



MONTHLY WATER INVENTORY REPORT FOR OHIO

April 2009

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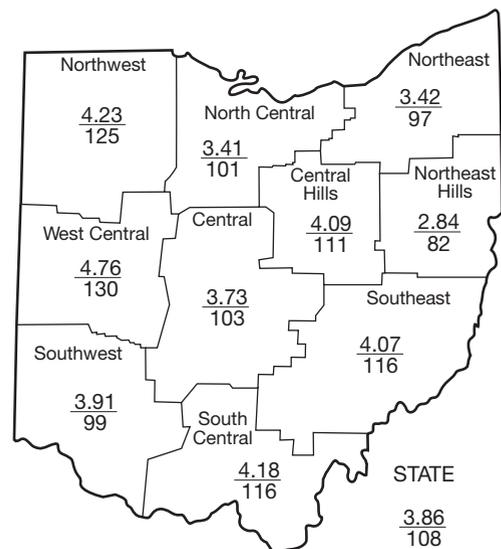
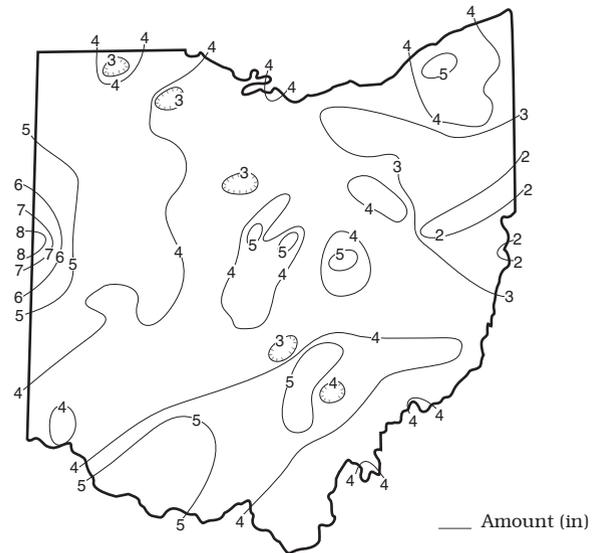
PRECIPITATION during April was above normal throughout most of the state, but below normal in much of northeastern Ohio and a large area of southwestern Ohio. The state average was 3.86 inches, 0.28 inch above normal. Regional averages ranged from 4.76 inches, 1.10 inches above normal, for the West Central Region to 2.84 inches, 0.62 inch below normal, for the Northeast Hills Region. Fort Recovery (Mercer County) reported the greatest amount of April precipitation, 8.21 inches. Steubenville (Jefferson County) reported the least amount, 1.67 inches.

Precipitation during April fell as rain during most of the month, but some snow was reported in northern Ohio near the end of the first week. Most of Ohio received between 0.75 and 1.5 inches of precipitation during the first week of April, with more than 2.5 inches reported at some locations in west-central and northwestern Ohio. A few thunderstorms in western Ohio on April 5 were severe, with locally heavy rainfall producing some minor flooding. Showers fell during April 9-10, especially in southwestern Ohio, where up to 1 inch was reported. Widespread precipitation fell during April 13-15 with amounts of 0.50-1.0 inch reported across most of the state and a few scattered locations reporting as much as 2 inches. Precipitation was again widespread during April 19-22 with most areas of the state receiving 0.50-1.0 inch of rain. The month ended with some light showers falling across Ohio.

Precipitation for the 2009 water year is above normal in the northern one-third of the state and below normal elsewhere. The average for the state is 19.85 inches, 0.06 inch above normal. Regional averages range from 23.71 inches, 3.32 inches above normal, for the Northeast Region to 17.52 inches, 1.73 inches below normal, for the Central Region.

Precipitation for the 2009 calendar year is above normal in the northern one-third of Ohio and below normal elsewhere. The average for the state is 10.87 inches, 0.71 inch below normal. Regional averages range from 13.02 inches, 3.11 inches above normal, for the Northwest Region to 9.50 inches, 1.87 inches below normal, for the Central Region.

