MONTHLY WATER INVENTORY REPORT FOR OHIO

January 2016

Compiled By Scott C. Kirk
Hydrologist, Water Inventory Unit
http://soilandwater.ohiodnr.gov/water-use-planning/water-inventory-levels

PRECIPITATION during January was below normal throughout the state; only a few scattered locations in northeastern Ohio had above normal precipitation. The state average was 1.36 inches, 1.20 inches below normal. Preliminary data indicate this was the eleventh driest January for the state in the past 134 years. Regional averages ranged from 1.62 inches, 0.94 inch below normal, for the Northeast Region to 1.14 inches, 1.78 inches below normal, for the South Central Region. This was the seventh driest January on record for the South Central Region, eighth driest for the Southwest Region and the ninth driest for both the Central and Central Hills regions. Chardon (Geauga County) reported the greatest amount of January precipitation, 3.69 inches. Willard (Huron County) reported the least amount, 0.35 inch. Several locations across the state reported less than 1 inch of precipitation in January.

Precipitation during January fell as rain and snow. Snow amounts were near to below normal throughout most of the state, but above normal in the snowbelt counties of northeastern Ohio and in some areas in south-central and southeastern Ohio. Chardon (Geauga County), located in the snowbelt, reported 49.4 inches of snow for January, about 21 inches above normal. The first week of the month was dry with just light snow showers reported across some of the state. The bulk of the month's precipitation for most of the state fell during the next two weeks of January with generally between 0.75 and 1.5 inches of precipitation reported, and more than 3 inches in the snowbelt region. Precipitation fell as rain on January 8 and 9 and as rain and snow on the 10th. Several locations recorded their first measurable snow of the season on the 10th, making this the latest date for the season's first measurable snowfall at some locations. More light snow fell on January 12 and 13 with most areas receiving 1-3 inches of snow; heavier snow in the snowbelt counties brought around 1 foot of snow to the area. Another 1-3 inches of snow fell across much of the state on January 20; however, several days with heavy snow in the northeast Ohio snowbelt brought more than 2 feet of snow across the area. Conditions were dry during the last ten days of the month throughout most of the state with just some light precipitation on a few days. Precipitation associated with a large storm system that moved up the east coast produced more than 10 inches of snow at some locations in the south-central and southeastern part of the state on January 22 and 23.

Precipitation for the 2016 water year is below normal across most of the state with only the West Central and Southwest regions having above normal precipitation. The state average is 10.51 inches, 0.68 inch below normal. Regional averages range from 12.94 inches, 0.85 inch above

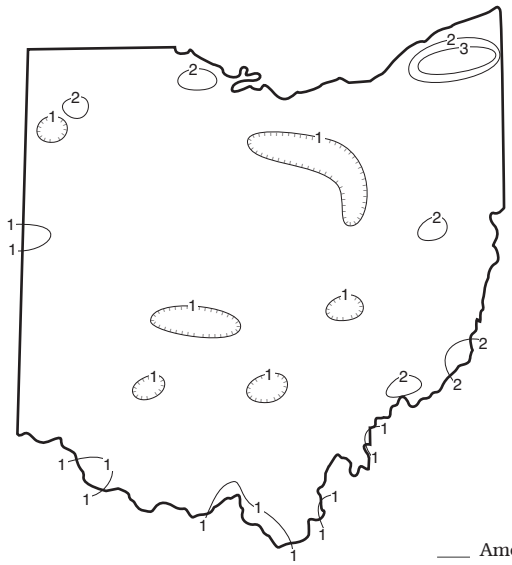
(continued on back)

