MONTHLY WATER INVENTORY REPORT FOR OHIO

April 2010

http://www.ohiodnr.gov/tabid/4191/Default.aspx
Compiled By Scott C. Kirk
Hydrologist
Water Inventory Unit

PRECIPITATION during April was below normal across most of the state, but above normal in northwestern Ohio. The state average was 2.17 inches, 1.41 inches below normal. Regional averages ranged from 3.85 inches, 0.47 inch above normal, for the Northwest Region to 1.30 inches, 2.21 inches below normal, for the Southeast Region. This was the 4th driest April during the past 128 years for the Southeast Region, 8th driest for the South Central Region and the 10th driest for the Central Hills Region. Bryan (Williams County) reported the greatest amount of April precipitation, 5.71 inches. Philo (Muskingum County) reported the least amount, 0.78 inch.

Precipitation during April fell as rain with only a few stations in northeastern Ohio reporting trace amounts of snow. Precipitation amounts for the month were greatest in northwestern Ohio with amounts generally decreasing to the south and east. A few stations in southeastern Ohio reported less than 1 inch of rain for the month. Most of the April precipitation fell during two periods. The first was April 5-8 when 1-2 inches of rain fell across western Ohio with some locations in northwestern Ohio reporting as much as 3 inches. Precipitation amounts during this period diminished to less than 0.25 inch across much of eastern Ohio. The next two weeks of the month were rather dry with only around 0.25 inch or so of rain falling, mainly across eastern Ohio. The most widespread precipitation for the month occurred during April 24-27. Amounts of 1-3 inches were reported in the northern half of the state with the heaviest rain again falling across northwestern Ohio. Generally, 0.50-1.0 inch fell across the southern half of the state during this period, although lesser amounts fell in areas of southeastern Ohio.

Precipitation for the 2010 water year is below normal statewide. The state average is 17.40 inches, 2.39 inches below normal. Regional averages range from 18.53 inches, 3.57 inches below normal, for the Southwest Region to 15.08 inches, 2.72 inches below normal, for the North Central Region.

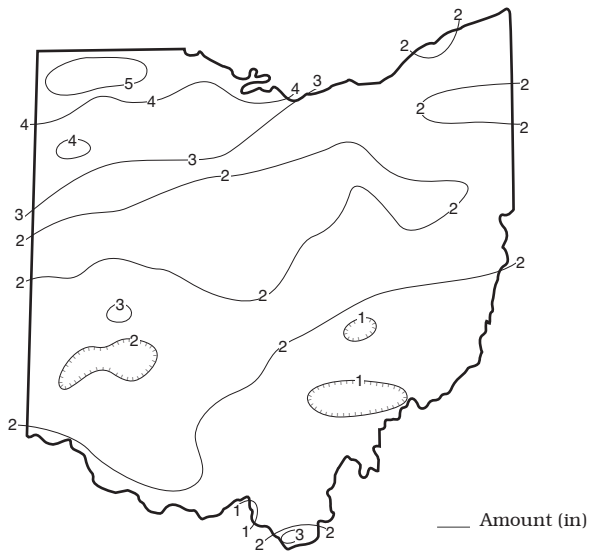
Precipitation for the 2010 calendar year is also below normal statewide. The state average is 9.06 inches, 2.52 inches below normal. Regional averages range from 10.09 inches, 1.70 inches below normal, for the Northeast Hills Region to 7.96 inches, 2.20 inches below normal, for the North Central Region.

