



# MONTHLY WATER INVENTORY REPORT FOR OHIO

April 2013

Compiled By Scott C. Kirk  
Hydrologist  
Water Inventory Unit

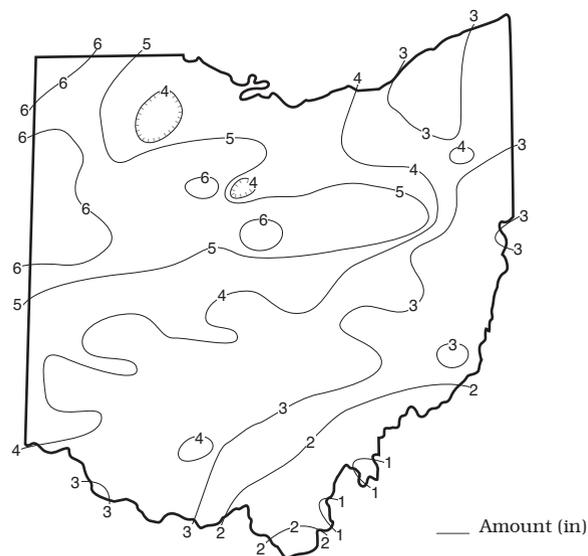
**PRECIPITATION** during April was above normal in the northern two-thirds of Ohio and below normal in the southern one-third. The average for the state was 3.98 inches, 0.43 inch above normal. Regional averages ranged from 5.11 inches, 1.48 inches above normal, for the West Central Region to 2.13 inches, 1.51 inches below normal, for the South Central Region. Mt. Gilead (Morrow County) reported the greatest amount of April precipitation, 6.98 inches. Racine Locks and Dam (Meigs County) reported the least amount, 0.80 inch.

Most of the precipitation during April fell as rain with only small amounts of snow reported. Little or no precipitation fell throughout the state during the first nine days. The most significant storm for the month occurred during April 10-12. Precipitation was widespread with the greatest amounts of rain falling in the northern half of the state; more than 3 inches were reported at some locations. Flooding was reported in many areas in northern Ohio with areas in northwestern Ohio the hardest hit. Much of southern Ohio reported around 1 inch of rain during this period, but some locations in southeastern Ohio reported only about 0.25 inch. There were several days with precipitation during the next week. Most of the state received between 1 and 2 inches of rain, but lesser amounts fell in northeastern Ohio. Showers crossed the state during April 23-24 with 0.50 to 1.0 inch of rain reported across most of the state, but tapering to around 0.25 inch in parts of southeastern Ohio. Scattered showers and a few thunderstorms during April 28-29 brought 0.25 to 0.50 inch across much of the state, with nearly 1 inch reported in areas of southwestern, central and east-central Ohio.

Precipitation for the 2013 water year is above normal in the northern two-thirds of the state and below normal in the southern one-third. The state average is 20.79 inches, 0.63 inch above normal. Regional averages range from 22.88 inches, 2.14 inches above normal, for the Northeast Region to 18.43 inches, 0.76 inch above normal, for the Northwest Region.

Precipitation for the 2013 calendar year is below normal across most of the state, but is above normal in the northwestern and west-central areas. The average for the state is 10.88 inches, 0.65 inch below normal. Regional averages range from 12.65 inches, 1.55 inches above normal, for the West Central Region to 9.70 inches, 1.42 inches below normal, for the Northeast Region.

