MONTHLY WATER INVENTORY REPORT FOR OHIO

May 2015

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

PRECIPITATION during May was below normal across much of the state, but above normal in the Northwest and Northeast regions. Other locations, mainly in areas of north-central and central Ohio also had above normal precipitation. The state average was 3.39 inches, 0.70 inch below normal. Regional averages ranged from 4.69 inches, 1.01 inches above normal, for the Northeast Region to 2.15 inches, 2.29 inches below normal, for the South Central Region. Dorset (Ashtabula County) reported the greatest amount of May precipitation, 5.78 inches. Nelsonville (Athens County) reported the least amount, 0.77 inch.

There were substantial amounts of precipitation during each week of the month at various locations throughout the state. Generally, the northern half of the state received between 3.5 and 5.5 inches of precipitation for the month while the southern half received between 1 and 3 inches. Rain during May 4-5 was greatest through the central third of Ohio with 0.5-1.0 inch reported. Most areas of the state received precipitation during May 9-11 with many areas reporting between 0.5 and 1.0 inch of rain, but much less in extreme southern Ohio. For some locations in southern Ohio, this was the first measurable precipitation for the month as the first ten days of May were extremely dry. Widespread precipitation during May 15-18 brought approximately 0.5 inch of rain across most of the state with more than 1 inch reported in areas of east-central Ohio. Showers and thunderstorms, some locally severe, were widespread during the last week of the month. Strong storms on May 26 brought 1-2 inches of rain to areas in northern Ohio. A severe storm produced a tornado that touched down in Beavercreek (Greene County), damaging several homes, businesses and vehicles. The month ended with more strong storms on May 30-31 with another 1-2 inches of rain falling in northern Ohio. Some areas in northern Ohio received 3-4 inches of rain during the last week of May while most of southern Ohio received 1 inch or less during this same period.

Precipitation for the 2015 water year is below normal throughout most of Ohio but above normal in the South Central and Southeast regions. The state average is 22.85 inches, 1.40 inches below normal. Regional averages range from 27.71 inches, 1.31 inches above normal, for the South Central Region to 18.16 inches, 3.22 inches below normal, for the Northwest Region.

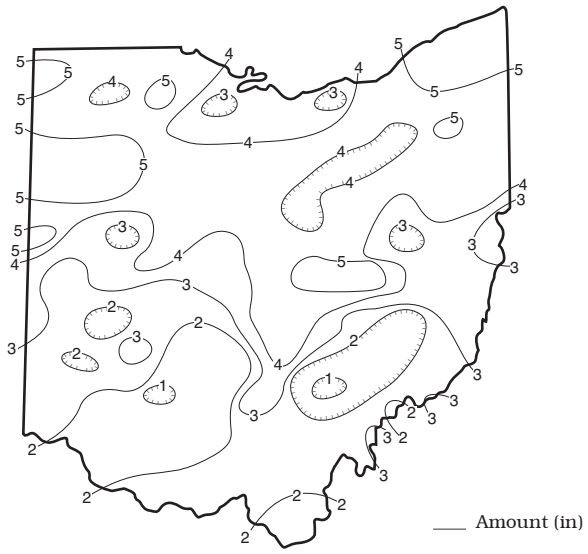
Precipitation for the 2015 calendar year is generally above normal in the eastern half of Ohio and below normal in the western half. The state average is 15.50 inches, 0.12 inch below normal. Regional averages range from 17.93 inches, 0.36 inch above normal, for the South Central Region to 12.66 inches, 0.87 inch below normal, for the Northwest Region.

