



MONTHLY WATER INVENTORY REPORT FOR OHIO

September 2015

Compiled By Scott C. Kirk

Hydrologist, Water Inventory Unit

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

PRECIPITATION during September was generally above normal in eastern Ohio and below normal in western Ohio. The state average was 3.06 inches, 0.11 inch below normal. Regional averages ranged from 4.95 inches, 1.75 inches above normal, for the Southeast Region to 1.48 inches, 1.38 inches below normal, for the West Central Region. Pike Island Locks and Dam (Belmont County) reported the greatest amount of September precipitation, 7.55 inches. Wheeling, West Virginia, located across the Ohio River from Belmont County reported 8.32 inches for the month. New Carlisle (Clark County) reported the least amount, 0.69 inch. Several locations in southwestern Ohio reported less than one inch of precipitation in September.

Scattered showers and thunderstorms on September 3 and 4 were most numerous in the northern half of the state. Many locations received 1 inch of rain; some areas, especially in Allen, Hardin, Union and Delaware counties, reported more than 1.5 inches. Rain on September 9 and 10 was confined to counties from south-central to east-central Ohio with amounts ranging from 0.5 inch to around 2 inches. Showers and a few thunderstorms were more widespread during September 11-12. Generally, the eastern half of the state received more than 1 inch of rain while the western half received less than 0.5 inch. Light showers fell during September 18-19 with the greatest amounts observed in northwestern Ohio. Conditions were dry during the next week throughout the state. The weather was ideal for this year's Farm Science Review held in Madison County during September 22-24. Precipitation was widespread in the southeastern half of Ohio during September 27-30 with amounts of at least 1 inch reported throughout most of this area. The month's heaviest rains occurred on September 29 with counties along the Ohio River in east-central and southeastern Ohio reporting 2-3 inches; areas in Belmont County reported more than 4 inches of rain. Precipitation was much lighter across the northwestern half of the state with amounts of less than 0.25 inch common.

Precipitation for the 2015 calendar year is above normal statewide. The state average is 33.55 inches, 3.14 inches above normal. Regional averages range from 36.76 inches, 4.08 inches above normal, for the South Central Region to 30.96 inches, 2.85 inches above normal, for the North Central Region.

Precipitation for the 2015 water year was above normal throughout most of Ohio with only the Central and Central Hills regions having slightly below normal precipitation. The state average was 40.91 inches, 1.87 inches above normal. Regional averages ranged from 46.54 inches, 5.03 inches above normal, for the South Central Region to 36.96 inches,

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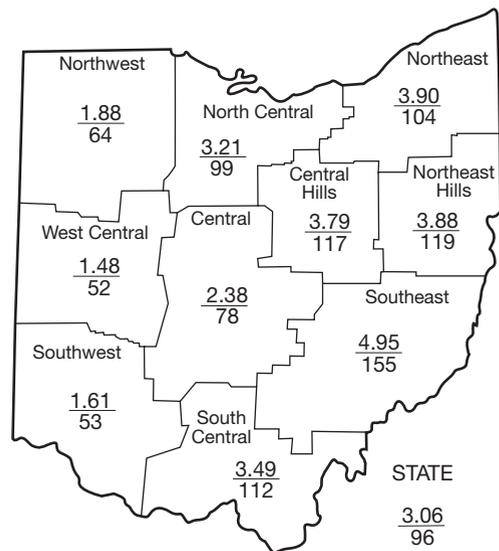
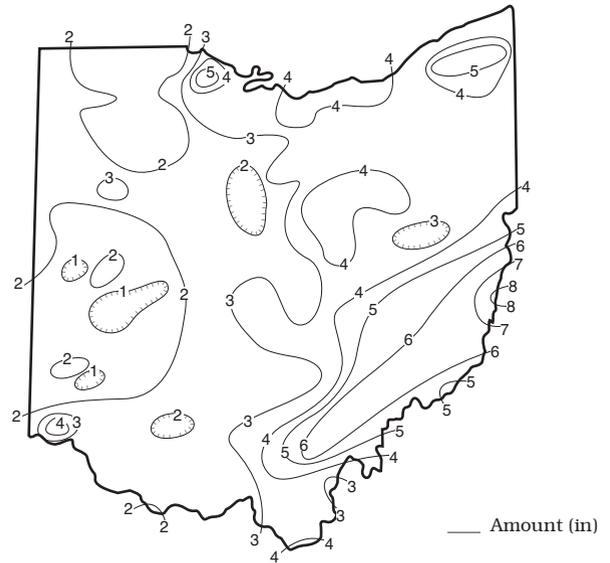
PRECIPITATION

