



MONTHLY WATER INVENTORY REPORT FOR OHIO

April 2001

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

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Hydrologists
Water Inventory Unit

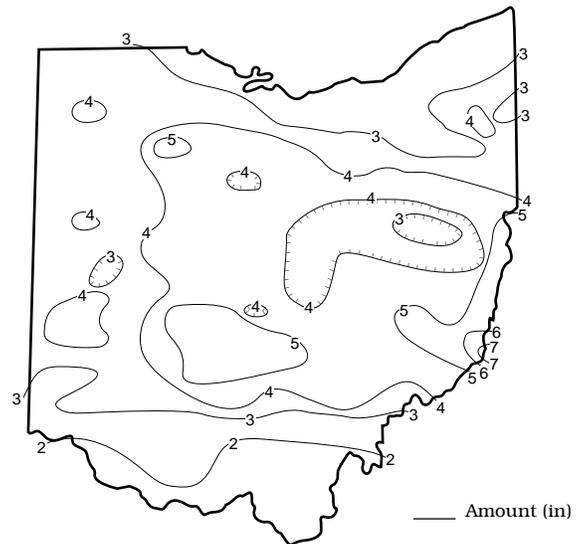
PRECIPITATION during April was above normal across much of the state, but below normal in northeastern, southwestern and south-central Ohio. The state average was 3.56 inches, 0.05 inch above normal. Regional averages ranged from 4.60 inches, 0.94 inch above normal, for the Central Region to 2.11 inches, 1.63 inches below normal, for the South Central Region. Hannibal Lock and Dam (Monroe County) reported the greatest amount of precipitation for April, 7.29 inches. Salem Center (Meigs County) reported the least, 1.07 inches. Several other stations in southern Ohio reported less than 2 inches of precipitation for the month.

Precipitation during April fell almost entirely as rain. Light showers fell across most of the state on the first day of the month with generally less than 0.25 inch reported, but a few scattered locations received about 0.50 inch. Heavier showers fell across the northern half of the state during April 6-7 with 0.50-1.0 inch of rain common and scattered locations receiving 1-2 inches. Rain fell across the state on several days during the next 2 weeks. The most notable periods during this time were April 9-11 and 20-21. Showers and thunderstorms during April 9-11 were the heaviest through the mid-section of the state with little or no rain falling in both extreme northern and southern Ohio. Precipitation amounts were generally 0.50-1.0 inch north of a Dayton to Columbus line and 1-3 inches south of this line. As a result, small stream and lowland flooding was reported in several areas in the southern half of the state. A persistent, all-day rain with a few imbedded thunderstorms occurred during April 20-21 with storm totals of 0.50-1.0 inch across the state. The remainder of the month was rather dry throughout Ohio.

Precipitation for the 2001 calendar year is noticeably below normal statewide. The average for the state as a whole is 8.24 inches, 3.65 inches below normal. This ranks as the 9th driest January-April period for the state during the past 119 years. Regional averages range from 11.35 inches, 1.27 inches below normal, for the Southeast Region to 6.62 inches, 3.66 inches below normal, for the North Central Region. This January-April period ranks as the 4th driest for the Southwest Region, the 5th driest for the Northeast and South Central regions, and the 6th driest for the North Central and West Central regions.

Precipitation for the 2001 water year is below normal statewide. The average for the state as a whole is 15.41 inches, 4.05 inches below normal. Regional averages range from 18.03 inches, 2.28 inches below normal, for the Southeast Region to 12.87 inches, 4.26 inches below normal, for the North Central Region.

