MONTHLY WATER INVENTORY REPORT FOR OHIO

July 2015

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

PRECIPITATION during July was generally above normal in the western half of Ohio and below normal in the eastern half. The average for the state was 4.57 inches, 0.44 inch above normal. Regional averages ranged from 6.60 inches, 2.87 inches above normal, for the Northwest Region to 2.83 inches, 1.27 inches below normal, for the Northeast Hills Region. This was the fourth wettest July on record for the Northwest Region, the ninth wettest for the West Central Region and the fourteenth wettest for the South Central Region. Van Wert (Van Wert County) reported the greatest amount of July precipitation, 13.16 inches. Mansfield LAHM Regional Airport (Richland County) reported the least amount, 1.49 inches.

Precipitation during July fell as showers and thunderstorms. In several areas, localized storms produced severe weather with heavy rain reported. Small stream and urban flooding was reported following some of these storms. Generally, the first half of the month was wetter than the second half across most of the state. During the first six days of July, conditions were dry across the northern half of the state while areas in southern Ohio received 1-2 inches of rain. The next nine days were the wettest for many locations. Most of the state reported 0.5 to 1 inch of rain during July 7-9 with some areas in northern Ohio reporting 1-3 inches and areas in south-central Ohio reporting around 2 inches. Storms were common during July 12-15 across most of the state. The west-central, central and south-central sections of the state received the greatest amounts of rain with 1.5 to more than 3 inches falling at some locations. Scattered storms continued to cross the state during July 17-21 with the greatest amounts of precipitation of more than 1 inch falling in western Ohio. Precipitation during the last ten days of July was more widely scattered, but again there were heavy downpours at several locations. Storms on July 26 produced more than 1 inch at scattered locations from central to east-central Ohio, and storms during July 29 brought more than 1 inch of rain to isolated areas in the western third of Ohio. However, there were locations in the state, especially areas in the eastern third, that received less than 0.25 inch of precipitation during the last two weeks of the month.

Precipitation for the 2015 water year is above normal statewide. The state average is 35.41 inches, 3.12 inches above normal. Regional averages range from 40.36 inches, 5.82 inches above normal, for the South Central Region to 30.70 inches, 1.23 inches above normal, for the North Central Region.

Precipitation for the 2015 calendar year is also above normal statewide. The state average is 28.06 inches, 4.40 inches above normal. Regional

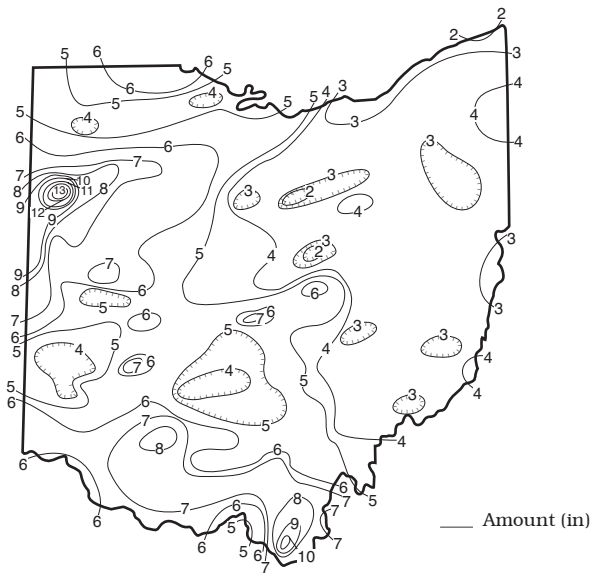
(continued on back)