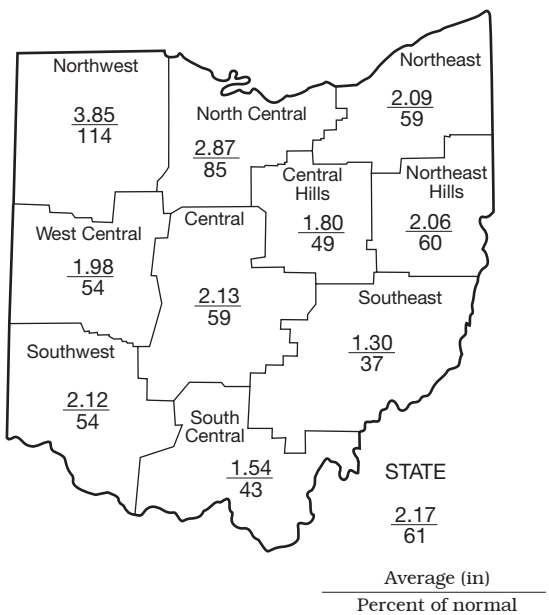
PRECIPITATION

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	+0.47	-0.04	-2.70	-3.52	+2.09	-0.6
North Central	-0.52	-1.08	-4.34	-4.73	-0.27	-0.6
Northeast	-1.44	-1.43	-3.29	-2.65	+3.46	-1.8
West Central	-1.68	-1.18	-4.22	-4.17	-3.69	-0.9
Central	-1.50	-1.71	-4.26	-1.47	-1.78	-1.3
Central Hills	-1.88	-1.45	-3.82	-3.23	-3.95	-1.7
Northeast Hills	-1.40	-1.34	-3.02	-4.00	-6.33	-1.5
Southwest	-1.84	-2.65	-6.08	-2.06	-5.69	-0.7
South Central	-2.05	-3.45	-5.29	-0.22	-1.44	-1.2
Southeast	-2.21	-2.74	-4.00	-4.05	-2.92	-1.6
State	-1.41	-1.71	-4.11	-3.02	-2.08	

*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 APRIL





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	549	37	75	82	75
Great Miami River at Hamilton	3,630	3,833	65	107	97	95
Huron River at Milan	371	200	33	63	53	56
Killbuck Creek at Killbuck	464	416	53	85	82	72
Little Beaver Creek near East Liverpool	496	565	61	116	102	88
Maumee River at Waterville	6,330	8,912	84	81	74	73
Muskingum River at McConnelsville	7,422	6,756	40	104	107	63
Scioto River near Prospect	567	278	30	73	69	66
Scioto River at Higby	5,131	3,452	45	84	86	81
Stillwater River at Pleasant Hill	503	447	61	111	93	89

STREAMFLOW during April was below normal throughout most of the state. Flows in most areas of Ohio were low enough to be considered deficient. Flows during April were noticeably less than the flows observed during March. Based on preliminary data, the gauging station for the Grand River near Painesville recorded its second lowest flow for April.

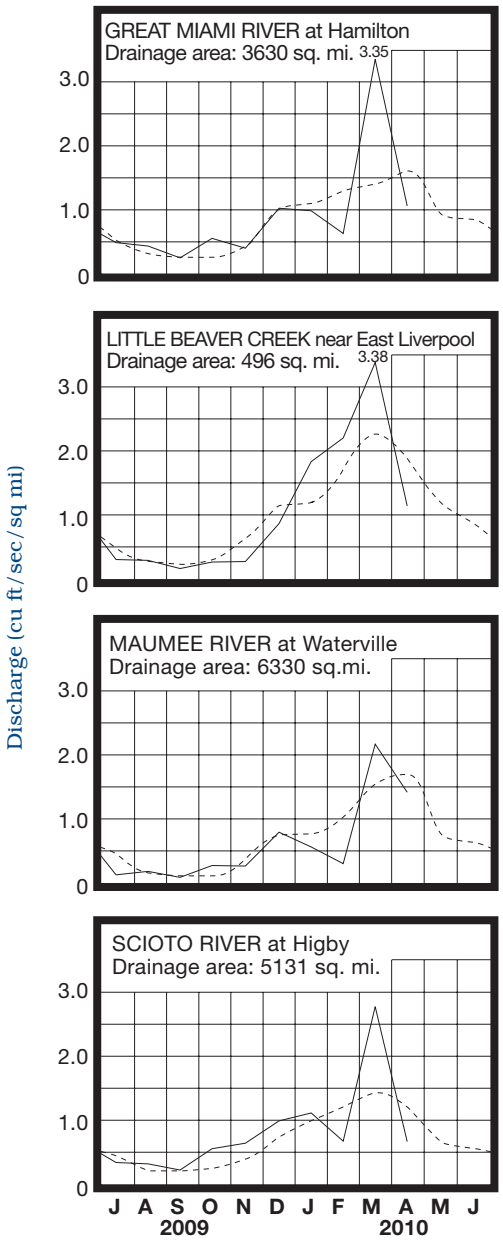
Flows at the beginning of the month were generally above normal in southern, east-central and northwestern Ohio and below normal elsewhere. Most drainage basins in central and southeastern Ohio had their greatest flows for April on the first day of the month. Generally, flows throughout much of the state declined steadily during the first three and a half weeks of the month. The exception was some rises noted in western Ohio during April 8-9 from the 1-3 inches of rain that fell across the area. Greatest flows for the month were observed during this period across southwestern and extreme northwestern Ohio. Minor small stream and low-lying area flooding were reported in areas of northwestern Ohio as a result of this rain. With only light rain falling during the next two weeks, streamflow returned to a steady decline and the lowest flows for the month were observed during April 22-24 throughout most of the state. Flows increased statewide around April 25-28 as a result of the widespread rain that fell during April 24-27. Greatest flows for the month in northern and east-central Ohio occurred during April 26-28. Flows at the end of April were below normal throughout most of the state.

