



# MONTHLY WATER INVENTORY REPORT FOR OHIO

May 2013

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Water Inventory Unit

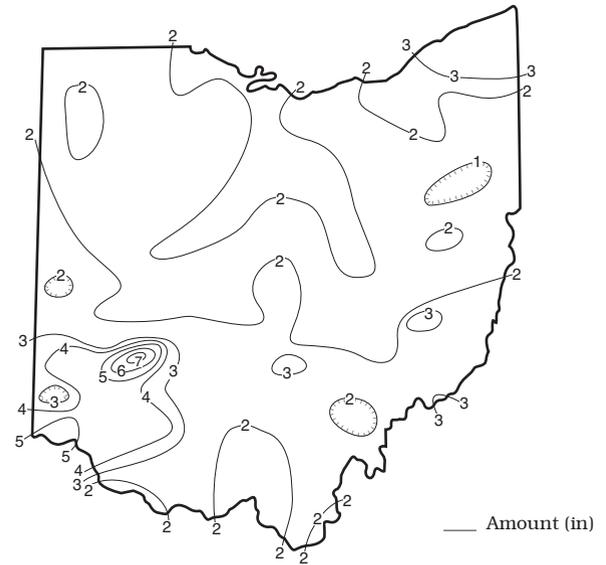
**PRECIPITATION** during May was below normal across the state with only a few locations in southwestern Ohio having above normal precipitation. The average for the state was 2.14 inches, 1.95 inches below normal. Regional averages ranged from 3.65 inches, 1.00 inch below normal, for the Southwest Region to 1.65 inches, 2.32 inches below normal, for the Northeast Hills Region. This was the sixth driest May on record for the Central Hills Region and the seventh driest for the Northeast Hills Region. Xenia (Greene County) reported the greatest amount of May precipitation, 7.24 inches. North Georgetown (Columbiana County) reported the least amount, 0.97 inch.

Precipitation fell on several days during the month, but rainfall was light on most of these days. Conditions during the first week of May were rather dry in the northern two-thirds of the state. During this same period, showers and thunderstorms brought approximately 0.50-1.0 inch of rain to the southern one-third with areas along the Ohio River in southwestern Ohio receiving 1-2 inches of rain. Precipitation was widespread during May 10-11 with generally 0.50-1.0 inch of rain reported, but less than 0.25 inch fell across much of northwestern Ohio. Scattered showers and storms were common throughout May 15-18 across the southern two-thirds of the state with many areas reporting around 0.50 inch; little or no rain fell in the northern third. Rain fell across most of the state during May 22-24 with 0.25-0.50 inch reported. Scattered showers and thunderstorms during May 27-28 and again on May 31 brought 1-2 inches of rain to much of northern and western Ohio, tapering to less than 0.25 inch across central and southeastern Ohio.

Precipitation for the 2013 water year is below normal throughout most of the state but above normal in the North Central and Northeast regions. The state average is 22.93 inches, 1.32 inches below normal. Regional averages range from 25.02 inches, 0.60 inch above normal, for the Northeast Region to 20.28 inches, 1.10 inches below normal, for the Northwest Region.

Precipitation for the 2013 calendar year is below normal throughout nearly all of Ohio. The state average is 13.02 inches, 2.60 inches below normal. Regional averages range from 15.56 inches, 2.32 inches below normal, for the Southwest Region to 11.39 inches, 4.24 inches below normal, for the Northeast Hills Region.

