

STATE OF OHIO EMERGENCY OPERATIONS PLAN DROUGHT INCIDENT ANNEX

The purpose of the Ohio Drought Incident Annex is to provide an effective and systematic means for the State of Ohio to assess and respond to a drought.

Drought Incident Annex Access

The Drought Incident Annex is an element of the Ohio Emergency Operations Plan

EOP - http://ema.ohio.gov/EOP_Detail.aspx

DIA - http://ema.ohio.gov/Documents/Ohio_EOP/drought_annex.pdf

Drought Monitor - <http://droughtmonitor.unl.edu/>

CPC-NCEP-NOAA Report -

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/palmer_drought/wpdeast.txt

SITUATION

- Drought is a **cyclical** weather phenomenon.
- It can have a **profound effect** upon the State of Ohio.
- It is **progressive** in nature.
- Its presence **may not be recognized** until it has reached a severe level.
- Drought impacts the State with a **variety of complex problems.**
- If identified and evaluated, they **can be dealt with** in a well-organized manner.

Most significant impacts

- Agriculture
- Forestry
- Fish and wildlife
- Recreation and tourism
- Public and private water supplies
- Water quality
- Economic impacts

Drought Science

- Drought is defined as a **prolonged period of abnormally dry weather**, where the lack of sufficient precipitation **causes a serious hydrologic imbalance**, having **economic and/or social consequences** which may affect all or a portion of the State of Ohio.
- Drought severity depends upon the degree of **moisture deficiency**, the **duration**, and the **size of the affected area**.
- Drought is considered a **meteorological phenomenon** rather than the result of underdeveloped public water supply systems.
- The State of Ohio monitors precipitation, groundwater levels, stream flows, snow pack, and water quality and utilizes indices to ascertain drought potential.

PALMER DROUGHT SEVERITY INDEX

ABOVE +4	EXTREMELY MOIST
3.0 to 3.9	VERY MOIST
2.0 to 2.9	UNUSUALLY MOIST
1.0 to 1.9	MOIST
0.5 to 0.9	INCIPIENTLY MOIST
0.4 to -0.4	NEAR NORMAL
-0.5 to -0.9	INCIPIENT DROUGHT
-1.0 to -1.9	MILD DROUGHT
-2.0 to -2.9	MODERATE DROUGHT
-3.0 to -3.9	SEVERE DROUGHT
BELOW -4.0	EXTREME DROUGHT

CROP MOISTURE INDEX

ABOVE +3	EXTREMELY WET
2.0 to 2.9	WET
1.0 to 1.9	ABNORMALLY MOIST
0 to 0.9	FAVORABLY MOIST
0 to -0.9	SLIGHTLY DRY
-1.0 to -1.9	ABNORMALLY DRY
-2.0 to -2.9	EXCESSIVELY DRY
-3.0 to -3.9	SEVERELY DRY
BELOW -4.	EXTREMELY DRY

STANDARD PRECIPITATION INDEX

ABOVE 2.0	EXTREMELY WET
1.5 to 1.99	VERY WET
1.0 to 1.49	MODERATELY WET
-.99 to .99	NEAR NORMAL
-1.0 to -1.49	MODERATELY DRY
-1.5 to -1.99	SEVERELY DRY
BELOW -2	EXTREMELY DRY

WEEK 16 OF THE 2012 GROWING SEASON IS THE WEEK ENDING 23 JUN 2012

ST	CD	CLIMATE DIVISION	TEMP (F)	PCPN (IN)	SOIL		PCT		CHANGE FROM PREV WEEK	MONTH MOIST ANOM (Z) INDEX	PRELIM-P FINAL -F PALMER DROUGHT INDEX	PRECIP NEEDED TO END DROUGHT (IN)			
					MOISTURE		FIELD CAP.	POT EVAP							
					UPPER LAYER (IN)	LOWER LAYER (IN)									
OH	1	NORTHWEST	78.0	0.77	0.00	4.74	52.7	1.50	0.00	-1.25	-0.15	-4.29	-3.83	F	9.31
OH	2	NORTH CENTRAL	76.3	1.12	0.00	5.68	63.1	1.43	0.00	-0.65	0.08	-3.76	-2.01	P	4.88
OH	3	NORTHEAST	74.7	0.69	0.00	4.75	59.3	1.33	0.00	-0.82	-0.17	-4.10	-3.64	F	7.75
OH	4	WEST CENTRAL	78.8	0.54	0.00	4.12	51.4	1.50	0.00	-1.28	-0.38	-4.10	-3.54	F	9.92
OH	5	CENTRAL	77.1	0.58	0.00	5.07	56.4	1.43	0.00	-1.11	-0.26	-4.32	-2.78	F	7.64
OH	6	CENTRAL HILLS	75.7	1.45	0.05	4.83	61.0	1.40	0.00	-0.52	0.35	-3.81	-3.12	F	8.26
OH	7	NORTHEAST HILLS	75.1	0.75	0.00	5.36	59.6	1.38	0.00	-0.88	-0.14	-3.91	-3.83	F	9.30
OH	8	SOUTHWEST	77.3	0.44	0.00	4.77	59.7	1.43	0.00	-0.85	-0.37	-3.13	-1.81	P	4.88
OH	9	SOUTH CENTRAL	76.7	0.62	0.00	5.62	62.5	1.40	0.00	-0.77	-0.23	-3.83	-2.37	F	5.71
OH	10	SOUTHEAST	75.5	0.66	0.00	3.99	57.0	1.36	0.00	-0.82	-0.23	-3.38	-2.57	F	6.87

