



Maryland

Department of the Environment

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Water Supply Program
Drought Monitoring and Response Standard Operating Procedures
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November 2000
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Drought Monitoring

Purpose

The purpose of the drought monitoring conducted by the Water Supply Program is to monitor drought indicators for the public and domestic drinking water supplies in Maryland. Maryland uses the U.S. Army Corps of Engineers' definition of drought, which states, "droughts are periods of time when natural or managed water systems do not provide enough water to meet established human and environmental uses because of natural shortfalls in precipitation or stream flow."

While maintaining water supplies for human use is an important aspect of drought management, drought can also have many other dramatic and detrimental effects on the environment and wildlife. For instance, water suppliers using surface water sources must remain vigilant to ensure that sufficient flow remains in the rivers to meet other environmental needs. Maryland's hydrologic indicators are designed to ensure that the State considers all potential impacts of extended periods of dry weather when evaluating drought conditions.

Regions

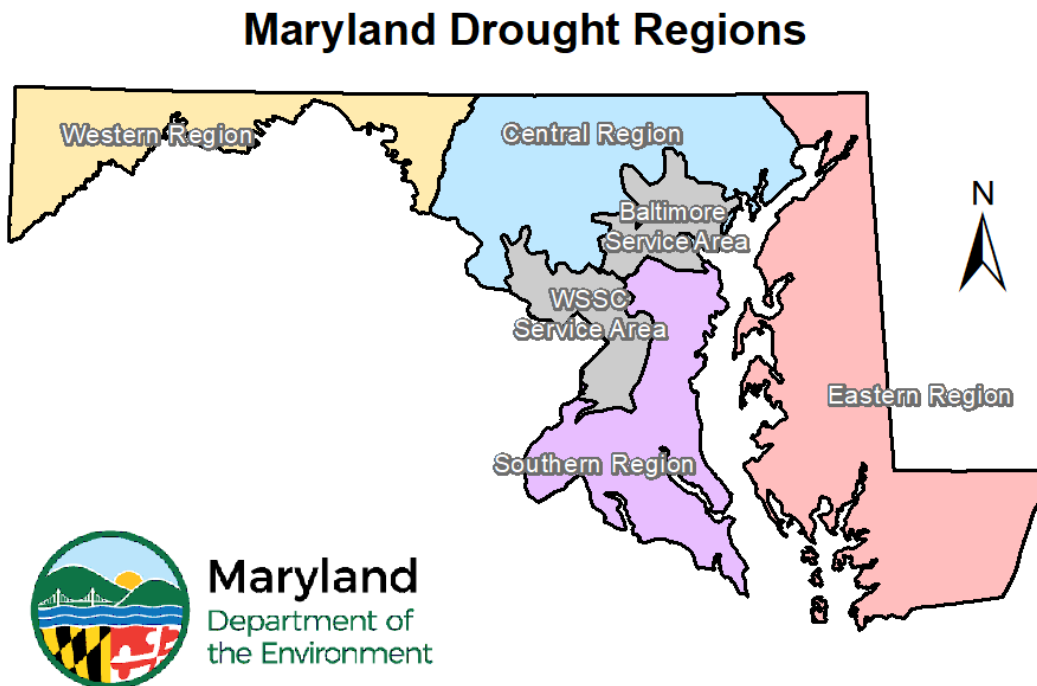


Figure 1- Drought Regions in Maryland. This map shows the four drought regions and two service areas.

The Washington Suburban Sanitary Commission (WSSC) and Baltimore water service areas implement drought monitoring and response actions based on indicators unique to their respective water systems. These systems are separate from the four other monitoring regions due to their size and resiliency to drought via reservoirs.

WSSC Service Area:

WSSC determines its own status, subject to agreements with the Metropolitan Washington Council of Governments (MWCOG), which includes representatives from MDE, Virginia DEQ, and the large water systems which pull from the Potomac River. MWCOG rules are:

1. *Watch*—50% of basin is, according to data from the US Department of Agriculture's Weekly Drought Monitor, in condition D1 (Moderate Drought) or worse.
2. *Warning*—Either declared when combined storage of Seneca and Jennings Randolph are below 60% of storage capacity for five days; lifted when above 60% for 15 days; or declared when 5% chance of not meeting unrestricted demand for next two months.
3. *Emergency*—50% chance of not meeting water supply demand.

The Interstate Commission of the Potomac River Basin (ICPRB) is responsible for coordination of the Drought Coordination Technical Committee, which meets once the above rules are met to determine if MWCOG should proceed with drought response actions.

Baltimore Service Area:

Baltimore's water system determines its own status based on projected storage and inflows into its three reservoirs.

Outside of the WSSC and Baltimore water service areas, the rest of Maryland is divided into four regions based on similar hydrologic characteristics. Below is a list of the four regions and the hydrologic indicators applicable to each one.