RESERVOIR STORAGE for water supply during April increased slightly in the Mahoning River basin and decreased in the Scioto River basin. Month-end storage was at normal levels in the Mahoning basin reservoirs and slightly below normal in the Scioto basin reservoirs.

Reservoir storage at the end of April in the Mahoning basin index reservoirs was 99 percent of rated capacity for water supply compared with 98 percent for last month and 103 percent for April 2009. Storage at the end of the month in the Scioto basin index reservoirs was 97 percent of rated capacity for water supply compared with 101 percent for last month and 94 percent for April 2009.

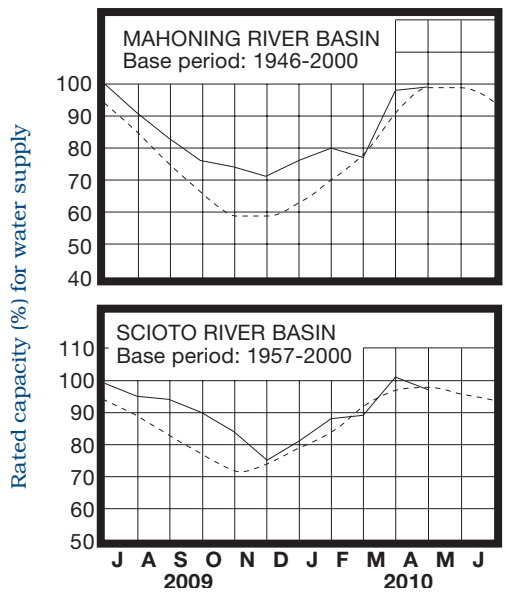
Surface water supplies remain in excellent condition throughout Ohio as the summer season approaches.

MEAN STREAM DISCHARGE



Base period for all streams: 1971-2000

RESERVOIR STORAGE FOR WATER SUPPLY



Normal – – – – Current ———

GROUND-WATER LEVELS

GROUND WATER levels during April showed mixed responses across the state. Generally, aquifers in northern Ohio rose while most aquifers in southern Ohio declined. Typically, levels in all aquifers throughout the state rise during April. Levels in most aquifers in Ohio rose during the first week of the month. Levels in most aquifers in southern Ohio declined through the remainder of April while in northern Ohio, levels declined for the next 2 weeks, and then rose during the last week of the month. Exceptions were noted in some eastern Ohio aquifers where levels steadily declined throughout the month.

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	11.82	+0.87	-0.97	-0.54
Fa-1	Jasper Mill, Fayette Co.	Limestone	7.94	-1.11	+0.08	+0.97
Fr-10	Columbus, Franklin Co.	Gravel	43.32	-1.05	+0.32	+0.39
H-1	Harrison, Hamilton Co.	Gravel	21.98	-1.31	-0.33	+0.86
Hn-2a	Dola, Hardin Co.	Dolomite	7.34	-0.91	+1.05	-0.32
Po-124	Freedom, Portage Co.	Sandstone	76.27	+1.50	+0.15	-0.24
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.42	-2.26	+0.88	-0.12

