
Drought Management Plan

SUPPORT AGENCIES

NH Department of Homeland Security and Emergency Management
NH Dept. of Agriculture, Markets and Food
NH Dept. of Safety, Division of Fire Safety
NH Department of Resources and Economic Development
NH Office of Energy and Planning
NH Fish and Game
NH Department of Health and Human Services
NH Department of Environmental Services
NH Water Well Board
Public Utilities Commission - Water & Gas Division
Public Utilities Commission - Electric Division
NH State Climatologist
UNH Cooperative Ext.
US Army Corps of Engineers
United States Geologic Survey
USDA NASS - New England Field Office
USDA - Farm Service Agency
NH Water Works Association
NH Business and Industry Association
NH Farm Bureau
Public Service of New Hampshire
Granite State Hydropower Association
NH Health Officers Association
Association of Regional Planning Commissions
NH Rivers Management Advisory Committee
NH Lakes Management Advisory Committee
Ski NH
Manchester Water Works
City of Portsmouth
Local Government Center
Granite State Rural Water

INTRODUCTION

A. PURPOSE

The purpose of the Drought Assessment and Response Annex is to coordinate the State's assessment and response activities in the case of a drought emergency. The Annex coordinates the emergency management functions of the preparedness, recovery, mitigation and response with all agencies and organizations that work with entities that could be fundamentally impacted by a sustained and regionally extensive occurrence of appreciably below average natural water availability in the form of precipitation, streamflow or groundwater.

B. SCOPE

This annex supports the New Hampshire Emergency Operations Plan and outlines drought-specific actions and coordination procedures the State Emergency Operations Center and other state agencies take and follow when drought conditions threaten New Hampshire. It is intended to provide:

1. A systemic, effective method for assessing and responding to the impacts of drought on water supply, agriculture, business, the environment and recreation in New Hampshire;
2. Procedures for monitoring selected climatic, hydrologic, water-supply and water use data as a means of determining the potential for drought to occur or to continue; and
3. A delineation of regional assessment units (e.g. Drought Management Areas) to monitor for the occurrence of drought on a regional basis.

SITUATION AND PLANNING ASSUMPTIONS

A. SITUATION

1. Drought conditions may exist simultaneously over several states or be confined to a small area or areas within a single state. Likewise, the severity or effects of drought may vary considerably due to a variety of factors, such as unequal distribution of rainfall, differences in topography and soil, varying drainage patterns and differing geologic formations.
2. Drought is a cyclical weather phenomenon that can have a profound impact upon the physical environment and social systems of New Hampshire. These impacts are often ambiguous and complex. They are usually related to water use activities such as agriculture, commerce, tourism, fire suppression and wildlife preservation. Reductions in electrical power generation and water quality are also likely. Because drought is progressive in nature and comes on slowly, it is often not recognized until it reaches a severe level.
3. New Hampshire needs a Drought Assessment and Response Plan that provides for a system for assessing a drought cycle's progress and for determining when to institute a formal drought response from State government. Such a plan enhances the State's ability to apply limited resources and reduce the effects of drought.

B. PLANNING ASSUMPTIONS

1. Drought reduces the amount of water available for agriculture, municipalities, industry, commerce, tourism, fire suppression and wildlife. Reduction of electrical power generation and water quality deterioration is likely.
2. Assistance provided by this annex will be determined by the lead agency in consultation with appropriate support agencies, Incident Commander and the State Emergency Operations Center (SEOC).
3. The role of the state is primarily one of coordination, information dissemination and if necessary, mobilization of personnel and equipment in response to emergencies.

CONCEPT OF OPERATIONS

A. GENERAL

1. NHDES, as the primary agency, must ensure that through coordinated and routine planning, all agencies:
 - a. Participate in review and revision of the annex;
 - b. Receive sufficient training and are capable of fulfilling responsibilities within the annex and
 - c. Coordinate, attend and participate in related meetings.

