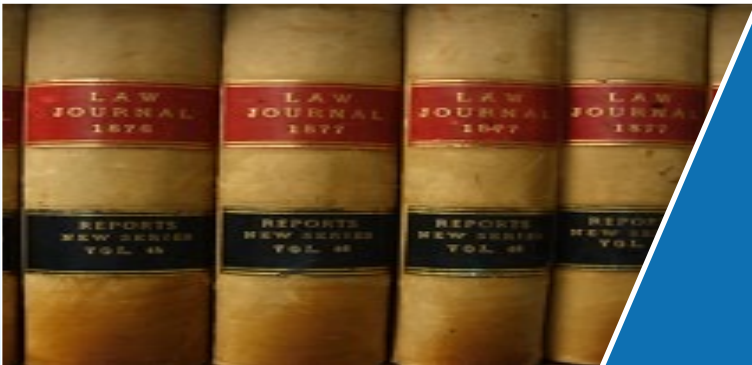
# Alabama Drought Response Concepts



- Coordination
- Communication
- Transparency
- Allow decisions to be made at lowest level possible
- Part of comprehensive water management philosophy

# Alabama Regulatory Drought Management Approach

Level of Procedural Detail



- Drought Act provides broad overview of drought management policies, priorities, structures, processes, and agency responsibilities
- Drought regulations provide more detailed information on specific procedures and responsibilities for drought reporting and publication of Alabama Drought Plan
- Alabama Drought Plan provides specific criteria on drought declarations, drought reporting information and format, and meeting procedures

# Alabama Drought Planning & Response Act (2014 – 400) Basic Provisions

- Signed on April 9, 2014
- Codified in Code of Alabama as §§ 9-10C-1, et seq.
- Maintains focus of coordination and communication
- Incorporates key aspects of previous Executive Order 19
  - Requirement for State Drought Plan
  - Role of the Office of Water Resources
  - Drought organizational structure

# Alabama Drought Planning Structure

**Governor Kay Ivey**



## **Alabama Drought Assessment and Planning Team (ADAPT)**

- Senior advisory body to the Governor and OWR
- Composed of key state and federal agencies and Governor's appointees
- Receive inputs from OWR, MIG, and others
- Focal point for coordination of governmental drought responses



## **Monitoring and Impact Group (MIG)**

- Develop triggers and indicators of drought
- Collect climatic, meteorological, stream flow, groundwater, reservoir, soil moisture, and impact data
- Perform data analysis
- Make recommendations based on data analysis
- Assess the potential and real impacts of drought
- Develop mitigation recommendations

# Basic Provisions (Cont'd)

- Formalizes process for Alabama input into National Drought Monitor map
- Establishes role of State Climatologist in drought response processes
- Improves reporting by public water systems on the status of local conditions and water sources

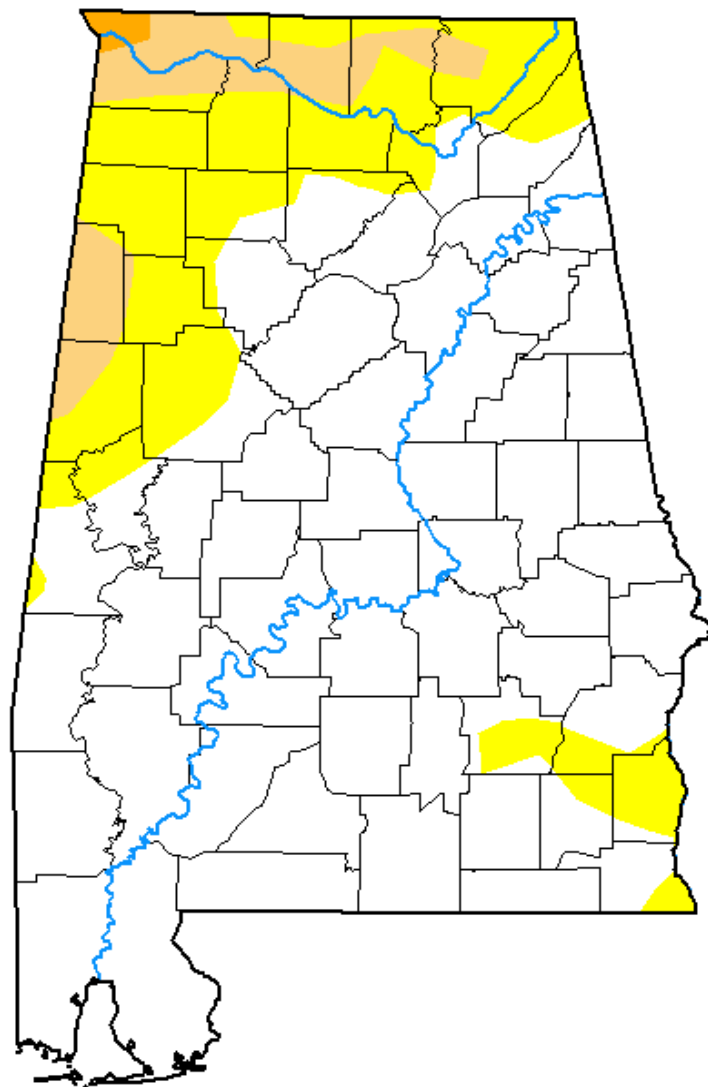
# U.S. Drought Monitor

## Alabama

### August 2, 2022

(Released Thursday, Aug. 4, 2022)

Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4
<b>Current</b>	75.41	18.80	5.42	0.37	0.00	0.00
<b>Last Week</b> <i>07-26-2022</i>	70.28	22.16	7.19	0.37	0.00	0.00
<b>3 Months Ago</b> <i>05-03-2022</i>	97.02	2.98	0.00	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>01-04-2022</i>	76.82	19.74	3.44	0.00	0.00	0.00
<b>Start of Water Year</b> <i>09-28-2021</i>	100.00	0.00	0.00	0.00	0.00	0.00
<b>One Year Ago</b> <i>08-03-2021</i>	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Curtis Riganti  
National Drought Mitigation Center



