



MONTHLY WATER INVENTORY REPORT FOR OHIO

July 2010

<http://www.ohiodnr.gov/tabid/4191/Default.aspx>

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Hydrologist
Water Inventory Unit

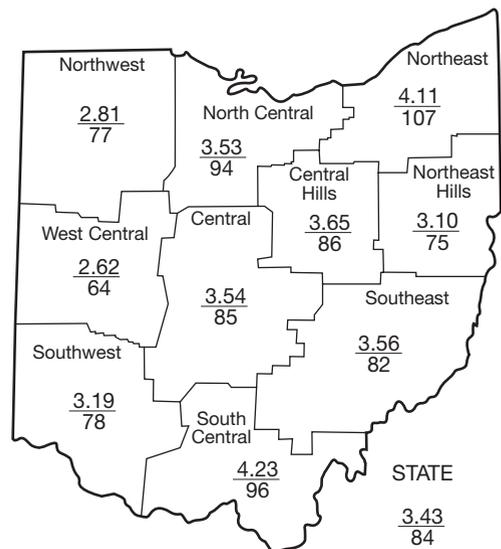
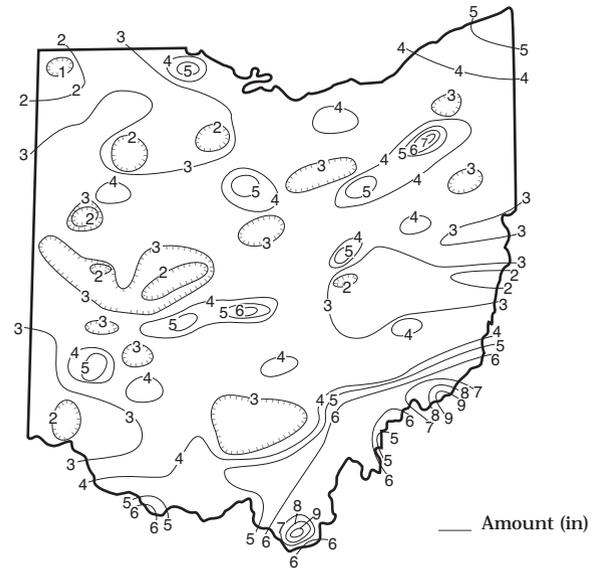
PRECIPITATION during July was below normal throughout most of the state, but above normal in the Northeast Region and at a few other locations, mainly in south-central and southeastern Ohio. The state average was 3.43 inches, 0.65 inch below normal. Regional averages ranged from 4.23 inches, 0.18 inch below normal, for the South Central Region to 2.62 inches, 1.49 inches below normal, for the West Central Region. Newport (Washington County) reported the greatest amount of July precipitation, 9.42 inches. South Point (Lawrence County) also reported more than 9 inches for the month. Montpelier (Williams County) reported the least amount, 0.91 inch.

Precipitation during July fell in typical summer fashion as scattered showers and thunderstorms with locally heavy downpours. The first week of July was dry with little or no rain reported across the state. Most of Ohio received rain during July 8-9 with generally 0.50-1.0 inch reported and more than 1.5 inches at isolated areas in south-central Ohio, but lesser amounts in areas of northeastern and extreme northwestern Ohio. There were several days with rain during the last three weeks of July. However, the rains were often rather spotty and amounts varied widely across the state with some areas of Ohio receiving only light amounts of precipitation during this period. Storms during July 12-13 were most numerous in the southern half of the state with much of the area receiving around 1 inch of rain and scattered locations getting more than 3 inches. During July 18-19, storms crossed from west central to central Ohio and continued down through southeastern Ohio with some locations in the southeast receiving more than 3 inches of rain. A frontal boundary that stalled just south of Ohio allowed for several storms to track across the same area during July 20-21, including the Ohio River counties of southern Ohio. The hardest hit counties in Ohio were Lawrence and Scioto where more than 4 inches of rain was reported. Severe flooding in Scioto County damaged several buildings and killed one person. Storms during July 22-25 were most numerous across northern Ohio. Much of the northern half of the state received about 1 inch of rain during this period with some locations reporting as much as 3 inches. A few widely scattered showers and thunderstorms on July 28 brought 0.25-0.50 inch of rain to some parts of northern Ohio, but little or no rain elsewhere.