U.S. Drought Monitor

June 26, 2012

Valid 7 a.m. EST

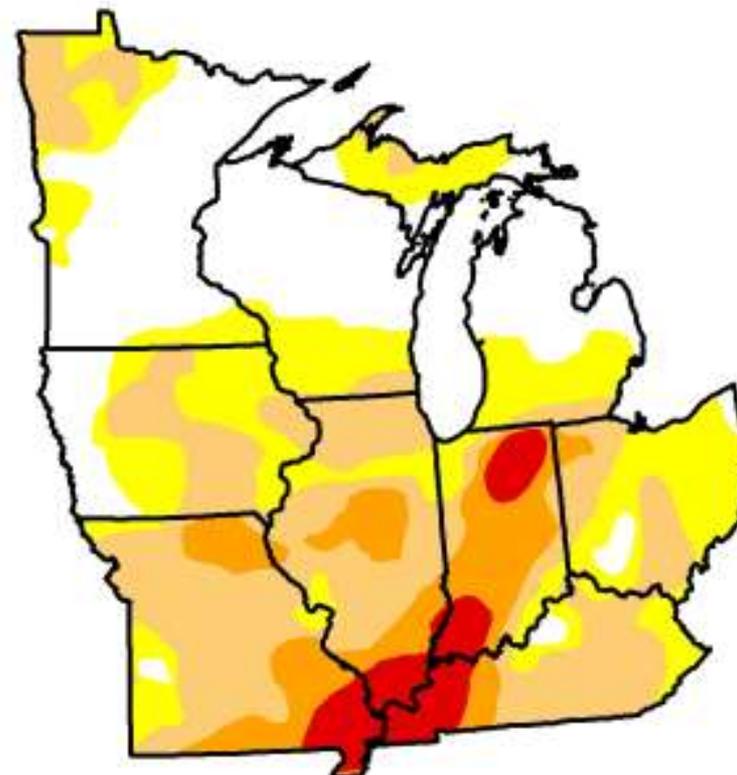
Midwest

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	28.87	71.13	45.76	15.27	5.28	0.00
Last Week (06/19/2012 map)	28.94	71.06	37.84	11.96	3.49	0.00
3 Months Ago (03/27/2012 map)	68.34	31.66	19.06	6.32	0.00	0.00
Start of Calendar Year (12/27/2011 map)	71.84	28.16	13.42	6.80	0.00	0.00
Start of Water Year (09/27/2011 map)	58.85	41.15	14.01	5.03	0.00	0.00
One Year Ago (06/21/2011 map)	98.82	1.18	0.17	0.00	0.00	0.00

Intensity:

-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional



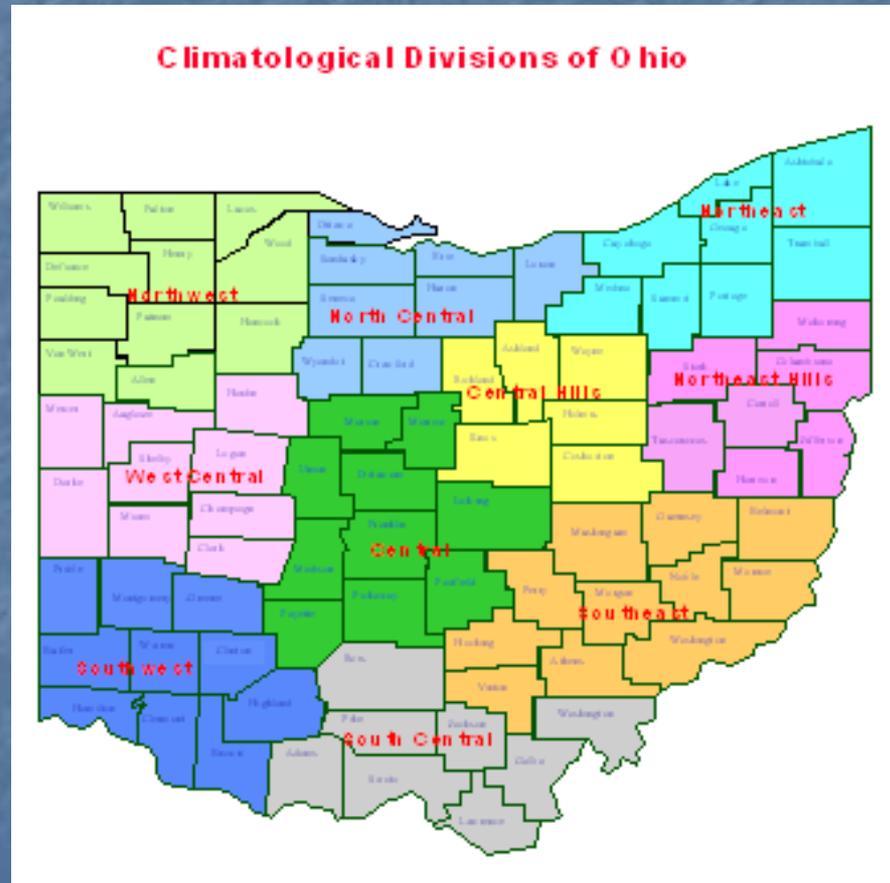
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, June 28, 2012
Richard Heim, National Climatic Data Center, NOAA

Ohio' Ten Climatological Divisions



Types of Drought

- **Agricultural Drought** is a moisture deficiency seriously injurious to crops, livestock, or other agricultural commodities.
- **Hydrological Drought** is evidenced by reductions in stream flow and in lake and reservoir levels, depletion of soil moisture, a lowering of the ground-water table and consequently a decrease in ground-water discharge to streams and lakes.
- **Mathematical Drought** is a computation in which rainfall deficiencies are expressed.

Phases of the Drought Response System

Phase I- Normal Conditions

- A drought monitoring and assessment system is required to provide enough lead time for State and local decision-makers to take appropriate actions.
- During normal conditions, the Department of Natural Resources (DNR), the National Weather Service (NWS), and the Environmental Protection Agency (EPA) will supply water monitoring information to the Ohio Emergency Management Agency (Ohio EMA) on a monthly basis.

Phases of the Drought Response System

Phase II- Drought Alert

- **Phase II may begin when the Palmer Drought Severity Index reads 1.0 to -2.0.** Based upon the recommendation of the DAC the Governor will be requested to make a **drought alert declaration.**
- **The Drought Alert may be issued for all or a portion of the State of Ohio based on data collected.** Conditions would indicate the potential for a serious water shortage or agricultural emergency with below normal precipitation and declining stream flows and ground water levels. Normal levels would be expected over a period of one or two months.

Drought Assessment Committee (DAC)

The Executive Director of Ohio EMA will activate and chair the DAC, consisting of representatives from the following agencies:

- Department of Natural Resources (DNR), Division of Water
- Environmental Protection Agency (EPA), Division of Drinking and Ground Waters
- Department of Agriculture (ODA)
- Ohio Emergency Management Agency (Ohio EMA)
- Ohio State University Extension
- State of Ohio Climatologist
- National Weather Services (NWS) (Columbus)
- Farm Service Agency (FSA), of the United States Department of Agriculture
- Public Utilities Commission of Ohio (PUCO)
- United States Army Corps of Engineers
- Ohio Department of Health (ODH)

DAC Tasks

- Regularly issue reports on drought status
- Identify resource information gaps
- Provide water availability reports to the Governor
- Provide supplemental reports whenever a significant weather event occurs or as requested.
- Provide accurate and timely assessments of water availability or agricultural deficiencies.
- Recommend the activation of and coordinate with representatives of Impact Task Forces
- Make recommendations to the Governor concerning state-level response and recovery.
- Notify other governmental and private organizations and the Drought Executive Committee as needed concerning the activation of the DAC, and provide them with regular updates on the situation.

DAC Tasks (cont.)

- Monitor trends and serve as the technical advisor for the State and local decision-makers.
- Provide information for the public and media.
- Make recommendations relating to proposed State actions, including the activation of Impact Task Forces.
- Review, approve, and provide updated information for Drought Incident Annex.
- Identify resource deficiencies that may aggravate drought effects.
- Coordinate with Governor's Office and other organizations as needed to develop drought legislation.