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2. All agencies included in the annex will develop and maintain a list of Support Agency point of contact.
 4. Activities in the SEOC during periods of activation will be coordinated by developing and maintaining a duty schedule;
 5. Equipment requests and inventories will be made by using the National Incident Command System Typing, whenever possible. Status of committed and uncommitted resources is tracked during the activation of the SEOC.
 6. Unified Command is used to manage assets in the field due to the number and variety of government and private sector organizations that may be involved.

B. ORGANIZATION

1. **Organizational Chart (Command & Control):** shall function according to the command structure needs of the event. If the SEOC is activated, the structure in the SEOC will be determined and the appropriate ESF will lead. Presumably ESF #11 Agriculture, Natural and Cultural Resources will provide resources and oversight.
2. **Administration**
 - a. The plan is comprised of three systems – a preparedness system, an assessment system and a response system
 - b. A Drought Management Team (DMT) comprised of officials representing specific activities or interests that can be impacted by drought are assembled to inform state agencies. It activates this Drought Response Plan, makes water supply assessments and projections, selects or develops specific formats for routine and special reports regarding water supply, identifies need for additional water supply information, and compiles all assessments of water supply capability to withstand drought impact. It is important to note that the DMT may be active outside SEOC activation. When necessary, because of drought impacts, the DMT may request SEOC activation by declaring a stage of drought. The Water Division, NH Department of Environmental Services, is the lead agency for the DMT and designates an employee of the Department to serve as Chair of the DMT. The DMT meets at least once in each calendar year to maintain appropriate agency readiness and participation. The DMT meets as necessary on the call of the Chair to respond to drought conditions.
 - c. The following agencies and officials representing specific activities or interests are members of the DMT:
 1. NH Department of Homeland Security and Emergency Management
 2. NH Dept. of Agriculture, Markets and Food
 3. NH Dept. of Safety, Division of Fire Safety
 4. NH Department of Resources and Economic Development
 5. NH Office of Energy and Planning
 6. NH Fish and Game
 7. NH Department of Health and Human Services
 8. NH Department of Environmental Services
 9. NH Water Well Board
 10. Public Utilities Commission - Water & Gas Division
 11. Public Utilities Commission - Electric Division
 12. NH State Climatologist
 13. UNH Cooperative Ext.
 14. US Army Corps of Engineers
 15. United States Geologic Survey
 16. USDA NASS - New England Field Office
 17. USDA - Farm Service Agency
 18. NH Water Works Association

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19. NH Business and Industry Association
 20. NH Farm Bureau
 21. Public Service of New Hampshire
 22. Granite State Hydropower Association
 23. NH Health Officers Association
 24. Association of Regional Planning Commissions
 25. NH Rivers Management Advisory Committee
 26. NH Lakes Management Advisory Committee
 27. Ski NH
 28. Manchester Water Works
 29. City of Portsmouth
 30. Local Government Center
 31. Granite State Rural Water

The DMT Chair may invite other agencies and organizations that represent activities or interests impacted by drought including local governments, utilities, agriculture, agribusiness, forestry, manufacturing, and others as appropriate, to designate representatives to serve on the DMT or to participate in the work of the DMT with respect to drought related issues.

- d. The DMT carries out the following specific tasks:
 1. Review and update procedures upon activation.
 2. Make assessments and projections and issues drought advisories (all based on technical factors). Advisories are tailored for specific drought management areas, since drought is rarely homogeneous across the state.
 3. Select or develop specific formats for reporting assessment and projection information.
 4. Determine requirements for routine and special reports.
 5. Synthesize data to provide availability/storage estimates by drought management area or other appropriate demarcation.
 6. Identify resource information gaps and make recommendations to fill them.
 7. Obtain site-specific data to provide task forces with water availability/shortage estimates by drought management area or other demarcation.
 8. Meet as necessary to gather, review and disseminate information on the drought situation throughout the State.
 9. Coordinate and maintain information on response activities.
 10. Collect information on grants, loans, and other drought emergency assistance measures.
 11. Develop methods for needs assessments and working with current problems.
 12. Develop and implement a process for recording the extent of mitigation that occurs in each drought emergency situation.
 13. On a recurring basis, routinely provide a Water Supply Report comprised of information on precipitation, stream flow, reservoir storage levels, Palmer and other drought indices, weather forecasts and other pertinent data.
 14. Provide supplemental reports whenever a significant weather event occurs.
 15. Place continuous emphasis on providing accurate, real-time assessments of water availability.