PRECIPITATION APRIL



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	+0.85	+3.84	+4.86	+5.59	+15.36	+3.8
North Central	+0.02	+1.71	+2.87	+4.75	+14.94	+3.1
Northeast	-0.11	+0.56	+3.41	+6.00	+14.73	+2.6
West Central	+1.10	-0.67	+0.33	+0.65	+6.80	+0.3
Central	+0.10	-1.82	-0.89	-0.28	+4.10	-0.7
Central Hills	+0.41	-0.69	+0.66	-0.74	+5.97	+0.1
Northeast Hills	-0.62	-2.43	-1.12	-2.22	+4.57	-0.5
Southwest	-0.05	-2.69	-2.86	-3.72	-0.85	-1.6
South Central	+0.59	-2.86	-0.91	-0.90	+0.38	-0.9
Southeast	+0.56	-2.12	+0.49	+1.13	+3.42	-0.4
State	+0.28	-0.72	+0.68	+1.01	+6.92	

*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	1,502	102	124	129	121
Great Miami River at Hamilton	3,630	5,525	94	84	73	98
Huron River at Milan	371	339	57	171	146	143
Killbuck Creek at Killbuck	464	635	80	83	74	74
Little Beaver Creek near East Liverpool	496	663	72	86	84	73
Maumee River at Waterville	6,330	12,640	118	158	133	121
Muskingum River at McConnelsville	7,422	11,490	68	107	108	76
Scioto River near Prospect	567	681	75	90	72	89
Scioto River at Higby	5,131	5,544	73	66	57	78
Stillwater River at Pleasant Hill	503	1,057	144	95	77	97

STREAMFLOW during April was below normal across much of the state, but above normal in some basins in northern and western Ohio. Flows were low enough to be considered deficient in a few basins, but were also high enough to be considered excessive in basins in west central Ohio. Flows during April were generally greater than the March flows in central and southern Ohio, and less than the March flows in northern Ohio.

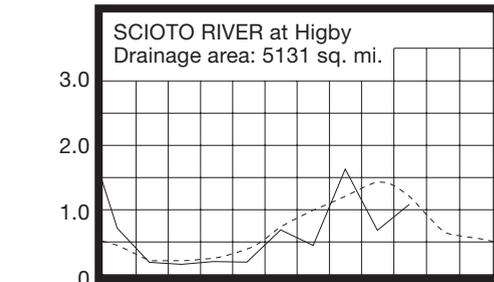
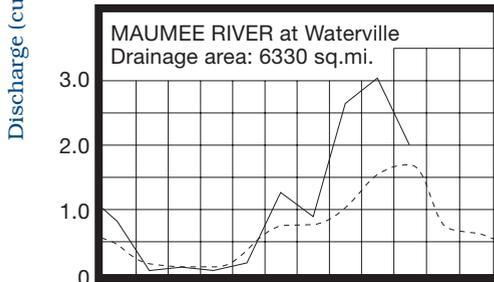
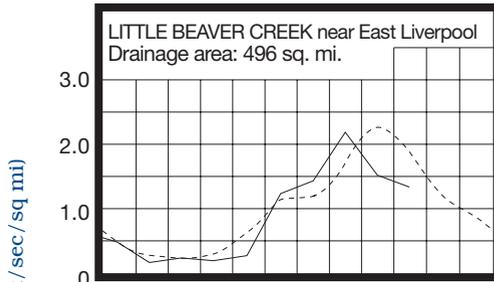
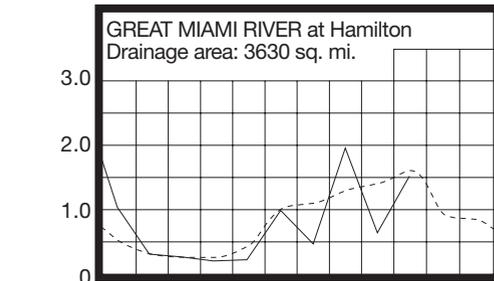
Flows at the beginning of the month were below normal throughout the state. Most drainage basins recorded their lowest flows for April near the beginning of the month while some basins in the northern one-third of the state recorded their lowest flows near the end of April. Flows increased statewide following precipitation that occurred during

the first week of the month. Greatest flows for the month in western and northwestern Ohio were recorded following this precipitation. Basins in southwestern and central Ohio recorded their greatest flows for the month following the widespread precipitation of April 13-15, while drainage basins in eastern and southeastern Ohio reached their peak flows following the April 19-20 precipitation. Flows generally declined during the last week of the month and were below normal across most of the state at month's end. An exception was in some western Ohio basins where flows had increased to above normal in response to the precipitation that fell during the last 3 days of the month.

RESERVOIR STORAGE for water supply during April increased in both the Mahoning and Scioto river basins. At the end of April, storage remained above normal in the Mahoning River basin and below normal in the Scioto River basin.