## PRECIPITATION APRIL

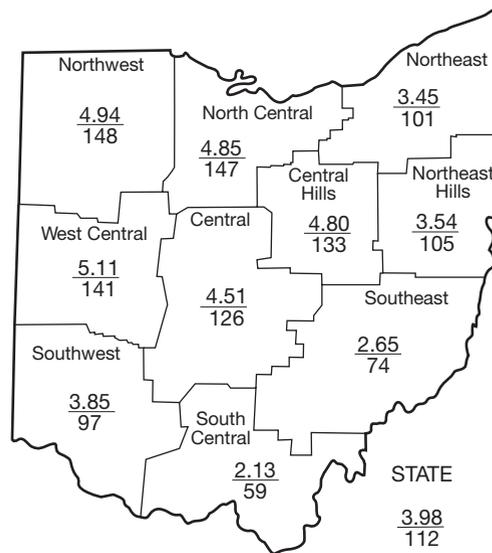


## PRECIPITATION

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	+1.60	+0.55	-0.11	-1.63	+9.60	+1.3
North Central	+1.54	+0.51	-1.27	+2.63	+16.62	+3.3
Northeast	+0.03	-0.89	-2.13	+1.53	+14.88	+1.1
West Central	+1.48	+1.07	+0.41	+1.10	+8.80	+1.6
Central	+0.92	+0.43	-0.35	-1.66	+8.66	+0.6
Central Hills	+1.19	+0.15	-1.15	-0.20	+8.61	+0.7
Northeast Hills	+0.17	-1.32	-2.47	-2.84	+5.07	-0.7
Southwest	-0.13	-1.42	-2.41	-4.94	+3.34	-0.5
South Central	-1.51	-3.04	-1.81	-1.40	+5.16	-0.8
Southeast	-0.91	-2.35	-2.11	-1.90	+5.38	-1.0
State	+0.43	-0.64	-1.35	-0.94	+8.60	

\*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	1,025	70	72	86	82
Great Miami River at Hamilton	3,630	8,341	160	114	105	91
Huron River at Milan	371	959	164	96	104	112
Killbuck Creek at Killbuck	464	1,031	145	99	102	80
Little Beaver Creek near East Liverpool	496	887	105	89	92	68
Maumee River at Waterville	6,330	17,640	183	110	98	76
Muskingum River at McConnellsville	7,422	11,400	92	81	87	67
Scioto River near Prospect	567	1,644	194	125	131	129
Scioto River at Higby	5,131	7,673	107	87	85	77
Stillwater River at Pleasant Hill	503	1,221	182	106	112	90

**STREAMFLOW** during April was above normal across much of the state, but below normal in some eastern Ohio basins. Flows in basins in the western half of the state were high enough to be considered excessive. Flows during April were greater than the March flows throughout most of Ohio, but less in northeastern and southeastern areas of the state.

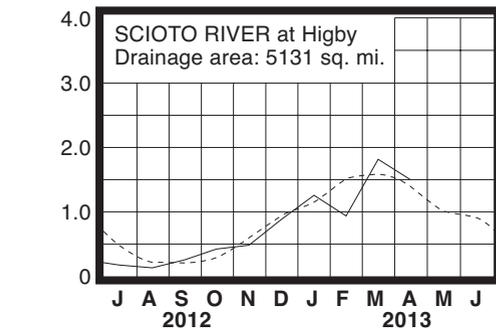
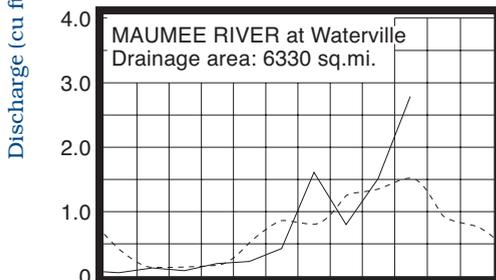
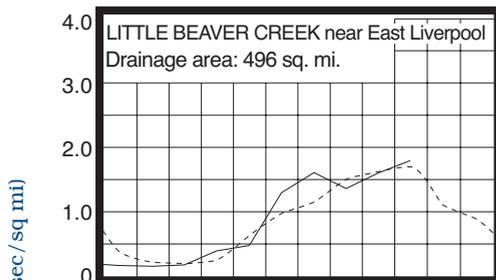
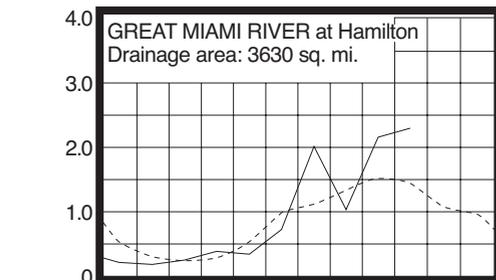
Flows at the beginning of the month were below normal statewide. Flows declined during the first several days of the month as little or no precipitation fell throughout Ohio. Most drainage basins in the state had their lowest flows for the month during the April 8-10 period. Flows increased noticeably after April 10 following widespread precipitation. Greatest flows for April occurred sometime during the April 12-14 period for most areas of the state.

