



MONTHLY WATER INVENTORY REPORT FOR OHIO

October 2006

<http://www.dnr.state.oh.us/water/pubs/newsltrs/mwirmain.htm>

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PRECIPITATION during October was noticeably above normal throughout the state. October is traditionally one of the driest months of the year. The state average was 5.72 inches, 3.25 inches above normal. For the state as a whole, this was the 2nd wettest October during the past 124 years. Regional averages ranged from 6.90 inches, 4.46 inches above normal, for the South Central Region to 4.58 inches, 2.21 inches above normal, for the Northwest Region. All 10 of the state's climatic regions ranked in the top 10 wettest Octobers of record, including: North Central, Central and South Central, 2nd wettest; Central Hills and Southeast, 3rd wettest; and Northeast, 4th wettest. Waverly (Pike County) reported the greatest amount of October precipitation, 10.65 inches. Greer (Knox County) reported the least amount, 3.87 inches.

October precipitation, mostly in the form of rain, fell on several days and was distributed fairly evenly across the state. Showers and thunderstorms, some severe, occurred during October 4-5, with the greatest amounts of precipitation falling in the southern half of the state. Generally, 1-2 inches of rain fell across southern Ohio, with more than 4 inches reported at some locations, especially in Fayette, Highland, Ross and Pike counties. Unofficial reports of 6 inches were reported from this area of the state. Urban and small stream flooding occurred across various areas in the southern half of the state, especially in this 4-county area (see Lake White Dam Overtopped on the last page of this report). Showers and thunderstorms on October 11 produced 0.50-1.0 inch of precipitation across much of the state, with 1-2 inches reported in areas of eastern Ohio. Once again, some of these storms were severe with heavy downpours, high winds and hail. A tornado touched down in northeastern Franklin County, damaging several homes. Soaking rains during October 16-17 brought about 1 inch of precipitation across most of the state with as much as 2 inches in areas of western Ohio. Rain during October 19-20 was heaviest in southeastern Ohio where 1-2 inches were reported, diminishing to less than 0.25 inch in northwestern Ohio. Light precipitation in northern Ohio during October 22-24 fell mostly as rain, but about 4 inches of snow fell in the northeast Ohio snowbelt counties. During October 27-28, most of the state received another 1-2 inches of rain. The month ended with some light showers reported across the state on October 31. The wet conditions made it difficult for farmers to get into their fields during much of October, putting this years fall harvest behind schedule.

Precipitation for the 2006 calendar year is above normal statewide. The average for the state as a whole is 38.87 inches, 6.59 inches above normal. Regional averages range from 42.75 inches, 10.49 inches above normal, for the Northeast Region to 34.51 inches, 5.45 inches above normal, for the Northwest Region.

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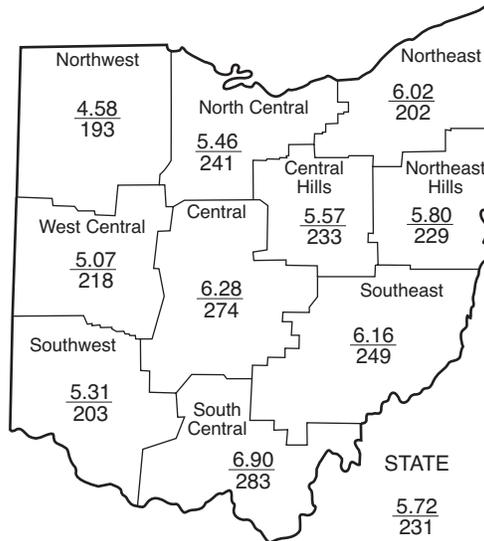
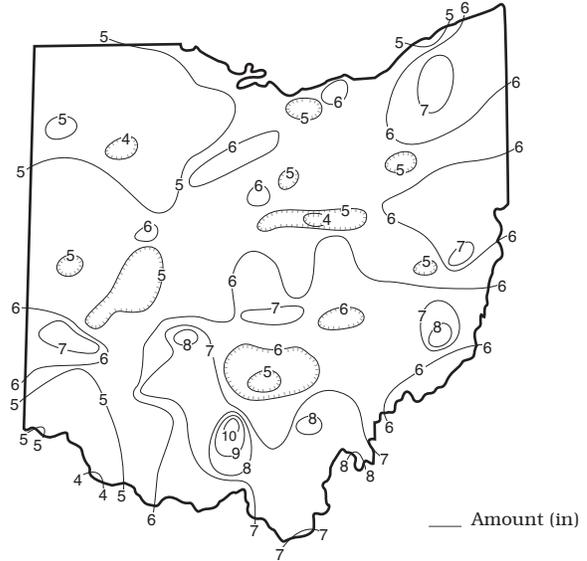
PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) Base period 1951-2000					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	+2.21	+2.35	+6.73	+6.96	+7.59	+2.3
North Central	+3.19	+2.27	+8.14	+5.99	+13.69	+3.0
Northeast	+3.04	+3.83	+11.77	+9.24	+16.24	+5.6
West Central	+2.74	+4.14	+7.41	+6.83	+16.67	+3.6
Central	+3.99	+6.55	+7.77	+7.75	+13.76	+3.0
Central Hills	+3.18	+2.74	+7.51	+4.55	+10.99	+1.8
Northeast Hills	+3.27	+3.99	+8.59	+5.85	+11.08	+2.5
Southwest	+2.69	+5.26	+6.10	+5.36	+5.96	+3.4
South Central	+4.46	+8.99	+6.68	+4.61	+3.64	+3.7
Southeast	+3.69	+6.31	+5.73	+4.85	+9.31	+2.9
State	+3.25	+4.65	+7.65	+6.20	+10.89	

