



MONTHLY WATER INVENTORY REPORT FOR OHIO

February 2013

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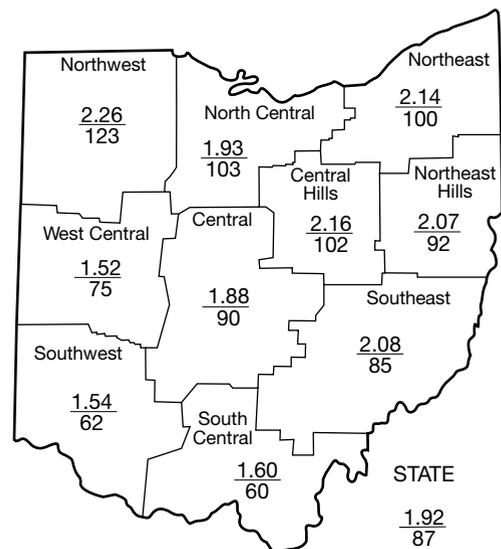
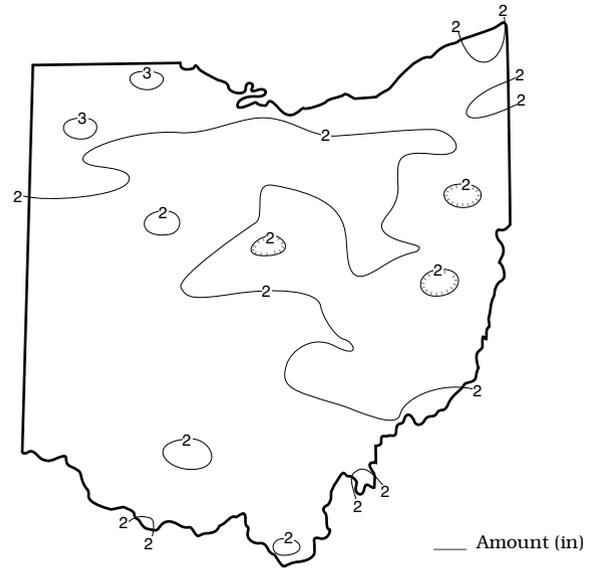
PRECIPITATION during February was below normal throughout most of the state, but above normal across extreme northern Ohio and areas in the east-central part of the state. The average for the state was 1.92 inches, 0.28 inch below normal. Regional averages ranged from 2.26 inches, 0.43 inch above normal, for the Northwest Region to 1.52 inches, 0.51 inch below normal, for the West Central Region. Maumee State Forest (Fulton County) reported the greatest amount of February precipitation, 3.09 inches. Anthony Meldahl Locks and Dam (Clermont County) reported the least amount, 1.00 inch.

Precipitation during February fell as rain and snow. Snow amounts were above normal in the northern half of the state and near normal in the southern half. Precipitation fell over much of the state on about half of the days of the month, but daily amounts were usually on the light side. The month started with snow falling across the state during February 1-5. Snow amounts ranged from 3-10 inches (0.25-0.50 inch liquid precipitation) across much of the state and as much as 16 inches (nearly 1 inch liquid) in the northeastern snowbelt areas. The next two weeks were relatively dry with only a few light rain and snow showers reported. The only significant precipitation during this period occurred on February 8 with around 0.25 inch in northern Ohio and lesser amounts to the south. Light showers during February 19-22 brought another 0.25-0.50 inch of precipitation to much of the state. The most widespread and significant storm of the month occurred during February 26-28 and almost all of the precipitation fell as rain. Most of the state received between 0.75 inch and 1.50 inches of precipitation during this period.

Precipitation for the 2013 water year is above normal across most of the state with only the Southwest Region having below normal precipitation. The state average is 14.36 inches, 0.97 inch above normal. Regional averages range from 17.35 inches, 3.03 inches above normal, for the Northeast Region to 12.36 inches, 0.64 inch above normal, for the Northwest Region.

Precipitation for the 2013 calendar year is below normal throughout most of the state, but above normal in the Northwest and North Central regions. The state average is 4.45 inches, 0.31 inch below normal. Regional averages range from 5.60 inches, 1.73 inches above normal, for the Northwest Region to 3.99 inches, 0.64 inch below normal, for the Central Region.