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

# Basic Provisions (Cont'd)

- Formalizes the state's drought declaration process
- Goal is to ensure drought planning and procedures can easily be incorporated into comprehensive statewide water resources planning process
- Clarifies process for state level restrictions on water use for potential utilization under the most extreme drought conditions





Release Date: July 27, 2022

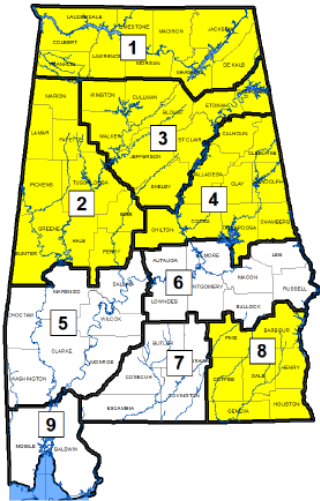


# For Public Dissemination Alabama Drought Declaration

In accordance with the Alabama Drought Planning and Response Act (Code of Ala. 1975, §9-10C-1, et seq.) and the Alabama Drought Management Plan, the ADECA Office of Water Resources (OWR), based on a review of current and anticipated conditions, has declared the following portions of Alabama to be under the specified drought declaration levels.

### Declaration Level

- Emergency** None
- Warning** None
- Watch** None
- Advisory** Drought Regions 1, 2, 3, 4, and 8 of the Alabama Drought Management Plan which include the counties of:  
Barbour, Bibb, Blount, Calhoun, Chambers, Cherokee, Chilton, Clay, Cleburne, Coffee, Colbert, Coosa, Cullman, Dale, DeKalb, Etowah, Fayette, Franklin, Geneva, Greene, Hale, Henry, Houston, Jackson, Jefferson, Lamar, Lauderdale, Lawrence, Limestone, Madison, Marion, Marshall, Morgan, Perry, Pickens, Pike, Randolph, Shelby, St. Clair, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker, and Winston
- None** Drought Regions 5, 6, 7, and 9 which include the counties of:  
Autauga, Baldwin, Bullock, Butler, Choctaw, Clarke, Conecuh, Covington, Crenshaw, Dallas, Elmore, Escambia, Lee, Lowndes, Macon, Marengo, Mobile, Monroe, Montgomery, Russell, Washington, and Wilcox,



Legend
No Drought Declaration
Advisory
Watch
Warning
Emergency

Recent rainfall levels have helped to improved drought conditions, primarily in the southern part of the state. Drought Regions 1, 2, 3, 4 and 8 are still declared to be at the Drought Advisory level. OWR will continue monitoring our water resources and update this Declaration as needed.

Water managers are urged to carefully monitor conditions and encourage the wise and efficient use of our water resources. Public water system customers are encouraged to follow their local water system's recommendations regarding water use. All other water users should make prudent decisions on their water use to protect available resources.

For further information, please visit our web site at [water.alabama.gov](http://water.alabama.gov) and follow the links for Drought Planning and Management. You may also reach our office at (334) 242-5499, fax at (334) 242-0776, or e-mail at [water@adeca.alabama.gov](mailto:water@adeca.alabama.gov).

# Alabama Drought Declaration



# Drought Planning and Response Regulations

Economic and Community Affairs (ADECA) Chapter 305-7-13

ALABAMA DEPARTMENT OF ECONOMIC AND COMMUNITY AFFAIRS  
OFFICE OF WATER RESOURCES

CHAPTER 305-7-13  
DROUGHT PLANNING AND RESPONSE

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305-7-13-.01	Purpose
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305-7-13-.06	Drought Declarations
305-7-13-.07	Community Public Water System Drought Conservation Plans
305-7-13-.08	Reporting Of Voluntary Or Mandatory Restrictions Or Reductions By Community Public Water Systems
305-7-13-.09	Rulemaking Authority

305-7-13-.01 **Purpose.** The purpose of this chapter is to provide procedures for the organization of the Alabama Drought Assessment and Planning Team (ADAPT), the publication of a State Drought Plan, the contents of community public water system drought conservation plans, procedures for reporting voluntary and mandatory restrictions or reductions by community public water systems to OWR, procedures for the issuance of Drought Declarations by OWR, and for rulemaking.

**Author:** Tom Littlepage

**Statutory Authority:** Code of Ala. 1975, §§9-10C-1 et seq.

**History:** **New Rule:** Filed May 17, 2016; effective July 1, 2016.

305-7-13-.02 **Applicability.** These regulations are applicable to all community public water systems. They require all community public water systems to develop and provide a drought conservation plan and report required drought response activities as outlined in that plan in accordance with the requirements of this chapter.