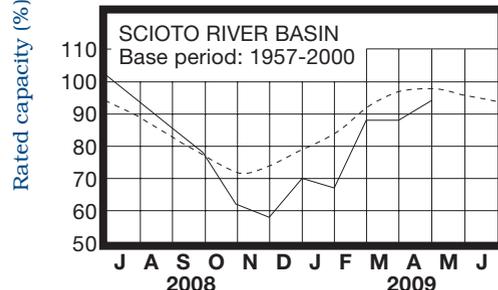
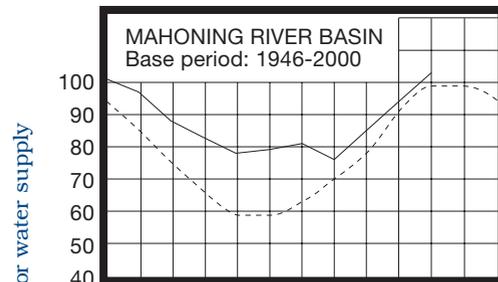
Reservoir storage at the end of April in the Mahoning basin index reservoirs was 103 percent of rated capacity for water supply compared with 94 percent for last month and 99 percent for April 2008. Month-end storage in the Scioto basin index reservoirs was 94 percent of rated capacity for water supply compared with 88 percent for last month and 98 percent for April 2008. Surface water supplies are favorable statewide.

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

GROUND WATER levels during April rose seasonally throughout Ohio. Levels in most aquifers across the state rose gradually throughout the month. Levels in a few unconsolidated aquifers in southern Ohio rose during the first half of the month, and then declined during the second half. Generally, net changes in ground water levels from last month's levels were less than usually observed.

The 2009 recharge season has been adequate thus far for ground water supplies. Aquifers in northern Ohio have benefited the most, a direct result of the above normal precipitation northern Ohio has received during this recharge season. However, levels continue to range below normal across much of the state with just a few exceptions in some consolidated aquifers in eastern Ohio. Current levels are also lower than they were at this time last year ranging up to as much as 3.5 feet below the April 2008 levels. There is a potential for additional improvement to ground water storage provided near-normal precipitation and other climatic conditions occur during the next couple of months. The Ohio Agricultural Statistics Service reports that near the end of April, soil moisture was rated as being adequate in 53 percent of the state and surplus in 47 percent of the state.

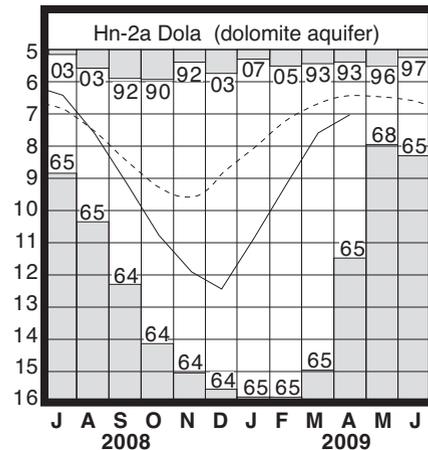
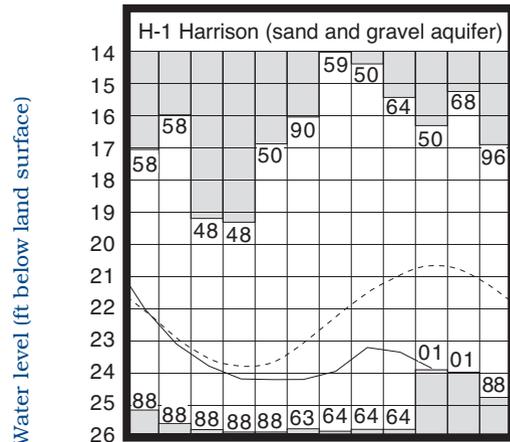
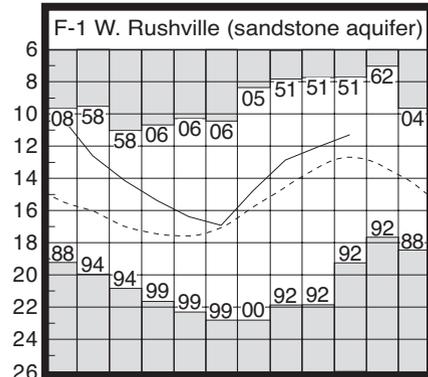
LAKE ERIE level rose during April. The mean level was 572.26 feet (IGLD-1985), 0.37 foot higher than last month's mean level and 0.67 foot above normal. This month's mean level is 0.08 foot higher than the April 2008 level and 3.06 feet above Low Water Datum. This month's mean level is the highest for Lake Erie since late summer 1998.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during April averaged 4.43 inches, 1.27 inches above normal. For the entire Great Lakes basin, April precipitation averaged 3.35 inches, 0.82 inch above normal. For calendar year 2009 through April, the Lake Erie basin has averaged 13.42 inches of precipitation, 2.99 inches above normal, while the entire Great Lakes basin has averaged 9.32 inches, 0.66 inch 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 above normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from as much as 9 inches above to around 6 inches below the normal seasonal level.