Western Region:

(Garrett, Allegany, and Washington Counties)

1. Rainfall
2. Streamflow
3. Groundwater (unconfined aquifer)
4. Reservoirs

Central Region:

(Those portions of Frederick, Carroll, Baltimore, Harford, Cecil, Howard, and Montgomery Counties in neither the WSSC nor the Baltimore City service areas)

1. Rainfall
2. Streamflow
3. Groundwater (unconfined aquifer)
4. Reservoirs

Eastern Region:

(Kent, Queen Anne's, Caroline, Talbot, Dorchester, Wicomico, Worcester, and Somerset Counties)

1. Rainfall
2. Streamflow
3. Groundwater (unconfined aquifer)

Southern Region:

(Those portions of Anne Arundel, Prince George's, Charles, Calvert, and Saint Mary's Counties in neither the WSSC nor the Baltimore service area)

1. Rainfall
2. Groundwater (both unconfined and confined aquifers)

Hydrologic Indicators

To ensure consistent monitoring of potential drought conditions throughout Maryland, four indicators of water sufficiency are used. These hydrologic indicators, which reflect both the amount of precipitation and its effect on the state's hydrologic system, include:

- **Precipitation:** The amount of rainfall received.
- **Streamflow:** The volume of water flowing in streams and rivers.
- **Groundwater Levels:** The depth of water in aquifers.
- **Reservoir Storage:** The amount of water held in reservoirs.

Each indicator is evaluated by comparing current conditions to historical data. This comparison helps determine whether a current hydrological indicator is within a statistically typical range or if it represents an unusual and potentially severe event.

Rainfall as a Drought Indicator

The [Mid-Atlantic River Forecast Center](#) provides rainfall data that compares the actual monthly rainfall to the average for each county.

Monthly precipitation totals and departures from normal (i.e. deficits) are summed to determine cumulative deficits, which are then converted into percentages for four periods: water year to date (beginning October 1st), prior twelve months, prior sixth months, and prior three months. These percentages are averaged between the counties of each region to determine the indicator status for each period of record. All four indicators are included in the report for each county and averaged for each region.

The indicator which is used to determine the hydrological status of each region changes depending on the distance from the start of the water year, as well as whether there is an active drought.

When there is not an active drought:

- For October and November, the precipitation drought status is equivalent to the cumulative twelve-month deficit percentage.
- From December to September, the precipitation drought status is the cumulative water year to date deficit percentage.

During an active drought, the method for calculating rainfall deficits depends on when the drought began:

- If a drought began before the current water year, deficits are calculated from the drought's start date. However, if the drought has lasted longer than twelve months, instead the cumulative twelve-month deficit percentage is used.
- If a drought began during the current water year, the calculation method varies by month:
 - From December through September, the precipitation drought status is the cumulative water year to date deficit percentage.
 - For October and November, the precipitation drought status is the three-month deficit percentage.

Indicator Status Thresholds

Figure 2 and Table 1 detail the percentage thresholds used for precipitation indicators in graph and table form.

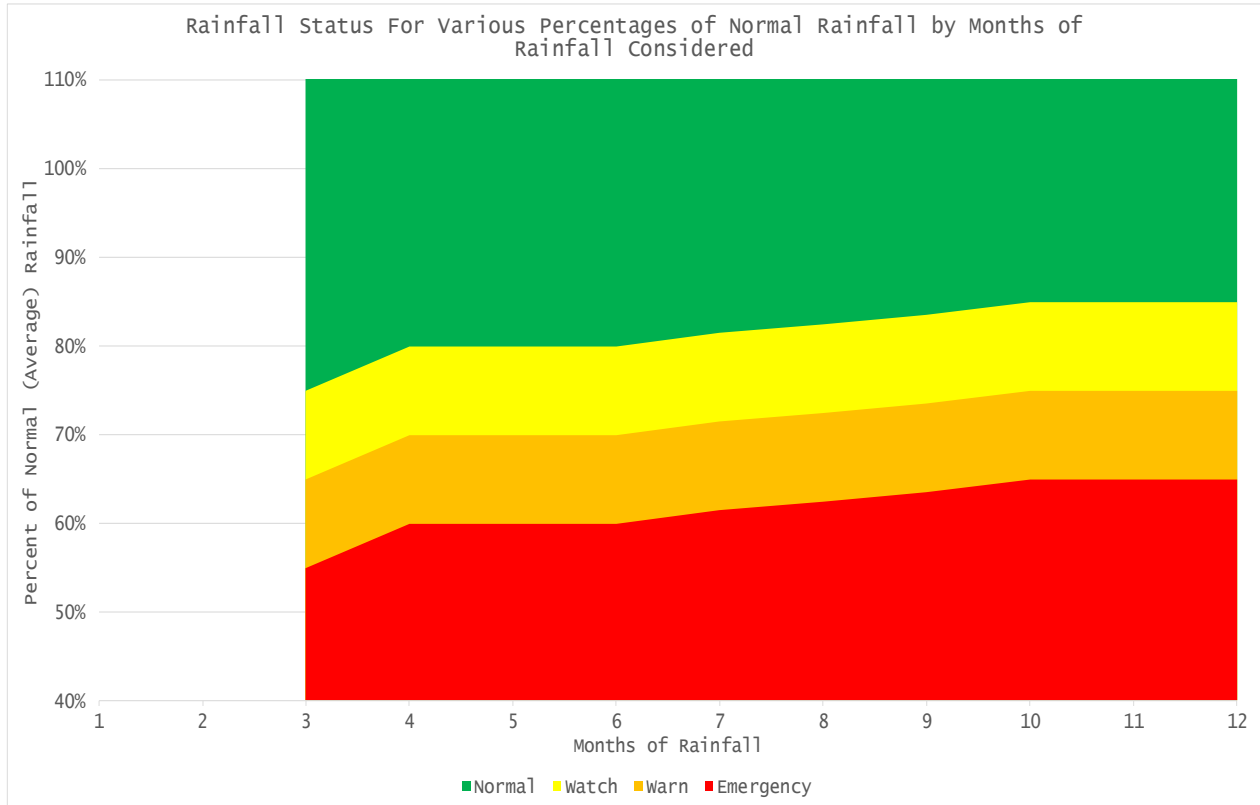


Figure 2 - Rainfall Status as percentage of normal by months considered.