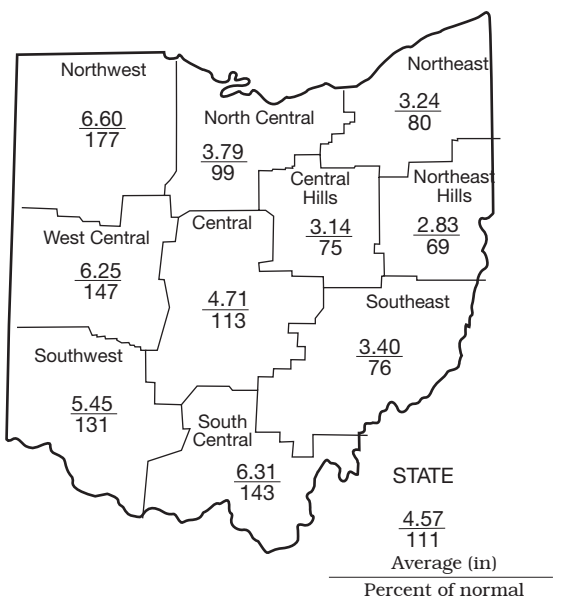
PRECIPITATION

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	+2.87	+10.33	+8.62	+7.96	+6.69	+2.3
North Central	-0.03	+3.50	+2.80	+0.46	+4.02	+1.0
Northeast	-0.79	+4.63	+3.40	+4.48	+11.35	+0.4
West Central	+2.01	+6.50	+6.68	+3.68	+7.21	+0.7
Central	+0.54	+2.64	+3.25	-0.58	+2.58	-1.6
Central Hills	-1.06	+2.88	+3.00	+0.83	+4.92	-1.0
Northeast Hills	-1.27	+2.22	+2.64	+2.79	+6.15	-1.1
Southwest	+1.30	+3.10	+4.50	+2.61	+3.64	+1.3
South Central	+1.90	+2.22	+5.76	+3.57	+3.08	-0.2
Southeast	-1.07	+0.20	+2.88	+1.31	+2.01	-2.1
State	+0.44	+3.82	+4.35	+2.70	+5.13	

*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 JULY





MEAN STREAM DISCHARGE

River and Location	Drainage Area (Sq. Mi.)	This Month: Mean Discharge (CFS)	This Month: % of Normal	% of Normal Past: 3 Mos.	% of Normal Past: 6 Mos.	% of Normal Past: 12 Mos.
Grand River near Painesville	685	1,001	470	203	124	118
Great Miami River at Hamilton	3,630	8,872	424	169	136	116
Huron River at Milan	371	533	577	153	130	110
Killbuck Creek at Killbuck	464	662	339	124	115	99
Little Beaver Creek near East Liverpool	496	629	336	141	142	113
Maumee River at Waterville	6,330	19,480	736	328	169	134
Muskingum River at McConnelsville	7,422	10,000	216	123	120	95
Scioto River near Prospect	567	1,473	915	271	172	127
Scioto River at Higby	5,131	11,150	443	151	126	106
Stillwater River at Pleasant Hill	503	1,544	728	198	144	113

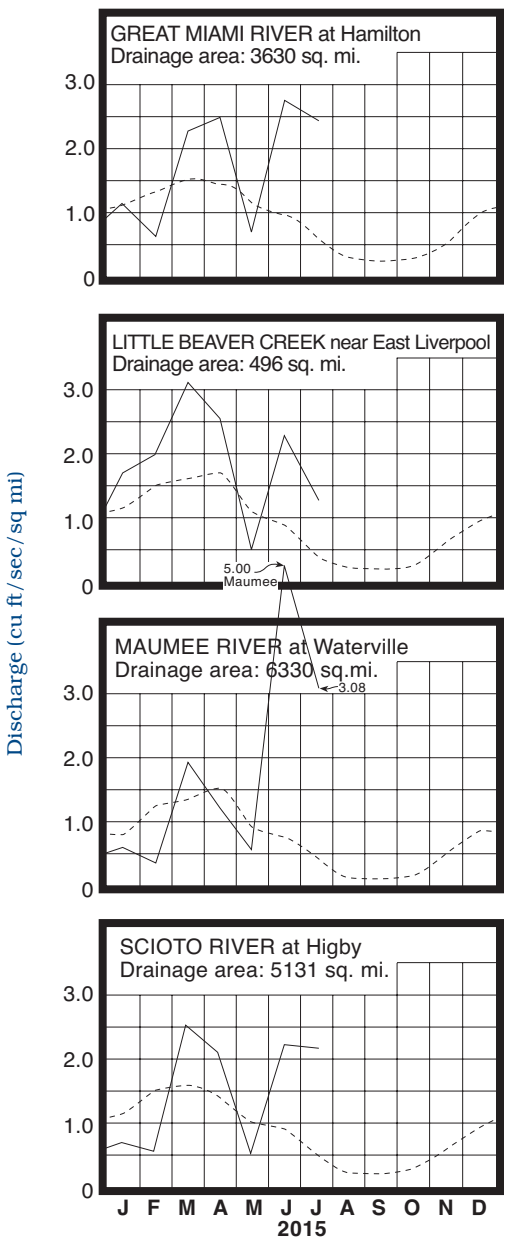
STREAMFLOW during July was above normal statewide. The July flows were less than the flows observed during June across most of the state, but were high enough to be considered excessive statewide. Preliminary data indicates that flows at several gauging stations were at record or near-record July levels. The Maumee River at Waterville recorded its greatest flow for July. The Great Miami River at Hamilton, Scioto River near Prospect and Scioto River at Higby recorded their second-greatest flows for July.