PRECIPITATION APRIL

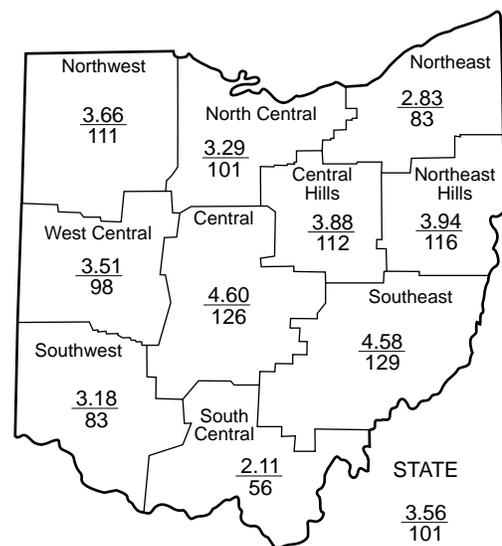


PRECIPITATION

Region	This Month	DEPARTURE FROM NORMAL (IN.)				Palmer Drought Severity Index*
		Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	+0.35	-1.30	-2.95	+3.39	-3.12	-0.8
North Central	+0.04	-2.17	-4.38	+3.45	+0.06	+0.1
Northeast	-0.56	-2.33	-3.38	+1.05	+0.26	-1.3
West Central	-0.07	-2.91	-4.94	-1.86	-8.95	-1.2
Central	+0.94	-1.87	-3.16	-0.86	-6.52	-1.2
Central Hills	+0.43	-2.10	-3.48	-0.67	-3.66	-1.0
Northeast Hills	+0.54	-1.43	-3.21	-0.11	-4.09	-1.1
Southwest	-0.63	-4.13	-6.69	-4.95	-12.75	-1.6
South Central	-1.63	-3.63	-6.09	-5.52	-9.45	-1.9
Southeast	+1.04	-0.38	-1.78	-2.69	-6.23	-0.6
State	+0.05	-2.22	-4.00	-0.88	-5.46	

*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

River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	This Month		
				% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	919	64	76	80	83
Great Miami River at Hamilton	3,630	3,987	75	55	64	74
Huron River at Milan	371	503	97	75	99	140
Killbuck Creek at Killbuck	464	618	82	64	77	75
Little Beaver Creek near East Liverpool	496	789	88	66	71	72
Maumee River at Waterville	6,330	8,019	84	88	82	102
Muskingum River at McConnelsville	7,422	13,576	90	76	80	81
Scioto River near Prospect	567	1,107	136	75	72	80
Scioto River at Higby	5,131	7,789	110	62	66	76
Stillwater River at Pleasant Hill	503	470	66	45	49	69

STREAMFLOW during April was below normal across most of the state with a few exceptions noted in some central and south-central Ohio basins where flows were above normal. Flows were low enough to be considered deficient in western and northeastern Ohio. Flows for the month increased from the March flows in all but the extreme northeastern Ohio basins.

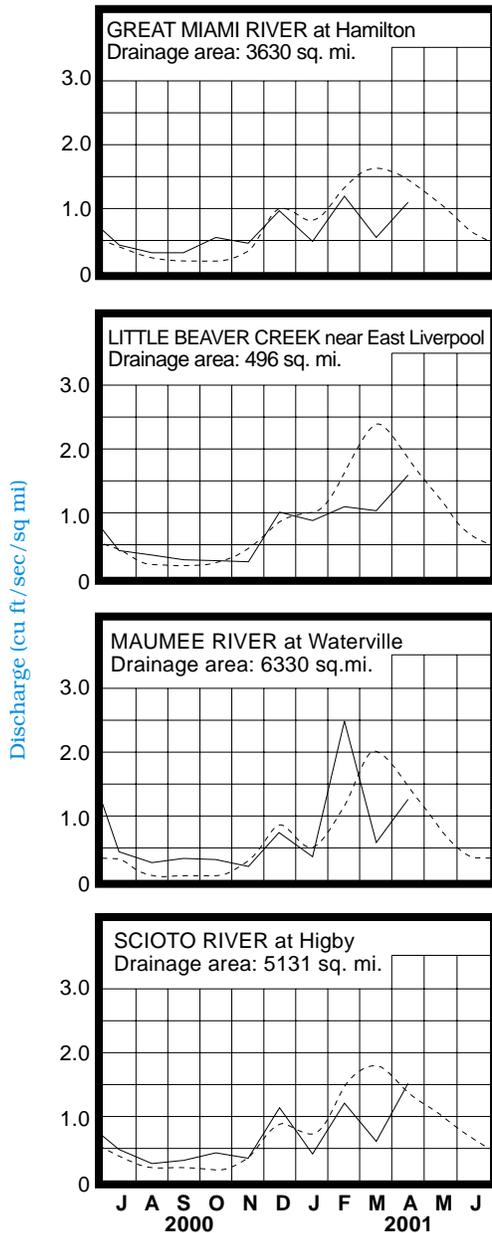
Streamflow at the beginning of the month was below normal statewide. Flows declined for much of the first week of April. Lowest monthly flows were observed near the end of this first week across all but north-central and northeastern Ohio, just prior to the onset of wetter conditions which would prevail for much of the next

