MONTHLY WATER INVENTORY REPORT FOR OHIO

March 2009

http://www.dnr.state.oh.us/tabid/4191/Default.aspx

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Hydrologist

Water Inventory Unit

PRECIPITATION during March was below normal across much of Ohio, but above normal in the northern one-third of the state. The state average was 2.45 inches, 0.72 inch below normal. Regional averages ranged from 4.53 inches, 1.88 inches above normal, for the Northwest Region to 1.49 inches, 1.44 inches below normal, for the West Central Region. Montpelier (Williams County) reported the greatest amount of March precipitation, 6.75 inches. London Fish Hatchery reported the least amount, 1.01 inches.

Most of the precipitation during March fell as rain with the greatest amount falling across the northern one-third of Ohio. The first week of the month was rather dry across the state. The most notable precipitation of the month occurred during March 7-11. Rain during this period was widespread with amounts of 2-3 inches falling over the northern one-third of the state and more than 5 inches reported from some locations in extreme northwestern Ohio. Rain amounts tapered to less than 0.10 inch in extreme southeastern Ohio during this period. Locally severe flooding occurred along portions of several streams in northern Ohio. In addition to the heavy rain, some of these storms were severe with at least one spawning a tornado. The only notable precipitation during the next 2 weeks fell on March 18 when 0.25-0.50 inch fell across much of the state. During the first 24 days of March, several locations in the southern half of the state had received less than 0.50 inch of precipitation for the month; however, storm systems during the last week of March brought some needed rain to central and southern Ohio. The greatest amount of precipitation during this period fell across the southeastern half and extreme northwestern areas of Ohio where 1-2 inches were reported.

Precipitation for the 2009 water year is above normal in the northern one-third of the state, but below normal elsewhere. The average for the state is 15.98 inches, 0.23 inch below normal. Regional averages range from 20.29 inches, 3.43 inches above normal, for the Northeast Region to 13.59 inches, 1.68 inches below normal, for the West Central Region.

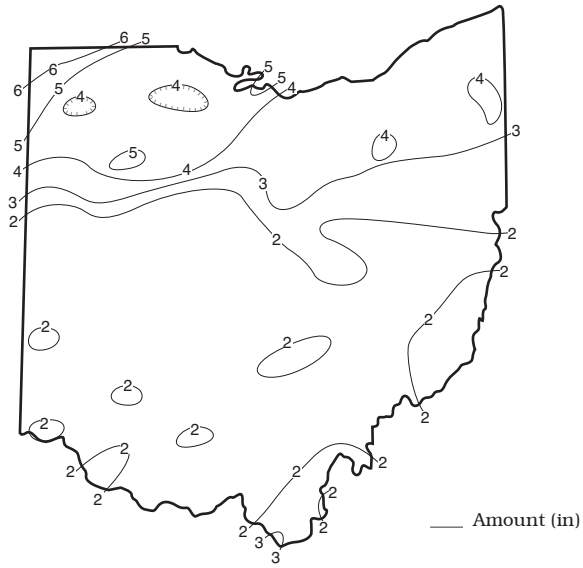
Precipitation for the 2009 calendar year is also above normal in the northern one-third of Ohio and below normal elsewhere. The average for the state is 7.00 inches, 1.00 inch below normal. Regional averages range from 8.95 inches, 1.32 inches above normal, for the Northeast Region to 5.25 inches, 2.16 inches below normal, for the West Central Region.

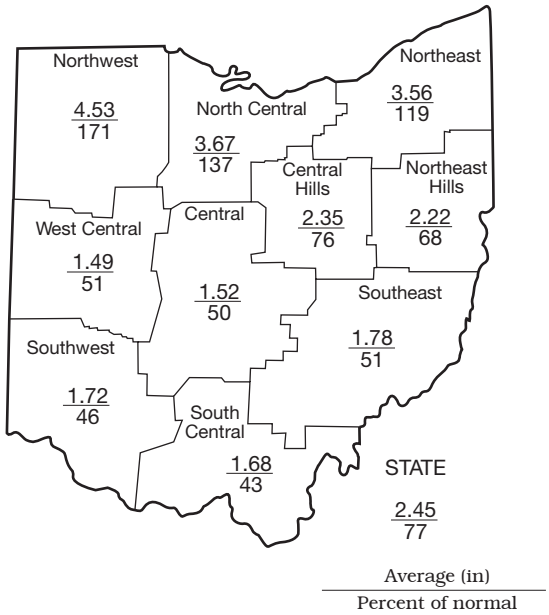
PRECIPITATION

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	+1.88	+2.26	+3.62	+4.54	+15.24	+3.6
North Central	+1.00	+1.23	+2.68	+3.78	+14.94	+3.5
Northeast	+0.57	+1.32	+3.43	+4.75	+14.45	+3.8
West Central	-1.44	-2.16	-1.68	-1.59	+5.92	0.0
Central	-1.52	-2.01	-1.87	-1.76	+3.55	-0.9
Central Hills	-0.75	-1.18	-0.59	-2.73	+4.91	+0.3
Northeast Hills	-1.06	-1.52	-0.95	-2.98	+5.02	-0.2
Southwest	-1.99	-3.13	-3.95	-4.93	-1.31	-1.5
South Central	-2.21	-2.81	-2.24	-1.93	-0.54	-0.8
Southeast	-1.70	-1.97	-0.68	-0.14	+2.57	-0.7
State	-0.72	-1.00	-0.23	-0.32	+6.45	

