MONTHLY WATER INVENTORY REPORT FOR OHIO

July 2009

http://www.ohiodnr.gov/tabid/4191/Default.aspx
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PRECIPITATION during July was below normal in northwestern, east-central and parts of southwestern and southeastern Ohio, and generally above normal elsewhere. The state average was 4.00 inches, 0.08 inch below normal. Regional averages ranged from 6.39 inches, 1.98 inches above normal, for the South Central Region to 2.52 inches, 1.15 inches below normal, for the Northwest Region. This was the 12th wettest July during the past 127 years for the South Central Region. The Portsmouth Waste Water Plant at Sciotoville (Scioto County) reported the greatest amount of July precipitation, 9.36 inches. Pleasant Hill Dam (Ashland County) reported the least amount, 1.16 inches.

Precipitation during July generally fell in a typical summer pattern of scattered showers and thunderstorms, some with heavy downpours. However, temperatures across the state were atypical as this was one of the coolest July's on record. The first 10 days of the month were rather dry across most of the state with just some light showers reported. The only significant rain during this period occurred at the beginning of the month in northeastern Ohio and around July 4 in extreme southwestern Ohio. Storms on July 11 produced heavy rain in a line from west-central to south-central Ohio where amounts of more than 2 inches were reported. Lesser amounts were reported elsewhere with areas in eastern Ohio receiving little or no rain. Dry conditions prevailed for the next 5 days before widely scattered showers and thunderstorms, some with heavy downpours, moved across Ohio during July 17-21. Most of the state received less than 0.25 inch from these storms, but a few locations reported 0.50-1.0 inch of rain during this period. Precipitation during the last 10 days of July was more widespread. The most notable precipitation through this period fell during July 22-23, July 25 and July 28-31. Rain during July 22-23 was widespread with most of Ohio receiving more than 1 inch. Precipitation on July 25 was greatest across the southern one-third of the state where generally 0.50-1.0 inch fell with more than 2 inches reported in extreme south-central Ohio. Storms were again widespread during July 28-31 with much of the state receiving more than 1 inch of rain. The greatest amounts fell in southern Ohio where more than 2.5 inches was reported at some locations while a large area in northwestern Ohio received less than 0.50 inch during this period.

Precipitation for the 2009 water year is above normal across the northern one-third and southeastern Ohio, and below normal elsewhere. The average for the state is 31.73 inches, 0.10 inch above normal. Regional averages range from 36.22 inches, 2.33 inches above normal, for the South Central Region to 29.20 inches, 2.84 inches below normal, for the Northeast Hills Region.

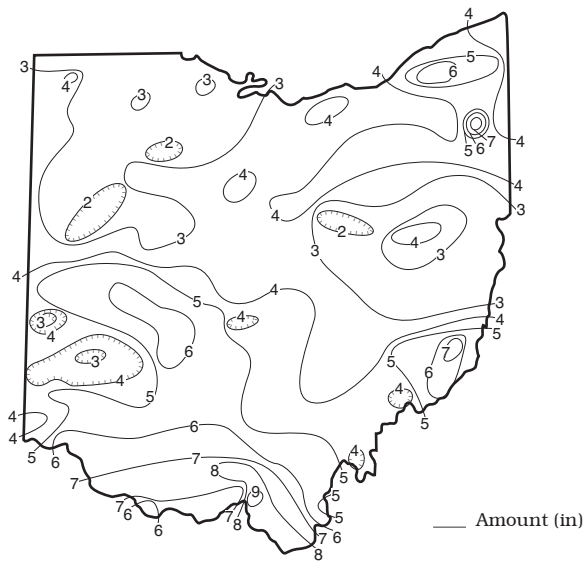
(continued on back)

