

FINAL



ALABAMA DROUGHT MANAGEMENT PLAN

Alabama Department of Economic and
Community Affairs
(ADECA)

Alabama Office of Water Resources

May 22, 2013



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Acronym List

ADAPT	Alabama Drought Assessment & Planning Team
ADECA	Alabama Department of Economic & Community Affairs
ADCNR	Alabama Department of Conservation & Natural Resources
ADEM	Alabama Department of Environmental Management
AEMA	Alabama Emergency Management Agency
AFC	Alabama Forestry Commission
AGI	Alabama Department of Agriculture & Industries
AOWR	Alabama Office of Water Resources
APC	Alabama Power Company
COE	U.S. Army Corps of Engineers
GSA	Geological Survey of Alabama
MIG	Monitoring & Impact Group
NASS	USDA National Agricultural Statistics Service
NIDIS	National Integrated Drought Information System
NOAA	National Oceanic & Atmospheric Administration
NWS	National Weather Service
TVA	Tennessee Valley Authority
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

Executive Summary

Droughts are a naturally reoccurring aspect of climate and weather patterns. While we cannot change the natural occurrence of drought, it is important for agencies, stakeholders, and other water users to better understand where droughts are occurring and how they are impacting Alabama's water resources and adversely affecting the livelihood of our citizens.

Droughts are unlike most other natural weather events such as floods or tornadoes because they do not occur with a sudden onset but rather a gradual worsening of conditions. In an effort to be more proactive, the Alabama Office of Water Resources is working closely with numerous local, state, and federal agencies as well as other stakeholders to enhance and improve a statewide approach to drought planning and management. This Plan lays out the processes and procedures for the coordination of drought-related data, information, conditions and impacts by providing for the release of Alabama Drought Declarations. These declarations reflect the state of current and forecasted drought conditions in Alabama. Further the Plan lays out the process for the coordination of a state-level input into the U.S. Drought Monitor map. The map, a national product developed under the auspices of the National Oceanic and Atmospheric Administration (NOAA) and the National Integrated Drought Information System (NIDIS), is widely used by federal and state agencies as the primary indicator of drought in the U.S., and plays a major economic role in issues such as federal declarations for emergency aid and the determination of crop insurance claims.

I. Purpose

The Alabama Drought Management Plan implements the actions mandated by both general provisions of the Alabama Water Resources Act (Code of Alabama, 1975, §9-10B-1, et.seq.) and specific guidance of Executive Order 19, issued on June 24, 2011. Under the Act, both the Alabama Water Resources Commission and the Alabama Office of Water Resources (AOWR) are given general responsibilities for drought planning and response activities as they relate to overall water resources management for Alabama. The Executive Order provides more explicit guidance to the AOWR for the establishment of a defined drought planning and coordination structure and process. This Plan implements that guidance and defines specific processes to address drought and drought related activities, such as monitoring climatic conditions, defining declaration levels and triggers, developing impact assessments, response recommendations and mitigation actions. The Plan also creates a statewide governmental structure to coordinate information, identify ways to prepare for droughts, identify the different areas impacted by drought conditions, identify risks associated with drought conditions, and communicate the extent and magnitude of those drought conditions. Further, when drought emergencies cannot be avoided, the Plan helps to identify ways to mitigate the impacts of droughts. These objectives are accomplished through the development of an Alabama Drought Declaration process with specific drought declaration levels that are

developed from the review of current conditions and impacts as well as the assessment of forecasted changes. This declaration is provided to guide state agencies, water managers and other stakeholders in making water use and management decisions. In addition, the Plan also provides for the process of developing state-level inputs to the U.S. Drought Monitor map. The map is defined to capture a "snap shot" of drought conditions and impacts occurring on a weekly basis across the U.S. It is specifically and intentionally limited from the more subjective analysis associated with predicting how conditions might change in the future and does not address more specialized information often needed by various water use sectors. These two products, the Alabama Drought Declaration and the Alabama portion of the U.S. Drought Monitor map are designed to work together to provide an accurate depiction of both current statewide conditions and how they may change in the near future.

