



MONTHLY WATER INVENTORY REPORT FOR OHIO

October 2007

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

Compiled By Scott C. Kirk

Hydrologist
Water Inventory Unit

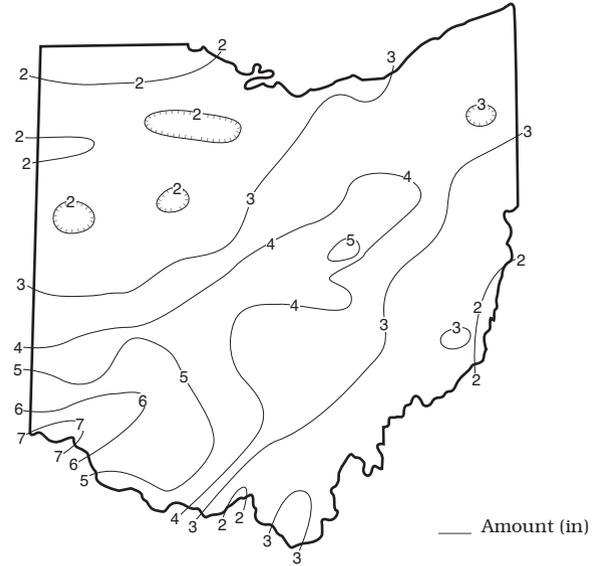
PRECIPITATION during October was above normal throughout most of the state, but below normal across much of northwestern Ohio. The state average was 3.28 inches, 0.81 inch above normal. Regional averages ranged from 4.91 inches, 2.29 inches above normal, for the Southwest Region to 2.14 inches, 0.23 inch below normal, for the Northwest Region. This was the 10th wettest October during the past 113 years for the Southwest Region. Cheviot (Hamilton County) reported the greatest amount of October precipitation, 7.06 inches. Celina (Mercer County) reported the least amount, 1.33 inches.

Most of the precipitation during October fell during the second half of the month. Many areas throughout the state received less than 0.25 inch of precipitation during the first 15 days of the month. Light showers across Ohio on October 1 produced 0.25-0.50 inch of precipitation in northwestern Ohio while lesser amounts fell elsewhere. Precipitation during October 16-19 was greatest across southern Ohio where 1-2 inches was reported, decreasing to less than 0.25 inch in northern Ohio. The most widespread precipitation for the month occurred during October 22-24. The greatest amount of rain during this period fell in a wide band extending from southwestern to northeastern Ohio with 2-5 inches of rain falling in this area. Rain amounts tapered to 1-2 inches in southeastern Ohio and to less than 1 inch in northwestern Ohio. The remainder of October was rather dry across the state. The rain during the second half of the month was welcomed in southern Ohio, easing the dry conditions that have existed the past several months. According to the Palmer Drought Severity Index near the end of October, only the South Central Region was classified as being in a moderate drought, a noteworthy improvement over the conditions of a month ago.

Precipitation for the 2007 calendar year is above normal in the northern two-thirds of the state and below normal in the southern one-third. The average for the state as a whole is 34.04 inches, 1.76 inches above normal. Regional averages ranged from 36.48 inches, 3.85 inches above normal, for the Central Hills Region to 28.27 inches, 6.38 inches below normal, for the South Central Region.

The 2008 water year (October 1, 2007 to September 30, 2008) is off to a good start in most areas of the state as far as precipitation is concerned. Near-normal precipitation and other climatic conditions during the next several months should provide adequate recharge to Ohio's water supplies.