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	-1.05	+1.40	+8.32	+4.46	+6.99	+1.6
North Central	-0.04	-0.23	+3.42	+0.80	+4.64	+1.2
Northeast	+0.15	-2.29	+2.74	+1.79	+10.67	-0.4
West Central	-1.38	-0.08	+4.77	+2.46	+6.63	-1.3
Central	-0.66	-1.42	+1.48	-0.55	+2.10	-2.3
Central Hills	+0.55	-2.93	+1.34	-0.75	+5.03	-2.2
Northeast Hills	+0.63	-2.27	+2.00	+0.07	+7.47	-1.4
Southwest	-1.43	+0.04	+3.68	+2.25	+3.84	-0.3
South Central	+0.36	+0.91	+4.36	+5.03	+3.77	-1.3
Southeast	+1.75	-0.66	+3.18	+3.31	+3.63	-1.8
State	-0.11	-0.75	+3.52	+1.87	+5.44	

*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 SEPTEMBER



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	177	154	135	137	111
Great Miami River at Hamilton	3,630	983	112	211	157	118
Huron River at Milan	371	69.7	106	162	114	111
Killbuck Creek at Killbuck	464	138	127	136	112	93
Little Beaver Creek near East Liverpool	496	96.5	96	111	127	108
Maumee River at Waterville	6,330	826	94	305	215	132
Muskingum River at McConnelsville	7,422	1,704	90	112	120	90
Scioto River near Prospect	567	54	165	255	210	127
Scioto River at Higby	5,131	1,080	100	209	140	104
Stillwater River at Pleasant Hill	503	68.5	149	268	167	114

STREAMFLOW during September was above normal in many areas of the state, but below normal in northwestern and southeastern Ohio drainage basins. Flows in most areas during September were lower than the flows during August, but were greater in some basins in central and northeast Ohio.

Flows at the beginning of the month were below normal across much of the state, but above normal in basins in the southwestern quarter of Ohio. Greatest flows for the month were observed during the first week of September in the western half of the state and just before mid-month in the eastern half. A few basins in extreme eastern Ohio recorded their greatest flows for the month on the last day as a result of heavy rain that fell near the end of September. Lowest flows for the month

occurred around mid-month in some northwestern and northeastern Ohio basins, and during September 26-28 elsewhere. Flows at the end of September were below normal throughout most of the state, but above normal in southwestern and east-central areas of Ohio.

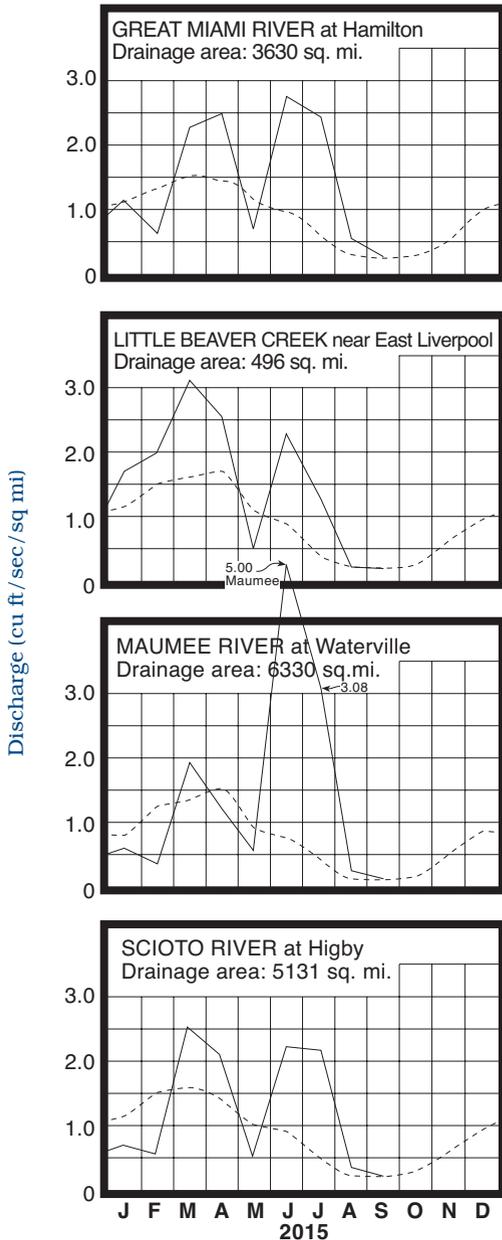
Streamflow for the 2015 water year was above normal throughout most of the state, but below normal in a few areas in eastern Ohio. (see Mean Stream Discharge table, percent of normal, past 12 months column). Flows during the first five months of the water year were below normal throughout most of the state. Flows increased to above normal across most of Ohio during March and April, but below normal precipitation during May resulted in streamflow being below normal statewide during May. Record and near-record rainfall during June resulted in record and near-record streamflow across the state. The Maumee River at Waterville and the Scioto River near Prospect recorded their greatest monthly June flows. July's flows were less than the June flows, but remained above normal and high enough to be considered excessive. Flows during August were above normal in the western half of Ohio. Flooding occurred during March, April, June and July, and while most of the flooding was minor, some moderate flooding occurred in areas of northern Ohio during both March and June.