II. Drought Planning Overview

A. Role of the Alabama Office of Water Resources

As the agency responsible for the planning, coordination, development and management of Alabama's water resources in accordance with the Alabama Water Resources Act, the AOWR, a division of the Alabama Department of Economic and Community Affairs, coordinates efforts to compile and share information about drought data, information, conditions, impacts and responses by:

1. Coordinating the monitoring and collection of data from appropriate sources necessary for the determination of drought declaration levels;
2. Issuing Alabama Drought Declarations in accordance with this Plan. The declaration levels and triggers will be developed in coordination with the Monitoring and Impact Group (MIG), a standing subcommittee of the Alabama Drought Assessment and Planning Team (ADAPT);
3. Developing methods and procedures reasonably necessary to collect and distribute information, convene committees, promote water conservation and other means to encourage the wise stewardship of Alabama's water resources;
4. Coordinating state level information submitted on Alabama drought declaration levels and impact information to federal agencies, the National Integrated Drought Information System (NIDIS) and for input to the <http://www.drought.gov> web site; and
5. Working in close coordination with the Alabama State Climatologist in recommendations and inputs to the Alabama portions of the U.S. Drought Monitor Map.

B. Alabama Water Resources Commission

The Alabama Water Resources Commission has both an administrative and advisory role in the management of Alabama's water resources under drought conditions in accordance with the Alabama Water Resources Act. As such, it can:

1. Provide advice and input to the Governor, Legislature and AOWR in all aspects of drought planning, management and response at the state level;
2. Approve any regulations proposed by AOWR in support of this Plan; and
3. Approve any enforcement actions proposed by AOWR.

C. Alabama Drought Assessment and Planning Team (ADAPT)

The Alabama Drought Assessment and Planning Team serves in an advisory capacity to AOWR and the Governor's Office, as needed, to coordinate intergovernmental drought assessments, responses, and management actions and in the implementation of all drought related activities. In carrying out its responsibilities, the ADAPT shall:

1. Provide guidance for various aspects of drought management, including but not limited to:
 - a) Establishing drought management regions within the state to:
 - i. enable drought mitigation to be accomplished within defined geographical areas, and
 - ii. prevent overly broad response to drought;
 - b) Issuing Alabama Drought Declarations based upon drought levels and assisting in the distribution of drought related information to the public; and
2. Review the Drought Management Plan at least every five years to evaluate the performance and suitability of the drought indicators and the effect of pre-drought and drought responses. Based on this periodic reviews, the ADAPT shall recommend appropriate changes.
3. Develop plans and procedures to support the implementation of a statewide drought planning and response process and the Alabama Drought Management Plan;
4. Provide guidance and make recommendations on drought related matters to AOWR and the Governor, as necessary; and
5. ADAPT is comprised of the directors of the following agencies or departments or their designated representatives:
 - Alabama Office of Water Resources, Chair
 - Alabama Department of Environmental Management (ADEM)
 - Alabama Emergency Management Agency (AEMA)
 - Alabama Adjutant General
 - Alabama Department of Agricultural and Industries (AGI)
 - Alabama Department of Conservation and Natural Resources (ADCNR)
 - Alabama Forestry Commission (AFC)
 - USDA Farm Service Agency
 - USDA Rural Development
 - Chairman of the Monitoring and Impact Group (MIG)
 - Two members representing the State at large, appointed by the Governor

Other members may be appointed to ADAPT by the Governor.

In addition, there is established a standing technical subcommittee of the ADAPT called the Monitoring and Impact Group (MIG). The MIG Chairman shall be appointed by the Governor. The role of the MIG is to analyze data that reflects past and current drought mitigation efforts and to assist with decisions concerning drought declaration levels and recommended drought mitigation efforts. The MIG is responsible for providing technical support to ADAPT and AOWR.

The MIG is comprised of federal, state, and local agencies and other water resources professionals. The duties of the MIG include:

1. Compiling surface water, groundwater, climatic, meteorological and other data necessary to assess drought conditions;
2. Recommending the level of conservation the state should implement and/or make suggestions to evaluate alternative water sources in an area during drought conditions;
3. Making observations and preparing reports on the long-term forecasts to enable the ADAPT to prepare for future droughts;
4. Deciding what is the most effective data for identifying droughts in the state and for computing data into a drought monitoring index;
5. Evaluating the effectiveness of the indices, making modifications as needed;
6. Identifying the impacts associated with a drought;
7. Taking or recommending actions to mitigate those impacts;
8. Developing long range strategies for mitigating the impacts of drought conditions; and
9. Assessing the actual impacts of the drought conditions as these conditions are occurring and offering recommendations to alleviate or mitigate impacts.

ADAPT Operating Procedures. The following procedures shall apply to the conduct and operation of all ADAPT meetings. The conduct of all meetings and issuance of all notices shall be in compliance with the Alabama Open Meetings Act.

