



MONTHLY WATER INVENTORY REPORT FOR OHIO

June 2002

<http://www.dnr.state.oh.us/water/pubs/newsltrs/mwirmain.htm>

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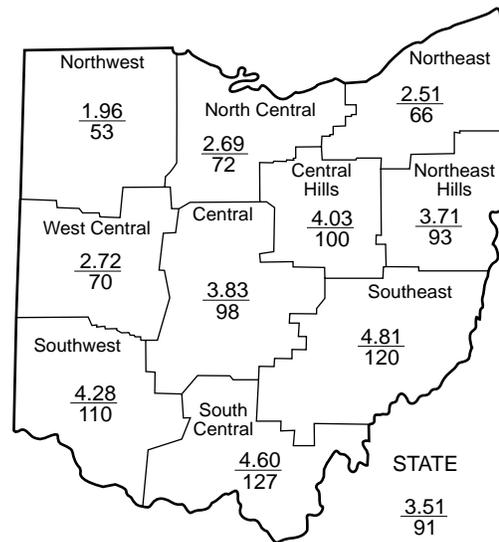
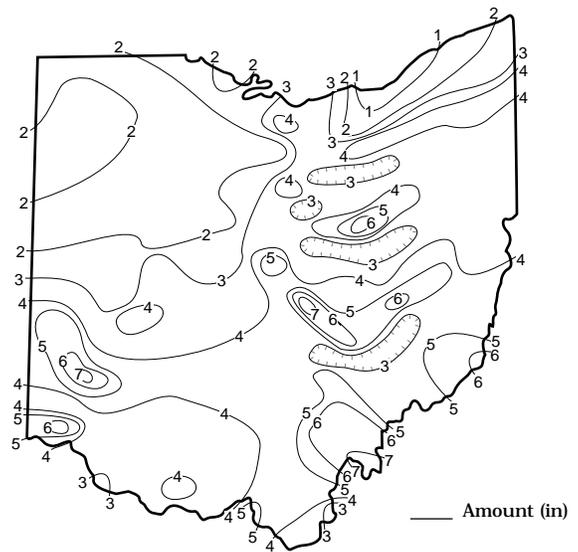
PRECIPITATION during June was generally below normal in the northwestern half of the state and above normal in the southeastern half. The average for the state as a whole was 3.51 inches, 0.34 inch below normal. Regional averages ranged from 4.81 inches, 0.79 inch above normal, for the Southeast Region to 1.96 inches, 1.71 inches below normal, for the Northwest Region. This was the 10th driest June for the Northwest Region and the 17th driest for the Northeast Region during the past 107 years of record. Newark (Licking County) reported the greatest amount of June precipitation, 7.68 inches. Franklin (Warren County) and Racine Locks and Dam (Meigs County) also reported more than 7 inches of precipitation for June. Cleveland Hopkins Municipal Airport (Cuyahoga County) reported the least amount, 0.92 inch. Painesville (Lake County) reported 0.99 inch for the month.

Most of the June precipitation fell during the first half of the month. Showers and thunderstorms were numerous during June 3-6. Some of these storms were strong and produced heavy downpours resulting in some small stream and urban flash flooding, generally confined to the southern half of Ohio. Most areas of the state received between 1 and 3 inches of rain during this 4-day period, however, areas in extreme northeastern Ohio received less than 0.50 inch. The next 10 days of the month were more summer-like with hit and miss showers and thunderstorms as most areas of the state reported around 0.50-1.0 inch of rain. Isolated downpours, most notably on June 13, produced 2-3 inches of rain in southern Ohio, resulting in some minor flooding. However, areas in northwest Ohio received little or no rain during this period. The next week was hot and dry across most of the state. Scattered showers and thunderstorms returned to the state on June 25 and continued through June 28. Although isolated, these storms were slow moving with some producing heavy rainfall. While most areas received less than 0.50 inch of rain from these storms, some areas received anywhere from 1 inch to as much as 5 inches which was reported from the Newark (Licking County) area. Small stream and urban flooding again was reported in isolated areas in mainly the southern half of the state.

Precipitation for the 2002 water year is above normal statewide. The average for the state as a whole is 31.26 inches, 3.75 inches above normal. Regional averages range from 37.61 inches, 7.14 inches above normal, for the Southwest Region to 27.81 inches, 3.15 inches above normal, for the Northwest Region.

Precipitation for the 2002 calendar year is above normal across most of the state, but is slightly below normal in northwestern Ohio. The average for the state as a whole is 20.88 inches, 1.54 inches above normal. Regional averages range from 25.32 inches, 4.25 inches above normal, for the South Central Region to 16.77 inches, 0.30 inch below normal, for the Northwest Region (see Precipitation table, departure from normal, past six months column).