Flooding was common in many areas of northern Ohio during this period. Most of the flooding was minor, but some areas in northwestern Ohio experienced moderate to major flooding. Flows generally declined from these peaks during much of the remainder of the month, except for some temporary increases noted following local precipitation. Flows at the end of April were above normal in western Ohio and below normal in eastern areas of the state.

**RESERVOIR STORAGE** for water supply during April increased in both the Mahoning and Scioto river basins. Storage was above normal in both basins.

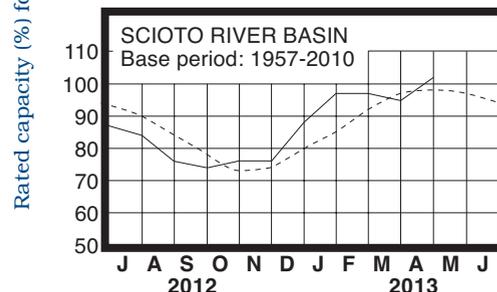
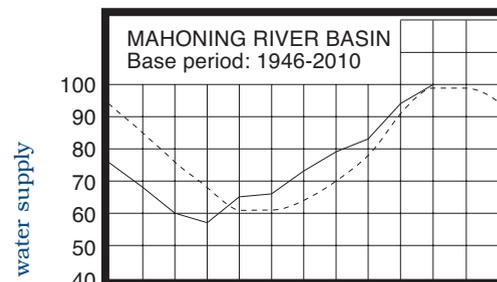
Reservoir storage at the end of April in the Mahoning basin index reservoirs was 100 percent of rated capacity for water supply compared with 94 percent for last month and 84 percent for April 2012. Month-end storage in the Scioto basin index reservoirs was 102 percent of rated capacity for water supply compared with 95 percent for last month and 93 percent for April 2012. Surface water supplies are in good condition throughout the state.

### MEAN STREAM DISCHARGE



Base period for all streams: 1981-2010

### 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 April showed mixed responses across the state, rising in most aquifers, but declining in some areas where precipitation was near or below normal. April is normally a time when ground water levels rise throughout the state. Net positive changes from last month's levels were less than usually observed in most aquifers. Generally, ground water levels were stable or declined during the first 10 days of the month and then began to rise following widespread precipitation.

Current ground water levels continue to remain lower than they were a year ago in most aquifers, but are higher in a few aquifers, especially in western Ohio. Ground water storage also remains below normal across most of the state with the exception of some consolidated aquifers in northwestern and southeastern Ohio. The greatest departures from normal are found in the southwestern quarter of the state. Even with these below normal levels, ground water supplies are adequate throughout Ohio. Current soil moisture conditions favor continued recharge to ground water supplies across most of the state. The Ohio Agricultural Statistics Service reports that soil moisture near the end of April was rated as being short in 2 percent of the state, adequate in 48 percent of the state and surplus in 50 percent of the state.