1. Meeting Notices. All meetings of the ADAPT shall be noticed in accordance with the Alabama Open Meetings Act with meeting notifications posted on the Alabama Secretary of State website. Agendas will be distributed in accordance with the Open Meetings Act
2. Meeting Frequency. Meetings of ADAPT shall be set at the call of the Chair but shall occur no less twice a year; typically in the spring and fall seasons.
3. Meeting Quorum. All ADAPT meetings shall have a quorum of a majority of the appointed representatives or their designed alternates. For the purposes of any official actions, participation via remote medium such as conference call or remote teleconference shall not constitute attendance in determining a quorum and any such remote attendees may not participate in any votes.
4. Voting Procedures.
 - a. All actions approved by ADAPT require a majority vote
 - b. Voting shall be in accordance with the Alabama Open Meetings Act
5. ADECA shall act as the fiscal agent for any funds received by ADAPT.

D. Drought Management Regions

To assess and respond to drought conditions in the most effective and efficient manner, nine drought management regions have been established as follows:

1. Drought Management Region 1 includes the following counties: Colbert, DeKalb, Franklin, Jackson, Lauderdale, Lawrence, Limestone, Madison, Marshall and Morgan Counties.
2. Drought Management Region 2 includes the following counties: Bibb, Fayette, Greene, Hale, Lamar, Marion, Perry, Pickens, Sumter and Tuscaloosa Counties.
3. Drought Management Region 3 includes the following counties: Blount, Cherokee, Cullman, Etowah, Jefferson, Shelby, St. Clair, Walker and Winston Counties.
4. Drought Management Region 4 includes the following counties: Calhoun, Chambers, Chilton, Clay, Cleburne, Coosa, Randolph, Talladega and Tallapoosa Counties.
5. Drought Management Region 5 includes the following counties: Choctaw, Clarke, Dallas, Marengo, Monroe, Washington and Wilcox Counties.
6. Drought Management Region 6 includes the following counties: Autauga, Bullock, Elmore, Lee, Lowndes, Macon, Montgomery and Russell Counties.
7. Drought Management Region 7 includes the following counties: Butler, Conecuh, Covington, Crenshaw and Escambia Counties.
8. Drought Management Region 8 includes the following counties: Barbour, Coffee, Dale, Geneva, Henry, Houston and Pike Counties.
9. Drought Management Region 9 includes the following counties: Baldwin and Mobile Counties.

A map illustrating the Alabama Drought Management Regions is included in the Plan as Attachment 1. The establishment of drought management regions does not limit drought management efforts or drought declaration levels in an area smaller than a drought management region, such as a county or watershed. If drought conditions warrant, the AOWR, in consultation with the ADAPT and MIG, may determine that the designated drought management regions are inadequate to capture a particular drought impact and consequently a drought declaration at a smaller level may be issued.

III. Drought Information Center

The AOWR shall maintain a clearinghouse of drought information and make this information available to the public through AOWR's website. Information about the status of drought conditions and impacts as well as other drought related information will be maintained on the website as well.

The MIG shall routinely monitor, and evaluate climatic, biological, water quantity, water quality, and water use data, as necessary, to identify the onset of a drought and the potential geographic extent of the affected area and to assess changes in the drought declaration levels.

The frequency of the drought indices computation shall be based on drought declaration levels. These computations will be compared with the various similar indices computed by other state, federal and private agencies.

Monitoring shall be accelerated whenever drought conditions approach or enter the drought watch stage in one or more drought management areas. This may include acquiring additional rainfall, streamflow, water use, and groundwater level data; and collecting additional information on the impact of the drought on agriculture, industry, domestic water supplies, and other users.

Available drought related data, as appropriate, may be provided to the MIG by agencies and organizations such as the USGS, GSA, ADEM, ADCNR, AGI, AFC, NWS, NOAA, USDA, Office of State Climatologist, reservoir operators, industries, public water systems, and the general public to assist in efforts to analyze drought conditions and impacts. Below is a summary of the sources of various information categories.

Information Type	Source Agency(s)
Streamflows	USGS
Reservoir System Status	TVA; Corps of Engineers; Alabama Power
Groundwater Levels	GSA; USGS
Weather Observations and Forecasts	National Weather Service
Soil Moisture Levels	State Climatologist; USDA
Forest Fire Risk	Alabama Forestry Commission
Public Water Supply Status	ADEM; AOWR
Agricultural Drought Impacts	USDA; AGI
Impacts on Habitat and Recreation	ADCNR

In addition to the review of drought-related data and information, it is imperative for the AOWR and the MIG to have the best available information on local impacts of drought conditions. Water system managers, reservoir operators and other stakeholders should make every effort to assist in the information gathering process by the submittal of information related to local conditions and drought impacts to the AOWR. The AOWR will include such information in the Drought Information Center to ensure the availability of the data to other state and federal agencies as well as the general public.

