MONTHLY WATER INVENTORY REPORT FOR OHIO

March 2016

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http://water.ohiodnr.gov/water-use-planning/water-inventory-levels

PRECIPITATION during March was above normal throughout most of Ohio with only the South Central Region having below normal precipitation. The state average was 3.99 inches, 0.77 inch above normal. Regional averages ranged from 4.44 inches, 1.83 inches above normal, for the Northwest Region to 3.24 inches, 0.65 inch below normal, for the South Central Region. This tied as the twelfth wettest March during the 122 years of record for the Northwest Region. Elmore (Ottawa County) reported the greatest amount of March precipitation, 6.09 inches. Greenup Locks and Dam (Scioto County) reported the least amount, 1.86 inches.

Precipitation during March fell as rain and snow. Snow amounts were below normal with most of it falling within the first few days of the month. Most areas of the state received between 0.5 and 1 inch of precipitation during the first five days of the month. The precipitation fell as rain on March 1 and generally as light snow the next four days. Rain during March 9-10 was widespread with most of the state receiving between 0.5 and 1.5 inches. Showers and thunderstorms moved across the state during March 13-15 with most areas again reporting 0.5 to 1.5 inches of precipitation; however, areas in south-central Ohio reported much less. Several of the thunderstorms on March 14 were severe in western Ohio with five tornadoes confirmed: 2 in Darke County and 1 each in Montgomery, Preble and Miami counties. The next week was rather dry across the state with just some light showers reported on March 19 in southern Ohio. Precipitation was widespread during the last week of the month. Rain on March 24 brought between 0.5 and 1 inch across much of the state with more than 1 inch reported in areas of northwestern Ohio; less than 0.5 inch was reported in areas of extreme eastern Ohio. Rain began late in the day on Easter Sunday and moved across the state on March 28. The heaviest rain fell in northwestern Ohio where some areas received more than 1 inch. The month ended with showers and thunderstorms on March 30 and 31. Amounts of 0.25 to 0.5 were common with some areas in western Ohio reporting more than 1 inch. Areas in extreme eastern and southeastern Ohio missed out on most of this rain.

Precipitation for the 2016 water year is above normal throughout most of Ohio, but below normal in the Northeast Hills and Southeast regions. The state average is 17.73 inches, 1.12 inches above normal. Regional averages range from 21.30 inches, 2.82 inches above normal, for the Southwest Region to 15.08 inches, 0.75 inch above normal, for the Northwest Region.

Precipitation for the 2016 calendar year is above normal across most of the state, being below normal in only the South Central and Southeast regions. The state average is 8.58 inches, 0.60 inch above normal.

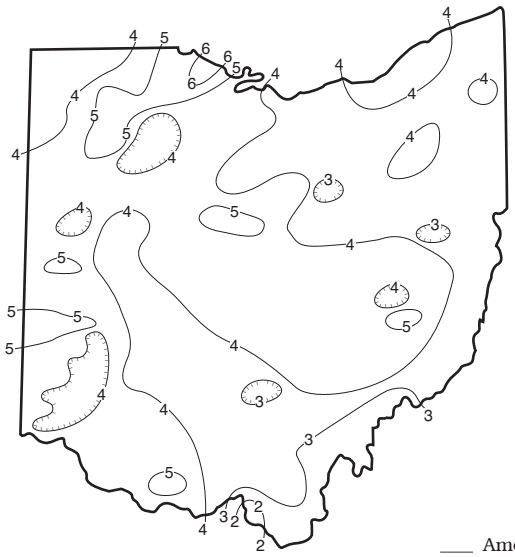
(continued on back)