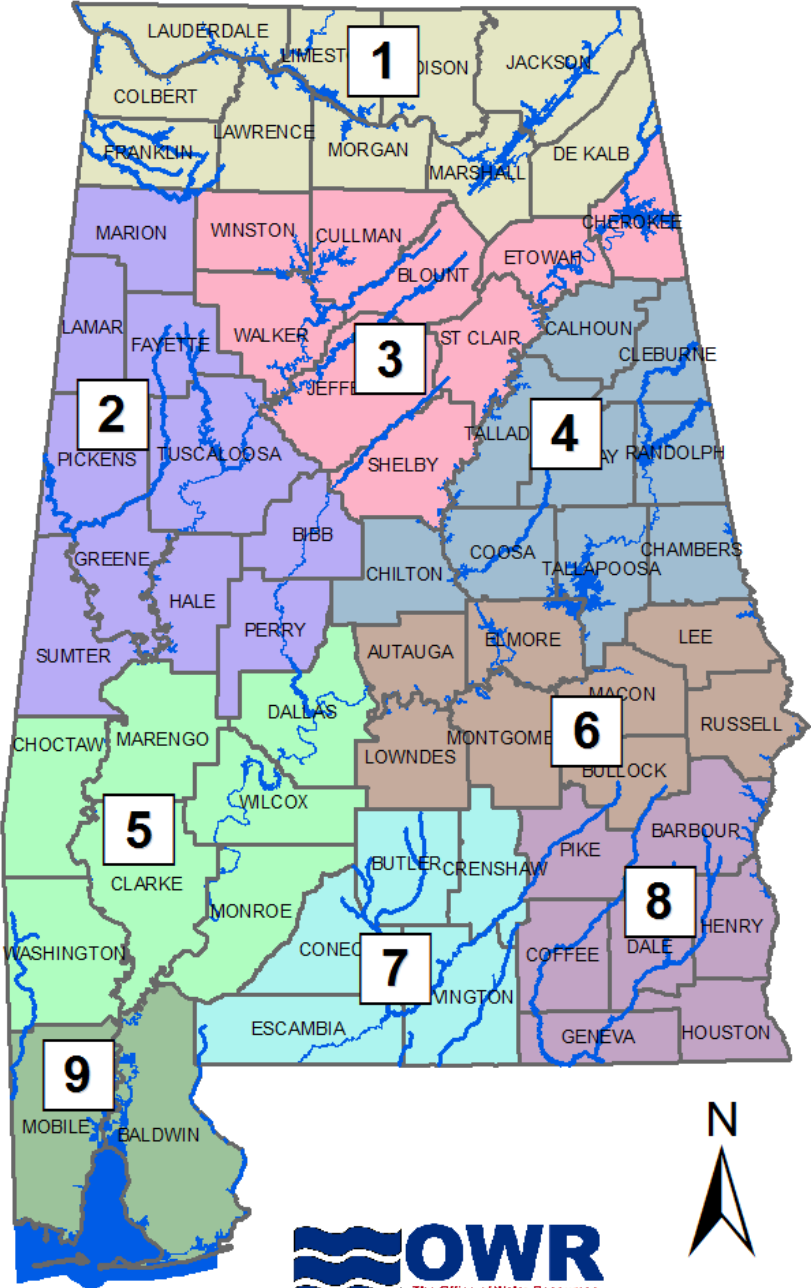
**Author:** Tom Littlepage

**Statutory Authority:** Code of Ala. 1975, §§9-10C-1 et seq.

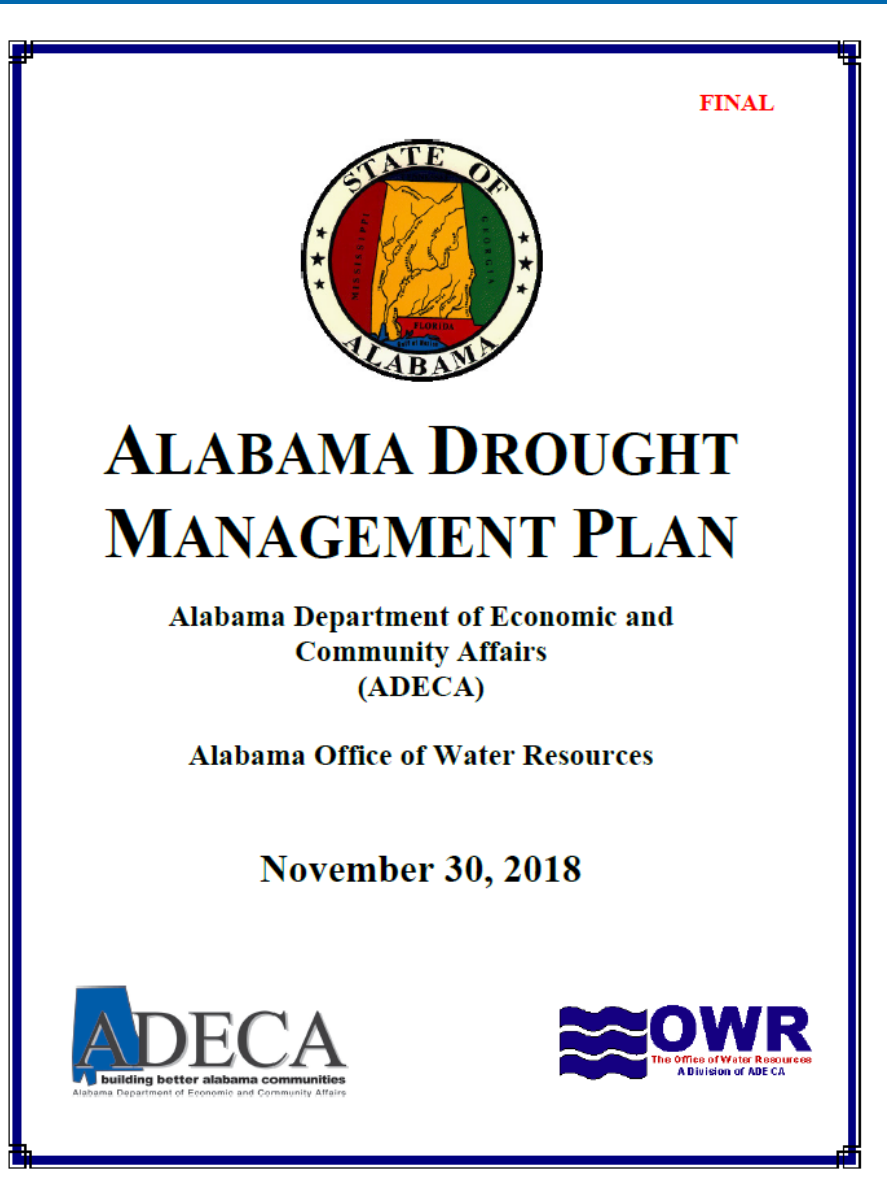
**History:** **New Rule:** Filed May 17, 2016; effective July 1, 2016.