*Above +4 = Extreme Moist Spell
3.0 To 3.9 = Very Moist Spell
2.0 To 2.9 = Unusual Moist Spell
1.0 To 1.9 = Moist Spell
0.5 To 0.9 = Incipient Moist Spell
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

PRECIPITATION OCTOBER



Average (in)
Percent of normal

MEAN STREAM DISCHARGE

This Month

River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	2,877	1,199	374	316	158
Great Miami River at Hamilton	3,630	5,940	617	221	143	121
Huron River at Milan	371	310	729	143	197	113
Killbuck Creek at Killbuck	464	430	321	129	170	106
Little Beaver Creek near East Liverpool	496	961	608	230	137	88
Maumee River at Waterville	6,330	6,810	880	184	139	109
Muskingum River at McConnellsville	7,422	10,450	411	316	228	88
Scioto River near Prospect	567	868	3,191	310	174	118
Scioto River at Higby	5,131	11,330	894	267	127	98
Stillwater River at Pleasant Hill	503	590	939	169	145	114

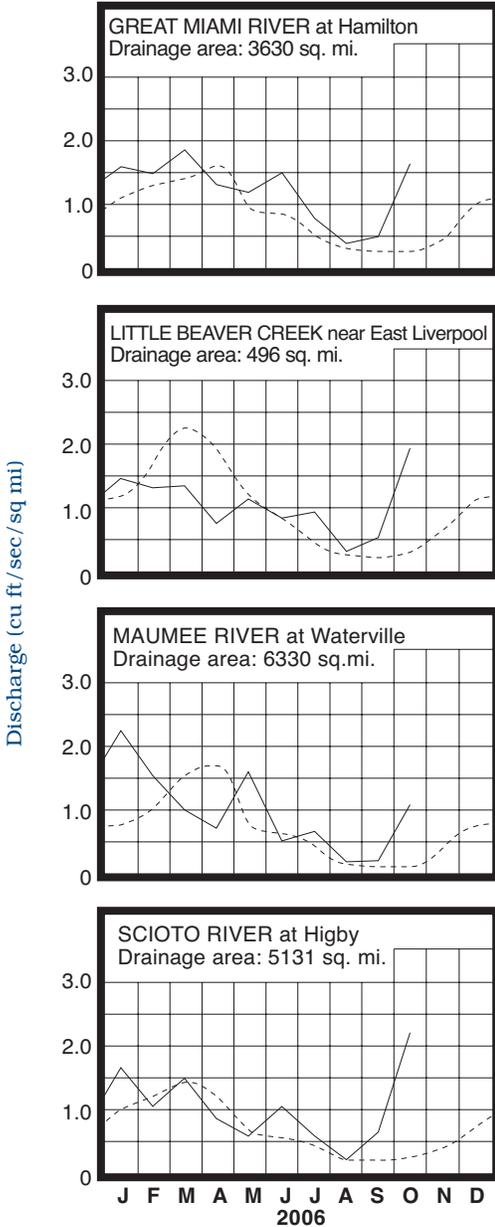
STREAMFLOW during October was noticeably above normal statewide. Flows were high enough to be considered excessive across most of Ohio. Streamflow during October was greater than the September flows across the state. Preliminary data indicates that several of the gauging stations cited in this report set record or near-record flows for October: Grand River near Painesville and Scioto River at Higby had the greatest October flows for their respective periods of record; Little Beaver Creek near East Liverpool and Huron River at Milan had the second greatest flows for October; Killbuck Creek at Killbuck, Scioto River near Prospect and Great Miami River at Hamilton had the third greatest October flows; Muskingum River at McConnellsville and Maumee River at Waterville, the fourth greatest; and Stillwater River at Pleasant Hill, the fifth greatest for October.