PRECIPITATION JUNE



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	-1.71	-1.08	-0.30	+3.44	+2.76	-0.2
North Central	-1.05	+0.66	+0.92	+3.66	+0.23	-0.1
Northeast	-1.28	+1.34	+1.38	+0.18	-4.98	+0.2
West Central	-1.17	+2.17	+1.73	+9.37	+6.50	+1.8
Central	-0.08	+1.38	+0.20	+2.41	+1.78	-0.5
Central Hills	+0.01	+2.47	+1.43	+2.46	-2.13	0.0
Northeast Hills	-0.27	+1.61	+0.07	-0.37	-2.92	-0.9
Southwest	+0.39	+4.72	+3.64	+11.07	+6.61	+2.4
South Central	+0.99	+4.07	+4.25	+0.96	+0.47	-0.2
Southeast	+0.79	+3.11	+2.06	+2.16	+0.87	+0.5
State	-0.34	+2.05	+1.54	+3.53	+0.91	

*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	287	109	132	98	82
Great Miami River at Hamilton	3,630	4,817	155	190	138	153
Huron River at Milan	371	74	35	109	85	84
Killbuck Creek at Killbuck	464	658	198	128	87	77
Little Beaver Creek near East Liverpool	496	448	106	104	78	68
Maumee River at Waterville	6,330	2,456	61	124	99	112
Muskingum River at McConnelsville	7,422	11,370	191	204	136	79
Scioto River near Prospect	567	242	79	142	102	105
Scioto River at Higby	5,131	6,104	172	140	97	95
Stillwater River at Pleasant Hill	503	361	96	179	126	145

STREAMFLOW during June was generally above normal throughout most of the state, but was below normal in the northwestern quarter of Ohio. Flows were high enough to be considered excessive in some basins in the southwestern and central hills areas of Ohio. Conversely, flows were low enough to be considered deficient in some north-central Ohio drainage basins. June flows were seasonally less than the May flows across most of the state.

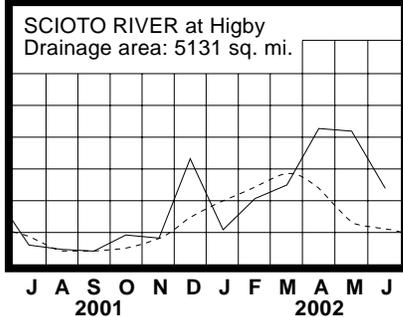
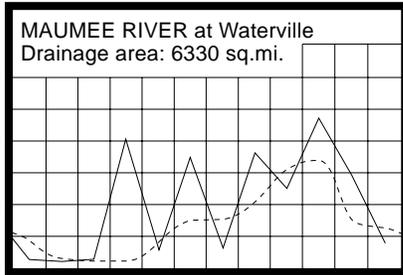
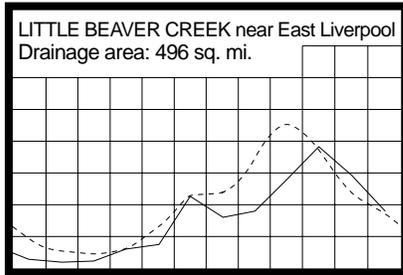
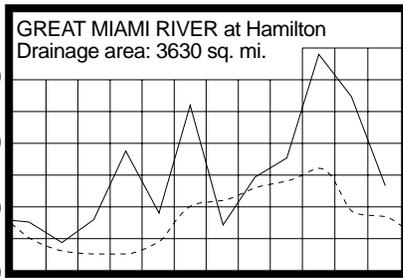
Flows at the beginning of June were above normal throughout most of the state. Flows during the first week of the month were stable or increased statewide as a result of the precipitation that fell during the period. Greatest flows for the month across most of the state occurred during this period, generally at the end of the first week. Small stream and urban

flooding occurred during June 3-6 in several areas of the state, but was most significant across the southern half. Flows declined during the second week of June with some temporary rises noted following local precipitation near the end of the week. Heavy rain on June 13 in southern Ohio brought flooding to some south-central areas including Ross and Vinton counties. Flows generally decreased during much of the remainder of the month as conditions turned much drier. Flows increased temporarily across most of the state following scattered showers and thunderstorms during June 25-28. Some of the rain was heavy, especially in southern Ohio, resulting in small stream and urban flooding. Low flows for the month occurred across most of Ohio just prior to the return of the wet weather, generally around June 24-27. However, in northeastern Ohio low flows occurred at the end of the month. Flows at the end of June fell below normal statewide.

RESERVOIR STORAGE for water supply during June decreased in both the Mahoning and Scioto river basins. Storage at the end of the month was above normal in both basins.

