



MONTHLY WATER INVENTORY REPORT FOR OHIO

July 2014

Compiled By Scott C. Kirk

Hydrologist, Water Inventory Unit

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

PRECIPITATION during July was below normal across most of the state but above normal in the Northeast and Northeast Hills regions. Scattered locations throughout Ohio also had above normal precipitation. The state average was 3.42 inches, 0.71 inch below normal. Regional averages ranged from 4.59 inches, 0.56 inch above normal, for the Northeast Region to 2.19 inches, 1.54 inches below normal, for the Northwest Region. Chardon (Geauga County) reported the greatest amount of July precipitation, 7.79 inches. Toledo Express Airport (Lucas County) reported the least amount, 0.83 inch.

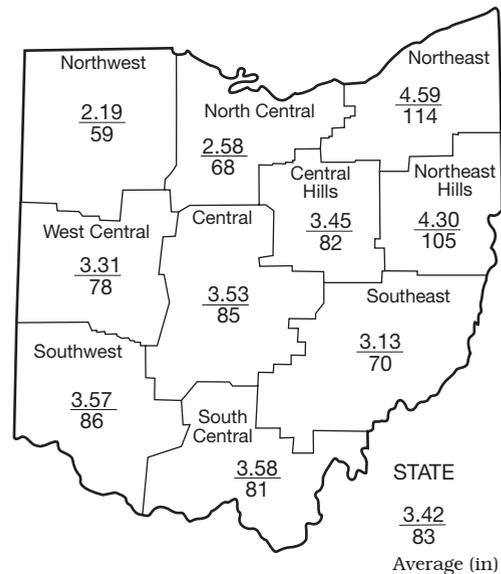
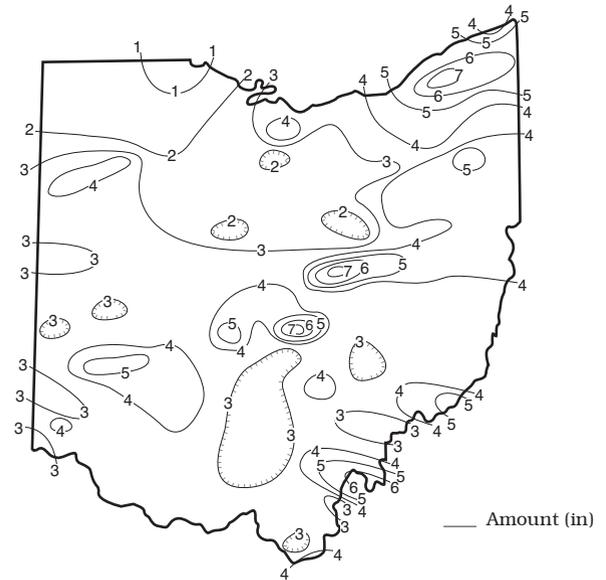
Precipitation during July fell in typical summer fashion as scattered showers and thunderstorms, some containing locally heavy downpours. Most of Ohio received rain during the first three days of the month. Storms on July 1 produced heavy rain from the southwest through central sections of the state. Amounts of around 3 inches were reported at some locations within this area with minor flooding reported, especially in the Buckeye Lake region in Licking County where several roads were flooded. Storms were common during July 7-9 in many parts of Ohio. Most of the state reported between 0.5 and 1.5 inches of precipitation, but less fell in northwestern and southwestern Ohio. Storms were again common during July 13-15 with the greatest amounts of more than 1.5 inches being reported in the southern half of the state. Some minor flooding occurred, especially in the central Ohio area. Most areas of the state received between 0.25 and 0.5 inch of rain during July 18-19 with isolated areas in north-central Ohio reporting more than 1 inch and little or no rain falling in areas of northwestern Ohio. Showers and thunderstorms on July 23 brought some much needed rain to northwestern Ohio with most of western Ohio reporting more than 0.5 inch of precipitation. Showers and thunderstorms fell on several days during the last eight days of the month, but northwestern Ohio continued to be rather dry. Many of these storms were locally severe producing hail, high winds and heavy rain. Severe storms occurred on July 27, including tornadoes in Champaign and Highland counties. More than 4 inches of rain fell in Geauga County; several roads and basements in Geauga County were flooded as a result of the excessive rainfall.

Precipitation for the 2014 water year is above normal statewide. The state average is 36.38 inches, 4.09 inches above normal. Regional averages range from 40.08 inches, 7.80 inches above normal, for the Northeast Region to 29.69 inches, 0.91 inch above normal, for the Northwest Region.