- Implementation of Drought Planning & Response Act
- Focus:
  - State drought plan criteria
  - ADAPT/MIG operating procedures
  - State drought declaration process
  - Establishes requirement for drought conservation plan but allows for use of existing plans if they address drought response
  - Establishes reporting requirements for public water systems

# Alabama Drought Planning Regions



# Drought Management Plan Revision



- Issued: Nov 30, 2018
- Major revision areas:
  - Changes to ADAPT and MIG processes
  - PWS Drought Plans
  - PWS Drought Restriction Reporting
  - Reservoir system drought operations
  - US Drought monitor input process
  - Flexibility in drought declarations
  - Water conservation and efficiency

Available on OWR website



# PWS Drought Conservation Plans

## Drought Conservation Plan

for the  
Water Works and Sewer Board  
of the City of Anniston



Revised 06/28/2022

The Water Works and Sewer Board of the City of Anniston

931 Noble Street, Suite 200  
P.O. Box 2268  
Anniston, AL 36202-2268  
256-241-2000

- All public water systems required to have a drought conservation plan
- Required components:
  - Designation of key personnel
  - Drought response procedures
  - System information
  - Enforcement mechanisms
  - Public notification process
  - Identification of water conservation initiatives
  - 5 year review process

# Drought Impact List (As of August 2, 2022)

Site Actions Browse **List Tools** Items List

**ADECA** Office of Water Resources ▶ Drought Impact Summary ▶ Public  
building better alabama communities  
 Alabama Department of Economic and Community Affairs

ADECA About Divisions News

<input type="checkbox"/>	Date Received	Category	COU Number	Entity	Drought Region	Action	Effective Dates	Comments	Active Restriction	M or V	Modified By	Submitted By
There are no items to show in this view of the "Drought Impact Summary" list.												

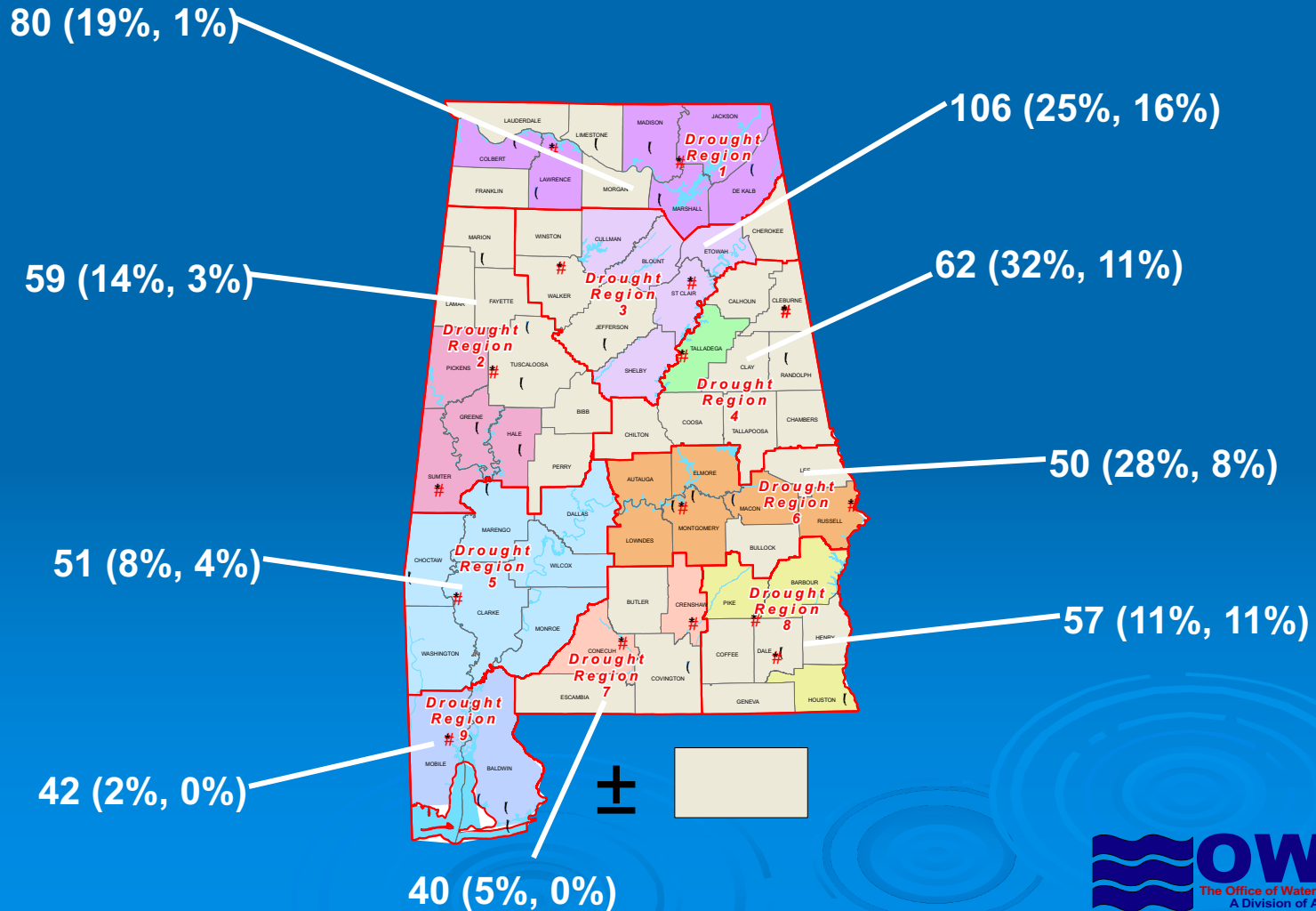
- Community and Economic Development
- Energy
- Law Enforcement and Traffic Safety
- Office of Water Resources**
- Floodplain Management
- Drought Planning and Management in Alabama
- Water Management
- Interstate Water Issues
- Alabama Water Resources Commission
- Surplus Property
- Support Sections
- Governor's Office of Volunteer Services
- All Site Content

PWS restrictions reported:

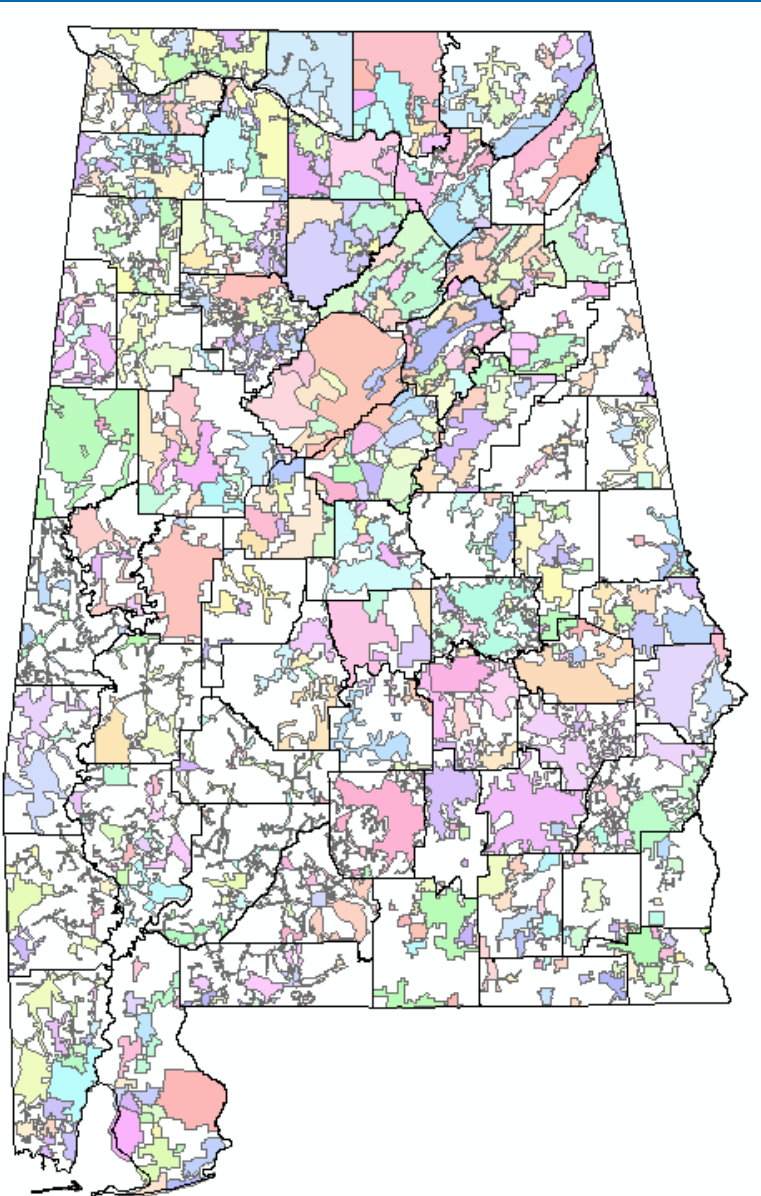
Voluntary	0
<u>Mandatory</u>	<u>0</u>
Total	0

# Public Water System Restrictions 2007 Example

## Number of systems (% Voluntary, %Mandatory)



# Water System Mapping



- Initiative to develop GIS coverage of public water system boundaries and intersystem connections in Alabama
- Goal is to work with local systems in updating service areas and system boundaries



# Reservoir Drought Operations

- Corps of Engineers
  - ACT Master Water Control Manual
  - ACT Master Water Control Manual
- Tennessee Valley Authority
  - Reservoir Operations System
- Alabama Power Company
  - Alabama Drought Response Operations Proposal (ADROP)
- PowerSouth
  - Conecuh River below Point A Dam



POWERSOUTH  
ENERGY COOPERATIVE



Alabama  
Power

# Basic Provisions (Cont'd)

- Formalizes the state's drought declaration process
- Goal is to ensure drought planning and procedures can easily be incorporated into comprehensive statewide water resources planning process
- Clarifies process for state level restrictions on water use for potential utilization under the most extreme drought conditions

**Divisions**

ADECA > Divisions > Office of Water Resources > Drought Planning and Management in Alabama

## Drought Planning and Management in Alabama



The goal of Alabama's drought planning and management process is to ensure accurate and consistent information concerning hydrologic and drought conditions, impacts, and forecasts around the state. Further, through the use of an extensive communication and coordination process and state Drought Declarations, ADECA's Office of Water Resources (OWR) helps water managers, stakeholders, and other users understand where and how severe drought conditions exist and the best available information concerning forecasted changes.

(Photo: Pier at Lake Martin in 2007)

- [Click here for the most recent Drought Declaration.](#)
- [Click here for the most recent Drought Impact Summary.](#)
- [Click here to access the Drought GIS Portal.](#)
- [Click here for the Alabama Drought Plan.](#)

<b>Click below for more drought information:</b>
<a href="#">Alabama Drought Planning and Response Act</a>
<a href="#">Alabama Drought Planning Organizational Structure</a>
<a href="#">Alabama Drought Plan</a>
<a href="#">Alabama Drought Information Center</a>
<a href="#">Water Conservation</a>
<a href="#">Contact</a>

### Alabama Drought Planning and Response Act

The Alabama Drought Planning and Response Act (Code of Ala. 1975, §§9-10C-1 et seq.) became law on April 9, 2014. The Act formally establishes state government's role in planning, monitoring, and responding to severely dry conditions.

The law replaces a previously issued executive order, establishes the Alabama Drought Assessment and Planning Team (ADAPT), and defines permanent roles for OWR and other state agencies by:

- Codifying the current organizational structure including the ADAPT to advise the Governor on state activities related to droughts, and the Monitoring and Impact Group (MIG) as an ADAPT subcommittee to develop technical assessments of drought conditions and impacts.
  - The ADAPT advises the Governor and OWR about state activities related to droughts with information developed by the Monitoring and Impact Group that collects and analyzes stream-flow levels, rainfall, soil moisture and other drought-related data. The ADAPT is made up of representatives from various state and federal agencies and appointees as outlined in the Alabama Drought Planning Organizational Structure section below.
- Codifying the charge given to OWR to develop and maintain a state drought plan and issue Drought Declarations.
- Clarifying the role of the Alabama State Climatologist.
- Reaffirming the Governor's role in responding to drought related events; and
- Ensuring that adequate information concerning the supply and demand of water is available for the assessment of conditions.

To access a copy of the Act, [click here](#). The text is located in the Code of Alabama at Title 9, Chapter 10C.

To access a copy of the ADECA regulations promulgated in support of the Act, [click here](#). The text is located at Chapter 305-7-13.

### Alabama Drought Planning Organizational Structure

**OWR**  
**Drought Web**  
**Site**  
  
**(http://water.**  
**alabama.gov)**



# OWR GIS Drought Data Portal

(<http://adecagis.alabama.gov/>)



## Alabama Office of Water Resources

[Home](#)

[Contact Us](#)

### OWR GIS Data Portal

Welcome to the OWR GIS Data Portal. Please have a look around, any feedback is much appreciated.