PRECIPITATION

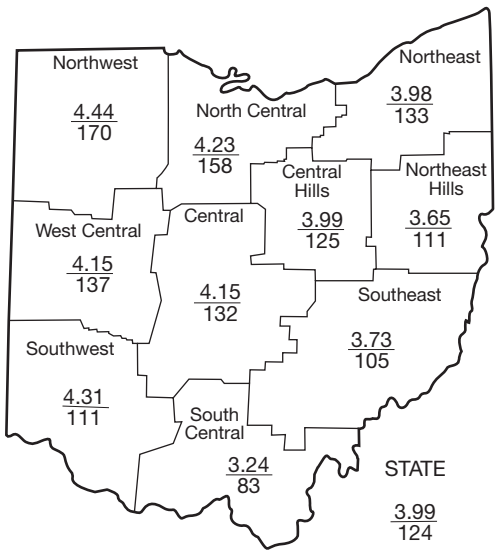
Region	DEPARTURE FROM NORMAL (IN.) Base period 1961-2010					Palmer Drought Severity Index*
	This Month	Past 3 Mos.	Past 6 Mos.	Past 12 Mos.	Past 24 Mos.	
Northwest	+1.83	+1.19	+0.75	+9.08	+6.12	+2.0
North Central	+1.56	+1.33	+1.34	+4.76	+4.83	+2.5
Northeast	+0.98	+1.58	+1.02	+3.76	+9.97	+0.9
West Central	+1.12	+0.85	+3.00	+7.77	+7.79	+1.1
Central	+1.01	+0.79	+2.01	+3.41	+2.88	+0.4
Central Hills	+0.81	+0.64	+1.08	+2.42	+5.31	+0.8
Northeast Hills	+0.36	+0.11	-0.73	+1.27	+6.54	-0.7
Southwest	+0.42	+0.34	+2.82	+6.50	+5.32	+1.0
South Central	-0.65	-0.40	+0.72	+5.08	+3.70	-1.3
Southeast	+0.19	-0.39	-0.72	+2.39	+1.94	-1.4
State	+0.77	+0.61	+1.13	+4.63	+5.42	

*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



Amount (in)



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	1,696	103	95	82	102
Great Miami River at Hamilton	3,630	9,132	165	128	127	148
Huron River at Milan	371	805	147	91	92	112
Killbuck Creek at Killbuck	464	813	120	88	82	92
Little Beaver Creek near East Liverpool	496	984	123	110	95	101
Maumee River at Waterville	6,330	12,150	142	85	77	140
Muskingum River at McConnelsville	7,422	16,060	132	89	78	90
Scioto River near Prospect	567	1,251	190	105	100	153
Scioto River at Higby	5,131	11,800	145	115	110	125
Stillwater River at Pleasant Hill	503	1,284	164	115	125	145

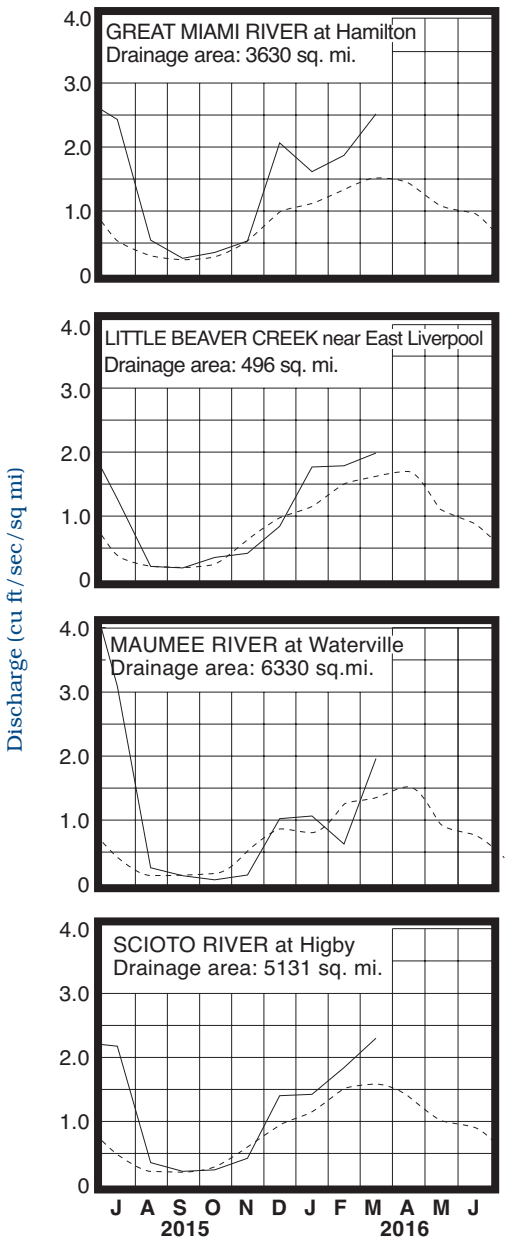
STREAMFLOW during March was above normal throughout the state. Flows in some western and southwestern areas of Ohio were high enough to be considered excessive. Streamflows during March were greater than the February flows statewide.