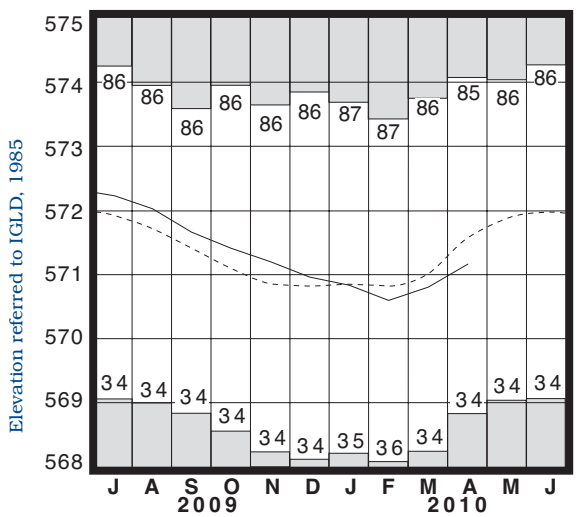
Ground water levels continue to remain adequate throughout Ohio even through levels are below normal across much of the state. Only some consolidated aquifers in eastern Ohio remain above normal in spite of the below normal precipitation of the past few months. Current levels are lower than they were at this time last year throughout northern Ohio and in some eastern Ohio aquifers, but are above last year's levels across most of southern Ohio. Widespread precipitation during the last week of April helped to replenish topsoil moisture across much of the state. The Ohio Agricultural Statistics Service reports that at the end of April, soil moisture was rated as being short or very short in 12 percent of the state, adequate in 71 percent of the state and surplus in 17 percent of the state. With near-normal precipitation and other climatic conditions during the next month or so, additional improvement in ground water storage can still occur.

LAKE ERIE level rose during April. The mean level was 571.16 feet (IGLD-1985), 0.36 foot higher than last month's mean level and 0.43 foot below normal. This month's mean level is 1.10 feet lower than the April 2009 level and 1.96 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during April averaged 2.94 inches, 0.22 inch below normal. For the entire Great Lakes basin, April precipitation averaged 1.98 inches, 0.55 inch below normal. For calendar year 2010 through April, the Lake Erie basin has averaged 7.79 inches of precipitation, 2.64 inches below normal, while the entire Great Lakes basin has averaged 4.75 inches, 3.91 inches below normal. Precipitation in the entire Great Lakes basin has been below normal for 6 consecutive months.

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 2 inches above to as much as 14 inches below the normal seasonal average.