## PRECIPITATION MAY

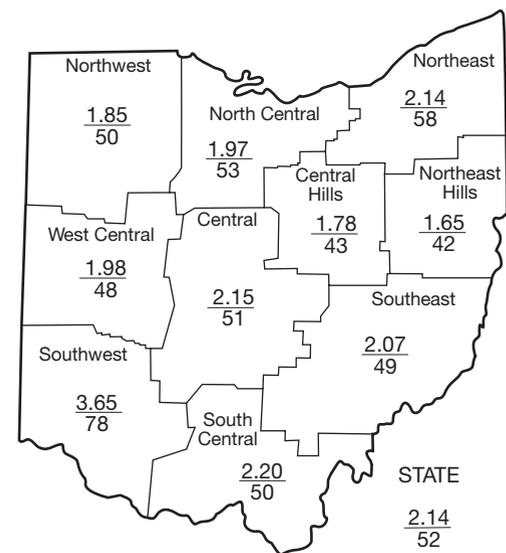


## PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) Base period 1961-2010					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	-1.86	-1.74	-0.13	-1.96	+3.37	-0.8
North Central	-1.75	-1.43	-0.95	+1.28	+11.29	+0.1
Northeast	-1.54	-2.43	-1.45	+0.88	+9.37	-1.3
West Central	-2.13	-0.55	+0.54	-0.37	+3.87	-1.0
Central	-2.04	-1.40	-0.24	-2.76	+4.29	-1.8
Central Hills	-2.37	-2.27	-1.33	-2.42	+4.35	-1.4
Northeast Hills	-2.32	-3.47	-2.46	-3.73	+1.04	-2.8
Southwest	-1.00	-1.46	-1.09	-5.68	+0.42	-1.8
South Central	-2.24	-4.20	-1.63	-4.52	+0.52	-1.5
Southeast	-2.16	-4.13	-1.66	-4.08	+2.68	-2.0
State	-1.95	-2.32	-1.06	-2.35	+4.10	

\*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

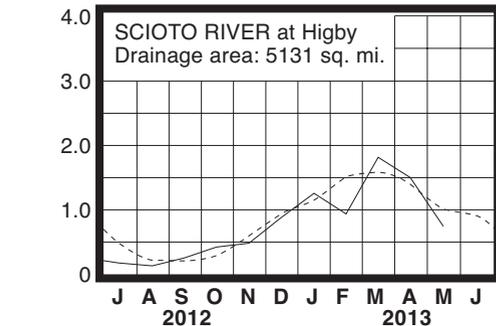
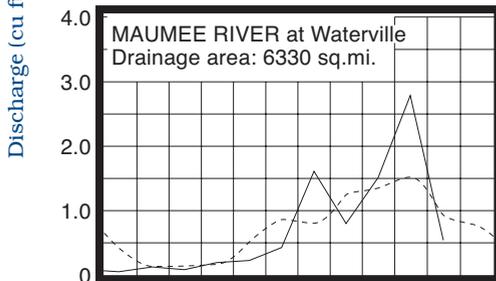
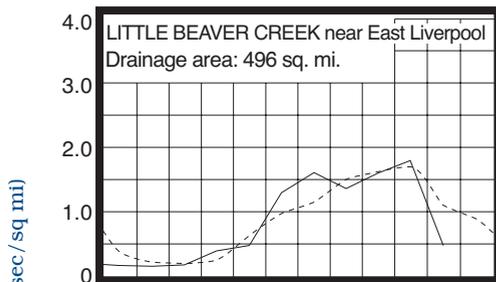
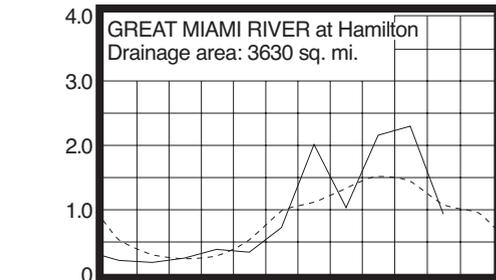
River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	319	52	63	78	81
Great Miami River at Hamilton	3,630	3,375	80	109	102	89
Huron River at Milan	371	116	31	86	91	112
Killbuck Creek at Killbuck	464	327	70	96	94	81
Little Beaver Creek near East Liverpool	496	237	43	77	87	69
Maumee River at Waterville	6,330	3,390	58	110	95	78
Muskingum River at McConnelsville	7,422	5,555	66	76	81	66
Scioto River near Prospect	567	268	59	120	118	118
Scioto River at Higby	5,131	3,852	74	85	81	72
Stillwater River at Pleasant Hill	503	269	53	101	108	89

**STREAMFLOW** during May was below normal statewide. Flows were low enough to be considered deficient in some basins in west-central and east-central Ohio. May flows were less than the April flows throughout the state.

Flows at the beginning of May were above normal across most of the state and were at their greatest for the month in northwestern, central and southeastern Ohio basins. Flows declined during the first week of the month across most of the state. Flows increased statewide after May 9 following widespread precipitation. Greatest flows occurred as a result of this precipitation on May 11 in basins in southwestern and northeastern Ohio. Flows declined during the next two weeks and were at their lowest around May 26-27 in the northern

one-third and west central areas of the state. Lowest flows across the remainder of Ohio occurred at the end of the month. Flows at the end of May were below normal throughout the state.