PRECIPITATION FEBRUARY



PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) Base period 1961-2010					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	+0.43	+1.61	+1.41	-3.53	+12.97	+1.0
North Central	+0.05	+0.23	+5.08	+1.25	+19.92	+3.8
Northeast	0.00	+0.98	+4.72	+0.38	+20.78	+3.1
West Central	-0.51	+1.09	+3.44	-3.57	+12.44	+1.4
Central	-0.21	+1.16	+2.54	-3.23	+13.04	+0.7
Central Hills	+0.05	+0.94	+3.55	-2.13	+12.04	+2.0
Northeast Hills	-0.17	+1.01	+2.08	-3.86	+10.62	+0.9
Southwest	-0.96	+0.37	+0.42	-6.84	+11.46	-0.4
South Central	-1.08	+2.57	+3.12	-1.05	+15.42	+0.6
Southeast	-0.38	+2.47	+2.91	-1.05	+13.51	+1.4
State	-0.28	+1.24	+2.93	-2.36	+14.22	

*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

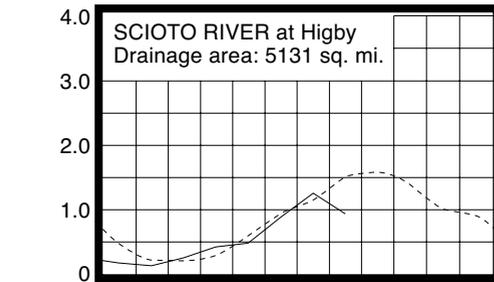
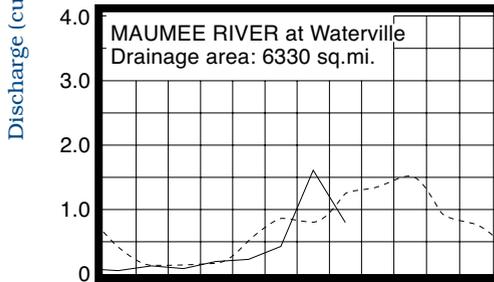
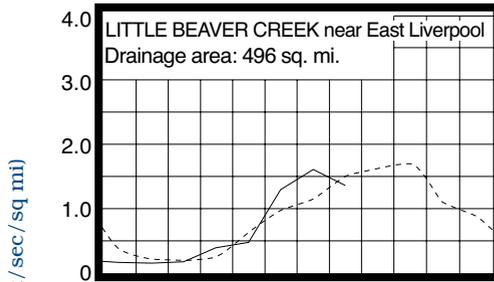
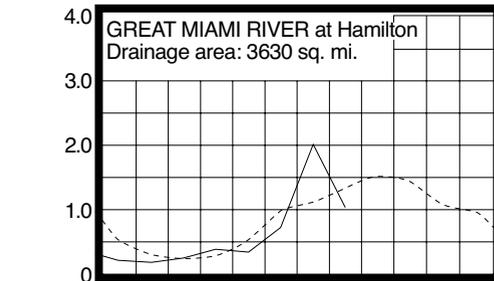
River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	1,342	75	93	104	78
Great Miami River at Hamilton	3,630	3,727	77	93	85	68
Huron River at Milan	371	497	97	96	138	99
Killbuck Creek at Killbuck	464	533	78	92	94	68
Little Beaver Creek near East Liverpool	496	676	91	98	88	61
Maumee River at Waterville	6,330	5,085	64	77	68	53
Muskingum River at McConnelsville	7,422	9,659	76	87	82	62
Scioto River near Prospect	567	577	112	116	143	100
Scioto River at Higby	5,131	4,756	61	76	78	66
Stillwater River at Pleasant Hill	503	432	69	117	105	65

STREAMFLOW during February was below normal throughout most of the state. Flows were low enough to be considered deficient in some basins in south-central Ohio. Flows during February were lower than the flows observed during January statewide.

Streamflow at the beginning of the month was well above normal across most of the state. Areas in northeastern, southwestern and central Ohio had their greatest flows for the month at the start of February. Generally, flows declined steadily throughout most of the month with slight, temporary increases observed following local precipitation. Flows increased statewide during the last three days of the month in response to widespread precipitation. Lowest flows for the month occurred just before this precipitation across most of

Ohio. Greatest flows for the month were observed in northwestern, east-central and southeastern Ohio basins on either February 27 or 28. Flows at the end of the month were above normal statewide.