Flows at the beginning of the month were generally below normal in western Ohio and above normal in eastern areas of the state. Generally, flows declined during the first ten days of the month. A few drainage basins in southeastern Ohio had their lowest flows for March during this period. Flows increased following widespread precipitation during the next week of the month. Greatest flows for March occurred during this time period, mainly between March 15 and 17. Flows declined from these peaks during the next week. Lowest flows for the month were observed during this period throughout the state except in those few basins mentioned earlier in southeastern Ohio. Flows increased during the last week of the month as precipitation fell across the state. Flows at the end of March, however, were below normal across most of Ohio with only a few basins in northwestern and southeastern areas of the state having above normal flows at the end of the month.

RESERVOIR STORAGE for water supply during March increased in the Mahoning River basin and was unchanged in the Scioto River basin. Storage remained above normal in both basins.

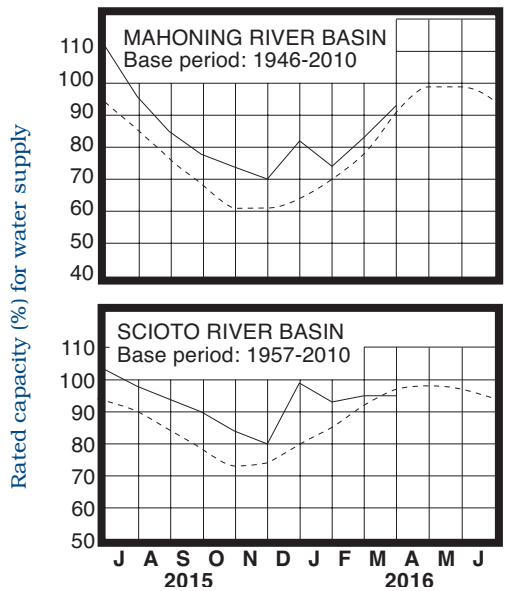
Reservoir storage at the end of March in the Mahoning basin index reservoirs was 93 percent of rated capacity for water supply compared with 83 percent for last month and 89 percent for March 2015. Month-end storage in the Scioto basin index reservoirs was 95 percent of rated capacity for water supply compared with the same for both last month and March 2015. Surface water supplies continue to remain in good shape throughout the state.

MEAN STREAM DISCHARGE



Base period for all streams: 1981-2010

RESERVOIR STORAGE FOR WATER SUPPLY



Normal – – – – Current ———

GROUND-WATER LEVELS

GROUND WATER levels during March rose throughout the state. Net changes from last month's levels ranged from nearly average to less than that usually observed in most aquifers.

Ground water levels in consolidated aquifers and deeper, unconsolidated aquifers are generally above normal in central, southeastern and northwestern Ohio and below normal elsewhere. Levels in most shallow, unconsolidated aquifers are below normal throughout the state. Current levels are higher than they were a year ago across much of the state, but are lower in many aquifers in eastern and northeastern Ohio. The 2016 water year recharge thus far has been adequate, but not outstanding. Although ground water supplies are adequate statewide, additional recharge during the next couple of months would help keep ground water supplies in a favorable position as we enter the summer high-use period. Current conditions do bode well for future improvement in ground water storage. The Ohio Agricultural Statistics Service reports that, near the end of March, soil moisture was rated as being short in 2 percent of the state, adequate in 58 percent of the state, and surplus in 40 percent of the state.

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

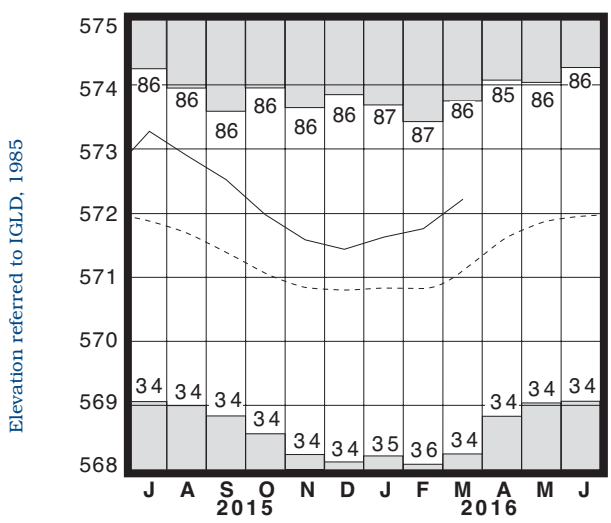
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	11.35	+1.88	+1.72	+1.60
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.07	-0.87	+0.16	+0.88
Fr-10	Columbus, Franklin Co.	Gravel	41.38	+1.66	+0.48	+0.86
H-1	Harrison, Hamilton Co.	Gravel	21.10	-0.02	+0.81	+0.80
Hn-2a	Dola, Hardin Co.	Dolomite	6.64	+0.58	+0.79	+1.13
Po-124	Freedom, Portage Co.	Sandstone	77.38	-0.79	+0.20	-0.44
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.20	-1.30	+1.42	-0.88