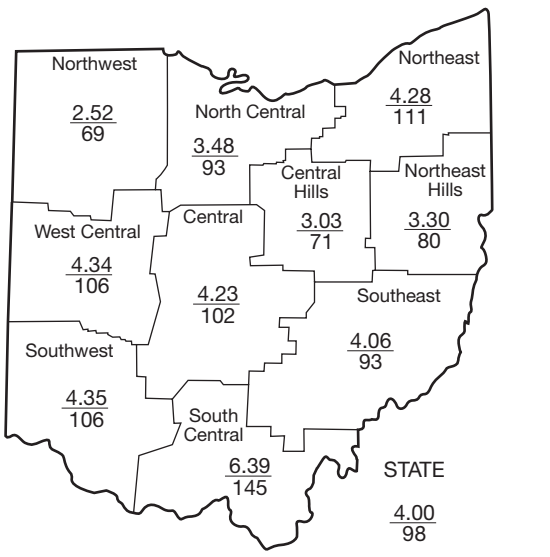
PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) Base period 1951-2000					Palmer Drought Severity Index*
	This Month	Past 3 Mos.	Past 6 Mos.	Past 12 Mos.	Past 24 Mos.	
Northwest	-1.15	-1.78	+2.06	+1.59	+17.78	+0.4
North Central	-0.26	+0.03	+1.74	+1.84	+18.25	+0.8
Northeast	+0.44	+0.22	+0.78	+2.95	+18.73	0.0
West Central	+0.23	-0.93	-1.60	-4.18	+9.95	-0.9
Central	+0.08	+0.06	-1.76	-3.36	+8.27	-0.4
Central Hills	-1.22	-1.88	-2.57	-3.99	+6.08	-0.7
Northeast Hills	-0.83	-1.27	-3.70	-4.53	+5.29	-1.3
Southwest	+0.25	+1.48	-1.21	-5.63	+5.46	-0.1
South Central	+1.98	+3.98	+1.12	+0.09	+8.64	+1.0
Southeast	-0.29	+0.54	-1.58	-2.39	+8.20	+0.3
State	-0.08	+0.05	-0.67	-1.77	+10.65	

*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.)	Mean Discharge (CFS)	% of Normal	% of Normal Past		
		This Month		3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	252	127	51	106	112
Great Miami River at Hamilton	3,630	1,765	94	99	90	77
Huron River at Milan	371	46	43	71	140	128
Killbuck Creek at Killbuck	464	80	41	44	70	63
Little Beaver Creek near East Liverpool	496	147	63	70	81	75
Maumee River at Waterville	6,330	749	27	78	132	110
Muskingum River at McConnelsville	7,422	1,658	34	90	102	62
Scioto River near Prospect	567	40	25	61	80	64
Scioto River at Higby	5,131	1,746	64	62	65	57
Stillwater River at Pleasant Hill	503	240	148	111	101	78

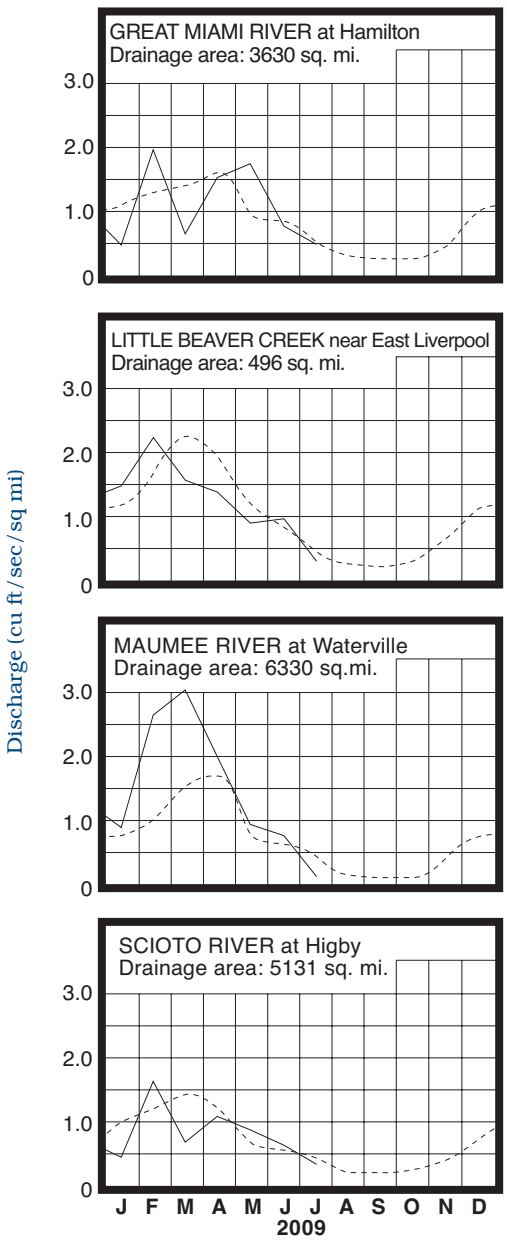
STREAMFLOW during July was below normal across most of the state, but above normal in some basins in northeastern and west-central Ohio. Flows were low enough to be considered deficient across a large area of the state, most notably in northwestern and much of eastern Ohio. Flows during July were seasonally less than the June flows statewide.