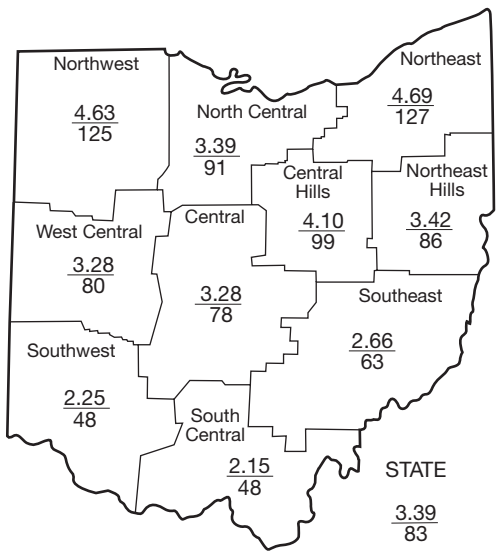
PRECIPITATION

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	+0.92	-0.27	-2.09	-2.47	+1.31	-0.8
North Central	-0.33	-0.83	-1.66	-2.28	+7.41	-0.6
Northeast	+1.01	-0.12	-0.19	+4.43	+14.31	-0.7
West Central	-0.83	+0.21	-1.09	-2.33	+1.35	-2.1
Central	-0.91	+0.48	-0.47	-3.25	+3.48	-2.1
Central Hills	-0.05	+0.60	-0.19	+0.45	+8.97	-1.6
Northeast Hills	-0.55	+0.51	-0.66	+2.23	+8.63	-1.9
Southwest	-2.40	+0.11	-0.75	-2.74	+0.75	-1.6
South Central	-2.29	+2.26	+0.50	-1.49	+3.03	-1.7
Southeast	-1.57	+2.09	+1.30	-1.02	+6.48	-1.7
State	-0.70	+0.51	-0.54	-0.85	+5.54	

*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 MAY





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	442	72	102	90	101
Great Miami River at Hamilton	3,630	2,535	60	111	88	92
Huron River at Milan	371	168	45	131	89	101
Killbuck Creek at Killbuck	464	260	55	116	91	102
Little Beaver Creek near East Liverpool	496	252	46	124	113	105
Maumee River at Waterville	6,330	3,578	61	86	64	70
Muskingum River at McConnelsville	7,422	5,755	69	121	91	89
Scioto River near Prospect	567	227	50	114	75	78
Scioto River at Higby	5,131	2,727	53	108	79	86
Stillwater River at Pleasant Hill	503	249	49	104	82	80

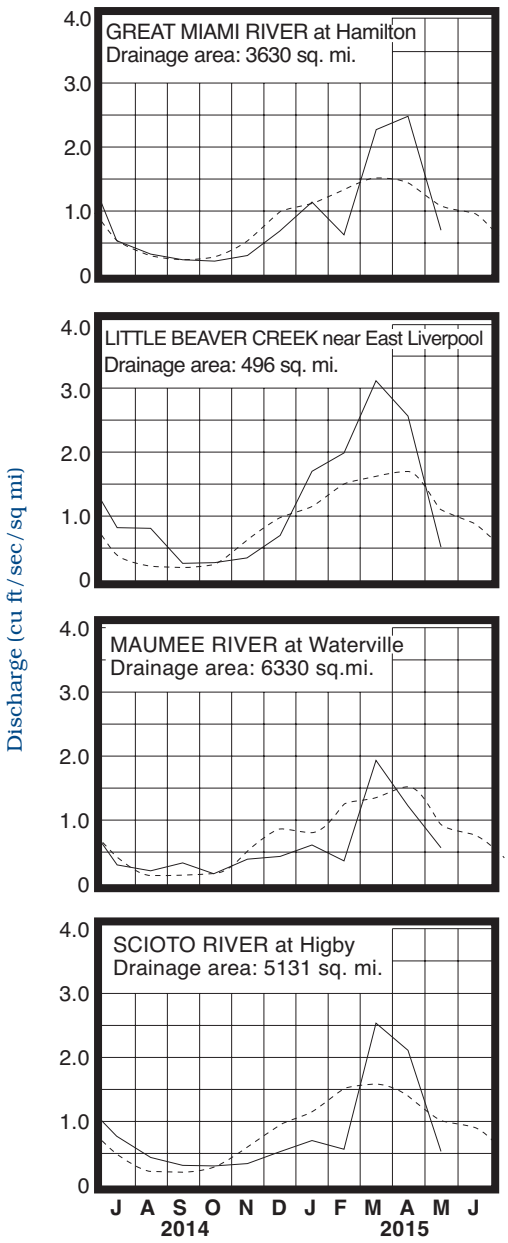
STREAMFLOW during May was below normal statewide. May flows declined from April flows throughout the state. Flows across much of the southern two-thirds of Ohio were low enough to be considered deficient.

Flows at the beginning of the month were below normal statewide. Greatest flows for the month generally occurred during the first week of the month in basins in southwestern and east-central Ohio, just after mid-month in southeastern Ohio and on the last day of May across the remainder of the state. Lowest flows for May occurred between May 25 and 27 throughout most of the state; however, a few basins in central and southeastern Ohio had their lowest flow around mid-month. Flows at the end of the month were below normal in southern Ohio, but were above normal in northern Ohio as streams responded to widespread precipitation during the last few days of May.

RESERVOIR STORAGE for water supply during May increased in both the Mahoning and Scioto river basins. Storage at the end of the month was below normal in the Mahoning River basin and above normal in the Scioto River basin.