PHASED ACTIVITIES

A. PREPAREDNESS ACTIVITIES

1. General

- a. Personnel should integrate NIMS principles in all planning. All personnel must complete all required NIMS training.

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- b. Keep public and private partners updated on preparedness activities. Develop and disseminate situation reports, as appropriate.
 - c. Maintain appropriate records for time worked and costs incurred by agencies during the incident/event.
 - d. The DMT shall meet on an annual basis to review the annex in order to maintain preparedness.

2. Drought Mitigation Information Resources

The following information has been prepared to describe numerous measures to prepare for and respond to a water supply shortage associated with drought:

- a. Model municipal regulation to restrict residential lawn watering during a declared state of drought. This model regulation can be applicable to customers or water systems and residences with private wells;
- b. Model water system or village regulation to restrict discretionary uses of water;
- c. Model regulation for water efficient landscaping;
- d. Seventeen water efficiency publications that are applicable to the primary water uses in New Hampshire;
- e. An up-to-date list of approved bulk water purveyors and regulations for transferring bulk water into public water systems;
- f. An up-to-date database of licensed well drillers and licensed pump installers;
- g. Technical and financial assistance information and guidance for homeowners with dewatered private water supply wells; and
- h. Emergency plans for community water systems, including the identification of alternative sources of drinking water.

B. ASSESSMENT AND DROUGHT STAGES

1. The assessment systems use a broad range of information sources, gather and evaluate water resource data, and identify existing and future water shortage areas. The assessment system and criteria are shown in Table 1. The assessment system and associated criteria were developed by the University of New Hampshire in a document titled "Analysis of Drought Conditions in New Hampshire" and dated December 2014.
2. The DMT shall assess water availability and drought impacts for each of the five Drought Management Areas identified in Figure 1.
3. The New Hampshire Department of Environmental Services shall prepare a monthly summary of water resources data in accordance with paragraph a and b, above, unless the DMT has been activated and requests this information on an alternative schedule.
4. The DMT shall be activated if the assessment system classifies a drought management area as being in a stage of moderate drought.

C. RESPONSE ACTIVITIES

1. Upon activation of the DMT, all organizations listed in paragraph C of Section B, above, will provide representative staff to the DMT.
2. The responses in Table 2, below, will be implemented in response to the observed drought classification.
3. Personnel will be assigned to cover an activation of the SEOC for an extended period of time.
4. Support requests and directives resulting from a Governor declared State of Emergency, USDA declared emergency and/or Presidential Disaster Declaration.

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5. Prepare damage assessment documents to be submitted to HSEM and other appropriate agencies.
 6. Evaluate probability and time period of the recovery phase of the drought event.
 7. Continue development of an “After-Action Plan”

D. MITIGATION

1. Provide updates and briefings for any new personnel reporting for duty. Maintain and update disaster management system, as appropriate, for all agencies.
2. Collaborate with other agencies regarding mitigation activities.
3. Support requests and directives resulting from a Governor declared State of Emergency, USDA declared emergency and/or Presidential Disaster Declaration.
4. Generate information to be included in SEOC briefings, situation reports, and/or action plans.

ROLES & RESPONSIBILITIES

A. ACTIVITIES ASSOCIATED WITH FUNCTION

1. All primary and support agencies will provide available, trained personnel to serve as Drought Assessment and Response representatives in the SEOC.
2. All primary and support agencies will maintain and update WebEOC.
3. All personnel will support the development of situation reports and action plans during the activation of the SEOC.
4. All personnel shall evaluate damage to activities, facilities and resources impacted by drought. Impact assessments shall be conducted in the threatened and/or impacted areas and task personnel for response and recovery work.
5. All personnel shall maintain position logs in WebEOC, providing appropriate and pertinent information to the Lead organization.
6. All personnel shall provide Subject Matter Experts (SMEs) as requested to support public notification, information and other emergency response activities.