Impact Task Forces

The following Impact Task Forces will report their findings and recommendations to the DAC.

- Agriculture
- Wildfire
- Fish and Wildlife
- Recreation and Tourism
- Public Water Supplies
- Economic Impacts

Phase III- Conservation Phase

- **Phase III is activated when the Palmer Drought Severity Index is between -2 to -4 and/or when the DAC determines that Phase III activities are required.** Stream flows, reservoir levels and ground-water levels continue to decline, and forecasts indicate an extended period of below normal precipitation.
- During Phase III monitoring, oversight, and analysis activities, particularly by the Task Forces, are increased. **Water conservation measures are increased.** Partial activation of the Ohio Emergency Operations Center (Ohio EOC) may occur depending upon the needs/requests of citizens and public officials in drought stricken areas of the state.
- The Conservation Phase would return to a Drought Alert when precipitation increases, stream flows, reservoir levels, and ground-water levels stop their decline and the Palmer Drought Severity Index begins to rise to -2.0 or higher or when the DAC determines Phase II actions are required. Extended forecasts should indicate a return to normal conditions.

Phase IV- Drought Emergency

- **Phase IV is activated when the Palmer Drought Severity Index is lower than -4 and/or when the DAC determines that Phase IV activities as listed in Attachment 6 to this appendix are required.**
- **The Governor may issue a Drought Emergency when water supplies are inadequate to meet projected demands and extreme measures must be taken.** Forecasts would indicate that precipitation levels, stream flows, reservoir levels, and ground-water levels will continue to decline.
- The Governor's emergency declaration empowers State agencies to review allocation of supplies in communities not adequately responding to their water shortage and to implement emergency programs and actions as provided in the Ohio Revised Code.

Drought Executive Committee

The Governor may activate the DEC.

- The DEC is chaired by the Executive Director of Ohio EMA and will meet on a regular basis for the purpose of administering and coordinating drought assistance in Ohio.
- It is charged with developing short and long-term recommendations and options for the Governor as they relate to agricultural assistance and protection of public and private water supplies.
- Recommendations and options will be based upon data provided by the Drought Assessment Committee (DAC). The DEC consists of the following representatives:

Director, Department of Natural Resources

Director, Environmental Protection Agency

Director, Department of Health

Director, Department of Agriculture

Director, Department of Commerce

State Representatives as named by the Speaker of the House

State Senators as named by the President of the Senate.

Attorney General

Director, Department of Jobs and Family Services

Chairman, Public Utilities Commission of Ohio

Activation of the State Emergency Operations Center

In accordance with the provisions of the Ohio Emergency Operations Plan (Ohio EOP), the Ohio Emergency Operations Center (EOC) may be operating at various levels of activation throughout a drought in accordance with four Crisis Action System (CAS) levels in the State EOC for state-level hazards assessment and response.

- CAS 1- Normal monitoring (Phase I)
- CAS 2- DAC monitoring (Phase II)
- CAS 3- Level of Activation as recommended by DAC to Governor (Phases III and IV)

Refer to the Basic Plan in the Ohio EOP for general information on Emergency Operations Center activation.

ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

Federal

The following organizations of the federal government may assist Ohio during drought emergencies with a variety of loans, grants, and programs for material and personnel support. (Refer to Attachment 4, Disaster Assistance Programs)

- U.S. Dept. of Commerce
- Small Business Administration
- Federal Emergency Management Agency
- U.S. Dept. of Labor
- U.S. Army Corps of Engineers
- General Service Administration
- U.S. Dept. of Interior

During a presidentially-declared drought emergency (under Public Law 93-288), the Federal Emergency Management Agency may provide Emergency Response Teams (ERTs) in the State EOC to assist in the coordination of federal assistance as delineated in the National Response Plan.

ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

State

The following state organizations may provide programs to local governments during drought emergencies.

- Department of Natural Resources
- Ohio Water Development Authority
- Department of Development
- Treasurer, State of Ohio
- Department of Job and Family Services
- Ohio National Guard
- Ohio Emergency Management Agency

Monitoring by the DAC will be maintained throughout Phase II- Phase IV with appropriate state assessment and response/recovery recommendations made to the Governor and the DEC.

Most state assistance becomes available after a state declaration is issued as requested by local authorities. Some state assistance and resources can be released prior to a formal declaration of emergency by the Governor.

ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

Local

- The following should also be considered as adjuncts to any plans, procedures, policies, and laws related to drought that local communities have developed.
- Enactments of ordinances to assure equitable water distribution.
- Establishment of a Water Management Task Force of 7-15 members made up of representatives of major water users, government executives, emergency management health, fire, and police departments, water plant and district personnel, the media and related service organizations. The Water Management Task Force will determine and implement drought-related community activities.
- Prepare drought appendix to the local Emergency Operations Plan. Establish local drought emergency public information and education programs.
- Maintain communications/coordination with state-level DAC and/or State EOC as appropriate through drought emergency.