IV. Drought Triggers

A. Introduction

Four drought declaration levels are established, with each identified by a compilation of drought indices that are used to measure and assess the severity of a drought. They range in ascending order from Drought Advisory to Drought Watch to Drought Warning, and

culminating in a declaration of Drought Emergency. Each is discussed in more detail below.

The status of the drought declaration levels will be based on the best available data and information. If any one of the indicators in any one or more of the nine drought regions experiences a defined condition for two consecutive months, a preliminary evaluation by AOWR and the MIG is triggered, if not already accomplished.

The establishment of each drought declaration level should be verified by other means when possible, including, but not limited to, such other indices as antecedent precipitation and temperature, soil moisture, stream flows, groundwater levels, reservoir elevations, water supply status, agricultural and forestry conditions, and historical climatological data.

Drought triggers do not automatically invoke a required response from the various categories of water users. The triggers do indicate the need for additional monitoring and for the AOWR to consider the need to send notices to public water systems, Certificate of Use holders, and the general public regarding the ongoing drought conditions. The AOWR will notify the local governments and water utilities, when needed, as to severity of the drought and make recommendations and provide guidance on the appropriate actions that should be considered.

Drought triggers are specific values of indicators that help to determine when each level of suggested drought response should begin or end. However, drought declaration levels are also a function of drought impacts that may vary in intensity and location during or even following a drought. Therefore, drought declaration levels are supported by, but not limited to, the following combinations of indices. In addition to the specific indices described, general assessments of groundwater levels, reservoir system statuses and impacts to public water supply systems will be included at each declaration level.

B. Drought Advisory

- Lawn and Garden Index, ranges from -0.5 to -1.5
- Crop Moisture Index, ranges from -0.5 to -0.99
- Palmer Drought Severity Index, ranges from -1 to -1.99
- USGS, Below normal 28-day average streamflow compared to historical streamflow for the day of year, ranges from 10 to 24 percentile (Below normal)
- Keetch-Bryam Drought Index, ranges from 150 to 349
- USDA-NASS Topsoil Moisture percent short and very short ranges from 20 to 40 percent
- 180 day rainfall, ranges from 90 to 75 percent of normal

A Drought Advisory is the lowest drought declaration level. It is indicated by abnormally dry conditions among multiple indicators. This level of dryness informs the user that moisture indicators are near the lowest third of historical conditions, i.e. conditions that occur about once every three years. Water managers should increase monitoring of conditions and the assessment of water sources. A drought advisory may be declared if any of the indices indicate a drought advisory declaration level; however,

indication by one index alone does not mandate a declaration. The drought advisory declaration level shall initiate responses by the ADAPT and the AOWR. The AOWR shall routinely monitor the climatic variables, streamflow, reservoir levels and groundwater elevations in coordination with the MIG and shall notify the ADAPT and relevant state, federal, and local agencies that a region of the state is experiencing a drought advisory condition.

C. Drought Watch

- Lawn and Garden Index, Less than -1.5
- Crop Moisture Index, ranges from -1.0 to -1.99
- Palmer Drought Severity Index, ranges from -2.0 to -2.99
- USGS, Below normal 28-day average streamflow compared to historical streamflow for the day of year, ranges from 6 to 9 percentile (Moderate hydrologic drought)
- Keetch-Bryam Drought Index, ranges from 350 to 549
- USDA-NASS Topsoil Moisture percent short and very short ranges from 40 to 60 percent
- 180 day rainfall, ranges from 25 to 75 percent of normal

A Drought Watch is the next drought declaration level. It is indicated by continued abnormally dry conditions among multiple indicators. This level of dryness informs the user that moisture indicators are near the lowest ten percent of recorded historical conditions. Water managers should increase monitoring of conditions and the assessment of water sources and, if not already underway, implement efforts to conserve water and ensure water use efficiency. A drought watch may be declared if any of the indices indicate a drought watch; however, indication by one index alone does not mandate a declaration. During a drought watch, statements may be released to the news media by the AOWR and other appropriate agencies must accelerate monitoring activities. In addition, upon the establishment of a Drought Watch declaration level, the AOWR will consider the need for at least monthly meetings of the MIG.

