



# MONTHLY WATER INVENTORY REPORT FOR OHIO

March 2013

<http://www.ohiodnr.gov/tabid/4191/Default.aspx>

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Water Inventory Unit

**PRECIPITATION** during March was below normal throughout most of the state; only the West Central Region had above normal precipitation. The average for the state was 2.42 inches, 0.80 inch below normal. Regional averages ranged from 3.56 inches, 0.33 inch below normal, for the Southwest Region to 1.13 inches, 1.48 inches below normal, for the Northwest Region. Miamisburg (Montgomery County) reported the greatest amount of precipitation for the month, 5.06 inches. Grand Rapids (Wood County) reported the least amount, 0.37 inches.

Precipitation during March fell as rain and snow. The greatest amounts of precipitation fell in southwestern and south-central Ohio, decreasing to the north and west. Several locations in northwestern Ohio reported less than 1 inch of precipitation for the month. Snowfall was above normal across much of the state, but below normal in northwestern Ohio. Chardon (Geauga County) reported 20 inches of snow for March, about 3 inches above normal. For the season, Chardon has reported 103 inches of snow, which is normal. The month started rather dry with just some light snow showers reported on the first three days. Precipitation during March 4-6 was greatest across the southwestern half of the state with 0.50-0.75 inch reported. Amounts decreased to the north and east to little or no precipitation in northeastern Ohio. Much of this precipitation fell as snow or a wintry mix with 2-8 inches of snow observed. Precipitation during March 11-13 was greatest from Cincinnati to Cleveland. Along this line areas generally received 0.50-1.50 inches of precipitation, while northwest and southeast of this line amounts were much less. Precipitation during March 17-18 was greatest in south-central Ohio, diminishing to the northwest. The southeastern two-thirds of the state received at least 0.50 inch during this period with as much as 2 inches falling at isolated locations, but less than 0.25 inch was reported in northwestern Ohio. Flash flooding was observed in areas of southern Ohio, but was generally confined to low-lying areas and areas with poor drainage. Precipitation during March 24-25 was again greatest in the southwestern half of the state, diminishing to the northeast. Much of this precipitation fell as snow with 3-10 inches falling across most of the state. The month ended with some light showers early on Easter Sunday.

Precipitation for the first half of the 2013 water year is above normal in the North Central, Northeast, West Central, Central, Central Hills and South Central regions, but below normal elsewhere. The state average is 16.80 inches, 0.20 inch above normal. Regional averages range from 19.43 inches, 2.11 inches above normal, for the Northeast Region to 13.49 inches, 0.84 inch below normal, for the Northwest Region (see Precipitation table, departure from normal, past six months column).

(continued on back)

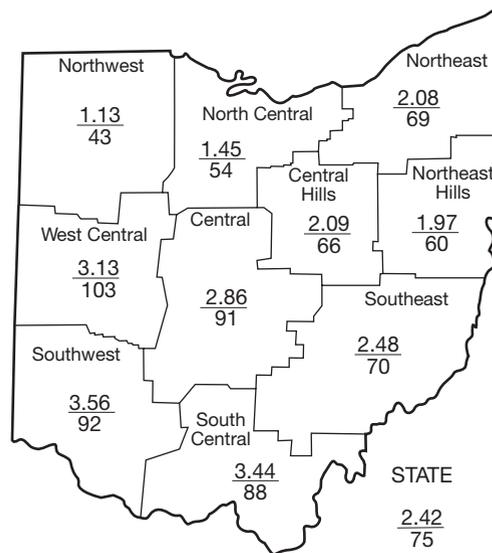
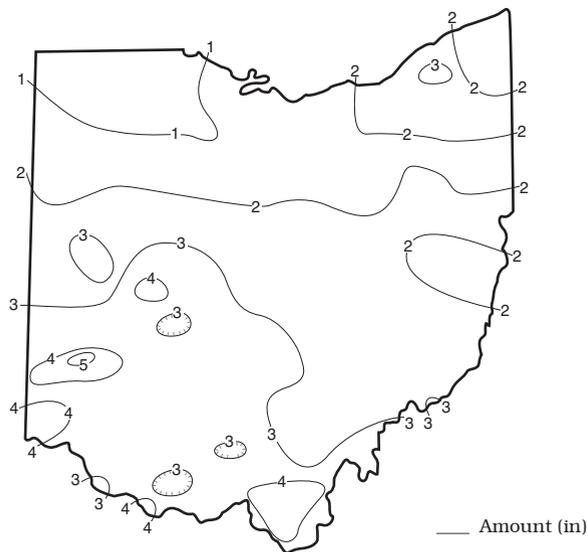
## PRECIPITATION