PRECIPITATION OCTOBER

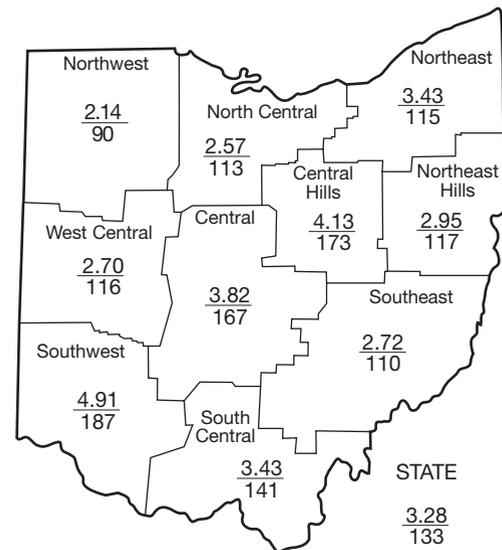


PRECIPITATION

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	-0.23	+6.31	+1.94	+6.16	+13.04	+1.1
North Central	+0.30	+5.41	+1.98	+6.88	+12.90	+2.9
Northeast	+0.45	+3.40	-0.38	+2.32	+11.14	+0.3
West Central	+0.37	+2.58	-1.50	+5.41	+12.24	-0.7
Central	+1.53	+2.98	-1.22	+2.88	+10.15	-0.9
Central Hills	+1.74	+3.49	+1.50	+3.59	+8.04	+1.8
Northeast Hills	+0.42	+2.67	+0.92	+1.57	+7.42	+0.3
Southwest	+2.29	+1.07	-3.76	-1.58	+3.78	-1.4
South Central	+0.99	-1.11	-5.39	-8.31	-3.70	-2.4
Southeast	+0.25	-0.03	-4.26	-4.69	+0.16	-2.2
State	+0.81	+2.67	-1.02	+1.42	+7.50	

*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



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	191	14	28	35	122
Great Miami River at Hamilton	3,630	916	95	66	53	137
Huron River at Milan	371	88	207	308	153	165
Killbuck Creek at Killbuck	464	216	161	133	83	110
Little Beaver Creek near East Liverpool	496	119	75	146	69	106
Maumee River at Waterville	6,330	626	81	313	113	148
Muskingum River at McConnellsville	7,422	2,518	99	194	111	101
Scioto River near Prospect	567	68	250	174	55	155
Scioto River at Higby	5,131	1,323	104	65	40	115
Stillwater River at Pleasant Hill	503	72	115	51	36	139

STREAMFLOW during October was generally below normal in eastern, northwestern and southwestern Ohio, and above normal elsewhere. Flows during October were less than those observed during September in northern Ohio, but more than those observed during last month in southern Ohio.

Flows at the beginning of October were below normal across most of the state. Flows declined steadily during the first half of the month. Low flows for the month were observed during this time across most of the state, mainly between October 11 and 17. Flows increased slightly following precipitation that fell just after mid-month, then increased rapidly following the precipitation that fell during October 22-24. Greatest flows for the month occurred statewide during or just after this period and were above normal

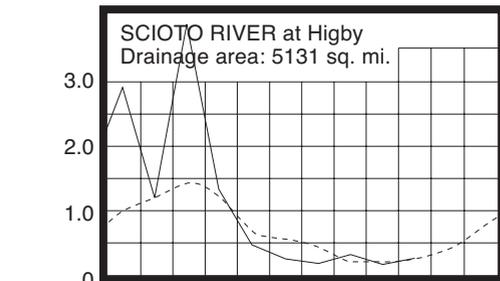
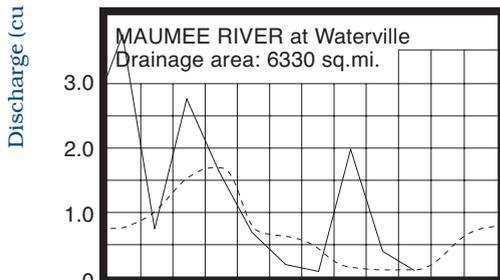
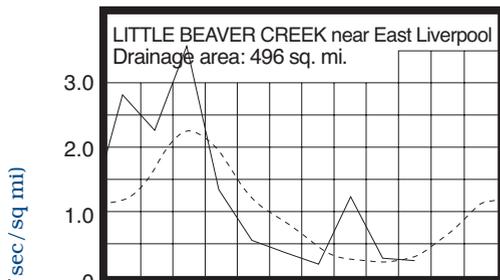
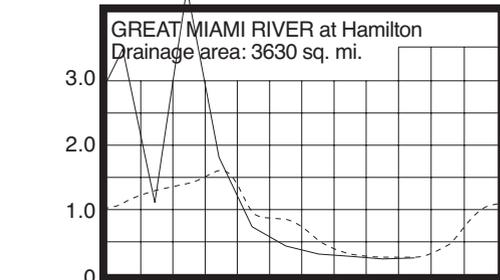
throughout the state. Flows declined during the last few days of the month and fell to below normal in northeastern and southwestern Ohio basins, but remained above normal elsewhere at month's end.

RESERVOIR STORAGE during October decreased in both the Mahoning and Scioto river basins. Storage remained above normal in the Mahoning basin reservoirs and below normal in the Scioto basin reservoirs.

Reservoir storage at the end of October in the Mahoning basin index reservoirs was 72 percent of rated capacity for water supply compared with 80 percent for last month and 94 percent for October 2006. Month-end storage in the Scioto basin index reservoirs was 70 percent of rated capacity for water supply compared with 73 percent for last month and 91 percent for October 2006. Surface water supplies are favorable throughout most of the state as the start of the new 2008 water year begins.