Precipitation during the 2010 water year is above normal in the northern half of the state and South Central Region, and below normal elsewhere. The state average is 32.54 inches, 0.91 inch above normal. Regional averages range from 37.28 inches, 3.39 inches above normal, for the South Central Region to 29.80 inches, 1.01 inches above normal, for the North Central Region.

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PRECIPITATION JULY



Average (in)
Percent of normal

PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) Base period 1951-2000					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	-0.86	+3.98	+3.94	+2.19	+3.85	-0.9
North Central	-0.21	+3.73	+2.65	-1.04	+0.52	-0.4
Northeast	+0.27	+2.42	+0.99	-0.42	+2.61	-2.0
West Central	-1.49	+2.05	+0.87	-1.19	-5.54	-0.5
Central	-0.61	+2.54	+0.83	+1.21	-2.38	-1.2
Central Hills	-0.60	+3.12	+1.67	+1.62	-2.20	-1.4
Northeast Hills	-1.03	+2.33	+0.99	-0.28	-5.04	-2.0
Southwest	-0.91	+2.72	+0.07	-0.88	-6.36	-0.4
South Central	-0.18	+7.24	+3.79	+3.04	+2.81	+0.4
Southeast	-0.79	+2.87	+0.13	-1.72	-4.11	-1.2
State	-0.65	+3.29	+1.58	+0.24	-1.62	

*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

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	112	56	102	82	82
Great Miami River at Hamilton	3,630	1,960	105	123	113	101
Huron River at Milan	371	51	48	108	77	63
Killbuck Creek at Killbuck	464	207	106	106	92	85
Little Beaver Creek near East Liverpool	496	159	68	124	119	100
Maumee River at Waterville	6,330	1,574	57	171	111	93
Muskingum River at McConnelsville	7,422	3,093	63	156	121	72
Scioto River near Prospect	567	190	119	128	92	80
Scioto River at Higby	5,131	2,158	79	109	93	93
Stillwater River at Pleasant Hill	503	198	122	140	122	96

STREAMFLOW during July was generally below normal across northern and southeastern Ohio and above normal in southwestern and central Ohio. Flows were low enough to be considered deficient in a few basins in northern and eastern Ohio. Flows for July were noticeably less than the flows recorded during June.

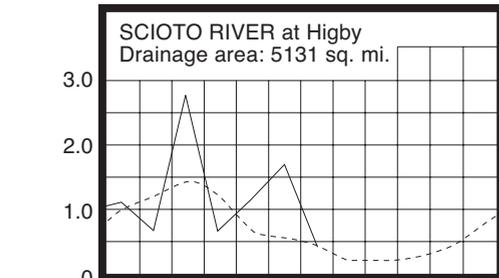
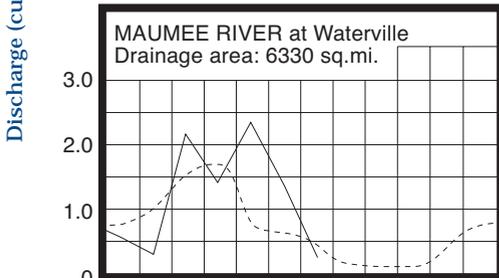
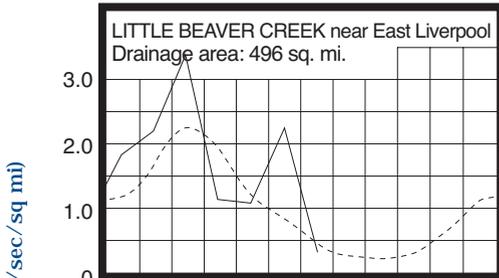
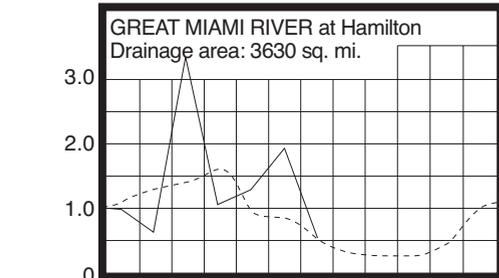
Flows at the beginning of July were below normal throughout most of the state. Greatest monthly flows were recorded at the beginning of the month across northwestern and southeastern Ohio. Flows declined during the first 9 days of July in response to a lack of precipitation throughout the state. Precipitation during the second week of the month resulted in an increase in flows across most of Ohio. Greatest flows for the month were observed in the