Region	This Month	DEPARTURE FROM NORMAL (IN.) Base period 1961-2010				Palmer Drought Severity Index*
		Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	-1.48	+0.25	-0.84	-5.16	+11.22	+0.2
North Central	-1.22	-0.87	+1.23	-0.68	+18.15	+2.9
Northeast	-0.92	-1.45	+2.11	-0.71	+17.79	+2.3
West Central	+0.10	+0.07	+0.37	-2.54	+11.33	+1.4
Central	-0.28	-0.92	+0.19	-3.72	+11.58	+1.0
Central Hills	-1.09	-1.56	+0.08	-3.40	+9.74	+1.4
Northeast Hills	-1.32	-2.09	-0.28	-4.82	+7.69	+0.3
Southwest	-0.33	-1.19	-1.63	-6.15	+10.77	+0.0
South Central	-0.45	-1.32	+0.86	-0.97	+13.60	+0.8
Southeast	-1.06	-1.73	-0.10	-2.79	+11.10	+0.8
State	-0.80	-1.08	+0.20	-3.10	+12.29	

\*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 MARCH



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	1,386	84	87	100	75
Great Miami River at Hamilton	3,630	7,845	142	112	95	77
Huron River at Milan	371	353	65	85	120	89
Killbuck Creek at Killbuck	464	728	107	87	94	68
Little Beaver Creek near East Liverpool	496	792	99	91	90	59
Maumee River at Waterville	6,330	9,557	112	92	75	53
Muskingum River at McConnellsville	7,422	11,950	98	83	87	61
Scioto River near Prospect	567	1,064	135	117	127	105
Scioto River at Higby	5,131	9,271	114	84	83	69
Stillwater River at Pleasant Hill	503	876	112	119	103	72

**STREAMFLOW** during March was above normal in western Ohio and below normal in eastern Ohio. Flows during March increased from the February flows throughout most of the state.

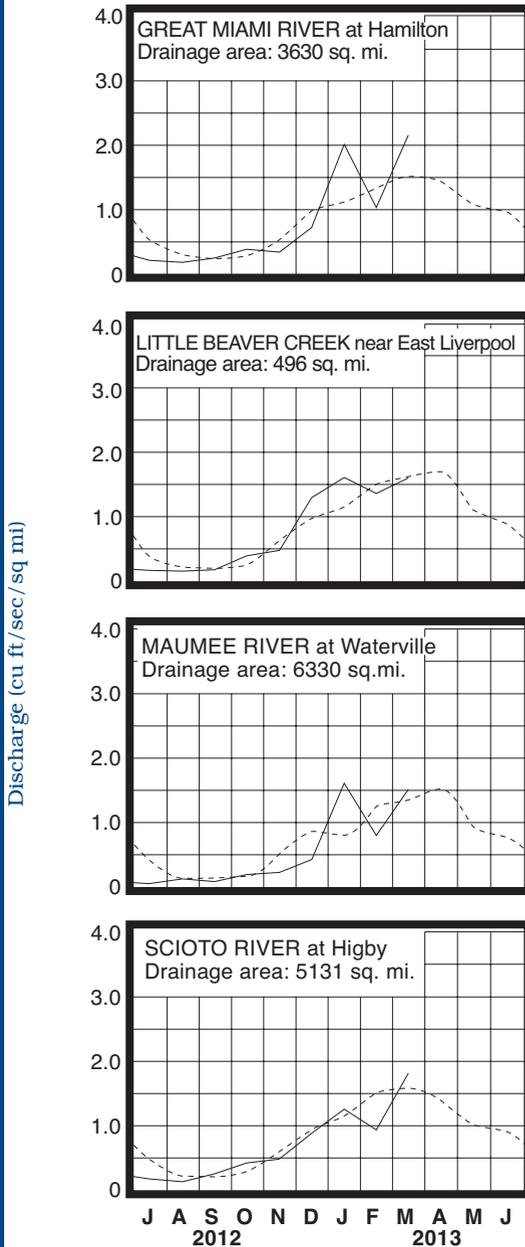
Streamflow at the beginning of the month was above normal statewide. Greatest flows for March occurred at the beginning of the month across northwestern and southeastern Ohio. Generally, flows declined during the first 10 days of March with drainage basins in southwestern and northeastern Ohio recording their lowest flows for the month during this period. Flows increased following melting snow and local precipitation during the next week of March. Drainage basins in central, north-central and southwestern Ohio had their greatest flows just before mid-month