2 weeks. As a result of these wetter conditions, flows generally increased throughout the state during the next two weeks. Greatest flows for the month were observed during April 6-8 in the northern third of the state. Generally, the remainder of Ohio experienced their greatest flows for the month on April 12 with some small stream and lowland flooding in the southern half of Ohio. Flows declined statewide after April 22 through the end of the month as drier weather prevailed. Basins in north-central and northeastern Ohio reported their lowest monthly flow on the last day of April. Streamflow at the end of April was greater than it was at the beginning of the month across most of the state but remained below normal statewide.

RESERVOIR storage for water supply during April increased in both the Mahoning and Scioto river basins. Month-end storage was below normal in the Mahoning River basin and above normal in the Scioto River basin.

Reservoir storage at the end of April in the Mahoning basin index reservoirs was 96 percent of rated capacity for water supply, compared with 85 percent for last month and 103 percent for April 2000. Month-end storage in the Scioto basin index reservoirs was 103 percent of rated capacity for water supply, compared with 101 percent for last month and 105 percent for April 2000. Surface water supplies remain in good condition across the state.

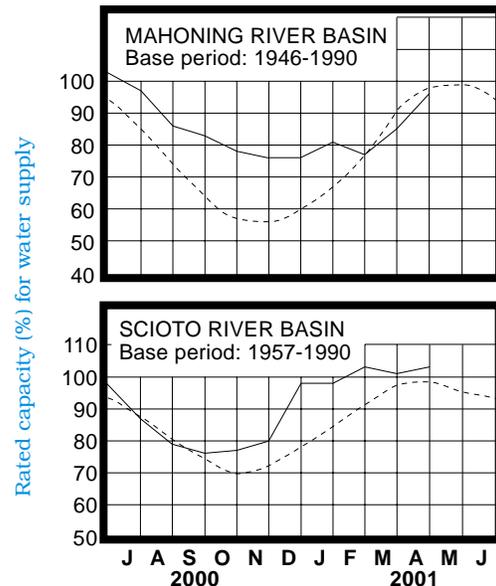
MEAN STREAM DISCHARGE



Base period for all streams: 1961-1990

Normal - - - - - Current ———

RESERVOIR STORAGE FOR WATER SUPPLY



GROUND-WATER LEVELS

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

GROUND WATER levels during April showed net improvement throughout the state. However, net positive changes from March's levels were less than usually observed across most of Ohio. Generally, levels in most aquifers were rather stable or declined slightly during the first half of the month and then rose during the second half. Levels in a few aquifers were beginning to decline again at the end of the month.