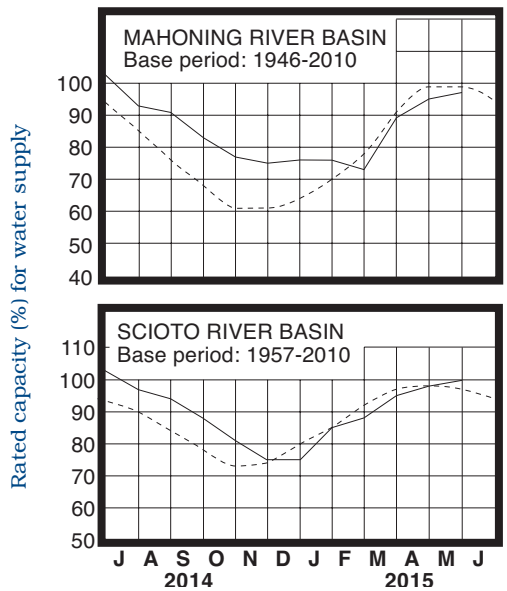
Reservoir storage at the end of May in the Mahoning basin index reservoirs was 97 percent of rated capacity for water supply compared with 95 percent for last month and 96 percent for May 2014. Month-end storage in the Scioto basin index reservoirs was 100 percent of rated capacity for water supply compared with 98 percent for last month and 100 percent for May 2014. Surface water supplies are in good condition as we enter the summer high-use period.

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

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	12.57	+0.37	-1.24	-1.91
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.77	-1.57	-0.45	-0.19
Fr-10	Columbus, Franklin Co.	Gravel	41.81	+0.75	-0.09	-0.23
H-1	Harrison, Hamilton Co.	Gravel	22.44	-1.49	-0.99	-0.58
Hn-2a	Dola, Hardin Co.	Dolomite	7.27	-0.80	-0.44	-0.18
Po-124	Freedom, Portage Co.	Sandstone	76.37	-0.20	+0.03	-0.13
Tu-1	Strasburg, Tuscarawas Co.	Gravel	12.23	-0.38	-1.41	-0.92

GROUND WATER levels during May declined in most aquifers throughout Ohio. In a few areas levels remained rather stable due to locally above normal precipitation. Net declines in May's ground water levels from April's levels were greater than usually observed in most aquifers.

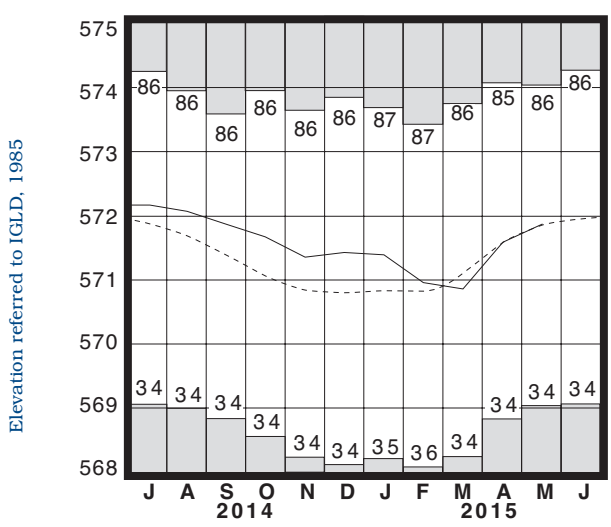
Ground water storage has fallen to below normal levels across most of the state. Only a few aquifers in central and southeastern Ohio continue to be above normal. Also, current levels are lower than the levels observed last year throughout the state, ranging up to 2 feet below the May 2014 levels. The below normal precipitation through much of the state during May appears to have ended the 2015 water year recharge season across most of Ohio. The Ohio Agricultural Statistics Service reports that at the end of May, soil moisture was rated as being short or very short in 11 percent of the state, adequate in 68 percent of the state and surplus in 21 percent of the state. Even with the below normal ground water levels, ground water supplies are currently adequate throughout Ohio.

LAKE ERIE level rose during May. The mean level was 571.88 feet (IGLD-1985), 0.29 foot above last month's mean level and 0.03 foot above normal. This month's mean level is 0.13 foot below the May 2014 level and 2.68 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during May averaged 3.85 inches, 0.46 inch above normal. For the entire Great Lakes basin, May precipitation averaged 3.42 inches, 0.39 inch above normal. For calendar year 2015 through May, precipitation in the Lake Erie basin has averaged 10.66 inches, 3.26 inches below normal, while the entire Great Lakes basin has averaged 8.85 inches, 2.88 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 above normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from as high as 16 inches above normal to around 1 inch below the normal seasonal average.