and in east-central and south-central Ohio, during March 19-20. Flows declined during the next week, then increased again in response to the precipitation that fell during March 24-26. Lowest flows for the month occurred just prior to this precipitation in northwestern, central and south-central Ohio drainage basins. Some basins in southeastern Ohio had their lowest flow for March on the last day of the month. Flows at the end of March were above normal from southwestern to northeastern Ohio, but below normal northwest and southeast of this line.

**RESERVOIR STORAGE** for water supply during March increased in the Mahoning River basin and decreased slightly in the Scioto River basin. Storage remained above normal in the Mahoning River basin, but fell to slightly below normal in the Scioto River basin.

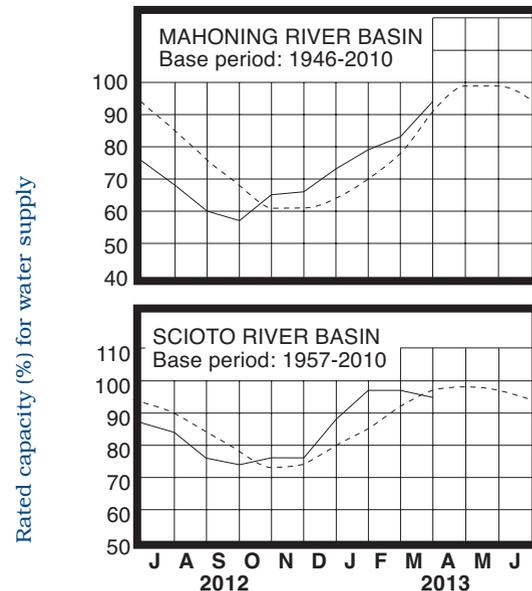
Reservoir storage at the end of March in the Mahoning basin index reservoirs was 94 percent of rated capacity for water supply compared with 83 percent for last month and 87 percent for March 2012. Month-end storage in the Scioto basin index reservoirs was 95 percent of rated capacity for water supply compared with 97 percent for last month and 94 percent for March 2012.

### 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 March showed net improvement across Ohio. Net changes from February's levels were less than usually observed in most aquifers. Levels in most aquifers in the state rose steadily throughout the month.

Ground water storage continues to show improvement, but remains lower than the levels of a year ago throughout most of the state. Current levels range from slightly lower to more than 2 feet below the levels observed during March 2012. Ground water storage is adequate statewide even though it is below normal across most of the state; however, levels remain above normal in some consolidated aquifers in northwestern and southeastern Ohio. With near-normal precipitation and other climatic conditions during the next few months, ground water storage should remain adequate.