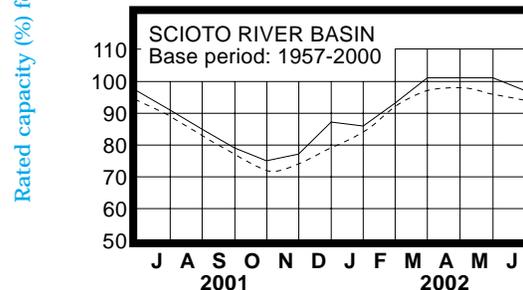
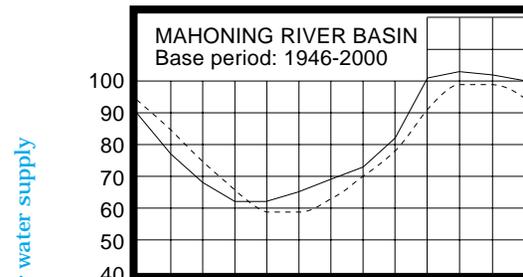
Reservoir storage at the end of June in the Mahoning basin index reservoirs was 100 percent of rated capacity for water supply compared with 102 percent for last month and 90 percent for June 2001. Month-end storage in the Scioto basin index reservoirs was 97 percent of rated capacity for water supply compared with 101 percent for last month and 97 percent for June 2001. Surface water supplies are adequate throughout the state. Demand for surface water resources for public water supplies increased as hot, dry weather prevailed during the second half of June.

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 June declined throughout most of the state. A few exceptions were noted in consolidated aquifers in northeastern Ohio where ground water levels were stable or rose slightly. Generally, aquifers in the eastern half of the state declined less than usually expected for June while aquifers in western Ohio declined more than usually expected. Most aquifers were rather stable or rose slightly during the first half of the month and then declined during the second half.

Ground water supplies are adequate across Ohio. Ground water levels remain above normal across most of the western half of the state and also in some consolidated aquifers in northeastern Ohio. Levels range from 1.4 feet above normal to 1.3 feet below normal. Current levels are higher than the June 2001 levels across nearly the entire state. This marks the first time since July 1998 that a majority of the index observation wells used in this report have been above the normal levels during the same month. Above normal precipitation from mid-March through early June extended this year's recharge season, benefiting ground water supplies. However, the recharge season appears to have come to an abrupt end as conditions turned noticeably drier during the second half of the month. Little recharge typically can be expected during the next several months. However, near normal precipitation and other favorable climatic conditions during this period would help reduce the seasonal high demand on ground water supplies. The Ohio Agricultural Statistics Service reports that near the end of June, soil moisture was rated as being short or very short in 33 percent of the state, adequate in 64 percent of the state and surplus in 3 percent of the state. When compared to the moist conditions that existed during May, this month's Palmer Drought Severity Index numbers, calculated from data available near the end of June, are a good indicator of how dry the second half of June was across most of Ohio.

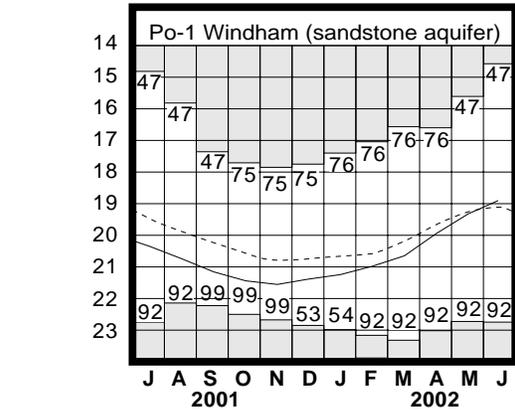
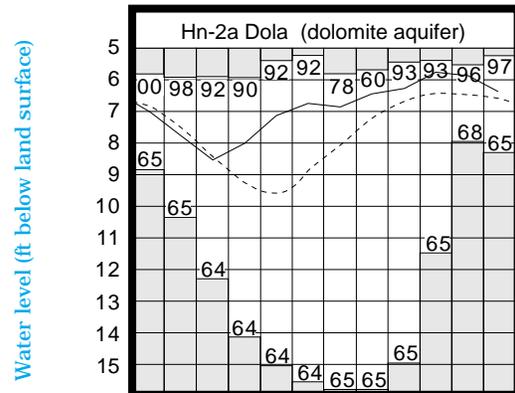
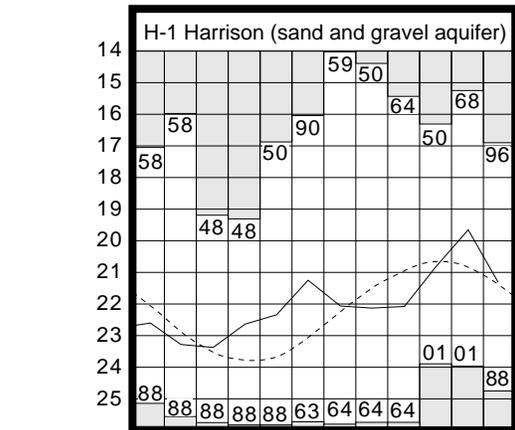
LAKE ERIE level rose during June. The mean level was 571.95 feet (IGLD-1985), 0.07 foot higher than last month's mean level and 0.03 foot below normal. This month's mean level is 0.76 foot higher than the June 2001 level and 2.75 feet above Low Water Datum.

