MONTHLY WATER INVENTORY REPORT FOR OHIO

November 2005

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

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Hydrologists

Water Inventory Unit

PRECIPITATION during November was above normal throughout most of the state, but below normal in south-central Ohio and a few areas in the northeastern quarter of the state. The average for the state as a whole was 3.51 inches, 0.53 inch above normal. Regional averages ranged from 4.14 inches, 1.22 inches above normal, for the Central Region to 2.72 inches, 0.21 inch below normal, for the South Central Region. Circleville (Pickaway County) reported the greatest amount of November precipitation, 5.81 inches. Portsmouth (Scioto County) reported the least amount, 1.25 inches.

Precipitation fell during each week of the month. Showers and thunderstorms, some severe, during November 6-9, brought 0.50-1.0 inch of rain to most of the state, but less than 0.25 inch across parts of southwestern and northeastern Ohio. Isolated areas in southeastern Ohio received as much as 2 inches of rain during this period. The month's most widespread precipitation fell during November 14-16, with most areas of the state reporting 1-2 inches of rain. Isolated areas in southern Ohio reported more than 2 inches of rain. Precipitation during November 23 and 24 was light but noteworthy in that much of it fell as the first measurable snowfall of the season. Most areas in northern Ohio reported 2-5 inches of snow while less than 2 inches of snow fell elsewhere from this system. However, as much as 20 inches of snow fell in the Ohio snowbelt counties of northeastern Ohio. Chardon (Geauga County), located in the northeast Ohio snowbelt, received 24 inches of snow for the month, about twice the average amount for November. Rain returned to the state during November 27-29, with amounts from 0.50 inch to as much as 1.5 inches reported throughout most of Ohio.

Precipitation for the 2005 calendar year is above normal nearly statewide with only the South Central Region having below normal precipitation. The average for the state as a whole is 39.23 inches, 3.97 inches above normal. Regional averages range from 43.35 inches, 9.09 inches above normal, for the West Central Region to 32.47 inches, 0.65 inch above normal, for the Northwest Region.

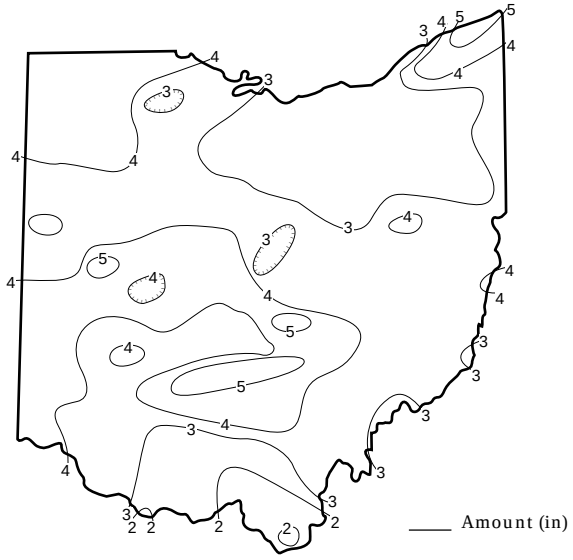
Precipitation for the 2006 water year is above normal across all but northwestern Ohio. The average for the state as a whole is 6.31 inches, 0.86 inch above normal. Regional averages range from 7.45 inches, 1.96 inches above normal, for the Northeast Hills Region to 4.59 inches, 0.54 inch below normal, for the Northwest Region.