D. Drought Warning

- Crop Moisture Index, ranges from -2.0 to -2.99
- Palmer Drought Severity Index, ranges from -3.0 to -3.99
- USGS, Below normal 28-day average streamflow compared to historical streamflow for the day of year, ranges from 2 to 5 percentile Keetch-Bryam Drought Index, ranges from 550 to 699
- USDA-NASS Topsoil Moisture percent short and very short ranges from 60 to 80 percent
- 180 day rainfall, ranges from 10 to 25 percent of normal

A Drought Warning is the next to highest drought declaration level. It is indicated by sustained dry conditions; including impacts associated with either high drought intensities or long durations (or both). This level of dryness informs the user that moisture indicators are near the lowest five percent of recorded historical conditions. Water

managers should consider active measures to ensure the sustainability of water supplies; including mandatory restrictions or cutbacks, water reuse and the availability of alternate sources or contingency plans. A drought warning declaration level should be based on the best available data and forecasts from various agencies and the MIG. Indication by one index alone does not mandate a declaration. Appropriate implementation of local water conservation and drought warning ordinances should be encouraged. During a Drought Warning declaration level, statements may be released to the news media by the AOWR and other appropriate agencies to assist with monitoring and response activities. The AOWR and ADEM should consider the need to formally notify water system managers of the status of conditions and forecasts in the impacted areas. Further, the AOWR and the MIG will work with water managers to encourage the submittal of local drought-related impact information. In addition, upon the establishment of a Drought Warning declaration level, the AOWR will consider the need for more frequent meetings of the MIG.

E. Drought Emergency

- Crop Moisture Index, -3.0 or less
- Palmer Drought Severity Index, -4.0 or less
- Keetch-Bryam Drought Index, ranges from 700 to 800
- USGS, Below normal 28-day average streamflow compared to historical streamflow for the day of year, at or near record lows
- USDA-NASS Topsoil Moisture percent short and very short ranges from 80 to 100 percent
- 180 day rainfall is less than 10 percent of normal

A Drought Emergency is the most severe drought declaration level. The level is also normally associated with both hydrologic and economic impacts in water use sectors such as agriculture, recreation, navigation, etc. This level of dryness informs the user that moisture indicators are near the lowest two percent of recorded historical conditions and approaching or achieving record dry levels. The AOWR and the MIG shall continue to evaluate information from various sources through more intensive monitor and the potential use of more frequent meetings. Upon issuance of a Drought Emergency declaration level, the AOWR (in coordination with ADAPT) will work with the Governor's Office to ensure adequate dissemination of information and recommended actions related to drought conditions. This may include, but is not be limited to, public statements that a drought emergency exists, disaster declarations, and the appropriate implementation of water conservation and drought emergency ordinances. Further, the AOWR and the MIG will actively work with water managers to seek the submittal of local drought-related impact information.

V. Alabama Drought Declarations

Based on the assessment of conditions and input from the MIG, AOWR will issue or revise Drought Declarations that describe drought levels in accordance with the Plan in

all areas of the State. These declarations shall consider both the intensity of drought conditions and the projected forecasts for the foreseeable future (generally up to 10 days) to help alert and educate water users, managers and stakeholders on the conditions in their geographic area.

AOWR shall issue Drought Declarations through publication on the AOWR website and consider the need to publicize or distribute through other mechanisms to specific water systems, reservoir operators and other users as needed and predicated by the level of drought conditions in a given area.

An example of an Alabama Drought Declaration from August 15, 2007 is included as Attachment 2.

VI. U.S. Drought Monitor Map Input

In addition to the release of Alabama Drought Declarations by AOWR, the Alabama State Climatologist, the AOWR and members of the MIG shall work together to develop inputs to the development of the U.S. Drought Monitor Map for Alabama. This map represents a collective assessment of both the intensity of drought conditions as well as the impacts of those conditions on the state and its citizens.

The map is prepared weekly and is a joint effort of in-state experts, the Federal Government and the National Drought Mitigation Center at the University of Nebraska-Lincoln under the National Integrated Drought Information System (NIDIS). It is designed to describe the status of drought conditions in accordance with five drought intensity levels. It is significant to note that the Drought Monitor does not include any forecast component. It is simply a "snapshot" of conditions as of a certain date and intentionally is not designed as a tool to predict or indicate if conditions will improve or deteriorate.

An example of the Alabama portion of the U.S. Drought Monitor from August 7, 2007 is included as Attachment 3.