STATE DROUGHT IMPACT TASK FORCES

There are six state-level Impact Task Forces for drought. The Impact Task Forces will coordinate and facilitate individual agency actions and oversee cooperative efforts. The Task Force representatives must be able to speak for their agencies and have authority to make reasonable commitments toward effective cooperation and coordination.

The duties and activities of each Task Force are to include, but are not limited to:

- Develop, revise and update, as necessary, Task Force guidelines and procedures.
- Establish procedures for coordination with other task forces, State and federal agencies, local government, and public and/or private groups.
- Identify key contacts in State, federal, and private support groups.
- Review existing reporting and analyzing capabilities and identify information gaps.
- Recommend response levels and activities and analyze barriers to response or special needs.
- Report to the Drought Assessment Committee on a monthly basis during the conservation phase and on a weekly basis in a drought emergency.
- Maintain supporting data and records of activities.
- When deactivated, prepare a final report on activities and submit to the Ohio Emergency Management Agency.

IMPACT TASK FORCE #1

AGRICULTURE

PURPOSE

- Assist farmers during drought conditions, assess and project likely impacts, identify alternative responses and sources of assistance and report to the Drought Assessment Committee.

LEAD STATE AGENCY: Ohio Department of Agriculture

- The Agriculture Task Force is chaired by the Department of Agriculture and will consist of the following state and federal agencies, and shall meet at the call of the chair.

Ohio State University Extension
State and County Emergency Boards
USDA Farm Service Agency
Division of Soil and Water Conservation, DNR

IMPACT TASK FORCE #2

WILDFIRE

PURPOSE

- To assess and address drought-related impacts due to threats of wildfire.

LEAD STATE AGENCY: Department of Natural Resources, Division of Forestry

- The Task Force is chaired by the Division of Forestry and will consist of the following State and federal agencies:

Division of Air Pollution Control, EPA

Division of Wildlife, DNR

Division of Parks and Recreation, DNR

Division of the State Fire Marshal

U.S. Forest Service

Division of Natural Areas and Preserves, DNR

IMPACT TASK FORCE #3 FISH AND WILDLIFE

PURPOSE

- Collect and evaluate data on fish and wildlife related impacts, project the potential severity of such impacts, and identify alternative mitigation measures and sources of assistance.

LEAD STATE AGENCY: Department of Natural Resources, Division of Wildlife

- The Task Force is chaired by the Division of Wildlife and will consist of the following State and federal agencies:

Division of Parks and Recreation, DNR
U.S. Fish and Wildlife Service
U.S. Forest Service
U.S. Army Corps of Engineers

IMPACT TASK FORCE #4

RECREATION AND TOURISM

PURPOSE:

- To assess the impact of drought on recreation and tourism, and coordinate public and private efforts to avoid or mitigate economic losses.

LEAD STATE AGENCY: Division of Parks and Recreation, DNR

- Department of Health
- Division of Wildlife, DNR
- Division of Forestry, DNR
- State and Local Governments Commission
- County Commissioners Association
- U.S. Forest Service
- National Park Service
- U.S. Army Corps of Engineers
- Division of Watercraft, DNR

IMPACT TASK FORCE #5 PUBLIC AND PRIVATE WATER SUPPLY

PURPOSE

- To ensure adequate supplies of potable water for essential domestic uses, as well as municipal and industrial needs.

LEAD STATE AGENCY: Division of Drinking and Ground Waters, EPA

- The Task Force will be chaired by the Division of Drinking and Ground Water and will consist of the following State and federal agencies:

Division of Water, DNR
Department of Health
Ohio Emergency Management Agency
State and Local Government Commission
Ohio Water Development Authority
Public Utilities Commission of Ohio
U.S. Army Corps of Engineers
Ohio Municipal League
County Commissioners Association

IMPACT TASK FORCE #6

ECONOMIC

PURPOSE:

- To establish procedures and an organization to assess drought-related economic impacts and recommend and undertake specific responses.

LEAD STATE AGENCY: Office of Budget and Management

- The Task Force will be co-chaired by the Office of Budget and Management and the Department of Taxation and many consist of the following State and federal agencies:

State of Ohio Treasurer
Department of Commerce
Department of Agriculture
Department of Job and Family Services
Department of Development
State and Local Government Commission
County Commissioners Association
Ohio Municipal League
Public Utilities Commission of Ohio

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