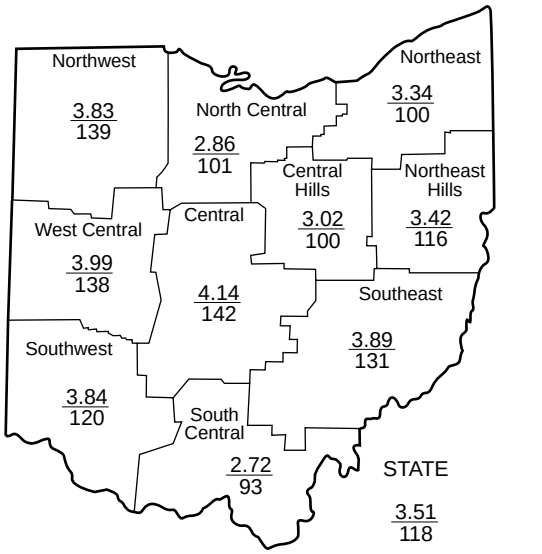
PRECIPITATION

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	+1.07	+1.53	+0.55	+0.72	+2.50	+0.8
North Central	+0.03	+1.83	+3.58	+6.86	+12.94	+2.5
Northeast	0.00	+0.50	+1.94	+7.57	+13.98	+3.7
West Central	+1.10	+4.19	+3.67	+9.54	+11.76	+3.0
Central	+1.22	+2.21	+1.46	+6.89	+15.85	+1.7
Central Hills	0.00	+1.28	+2.03	+6.50	+17.01	+2.8
Northeast Hills	+0.46	+1.83	+1.00	+5.61	+22.13	+1.6
Southwest	+0.63	+0.41	-0.74	+0.79	+2.73	+1.1
South Central	-0.21	-0.76	-2.61	-2.77	+5.32	-1.4
Southeast	+0.92	+1.19	-0.98	+4.72	+20.25	-0.1
State	+0.53	+1.43	+1.00	+4.64	+12.46	

*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

PRECIPITATION NOVEMBER





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	1,120	102	100	94	145
Great Miami River at Hamilton	3,630	4,441	273	181	104	139
Huron River at Milan	371	200	211	157	81	180
Killbuck Creek at Killbuck	464	311	109	105	80	127
Little Beaver Creek near East Liverpool	496	364	110	89	64	121
Maumee River at Waterville	6,330	3,913	150	100	60	109
Muskingum River at McConnelsville	7,422	6,633	118	198	129	125
Scioto River near Prospect	567	646	667	333	138	159
Scioto River at Higby	5,131	3,880	154	120	74	152
Stillwater River at Pleasant Hill	503	718	730	218	107	151

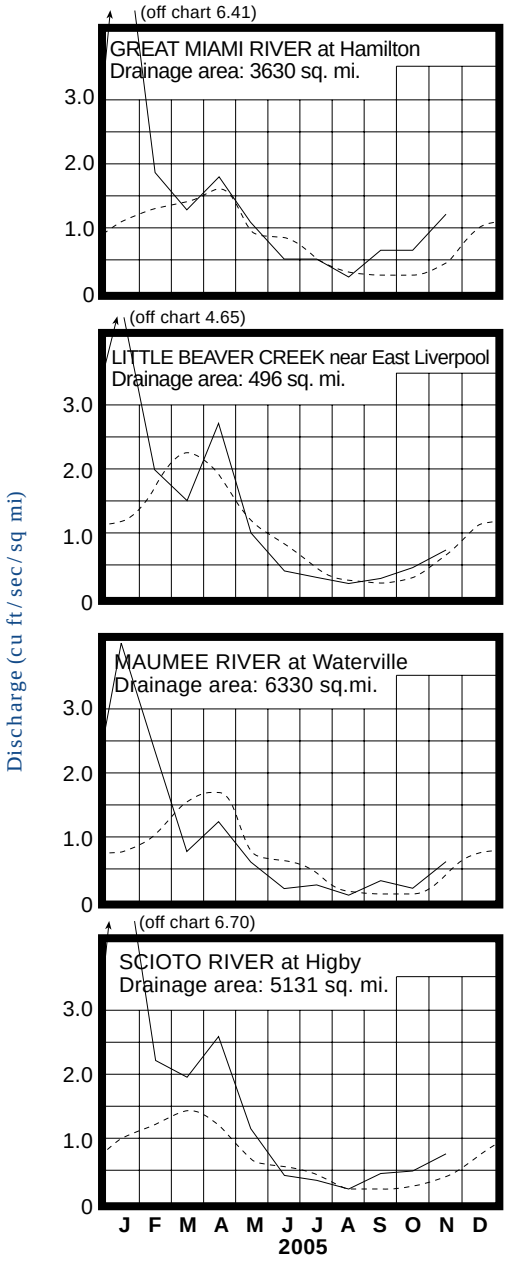
STREAMFLOW during November was above normal statewide. Flows were high enough to be considered excessive in some basins, mainly in central, north-central and southwestern Ohio. Streamflow during November was greater than the October flows across most of the state.