southwestern quarter of the state near the end of the second week. Flows declined during the following week and were at their lowest between July 19 and 22 in northern and eastern Ohio. An exception was in extreme southern Ohio where flows increased rapidly following the heavy rains that fell during July 20-21. Locally severe flooding occurred from Clermont east to Lawrence counties. Flows increased following precipitation that fell during July 22-25. Greatest flows for the month were established following this rain in northeastern Ohio. Flows declined during the last few days of July throughout most of the state and were below normal nearly statewide by the end of the month. Low flows for the month were observed on July 31 in the southwestern quarter of Ohio.

RESERVOIR STORAGE for water supply during July decreased in both the Mahoning and Scioto river basins. At the end of the month, storage was above normal in both basins.

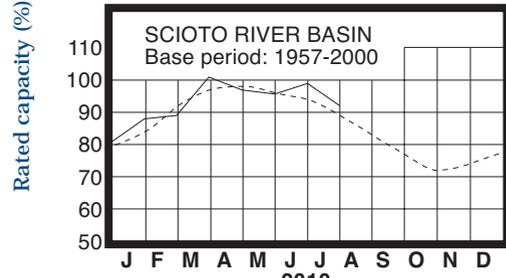
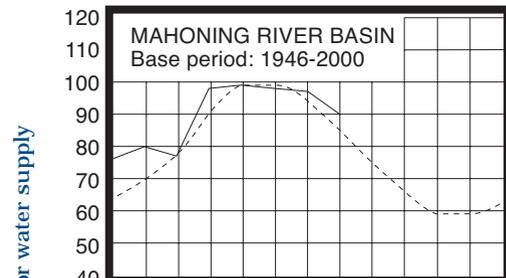
Reservoir storage at the end of July in the Mahoning basin index reservoirs was 90 percent of rated capacity for water supply compared with 97 percent for last month and 91 percent for July 2009. Month-end storage in the Scioto basin index reservoirs was 92 percent of rated capacity for water supply compared with 99 percent for last month and 95 percent for July 2009. Surface water supplies remain adequate throughout the state.

MEAN STREAM DISCHARGE



Base period for all streams: 1971-2000

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. Except for some temporary rises noted in shallower aquifers following local precipitation, ground water levels in most aquifers steadily declined throughout the month. Net ground water level declines during July were near the normally expected amount.

Ground water storage is at below normal levels in most of Ohio with only some consolidated aquifers in eastern Ohio being at above normal levels. Current levels are higher than they were during July 2009 throughout much of the state, but are lower in some consolidated aquifers in southern Ohio. Ground water supplies remain adequate throughout Ohio, and with near-normal precipitation and other climatic conditions during the next few months, supplies should continue to be adequate statewide. The Ohio Agricultural Statistics Service reports that near the end of July, soil moisture was rated as being short or very short in 37 percent of the state, adequate in 60 percent of the state, and surplus in 3 percent of the state.