VII. Drought Impacts

Droughts are responsible for a wide range of potential impacts throughout the state. They can be categorized into potential social, environmental and economic implications that are directly or indirectly related to the drought. The risk of these potential impacts depends on the type of water demands, how these demands are met and the availability of water supplies necessary to meet these demands. These potential impacts should be integrated into the planning, mitigation, and response activities of local, state and federal agencies.

In order to identify and catalogue potential drought impacts, the following five categories of drought impact sectors have been created.

- Domestic Impacts - This category is impacted by water quantity and quality problems associated with public water supply. Prevention of water supply shortfalls and degradation of water quality is the major concern within this impact area.
- Agricultural Impacts - This category of impacts is concerned primarily with soil moisture and precipitation forecast data. The timely and accurate assessment of agricultural conditions is vital for the appropriate mitigation and response mechanisms to be activated.
- Environmental Impacts – This category includes the efforts of various agencies and organizations striving to identify environmentally sensitive areas, develop strategies to assess and mitigate drought related disasters and recommend response action plans.
- Industrial Impacts - The impacts associated with this group range from crop failures (processing, inspecting, and shelling industry), livestock losses (processing plants), navigational issues and revenues lost within all industries that use large amounts of water for production, such as pulp and paper, and power production.
- Recreational Impacts – These impacts affect homeowners, boat owners, and other users of reservoirs and water sources throughout the state that generate or depend on revenue through various recreational activities.

VIII. Drought Response

Other State or Federal Drought Response Activities_ Nothing in this Plan shall be construed to interfere with or modify separate drought response activities by other agencies. The goal is to ensure that, when and where those activities are occurring, there is complete coordination of those actions to ADAPT by agencies such as the USDA, the Alabama Forestry Commission, ADEM, etc.

As discussed in the previous section, a key aspect of drought goes beyond the identification of drought conditions and triggers and involves the categorization of impacts by the five indentified sectors: Domestic Impacts, Agricultural Impacts, Environmental Impacts, Industrial Impacts and Recreational Impacts. State, regional, and local governments, agencies, and organizations are encouraged to develop and support strategies that can both encourage water conservation and help mitigate drought impacts. Specific concepts or areas for consideration within each of the five impact areas are provided below.

A. Domestic Drought Response

Domestic and residential water suppliers are encouraged to develop local water conservation plans and/or ordinances to encourage reductions in water use during

drought conditions or implement more severe restrictions if necessary. Sample water conservation ordinances are available upon request; however, the ordinances should be adjusted to address the drought vulnerabilities of the individual water systems and any pre-determined drought responses. These ordinances would provide for drought responses from the following uses, depending on the extent of the drought.

1. Outdoor Uses:
 - Established landscapes
 - Newly installed landscapes (in place less than 30 days)
 - Irrigating public maintained recreational parks and fields
 - Filling existing swimming pools
 - Washing vehicles
2. Indoor Uses

B. Agriculture Drought Response

Irrigation water users are encouraged to use best management practices and to use efficient irrigation systems during pre-drought conditions in addition to water conservation practices during droughts. Agriculture users are encouraged to coordinate responses to drought conditions and to help maintain an available supply for future use by:

1. Working through professional organizations and societies to develop and coordinate more efficient water management practices and drought procedures;
2. Promoting the development and distribution of information on water efficient irrigation techniques;
3. Providing information and encourage agricultural stakeholders to take advantage of available financial incentives for retrofitting and updating older or less efficient systems and distribute a list of such incentives;
4. Improving communications and cooperation among agricultural stakeholders and relevant state and federal agencies regarding available assistance during drought conditions;
5. Encouraging the installation of water efficient irrigation technology for newly installed systems;
6. Educating landscapers, nursery operators, and irrigators on proper application of pesticides and fertilizers and conservation of water to reduce effects on water quality.
7. Recommending irrigation system efficiency audits every five to seven years;

C. Environmental Drought Response

The appropriate local, state and federal agencies will help maintain adequate water quality, balancing demands with a need to protect the natural ecology, by:

1. Encouraging special releases from reservoirs and implementing innovative reservoir management to meet critical needs (e.g., alternative release patterns, controlling temperature of releases, changing storage purposes/authorized uses). (Implement only when not in violation or conflict with Federal Energy Regulatory Commission or Congressional authorizations.)
2. Reducing water withdrawals through water conservation ordinances and best management practices.
3. Encouraging utilities and local governments to increase surveillance for sewer spills and leaks that may have more severe impacts as drought conditions worsen.
4. Implementing voluntary pollutant load reduction opportunities were possible (i.e., below levels in wastewater discharge permits) when flows are less than the flow upon which discharge permit limits were established.