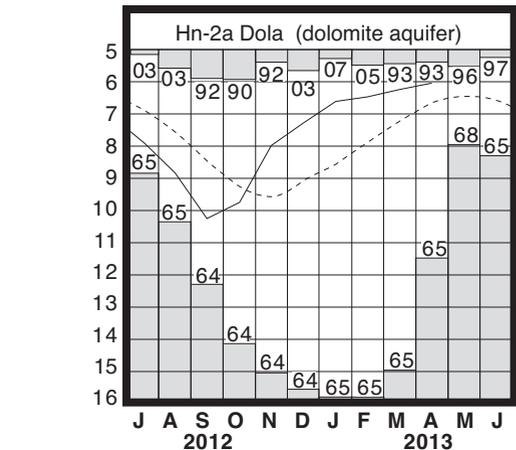
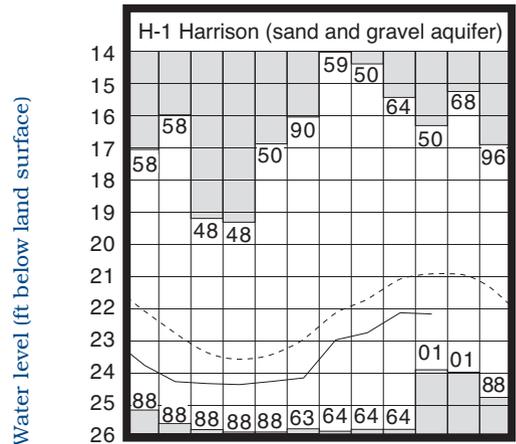
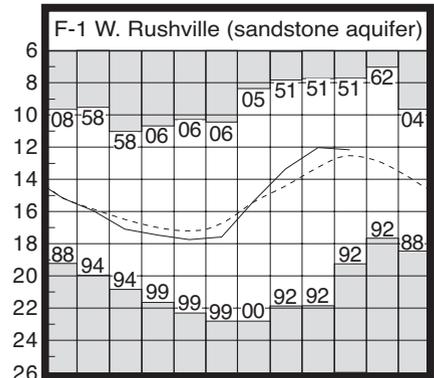
**LAKE ERIE** level rose during April. The mean level was 570.93 feet (IGLD-1985), 0.33 foot higher than last month's mean level and 0.66 foot below normal. This month's mean level is 0.95 foot below the April 2012 level and 1.73 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during April averaged 4.71 inches, 1.55 inches above normal. For the entire Great Lakes basin, April precipitation averaged 4.02 inches, 1.47 inches above normal. For calendar year 2013 through April, the Lake Erie basin has averaged 11.06 inches, 0.56 inch above normal, while the entire Great Lakes basin has averaged 9.86 inches, 1.15 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 near-normal to as much as 16 inches below the normal seasonal level.

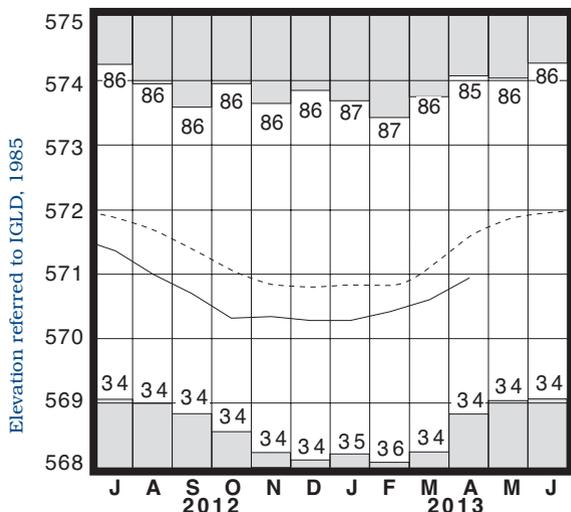
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	12.18	+0.33	-0.17	-0.55
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.64	-1.63	+0.68	-0.43
Fr-10	Columbus, Franklin Co.	Gravel	43.10	-0.56	+0.23	-1.60
H-1	Harrison, Hamilton Co.	Gravel	22.17	-1.26	-0.06	+0.45
Hn-2a	Dola, Hardin Co.	Dolomite	6.05	+0.55	+0.19	+0.47
Po-124	Freedom, Portage Co.	Sandstone	76.82	-0.57	+0.17	-2.04
Tu-1	Strasburg, Tuscarawas Co.	Gravel	12.59	-1.08	+0.89	+0.37