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

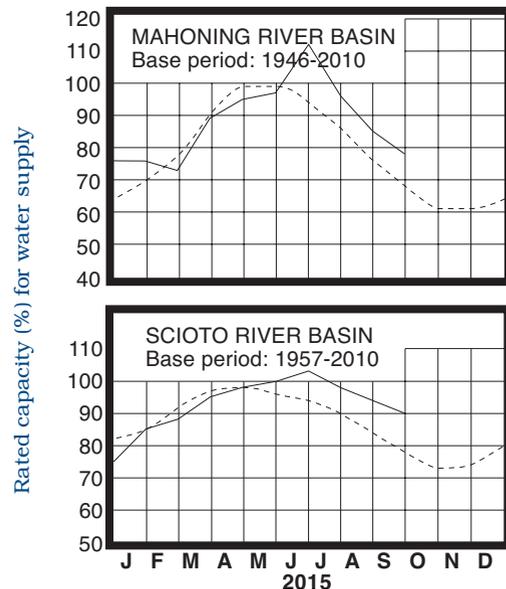
Reservoir storage at the end of September in the Mahoning basin index reservoirs was 78 percent of rated capacity for water supply compared with 85 percent for last month and 83 percent for September 2014. Month-end storage in the Scioto basin index reservoirs was 90 percent of rated capacity for water supply compared with 94 percent for last month and 88 percent for September 2014.

Surface water supplies were adequate throughout the 2015 water year. Storage at the beginning of the water year was above normal. Storage decreased to below normal during the winter months as precipitation

MEAN STREAM DISCHARGE



RESERVOIR STORAGE FOR WATER SUPPLY



Normal - - - - Current ———

GROUND-WATER LEVELS

and streamflow were below normal. Storage remained below normal through late spring. Reservoir storage increased to above normal during the late spring and early summer as above normal precipitation resulted in ample streamflow and lower demand. Surface water supplies remained at above normal levels through the end of the 2015 water year.

GROUND WATER levels during September declined seasonally from last month's levels in aquifers across the state. Declines during September were greater than usually observed in most aquifers. Levels declined steadily throughout the month, but stabilized in some aquifers in eastern Ohio during the last week.

The 2015 water year was adequate for ground water supplies. The water year started with ground water storage at above normal levels across eastern Ohio and below normal in western Ohio. However, below normal precipitation throughout most of the state from November through February was not ideal for ground water with recharge rates being less than usually expected. By December, ground water levels were below normal throughout most of the state. Ground water supplies remained below normal throughout the winter and spring months. The much above normal rainfall that fell during June improved the ground water situation considerably. By the end of July, ground water levels were near or above normal statewide. Ground water storage declined seasonally during August and September. However, the rate of decline was accelerated in some aquifers due to the below normal rainfall that parts of the state experienced the past two months. At the end of September, ground water levels were slightly below normal across many areas of the state, but remained at above normal levels in aquifers in northwestern, central and southeastern Ohio. Current ground water levels are generally higher than those observed last year throughout much of the state, but are lower in some eastern and northeastern Ohio aquifers.