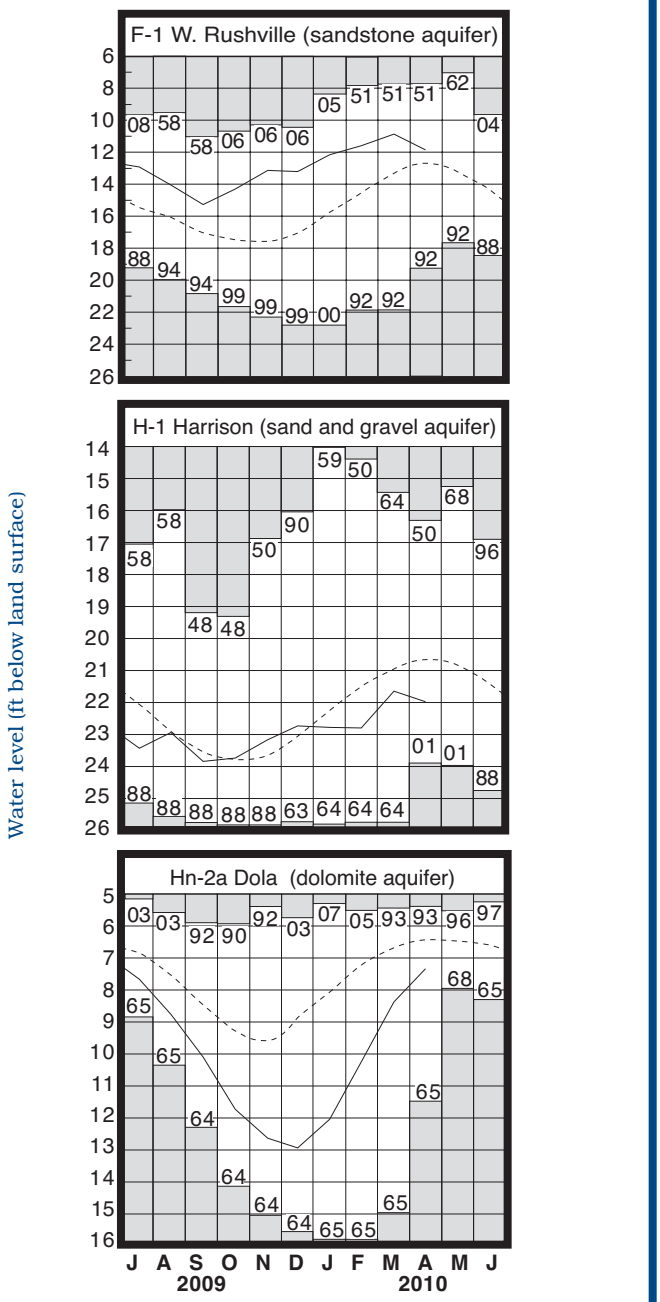
LAKE ERIE LEVELS



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 ———

SUMMARY

Precipitation during April was below normal throughout most of the state, but above normal in northwestern Ohio. Streamflow was below normal and low enough to be considered deficient throughout most of the state. Reservoir storage increased slightly in the Mahoning River basin and decreased in the Scioto River basin. Ground water storage had mixed responses and remained below normal throughout much of the state. Lake Erie level rose 0.36 foot and was 0.43 foot below the long-term April average.

NOTES AND COMMENTS

Annual Midwest Ground Water Conference

Call For Abstracts

You are invited to submit your abstract for the 55th Annual Midwest Ground Water Conference to be held October 4-7, 2010 at the Holiday Inn-Columbus/Worthington, 7007 N. High Street, Columbus, 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, Division of Soil and Water Resources; the Ohio Environmental Protection Agency, Division of Drinking and Ground Waters; and the United States Geological Survey, Ohio District.

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. For more information on the conference visit their website at: http://www.dnr.state.oh.us/mwgwc2010/.

Presentations on all topics related to ground water are welcome, with emphasis on the Midwest.

Abstracts of papers to be presented at the conference must be received by June 25, 2010. Abstracts are limited to 300 words and should not include graphs, figures or photos, and should be submitted on-line at: http://www.dnr.state.oh.us/mwgwc2010/

The Conference Planning Committee will review all abstracts and notify authors of acceptance before July 30, 2010.

For more information, contact Mary Ann Thomas at mathomas@usgs.gov or phone (614) 430-7736.

Water Inventory Unit Under New Supervision

The Ohio Department of Natural Resources (ODNR), Division of Soil and Water Resources, announces that Mike Hallfrisch has accepted the supervisory role of the Water Inventory Unit. Mike replaces David Cashell who recently retired after more than 31 years of service to ODNR, 23 of those years as supervisor of the Water Inventory Unit. In addition to his existing duties as manager of the Water Planning Program, Mike will assume the management of the Water Inventory Unit that includes the 140 sites in the State Observation Well Network and the Monthly Water Inventory Report For Ohio.

Mike began his career as a hydrogeologist with the ODNR, Division of Water, Water Resources Section in October, 1984. He became supervisor of a newly formed Mapping Unit in January 1988, directing production of ground water resources maps and ground water pollution potential maps. Beginning in 1998, he headed a project to map the state's bedrock and glacial aquifers. In May 2003, the Division of Water was restructured and Mike assumed the supervisory role of the Water Planning Program. In January 2004, he also assumed management of the Water Withdrawal Facilities Registration Program. Mike, along with all the staff of the Division of Water and the Division of Soil and Water Conservation, now work together in the newly formed Division of Soil and Water Resources.

Mike received his Bachelor of Science degree in geological engineering from Michigan Technological University in Houghton, Michigan, and his Masters of Science degree in geology with emphasis in hydrogeology from the University of Toledo. Since joining the Water Resources Section, Mike has authored several county ground water resources maps and was the author of the first ground water pollution potential map produced in the state of Ohio.

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 Soil and Water Resources
2045 Morse Road
Columbus, Ohio 43229-6693