D. Industrial Drought Response

Industries and other commercial water users are encouraged to coordinate water usage and constraints during drought conditions by:

1. Establishing more direct drought communication between the industrial sector and state and local governments and the appropriate water systems;
2. Conducting voluntary water audits for businesses that use water for a production or service, especially in an area that has a history of drought related water shortages;
3. Encouraging the development and implementation of water conservation and drought contingency plans to limit any unnecessary consumption and interbasin transfers, if applicable, during droughts; and
4. Identifying vulnerable water dependent industries and, as necessary and as funding is available, work to determine their impacts and provide assistance with procedures to curtail water use during droughts and/or identify alternative water sources for emergency use.
5. Implementing industrial water reduction opportunities previously identified (i.e., use less water in producing products and services during drought, and thereby reducing quantity of wastewater in stream).

E. Recreation Drought Response

Homeowners, boat owners, and other users of reservoirs and water courses throughout the state that generate or depend on revenue through various recreational activities are encouraged to coordinate drought responses with the appropriate local, state, and federal agencies in an effort to:

1. Investigate indicators and develop tools to analyze drought impacts for waterways used for recreation and sport fishing;

2. Develop and promote implementation of sustainable lawn care programs based on Best Management Practices; and
3. Educate individual homeowners on proper application of pesticides and fertilizers and conservation of water to reduce effects on water quality.

IX. Notification

Upon the issuance of a new or increased drought declaration level, the AOWR, in coordination with the ADAPT, is responsible for disseminating appropriate information to state and federal agencies, organizations and stakeholders. It is important to provide appropriate and relevant information to the public including drought education and water conservation measures. The AOWR shall ensure there are adequate steps to widely distribute information concerning drought declaration levels. This should include, at a minimum:

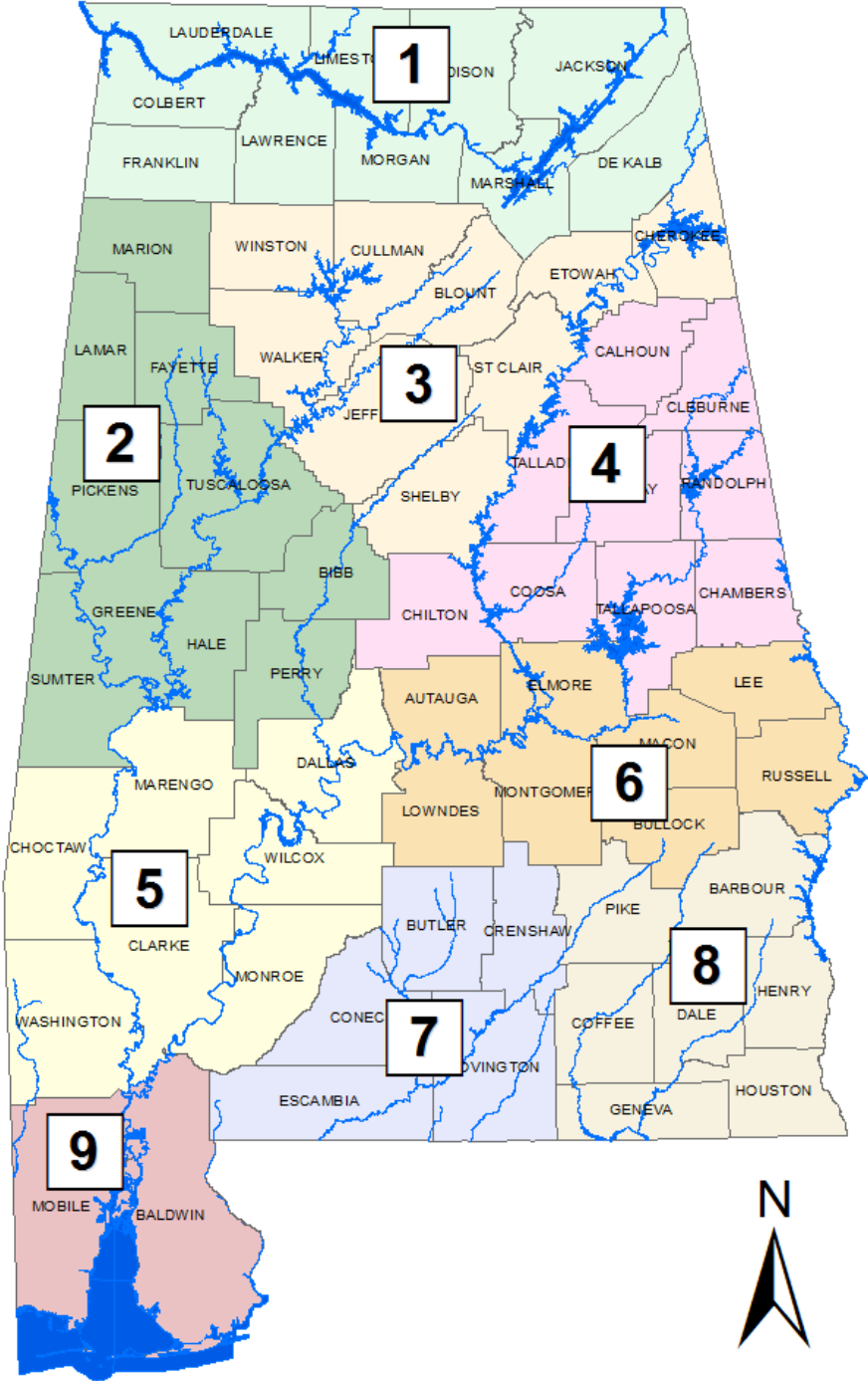
1. Coordination with public water systems in the affected drought management region and other appropriate agencies and individuals beginning at the issuance of a drought watch declaration level and as the drought declaration level is elevated to a higher level.
2. Publication of notices on the AOWR website beginning at the inception of a drought watch declaration level and as the declaration levels change.
3. Other appropriate actions to publicize drought declaration levels.