Flows at the beginning of the month were below normal across most of the state with just a few basins, mainly in northeastern and southwestern Ohio, having above normal flows. Flows generally declined during the first half of the month and then increased during the second half. Greatest flows for the month occurred at the beginning of the month in central and southeastern Ohio. Greatest flows in west-central and southwestern Ohio occurred just after the precipitation that fell on July 11. The remainder of the state recorded their greatest flows at the end of the month. Although low flows for July occurred at various times across the state, the majority occurred between July 16 and 22. Flows at the end of the month were generally above normal across southwestern and northeastern Ohio and below normal in northwestern, central and southeastern Ohio.

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

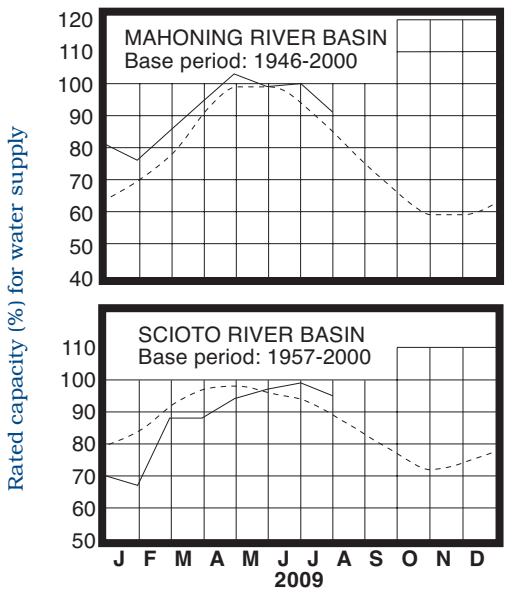
Reservoir storage at the end of July in the Mahoning basin index reservoirs was 91 percent of rated capacity for water supply compared with 100 percent for last month and 97 percent for July 2008. Month-end storage in the Scioto basin index reservoirs was 95 percent of rated capacity for water supply compared with 99 percent for last month and 94 percent for July 2008. Surface water supplies remain in good shape across 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

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	12.90	+2.52	-0.33	-2.66
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.44	-0.62	+0.07	+0.06
Fr-10	Columbus, Franklin Co.	Gravel	45.01	-1.73	-0.50	-1.57
H-1	Harrison, Hamilton Co.	Gravel	23.41	-1.36	-0.71	-1.33
Hn-2a	Dola, Hardin Co.	Dolomite	7.69	-0.86	-0.75	-1.20
Po-124	Freedom, Portage Co.	Sandstone	76.38	+1.36	-0.32	-0.34
Tu-1	Strasburg, Tuscarawas Co.	Gravel	14.98	-2.24	-0.58	-1.58

GROUND WATER levels during July declined seasonally across most of the state. Generally, ground water levels declined throughout most of the month except for some slight rises noted in a few unconsolidated aquifers near the end of the month.

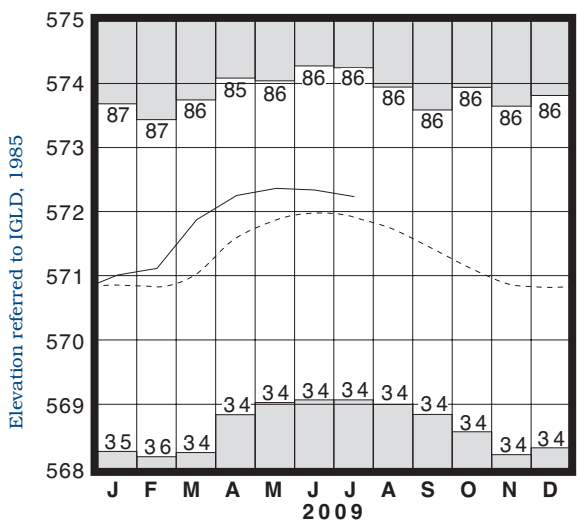
Ground water levels continue to remain below normal in most areas of the state. A few exceptions are noted in some consolidated aquifers in eastern Ohio where levels are above normal. Current levels are lower than they were a year ago in most aquifers, with levels ranging from nearly the same to more than 2.5 feet lower than the July 2008 levels. In spite of this, ground water supplies remain adequate throughout the state. The cooler than average temperatures during July most likely helped decrease the overall demand on the state's ground water supplies. However, continued below normal precipitation in areas of the state that have been dry the past few months will accelerate the seasonal ground water decline in those areas. Near the end of July, the Ohio Agricultural Statistics Service reports that top soil moisture was rated as being short or very short in 17 percent of the state, adequate in 75 percent of the state, and surplus in 8 percent of the state.