MEAN STREAM DISCHARGE

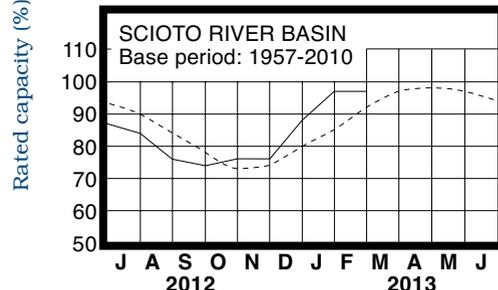
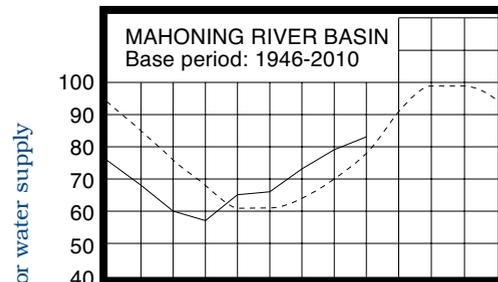


Base period for all streams: 1981-2010

RESERVOIR STORAGE for water supply during February increased in the Mahoning River basin and was unchanged in the Scioto River basin. Storage remained above normal in both basins.

Reservoir storage at the end of February in the Mahoning basin index reservoirs was 83 percent of rated capacity for water supply compared with 79 percent for last month and 74 percent for February 2012. Month-end storage in the Scioto basin index reservoirs was 97 percent of rated capacity for water supply compared with the same for last month and 89 percent for February 2012. Surface water supplies are in good shape throughout Ohio.

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 February showed net improvement throughout the state. Net changes from January's levels were less than usually observed in most aquifers, but were greater than usually observed in some consolidated aquifers in southern Ohio. Levels in most consolidated aquifers and deeper unconsolidated aquifers rose steadily throughout the month. Levels in shallower unconsolidated aquifers declined through most of February, and then began to rise near the end of the month in response to widespread precipitation.

Ground water supplies are adequate across Ohio as ground water storage continues to show some improvement throughout the state. However, ground water levels remain below normal across much of the state, although they are above normal in some consolidated aquifers in northwestern and southeastern Ohio. Current ground water levels also continue to remain lower than they were a year ago ranging from 0.25 foot to 3.25 feet below the February 2012 levels. With near-normal precipitation during the next few months, the ground water situation across Ohio should continue to show improvement. However, water supply managers with ground water sources should continue to monitor their situations closely during these next few months.

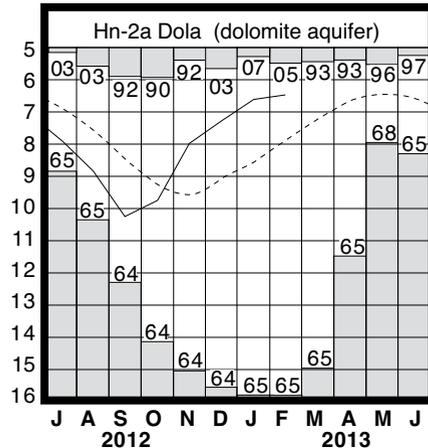
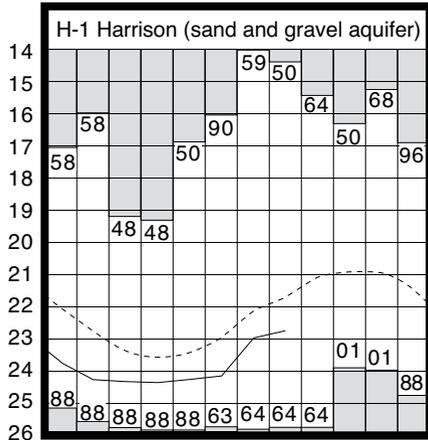
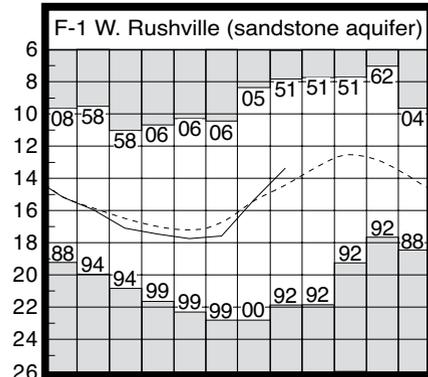
LAKE ERIE level rose during February. The mean level was 570.41 feet (IGLD-1985), 0.13 foot higher than last month's mean level and 0.42 foot below normal. This month's mean level is 1.67 feet below the February 2012 level and 1.21 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during February averaged 2.09 inches, which is normal. For the entire Great Lakes basin, February precipitation averaged 1.77 inches, 0.01 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 below normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from about 1 inch to as much as 18 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	13.36	+1.04	+1.98	-2.65
Fa-1	Jasper Mill, Fayette Co.	Limestone	10.81	-3.31	+3.16	-3.26
Fr-10	Columbus, Franklin Co.	Gravel	43.71	-0.26	+0.44	-1.73
H-1	Harrison, Hamilton Co.	Gravel	22.75	-1.05	+0.23	-1.58
Hn-2a	Dola, Hardin Co.	Dolomite	6.49	+1.50	+0.12	-0.26
Po-124	Freedom, Portage Co.	Sandstone	77.21	-0.44	+0.10	-1.78
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.91	-1.35	+0.21	-2.42