Streamflow at the beginning of October was above normal throughout the state. Flows fluctuated during the month in response to several periods of precipitation. Flows declined the first few days of October, with the lowest flows for the month occurring during this period in northwestern Ohio. Flows increased in response to precipitation that fell during October 4-5, then declined again and were at their lowest flows during October 9-11 in the eastern half of the state and October 16 in southwestern Ohio. Flows increased in response to precipitation that fell during the second half of the month, with greatest flows generally occurring between October 18 and 21 in the eastern half of the state and between October 28 and 30 in the western half of Ohio. At the end of the month, streamflow was above normal statewide.

RESERVOIR STORAGE during October increased in both the Mahoning and Scioto river basins. Storage remained above normal in both basins.

Reservoir storage at the end of October in the Mahoning basin index reservoirs was 94 percent of rated capacity for water supply, compared with 87 percent for last month and 77 percent for October 2005. Month-end storage in the Scioto basin index reservoirs was 91 percent of rated capacity for water supply, compared with 88 percent for last month and 85 percent for October 2005. Surface water supplies remain in good condition throughout the state.

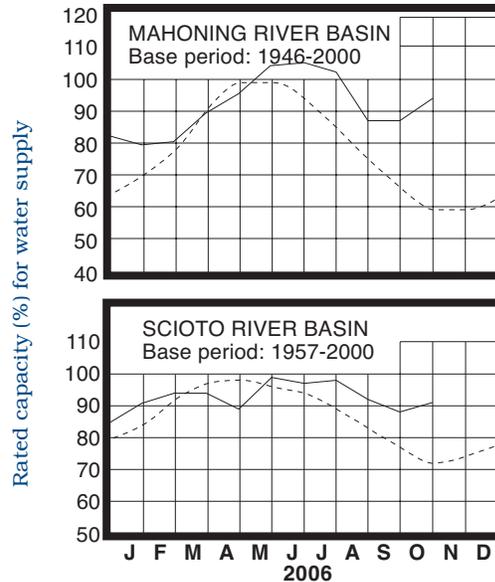
MEAN STREAM DISCHARGE



Base period for all streams: 1971-2000

Normal - - - - Current ———

RESERVOIR STORAGE FOR WATER SUPPLY



GROUND WATER levels during October rose in most aquifers across Ohio, and in those aquifers where levels declined, the net declines were less than usually observed. October is normally a month when ground water storage is still declining.

The 2007 water year is off to a good start as far as ground water is concerned. The above normal precipitation during the past 2 months was beneficial for ground water storage during October and may have brought an early start to the recharge season in many areas of the state. Ground water levels are above normal across most of Ohio, being below normal in just a few unconsolidated aquifers. A new-record high October level was reached in index observation well F-1 (Fairfield County), representing sandstone aquifers in eastern and southeastern Ohio. Current levels are also higher than they were a year ago across most of the state. Near-normal precipitation and other favorable climatic conditions during the next several months increase the potential for a favorable recharge season. Current soil moisture conditions bode well for continued improvement in ground water storage. The Ohio Agricultural Statistics Service reports that soil moisture near the end of October was adequate in 40 percent of the state and surplus in 60 percent of the state.