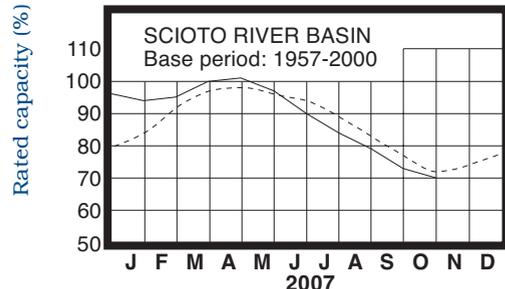
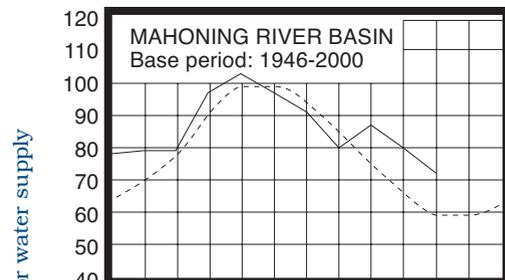
MEAN STREAM DISCHARGE

(Off chart 4.46)



Base period for all streams: 1971-2000

RESERVOIR STORAGE FOR WATER SUPPLY



Normal - - - - Current ———

GROUND-WATER LEVELS

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

GROUND WATER levels during October declined seasonally statewide. Generally, ground water levels in consolidated aquifers declined throughout most of the month, while levels in unconsolidated aquifers declined during the first 3 weeks of the month and then rose during the remainder of the month in response to recharge from precipitation.

At the beginning of the 2008 water year, ground water storage is above normal in many consolidated aquifers in northern Ohio, but below normal in consolidated aquifers in southern Ohio and unconsolidated aquifers statewide. Some aquifers levels in southern Ohio are noticeably below the seasonal average, with levels ranging up to more than 3.5 feet below normal. Current ground water levels range from about 0.5 foot higher than last year's levels in some consolidated aquifers in northern Ohio, to more than 5.5 feet lower in some consolidated aquifers in southern Ohio.

Precipitation during the second half of October improved soil moisture across most of Ohio. The Ohio Agricultural Statistics Service reports that near the end of October, soil moisture was rated as being short or very short in 25 percent of the state, adequate in 62 percent of the state and surplus in 13 percent of the state. Near normal climatic conditions during the next several months should result in adequate recharge to ground water supplies. However, below normal precipitation during this time could have a negative impact on water supplies, especially in areas that have experienced below normal precipitation the past several months. Water supply managers with ground water sources are advised to closely monitor their respective situations throughout the recharge season.

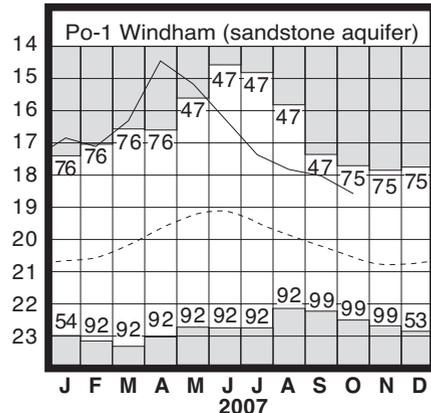
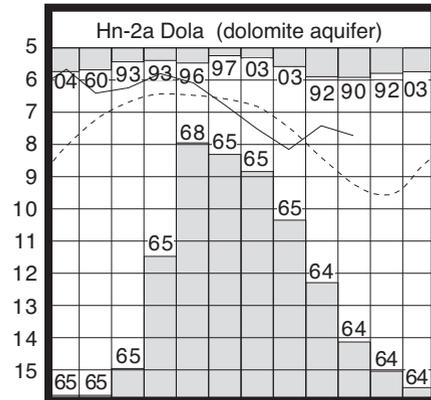
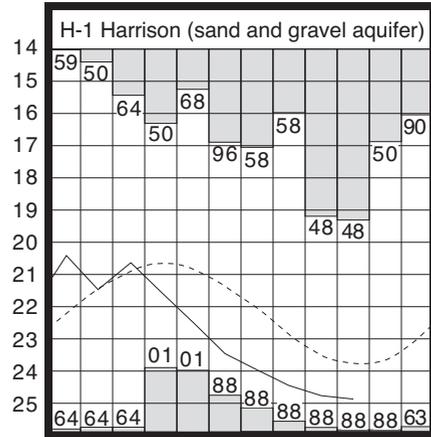
LAKE ERIE level declined during October. The mean level was 570.70 feet (IGLD-1985), 0.46 foot lower than last month's mean level and 0.40 foot below normal. This month's mean level is 0.49 foot lower than the October 2006 level and 1.50 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during October averaged 2.13 inches, 0.61 inch below normal. For the entire Great Lakes basin, October precipitation averaged 3.77 inches, 0.94 inch above normal. For calendar year 2007 through October, the Lake Erie basin has averaged 28.22 inches of precipitation, 1.37 inches below normal, while the entire Great Lakes basin has averaged 26.20 inches, 1.11 inches below normal.

