ILLINOIS
Illinois State Water Survey
PRAIRIE RESEARCH INSTITUTE

June 2019

ILLINOIS WATER AND CLIMATE SUMMARY

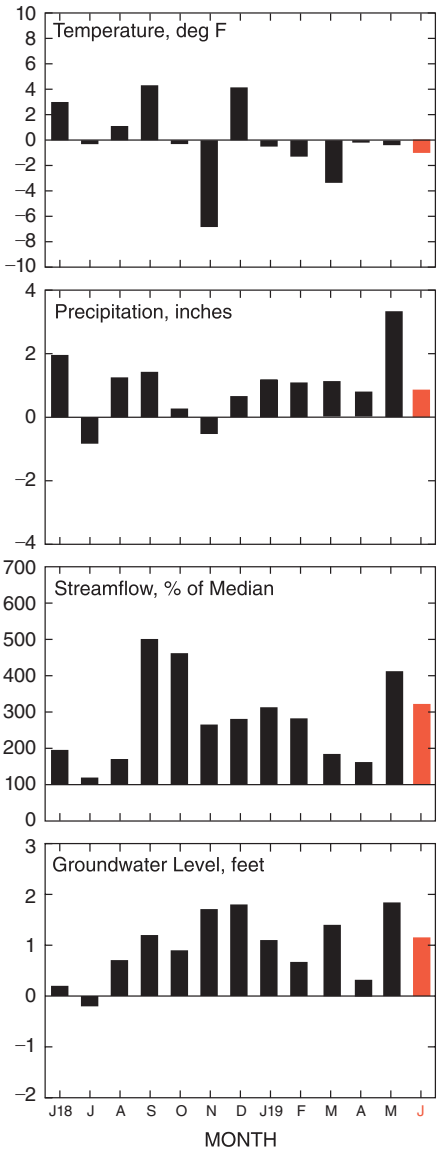

Figure 1. Statewide departures from normal.

JUNE 2019 OVERVIEW

Temperatures were below and precipitation was above the long-term average in Illinois in June. Mean streamflow statewide was above the median for the month. Shallow groundwater levels were above the long-term depths.

Air temperatures averaged 70.9°F in June, 1.0° below the long-term average (Figure 1). The southwest crop reporting district (CRD) was the warmest with an average of 73.0°F. The lowest regional temperature was 67.9°F, reported by the northeast CRD.

Precipitation averaged 5.00 inches, 0.79 inches above the long-term average (Figure 1). The east-southeast CRD was the wettest with an average of 6.57 inches. The driest was the northeast CRD with 4.05 inches.

Soil moisture remained high in June but declined overall at depths from 2 to 20 inches. Levels at 2 inches declined 15% on average over June, while smaller but similar decreases were observed at the 4- through 20-inch depths. No significant changes were observed at depths of 39 and 59 inches.

Mean provisional streamflow aggregated statewide was above the long-term median flow for June, about 320% of median (Figure 1). Monthly mean discharge values ranged primarily from above normal to much above normal for June. Illinois River water levels were above the local flood stages during part or all of June from below the Fox River downstream to the Mississippi River. The Mississippi River was above the local flood stages at the beginning of June along the length of Illinois and remained above the local flood stages throughout June from Quincy to the Ohio River. The Ohio River remained above the flood stage at Cairo throughout the month.

Water surface levels at the end of June were below the full pool or target level at 2 of 23 reporting reservoirs. At the end of June, Lake Shelbyville was 10.2 feet above the summer target level, Carlyle Lake was 7.4 feet above the summer target level, and Rend Lake was 4.5 feet above the spillway level. Lake Michigan's mean level was above its long-term mean for the month.

Shallow groundwater levels statewide were above normal this month with an average departure of 1.2 feet from the period of record (Figure 1). A decrease of 0.74 feet in departures was observed from the deviation in normal groundwater levels between May and June. Levels averaged 1.34 feet below May 2019 and 0.93 feet above June 2018 levels.

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Weather/Climate Information

— KEVIN GRADY

The following description of temperatures, growing degree days, precipitation, severe weather, and drought comes from data compiled by a number of networks that report to the National Oceanic and Atmospheric Administration (NOAA). These data are provisional and may change slightly over time.

June in Illinois was cooler and wetter than average.

Temperatures averaged 70.9°F, 1.0° below the long-term average (Table 1, Figure 2a). Monthly highs were generally in the upper 80s to mid-90s with the warmest reading of the month, 97°F, occurring in Flora (Clay County) on June 30. Station minimum temperatures ranged from the mid-40s into the mid-50s. The lowest temperature in June of 43°F occurred in Danville (Vermilion County) on June 14.