LAKE ERIE level declined during October. The mean level was 571.19 feet (IGLD-1985), 0.17 foot lower than last month's mean level and 0.09 foot above normal. This month's mean level is 0.29 foot higher than the October 2005 level and 1.99 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during October was 5.48 inches, 2.74 inches above normal. For the entire Great Lakes basin, October precipitation averaged 4.19 inches, 1.36 inches above normal. For calendar year 2006 through October, the Lake Erie basin has averaged 36.45 inches, 6.86 inches above normal, while the entire Great Lakes basin has averaged 29.64 inches, 2.30 inches above normal.

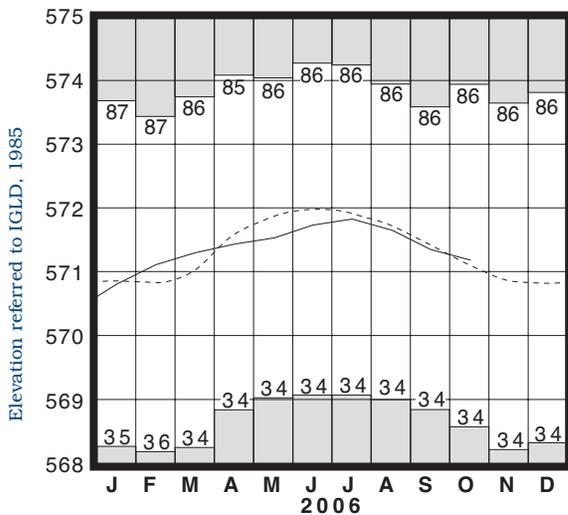
In addition, the USACE reports that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should range between about 3 inches above to as much as 5 inches below normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from about 6 inches above to as much as 15 inches below the normal seasonal average.

GROUND-WATER LEVELS

Based on daily lowest level in feet below land-surface datum

Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	12.20	+5.24	+2.03	+4.54
Fa-1	Jasper Mill, Fayette Co.	Limestone	7.86	+1.22	+1.22	+3.80
Fr-10	Columbus, Franklin Co.	Gravel	45.46	-1.23	-0.04	-0.55
H-1	Harrison, Hamilton Co.	Gravel	23.31	+0.55	+0.51	+0.90
Hn-2a	Dola, Hardin Co.	Dolomite	8.15	+1.08	-0.43	-0.31
Po-1	Windham, Portage Co.	Sandstone	18.59	+1.96	+0.35	+0.72
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.73	+0.23	+0.36	+0.74

LAKE ERIE LEVELS

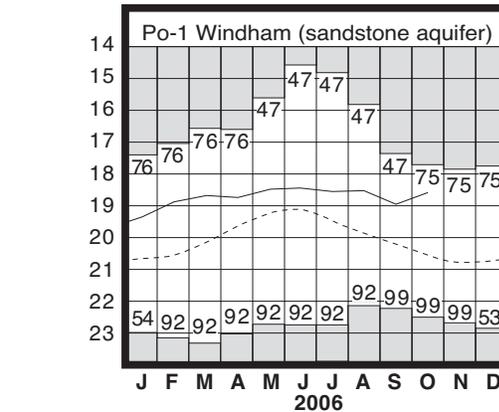
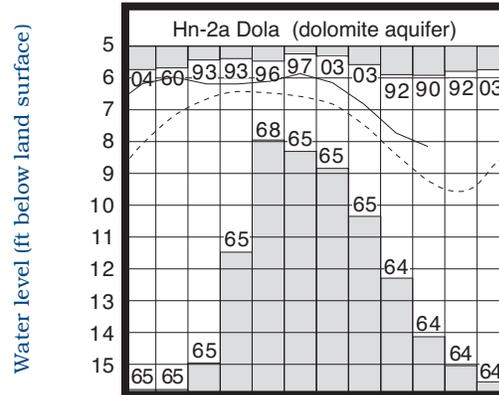
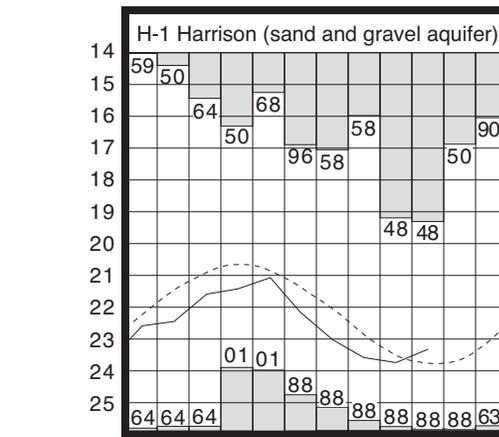


Base period: 1918-2000

■ Record high and low, year of occurrence

Normal - - - - Current - - - -

GROUND-WATER LEVELS



Base periods: H-1, 1951-2000. Hn-2a, 1955-2000.