Flows at the beginning of November were above normal across much of Ohio. Streamflow varied greatly across the state during November. Generally, drainage basins in the southern and northwestern areas of the state had their lowest flows for the month near the end of the first week, while drainage basins throughout northeastern Ohio had their lowest flows on November 14. Drainage basins across west-central and central Ohio had their lowest flows for the month during November 27-28, just prior to the precipitation that fell during November 28 and 29. Greatest flows for the month occurred during November 16-18 in west-central, north-central, central and southeastern Ohio following the month's most widespread precipitation. Drainage basins in the remainder of the state had their greatest flows on November 30 following the precipitation that fell during November 28 and 29. Flows at the end of the month remained above normal statewide.

RESERVOIR STORAGE during November increased slightly in the Mahoning River basin and decreased in the Scioto River basin. Storage remained above normal in both basins.

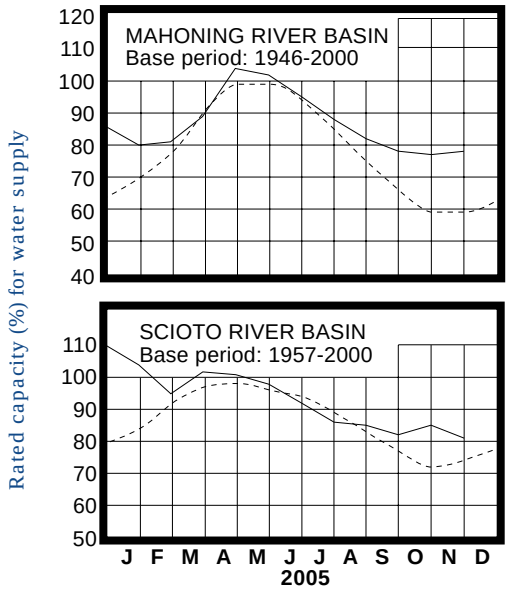
Reservoir storage at the end of November in the Mahoning basin index reservoirs was 78 percent of rated capacity for water supply, compared with 77 percent for last month and 85 percent for November 2004. Month-end storage in the Scioto basin index reservoirs was 81 percent of rated capacity for water supply, compared with 85 percent for last month and 89 percent for November 2004. Surface water supplies remain in very good condition across the state.

MEAN STREAM DISCHARGE



Base period for all streams: 1971-2000

RESERVOIR STORAGE FOR WATER SUPPLY



Normal – – – – Current ———

GROUND WATER levels during November showed net improvement from last month's levels in most aquifers throughout the state. Net changes from the October levels were more favorable than usually observed. Generally, in most areas of the state, ground water levels were declining during the first 7-14 days of the month. Ground water levels then rose during the second half of November in response to precipitation and the resulting recharge.

Ground water levels remained below normal in unconsolidated aquifers throughout the state and above normal in most consolidated aquifers. Current levels are lower than they were a year ago across most of the state, ranging from about 0.5 foot above to nearly 3.5 feet below the November 2004 level. Still, ground water storage is adequate throughout the state. Current conditions favor continued improvement in ground water storage during the next several months. The Ohio Agricultural Statistics Service reports that as of November 18, soil moisture was rated as being short in 4 percent of the state, adequate in 66 percent of the state and surplus in 30 percent of the state.

