



# MONTHLY WATER INVENTORY REPORT FOR OHIO

November 2008

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

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Water Inventory Unit

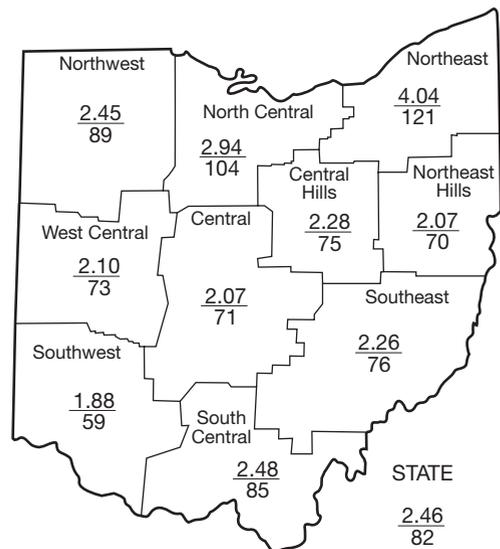
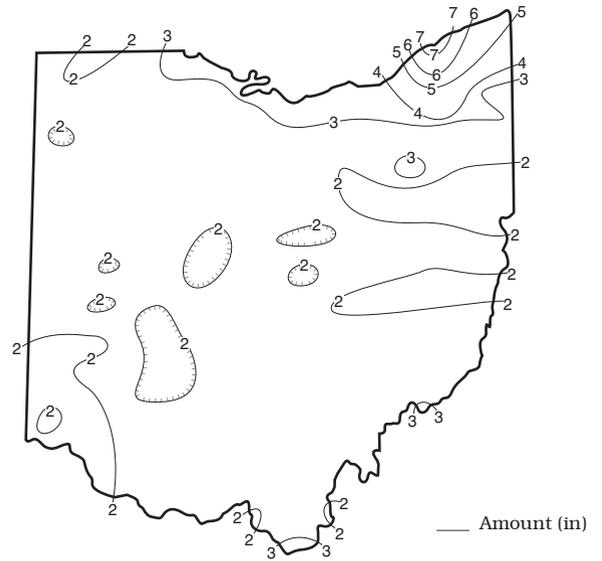
**PRECIPITATION** during November was below normal throughout most of the state, but above normal in the North Central and Northeast regions. The state average was 2.46 inches, 0.52 inch below normal. Regional averages ranged from 4.04 inches, 0.70 inch above normal, for the Northeast Region to 1.88 inches, 1.33 inches below normal, for the Southwest Region. Painesville (Lake County) reported the greatest amount of November precipitation, 7.23 inches; Chardon (Geauga County) reported 6.55 inches for the month. Marysville (Union County) reported the least amount, 1.46 inches.

Precipitation during November fell as both rain and snow. Snow totals for the month were nominal across most of the state, but above normal in northeastern Ohio. Rain during November 7 was greatest from south-central to northeastern Ohio where generally 0.50-1.0 inch was reported. The month's most widespread precipitation fell across the state during November 12-15. Most of the state received at least 1 inch of precipitation during this period with more than 2 inches falling at some locations, mainly across extreme northern Ohio. The next week was rather dry across much of the state, except in the northeastern Ohio snowbelt counties where precipitation as mainly snow fell on several days. Chardon (Geauga County) reported 23 inches of snow for the month, nearly twice its average amount for November. Precipitation during November 24-25 was greatest across the southeastern half of the state with 0.25-0.75 inch reported. Light rain fell throughout the state on the last day of the month.

Precipitation for the 2008 calendar year is above normal statewide. The average for the state is 39.76 inches, 4.50 inches above normal. Regional averages range from 44.85 inches, 9.25 inches above normal, for the Northeast Region to 37.14 inches, 1.49 inches above normal, for the Central Hills Region.

Precipitation for the first 2 months of the 2009 water year is below normal throughout most of the state; only the Northeast Region has received above normal precipitation. The average for the state is 4.29 inches, 1.16 inches below normal. Regional averages range from 6.94 inches, 0.62 inch above normal, for the Northeast Region to 3.36 inches, 2.47 inches below normal, for the Southwest Region. The 2009 water year is not off to a very good start across most of the state as far as precipitation is concerned. However, the 2009 water year recharge season is just beginning and with near-normal precipitation during the next several months, there should be adequate opportunity for recharge to the state's water resources.