Po-1, 1947-2000 ■ Record high and low, year of occurrence

Normal - - - - Current - - - -

(Precipitation continued from front)

The 2007 water year (October 1, 2006-September 30, 2007) is off to a good start as far as precipitation is concerned. With the above normal precipitation during October, coupled with the above normal precipitation during September, the state's water supply situation is in a favorable position as we enter the 2007 recharge season.

SUMMARY

Precipitation during October was noticeably above normal statewide. Streamflow was above normal across Ohio and was high enough to be considered excessive throughout most of the state. Reservoir storage increased in the Mahoning and Scioto river basins, and remained above normal in both basins. Ground water levels rose in most aquifers, and were above normal nearly statewide. Lake Erie level declined 0.17 foot, and was 0.09 foot above the long-term October average.

NOTES AND COMMENTS

Lake White Dam Overtopped

Showers and thunderstorms moved across the state during October 4-5 ahead of a cold front. The storms intensified during the evening hours on October 4, bringing heavy rain, damaging winds and large hail to parts of central and southern Ohio. The heaviest rain fell across areas of south-central Ohio. More than 4 inches of rain was reported in Fayette, Highland, Ross and Pike counties. Flash flooding affected several communities, and many roads throughout this area were closed. The resulting floodwaters from the excessive rainfall overtopped the Lake White Dam at Lake White State Park (Pike County). Preliminary data from the National Weather Service indicates that an average of around 4 inches of rain fell in the Lake White watershed in approximately 6 hours, making this about a 100-year event. The water level on Lake White rose an estimated 6.75 feet in 3 hours. The dam was overtopped to a maximum depth of 20 inches in some areas. For a time, there were fears about the safety of the dam. The Ohio Department of Natural Resources (ODNR), Division of Water dam safety staff responded to the emergency situation early on October 5 and inspected the dam. They found that the overtopping severely eroded the downstream slope of the earthen dam. However, their inspection did not reveal any indication of an imminent failure. The floodwaters soon receded, leaving behind a large debris field that will have to be removed from the surface of Lake White.

Lake White, located near Waverly, is a recreational lake that was built in 1935. The dam impounds about 5,287 acre-feet of water. It has had a history of overtopping flows due to insufficient spillway capacity. ODNR is currently in the process of upgrading and repairing the dam, including reconstruction of the downstream slope, installation of a lake drain, repair of the principal spillway and replacement of the gates. Repairs on the dam began on June 25, 2006 and are slated for completion by June 1, 2007. The project will now also address the repair of the eroded downstream slope. A second phase of the project is designed to prevent erosion to the downstream slope during any subsequent overtopping flows. The downstream slope will be armored against erosion from overtopping.

Editorial

The purpose of this report is to disseminate current hydrologic data in a timely and brief format. Observation points have been selected which are considered to be sufficiently representative of hydrologic conditions in the state to permit an evaluation of the current water-supply situation. These key observation stations offer the best available data on the basis of accuracy and length of record, minimal artificial effects on data, and availability of records. Data from these stations are collected by various agencies at the end of each month and processed immediately. Because of the time limitations involved, all data presented in this report must be considered preliminary and may be subject to revision before publication in regular form by the agencies involved. The remarks in this report include the writer's opinion of the cause and significance of the phenomena reported. The author is indebted to the various agencies and individuals who make this data available.

More complete and detailed information regarding water resources can be obtained by contacting the Division of Water or visiting our website at: www.dnr.state.oh.us/water/. Comments and suggestions regarding this report are always welcome.

ACKNOWLEDGMENTS

This report has been compiled from Division of Water data and from information supplied by the following:

- Precipitation data:**
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.
- Streamflow and reservoir storage data:**
U.S. Geological Survey, Water Resources Division.
- Lake Erie level data:**
U.S. Army Corps of Engineers, Detroit District.
- Palmer Drought Severity Index:**
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service.



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