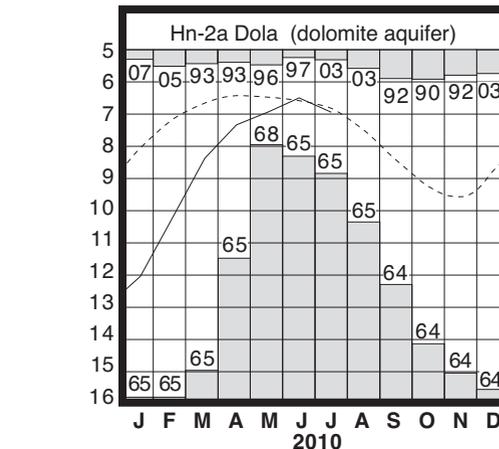
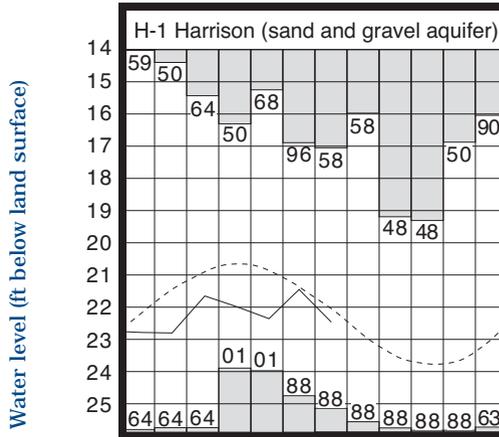
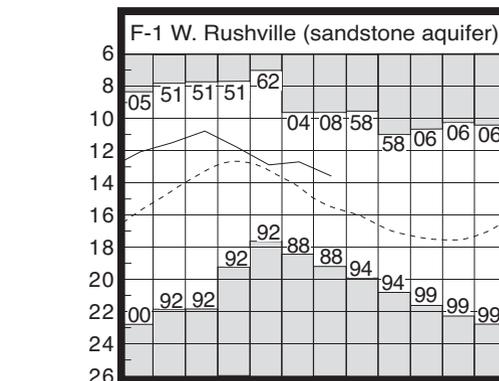
LAKE ERIE level declined during July. The mean level was 571.75 feet (IGLD-1985), 0.13 foot lower than last month's mean level and 0.17 foot below normal. This month's mean level is 0.49 foot lower than the July 2009 level and 2.55 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during July averaged 4.33 inches, 0.94 inch above normal. For the entire Great Lakes basin, July precipitation averaged 3.52 inches, 0.37 inch above normal. For calendar year 2010 through July, the Lake Erie basin has averaged 21.63 inches of precipitation, 1.00 inch above normal, while the entire Great Lakes basin has averaged 16.20 inches, 1.83 inches below normal.

In addition, the USACE reports that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should remain below normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from about 6 inches above to as much as 15 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	13.59	+1.83	-0.82	-0.69
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.48	-0.66	-0.17	-0.04
Fr-10	Columbus, Franklin Co.	Gravel	44.27	-0.99	-0.71	+0.74
H-1	Harrison, Hamilton Co.	Gravel	22.47	-0.42	-1.02	+0.94
Hn-2a	Dola, Hardin Co.	Dolomite	6.94	-0.11	-0.44	+0.75
Po-124	Freedom, Portage Co.	Sandstone	76.36	+1.38	-0.34	+0.02
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.61	-0.87	-0.14	+1.37

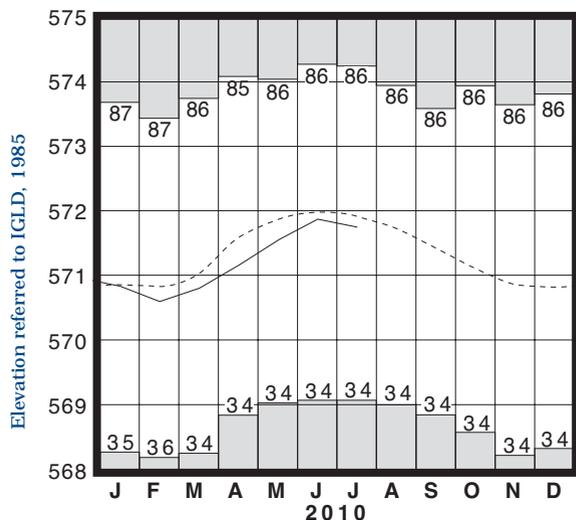
GROUND-WATER LEVELS



Base periods: F-1, 1947-2000 H-1, 1951-2000.