Precipitation for the 2014 calendar year is above normal across much of the state, but generally below normal in the southern one-third and

(continued on back)

PRECIPITATION JULY



PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) Base period 1961-2010					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	-1.54	-1.62	-0.77	-1.12	+4.34	-0.6
North Central	-1.24	+1.46	+2.82	+3.72	+15.54	+2.8
Northeast	+0.56	+4.54	+5.51	+6.87	+16.01	+1.3
West Central	-0.93	+1.08	+2.60	+3.64	+7.05	-0.4
Central	-0.64	+1.67	+2.88	+3.34	+7.44	-0.5
Central Hills	-0.75	+2.67	+4.46	+3.92	+11.17	+0.5
Northeast Hills	+0.20	+3.81	+4.16	+3.36	+6.45	+0.5
Southwest	-0.58	-0.61	+0.02	+1.20	+1.03	-0.9
South Central	-0.83	-1.40	-0.02	-0.27	+0.86	-1.6
Southeast	-1.34	-0.87	+0.07	+0.80	+5.04	-0.9
State	-0.71	+1.06	+2.16	+2.52	+7.45	

*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

Average (in)
Percent of normal

MEAN STREAM DISCHARGE

This Month

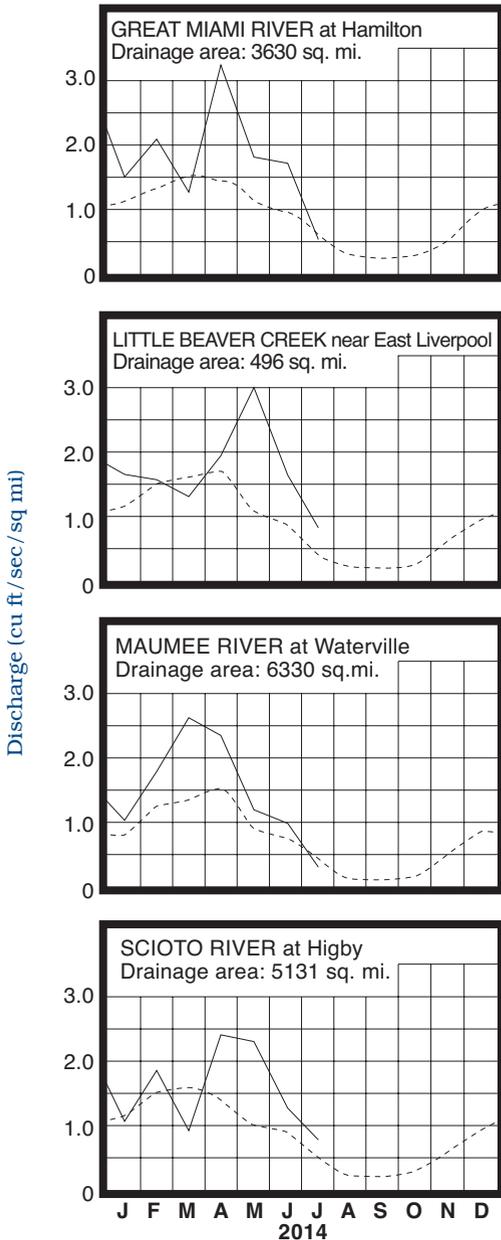
River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	493	231	162	116	120
Great Miami River at Hamilton	3,630	1,935	92	117	127	137
Huron River at Milan	371	124	134	154	169	175
Killbuck Creek at Killbuck	464	348	178	217	140	129
Little Beaver Creek near East Liverpool	496	413	221	191	125	111
Maumee River at Waterville	6,330	1,900	72	94	127	116
Muskingum River at McConnelsville	7,422	6,868	148	174	124	109
Scioto River near Prospect	567	155	96	137	124	142
Scioto River at Higby	5,131	3,983	158	134	116	117
Stillwater River at Pleasant Hill	503	170	80	92	109	116

STREAMFLOW during July was above normal in the eastern half of the state and below normal in the western half. Flows in northeastern Ohio were high enough to be considered excessive.