Table 1 - Rainfall Status as percent of normal by months considered.

Number of Months Analyzed	Normal	Watch	Warning	Emergency
3	>75%	65%-75%	55%-65%	<55%
4	>80%	70%-80%	60%-70%	<60%
5	>80%	70%-80%	60%-70%	<60%
6	>80%	70%-80%	60%-70%	<60%
7	>81.5%	71.5%-81.5%	61.5%-71.5%	<61.5%
8	>82.5%	72.5%-82.5%	62.5%-72.5%	<62.5%
9	>83.5%	73.5%-83.5%	63.5%-73.5%	<63.5%
10	>85%	75%-85%	65%-75%	<65%
11	>85%	75%-85%	65%-75%	<65%
12	>85%	75%-85%	65%-75%	<65%

Streamflow as a Drought Indicator

Streamflow is used as a hydrologic indicator in all regions except the Southern Region where surface water is not used for water supply.

Data for the streamflow indicator is obtained from the [USGS water data for the nation](#).

1. Several stream gages represent each region where they are used (below).

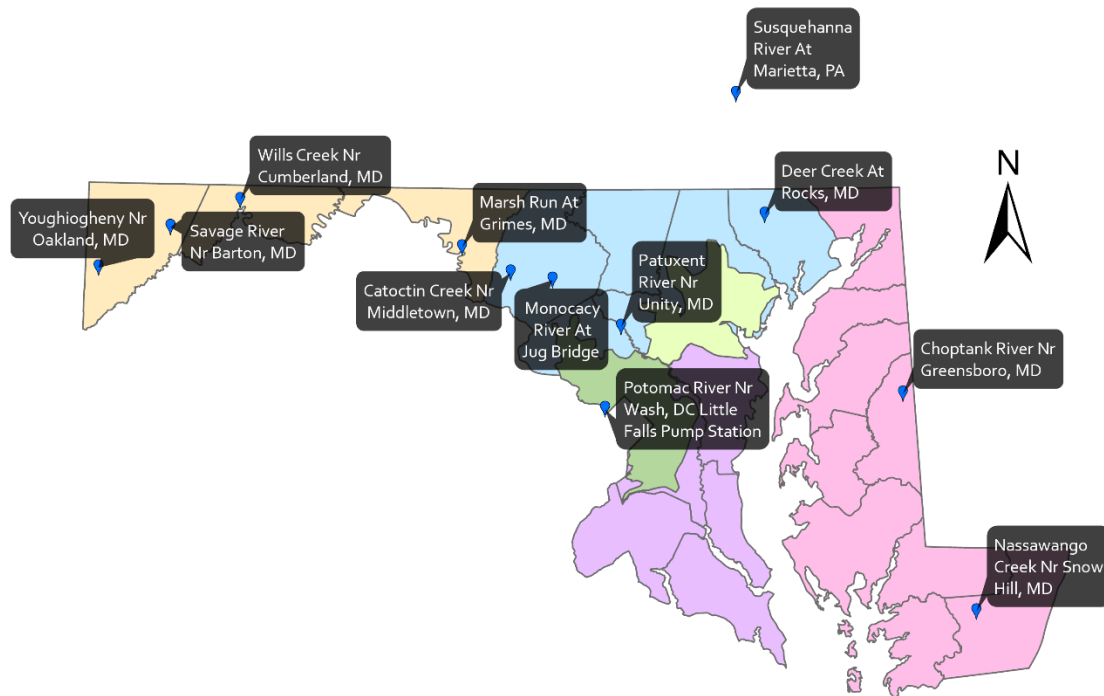


Figure 3- Map of stream gages used in drought monitoring.

2. Streamflow data from each gage is evaluated based on the thirty-day average ending on the day of the evaluation. This average is compared to all the thirty-day averages in the period of record ending on the same calendar day to determine if conditions are within a normal range or indicative of a drought. The streamflow indicator status is established as follows:
 - **Watch:** The average is in the lowest 25% of the historical record.
 - **Warning:** The average is in the lowest 10% of the historical record.
 - **Emergency:** The average is in the lowest 5% of the historical record.

All of the USGS stream gages used in this analysis have a sufficient continuous record that includes a drought.