## PRECIPITATION NOVEMBER



## PRECIPITATION

Region	This Month	DEPARTURE FROM NORMAL (IN.) Base period 1951-2000				Palmer Drought Severity Index*
		Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	-0.31	+0.36	+0.09	+7.03	+14.87	+0.8
North Central	+0.11	+1.01	+1.00	+9.04	+17.42	+2.0
Northeast	+0.70	+0.82	+2.99	+11.32	+15.67	+3.5
West Central	-0.79	-2.44	-1.18	+7.03	+13.68	-1.6
Central	-0.85	-2.24	-0.30	+5.63	+9.15	-1.6
Central Hills	-0.74	-1.53	-2.32	+3.03	+7.15	-1.3
Northeast Hills	-0.89	-1.20	-1.80	+3.77	+6.41	-1.3
Southwest	-1.33	-3.70	-3.88	+4.78	+3.95	-2.1
South Central	-0.45	-3.32	-1.90	+6.08	-1.13	-1.5
Southeast	-0.71	-3.07	-0.92	+6.51	+3.17	-1.6
State	-0.52	-1.52	-0.82	+6.42	+9.02	

\*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

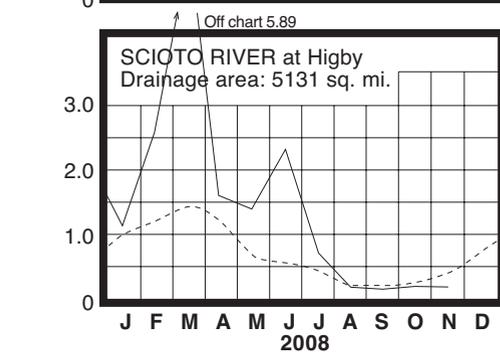
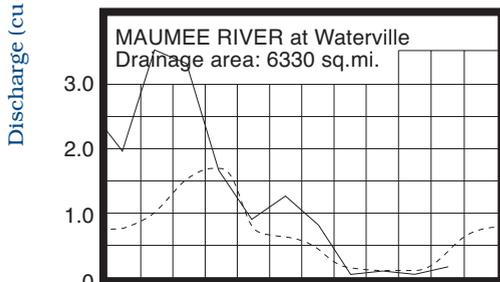
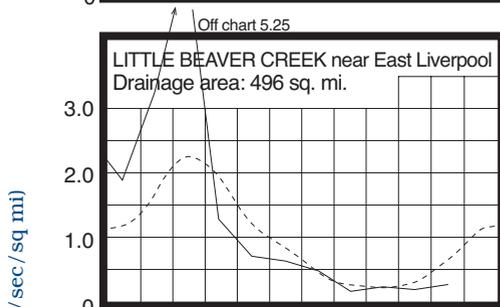
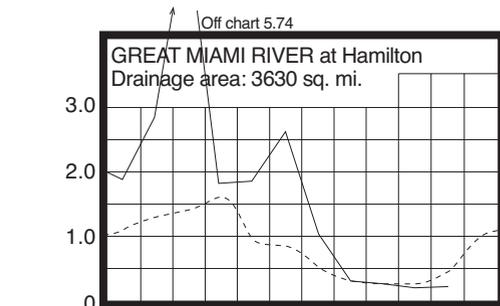
This Month

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	1,477	135	90	98	141
Great Miami River at Hamilton	3,630	753	46	48	128	171
Huron River at Milan	371	153	162	81	109	198
Killbuck Creek at Killbuck	464	124	43	45	65	126
Little Beaver Creek near East Liverpool	496	132	40	40	52	120
Maumee River at Waterville	6,330	1,049	40	27	88	152
Muskingum River at McConnelsville	7,422	2,324	41	71	138	120
Scioto River near Prospect	567	31	32	13	104	181
Scioto River at Higby	5,131	933	37	37	104	151
Stillwater River at Pleasant Hill	503	73	74	26	131	176

**STREAMFLOW** during November was below normal across most of the state with the exception being in extreme northern Ohio, where flows were above normal. Flows were low enough to be considered deficient across the southeastern half of the state. Flows during November were seasonally greater than those observed during October nearly statewide.

Streamflow at the beginning of November was below normal throughout Ohio. Lowest flows for the month generally occurred near the end of the first week across the eastern two-thirds of the state and around November 10-11 in the western one-third. Flows increased in response to the widespread precipitation that fell during November 12-15 with the greatest flows for the month occurring November 16-18. Following these peaks, streamflow generally declined the remainder of the month, although some temporary increases were noted across much of the state following the November 24-25 precipitation. Streamflow at the end of November was below normal throughout most of the state, but was above normal in some extreme northeastern Ohio basins.