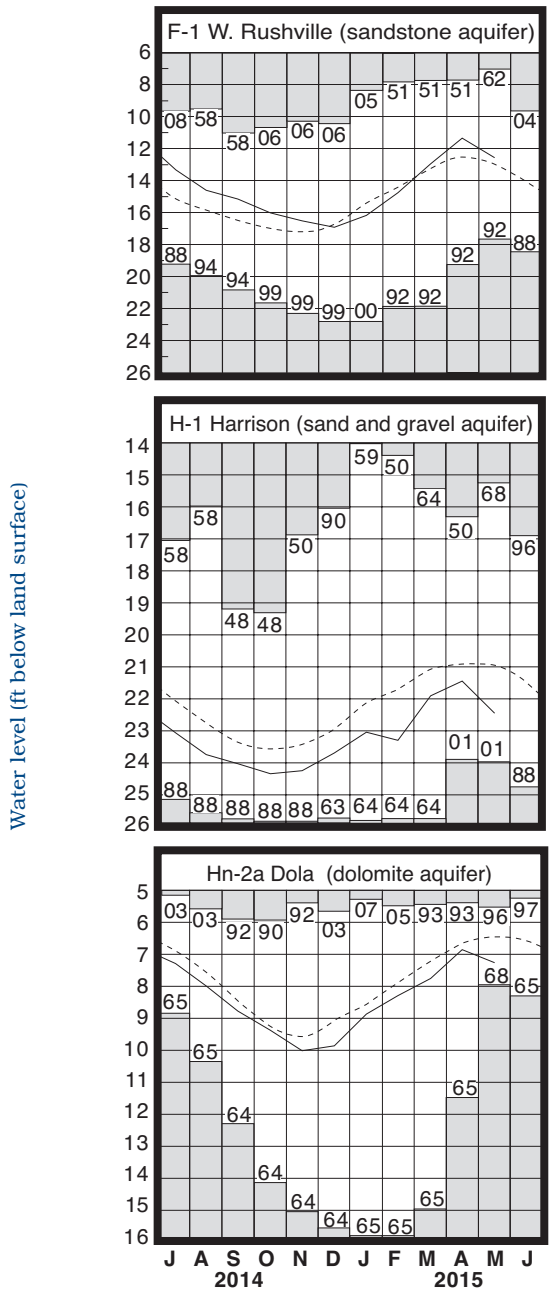
LAKE ERIE LEVELS



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 ———

SUMMARY

Precipitation during May was below normal throughout much of the state but above normal in the Northwest and Northeast regions. Streamflow was below normal statewide and low enough to be considered deficient in the southern two-thirds of Ohio. Reservoir storage increased while ground water levels declined in most aquifers across the state. Lake Erie level rose 0.29 foot and was 0.03 foot above the long-term May average.

NOTES AND COMMENTS

Ohio Observation Well Network

The Ohio Department of Natural Resources (ODNR), Division of Soil and Water Resources, Water Resources Section is responsible for collecting, researching, interpreting and disseminating hydrologic and ground water resource information for the state of Ohio. An important component of this program is the Ohio Observation Well Network. The Ohio Observation Well Network characterizes Ohio's ground water resources through monitoring and evaluating both short- and long-term trends in ground water level fluctuations throughout the state's various aquifer systems.

Observation wells have been used to monitor an aquifer's response to changing climatic conditions and impacts from man-induced activities since ground water level monitoring in Ohio began in 1938. Monitoring and evaluating long-term trends in ground water levels enables water resource professionals to access information on the availability and annual replenishment of ground water supplies. The Ohio Observation Well Network is a tool that professionals use to determine the availability of ground water supplies, thus promoting wise management and efficient use of this valuable resource. Currently, the Division of Soil and Water Resources monitors 139 wells distributed across the state. Once field information is gathered from each observation well, it is reviewed and verified for accuracy. The data is then made available on-line through the Division's web page. The web site allows the user to view and/or download data from the Ohio Observation Well Network database. Several options are provided that offer a wide range of flexibility in viewing, graphing and/or downloading current and historical data. Statistical and water quality data are also available through the web site. In addition to the 139 currently active observation wells, ground water level data from an additional 205 historic/inactive observation wells is also available. To visit this web site, go to https://apps.ohiodnr.gov/water/waterobs/default.asp.

The Ohio Observation Well Network is a successful example of local, state, federal and private partnerships. The U.S. Geological Survey (USGS) has been a cooperative partner with the ODNR since the establishment of the network. As part of that cooperative effort, 12 of the observation wells have been equipped with automated equipment, providing near-real time ground water level information that can be accessed through the division's web site. To view data from the 12 near-real time sites, go to the Division of Soil and Water Resources, select Water Use and Planning, Water Inventory and Levels, and click on "USGS Near real time data for select observation wells."

For more information about Ohio's Observation Well Network, contact the Division of Soil and Water Resources at (614) 265-6740 or e-mail: mike.hallfrisch@dnr.state.oh.us.

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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