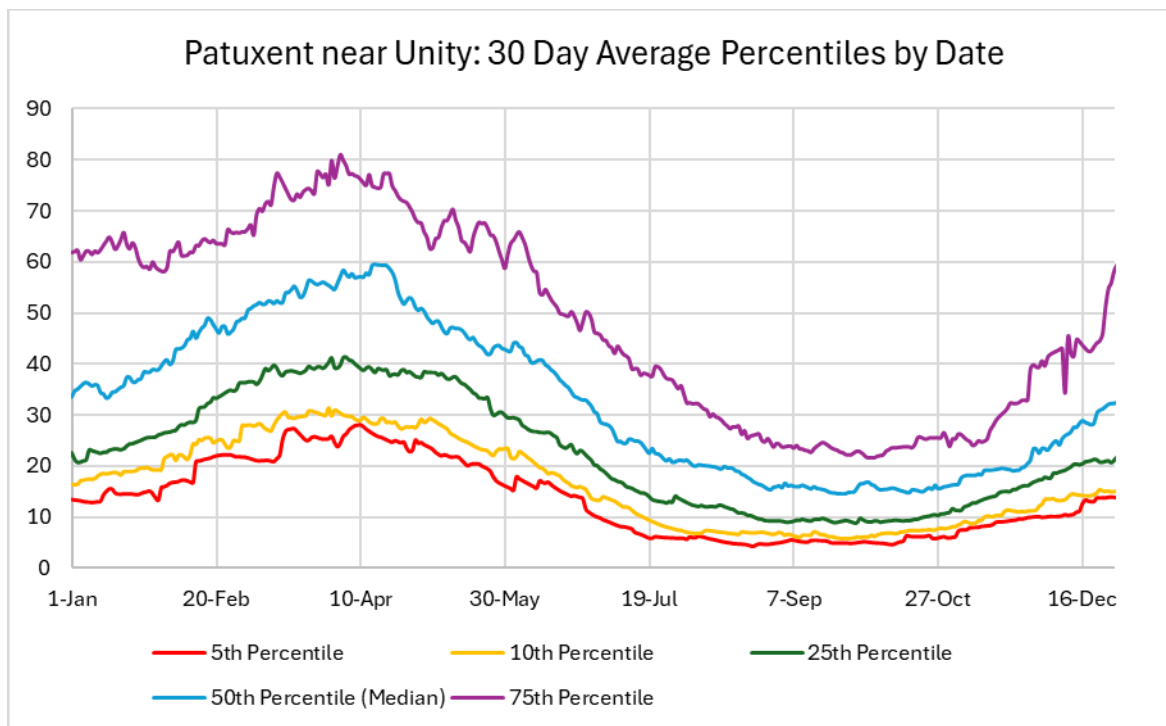


Figure 4 – 30-day average percentiles by date for the stream gage Patuxent near Unity.

Streamflow Trigger Table:

Status	Normal	Watch	Warning	Emergency
Percentiles	>25%	10%-25%	5%-10%	<5%

- A region's streamflow indicator status is determined by the median of its individual stream gauge statuses. If the median falls exactly between two statuses (e.g., between "Watch" and "Warning"), the streamflow indicator status defaults to the one that most closely aligns with the region's last evaluation.
- The Potomac and Susquehanna Rivers are both evaluated as part of the report, but do not contribute to any regional status. These rivers are included due to their importance as a water resource for the WSSC and Baltimore City water systems, respectively, which determine their own status.

Groundwater as a Drought Indicator

Multiple wells in unconfined aquifers are used in evaluating the groundwater indicator statuses for each of the Western, Central and Eastern Regions. The Southern Region is set based on data from one unconfined aquifer well and one confined aquifer well.

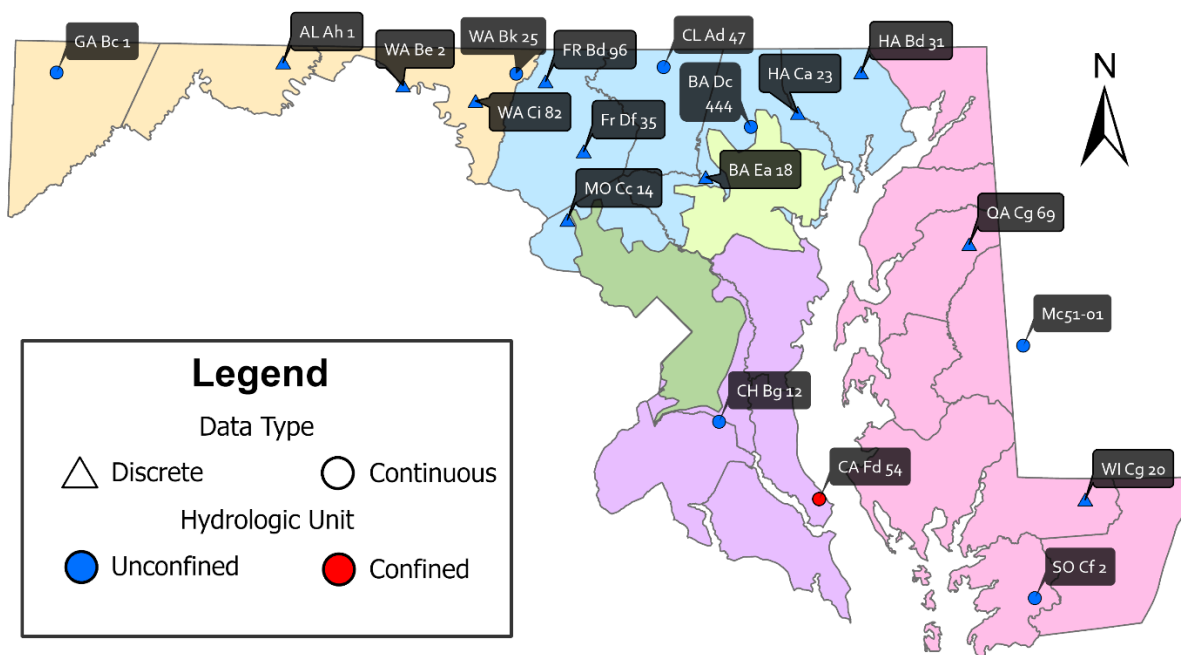


Figure 5- Map of groundwater monitoring wells used for drought monitoring.