B. AGENCY SPECIFIC

1. **Lead Agency: Department of Environmental Services**
 - a. Administer including management, planning, training, preparedness, assessment, response, recovery, and mitigation/redevelopment activities.
 - b. Assign personnel to the duty schedule at the SEOC.
 - c. Maintain a position log and mission tasking in WebEOC.
 - d. Provide mutual aid data and points of contact.
 - e. The Department’s Drinking Water and Groundwater Bureau shall provide:
 - 1 Inspect and provide technical assistance to public water systems;
 - 2 Provide information to owners of private wells;
 - 3 Investigate water supply complaints and problems;
 - 4 Information about licensed pump installers and water well contractors;
 - 5 Water use data; and
 - 6 Water use restriction and water conservation information.
 - f. The Department’s Wastewater Engineering Bureau shall provide technical expertise on wastewater treatment facility.
 - g. The Department’s Wetlands Bureau will provide emergency regulatory review services for projects required due to drought impacts.
 - h. The Department’s Geological Survey shall provide geological information and expertise in the evaluation and mitigation of hazards associated with drought.

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- i. The Department's Dam Bureau shall provide water impoundment information regarding the status of reservoirs. As necessary, recommendations shall be made relative to the operation of the reservoirs.

2. Support Agencies

- a. Department of Agriculture
 - 1. Provide outreach and education regarding water conservation use measures for agriculture.
 - 2. Conduct damage assessment and provide information on agriculture.
 - 3. Interface with federal agricultural agencies.
- b. Public Utilities Commission
 - 1. Coordinate with utilities to assess and manage utility impacts and energy loss.
 - 2. Provide a liaison for the NH public and private electric, natural gas, water, sewage, and communications industry and coordinating groups.
- c. Department of Resources and Economic Development
 - 1. Manage the potential for and respond to fire suppression in private and public forests.
- d. New Hampshire Fish and Game
 - 1. Manage and protect wildlife; and
 - 2. Coordinate with the Department of Environmental Services relative to the operation of water impoundments.
- e. All Department of Health and Human Services
 - 1. Assist Emergency Management in meeting individual needs.
- f. US Army Corps of Engineers (USACE)
 - 1. Assist in modifying the operation of federally owned dams as warranted by the management of impacts.
- g. Private Sector Mutual Aid/Professional Associations
 - 1. Participate, as requested and as resources allow, in the fulfillment of the missions and tasks.

FEDERAL RESPONSE INTERFACE/STATE & INTERNATIONAL MUTUAL AID

- A. The effect of drought may impact water resources in New Hampshire that are interconnected with water resources in adjacent states or Canada. The Commissioner, or his/her designee, of the applicable agency shall coordinate with the appropriate out-of-state officials in responding to drought related impacts.

ADMINISTRATION AND LOGISTICS

A. POLICIES

- 1. All agency plans provide for administrative and logistical support necessary to maintain a 24-hour, 7 day a week sustained operation.
- 2. Administrative and logistical support of operational field elements is the responsibility of each participating agency.
- 3. Provision is made by each participating agency to record all resources used in support of the emergency operation and provide such information to the Finance and Administration Section for consolidation and recording.
- 4. Participating agencies will be notified when threshold levels are reached for implementation of any federal assistance programs or requests from mutual aid compacts.

B. NOTIFICATION AND REPORTING

1. Notification

- a. NHDES will notify HSEM that a stage of drought has the potential to occur that threatens or impacts an area of New Hampshire. .
- b. HSEM personnel will make the decision to activate the SEOC and determine level of activation.
- c. If SEOC activation is determined to be necessary, the HSEM Agency Liaison will notify the Lead Agency of the activation and request designated personnel to report to the SEOC or to remain on stand-by.
- d. The Lead Agency will then notify the appropriate Support Agencies and determine coverage/duty roster for the desk in the SEOC. WebEOC will be utilized to provide continuous situational awareness.
- e. All agencies will make appropriate notifications to their appropriate personnel.
- f. The above notification process will be utilized for all phases of activation and activities.