The U. S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during June averaged 1.94 inches, which is 1.50 inches below normal. The entire Great Lakes basin averaged 3.05 inches, which is 0.14 inch below normal. For calendar year 2002 through June, the Lake Erie basin has averaged 19.24 inches of precipitation, which is 2.12 inches above normal, while the entire Great Lakes basin has averaged 16.66 inches, 1.90 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 range from near normal to about 2 inches below the long-term seasonal average for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from nearly 7 inches above normal to as much as 12 inches below the normal seasonal average.

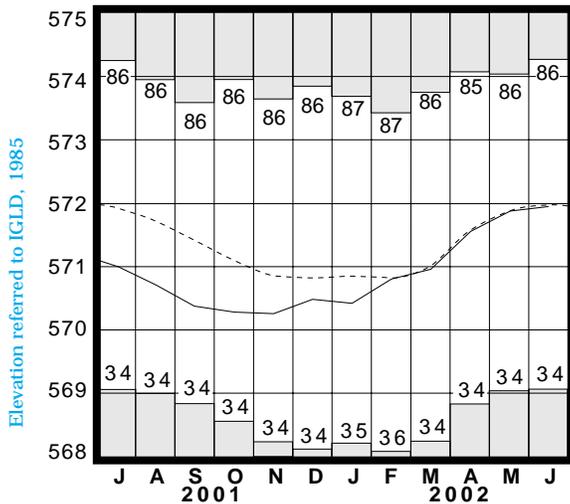
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	12.83	+1.40	-0.39	+0.81
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.31	-0.91	-0.81	-0.80
Fr-10	Columbus, Franklin Co.	Gravel	44.10	-1.34	-0.01	+0.45
H-1	Harrison, Hamilton Co.	Gravel	21.32	+0.07	-1.67	+1.41
Hn-2a	Dola, Hardin Co.	Dolomite	6.38	+0.21	-0.51	+0.03
Po-1	Windham, Portage Co.	Sandstone	18.90	+0.21	+0.41	+1.11
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.06	-0.96	-0.02	+0.86

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 ———

SUMMARY

Precipitation during June was generally below normal in the northwestern half of Ohio and above normal in the southeastern half. Streamflow was generally above normal across most of the state, but was below normal in the northwestern quarter of Ohio. Reservoir storage decreased but remained above normal in both the Mahoning and Scioto river basins. Ground water levels declined seasonally throughout most of the state. Lake Erie rose 0.07 foot and was 0.03 foot below the long-term June average.

NOTES AND COMMENTS

New Contact For The Water Withdrawal Facility Registration Program

Jason Remich recently assumed all duties associated with the Water Withdrawal Facility Registration Program. He assumed the duties performed previously by Al Luczyk who retired at the end of May. Jason began working for the Division of Water in October 1997. In January 2000 he became an Environmental Specialist in the Water Planning Unit where he completed the Stream Management Guide series and worked with the Division's Water Sales/Community Assistance Program. Jason received a Bachelor of Science degree in Environmental Science and in Sustainable Resource Management from The Ohio State University. If you need assistance with any of these programs, please contact Jason at (614) 265-6744 or e-mail: jason.remich@dnr.state.oh.us.

Division of Water's Floodplain Management Program Receives National Recognition

Ohio's Floodplain Management Program, administered in the Division of Water, received national recognition for their efforts to reduce potential flood damage and to protect the natural resources and functions of floodplains. The Association of State Floodplain Managers (ASFPM) awarded the Division of Water, Floodplain Management Program the Tom Lee State Award for Excellence at their annual meeting during June. The award is presented by the ASFPM to recognize achievements in flood hazard management on the state level. ASFPM represents 4,500 leading experts in flood hazard management throughout the United States and other countries.

According to the ASFPM, Ohio is effectively using leading edge technologies and tools for floodplain management. The cooperative framework of the National Flood Insurance Program has positioned Ohio communities well to address the issue of balancing flood hazard areas with development needs.

The Floodplain Management Program provides technical and planning assistance to local governments and private citizens in order to reduce flood losses in Ohio. This includes assisting state and local flood-preparedness efforts and assisting communities to become eligible for and remain participants in the National Flood Insurance Program. For further information about floodplain management in Ohio, please visit the Division of Water's website at: <http://www.dnr.state.oh.us/water/>.

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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