Flows at the beginning of the month were above normal across most of the state. Greatest flows for the month varied greatly across the state, but generally occurred near the beginning of the month in southern and areas of east-central Ohio, during July 9-10 in northwestern and west-central areas, and around July 28-29 in central and northeastern Ohio basins. Low flows for the month occurred at various times during the last week of the month, mainly around the July 26-29 period across most of the state and on the last day in west-central and north-central areas. Flows

at the end of the month were above normal in most eastern Ohio basins and below normal in western Ohio.

MEAN STREAM DISCHARGE

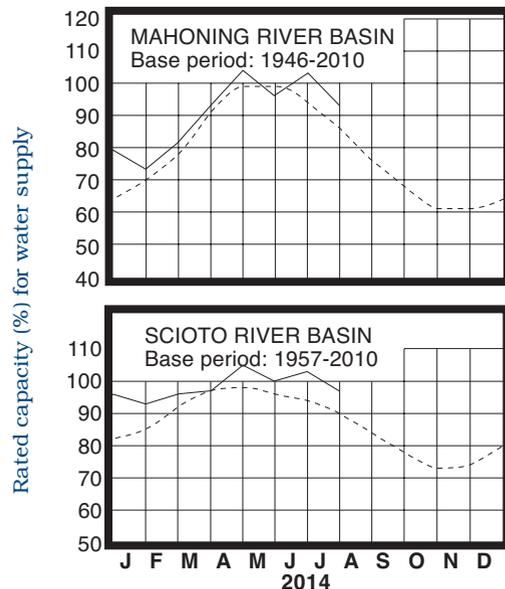


Base period for all streams: 1981-2010

RESERVOIR STORAGE for water supply during July decreased in both the Mahoning and Scioto river basins. Month-end storage remained above normal in both basins.

Reservoir storage at the end of July in the Mahoning basin index reservoirs was 93 percent of rated capacity for water supply compared with 103 percent for last month and 98 percent for July 2013. Month-end storage in the Scioto basin index reservoirs was 97 percent of rated capacity for water supply compared with 103 percent for last month and 99 percent for July 2013. Surface water supplies continue to be in excellent shape throughout the state.

RESERVOIR STORAGE FOR WATER SUPPLY



Normal - - - - Current ———

GROUND-WATER LEVELS

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

GROUND WATER levels during July declined in most aquifers throughout Ohio. A few exceptions were noted in some shallow aquifers in northeastern and east-central Ohio where levels rose slightly in response to above normal precipitation in those areas of the state. Generally, ground water levels declined throughout July in most aquifers.

Ground water storage is at above normal levels in eastern Ohio and below normal levels in western Ohio. Generally, current ground water levels are higher than the July 2013 levels in unconsolidated aquifers and lower in consolidated aquifers. Ground water supplies remain adequate throughout Ohio, but a continuation of below normal precipitation will increase the rate of seasonal decline until the recharge season begins. The Ohio Agricultural Statistics Service reports that soil moisture near the end of July was rated as being short or very short in 21 percent of the state, adequate in 67 percent of the state and surplus in 12 percent of the state.

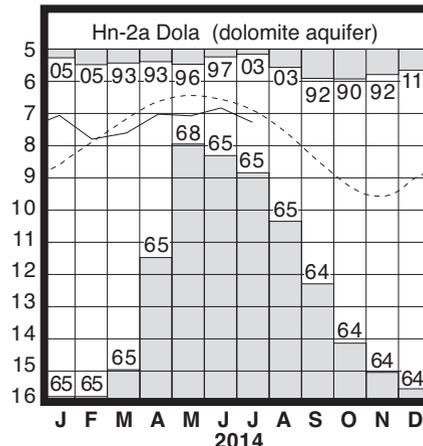
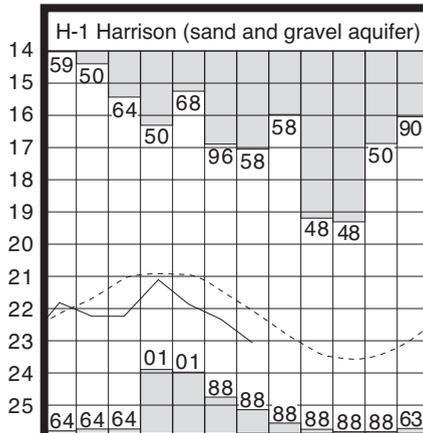
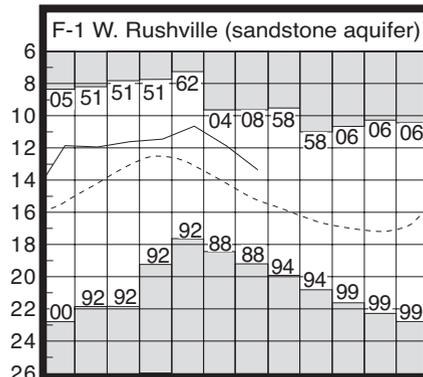
LAKE ERIE level remained stable during July. The mean level was 572.18 feet (IGLD-1985), which is unchanged from last month and 0.30 foot above normal. This month's level is 0.17 foot above the July 2013 level and 2.98 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during July averaged 3.52 inches, 0.13 inch above normal. For the entire Great Lakes basin, July precipitation averaged 3.51 inches, 0.35 inch above normal. For calendar year 2014 through July, the precipitation in the Lake Erie basin has averaged 20.24 inches, 0.48 inch below normal, while precipitation in the entire Great Lakes basin has averaged 18.96 inches, 0.87 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 as much as 15 inches above to around 7 inches below the normal seasonal level.