## GROUND-WATER LEVELS



Base periods: F-1, 1947-2010; H-1 1951-2010.  
Hn-2a, 1955-2010

## LAKE ERIE LEVELS



Base period: 1918-2010

■ Record high and low, year of occurrence

Normal - - - - Current ———

## SUMMARY

Precipitation during April was above normal in the northern two-thirds and below normal in the southern one-third of Ohio. Streamflow was above normal across much of the state. Reservoir storage improved and was above normal in both the Mahoning and Scioto river basins. Ground water levels rose in most aquifers, but remained below normal throughout much of Ohio. Lake Erie level rose 0.33 foot and was 0.66 foot below the long-term April average.

## NOTES AND COMMENTS

### 2013 Ohio Statewide Floodplain Management Conference Call for Abstracts

You are invited to submit your abstract for the 2013 Ohio Statewide Floodplain Conference to be held August 28-29, 2013 at The Doubletree, Columbus/Worthington, 175 Hutchinson Avenue, Columbus, Ohio 43235. The Ohio Statewide Floodplain Management Conference is an annual training event that focuses on various elements of floodplain management, such as regulations, insurance, mapping, engineering, and natural benefits. The conference is intended to develop and expand the capabilities of floodplain management professionals throughout Ohio. Conference sessions are designed to provide local floodplain managers with information and skills necessary to implement effective floodplain management programs within their respective communities.

The theme of this year's conference "Remembering the Great Flood of 1913 and Planning for the Future-100 Years of Managing Ohio's Floodplains" will commemorate the 100 year anniversary of the Great Flood of 1913. The agenda will include discussions on the historical significance of the Great Flood of 1913 as well as the various aspects of floodplain management that are relevant and innovative today.

The Call for Abstracts is open to anyone interested in making a presentation to this year's conference. Abstracts will be reviewed by the Conference Planning Committee and selected based on content and relevance to floodplain management and associated issues. Abstracts of papers to be presented at the conference must be received by May 31, 2013. The Ohio Floodplain Management Association (OFMA) is seeking presentations that focus on the Great Flood of 1913 and subsequent flood events; National Flood Insurance Program (NFIP); Flood Hazard Mapping; Flood Mitigation; Structural Flood Control (dam, levees, etc.); Data, Engineering and Modeling; Geographic Information Systems (GIS); Water Resources Management; and Education and Outreach. The Call for Abstracts document is available for download at: <http://www.dnr.state.oh.us/Water/tabid/17934/Default.aspx> or <http://www.ofma.org/training-education/call-for-abstracts>. If you have questions or need more information, contact Alicia Silverio at (614) 265-1006 or [alicia.silverio@dnr.state.oh.us](mailto:alicia.silverio@dnr.state.oh.us).

**Correction:** The percent of normal and percent of normal past 3 months for the Killbuck Creek at Killbuck as shown in the Mean Stream Discharge table in the March 2013 issue of this report were incorrect. The correct percentages are 107 percent for the percent of normal and 87 percent for the percent of normal past 3 months. Please correct your copy or download an updated copy from the Division of Soil and Water Resources web page at: <http://www.dnr.state.oh.us/tabid/4191/Default.aspx>.

## 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.*



An Equal Opportunity Employer-M/F/H



Ohio Department of Natural Resources

Division of Soil and Water Resources

2045 Morse Road

Columbus, Ohio 43229-6693

John Kasich  
Governor

James Zehninger  
Director

Karl Gebhardt  
Chief

Printed on recycled  
paper containing 30%  
post consumer waste.