2. Event Reporting

- a. Event and position logs should be maintained by each participating agency in sufficient detail to provide historical data on activities associated with the incident response.
- b. Agencies are also expected to keep the Lead agency updated on all activities and actions.
- c. All financial reporting will be done through the Lead Agency on behalf of their support agencies. All financial management documents must comply with standard accounting procedures and applicable agency, State and Federal guidelines, rules, standards and laws.

3. Agreements/MOUs, etc.

Lead and Support Agencies will maintain up-to-date agreements and Memorandums of Understanding, Letters of Agreement (MOU/LOA) with various other agencies, regions, states or countries, as appropriate. Each agency is responsible for keeping these documents updated with appropriate points of contact. Support Agencies should keep the Lead Agency informed of any such agreements which may impact resources or capabilities during a drought emergency.

ATTACHMENTS

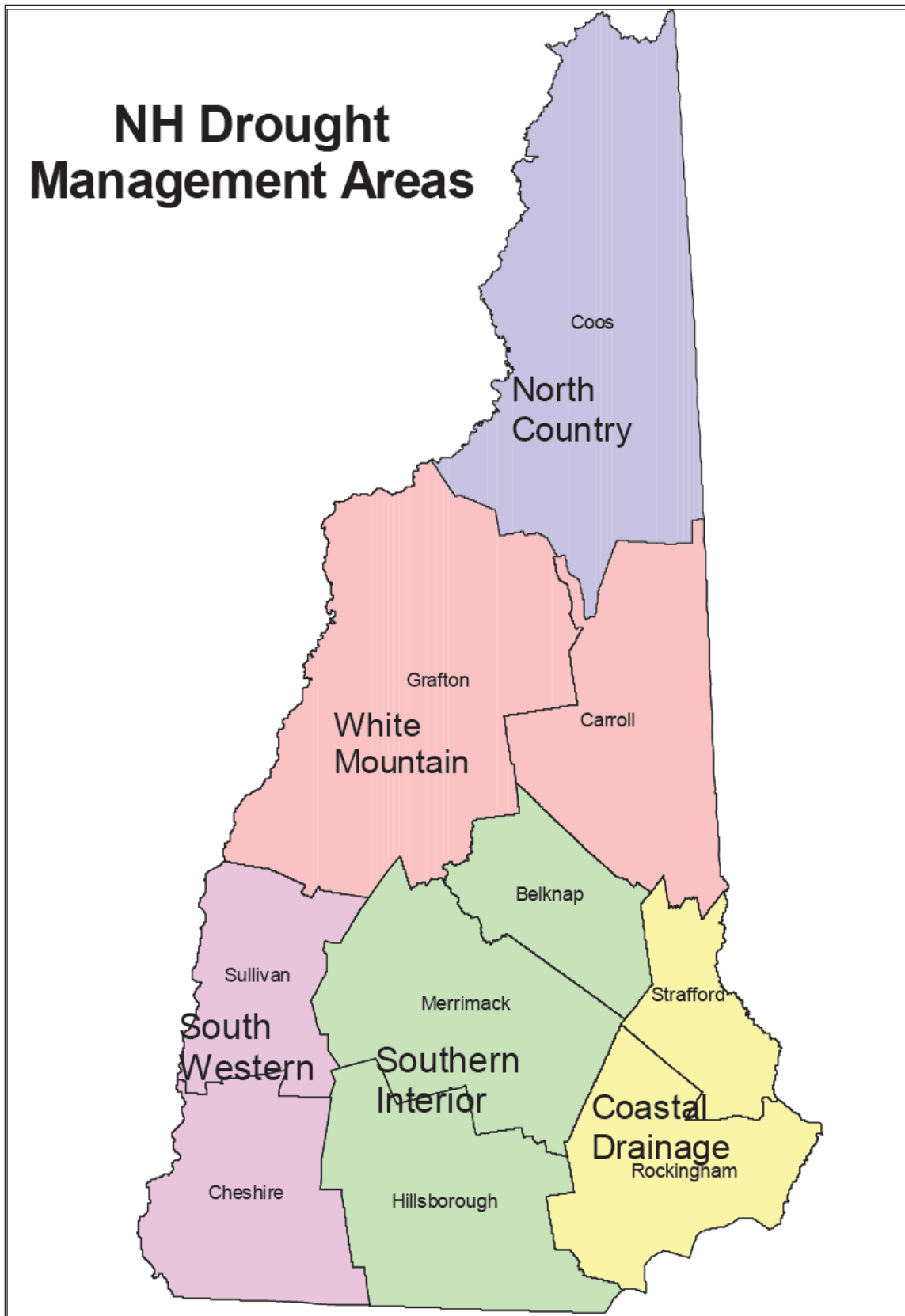


Table 1: NH DROUGHT MANAGEMENT PARAMETERS SUMMARY

A summary of recommended drought triggers for different drought levels. Recommendations for Standardized Precipitation and Palmer Indices are based on index values computer from meteorological data for each drought management area. These differ significantly from those provided by the National Climate Data Center.

	WATCH D0 Abnormally Dry	ALERT D1 Moderate	WARNING D2 Severe	EMERGENCY D3 Extreme	DISASTER D4 Exceptional
Conditions to be used by NH Drought Management Team as basis for recommendations to the US Drought Monitor					
PRECIPITATION 1-month SPI 3-month SPI 6-month SPI 12-month SPI	<0.0 Not Applicable Not Applicable Not Applicable	Not Applicable <0.0 Not Applicable Not Applicable	Not Applicable <-1.0 Not Applicable Not Applicable	Not Applicable Not Applicable <-1.0 Not Applicable	Not Applicable Not Applicable Not Applicable <-1.0
STREAMFLOW 28-day streamflow 65% normal	Up to 1 Month	1-3 Months	3-6 Months	6-9 Months	>9Months
PALMER INDEX PDSI	Not Applicable	<0.0	<-1.0	<-2.0	<-3.0
GROUNDWATER	Not Applicable	Monthly Levels Drop Below Mean	Monthly Levels Persist Below Monthly Mean		Not Quantified