Graphs are usually updated on a weekly basis and posted on Monday.

Please note that certain aspects of this site are still under development. As such, all information should be considered provisional data. In addition, OWR is working to expand these applications, so check back periodically to see the latest capabilities. If you have any questions or need any assistance, please click on the Contact Us link below.

### Contact

Phone: (334) 242-5499, or toll free:  
1-877-ALA-WATER  
(1-877-252-9283)

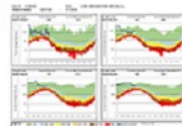
Email: [water@adeca.alabama.gov](mailto:water@adeca.alabama.gov)



"Edmund Pettus Bridge Selma, AL"

Information shown on the map provides drought and low-flow streamflow conditions at selected sites across Alabama. The information is available for four specific time periods: 7, 30, 60, and 90-day statistical summaries.

### Drought Data Portal



[Click for Interactive Map](#)

This application provides drought and low-flow streamflow information for selected regulated and unregulated gages that impact Alabama. Graphs are usually updated on a weekly basis and posted on Monday. By clicking on a particular location, you are provided information about current streamflow conditions at that site. By clicking on the Graph area of that information, you are provided with detailed hydrological summaries that include: 7, 30, 60, and 90-day average flows with calculated exceedance percentiles as of the report date; Plots

of 7-day minimum flows and the associated frequency curve; and Additional graphical and tabular summaries of the data.

PDF documents of the [7 Day](#), [30 Day](#), [60 Day](#) or [90 Day](#) maps can be downloaded by clicking the appropriate link. **Click your browser back button or one of the links located in the map header to return**



# OWR GIS Drought Streamflows Portal

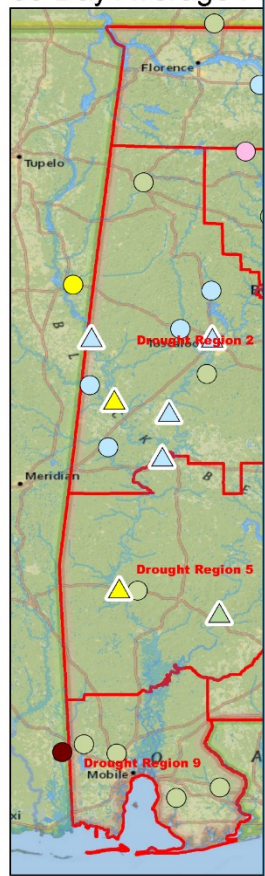
- Total of 72 gages tracked weekly
  - Unregulated USGS gages - 47 gages
  - Regulated USGS gages - 25 gages
- 7-, 30-, 60-, and 90-day rear looking average streamflow based on period of record for each gage up to the previous Monday
- Shows graphical summary of flows, exceedance statistics, and monthly flow characteristics
- Updated weekly