Hn-2a, 1955-2000 ■ Record high and low, year of occurrence

LAKE ERIE LEVELS



Base period: 1918-2000

■ Record high and low, year of occurrence

Normal - - - - Current - - - -

(Precipitation continued from front)

Precipitation during the 2010 calendar year is also above normal in the northern half of the state and South Central Region, and below normal elsewhere. The state average is 24.20 inches, 0.78 inch above normal. Regional averages range from 28.62 inches, 3.14 inches above normal, for the South Central Region to 22.68 inches, 1.53 inches above normal, for the North Central Region.

SUMMARY

Precipitation during July was below normal throughout most of the state, but above normal in the Northeast Region and a few other locations. Streamflow was generally below normal in northern and southeastern Ohio, and above normal in southwestern and central Ohio. Reservoir storage decreased in both the Mahoning and Scioto river basins, but was above normal in both basins. Ground water levels declined in most aquifers across the state. Lake Erie level declined 0.13 foot and was 0.17 foot below the long-term July average.

NOTES AND COMMENTS

Midwest Ground Water Conference

Register now for the 55th Annual Midwest Ground Water conference to be held October 4-7, 2010 at the Holiday Inn-Columbus\Worthington, located at 7007 North High Street in Worthington, Ohio. The Midwest Ground Water conference is an informal annual meeting held at the invitation of a participating state. This year's conference is being sponsored by the Ohio Department of Natural Resources (ODNR), Division of Soil and Water Resources, the Ohio Environmental Protection Agency, Division of Drinking and Ground Waters, and the U. S. Geological Survey, Ohio Water Science Center.

The conference provides an opportunity for hydrogeologists, geologists, engineers, students and others studying ground water resources in their respective states to meet and exchange ideas, discuss mutual problems affecting the Midwest, and summarize results of field and laboratory studies.

To find out more about the conference, including conference schedule and costs, or to register for the conference, go to <http://www.dnr.state.oh.us/MWGW2010/ProgramRegistration.shtm>. For additional information or questions, please contact Jim Raab at (614) 265-6747 or e-mail jim.raab@dnr.state.oh.us.

Long-Time ODNR Employee Retires

On June 30, Dennis Crist retired from the Division after spending 30 years working for the ODNR. Dennis started his career with the Division of Oil and Gas, later the Division of Mineral Resources Management, in the Underground Injection Control Program. He spent the last 9 years with the ground water program in the Division of Water. In the ground water program, Dennis worked with drilling contractors to improve the quality of the data that was being submitted, and he also constructed maps showing the ground water flow direction in a number of counties. Dennis resides in Circleville with his wife and three children. We wish Dennis the best in his retirement.

Division of Soil and Water Employee Accepts New Position

Johnathan Sorg, former Environmental Specialist with the Floodplain Management Program in the ODNR, Division of Soil and Water Resources, has accepted a new position with the Ohio Emergency Management Agency. In his new position, Johnathan will be supervising disaster services consultants and other assigned personnel in the administration of the Federal Emergency Management Agency's (FEMA) mitigation grant programs, and provide technical assistance to local emergency management directors regarding local mitigation projects.

Johnathan joined the Floodplain Management Program in October 2004. While at ODNR, Johnathan managed the states activities involving FEMA's flood map update initiatives and flood study prioritization, and he provided technical assistance to local officials in the field of floodplain management.

The Division of Soil and Water Resources wishes Johnathan the best in his new position.

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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