*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 MARCH





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	1,787	107	125	131	119
Great Miami River at Hamilton	3,630	2,328	46	68	67	100
Huron River at Milan	371	948	158	168	163	149
Killbuck Creek at Killbuck	464	543	61	74	70	75
Little Beaver Creek near East Liverpool	496	756	68	95	84	73
Maumee River at Waterville	6,330	19,150	196	153	130	118
Muskingum River at McConnelsville	7,422	8,109	52	105	105	82
Scioto River near Prospect	567	475	52	76	68	88
Scioto River at Higby	5,131	3,479	38	58	55	83
Stillwater River at Pleasant Hill	503	192	27	63	61	93

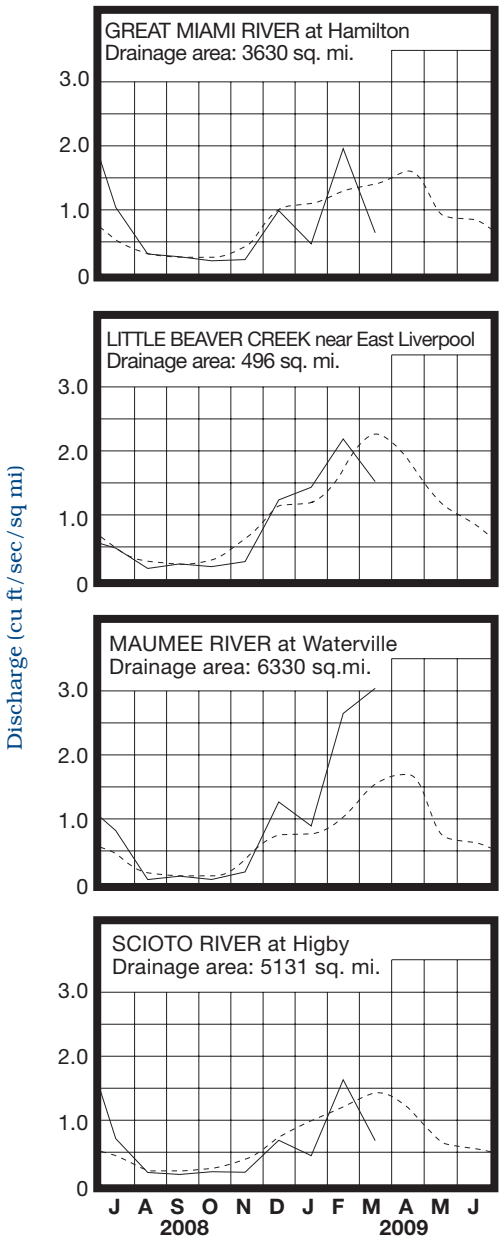
STREAMFLOW during March was below normal throughout the southern two-thirds of the state and above normal in the northern one-third. Flows were low enough to be considered deficient across much of the southern two-thirds of Ohio. Conversely, flows were high enough to be considered excessive in many streams in the northern one-third of the state. Flows during March were generally less than the February flows across most of Ohio, but greater than the February flows in the northern one-third. For the first 6 months of the 2009 water year, streamflow has generally been above normal in the northern one-third of Ohio and below normal elsewhere (see Mean Stream Discharge table, percent of normal, past 6 months column).

Flows at the beginning of March were generally above normal in much of northern and southwestern Ohio and below normal elsewhere. Greatest flows for the month were recorded at this time across the southwestern one-third of the state. Greatest flows throughout the remainder of the state occurred following precipitation that fell during March 7-11. Major flooding occurred along several streams in northern Ohio as a result of this precipitation. The Blanchard River in northwestern Ohio rose out of its banks, flooding parts of Findlay for the third time in the past 2 years. One person was killed after driving a truck into the floodwaters of the Blanchard River. Some roads in northern Ohio were closed for several days due to high water. Flows generally declined from these peaks during the next 2 weeks as dry conditions prevailed across most of the state. Lowest flows for the month occurred around this time throughout most of the state, mainly between March 24 and 28. Flows increased from these lows during the last few days of the month across most of Ohio as a result of the precipitation that fell during the last week of March, but remained below normal throughout the state at month's end.