For unconfined aquifer wells, the most recent measurement of depth to water is compared to the historical data for that specific month. Discrete data (i.e. a field measurement) is preferable. For continuous wells, the daily average for the last day of the monitoring period will be used if a field measurement is unavailable. An individual well's status is determined as follows:

- **Watch:** The depth to water is between the 75th and 90th percentiles
- **Warning:** The depth to water is between the 90th and 95th percentiles
- **Emergency:** The depth to water is equal to or below the 95th percentile

Well Trigger Table:

Status	Normal	Watch	Warning	Emergency
Percentiles	<75%	[75%-90%]	[90%-95%]	>=95%

The confined well in Southern Maryland is a real-time well. Status for this well is determined by how much its current depth deviates from the well's long-term trend line for the month. Domestic well owners in unconfined aquifers are the primary users who would be impacted by low groundwater in Southern Maryland.

The groundwater indicator status for each region is the average of the individual well statuses for that region. If the average is halfway between two statuses, the status taken will be the one that most closely matches the previous evaluation.

Reservoirs as a Drought Indicator

Eight reservoirs, which form four distinct systems, are actively monitored for the reservoir indicator. An additional two reservoirs are tracked for informational purposes.

The following reservoir systems are monitored for reservoir indicators in their respective regions:

1. Western MD:
 - Frostburg's Piney Reservoir
 - The Cumberland reservoir system, consisting of Lake Koon and Lake Gordon, which are sequential reservoirs on Evitt's Creek in Pennsylvania.
2. Central MD:
 - WSSC's two sequential Patuxent reservoirs, consisting of Triadelphia Reservoir and Duckett Reservoir, which are evaluated as a single system.
 - Baltimore City's three reservoirs (Liberty, Prettyboy, and Loch Raven) which are evaluated as a single system, since finished water can be moved from one part of the Baltimore City system to another. Prettyboy and Loch Raven are sequential.

These systems are evaluated by comparing the historic demand for the next month with the storage in the reservoir, considering neither inflow nor releases done to maintain downstream flow (i.e. flow-by). The drought status is based on the number of days of water supply remaining:

- **Watch:** Less than 120 days of storage
- **Warning:** Less than 90 days of storage
- **Emergency:** Less than 60 days of storage

The two additional reservoirs that are monitored are Little Seneca Reservoir and the Jennings Randolph Reservoir. Water is stored in the Jennings Randolph Reservoir for several purposes, but for this process MDE looks at the reservoir's water supply account and not its total conservation storage.

Other Factors

Beyond the primary metrics, several other indicators are considered when assessing the regional drought status:

- [*Drought Monitor*](#): This weekly publication from the National Drought Mitigation Center includes both the weekly U.S. Drought Monitor and the Maryland Drought Monitor.
- *Well Failure Reports*: Information on wells that have run dry is an important indicator of groundwater stress.
- *Public Water System Reports*: The state receives information from public water systems regarding operational impacts and the implementation of local drought restrictions. Each county has a dedicated Drought Coordinator who facilitates communication between the county and the state. Water systems may also report directly to the Department.
- *Seasonal Drought Outlook*: The [U.S. Seasonal Drought Outlook](#) from the National Weather Service provides a forward-looking perspective on potential drought development or persistence.

Determining Regional Drought Status

Drought evaluations are always conducted based on the conditions at the end of the previous month. However, the evaluations are done more frequently as the drought status worsens:

- **At least one region in Watch:** A partial, mid-month update will be provided reflecting new data on rainfall, streamflow, and groundwater, if available.
- **At least one region in Warning, Imminent Emergency, or Emergency:** Monitoring will be conducted weekly.
 - Exception: During December, January, February, March, and April, the “Warning” status drought updates may be reduced to a twice-monthly frequency.

The regional drought statuses are established based on a defined, technical process, with final review that allows the status to be upgraded or downgraded based on professional judgement. For the technical process, a change in a region's drought status toward a more severe drought is considered when there is a downgrade in one or more indicator status. This is done by looking at the status of the two hydrologic indicators furthest from being normal. *At least two indicators must equal or exceed a status for that status to be suggested by the technical review process.*

- *Example 1:* If a region's indicators are Watch, Warning, Normal, and Normal, the suggested regional status would be Watch, as it is the status of the two furthest-from-normal indicators (Watch and Warning).
- *Example 2:* If the indicators are Warning, Emergency, Watch, and Normal, the region's suggested status would be Warning because two indicators (Warning and Emergency) are at or beyond that level.

A change in status may be deferred until the end-of-month evaluation. Specific rules, described in the next section, apply to the “Imminent Emergency” and “Emergency” statuses.