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	13.36	+1.76	-1.49	-0.05
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.73	-0.67	-0.12	-0.19
Fr-10	Columbus, Franklin Co.	Gravel	41.97	+1.68	-0.15	+1.44
H-1	Harrison, Hamilton Co.	Gravel	23.03	-0.94	-0.71	+0.17
Hn-2a	Dola, Hardin Co.	Dolomite	7.29	-0.39	-0.47	-1.13
Po-124	Freedom, Portage Co.	Sandstone	76.43	+0.02	-0.20	+0.24
Tu-1	Strasburg, Tuscarawas Co.	Gravel	11.74	+1.19	+0.07	+1.80

GROUND-WATER LEVELS



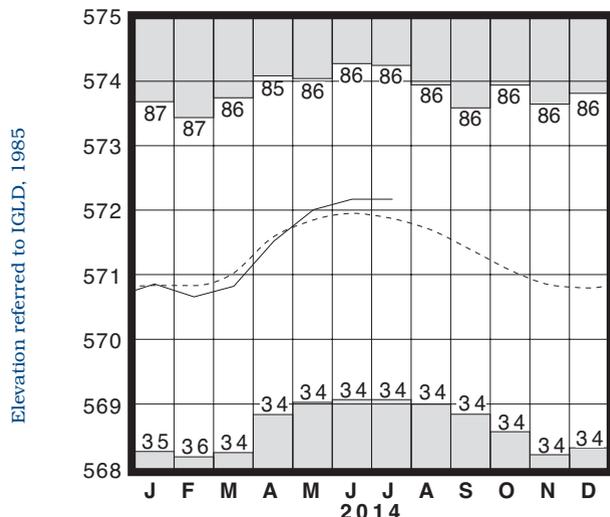
Water level (ft below land surface)

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

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

Normal - - - - Current ———

LAKE ERIE LEVELS



Base period: 1918-2010

■ Record high and low, year of occurrence

(Precipitation continued from front)

northwestern areas of Ohio. The state average is 25.40 inches, 1.74 inches above normal. Regional averages range from 27.86 inches, 5.20 inches above normal, for the Northeast Region to 20.31 inches, 0.62 inch below normal, for the Northwest Region.

SUMMARY

Precipitation during July was below normal in most of Ohio but above normal in the Northeast and Northeast Hills regions. Streamflow was above normal in the eastern half of the state and below normal in the western half. Reservoir storage decreased but remained above normal seasonal levels. Ground water storage declined in most aquifers. Ground water levels are above normal in eastern Ohio and below normal in western Ohio. Lake Erie level was unchanged during July and was 0.30 foot above the long-term July average.

NOTES AND COMMENTS

Former Division Of Water Employee Passes

We are saddened to report that Charles (Chuck) Hahn, a former employee of the Division of Water, passed away on July 14. He was 88 years old. Chuck retired from the Division of Water on July 31, 1988 ending a career of 38 years of public service with the Ohio Department of Natural Resources. He was a hydraulic engineer in the Dam Safety and Water Engineering Section and served in many capacities including dam permitting and water resource engineering. Chuck served as section head and special projects coordinator within the section. Chuck was born on September 9, 1925 in Vermilion, Ohio. He was a veteran of World War II, serving in the US Navy. Chuck is survived by his wife of 65 years, six children, ten grandchildren and eight great-grandchildren.

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

John Kasich
Governor

James Zehninger
Director

Mike Bailey
Chief

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