Flows at the beginning of the month were above normal throughout the state as a result of the excessive precipitation during June. Drainage basins in the eastern third of the state and northwestern Ohio recorded their greatest flows for July at the beginning of the month. Greatest flows across the remainder of the state generally occurred following widespread precipitation around the middle of the month, most notably during July 14-15. Heavy rain resulted in flash flooding in many areas of the state following storms during July 12-14. After these peaks, flows generally declined steadily through the end of the month with some increases noted following local precipitation. Lowest flows for July occurred at or near the end of the month statewide. Flows at the end of July remained above normal in western Ohio, but fell to below normal across eastern Ohio.

RESERVOIR STORAGE for water supply during July decreased in both the Mahoning and Scioto river basins. Storage at the end of the month remained above normal in both basins.

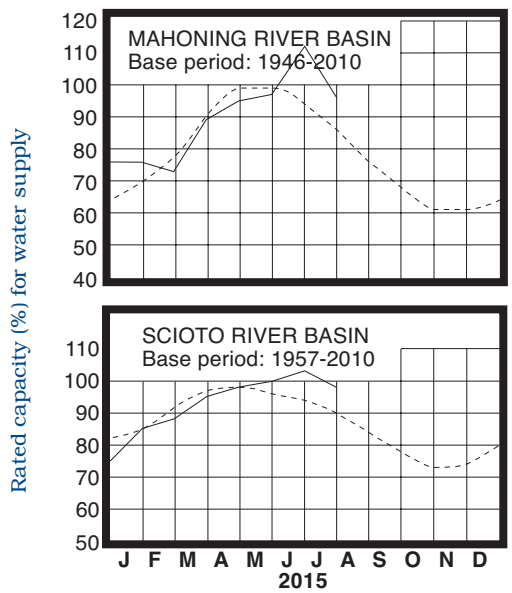
Reservoir storage at the end of July in the Mahoning basin index reservoirs was 96 percent of rated capacity for water supply compared with 112 percent for last month and 93 percent for July 2014. Month-end storage in the Scioto basin index reservoirs was 98 percent of rated capacity for water supply compared with 103 percent for last month and 97 percent for July 2014. Surface water supplies are in excellent condition for this time of the year 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 July rose in most aquifers across Ohio. July is normally a time when ground water levels are declining throughout the state. Levels in consolidated aquifers were rather stable or rose throughout most of the month in response to recharge from the excessive rainfall during June and the first half of July. Levels in unconsolidated aquifers declined during the first week of July, then rose in response to widespread precipitation. Levels in unconsolidated aquifers were stable or declining at the end of July.

Ground water storage has improved considerably during the past two months. As a result of the unusual net rises in ground water levels during July, ground water storage has improved to above normal across most of the state. Ground water supplies have been adequate across Ohio for quite some time, but this marks the first time since late 2013 that ground water levels have been above normal throughout nearly all of the state. Some sandstone aquifers in southeastern Ohio are more than 3 feet above normal while unconsolidated aquifers across central areas of the state are around 2 feet above normal. Current levels are also higher than last year's levels throughout most of Ohio. The Ohio Agricultural Statistics Service reports that near the end of July, soil moisture was rated as being short in 10 percent of the state, adequate in 69 percent of the state and surplus in 21 percent of the state. Farmers continued to be hampered by wet conditions during the first half of July, but several dry days during the second half of the month created suitable conditions for fieldwork.

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

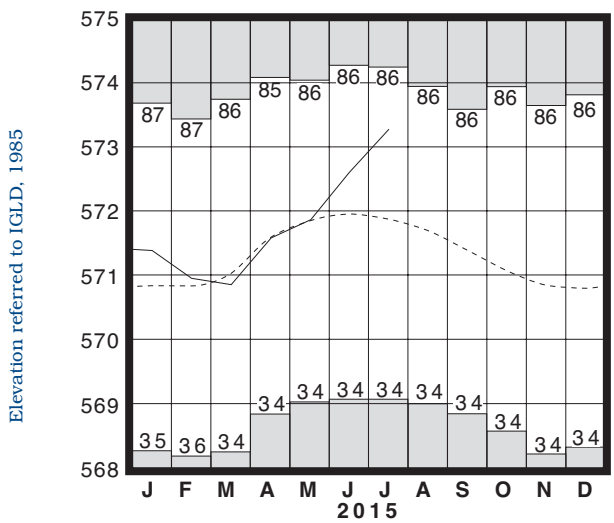
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	11.56	+3.56	+1.51	+1.80
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.15	-0.09	+0.68	+0.58
Fr-10	Columbus, Franklin Co.	Gravel	41.66	+1.99	+0.25	+0.31
H-1	Harrison, Hamilton Co.	Gravel	21.89	+0.20	+0.54	+1.14
Hn-2a	Dola, Hardin Co.	Dolomite	6.60	+0.30	-0.05	+0.69
Po-124	Freedom, Portage Co.	Sandstone	76.19	+0.26	+0.16	+0.24
Tu-1	Strasburg, Tuscarawas Co.	Gravel	12.30	+0.63	+0.52	-0.56

