



# MONTHLY WATER INVENTORY REPORT FOR OHIO

May 2006

<http://www.dnr.state.oh.us/water/pubs/newsletters/mwirmain.html>

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Hydrologist  
Water Inventory Unit

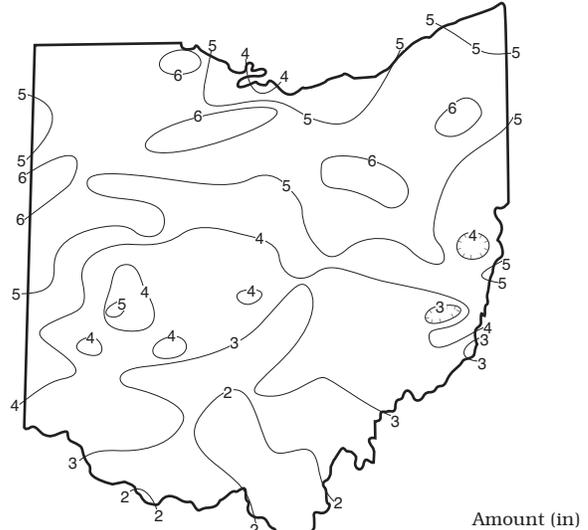
**PRECIPITATION** during May was generally above normal in the northern half of the state and below normal in the southern half. The average for the state as a whole was 4.26 inches, 0.35 inch above normal. Regional averages ranged from 5.64 inches, 2.15 inches above normal, for the Northwest Region to 2.11 inches, 2.05 inches below normal, for the South Central Region. This was the 7th wettest May during the past 112 years for the Northwest Region, the 11th wettest for the North Central Region and the 12th wettest for the Northeast Region. Conversely, this was the 14th driest May during the past 112 years for the South Central Region. Tiffin (Seneca County) reported the greatest amount of May precipitation, 6.64 inches. Piketon (Pike County) reported the least amount, 1.38 inches.

Precipitation fell as showers and scattered thunderstorms with some storms producing severe weather and large amounts of precipitation. Rain fell during every week of the month, but the middle of the month was the wettest at most locations. The first week of May was drier than the remainder of the month in most areas, with much of the state reporting less than 0.50 inch for the period. Rain fell on almost everyday from May 10-21. Most of the state received 2-3 inches of precipitation during this period with as much as 5 inches of rain reported in some areas of northern Ohio. Only south-central Ohio received lighter amounts of precipitation during this period, around 1 inch. After just 2 or 3 dry days, rain returned to the state during May 25-26. The heaviest rain fell in northern Ohio with amounts of 1-2 inches reported across the area. Widely scattered showers and thunderstorms on the last 2 days of the month brought generally less than 0.25 inch throughout most of the state.

Precipitation for the 2006 calendar year is below normal across much of the state, but above normal in the Northwest and Northeast regions. The state average is 14.75 inches, 0.74 inch below normal. Regional averages range from 16.47 inches, 1.25 inches below normal, for the Southwest Region to 13.63 inches, 0.04 inch below normal, for the North Central Region.

Precipitation for the 2006 water year is below normal throughout most of the state, but above normal in the Northwest and West Central regions. The state average is 22.93 inches, 0.77 inch below normal. Regional averages range from 24.51 inches, 2.07 inches below normal, for the Southwest Region to 21.20 inches, 0.11 inch below normal, for the North Central Region.

## PRECIPITATION MAY



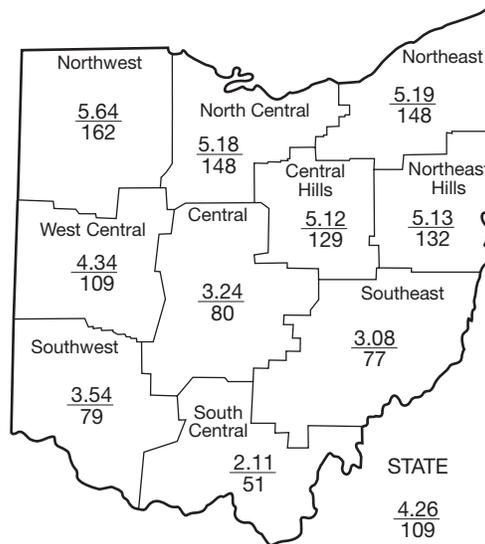
Amount (in)