The final determination is based on a combination of the suggested status from the technical assessment and professional judgment, using the “Other Factors” described in the section above. For instance, a single rain event might improve indicators temporarily but not be sufficient to warrant a change in the overall drought status.

A downgrade in regional drought status will generally remain in place until there is significant improvement. This may mean that all hydrologic indicator statuses for a region return to Normal and remain there for multiple report cycles before the regional drought status is upgraded to Normal.

Declaring a Drought Emergency

Only the Governor can declare a formal Drought Emergency. If regional indicators meet the criteria for a Drought Emergency, MDE may recommend to the Governor that a drought emergency be announced. If the Governor has not yet made a formal declaration, the regional status will either remain in "Warning" or be listed as "Imminent Emergency." This "Imminent Emergency" status remains in effect until the Governor makes the official declaration or the regional drought status improves.

Deferral of Emergency Status

The regional drought status change to "Imminent Emergency" and the request for an emergency declaration may be deferred based on professional judgment. For example, during February, March and April, streamflow and groundwater levels are typically higher than during other months, and water conservation measures would be unnecessary to preserve the water supply. Additionally, mandatory water conservation measures are generally focused on outdoor use, which would be inapplicable during this cold period.

Rescinding an Emergency

Once a Drought Emergency is formally declared for a region, it will remain in force until water conservation measures are no longer necessary for preserving water supplies and the declaration is formally lifted by the Governor. The status must show improvement to Normal or near Normal levels across all indicators before the emergency declaration can be lifted.

Drought Response

Drought Management Roles

Managing drought is handled by multiple organizations at different levels.

Maryland Department of the Environment (MDE):

The MDE has a central role in coordinating and managing all water supply drought activities. Its responsibilities are grouped below:

1. Leadership and Coordination
 - Lead and coordinate all water supply drought management activities.
 - Coordinate drought response actions with local governments and utilities.
 - Provide year-round oversight of public water systems.
2. Monitoring and Advisement
 - Monitor drought indicators and advise the Governor on the status of drought conditions, as needed.
 - Maintain drought information on its website and establish a Drought Hotline, when necessary.
3. Communication and Outreach
 - Update local government, utilities, industry, and the public on the status of drought conditions.
 - Develop public education and outreach materials for the public.
4. Local Support and Training
 - Maintain a list of Drought Coordinators and provide training to them, when necessary.
 - Maintain regular contact with and provide guidance to local drought coordinators.

Other State organizations:

- Office of the Governor:
 - Declares a drought emergency and issues Executive Orders directing response.
- Department of Agriculture:
 - Aids farmers suffering from drought.
- Department of General Services:
 - Operates and maintains State facilities.
- Department of Health:
 - Assesses and responds to impacts of water shortages on public health.
- Department of Natural Resources:
 - Monitors forest fire conditions.
 - Establishes and enforces burning restrictions.
- Maryland Department of Emergency Management:
 - Coordinates State response to major disasters and emergencies.
- State Police:
 - Enforces mandatory water use restrictions in a drought emergency.

Local Entities:

- County Executives and County Councils/Commissions:
 - May declare county emergencies.
 - Appoint drought coordinators.
- County Drought Coordinators:
 - Serve as each county's central point of contact with MDE.
 - These positions are typically designated by County officials and may include staff from the County Health Department, Department of Public Works or Department of Emergency Management.
 - Handle variance or exemption requests during a drought emergency.
 - Establish local drought emergency public information and education programs.
 - In addition to each county, WSSC and Baltimore City also each have a drought coordinator. During times of drought emergency, drought coordinators may be removed from that designation at any time by the Secretary of the Department of the Environment and replaced by a Drought Coordinator of the Secretary's choice who may serve for the duration of the emergency.
- County Environmental Health Agencies or Delegated Authorities:
 - Assess and respond to impacts of water shortages on public health.
 - Issue well construction permits.
 - Assist owners of residential wells with drought-related problems.
 - Provide public education related to drought, well failures, and public health issues.
- Local Law Enforcement:
 - Enforce mandatory water use restrictions in a drought emergency.
- Metropolitan Washington Council of Governments - MWCOG is a regional organization of 17 Washington area local governments surrounding our nation's capital, plus area members of the Maryland and Virginia legislatures, the U.S. Senate, and the U.S. House of Representatives. MWCOG provides a focus for action and develops sound regional responses to environmental and other area issues.
 - Develop and implement a year-round communications program focusing on water conservation.
 - Coordinate drought awareness and response for public utilities in the Washington area.

Water Supply Utilities:

- Each community water supplier is responsible for monitoring water supply conditions in its service area, responding to customer complaints and problems related to drought conditions, and reporting any drought-related problems to MDE. Water suppliers have the authority to impose water use restrictions on their customers based on their individual situations when conditions warrant.

Interstate Commissions:

- The Susquehanna River Basin Commission (SRBC) coordinates the water resources efforts of Maryland, New York, Pennsylvania, and the federal government, and [conducts its own drought monitoring](#). SRBC also has the authority to place water withdrawal restrictions on its permittees.
- The Interstate Commission on the Potomac River Basin (ICPRB) coordinates water resources efforts in the Potomac River watershed. ICPRB monitors drought conditions in the Potomac on behalf of the Metropolitan Washington Council of Governments (MWWOG) to ensure that Potomac River meets the agreed upon 100 million gallons per day (MGD) flow minimum. During the summer months, ICPRB releases a [monthly water supply outlook](#) for the region.