Growing degree days (DD, base 50°, from April 1) ranged from around 800 in northern Illinois to above 1600 in far southern Illinois (Figure 2b). This is approximately 150 DD below average for areas in northern Illinois and nearing or even slightly exceeding the long-term average in the south.

Precipitation averaged 5.00 inches in June, 0.79 inches above the long-term average (Table 1, Figure 2a). This amount marked the seventh consecutive month of above average statewide precipitation going back through December 2018. The heaviest totals occurred in southeastern and southern Illinois, where precipitation amounts of over 6 or 7 inches were common, with higher amounts locally. The highest total was recorded near Cobden (Union County) with 10.73 inches. Northern Illinois saw slightly below average precipitation amounts with both the northeast and northwest CRD being at or below average.

The six-month period from January through June 2019 saw the record for the largest year-to-date average statewide precipitation of 28.22 inches, 8.55 inches above the 1981-2010 average, and beating the record of 27.90 inches set in 2013. (Data from 125 years are available, going back through 1895).

Severe weather: The NOAA Storm Prediction Center recorded 234 severe weather reports for the month in Illinois, 11 for tornadoes, 39 for hail, and 184 for wind. (Multiple reports can be generated for a single event.)

Drought: Illinois remained drought free in June. The U.S. Drought Monitor's June 25 map had no portion of the state listed as in drought or as abnormally dry. This marked eight consecutive months of drought-free conditions for the entire state going back through November 2018 (Figure 4).

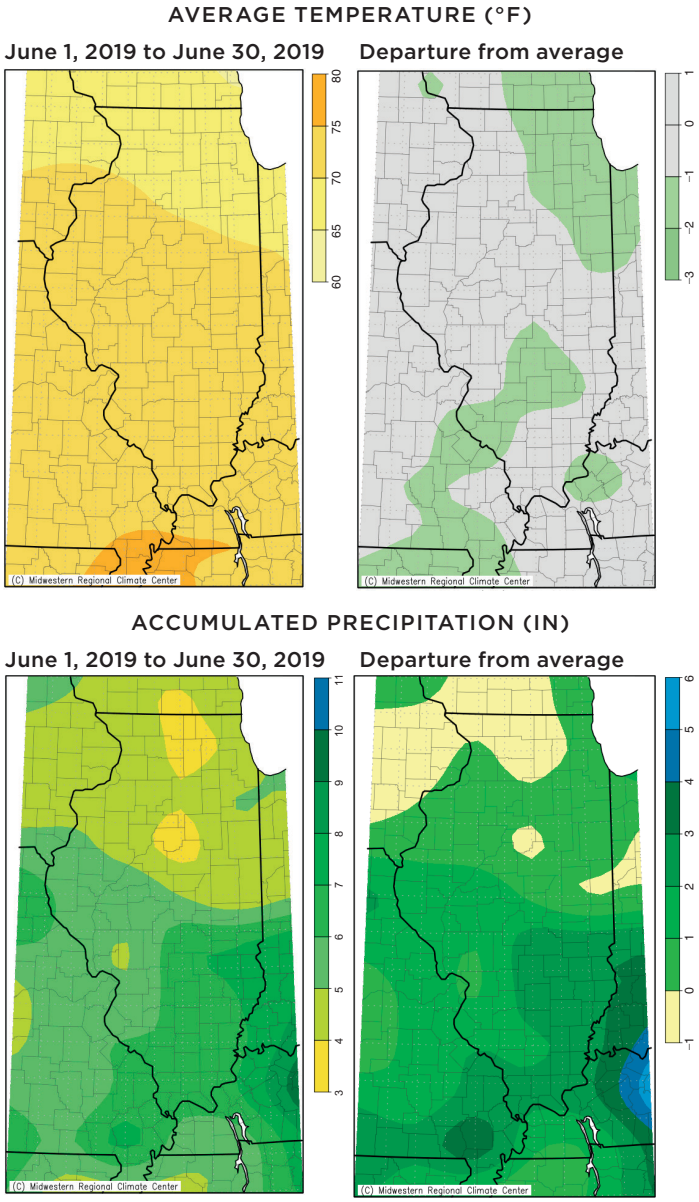


Figure 2a. Illinois temperature, precipitation, and their departures from average for June 2019.
Source: cli-MATE, Midwestern Regional Climate Center. http://mrcc.illinois.edu/CLIMATE, accessed on July 5, 2019.