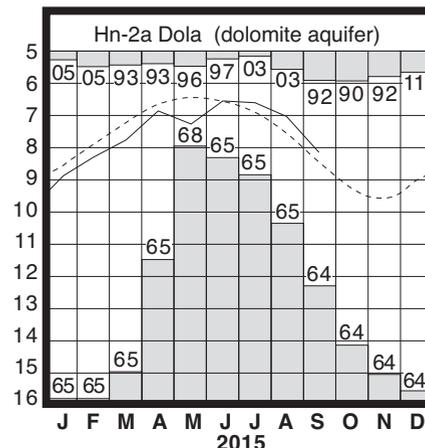
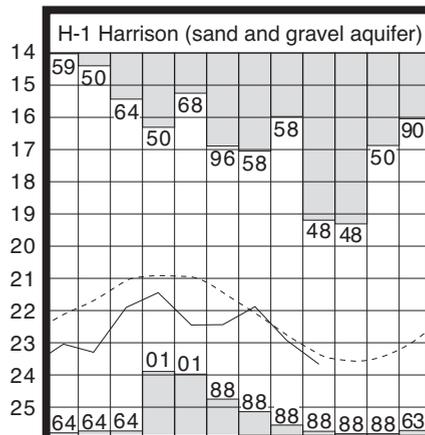
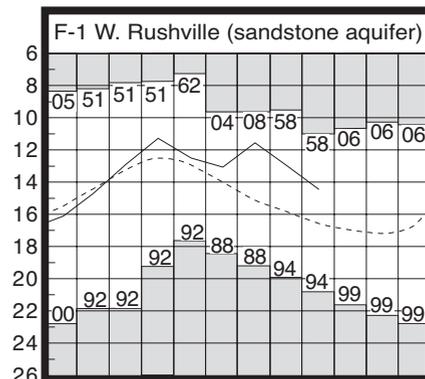
LAKE ERIE level declined during September. The mean level was 572.51 feet (IGLD-1985), 0.39 foot below last month's mean level and 1.12 feet above normal. This month's mean level is 0.63 foot above the September 2014 level and 3.31 feet above Low Water Datum.

Lake Erie's level was above the long-term average throughout most of the 2015 water year, being below normal during March only. Levels were near-normal during April and May; however, levels rose substantially as a result of record precipitation that fell across the Lake Erie basin during June. Lake levels rose to 1.4 feet above normal during July, and have remained more than 1 foot above the long-term average the remainder of the water year. 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 as much as 23 inches above the normal seasonal average.

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

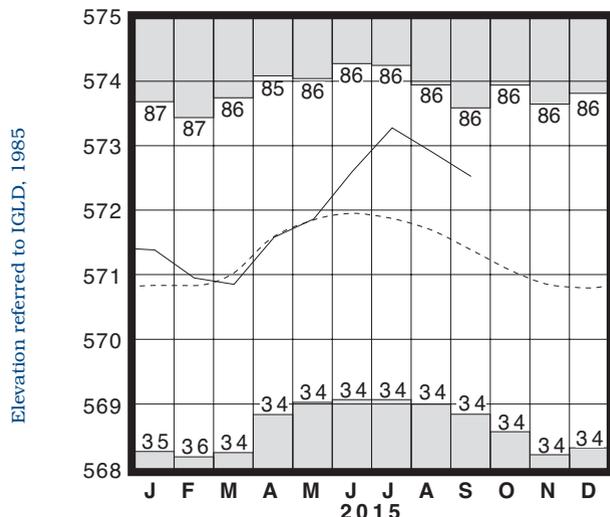
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	14.45	+2.04	-1.49	+0.74
Fa-1	Jasper Mill, Fayette Co.	Limestone	9.42	-0.41	-0.64	+0.89
Fr-10	Columbus, Franklin Co.	Gravel	42.43	+2.34	-0.41	+0.70
H-1	Harrison, Hamilton Co.	Gravel	23.67	-0.32	-0.76	+0.34
Hn-2a	Dola, Hardin Co.	Dolomite	8.14	+0.32	-1.04	+0.63
Po-124	Freedom, Portage Co.	Sandstone	76.94	-0.07	-0.35	-0.06
Tu-1	Strasburg, Tuscarawas Co.	Gravel	14.44	-0.57	-0.89	-2.78

GROUND-WATER LEVELS



Water level (ft below land surface)

LAKE ERIE LEVELS



Base period: 1918-2010

■ Record high and low, year of occurrence

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)

0.80 inch above normal, for the North Central Region (see Precipitation table, departure from normal, past 12 months column). Lima (Allen County) reported the greatest amount of precipitation for the 2015 water year, 53.92 inches. Napoleon (Henry County) reported the least amount, 29.65 inches.