GROUND-WATER LEVELS



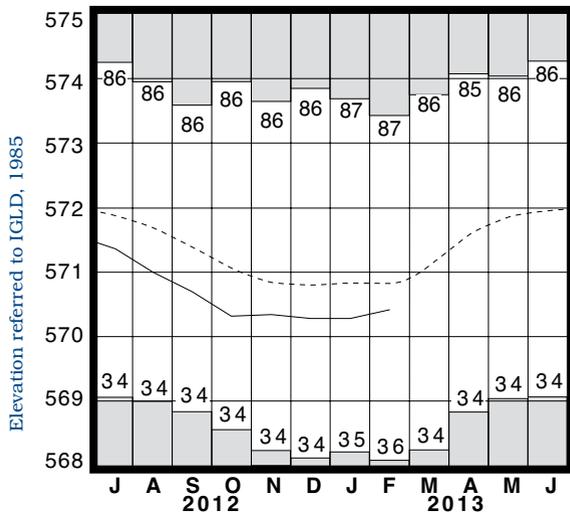
Water level (ft below land surface)

Base periods: F-1, 1947-2010; H-1 1951-2010.

Hn-2a, 1955-2010 ■ Record high and low, year of occurrence

Normal - - - - Current ———

LAKE ERIE LEVELS



Base period: 1918-2010

■ Record high and low, year of occurrence

SUMMARY

Precipitation during February was below normal across much of the state, but above normal in extreme northern Ohio and areas in east-central Ohio. Streamflow was below normal throughout most of the state. Reservoir storage increased during February and was above normal in both the Mahoning and Scioto river basins. Ground water levels rose statewide, but remained below normal across most of the state. Lake Erie level rose 0.13 foot and was 0.42 foot below the long-term February average.

NOTES AND COMMENTS

Recent Earthquakes Leave Their Mark In Ohio

Recent earthquakes have left their mark on Ohio. On October 27, 2012 at 11:04 p.m. EDT, an earthquake with a magnitude of 7.8 on the open-ended Richter scale struck the island of Moresby of the Haida Gwaii archipelago, located on the north coast of British Columbia in Canada. On January 5, 2013 at 3:58 am EST, an earthquake with a magnitude of 7.5 was centered off the coast of southern Alaska, about 58 miles west of Craig, Alaska. Shock waves radiating from the epicenter of these earthquakes traveled through rock formations and reached Ohio. Seismic waves passing through rock formations cause an alternating compression and expansion of the rock. Water levels in some wells finished in certain rock formations can rise and fall with the passage of these waves. Several wells in Ohio's observation well network respond to Western Hemisphere earthquakes. Minimum Richter scale readings of 6.5 to 7.0, depending on the earthquake's location, are usually necessary for wells in Ohio to show any response. The most sensitive well to these phenomena in Ohio's observation well network is VW-1, located in Van Wert (Van Wert County). Seismic waves from the Haida Gwaii, Canada earthquake caused a 0.63 foot fluctuation of water level in this well. Seismic waves from the Southern Alaska earthquake caused a 0.73 foot fluctuation in VW-1. The most notable fluctuation caused by an earthquake in VW-1 occurred March 27, 1964 when the water level changed 5.8 feet following the Alaskan Good Friday earthquake which had a Richter scale magnitude of 8.4.

ACKNOWLEDGMENTS

This report has been compiled from Division 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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