Table 1. Temperature and Precipitation for June 2019

	Temp. (°F)	Departure from long-term avg. (1981–2010)	Precip. (in)	Departure from long-term avg. (1981–2010)
Illinois	70.9	–1.0	5.00	+0.79
CRD 1 (northwest)	68.9	–0.9	4.25	–0.34
CRD 2 (northeast)	67.9	–1.4	4.05	–0.01
CRD 3 (west)	71.3	–0.5	4.91	+0.51
CRD 4 (central)	71.1	–0.5	4.19	+0.11
CRD 5 (east)	70.4	–0.9	4.23	+0.09
CRD 6 (west southwest)	71.8	–1.1	5.29	+1.16
CRD 7 (east southeast)	71.6	–1.4	6.57	+2.37
CRD 8 (southwest)	73.0	–1.2	5.36	+1.24
CRD 9 (southeast)	72.8	–1.2	6.18	+2.07

Data from NOAA's National Centers for Environmental Information, accessed 7/9/2019.

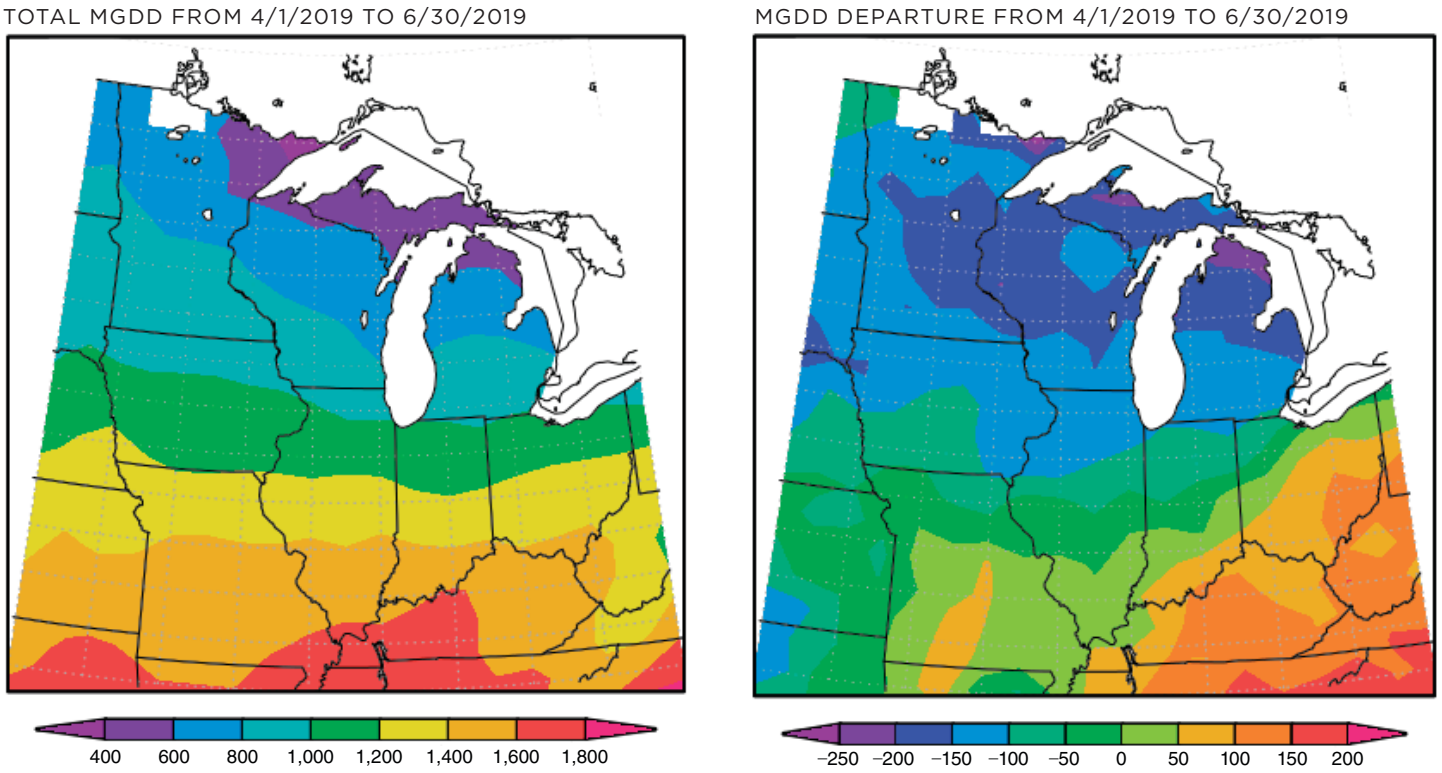


Figure 2b. Illinois growing degree days and departure from average through the end of June. Source: Midwestern Regional Climate Center. http://mrcc.illinois.edu, accessed on July 5, 2019.