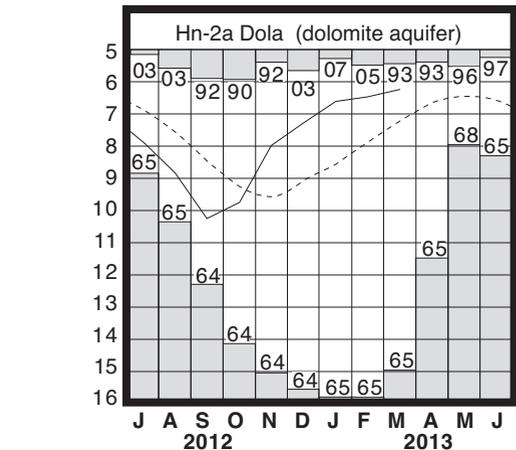
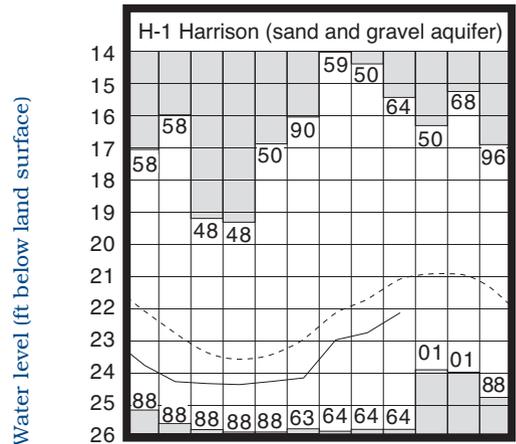
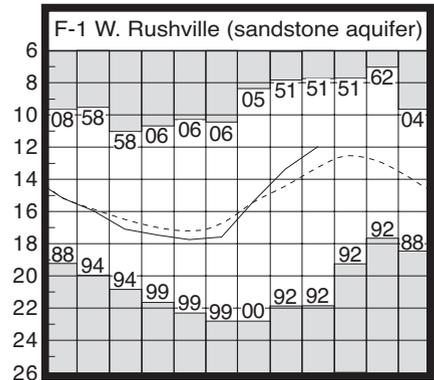
**LAKE ERIE** level rose during March. The mean level was 570.60 feet (IGLD-1985), 0.19 foot higher than last month's mean level and 0.50 foot below normal. This month's mean level is 1.45 feet below the March 2012 level and 1.40 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during March averaged 1.18 inches, 1.57 inches below normal. For the entire Great Lakes basin, March precipitation averaged 1.29 inches, 0.88 inch below normal. For calendar year 2013 through March, the Lake Erie basin has averaged 6.35 inches, 0.99 inch below normal, while the entire Great Lakes basin has averaged 5.84 inches, 0.32 inch below 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 2 inches to as much as 19 inches below the normal seasonal level.

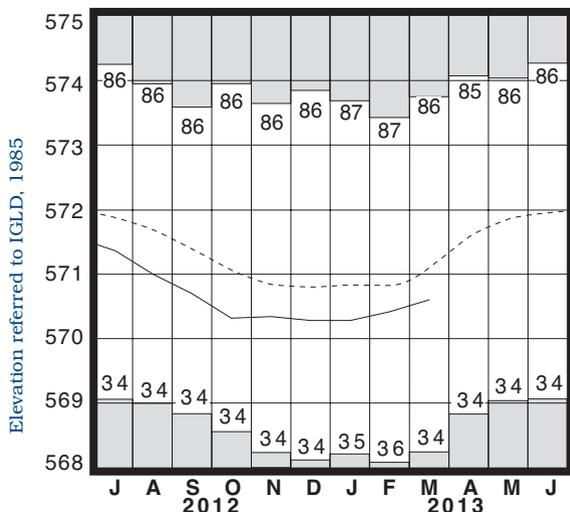
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	12.01	+1.22	+1.35	-1.09
Fa-1	Jasper Mill, Fayette Co.	Limestone	9.32	-2.12	+1.49	-1.33
Fr-10	Columbus, Franklin Co.	Gravel	43.33	-0.29	+0.38	-1.67
H-1	Harrison, Hamilton Co.	Gravel	22.11	-1.03	+0.64	-0.07
Hn-2a	Dola, Hardin Co.	Dolomite	6.24	+0.98	+0.25	-0.04
Po-124	Freedom, Portage Co.	Sandstone	76.99	-0.40	+0.22	-2.03
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.48	-1.58	+0.43	-1.46