LAKE ERIE level rose during March. The mean level was 572.21 feet (IGLD-1985), 0.46 foot above last month's mean level and 1.11 feet above normal. This month's level is 1.38 feet above the March 2015 level and 3.01 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during March averaged 4.34 inches, 1.58 inches above normal. Precipitation in the entire Great Lakes basin during March was 3.31 inches, 1.14 inches above 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 above normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from as little as 4 inches above to as much as 21 inches above the normal seasonal average.

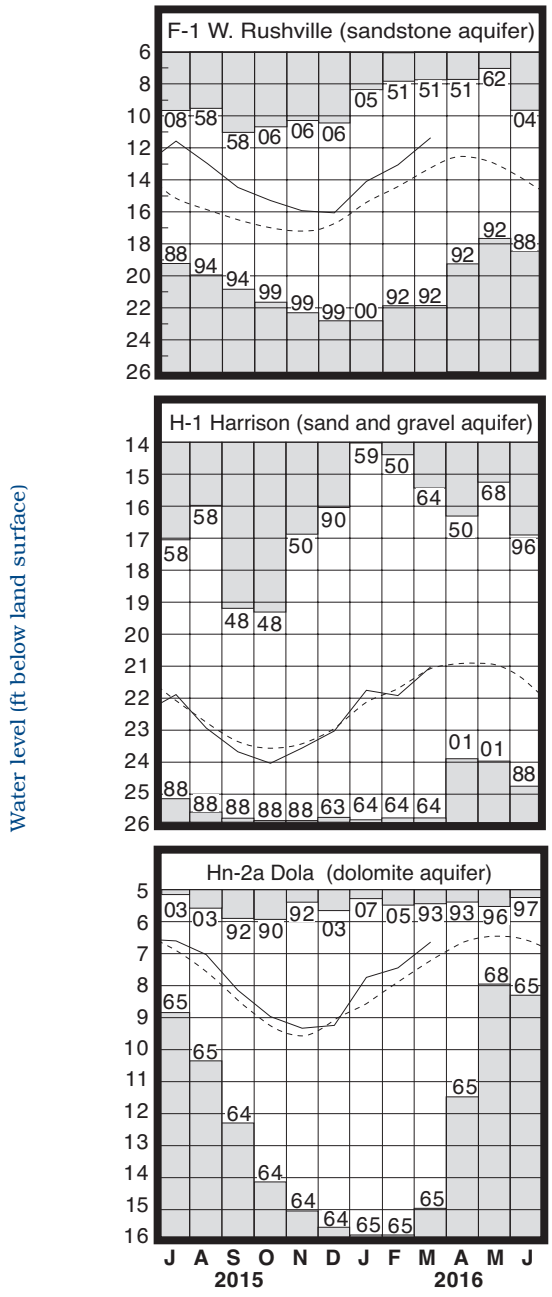
LAKE ERIE LEVELS



Base period: 1918-2010

Record high and low, year of occurrence

GROUND-WATER LEVELS



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

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

Normal – – – – Current ———

(Precipitation continued from front)

Regional averages range from 9.59 inches, 0.34 inch above normal, for the Southwest Region to 7.67 inches, 1.19 inches above normal, for the Northwest Region.

SUMMARY

Precipitation during March was above normal throughout most of the state but below normal in the South Central Region. Streamflow was above normal statewide. Reservoir storage increased in the Mahoning River basin and was unchanged in the Scioto River basin. Ground water levels rose across the state and storage remained adequate. Lake Erie level rose 0.46 foot and was 1.11 feet above the long-term March average.

NOTES AND COMMENTS

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 Resources or visiting our website at: http://water.ohiodnr.gov/ Comments and suggestions regarding this report are always welcome.

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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