### MEAN STREAM DISCHARGE

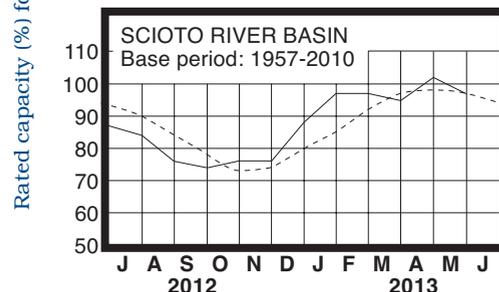
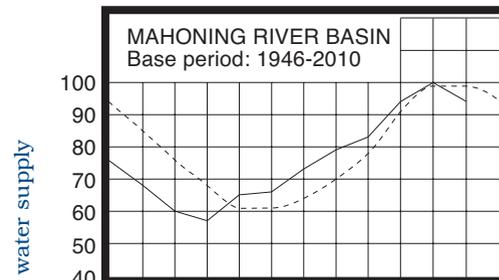


Base period for all streams: 1981-2010

**RESERVOIR STORAGE** for water supply during May decreased in both the Mahoning and Scioto river basins. Storage fell to below normal in the Mahoning River basin and was at normal in the Scioto river basin.

Reservoir storage at the end of May in the Mahoning basin index reservoirs was 94 percent of rated capacity for water supply compared with 100 percent for last month and 83 percent for May 2012. Month-end storage in the Scioto basin index reservoirs was 97 percent of rated capacity for water supply compared with 102 percent for last month and 97 percent for May 2012. Surface water supplies remain at favorable levels throughout Ohio in spite of the below normal precipitation received during May across most of the state.

### 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 May showed mixed responses throughout Ohio. Generally, levels in deeper aquifers rose slightly for the month while levels in most other aquifers declined.

Ground water levels remain below normal in most aquifers across the state with the exception of a few consolidated aquifers in northwestern Ohio where they are above normal. Most aquifers range from just under 0.25 foot to about 1.25 feet below normal. Water levels are also lower than they were a year ago across much of the state, but are higher in some aquifers, especially in the western half of Ohio.

The 2013 recharge season appears to have ended for most of Ohio. It was not a particularly good recharge season for the state's ground water supplies. After a promising start in October when precipitation was much above normal, cumulative precipitation has been below normal across most of the state the past seven months. In spite of this, ground water supplies are currently adequate throughout the state as we enter the summer high demand period. The Ohio Agricultural Statistics Service reports that soil moisture near the end of May was rated as being short or very short in 22 percent of the state, adequate in 71 percent of the state and surplus in 7 percent of the state. A return to a more normal weather pattern during the summer months would help reduce overall demand on Ohio's ground water supplies.

**LAKE ERIE** level rose during May. The mean level was 571.19 feet (IGLD-1985), 0.26 foot higher than last month's mean level and 0.66 foot below normal. This month's mean level is 0.56 foot below the May 2012 level and 1.99 feet above Low Water Datum.