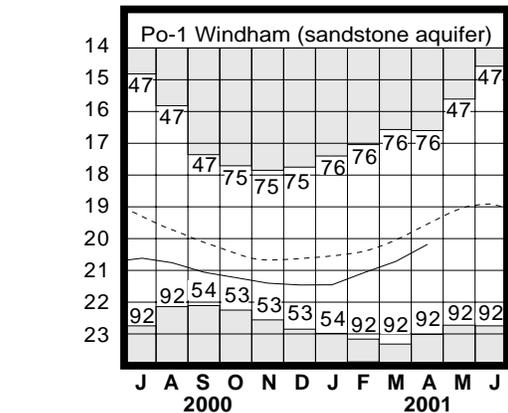
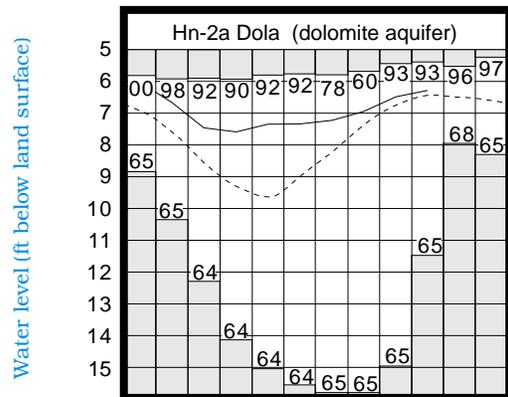
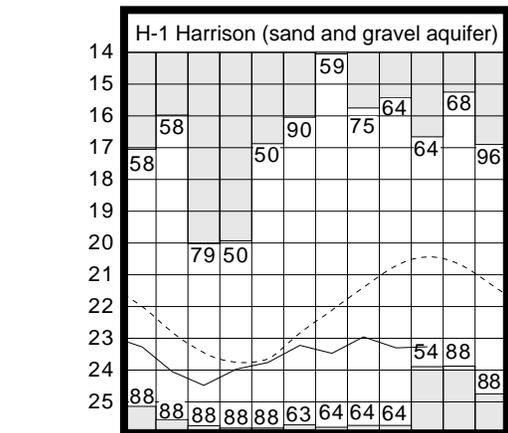
Ground water levels remain below normal across most of the state ranging from 1 to 3 feet below the average April levels. An exception is in some carbonate aquifers in northwestern Ohio where levels remain slightly above normal. Current levels are higher than the April levels of last year in most aquifers, but lower in aquifers in southwestern and eastern Ohio. Although little time remains in the nominal recharge season, near normal precipitation and other climatic conditions during May and June could be a positive benefit for the ground water storage situation in Ohio. The Ohio Agricultural Statistics Service reports that near the end of April soil moisture was rated as being short or very short in 5 percent of the state, adequate in 78 percent of the state and surplus in 17 percent of the state. Water supply managers with ground water sources should monitor their respective situations closely as we near the end of the recharge season and throughout the summer months.

LAKE ERIE level rose seasonally during April. The mean level was 571.03 feet (IGLD-1985), 0.23 foot higher than last month's mean level and 0.36 foot below normal. This month's mean level is 0.23 foot higher than the April 2000 level and 1.83 feet above Low Water Datum.

The U. S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during April averaged 2.53 inches, 0.62 inch below normal, and the entire Great Lakes basin averaged 3.21 inches, 0.68 inch above normal. For calendar year 2001 through April, the Lake Erie basin has averaged 8.31 inches, 2.10 inches below normal while the Great Lakes basin has averaged 8.61 inches which is 0.01 inch below normal. In addition, the USACE predicts that, based on the current condition of the Great Lakes basin and anticipated future weather conditions, the level of Lake Erie should range from 0.75-1.0 foot below the long-term seasonal average for the foreseeable future. However, deviations from the expected weather patterns could result in the lake level ranging from a few inches to around 1.5 feet below the normal seasonal levels.