## 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	+2.15	+0.17	+1.53	+2.00	+5.67	+0.3
North Central	+1.67	-0.59	-0.59	+3.03	+8.25	+1.3
Northeast	+1.68	-0.05	-0.66	+1.23	+8.35	+0.7
West Central	+0.34	-0.28	-1.34	+2.47	+9.78	+2.5
Central	-0.83	-1.17	-2.64	-1.18	+7.73	-0.4
Central Hills	+1.16	-0.66	-1.48	+0.32	+10.47	+1.1
Northeast Hills	+1.23	-0.62	-2.00	-0.96	+15.07	+0.7
Southwest	-0.94	-0.06	-2.39	-3.13	-1.44	+0.3
South Central	-2.05	-2.21	-3.93	-6.54	-1.58	-2.1
Southeast	-0.94	-1.40	-2.74	-3.59	+12.28	-0.2
State	+0.35	-0.68	-1.62	-0.62	+7.47	

\*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	1,175	227	64	109	107
Great Miami River at Hamilton	3,630	4,349	128	95	105	102
Huron River at Milan	371	621	282	64	92	91
Killbuck Creek at Killbuck	464	599	131	68	80	79
Little Beaver Creek near East Liverpool	496	567	97	61	71	67
Maumee River at Waterville	6,330	10,130	210	76	110	94
Muskingum River at McConnelsville	7,422	8,378	91	86	110	69
Scioto River near Prospect	567	536	143	59	94	102
Scioto River at Higby	5,131	2,985	71	63	75	75
Stillwater River at Pleasant Hill	503	786	202	94	106	101

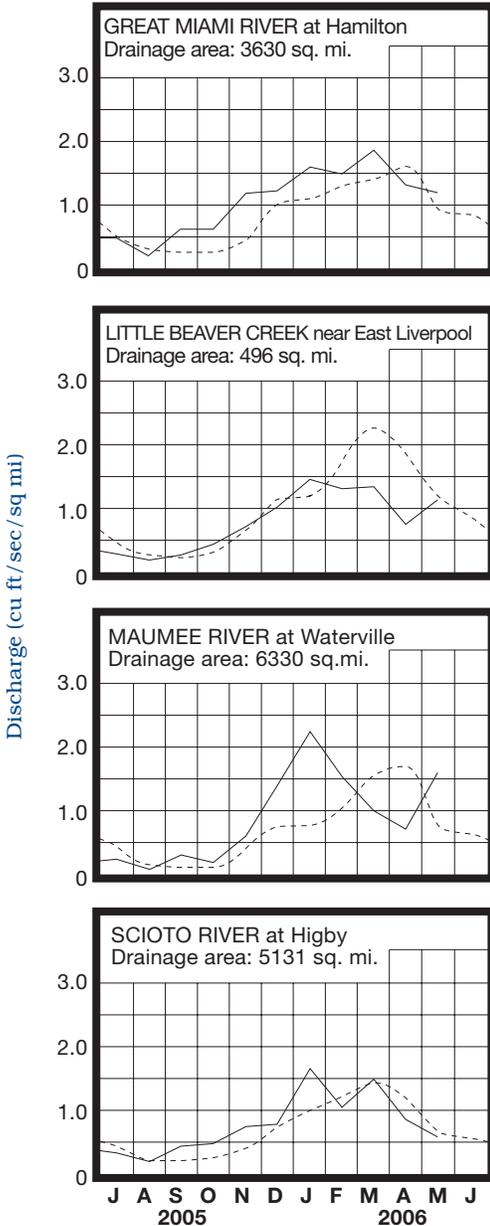
**STREAMFLOW** during May was above normal across much of the state, but below normal in eastern and southeastern Ohio. Flows were high enough to be considered excessive in northwestern Ohio and low enough to be considered deficient in south-central Ohio. May flows were greater than the April flows across most of the state.

Flows at the beginning of the month were below normal statewide. Flows generally declined the first 10 or 11 days of the month. Most drainage basins recorded their lowest flows for the month during May 10-11. Flows increased during the next 8-11 days as precipitation fell on most days during this period. Greatest flows for the month occurred around May 16 in northwestern Ohio and during May 19-20 across most of southern and northeastern Ohio. Greatest flows for the month occurred during May 27-28 across central and north-central areas of the state. Flows declined during the last few days of the month and were below normal in southern Ohio, but remained above normal in most northern Ohio basins.

**RESERVOIR STORAGE** during May increased in both the Mahoning and Scioto river basins. Storage was above normal in both basins.

Reservoir storage at the end of May in the Mahoning basin index reservoirs was 104 percent of rated capacity for water supply compared with 95 percent for last month and 102 percent for May 2005. Month-end storage in the Scioto basin index reservoirs was 99 percent of rated capacity for water supply compared with 89 percent for last month and 98 percent for May 2005. Surface water supplies are in very good shape throughout the state.