# OWR GIS Drought Streamflows Portal

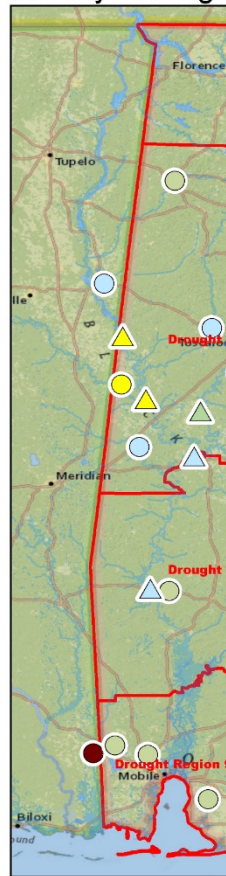
7 Day Average



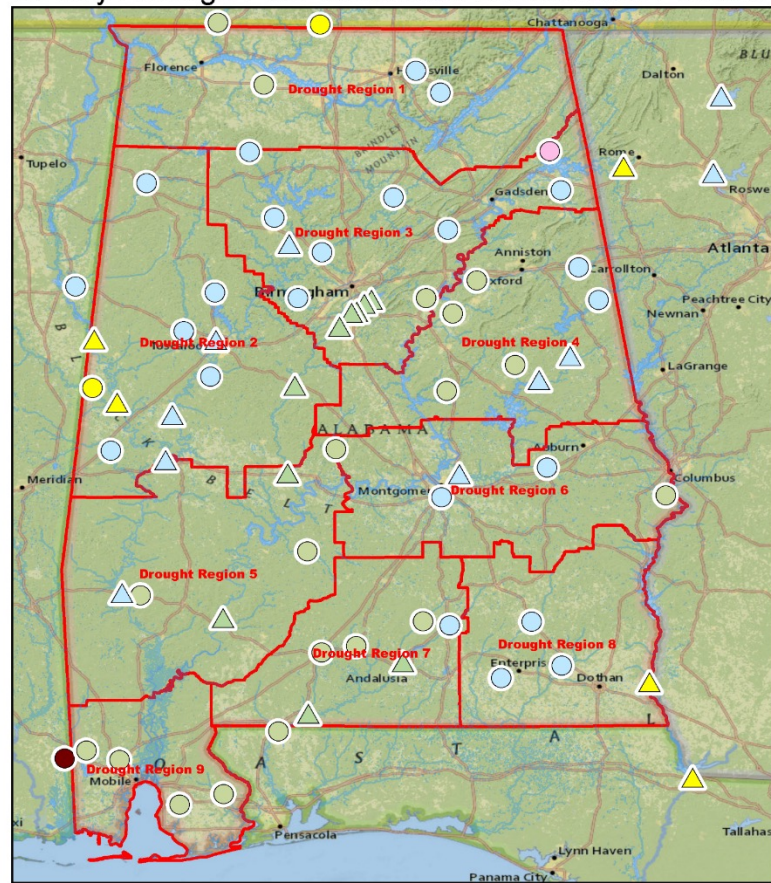
30 Day Average Flow



60 Day Average



Drought Monitor Map  
90 Day Average Flow Calculated Exceedance Percent

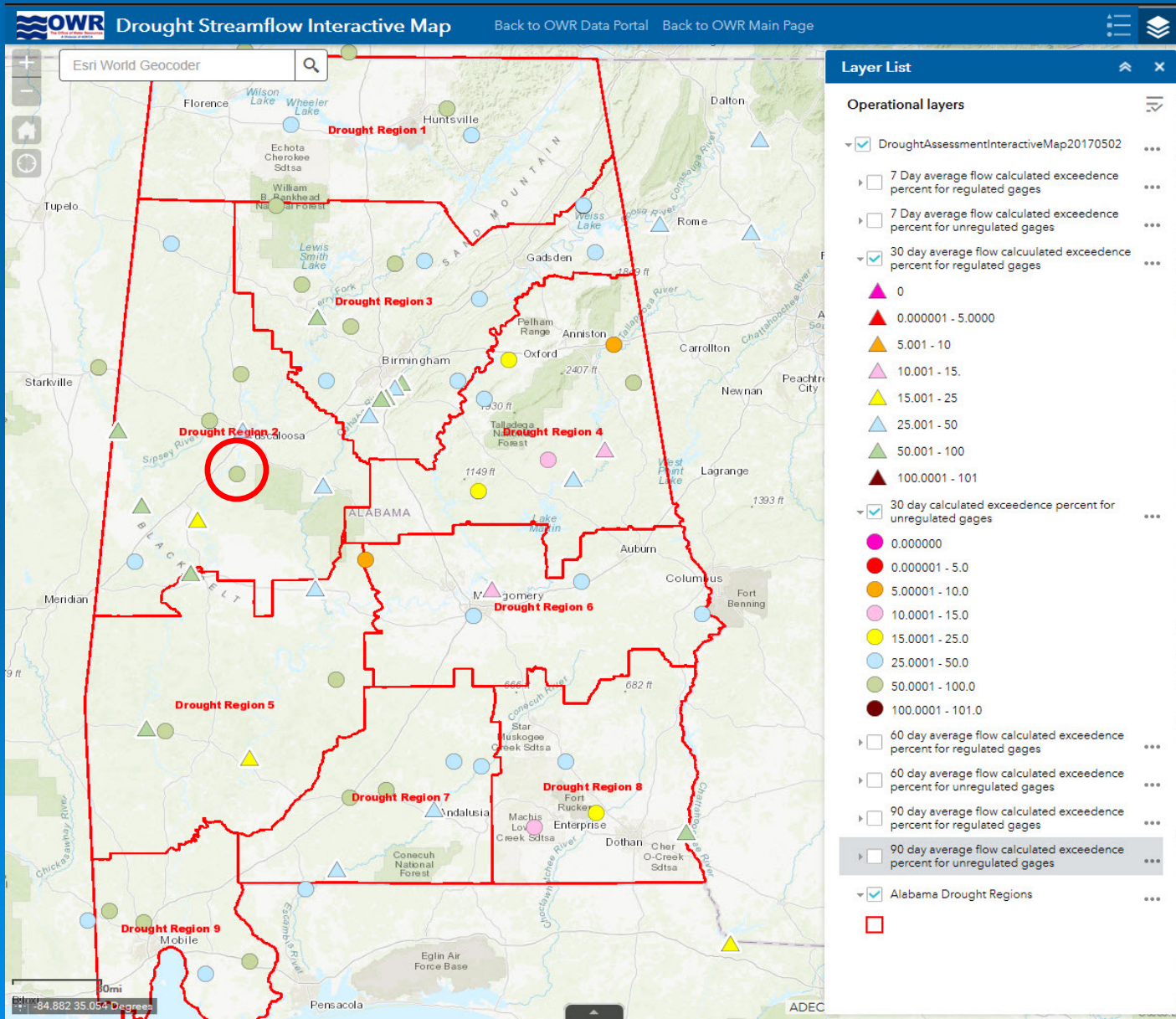


Regulated Gages		Unregulated Gages	
▲ New Record Low	● New Record Low	▲ New Record Low	● New Record Low
▲ 0.0 - 5.0 %	● 0.0 - 5.0 %	▲ 0.0 - 5.0 %	● 0.0 - 5.0 %
▲ 5.01 - 10.0 %	● 5.01 - 10.0 %	▲ 5.01 - 10.0 %	● 5.01 - 10.0 %
▲ 10.01 - 15.0 %	● 10.01 - 15.0 %	▲ 10.01 - 15.0 %	● 10.01 - 15.0 %
▲ 15.01 - 25.0 %	● 15.01 - 25.0 %	▲ 15.01 - 25.0 %	● 15.01 - 25.0 %
▲ 25.01 - 50.0 %	● 25.01 - 50.0 %	▲ 25.01 - 50.0 %	● 25.01 - 50.0 %
▲ 50.01 - 100.0 %	● 50.01 - 100.0 %	▲ 50.01 - 100.0 %	● 50.01 - 100.0 %
▲ New Record High	● New Record High		
Alabama Drought Regions			

Map created August 1, 2022  
by Nancy Lawrence

# OWR GIS Drought Data Portal

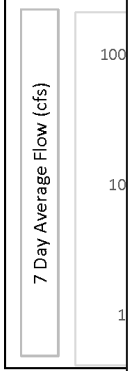
(<http://adecagis.alabama.gov/DroughtMap/>)



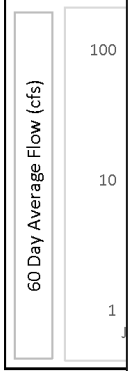
# Example: USGS # 02465493 – Elliotts Creek at Moundville (Updated 7/31/2022)

Gage #: 02465  
 Period of Record: 10/1/1976 - 7/31/2022  
 Name: ELLIOTTS CREEK AT MOUNDVILLE AL  
 Monthly Analysis  
 Statistics of Monthly Average Flows

Drought Level  
 Below Normal



Drought Level  
 Below Normal

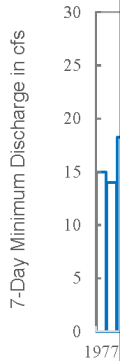


Legend:

\*Disclaimer:

Average F

Percent  
 Discharge



Jan

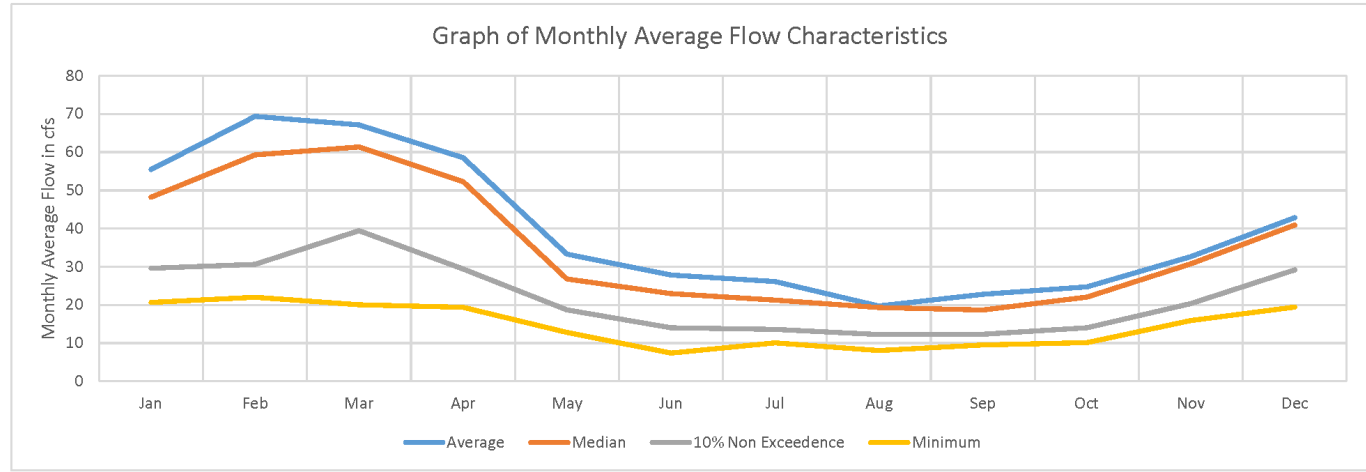
Monthly 7Q2 30

Monthly 7Q10 21

Gage #: 02465493  
 Period of Record: 10/1/1976 - 7/31/2022

Name: ELLIOTTS CREEK AT MOUNDVILLE AL  
 Period of Record: 10/1/1976 - 7/31/2022

Monthly Analysis  
 Statistics of Monthly Average Flows



MONTHLY STATISTICS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	55	69	67	59	33	28	26	20	23	25	33	43
100%	118	256	169	177	114	87	121	41	125	55	76	87
98%	110	230	134	171	79	67	71	36	54	55	56	79
95%	100	137	119	112	71	61	49	33	41	51	50	76
90%	96	109	100	93	54	47	43	28	35	45	47	60
75%	65	76	85	65	36	32	30	23	25	27	37	47
50%	48	59	61	52	27	23	21	19	19	22	31	41
25%	35	47	50	39	23	19	16	14	15	17	26	32
10%	30	31	39	29	19	14	14	12	12	14	20	29
5%	27	28	27	23	16	11	12	10	12	13	18	25
2%	25	23	23	20	13	10	12	9	10	10	16	21
0%	21	22	20	19	13	7	10	8	9	10	16	19



# Summary

- Alabama's drought planning and response process been in place since 2002
- Has operated successfully through numerous and significant droughts
- 2018 revision to the Drought Management Plan represented final action to fully coordinate Drought Act, regulations, and planning and response procedures
- Plan will be reviewed at least every 5 years
- Data assessment is on-going process

# Questions?

Tom Littlepage

Alabama Office of Water Resources

Email: [Tom.Littlepage@adeca.alabama.gov](mailto:Tom.Littlepage@adeca.alabama.gov)

Web: [www.water.alabama.gov](http://www.water.alabama.gov)

Phone: Toll Free 1-877-ALAWATER  
(1-877-252-9283) or (334) 242-5499

FAX: (334) 242-0776

# Backup Slides

# OWR Drought Strawman Tool

Indicators												
	Lawn and Garden Index	Crop Moisture Index	Palmer Drought Severity Index	Unregulated Streamflow	Regulated Streamflow	Reservoir Status	Groundwater Level	Keetch-Byram Drought Index	Rainfall (180 Day)	Rainfall (60 Day) (30 day) summer	OVERALL	
Region 1	3	0	3	0		0	0	2	0	1	9.00	Advisory
Region 2	3	0	2	1		0	0	3	0	1	10.00	Watch
Region 3	1	0	2	0		0	0	2	0	0	5.00	Advisory
Region 4	2	0	3	0		0	0	2	0	0	7.00	Advisory
Region 5	2	0	3	0		0	0	1	0	0	6.00	Advisory
Region 6	0	0	3	0		0	0	0	0	0	3.00	Normal
Region 7	2	0	3	0		0	0	1	0	0	6.00	Advisory
Region 8	2	0	3	0			0	2	1	1	9.00	Advisory
Region 9	0	0	0	0			0	0	0	0	0.00	Normal
% of total	2.5	5.0	12.5	17.5		15.0	10.0	7.5	17.5	12.5	100.0	
Region 1	0.75	0.00	3.75	0.00	0.00	0.00	0.00	1.50	0.00	1.25	7.25	Advisory
Region 2	0.75	0.00	2.50	1.75	0.00	0.00	0.00	2.25	0.00	1.25	8.50	Advisory
Region 3	0.25	0.00	2.50	0.00	0.00	0.00	0.00	1.50	0.00	0.00	4.25	Normal
Region 4	0.50	0.00	3.75	0.00	0.00	0.00	0.00	1.50	0.00	0.00	5.75	Advisory
Region 5	0.50	0.00	3.75	0.00	0.00	0.00	0.00	0.75	0.00	0.00	5.00	Advisory
Region 6	0.00	0.00	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.75	Normal
Region 7	0.50	0.00	3.75	0.00	0.00	0.00	0.00	0.75	0.00	0.00	5.00	Advisory
Region 8	0.50	0.00	3.75	0.00	0.00		0.00	1.50	1.75	1.25	8.75	Advisory
Region 9	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	Normal