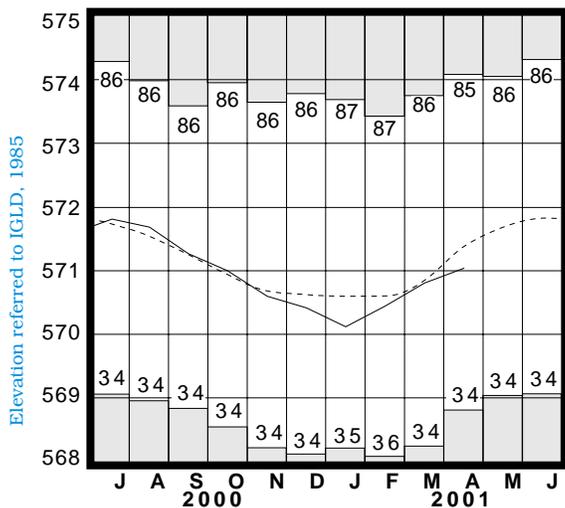
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	13.36	-0.93	+1.16	+0.23
Fa-1	Jasper Mill, Fayette Co.	Limestone	7.83	-1.09	+0.09	+0.07
Fr-10	Columbus, Franklin Co.	Gravel	44.42	-2.02	+0.20	+0.04
H-1	Harrison, Hamilton Co.	Gravel	23.27	-2.84	+0.03	-1.13
Hn-2a	Dola, Hardin Co.	Dolomite	6.27	+0.20	+0.21	+0.79
Po-1	Windham, Portage Co.	Sandstone	20.18	-0.66	+0.53	+1.34
Tu-1	Strasburg, Tuscarawas Co.	Gravel	14.07	3.27	+0.41	-1.40

GROUND-WATER LEVELS



Base periods: H-1, 1951-1990. Hn-2a, 1955-1990.
Po-1, 1947-1990

LAKE ERIE LEVELS at Fairport



Base period: 1900-1991

Record high and low, year of occurrence

Normal - - - - Current - - - -

SUMMARY

Precipitation during April was above normal across much of the state, but below normal in northeastern, southwestern and south-central Ohio. Streamflow was below normal across most of the state, but was above normal in some central and south-central Ohio basins. Reservoir storage increased in both the Mahoning and Scioto river basins. Reservoir storage was below normal in the Mahoning River basin and above normal in the Scioto River basin. Ground water levels showed net improvement throughout the state, but remained below normal in most aquifers. Lake Erie level rose seasonally 0.23 foot and was 0.36 foot below the long-term April average.

NOTES AND COMMENTS

DRAFT CANAL WATER LEASE RULES

The Ohio Department of Natural Resources, Division of Water has drafted new rules for the leasing of water from Ohio's canals and canal reservoirs. Currently, the Division is seeking input from the public prior to the formal filing process with the Joint Committee on Agency Rules Review. All comments should be received by the Division before the end of May, 2001. The draft rules can be viewed on the Division's web page at: <http://www.dnr.state.oh.us/odnr/water>. Comments should be e-mailed to: hung.thai@dnr.state.oh.us or call (614) 265-6714. You can also mail comments to Hung Thai, Ohio Department of Natural Resources, Division of Water, 1939 Fountain Square, Building E-3, Columbus, OH, 43224.

NEW PUBLICATIONS

OHIO STREAM MANAGEMENT GUIDES AVAILABLE

The Ohio Department of Natural Resources' Stream Team has recently completed three new fact sheets in the "Ohio Stream Management Guides" series. There are now 19 fact sheets completed in this series, with three more in production that are expected to be completed by the end of the year. The Ohio Stream Management Guides cover a wide array of watershed and stream management issues and methods of addressing stream-related problems. All the completed guides are available on the Division of Water's web site as both web pages and PDF files at: http://www.dnr.state.oh.us/odnr/water/pubs/fs_st/streams.html.

Single copies of the Ohio Stream Management Guides are available free of charge from ODNR Public Information Center, 1952 Belcher Drive, Building C-1, Columbus, Ohio 43224-1386, (614) 265-6791. For more information about the project, call Jason Remich at (614) 265-6744 or e-mail jason.remich@dnr.state.oh.us.

New Stream Management Guides

- 16 *Riprap Revetments*: Construction guidelines for protecting streambanks by layering various size rocks along a sloping bank.
- 17 *Stream Debris and Obstruction Removal*: Questions and answers to assist landowners in maintaining a free flowing stream without logjams.
- 20 *Eddy Rocks and the Importance of In-Stream Structure*: Construction guidelines for placing groupings of large rocks in streams or modified channels to help restore natural stream features and enhance in-stream habitat.

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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