LAKE ERIE level declined during November. The mean level was 570.51 feet (IGLD-1985), 0.39 foot lower than last month's mean level and 0.36 foot below normal. This month's mean level is 0.42 foot lower than the November 2004 level and 1.31 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during November averaged 4.23 inches, 1.40 inches above normal. For the entire Great Lakes basin, November precipitation averaged 4.11 inches, 1.37 inches above normal. For calendar year 2005 through November, the Lake Erie basin has averaged 30.98 inches of precipitation, 1.44 inches below normal, while the entire Great Lakes basin has averaged 28.09 inches, 1.99 inches below normal.

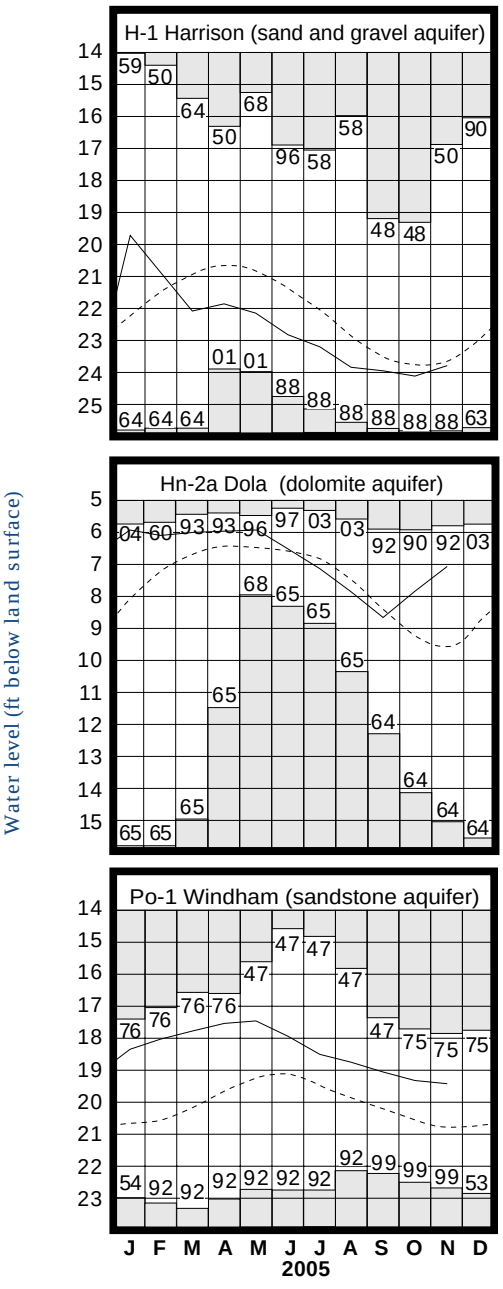
In addition, the USACE reports that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should remain below normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from about 6 inches above to as much as 17 inches below the normal seasonal average.

GROUND-WATER LEVELS

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

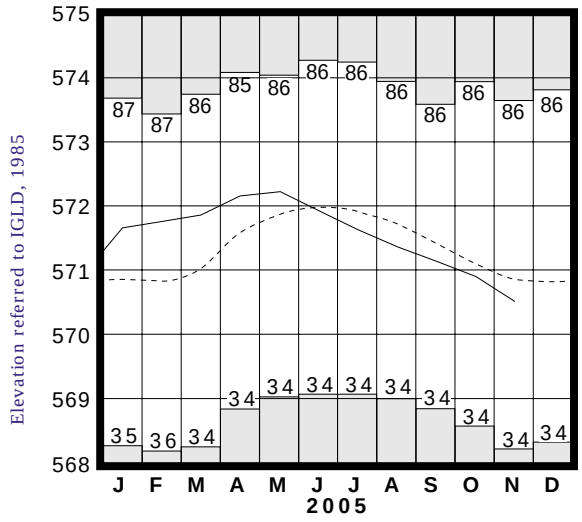
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	15.42	+2.16	+1.32	-3.13
Fa-1	Jasper Mill, Fayette Co.	Limestone	11.56	-2.53	+0.10	-3.42
Fr-10	Columbus, Franklin Co.	Gravel	44.80	-0.68	+0.11	+0.01
H-1	Harrison, Hamilton Co.	Gravel	23.79	-0.11	+0.32	-0.04
Hn-2a	Dola, Hardin Co.	Dolomite	7.06	+2.51	+0.78	+0.44
Po-1	Windham, Portage Co.	Sandstone	19.47	+1.32	-0.16	-0.33
Tu-1	Strasburg, Tuscarawas Co.	Gravel	14.06	-0.06	+0.41	-0.51