## 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 ———

(Precipitation continued from front)

Precipitation for the 2013 calendar year is below normal throughout most of the state with only the Northwest and West Central regions having above normal precipitation. The state average is 6.90 inches, 1.08 inches below normal. Regional averages range from 8.17 inches, 1.32 inches below normal, for the South Central Region to 5.86 inches, 0.87 inch below normal, for the North Central Region.

### SUMMARY

Precipitation during March was below normal throughout most of the state. Streamflow was above normal in western Ohio and below normal in eastern Ohio. Reservoir storage in the Mahoning River basin increased and remained above normal while in the Scioto River basin storage decreased slightly and fell to slightly below normal. Ground water levels rose statewide, but remain below normal across most of the state. Lake Erie level rose 0.19 foot and was 0.50 foot below the long-term March average.

### NOTES AND COMMENTS

#### Reminder: Severe Weather Awareness Week

Governor John Kasich has designated the week of March 3-9, 2013 as Ohio's Spring Severe Weather Awareness Week. The goal is to better educate people about the hazards of severe weather and to encourage people to have a plan in the event severe weather should occur. If you have not done so already, it is not too late for communities and individuals to plan a course of action they would take in the event severe weather was to affect them and their property.

#### Reminder: National Ground Water Awareness Week

The week of March 10-16, 2013 is National Ground Water Awareness Week. During this week, Ohioans are urged to learn more about the state's ground water resources, from wise use to protection. Approximately 42 percent of Ohioans rely on ground water sources for their domestic water needs. The ODNR, Division of Soil and Water Resources, Water Resources Section collects, researches, interprets and disseminates information on 140 ground water observation wells located across the state; produces several types of ground water maps, addressing various aspects of ground water resources in the state including availability, pollution potential and horizontal direction of ground water flow; and collects water use data on all facilities that have the capacity to withdraw over 100,000 gallons of water per day. To learn more about these and other programs at the Division of Soil and Water, please visit their website at: <http://www.ohiodnr.gov/soilandwater>.

#### National Flood Awareness Week

The week of March 18-22, 2013 is National Flood Safety Awareness Week. The Federal Emergency Management Agency (FEMA) and National Oceanic and Atmospheric Administration (NOAA) host this safety campaign each March in an attempt to increase the focus on flood prevention and awareness. This year marks the 100 year anniversary of the Great Flood of 1913. This catastrophe, which occurred during March 23-27, 1913, remains the greatest natural disaster in Ohio's history. Not only is this event the deadliest in the state's history, but it is also the largest in extent of destruction across the state. Every river in Ohio flooded as a result of the precipitation that fell during this period. Rainfall amounts of 4 to more than 11 inches fell throughout the entire state. These rains fell on soils already saturated from earlier rains and most streams across the state were running at or near bank full. The resulting floods set record streamflow on numerous streams in the state, record peaks that for many of these streams still stand 100 years later. More than 400 people died and more than 40,000 homes were flooded in Ohio alone. Many of the flood prevention systems and educational efforts that are in place today were created soon after the Great Flood of 1913. From flood control dams built in the state to the knowledge of the hazards of building in a floodplain, much has been done since the flood of 1913 in an effort to reduce or prevent the detrimental impacts of flooding in Ohio and throughout the nation. Yet in spite of all these measures, flooding is an unavoidable occurrence along rivers and streams. That is why it is important to continue to educate and increase awareness about the dangers of flooding.

### 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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