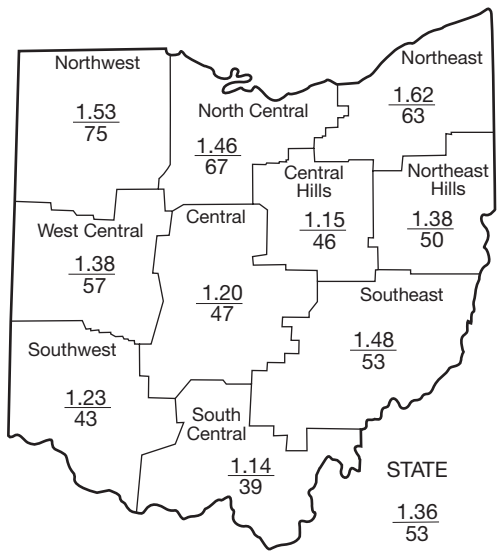
PRECIPITATION

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	-0.51	-0.57	-2.19	+5.94	+4.50	+0.7
North Central	-0.72	-0.80	-0.91	+1.66	+2.14	+1.5
Northeast	-0.94	-1.63	-3.00	+0.29	+6.88	-0.6
West Central	-1.03	+0.43	-0.97	+5.48	+5.08	+0.1
Central	-1.34	-0.36	-2.15	+1.13	-0.29	-0.9
Central Hills	-1.35	-1.05	-2.74	-0.05	+2.34	-0.9
Northeast Hills	-1.38	-2.11	-3.75	-0.58	+3.73	-2.1
Southwest	-1.63	+0.18	-0.41	+4.09	+2.05	+0.6
South Central	-1.78	-0.38	-1.65	+4.31	+1.90	-1.2
Southeast	-1.33	-1.18	-1.43	+1.78	+0.33	-2.2
State	-1.20	-0.75	-1.93	+2.39	+2.85	

*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 JANUARY





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	904	70	63	59	98
Great Miami River at Hamilton	3,630	5,879	145	127	118	137
Huron River at Milan	371	530	112	91	83	126
Killbuck Creek at Killbuck	464	493	98	74	71	97
Little Beaver Creek near East Liverpool	496	876	154	87	77	110
Maumee River at Waterville	6,330	7,038	140	77	69	138
Muskingum River at McConnelsville	7,422	7,086	86	62	57	90
Scioto River near Prospect	567	751	167	97	88	150
Scioto River at Higby	5,131	7,284	123	103	94	117
Stillwater River at Pleasant Hill	503	516	118	128	114	136

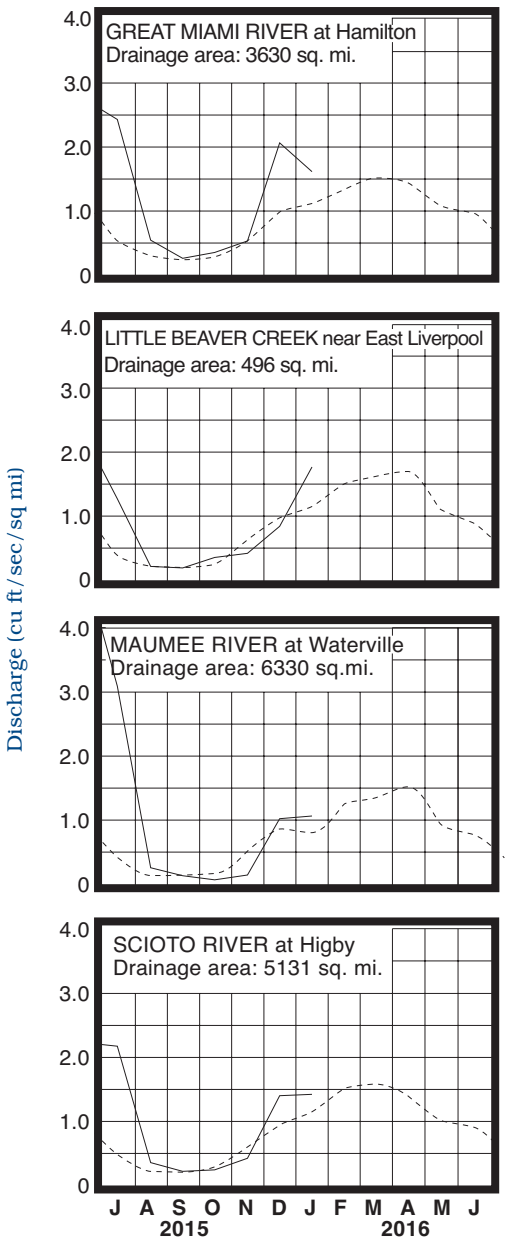
STREAMFLOW during January was above normal throughout western Ohio and below normal across much of eastern Ohio. Flows increased from December in much of the state, but declined in basins in southwestern and northeastern Ohio.

Flows at the beginning of the month were noticeably above normal statewide, still responding to the runoff of precipitation of late December. Most areas had their greatest flows for January at the start of the month. Following these peaks, flows declined steadily throughout the month except for some rises noted following local precipitation. A few areas, mainly in north-central and east-central Ohio, had their greatest flows for January just after mid-month. Lowest flows for the month were observed near the end of January throughout most of the state. Flows at the end of January were below normal throughout most of Ohio with just a few areas in east-central Ohio having above normal flows.

RESERVOIR STORAGE for water supply in both the Mahoning and Scioto river basins declined during January. Storage was above normal in both basins.