Table 2: General Response to Stages of Drought in Drought Management Areas		
NHDES or DMT Drought Management Area Drought Stage Classification	Drought Severity	Actions to Be Implemented and Sustained Until Drought Conditions Have Subsided
Normal	Normal	Hydrologic data is monitored by NHDES and significant information is sent to the Division of Homeland Security and Emergency Management
Drought Emerges	Abnormally Dry	<ul style="list-style-type: none"> • NHDES monitors hydrologic data and communicates trends to the DMT • NHDES releases press releases on water conservation • NHDES notifies all water utilities to communicate with their customers to practice water conservation • NHDES urges residents to cooperate with local utilities as conditions may be worse in specific areas requiring greater efforts in accordance with the adopted utility plan • NHDES urges residents and businesses to cut back on unnecessary water use, such as lawn watering, washing cars, etc. • Provide drought assessment and mitigation information on nh.gov/nhready
DMT Determines Threshold Conditions for Drought Have Been Met	Moderate Drought	<ul style="list-style-type: none"> • DMT is activated and monitors hydrologic data and developing trends. • DMT begins issuing drought advisories through NHDES' Public Information Officer and provides drought status information to the Division of Homeland Security and Emergency Management • Water systems and municipalities are encouraged to implement outdoor residential lawn water restrictions • State agencies assemble data necessary to assess Governor's request for a Presidential Disaster Declaration or USDA Secretarial Declaration is warranted
DMT Determines Drought Has Increased in Severity	Severe Drought	<ul style="list-style-type: none"> • DMT may request Emergency Operations Center (EOC) activation if drought impact requires. • HSEM appoints a Joint Public Information Officer if EOC activation occurs. • Public service announcements and/or news conferences are conducted to notify the public of the occurrence of drought and ongoing responses. • Recommend implementation of mandatory water conservation measures which affect all non essential water uses
DMT Determines Indicators and Forecasts Worsen and Unmet Needs Prevail and Worsen	Exceptional Drought	