In addition, the USACE reports that based on the current condition of the Great Lakes basin and anticipated weather patterns, the level of Lake Erie should remain below normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from near-normal to as much as 20 inches below the normal seasonal average.

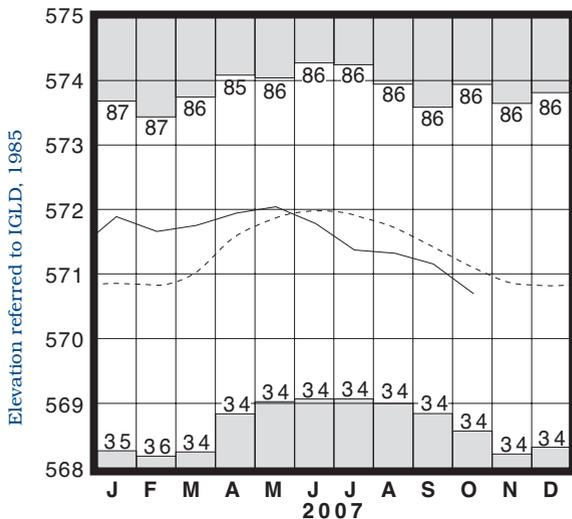
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	17.84	-0.40	-0.79	-5.64
Fa-1	Jasper Mill, Fayette Co.	Limestone	12.69	-3.61	-1.13	-4.83
Fr-10	Columbus, Franklin Co.	Gravel	45.96	-1.73	-0.02	-0.50
H-1	Harrison, Hamilton Co.	Gravel	24.87	-1.11	-0.12	-1.66
Hn-2a	Dola, Hardin Co.	Dolomite	7.72	+1.51	-0.31	+0.43
Po-1	Windham, Portage Co.	Sandstone	18.58	+1.97	-0.57	+0.01
Tu-1	Strasburg, Tuscarawas Co.	Gravel	15.28	-1.32	-0.35	-1.55

GROUND-WATER LEVELS



Base periods: H-1, 1951-2000. Hn-2a, 1955-2000.
Po-1, 1947-2000

LAKE ERIE LEVELS



Base period: 1918-2000

■ Record high and low, year of occurrence

Normal - - - - Current - - - -

SUMMARY

Precipitation during October was above normal throughout most of the state, but below normal across much of northwestern Ohio. Streamflow was generally below normal in eastern, northwestern and southwestern Ohio, and above normal elsewhere. Reservoir storage decreased in both the Mahoning and Scioto river basins. Storage remained above normal in the Mahoning River basin and below normal in the Scioto River basin. Ground water levels declined and were below normal across much of the state. Lake Erie level declined 0.46 foot and was 0.40 foot below the long-term October average.

NOTES AND COMMENTS

New Potentiometric Surface Maps Now Available

Twenty new ground water potentiometric surface (water level) maps for 15 additional counties in Ohio are now available from the ODNR, Division of Water website at: <http://www.dnr.state.oh.us/tabid/3623/default.aspx>. The new counties include Carroll, Columbiana, Crawford, Darke, Hancock, Logan, Mahoning, Medina, Sandusky, Seneca, Shelby, Stark, Summit, Tuscarawas and Wyandot. This brings the total number of counties completed in Ohio to 28.

A potentiometric surface map is a contour map that represents the top of the ground water surface in an aquifer. The contour lines illustrate the potentiometric surface much like the contour lines of a topographic map represent a visual model of the ground surface. Potentiometric surface maps are being created for bedrock (consolidated formations) and sand & gravel (unconsolidated formations) aquifers. County-based maps are available as PDF images and as GIS ArcView Shape files.

Ohio's potentiometric surface mapping program began in the late 1990's. Potentiometric surface maps can be used to determine the direction and gradient of ground water flow, to determine ground water recharge and discharge areas, and as input data into ground water modeling programs. These maps can also be used to assist in preparing water resources plans and technical studies, in the mapping of stress areas, and in possible ground water diversion issues. Since these maps were created using existing data collected over a fifty-year period, field verification of the ground water flow direction should be conducted before the drilling of monitoring wells to satisfy compliance monitoring. If you have any questions concerning these maps, please contact Jim Raab at jim.raab@dnr.state.oh.us or (614) 265-6747.

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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Division of Water
2045 Morse Road
Columbus, Ohio 43229-6693

Ted Strickland
Governor

Sean D. Logan
Director

Deborah F. Hoffman
Chief

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