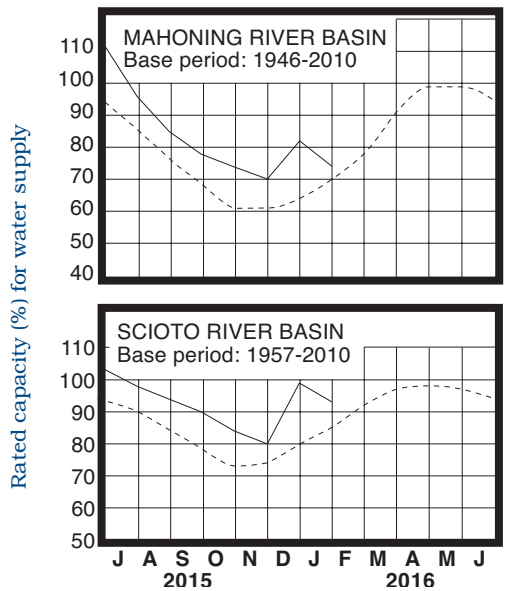
Reservoir storage at the end of January in the Mahoning basin index reservoirs was 74 percent of rated capacity for water supply compared with 82 percent for last month and 76 percent for January 2015. Month-end storage in the Scioto basin index reservoirs was 93 percent of rated capacity for water supply compared with 99 percent for last month and 85 percent for January 2015.

MEAN STREAM DISCHARGE



Base period for all streams: 1981-2010

RESERVOIR STORAGE FOR WATER SUPPLY



Normal – – – – Current ———

GROUND-WATER LEVELS

GROUND WATER levels during January rose in most aquifers in the state. Generally, net changes from last month's level were near or greater than usually expected.

Even with the below normal precipitation during January, ground water supplies remain adequate throughout Ohio. Ground water levels are near to above normal throughout most of the state, but tend to be below normal in many northeastern and east-central Ohio aquifers. Current levels are higher than they were a year ago across most of the state, but are also lower in many northeastern and east-central Ohio aquifers.

Although ground water supplies are adequate statewide, additional recharge during the next few months would help in maintaining that favorable position. With near-normal precipitation and other climatic conditions during this time period, ground water supplies should continue to improve and maintain their favorable position.

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

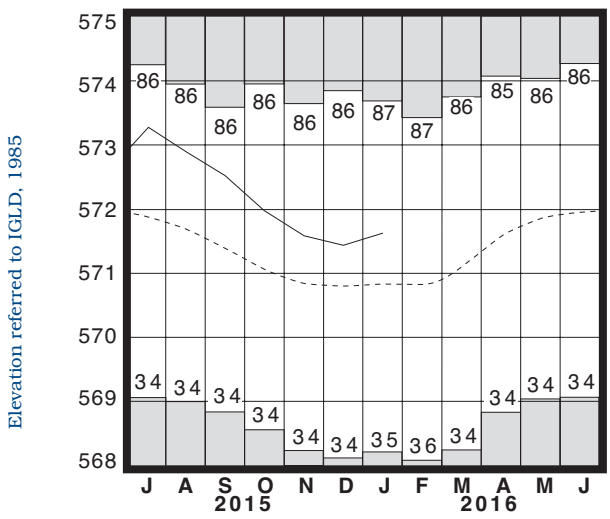
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	14.09	+1.40	+1.96	+2.10
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.20	-0.22	+0.19	+1.47
Fr-10	Columbus, Franklin Co.	Gravel	42.04	+1.92	+0.54	+0.94
H-1	Harrison, Hamilton Co.	Gravel	21.75	+0.37	+1.26	+1.29
Hn-2a	Dola, Hardin Co.	Dolomite	7.74	+0.83	+1.49	+1.14
Po-124	Freedom, Portage Co.	Sandstone	77.49	-0.67	-0.02	-0.46
Tu-1	Strasburg, Tuscarawas Co.	Gravel	14.55	-1.37	+0.86	-0.72

LAKE ERIE level rose during January. The mean level was 571.62 feet (IGLD-1985), 0.20 foot above last month's mean level and 0.79 foot above normal. This month's level is 0.23 foot above the January 2015 level and 2.42 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during January averaged 2.48 inches, which is normal. For the entire Great Lakes basin, January precipitation averaged 3.12 inches, 0.92 inch 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 near-normal to about 18 inches above the normal seasonal average.