Federal:

- Office of the President:
 - Declares drought emergency when necessary, allowing the State to receive financial and other assistance from the Federal Emergency Management Agency.
- National Weather Service:
 - Tracks national and regional weather conditions.
- U.S. Geological Survey:
 - Maintains streamflow and groundwater gages.
- U.S. Department of Agriculture:
 - Monitors and assesses wildfire conditions,
 - Aids farmers suffering from drought.

Drought Response Actions

The following pages detail response actions for each responsible entity at each drought status. Mandatory restrictions only apply if the Governor declares a Drought Emergency, and those restrictions are outlined in the next section.

Table 2 - MDE Actions Based on Status

Normal	Watch	Warning	Emergency
Promote Water Conservation	5%-10% Reduction Goal	10%-15% Reduction Goal	15%-20% Reduction Goal
<p>MDE and public media implement a “Drought Index” public awareness campaign to provide citizens with regular updates about drought status.</p> <p>MDE publicly promotes wise water use.</p>	<p>MDE advises public of changes to indicators and initiates Statewide or regional “Drought Watch.”</p> <p>MDE notifies municipal and county governments, and other agencies of drought watch status.</p> <p>MDE’s Office of Communication works with local media to issue frequent drought updates and water conservation tips to the public.</p> <p>MDE evaluates drought conditions biweekly.</p> <p>MDE increases monitoring of problems incurred by water systems.</p> <p>MDE verifies contact information for local drought coordinators.</p>	<p>MDE notifies municipal and county governments, and other appropriate agencies, of drought warning status.</p> <p>MDE and water systems advise public of changes to indicators and initiates Statewide or regional “Drought Warning.”</p> <p>MDE evaluates drought conditions on a weekly basis.</p> <p><i>These actions also apply to the Imminent Emergency status.</i></p>	<p>Governor declares a “Drought Emergency” by executive order.</p> <p>MDE notifies municipal and county governments, and other appropriate agencies of Drought Emergency status.</p> <p>Drought conditions are evaluated at least weekly.</p> <p>MDE implements mandatory restrictions on nonessential water uses.</p> <p>MDE operates a Drought Hotline to answer questions posed by the public.</p>

Table 3 - Suggested Actions for Water Suppliers

Normal	Watch	Warning	Emergency
Promote Water Conservation	5%-10% Reduction Goal	10%-15% Reduction Goal	15%-20% Reduction Goal
<p>Water Utilities develop drought plans as part of their Emergency Contingency Plan and develop ordinances for enforcement.</p> <p>Water suppliers initiate broad-based public education.</p> <p>Water suppliers maintain accurate water monitoring and consumption records.</p> <p>Water suppliers implement leak detection and repair.</p> <p>Water suppliers develop meter installation replacement and calibration program.</p>	<p>Water suppliers activate Water Conservation Plan.</p> <p>Water suppliers alert public as necessary.</p> <p>Water suppliers distribute information on water conservation.</p> <p>Water suppliers aggressively pursue leak detection surveys and repairs.</p> <p>Water suppliers reduce water usage for flushing and park irrigation.</p> <p>Water suppliers caution industrial users to reduce water usage.</p>	<p>Water suppliers increase public awareness and interest.</p> <p>Water suppliers request and/or require that active conservation measures be practiced.</p> <p>Water suppliers individually contact industrial users to reduce water usage.</p> <p>Water suppliers discontinue flushing water lines, fire hydrants and distribution equipment.</p> <p>Water suppliers distribute water conservation kits to large volume customers.</p> <p><i>These actions also apply to the Imminent Emergency status.</i></p>	<p>Water suppliers notify consumers of severity of water shortage.</p> <p>Water suppliers comply with mandatory nonessential water use restrictions.</p> <p>Water suppliers conduct field surveillance of abuses, leaks, etc.</p> <p>Water suppliers execute enforcement against water conservation violators.</p> <p>Water suppliers verify availability of alternative water source or interconnection.</p>

Utilities or local governments may impose restrictions more stringent than the state guidelines.

Table 4 - Suggested Actions for Private Residences

Normal	Watch	Warning	Emergency
Promote Water Conservation	5%-10% Reduction Goal	10%-15% Reduction Goal	15%-20% Reduction Goal
<p>Homeowners repair leaks and drips.</p> <p>Homeowners install water conserving fixtures during new construction and rehabilitation.</p> <p>Homeowners practice water conservation on an ongoing basis.</p>	Homeowners reduce lawn watering.	<p>Homeowners voluntarily comply with nonessential water use restrictions.</p> <p><i>These actions also apply to the Imminent Emergency status.</i></p>	Homeowners comply with mandatory nonessential water use restrictions.

Table 5 - Suggested Actions for Government Facilities

Normal	Watch	Warning	Emergency
Promote Water Conservation	5%-10% Reduction Goal	10%-15% Reduction Goal	15%-20% Reduction Goal
<p>Facility managers for government buildings should conduct water use evaluations and improve water use efficiency where practical.</p> <p>Government agencies should educate employees about wise water use.</p>	Facility managers for government buildings reduce lawn watering.	<p>Facility managers for government buildings shall identify leaks and accelerate maintenance measures and/or repairs.</p> <p><i>These actions also apply to the Imminent Emergency status.</i></p>	Facility managers for government buildings comply with mandatory nonessential water use restrictions.