LAKE ERIE level rose during July. The mean level was 573.29 feet (IGLD-1985), 0.69 foot above last month's mean level and 1.41 feet above normal. This month's mean level is 1.11 feet above the July 2014 level and 4.09 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during July averaged 3.22 inches, 0.17 inch below normal. For the entire Great Lakes basin, July precipitation averaged 2.52 inches, 0.63 inch below normal. For calendar year 2015 through July, precipitation in the Lake Erie basin has averaged 20.63 inches, 0.14 inch below normal, while the entire Great lakes basin has averaged 15.47 inches, 2.64 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, generally between 9 and 16 inches above normal. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from near normal to as much as 21 inches above the normal seasonal average.

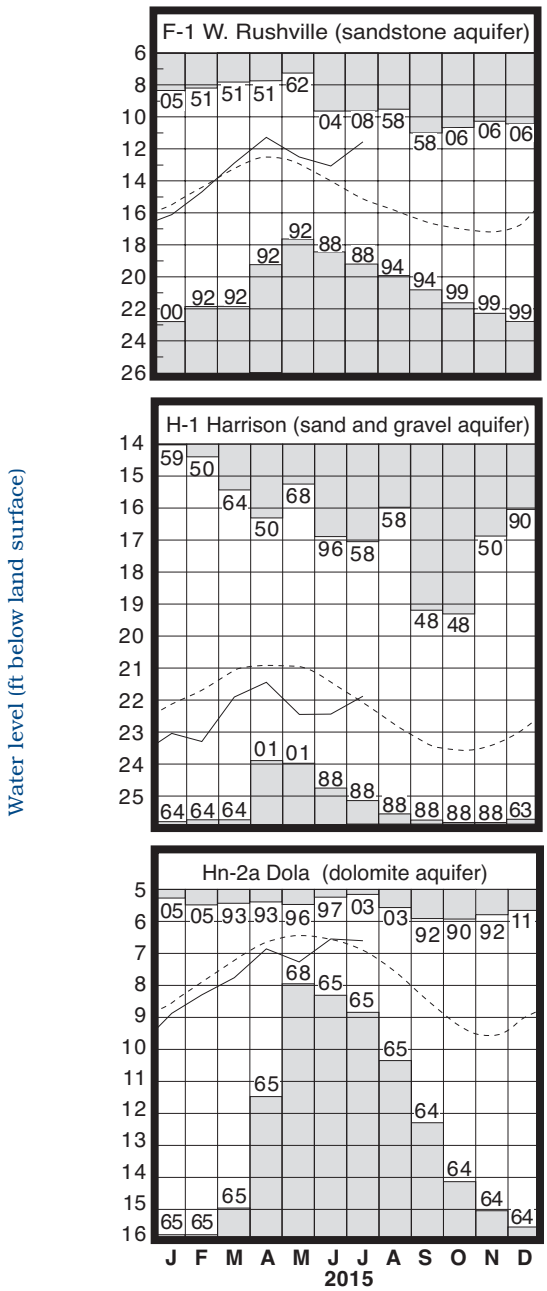
LAKE ERIE LEVELS



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)

averages range from 30.65 inches, 4.64 inches above normal, for the Southwest Region to 24.70 inches, 3.28 inches above normal, for the North Central Region.

The wet pattern that existed throughout most of June continued into July across the western half of Ohio. When combined with the June precipitation, the current June-July period was the wettest on record for the Northwest Region, second wettest for the West Central Region, third wettest for the Southwest Region and the fifth wettest for the South Central Region. In addition, this June-July period was the wettest two-month period on record for the Northwest Region. Individual stations across the western third of Ohio have reported more than one-half of their annual precipitation during the past two months. Preliminary data indicates Van Wert (Van Wert County) has received 27.88 inches of precipitation during June and July, around 19.5 inches above normal and only about 9 inches less than the normal annual amount. Other stations reporting more than 20 inches during June and July are: Fort Recovery (Mercer County), 23.79 inches and St. Marys (Auglaize County), 21.54 inches.

SUMMARY

Precipitation during July was generally above normal in the western half of the state and below normal in the eastern half. Streamflow was above normal statewide and high enough to be considered excessive. Several gauging stations were at record or near-record levels for July. Reservoir storage decreased but remained above normal. Ground water levels exhibited unusual net rises for July and were above normal throughout most of the state. Lake Erie level rose 0.69 foot and was 1.41 feet above the long-term July 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.

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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