Legal Authorities Relevant to Drought Management

The following state and municipal authorities affecting water use and water use management during drought have been established:

- a. In accordance with RSA 41:11-d, the local governing body may establish regulations restricting the use of water from private wells or public water systems for residential outdoor lawn watering when administrative agencies of the state or federal government have designated the region as being under a declared state or condition of drought.
- b. In accordance with RSA 184:97, the Milk Sanitation Board, in the event of a serious disaster, including a drought, which results in an unusual nonseasonal shortage of milk or milk products, has the power to suspend any part or all of the regulations made under the authority of this subdivision; to promulgate other or additional emergency regulations; to suspend part or all of the requirements of this subdivision pertaining to inspection and the requirement relating to the licensure of out-of-state milk plants from which milk or milk products are derived and pertaining to the inspection of all out-of-state milk producers and milk distributors; provided, however, that the milk sanitation board shall be satisfied that any such source of milk and milk products so admitted shall not constitute a public health threat to the people of this state. Any such suspension and any such emergency regulations shall be for the duration of the emergency.
- c. In accordance with RSA 227-L:15, the Governor, upon the recommendation of the Director of Forest and Lands, when there is danger of starting fires in the woodlands of the state due to a period of protracted drought or excessive dryness which requires extraordinary precautions, may, with verbal approval of the council, by official proclamation, prohibit smoking in or near woodlands and prohibit the kindling of any open fire in or near woodlands in any or all parts of the state for such time as they may designate. Whoever is found guilty of violating the provisions of any proclamation issued pursuant to this section shall be guilty of a violation.
- d. In accordance with RSA 485-C:23, the department may approve a new large groundwater withdrawal without compliance with RSA 485-C:14, RSA 485-C:21, or RSA 485-C:22 to protect human health and the environment in the event that circumstances beyond the control of the person requesting the withdrawal occurs, such as drought.
- e. Water withdrawal permits issued by NHDES contain provisions that limit water withdrawals associated with certain water uses when drought conditions occur.
- f. In accordance with RSA 485:4:II, NHDES can order an existing public water system extend service to an area impacted by a water supply emergency.
- g. In accordance with RSA 482:4, NHDES has authority to direct dam owners to store or release waters in response to emergencies where the public health or safety may be jeopardized.
- h. The Public Utilities Commission has authority, which can be exercised relative to the operation and management of utilities in times of emergencies.
- i. Local governing bodies including cities, town and village districts have numerous powers which can be exercised to protect the public health and welfare.
- j. The US Army Corps of Engineers has the following authority to modify the mode of operation of their network of flood control reservoirs to lessen the impact of drought on streamflows.
 1. Drought Contingency Water, Section 6 of the 1944 Flood Control Act. When available, the Corps can sell surplus water to a state or political subdivision, which agrees to act as a wholesaler.
 2. Planning Assistance to States, PL 93-251, as amended. States may obtain Corps water resources planning expertise on 50-50 cost shared studies to develop plans related to the overall state water plan. This plan must be developed prior to any water shortage in order to be effective.
 3. Reallocation of Storage, PL 85-500. This permits the reallocation of storage from an existing purpose to municipal and industrial water supply. This plan must also be developed prior to any water shortage in order to be effective.
 4. Interim use of municipal and industrial for Irrigation, Section 931, PL 99-662. This program is limited in that it is only applicable to certain projects.
 5. Drought Contingency Plans for Corps Reservoirs provides for release of water from Corps reservoirs during drought. These plans are not required by law, but are part of the operation of Corps reservoirs.
 6. Emergency Well Construction. PL 84-99, as amended, authorizes the construction of wells or the transport of water. This should also be considered as a program of last resort.
- k. The US Department of Agriculture (USDA) has a loan program that can be utilized to assist with water supply shortages (Rural Development Home Repair Loan/Grant Application Section 504). The loan

program is only available for people who live in rural communities (population less than 20,000) and make less than 50 percent of the median household income in the area. In some instances grants are available to people that are over the age of sixty two.