Table 6 - Suggested Actions for Industry/Business

Normal	Watch	Warning	Emergency
Promote Water Conservation	5%-10% Reduction Goal	10%-15% Reduction Goal	15%-20% Reduction Goal
<p>Commercial users develop water emergency plans to reduce water use by at least 10%.</p> <p>Commercial users develop and implement water conservation measures.</p> <p>Commercial users evaluate and reduce water use for landscaping.</p>	<p>Commercial users activate water emergency plans.</p> <p>Commercial users reduce water for nonessential use.</p> <p>All irrigation use should be voluntarily reduced.</p>	<p>Commercial users voluntarily comply with nonessential water use restrictions.</p> <p>Treated wastewater irrigation should be encouraged in accordance with health guidelines.</p> <p><i>These actions also apply to the Imminent Emergency status.</i></p>	<p>Commercial users comply with mandatory nonessential water use restrictions.</p> <p>Commercial users review need for reduced hours of operation.</p> <p>Commercial users reduce water use by at least 10%.</p>

Table 7 - Drought Emergency Restrictions

The following table outlines mandatory restrictions on water use during a drought emergency. **These restrictions only apply after the governor declares an emergency.** If restrictions place undue hardship on local businesses or homeowners, they can apply for an exemption through their local drought coordinator.

Mandatory Water Use Restrictions	
<i>Prohibited</i>	<i>Exceptions</i>
<i>Watering of lawns</i>	<ul style="list-style-type: none"> • To establish and maintain newly seeded and sodded grass areas, water may be applied on the day of installation and for 21 days following installation by any means designed and operated to assure effective water conservation. Irrigation must be personally supervised at all times to eliminate run-off or excessive watering. • To maintain athletic fields when a 50% water reduction plan is in effect. • Wastewater effluent or storm water treatment systems utilizing spray irrigation may apply water in designated areas according to permit conditions.
<i>Use of Watering for irrigation and watering of gardens, landscaped areas, trees, shrubs and other outdoor plants</i>	<ul style="list-style-type: none"> • For agricultural irrigation for the production of food and fiber, the maintenance of livestock and poultry or the production of nursery stock. • By means of a hand-held container, hand-held hose equipped with an automatic shut-off nozzle, or drip irrigation system when applied between the hours of 8 p.m. and 8 a.m. • When used by commercial nurseries at the minimum rate necessary to maintain stock. • Water may be used by arboretums and public gardens of National, State, or regional significance at the minimum rate necessary to preserve specimens.
<i>Irrigation and watering of golf courses</i>	<ul style="list-style-type: none"> • To water tees and greens between the hours of 8 p.m. and 8 a.m. • To water localized areas with a handheld hose at the minimum rate necessary. • To water fairways when irrigation is reduced by $\geq 30\%$. • As part of a necessary overseeding or resodding operation during the months of September and October at the minimum rate necessary. • Sources of water other than potable water should be used when available. • Irrigation of rough areas is not allowed.

<i>Washing paved surfaces such as streets, roads, sidewalks, driveways, garages, parking areas, tennis courts, and patios</i>	<ul style="list-style-type: none"> • For prewashing in preparation of asphalt street or driveway recoating and sealing. • At the minimum rate necessary for the maintenance of tennis courts composed of clay or similar materials by means of a hand-held hose equipped with an automatic shutoff nozzle. • At the minimum rate necessary for sanitation or public health purposes, such as eating and drinking areas. • At the minimum rate necessary to maintain effective dust control during the construction of highways and roads.
<i>Use of water for the operation of ornamental fountains, artificial waterfalls, misting machines, and reflecting pools</i>	<ul style="list-style-type: none"> • None
<i>Use of water for washing or cleaning of mobile equipment including automobiles, trucks, trailers and boats</i>	<ul style="list-style-type: none"> • Commercial car washes that recycle 45% of their wash water or reduce total water consumption by at least 10%. • Cleaning of construction, emergency or public transportation vehicles if necessary to preserve the proper functioning and safe operation of the vehicle. • Cleaning of new and used vehicles which are part of a dealer's sales inventory only under the following provisions: a) a vehicle is being prepared for sale at the time the vehicle is received from the manufacturer or prior owner, b) a vehicle shall be washed no more than once every 7 days, and c) a vehicle may be washed following sale immediately prior to delivery to the purchaser. Vehicles may be washed only by a means of a bucket or hand-held hose equipped with an automatic shut-off nozzle.
<i>Use of water to fill and top off swimming pools</i>	<ul style="list-style-type: none"> • Public or residential swimming pools serving 25 or more dwelling units, if the pools have filtration equipment allowing for continued use and recycling of water over the swimming season. • Swimming pools operated by health care facilities used in relation to patient care and rehabilitation. • Filling of newly constructed pools or after pool repair.
<i>Homeowner power-washing of buildings, fences, decks, other structures</i>	<ul style="list-style-type: none"> • None.
<i>Serving of water in restaurants, clubs, or eating places, unless specifically requested by the customer</i>	<ul style="list-style-type: none"> • None.
<i>All other businesses and industries implement plans to reduce water consumption by 10%</i>	