LAKE ERIE level declined during July. The mean level was 572.24 feet (IGLD-1985), 0.10 foot lower than last month's mean level and 0.32 foot above normal. This month's mean level is 0.20 foot higher than the July 2008 level and 3.04 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during July averaged 3.56 inches, 0.18 inch above normal. For the entire Great Lakes basin, July precipitation averaged 3.08 inches, 0.07 inch below normal. For calendar year 2009 through July, the Lake Erie basin has averaged 23.78 inches of precipitation, 3.16 inches above normal, while the entire Great Lakes basin has averaged 18.39 inches, 0.36 inch above 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 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 11 inches above normal to around 9 inches below the normal seasonal level.

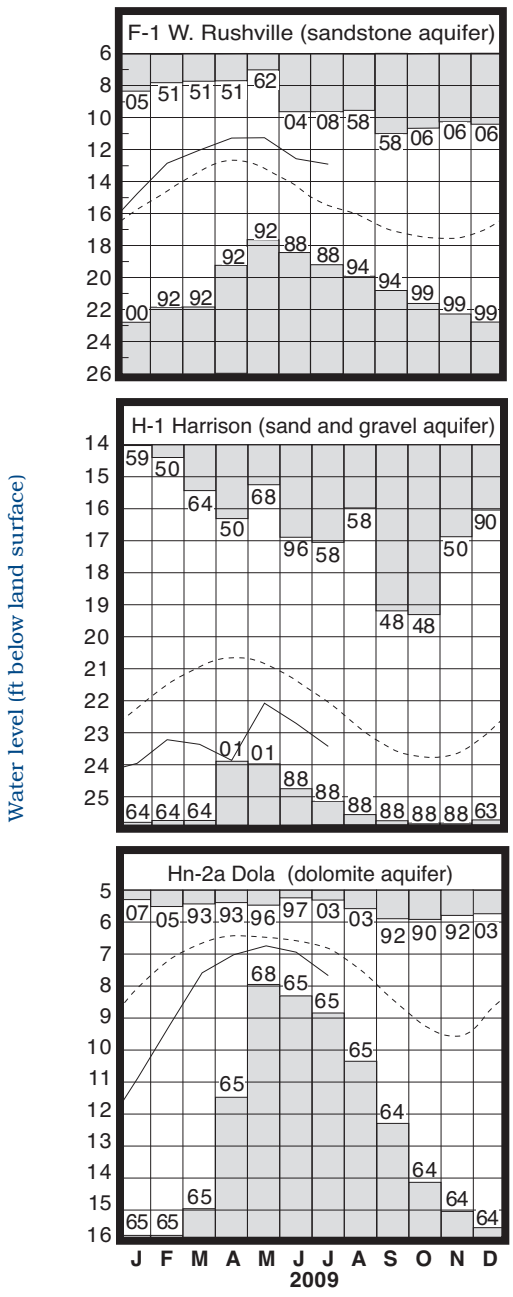
LAKE ERIE LEVELS



Base period: 1918-2000

Record high and low, year of occurrence

GROUND-WATER LEVELS



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

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

Normal – – – – Current ———

(Precipitation continued from front)

Precipitation for the 2009 calendar year is below normal throughout most of the southern two-thirds of the state, but above normal in the northern one-third and South Central Region. The average for the state is 22.75 inches, 0.67 inch below normal. Regional averages range from 27.24 inches, 1.76 inches above normal, for the South Central Region to 20.39 inches, 3.41 inches below normal, for the Northeast Hills Region.