X. Point of Contact

For any information related to Alabama's drought planning and response programs or the contents of the Plan, please contact:

Alabama Department of Economic and Community Affairs
Office of Water Resources
401 Adams Avenue
Suite 434
Montgomery, Alabama 36104
Website: www.water.alabama.gov
Email: water@adeca.alabama.gov
Phone: (334) 242-5499 or toll free at 1-877-252-9283 (ALA WATER)
Fax: (334) 242-0776

Attachment 1 Drought Management Regions Map



Attachment 2 Alabama Drought Declaration



Release Date: August 15, 2007

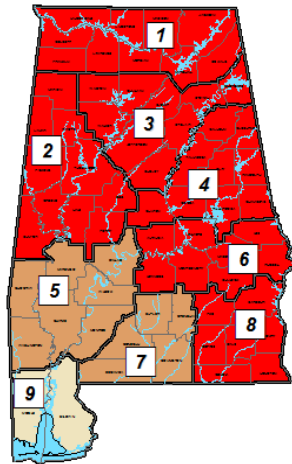


For Public Dissemination Alabama Drought Declarations

In accordance with the Alabama Drought Management Plan, the ADECA Office of Water Resources (OWR), based on a review of current and anticipated hydrologic conditions, has declared the following portions of the State of Alabama to be under the specified drought declaration levels.

Declaration Level

- Emergency** **Regions 1, 2, 3, 4, 6 and 8 under the Alabama Drought Management Plan which includes the counties of:**
 Autauga, Barbour, Bibb, Blount, Bullock, Calhoun, Chambers, Cherokee, Chilton, Clay, Cleburne, Coffee, Colbert, Coosa, Cullman, Dale, DeKalb, Elmore, Etowah, Fayette, Franklin, Geneva, Greene, Hale, Henry, Houston, Jackson, Jefferson, Lamar, Lauderdale, Lawrence, Lee, Limestone, Lowndes, Macon, Madison, Marion, Marshall, Montgomery, Morgan, Perry, Pickens, Pike, Randolph, Russell, Shelby, St. Clair, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker, Winston
- Warning** **Regions 5, and 7 under the Alabama Drought Management Plan which includes the counties of:**
 Butler, Choctaw, Clarke, Conecuh, Covington, Crenshaw, Dallas, Escambia, Marengo, Monroe, Washington, Wilcox
- Watch** **Region 9 under the Alabama Drought Management Plan which includes the counties of:**
 Baldwin and Mobile



Drought Declaration Levels
Advisory
Watch
Warning
Emergency

As a result of this declaration, public water systems and other non-public and private water users should monitor conditions and prepare procedures in the event that conditions continue to worsen. The OWR will be monitoring conditions and will provide updated notifications as the summer progresses.

For further information, please visit our web site at www.adeca.alabama.gov/water and follow the links to the Office of Water Resources. You may also reach our office by phone at (334) 242-5499, fax at (334) 242-0776, or e-mail at drought@adeca.alabama.gov.

Attachment 3 Alabama Drought Monitor