### MEAN STREAM DISCHARGE

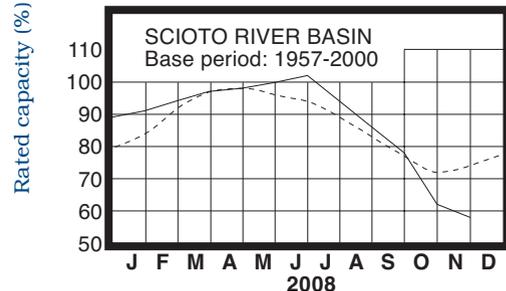
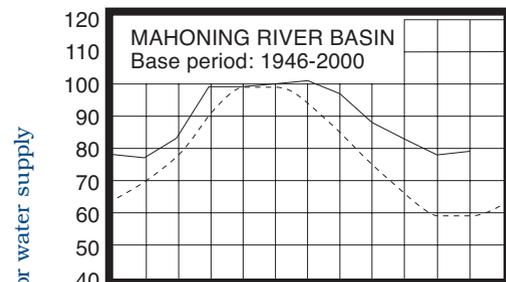


Base period for all streams: 1971-2000

**RESERVOIR STORAGE** during November increased slightly in the Mahoning River basin and decreased in the Scioto River basin. At the end of November, storage remained above normal in the Mahoning River basin, but remained below normal in the Scioto River basin.

Reservoir storage at the end of November in the Mahoning basin index reservoirs was 79 percent of rated capacity for water supply compared with 78 percent for last month and 79 percent for November 2007. Month-end storage in the Scioto basin index reservoirs was 58 percent of rated capacity for water supply compared with 62 percent for last month and 70 percent for November 2007. Surface water supplies remain adequate across most of the state.

### RESERVOIR STORAGE FOR WATER SUPPLY



Normal - - - - Current ———

## GROUND-WATER LEVELS

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

**GROUND WATER** levels declined during November in most aquifers across the state. A few exceptions were observed in some unconsolidated aquifers in central Ohio where ground water levels rose slightly during the month. Net declines from last month's levels were greater than usually observed across nearly the entire state.

Ground water supplies remain adequate throughout the state. However, ground water levels remain below normal across most of the state with the exception of some consolidated aquifers in eastern Ohio where levels are above normal. Current levels are generally higher than they were at this time last year in southern Ohio and lower than last year's levels in northern Ohio. Soil moisture conditions improved from last month. The Ohio Agricultural Statistics Service reports that on November 21, soil moisture was rated as being short or very short in 41 percent of the state, adequate in 50 percent of the state and surplus in 9 percent of the state. The 2009 ground water recharge season has just begun and with normal precipitation during the next several months, Ohio's ground water supplies should receive adequate recharge.

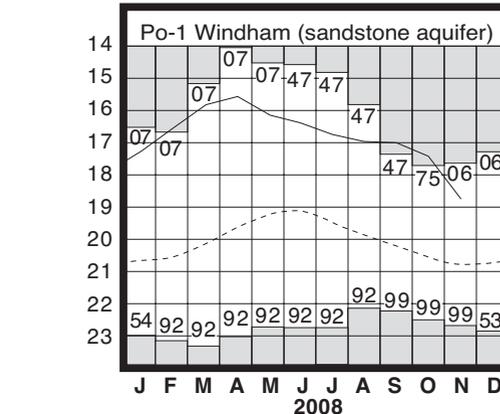
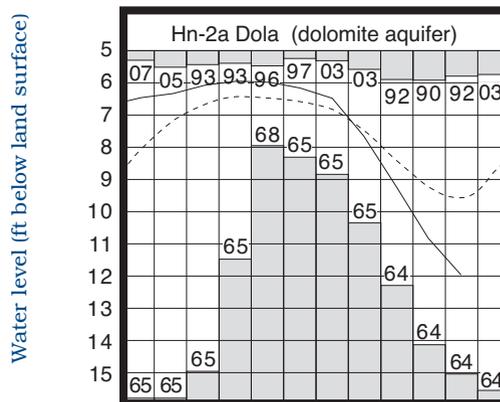
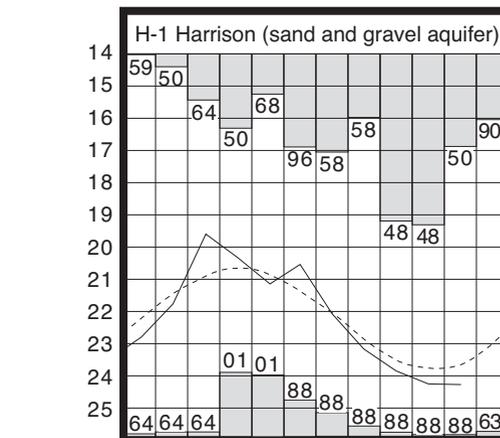
**LAKE ERIE** level declined during November. The mean level was 570.64 feet (IGLD-1985), 0.26 foot lower than last month's mean level and 0.23 foot below normal. This month's mean level is 0.40 foot higher than the November 2007 level and 1.44 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during November averaged 3.85 inches, 1.02 inches above normal. For the entire Great Lakes basin, November precipitation averaged 2.82 inches, 0.08 inch above normal. For calendar year 2008 through November, the Lake Erie basin has averaged 37.15 inches of precipitation, 4.73 inches above normal, while the entire Great Lakes basin has averaged 33.12 inches, 3.04 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 about 6 inches above to as much as 16 inches below the normal seasonal levels.