- I. USDA also maintains another low interest loan program called the Household Water Well System Grant Program. This program typically requires applications be submitted by an annual deadline. Homeowners with private wells are eligible for low interest loans under this program, but historically larger projects associated with private water systems have been funded by this program.

Reducing Susceptibility to Drought

The actions below listed in a-h, below, can be taken by entities to be prepared to mitigate the effect of water shortages. The DMT shall assess the actions that should be taken to increase drought preparedness at an annual calendar meeting.

- a. Demand Reduction/Water Conservation - Experience has shown that it is possible to reduce water demand by 10%-40% by implementing water conservation measures. Where water is being used to grow grass for aesthetic purposes only, there is an opportunity to conserve 100% of the water that is used. Extensive resources are available for practically every type of water use to assist with identifying and implementing water conservation measures. Reducing the amount of water that is required by a particular water user would assist with abating a water supply shortage as well as reduce the susceptibility of a given water user to any mandatory reductions in use.
- b. Develop and Utilize Water Storage Structures - Water users may develop large or small scale water storage structures ranging from holding ponds to tanks. Large water storage structures could be designed to store many millions of gallons of water that could be used when a water scarcity exists and filled when water supply is adequate. Smaller storage structures that hold generally less than a million gallons of water could be used to dampen maximum withdrawal rates during discrete periods of time when water use is peaking and a water supply shortage is occurring.
- c. Water Shortage Contingency Plans - All water users, including water systems, businesses, agriculture, and residents with private water supply wells, need to understand that droughts and other water supply emergencies do occur in New Hampshire. Contingency plans, insurance, financial resources, financial planning and mutual aid agreements need to be established to effectively cope with the effects of water supply shortages. Businesses and electrical providers that expect production limitations during droughts can include provisions in contracts with their customers stipulating that there be some supply reductions during the occurrence of a drought.
- d. Interconnect with Other Water Users - In some instances, water users may benefit from interconnecting with one another and coordinating in the use of multiple water resources to lessen the impact of water supply shortages on both the users and the environment.
- e. Diversify the Type and Location of Water Sources - A water user that develops water sources distributed over a broad area will be less constrained by the sustainable yield/competing water uses at a particular point in a watershed or aquifer. Water users that develop different types of water sources will also be more insulated from the effects of a water supply shortage. For instance, water storage reservoirs, rivers, wells constructed in sand and gravel aquifers, and wells constructed in bedrock aquifers would likely not all be impacted at the same time or to the same extent when a drought occurs. Diversifying the type and location of water supply sources also would lessen the susceptibility of a water user to a single contamination event.
- f. Reactivate Previously Abandoned Water Sources - Occasionally sources have been abandoned due to water quality issues or high costs associated with operating and maintaining a particular water source. Improvements in water treatment technology or the risks associated with being impacted by a water supply scarcity may make the reactivation of sources previously abandoned prudent or more feasible.
- g. Identification and Development of Strategies to Access Alternative Supplies - Potential alternative sources of water can be identified and strategies developed to access those supplies in a time of shortage. For instance, there are numerous examples where water systems utilized water from emergency sources such as a surface water body or wells not previously connected to a water system to abate a water supply shortage. Other users have developed plans to lower water reservoir intakes to gain access to additional water stored within the reservoir.
- h. Reuse of Wastewater for Non-Potable Uses – Industries in New Hampshire are already utilizing highly treated wastewater effluent to irrigate golf courses, make snow at ski areas, and as cooling water at biomass power production plants. Additionally, municipal wastewater treatment facilities are facing increasing costs associated with surface water discharge regulations. Municipal wastewater treatment facilities can supply non-potable water users with a water supply that is generally not impacted by drought while potentially reducing the regulatory associated with discharging treated wastewater to surface water. The reuse of treated wastewater effluent must meet minimum water quality standards to ensure the protection of human health and the environment.