RESERVOIR STORAGE during March increased in the Mahoning River basin and was unchanged in the Scioto River basin. At the end of March, storage remained above normal in the Mahoning River basin and below normal in the Scioto River basin.

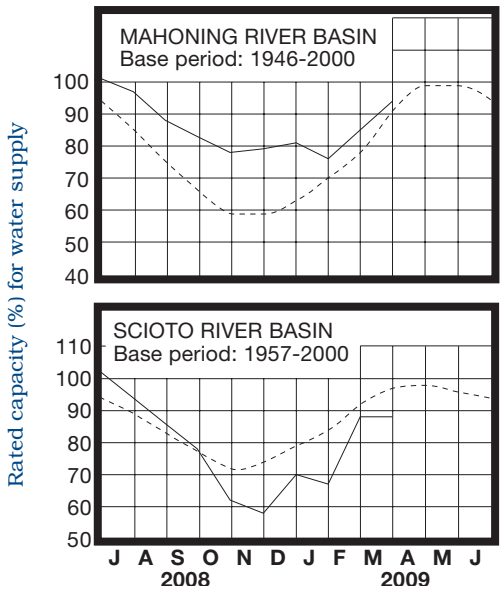
Reservoir storage at the end of March in the Mahoning basin index reservoirs was 94 percent of rated capacity for water supply compared with 85 percent for last month and 99 percent for March 2008. Month-end storage in the Scioto basin index reservoirs was 88 percent of rated capacity for water supply, compared with the same for last month and 97 percent for March 2008. Surface water supplies remain in 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

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	12.10	+1.22	+0.75	-2.78
Fa-1	Jasper Mill, Fayette Co.	Limestone	9.48	-2.56	0.00	-1.93
Fr-10	Columbus, Franklin Co.	Gravel	44.05	-1.52	+0.35	-0.92
H-1	Harrison, Hamilton Co.	Gravel	23.35	-2.41	-0.15	-3.75
Hn-2a	Dola, Hardin Co.	Dolomite	7.60	-0.90	+1.64	-1.53
Po-124	Freedom, Portage Co.	Sandstone	76.37	+1.66	+0.24	+0.21
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.45	-1.78	+0.48	-4.01

GROUND WATER levels during March rose seasonally in most aquifers, but declined in some aquifers in southern Ohio. Levels in most aquifers rose through the middle of the month and then declined the second half of March. Exceptions were in unconsolidated aquifers in southern Ohio where levels declined steadily most of the month and in consolidated aquifers in northern Ohio where levels rose steadily throughout most of the month.

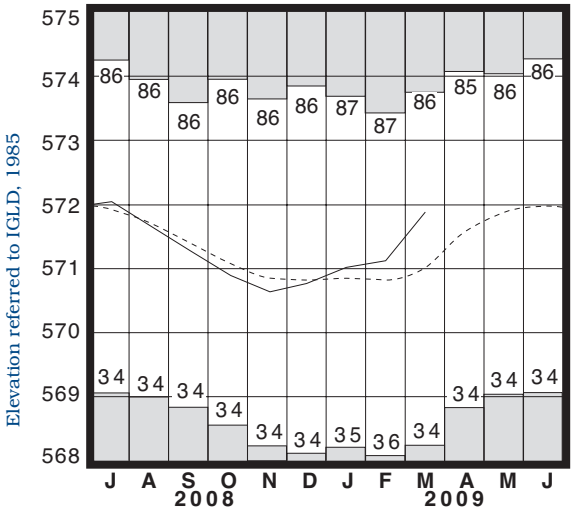
Ground water supplies continue to be adequate across most of the state. The above normal precipitation in the northern one-third of the state during the past 2 or 3 months has been beneficial for recharge. Even though observation well PO-124 (Portage County), representing sandstone aquifers in eastern and northeastern Ohio, has a limited period of record, it should be noted that it reached a record-high level for March. Conversely, below normal precipitation in the southern two-thirds of the state during this period has not been as favorable for recharge in that part of Ohio. Ground water storage remains below normal across most of the state with a few exceptions in some consolidated aquifers in eastern Ohio. Current levels are also lower than they were at this time last year ranging from 1 to 4 feet below the March 2008 levels. However, current conditions are somewhat favorable for potential improvement in ground water storage across most of the state. The Ohio Agricultural Statistics Service reports that near the end of March, soil moisture was rated as being short or very short in 12 percent of the state, adequate in 70 percent of the state and surplus in 18 percent of the state. With near normal precipitation and other climatic conditions during the next few months, ground water supplies should remain adequate.