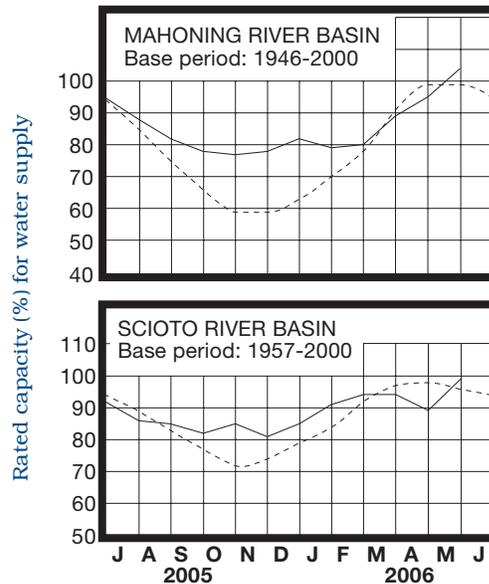
## MEAN STREAM DISCHARGE



Base period for all streams: 1971-2000

Normal - - - - Current ———

## RESERVOIR STORAGE FOR WATER SUPPLY



## 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	11.92	+1.30	-0.36	-0.63
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.46	-1.39	-0.24	-0.50
Fr-10	Columbus, Franklin Co.	Gravel	43.34	-1.00	-0.09	-1.00
H-1	Harrison, Hamilton Co.	Gravel	21.19	-0.36	+0.22	+0.96
Hn-2a	Dola, Hardin Co.	Dolomite	6.10	+0.39	+0.09	-0.19
Po-1	Windham, Portage Co.	Sandstone	18.48	+0.78	+0.25	-1.03
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.44	-2.01	-0.13	-1.27

**GROUND WATER** levels during May showed mixed responses throughout the state. Most of the consolidated aquifers in northern Ohio rose slightly for the month, while levels in most other aquifers declined slightly. Generally, levels in aquifers in the northern half of the state were declining slowly during the first 10 days of the month and then began rising following widespread precipitation. Levels in consolidated aquifers in southern Ohio were rather stable or declining slightly throughout much of the month, while levels in most unconsolidated aquifers declined the first 10 or 11 days of the month, then rose in response to precipitation before falling again late in the month.

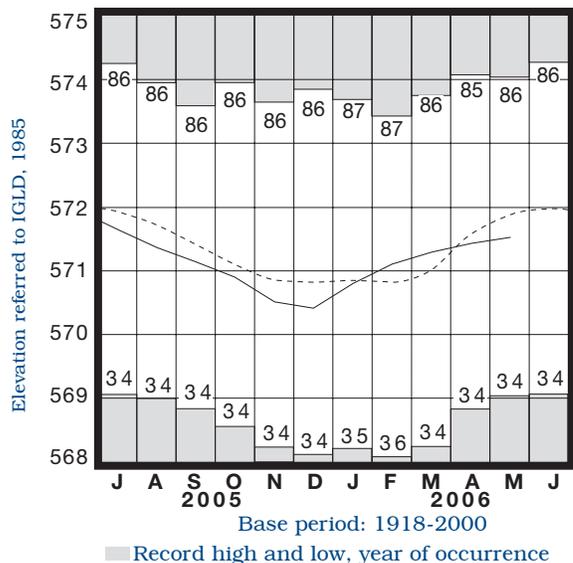
Ground water supplies remain adequate throughout Ohio. Current ground water levels are below the levels of a year ago in most aquifers across the state, and levels in unconsolidated aquifers are below normal throughout Ohio, but levels in most consolidated aquifers remain above normal. Although it appears the current recharge season may have ended for some aquifers across the state, the above normal precipitation during May has extended the recharge season in other areas of Ohio. Typically, sustained recharge to most aquifers is nearing an end by this time of the year. However, with current soil conditions and with near-normal precipitation and other climatic conditions during the next month, it is still possible for some improvement to occur in ground water storage, especially in areas that experienced above normal precipitation during May. The Ohio Agricultural Statistics Service reports that near the end of May, soil moisture was rated as being short or very short in 7 percent of the state, adequate in 57 percent of the state and surplus in 36 percent of the state.

**LAKE ERIE** level rose during May. The mean level was 571.52 feet (IGLD-1985), 0.10 foot higher than last month's mean level and 0.36 foot below normal. This month's mean level is 0.69 foot lower than the May 2005 level and 2.32 feet above Low Water Datum.