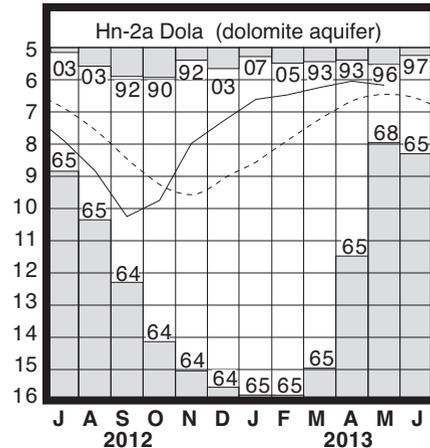
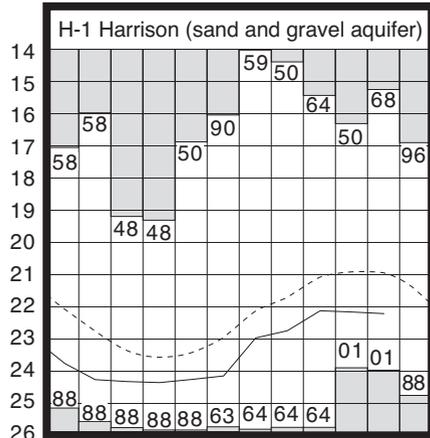
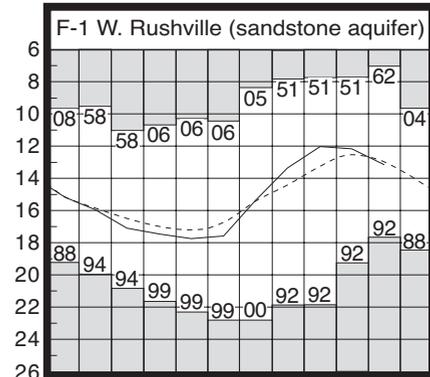
The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during May averaged 2.57 inches, 0.79 inch below normal. For the entire Great Lakes basin, May precipitation averaged 3.47 inches, 0.46 inch above normal. For calendar year 2013 through May, the Lake Erie basin has averaged 13.63 inches, 0.23 inch below normal, while the entire Great Lakes basin has averaged 13.33 inches, 1.61 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 remain below normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from about one inch above to as much as 15 inches below the normal seasonal level.



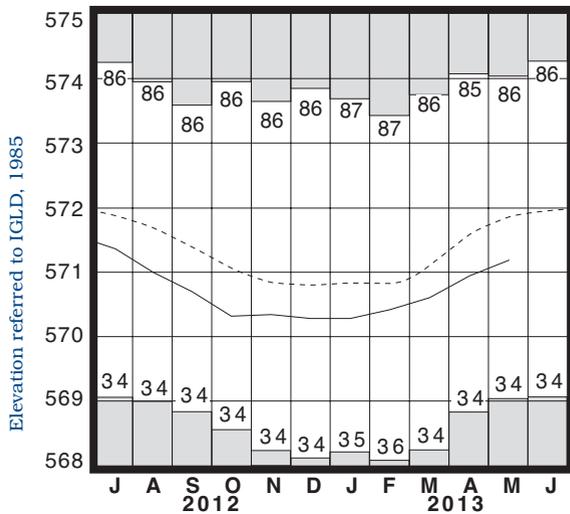
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	13.14	-0.20	-0.96	-0.06
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.25	-1.05	+0.39	+0.18
Fr-10	Columbus, Franklin Co.	Gravel	43.03	-0.47	+0.07	-1.09
H-1	Harrison, Hamilton Co.	Gravel	22.21	-1.26	-0.04	-0.28
Hn-2a	Dola, Hardin Co.	Dolomite	6.19	+0.28	-0.14	+0.53
Po-124	Freedom, Portage Co.	Sandstone	76.60	-0.43	+0.22	-1.48
Tu-1	Strasburg, Tuscarawas Co.	Gravel	12.79	-0.94	-0.20	+0.79

## GROUND-WATER LEVELS



Water level (ft below land surface)

## LAKE ERIE LEVELS



Base period: 1918-2010

■ Record high and low, year of occurrence

Base periods: F-1, 1947-2010; H-1 1951-2010.

Hn-2a, 1955-2010 ■ Record high and low, year of occurrence

Normal - - - - Current ———

## SUMMARY

Precipitation during May was below normal throughout most of the state; only a few locations in southwestern Ohio had above normal precipitation. Streamflow was below normal statewide. Reservoir storage decreased and was below normal in the Mahoning River basin and at normal in the Scioto River basin. Ground water levels showed mixed responses and remained below normal across most of Ohio. Lake Erie level rose 0.26 foot and was 0.66 foot below the long-term May average.

## NOTES AND COMMENTS

### New Employee Joins WIPP Staff

Mitch Valerio has joined the staff of the Water Inventory and Planning Program (WIPP) this month as an environmental specialist. Mitch previously worked with the Division as a soil scientist. At the WIPP, he will be managing the water withdrawal registration database, as well as mapping and tracking water usage. Mitch has a bachelor's degree in environmental science from The Ohio State University and a master's degree in environmental science from the University of Idaho. Outside of work, Mitch can usually be found outdoors, and keeps busy with his beehives and garden.

## ACKNOWLEDGMENTS

This report has been compiled from Division 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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