LAKE ERIE level rose during March. The mean level was 571.89 feet (IGLD-1985), 0.78 foot higher than last month's mean level and 0.79 foot above normal. This month's mean level is 0.14 foot higher than the March 2008 level and 2.69 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during March averaged 4.04 inches, 1.31 inches above normal. For the entire Great Lakes basin, March precipitation averaged 2.39 inches, 0.23 inch above normal. For calendar year 2009 through March, the Lake Erie basin has averaged 8.99 inches, 1.72 inches above normal, while the entire Great Lakes basin has averaged 5.97 inches, 0.16 inch 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 above normal for the foreseeable future, perhaps falling to near normal by late summer. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from about 12 inches above normal to as much as 8 inches below the normal seasonal levels.

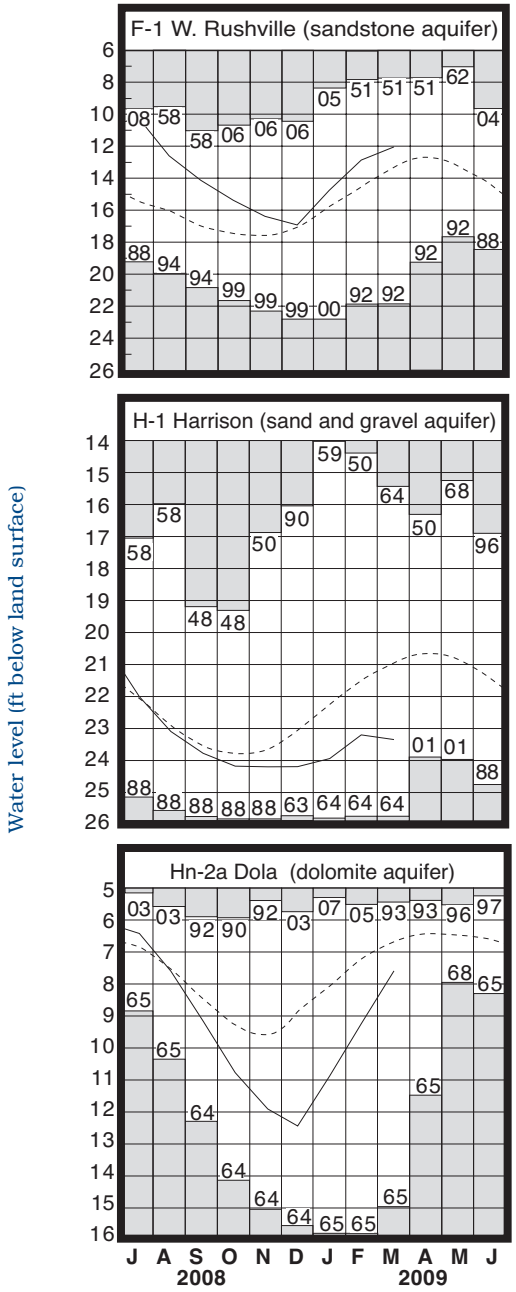
LAKE ERIE LEVELS



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 and streamflow during March was below normal in the southern two-thirds of the state and above normal in the northern one-third. Reservoir storage increased in the Mahoning River basin and was unchanged in the Scioto River basin. Storage remained above normal in the Mahoning River basin and below normal in the Scioto River basin. Ground water levels rose seasonally in most aquifers, but declined in a few aquifers in southern Ohio. Lake Erie level rose 0.78 foot and was 0.79 foot above the long-term March average.

NOTES AND COMMENTS

ODNR Division of Soil and Water Conservation and Division of Water to Merge

The Ohio Department of Natural Resources (ODNR) recently announced plans to merge the Division of Soil and Water Conservation and the Division of Water into a new Division of Soil and Water Resources. An amendment in the biennium budget bill is being sought to authorize this planned merger, which would then go into effect in July 2009. In addition, the Division of Recycling and Litter Prevention will be aligned administratively with this new division; however, it will continue to be a separate division. The Canal Operations program will not be part of the merger, and will instead join the Division of Parks and Recreation. David Hanselmann, a 32-year ODNR employee and the current Chief of the Division of Soil and Water Conservation, will serve as the Chief of the Division of Soil and Water Resources and provide support to the Division of Recycling and Litter Prevention. Until July, in addition to being the Chief of the Division of Soil and Water Conservation, Mr. Hanselmann will be the acting Chief of the Division of Water.

These consolidated operations will interface closely with Ohio's 88 Soil and Water Conservation Districts (SWCD) and provide increased access to a broad range of soil, water, and land resource information and services. This partnership will allow the SWCD boards and staff the ability to better assist local residents and communities. ODNR believes this partnership can help address important sustainability needs relating to recycling and conservation of water, energy, soils and land. Also, this partnership will strengthen efforts to manage water and related land resources on a watershed basis.

Information about the current three divisions can be found at www.ohiodnr.com. Chief David Hanselmann can be contacted at (614) 265-6610.

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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