GROUND-WATER LEVELS



Base periods: H-1, 1951-2000. Hn-2a, 1955-2000. Po-1, 1947-2000 ▭ Record high and low, year of occurrence

LAKE ERIE LEVELS



Base period: 1918-2000

▭ Record high and low, year of occurrence

Normal– – – – Current———

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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SUMMARY

Precipitation during November was above normal across most of Ohio, but below normal in south-central and areas of northeastern Ohio. Streamflow was above normal throughout the state and was high enough to be considered excessive in some basins. Reservoir storage increased slightly in the Mahoning basin index reservoirs and decreased in the Scioto basin index reservoirs. Reservoir storage remains above normal in both basins. Ground water levels rose throughout most of the state. Lake Erie mean level declined 0.39 foot and was 0.36 foot below the long-term November average.

NOTES AND COMMENTS

New Editor for Monthly Water Report

Each month for the past 27 years I have participated in the production of the *Monthly Water Inventory Report For Ohio*. For the past few years I have served as executive editor, advisor and mentor. Beginning with the January 2006 issue, Scott Kirk will assume full responsibility for the production of the report. Scott has been instrumental in the preparation of this report for the past several years and has assumed a majority of the duties. He does an outstanding job and is very interested in the hydrologic situation across Ohio.

It has always been a challenge to collect, compile, process, verify, analyze and present the hydrologic data presented in this report in a timely manner. You can't thank your partners enough for all their efforts for taking their time in passing along the data and information. Unfortunately, it seems that as technology advances, the task of gathering the monthly data becomes more difficult and time consuming, a trend opposite to what would be expected. It is frustrating to have so many tools and data sources at your fingertips, yet struggle to meet self-imposed deadlines. However, I am sure Scott will continue trying to streamline the process. I urge those readers who are able to take advantage of the on-line version to do so and have the report available a full 10-14 days earlier than receiving a mailed paper copy.

Looking back, I had a goal to make sure I oversaw the report's production through the 50th anniversary year (March 2004-February 2005). I am proud to have been part of that team that was able to reach a milestone that very few publications, newsletters, or technical reports are able to reach. I want to personally thank Leonard Harstine for his tutorage and encouragement for so many years. His dedication was unequalled. Also, I wish to thank all the readers and peers who have offered comments, suggestions and appreciation over the many years.

So, with that said, I guess I will just float on down stream.

David Cashell

2006 Ohio Statewide Floodplain Management Conference Call For Abstracts

The 2006 Ohio Statewide Floodplain Management Conference"Call for Abstracts"is now available online at: http://www.dnr.state.oh.us/water/floodpln/. The Call for Abstracts is open to anyone interested in making a presentation to the conference. Abstracts will be reviewed by the Conference Planning Committee and selected based on content and relevance to floodplain management and associated issues. Submissions must be received by February 1, 2006 to be considered for presentation at the conference. Abstracts should be submitted by e-mail to alicia.silverio@dnr.state.oh.us as a Microsoft Word or Corel WordPerfect attachment. If you do not have e-mail or internet access, or have any other submittal questions, please call Alicia Silverio at (614) 265-1006. The 2006 Ohio Statewide Floodplain Management Conference will be held on August 30-31, 2006 at the Columbus Marriott North in Columbus, Ohio.