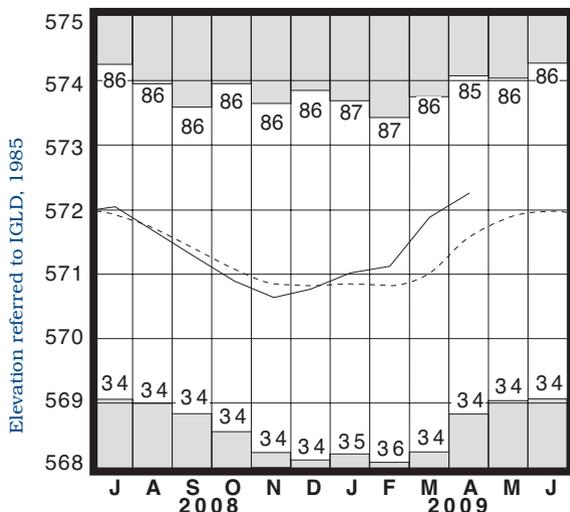
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	11.28	+1.41	+0.82	-1.45
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.91	-2.08	+0.57	-1.12
Fr-10	Columbus, Franklin Co.	Gravel	43.71	-1.44	+0.34	-1.34
H-1	Harrison, Hamilton Co.	Gravel	22.84	-2.17	+0.51	-2.53
Hn-2a	Dola, Hardin Co.	Dolomite	7.02	-0.59	+0.58	-1.08
Po-124	Freedom, Portage Co.	Sandstone	76.03	+1.74	+0.34	-0.06
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.30	-2.14	+0.15	-3.58

GROUND-WATER LEVELS



Base periods: F-1, 1947-2000 H-1, 1951-2000.
Hn-2a, 1955-2000

LAKE ERIE LEVELS



Base period: 1918-2000

■ Record high and low, year of occurrence

Normal - - - - Current ———

SUMMARY

Precipitation during April was above normal throughout most of the state, but below normal in much of northeastern Ohio and a large area of southwestern Ohio. Streamflow was below normal across much of the state, but above normal in some basins in northern and western Ohio. Reservoir storage increased in both the Mahoning and Scioto river basins. Storage remained above normal in the Mahoning River basin and below normal in the Scioto River basin. Ground water levels rose throughout the state. Lake Erie level rose 0.37 foot and was 0.67 foot above the long-term April average.

NOTES AND COMMENTS

Ohio Observation Well Network

The Ohio Department of Natural Resources (ODNR), Division of Water, Water Resources Section is responsible for collecting, researching, interpreting and disseminating hydrologic and ground water resource information for the state of Ohio. An important component of this program is the Ohio Observation Well Network. The Ohio Observation Well Network characterizes Ohio's ground water resources through monitoring and evaluating both short- and long-term trends in ground water level fluctuations throughout the state's various aquifer systems.

Since the beginning of ground water level monitoring in Ohio in 1938, observation wells have been used to monitor an aquifer's response to changing climatic conditions and the impacts from man-induced activities. Monitoring and evaluating long-term trends in ground water levels enables water resource professionals to access the availability and annual replenishment of ground water supplies. The Ohio Observation Well Network is a tool that professionals use to determine the availability of ground water supplies, thus promoting the wise management and efficient use of this valuable resource. Currently, the Division of Water monitors 140 wells distributed across the state. Once information is gathered from the field from each observation well, it is reviewed and verified for accuracy. The data is then made available on-line through the Division of Water's web page. The web site allows the user to view and/or retrieve data from the Ohio Observation Well Network database. Several options are provided that offer a wide range of flexibility in viewing and/or retrieving current and historical data. Statistical and water quality data are also available through the web site. In addition to the 140 currently active observation wells, ground water level data from an additional 205 historic/inactive observation wells is also available. To visit this web site, go to the Division of Water's home page at: www.dnr.state.oh.us/water/ and click on "Observation Well Network."

The Ohio Observation Well Network is a successful example of both public and private and local, state, and federal partnerships. The U.S. Geological Survey (USGS) has been a cooperative partner with the ODNR since the establishment of the network. As part of that cooperative effort, 10 of the observation wells have been equipped with automated equipment, providing near-real time ground water level information that can be accessed through the division's web site. To view data from the 10 near-real time sites, go to the Division of Water, Water Inventory main page and click on "USGS Near real time data for select observation wells."

For more information about Ohio's Observation Well Network, contact the Division of Water at (614) 265-6739 or e-mail: dave.cashell@dnr.state.oh.us.

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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