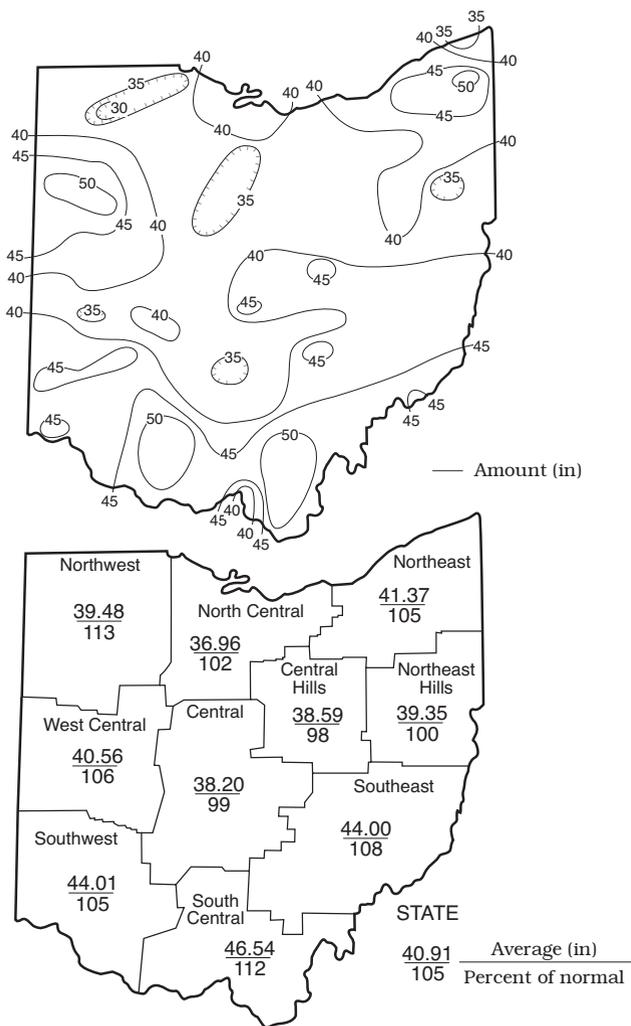
The 2015 water year started off favorably as far as water supplies are concerned with near to above normal precipitation during October. Conditions were less favorable during the late autumn through winter period as precipitation was generally below normal during the next four months, reducing the rate of recharge to water supplies. Precipitation was above normal across most of the state during March and April, followed by below normal conditions during May. June had record and near-record precipitation, ranking it as the wettest on record for the state. Conditions were much drier in the eastern half of Ohio during July, but the western half continued to be wet. This was the fourth wettest July of record for the Northwest Region. August precipitation was below normal across most of the state with only the Southwest Region having above normal precipitation. The water year ended with precipitation during September being above normal in eastern Ohio and below normal in western Ohio.

SUMMARY

Precipitation for September was above normal in eastern Ohio and below normal in western Ohio. Streamflow was above normal in many areas of the state, but below normal in northwestern and southeastern Ohio drainage basins. Reservoir storage declined but remained above normal. Ground water storage declined and is at slightly below normal levels across much of the state. Lake Erie level declined 0.39 foot and was 1.12 feet above the long-term September average.

Precipitation for the 2015 water year was above normal throughout most of Ohio. Streamflow was above normal across most of the state and reservoir storage was above normal levels at the water year's end. Ground water supplies were adequate throughout the water year and Lake Erie was above the long-term average throughout most of the water year.

PRECIPITATION 2015 WATER YEAR



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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Ohio Department of Natural Resources

Division of Soil and Water Resources

2045 Morse Road

Columbus, Ohio 43229-6693

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