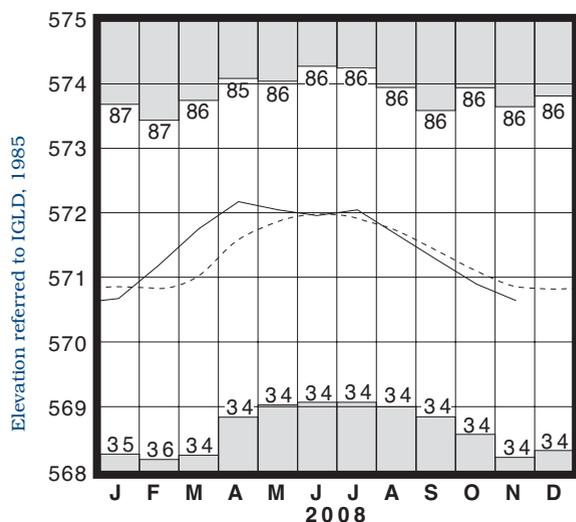
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	16.39	+1.19	-1.01	+1.76
Fa-1	Jasper Mill, Fayette Co.	Limestone	10.90	-1.87	-0.38	+1.80
Fr-10	Columbus, Franklin Co.	Gravel	45.46	-1.34	+0.13	+0.03
H-1	Harrison, Hamilton Co.	Gravel	24.28	-0.60	-0.03	+0.27
Hn-2a	Dola, Hardin Co.	Dolomite	11.96	-2.39	-1.14	-4.08
Po-1	Windham, Portage Co.	Sandstone	18.75	+2.04	-1.34	0
Tu-1	Strasburg, Tuscarawas Co.	Gravel	15.56	-1.56	-0.21	-0.45

## GROUND-WATER LEVELS



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

## LAKE ERIE LEVELS



Base period: 1918-2000

■ Record high and low, year of occurrence

Normal - - - - Current - - - -

## SUMMARY

Precipitation during November was below normal throughout most of the state, but above normal in the North Central and Northeast regions. Streamflow was below normal in most basins across Ohio. Reservoir storage increased slightly in the Mahoning River basin and decreased in the Scioto River basin. Reservoir storage at the end of November was above normal in the Mahoning River basin and below normal in the Scioto River basin. Ground water levels declined and remained below normal across most of the state. Lake Erie level declined 0.26 foot and was 0.23 foot below the long-term November average.

## NOTES AND COMMENTS

### President Bush Signs The Great Lakes-St. Lawrence River Basin Water Resources Compact

The Great Lakes-St. Lawrence River Basin Water Resources Compact was passed by Congress and signed into law by President Bush on October 3, 2008. The President's action was the final step in the approval process for this important agreement. The Compact provides a comprehensive management framework for the eight Great Lakes States to work toward sustainable water use and resource protection within the Great Lakes Basin. Among its important provisions is a prohibition on new and increased diversions of water out of the Great Lakes basin, except in special situations, and a requirement for each of the Great Lakes states to regulate new or increased withdrawals within the basin.

In 2001, the Great Lakes Charter Annex was signed by the Council of Great Lakes Governors (CGLG) and was the initial agreement between the eight Great Lakes states leading to negotiations to update and strengthen the way in which the Great Lakes and the waters of the Great Lakes basin are managed, protected, conserved, restored and improved. On December 13, 2005, the Governors and premiers of the Great Lakes states and provinces of Ontario and Quebec approved agreements to implement Annex 2001. One of these agreements for the Great Lakes states was the Great Lakes-St Lawrence River Basin Water Resources Compact. The Compact was the effort by members of the CGLG and other interested parties to ban diversions of Great Lakes water outside of the Great Lakes watershed with limited exceptions, to apply a common standard for management of the waters of the Great Lakes basin and to preserve the economic vitality in the region. In order for the compact to be fully implemented, it had to be ratified by all eight Great Lakes states and approved by Congress through legislative action. Once ratified and approved by Congress, each state would then be responsible for passing its own water conservation and efficiency program, but within a specific set of guidelines.

Now that each of the eight Great Lakes state legislatures has ratified the Compact, Congress has approved legislation and President Bush has signed the Compact into law, the Compact will become effective on December 8, 2008. Additional information on the Compact and its provisions can be found at: <http://www.dnr.state.oh.us/water/tabid/4048/Default.aspx>.

## 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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