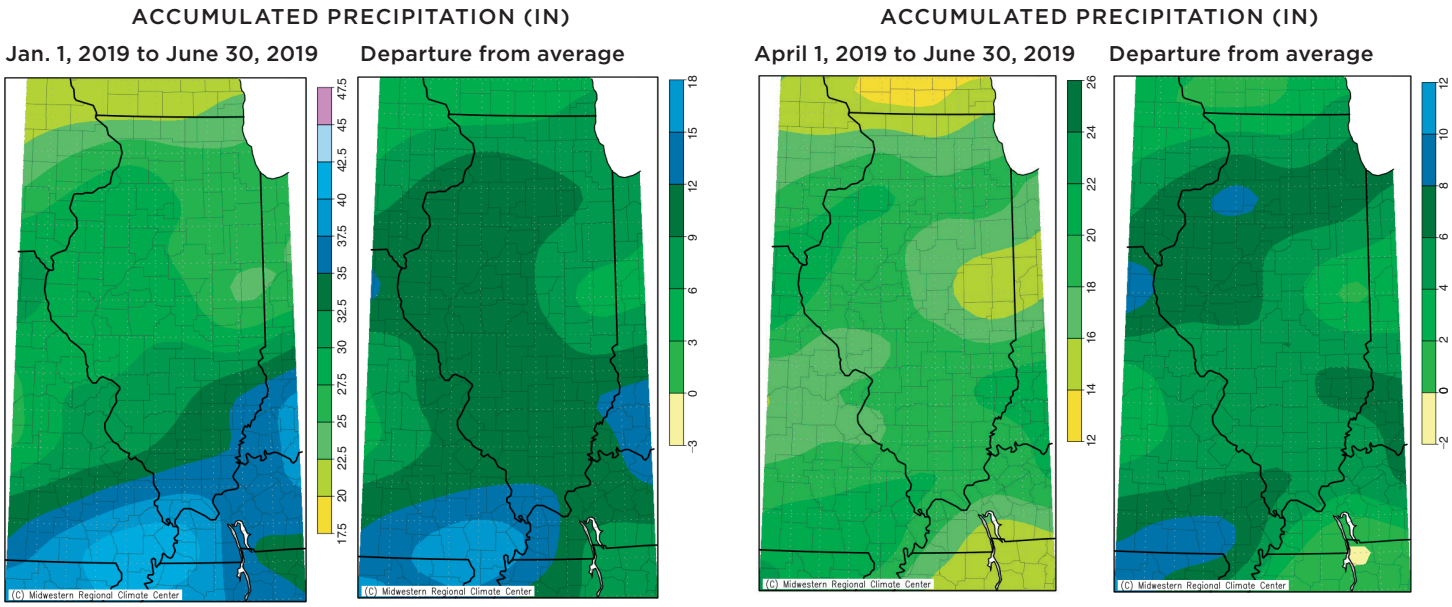
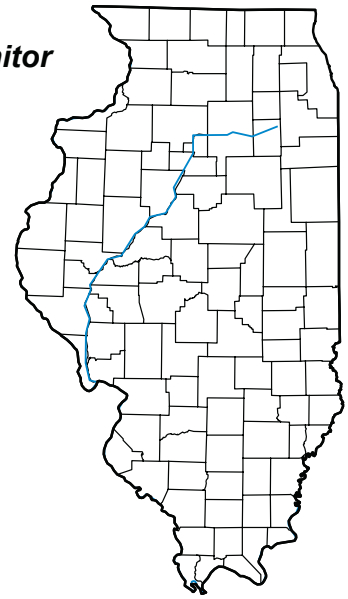


Figure 3. Illinois precipitation and precipitation departure from average for year to date (left), and last 3 months (right). Source: cliMATE, Midwestern Regional Climate Center. http://mrcc.illinois.edu/CLIMATE, accessed on July 5, 2019.