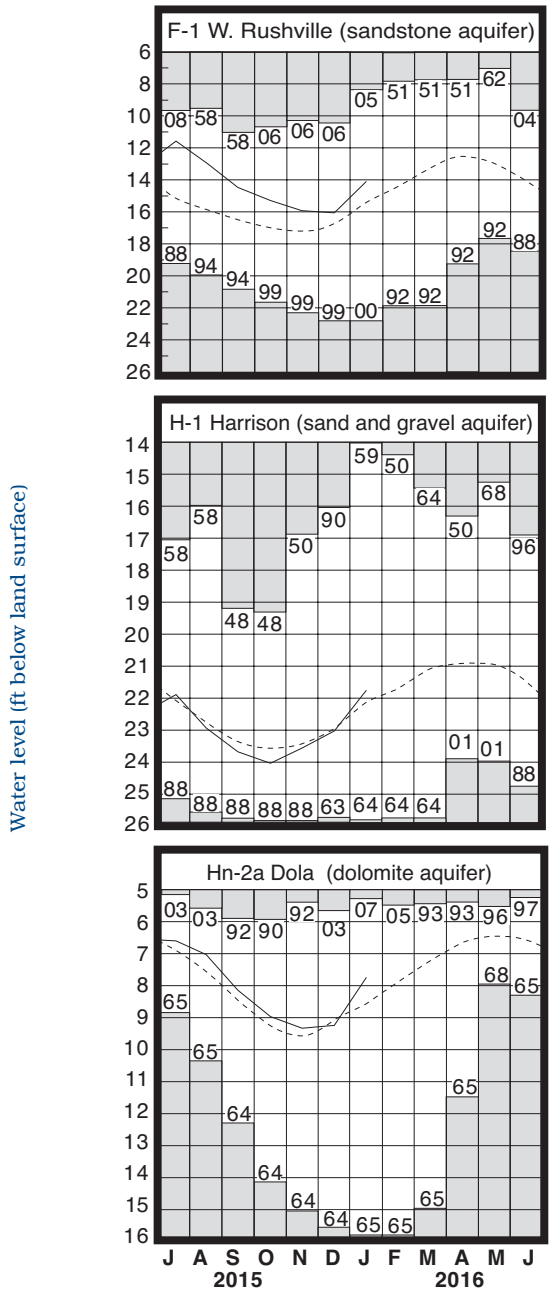
LAKE ERIE LEVELS



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)

normal, for the Southwest Region to 8.94 inches, 0.95 inch below normal, for the Northwest Region.

The 2016 calendar year is not off to an exceptionally good start as far as precipitation is concerned, but several months remain with the potential for additional recharge. Near normal precipitation during this period should be adequate for replenishing the state's water supplies.

SUMMARY

Precipitation during January was below normal throughout most of the state. Streamflow was above normal in western Ohio and below normal in most of eastern Ohio. Reservoir storage declined but remained above normal. Ground water levels rose in most aquifers in the state. Lake Erie level rose 0.20 foot and was 0.79 foot above the long-term January average.

NOTES AND COMMENTS

NOTE: Effective January 1, 2016, and in accordance with Amended Substitute House Bill Number 64 of the 131st General Assembly, all programs and staff related to soil and water conservation have been moved to the Ohio Department of Agriculture. All programs and staff related to storm water issues have been moved to the Ohio Environmental Protection Agency, and all programs and staff related to silviculture were moved to the Ohio Department of Natural Resources (ODNR) Division of Forestry. All remaining water resource related programs and staff in ODNR's Division of Soil and Water Resources have become the Division of Water Resources.

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.

Ohio Department of Natural Resources Celebrates National Ground Water Awareness Week

The week of March 6-12, 2016 is National Ground Water Awareness Week. During this week, Ohioans are encouraged to learn more about the state's ground water resources, from wise use to protection. Nearly half of all cities, villages, schools, businesses and industries in Ohio depend on ground water for their drinking, processing and irrigation needs. Almost five million people in Ohio drink ground water provided by community public water systems and almost one million more meet their daily water needs using ground water from private wells.

Ground water resources will become even more valuable in the years ahead as Ohio and other states cope with increasing water demands and ground water contamination due to poor land use planning and water management practices. The ODNR, Division of Water Resources, Water Resources Section collects, researches, interprets and disseminates information on 140 ground water observation wells located across the state; it also 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. In addition, the section 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 Water Resources, please visit their website at: http://water.ohiodnr.gov/.

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.

Ohio Department of Natural Resources
Division of Water Resources
2045 Morse Road
Columbus, Ohio 43229-6693