SUMMARY

Precipitation during July was below normal in northwestern, east-central and parts of southwestern and southeastern Ohio, and generally above normal elsewhere. Streamflow was below normal across most of the state, but above normal in some basins in northeastern and west-central Ohio. Reservoir storage for water supply decreased in the Mahoning and Scioto river basins, but remained above normal in both basins. Ground water storage declined seasonally and remained below normal throughout most of the state. Lake Erie level declined 0.10 foot and was 0.32 foot above the long-term July average.

NOTES AND COMMENTS

New Division of Soil and Water Resources

On July 17, 2009, Governor Ted Strickland signed legislation adopting the new state budget for fiscal years 2010-2011. Effective with the Governor's signature, all the codified functions of the Division of Water were reassigned to the new Division of Soil and Water Resources. All the functions of the Division of Soil and Water Conservation were also realigned into the new division. David Hanselmann, who was Chief of the Division of Soil and Water Conservation, will serve as Chief of the new division. He will also have administrative authority for the Division of Litter Prevention and Recycling.

The Division of Water was one of the original six divisions (Geological Survey, Wildlife, Forestry, Water, Beach Erosion, and Lands and Soils) established with the creation of the Department of Natural Resources in 1949. During its 60-year history, the Division of Water has been a leader in promoting and administrating programs dealing with both the quantity and quality issues of Ohio's water resources as well as the safety and health of its citizens. A brief history of the Division of Water can be viewed at: http://www.ohiodnr.gov/tabid/3260/Default.aspx.

The Division of Soil and Water Conservation was created in 1982 with the merger of the Division of Lands and Soils (an original ODNR division) and the Division of Soil and Water Conservation Districts (established within ODNR in 1969). During its 60-year history (including former divisions), the Division of Soil and Water Conservation has been a leader in mapping and evaluating the state's soil resources and in promoting conservation and protection of Ohio's land and water resources.

A more detailed, chronological history through 1989 of each division is published in "A Legacy of Stewardship: The Ohio Department of Natural Resources 1949-1989." This book is available for viewing or as a download (PDF) on the ODNR web site at: http://www.ohiodnr.gov/tabid/19411/default.aspx. The Division of Water history is presented in chapter 9. The history of the Division of Soil and Water Conservation is outlined in chapters 11 (Soils), 13 (Lands) and 19 (Soil and Water). In addition, a draft, unpublished continuation of the Division of Water history through 2000 is available by request.

With the creation of the Division of Soil and Water Resources, the newest chapter in the long history of Ohio's efforts to protect, manage, develop and use the soil and water resources is just beginning. New opportunities, partnerships and challenges will surely arise.

Additional Ground Water Pollution Potential Map Available On-Line

The Ohio Department of Natural Resources (ODNR), Division of Soil and Water Resources announces the availability of the pollution potential report and map for Ashland County. This brings to 73 the number of counties in Ohio for which pollution potential maps are available on-line. Pollution potential maps are available for viewing and/or printing from the Division of Soil and Water Resources website at: http://www.ohiodnr.gov/tabid/3541/Default.aspx. Maps can also be purchased for $10.00 each plus postage and handling (see chart below) from: ODNR Division of Soil and Water Resources, Water Resources Section, 2045 Morse Road, Building B-2, Columbus, Ohio, 43229-6693, phone (614) 265-6740. Payment may be made by check or credit card. Please make checks payable to ODNR Division of Soil and Water Resources.

Ground water pollution potential maps are designed to determine an aquifer's relative vulnerability to ground water pollution. The maps can be used as a planning and management tool for administrators, commissioners, zoning boards, and others to aid in making educated decisions about local development and siting of land use activities that can affect ground water quality. The accompanying report for each map describes the various factors that were evaluated to determine the pollution potential ratings. This information can be used to help direct resources and land use activities to appropriate areas, or to assist in protection, monitoring, and clean-up efforts. For more information, please contact Jim Raab at: jim.raab@dnr.state.oh.us or phone (614) 265-6747.

Postage and Handling

Cost of Publications	Add
under $10.01	$2.50
$10.01 - $20.00	$3.75
$20.01 - $50.00	$6.00
$50.01 - $100.00	$8.50
$100.01 and over	$10.00

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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