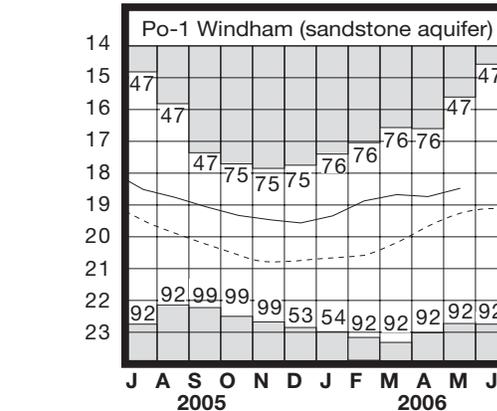
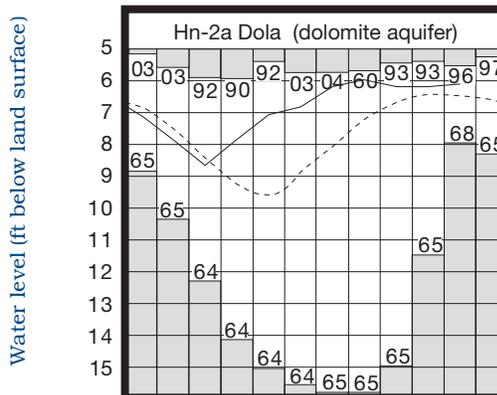
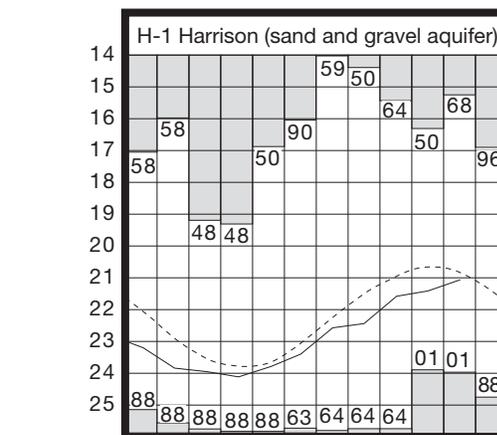
The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during May was 4.21 inches, 0.93 inch above normal. For the entire Great Lakes basin, May precipitation averaged 3.99 inches, 1.04 inches above normal. For calendar year 2006 through May, the Lake Erie basin has averaged 15.00 inches, 1.26 inches above normal, while the entire Great Lakes basin has averaged 12.81 inches, 1.20 inches 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 below 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 12 inches below the normal seasonal average.

### LAKE ERIE LEVELS



### GROUND-WATER LEVELS



Base periods: H-1, 1951-2000. Hn-2a, 1955-2000.

Po-1, 1947-2000

Normal - - - - Current ———

## SUMMARY

Precipitation during May was generally above normal in the northern half of the state and below normal in the southern half. Streamflow was above normal across much of the state, but below normal in eastern and southeastern Ohio. Reservoir storage increased and was above normal in both the Mahoning and Scioto river basins. Ground water levels showed mixed responses. Lake Erie mean level rose 0.10 foot and was 0.36 foot below the long-term May average.

## NOTES AND COMMENTS

### 2006 Ohio Statewide Floodplain Management Conference

The Ohio Department of Natural Resources (ODNR), in cooperation with the Federal Emergency Management Agency and the Ohio Floodplain Management Association, is sponsoring the 2006 Ohio Statewide Floodplain Management Conference. This year's conference is scheduled for August 30 and 31 and will be held at the Columbus Marriott North in Columbus, Ohio. The 2006 conference has been planned to provide local floodplain managers with the information and the skills to implement effective floodplain management programs within their respective communities. This year's theme is "Staying Afloat in the Changing Regulatory Environment!" For more information about this upcoming conference, please contact ODNR at 614-265-6750.

### New Potentiometric Surface Maps Now Available

Ground water potentiometric surface (water level) maps for 4 additional counties in northeast Ohio are now available from the ODNR's Division of Water website at: <http://www.dnr.state.oh.us/water/gwpsurface/>. The counties are Ashland, Erie, Huron and Richland. This brings the total number of counties completed in northeast Ohio to 13. Also available on the website are the potentiometric surface maps for the Big Darby watershed in western Franklin County.

A potentiometric surface map is a contour map that represents the top of the ground water surface in an aquifer. The contour lines illustrate the potentiometric surface much like the contour lines of a topographic map represent a visual model of the ground surface. Potentiometric surface maps are being created for bedrock (consolidated formations) and sand & gravel (unconsolidated formations) aquifers. County-based maps are available as PDF images and as GIS ArcView Shape files.

Ohio's potentiometric surface mapping program began in the late 1990's. Potentiometric surface maps can be used to determine the direction and gradient of ground water flow, to determine ground water recharge and discharge areas, and as input data into ground water modeling programs. These maps can also be used to assist in preparing water resources plans and technical studies, in the mapping of stress areas, and in possible ground water diversion issues. Since these maps were created using existing data collected over a fifty-year period, field verification of the ground water flow direction should be conducted before the drilling of monitoring wells to satisfy compliance monitoring. If you have any questions concerning these maps, please contact Jim Raab at [jim.raab@dnr.state.oh.us](mailto:jim.raab@dnr.state.oh.us) or at (614) 265-6747.

## ACKNOWLEDGMENTS

This report has been compiled from Division of Water 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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