U.S. Drought Monitor

Illinois



June 25, 2019

(Released Thursday, Jun. 27, 2019)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.00	0.00	0.00	0.00	0.00	0.00
Last Week *06-18-2019*	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago *03-26-2019*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year *01-01-2019*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year *09-25-2018*	96.92	3.08	0.00	0.00	0.00	0.00
One Year Ago *06-26-2018*	83.87	16.13	2.06	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Brad Pugh
CPC/NOAA

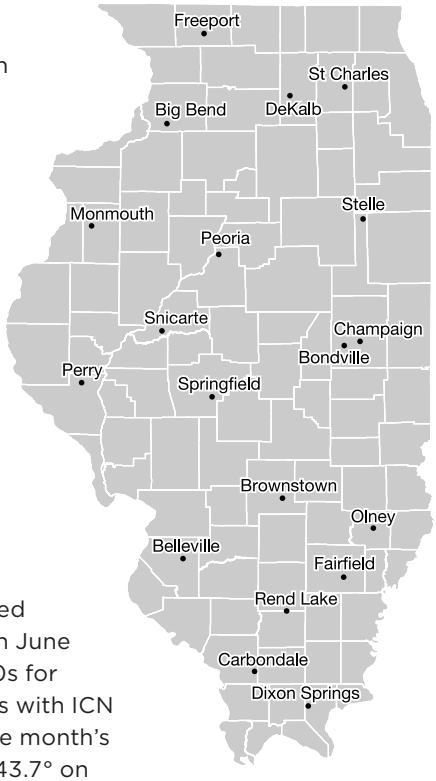
Figure 4. U.S. Drought Monitor report for Illinois. Source: U.S. Drought Monitor. Author: Brad Pugh, CPC/NOAA http://droughtmonitor.unl.edu, accessed on July 5, 2019.

Illinois Climate Network (ICN)

— JENNIE ATKINS

The Illinois Climate Network (ICN) collects hourly weather and soil information from 19 stations across the state. ICN data for June are presented in Table 2.

Wind speeds averaged 6.0 mph for June, a decrease of 0.8 mph from May speeds but 0.1 mph greater than the historical network average. ICN Bondville was the windiest station with an average of 10.0 mph for the month. The highest recorded wind gust was 64.7 mph, measured at the Monmouth station on June 15.



Air temperatures rose 7.9°F from May to an average of 71.2°, 0.7° lower than the long-term average. Station highs were in the low to mid-90s. ICN Snicarte in Mason County had the month's highest recorded temperature of 95.4° on June 30. Lows were in the 40s for most of the ICN stations with ICN St. Charles reporting the month's lowest temperature of 43.7° on June 14.

Soil temperatures continued to rise with monthly network averages in the low to mid-70s, 9° above those in May. Temperatures under bare soil ranged from 49.0 to 109.5° at depths of 2 inches and 54.6 to 104.0° at 4 inches for the month. Under sod, temperatures ranged from 55.8 to 98.0° at 4 inches and 48.5 to 88.3° at 8 inches.

Precipitation was lower than in May but remained high. The network averaged 5.27 inches for June, 1.68 inches above the historical average. All but two ICN stations recorded totals that were higher than average. Southern Illinois had the wettest month with ICN Fairfield reporting 9.35 inches, the highest for June.

Soil moisture remained high in June but showed an overall decline, especially in the shallower depths (Figure 5). At 2 inches, soil moisture levels declined 15% on average over the month to end June with a network average of 0.34 water fraction by volume (wfv). Levels at the southern stations averaged 20% higher than those in the rest of the state.

Similar but smaller declines were observed at depths from 4 to 20 inches. No significant changes occurred at the deeper depths of 39 and 59 inches.

Table 2. Data from the Illinois Climate Network (ICN), June 2019

Station	Wind			Air Temperature (°F)			Total Solar Radiation (MJ/m²)
	Avg. Speed (mph)	Avg. Direction (°)	Max. Gust (mph)	Max.	Min.	Avg.	
Belleville	5.8	176.4	39.9	94.0M	48.5M	72.9M	666.2
Big Bend	6.3	181.8	40.6	93.7	49.9	70.1	656.3
Bondville	10.0M	186.0M	53.5M	94.4	45.9	71.2	709.7
Brownstown	5.8M	181.5M	41.8M	91.6M	48.1M	71.7M	657.6M
Carbondale	5.1M	192.7M	43.1M	91.4M	48.5M	72.5M	671.7M
Champaign	3.3	184.7	37.1	95.2	47.0	71.7	668.5
DeKalb	8.6	174.0	52.1	93.9	46.7M	68.6	632.5
Dixon Springs	2.9	185.6	42.9	92.2	47.1	71.9	669.5
Fairfield	5.3	185.5	37.8	91.9	48.2	72.3	682.8
Freeport	3.9	179.2	33.0	91.3	49.1	68.4	606.4
Monmouth	9.3	188.3	64.7	93.8	51.9	71.2	709.0
Olney	5.1	186.4	35.9	91.9	45.5	72.5	689.6
Peoria	6.6	181.3	43.9	94.6	47.4	71.5	688.5
Perry	5.1	193.4	41.5	93.2	51.2	72.1	566.5
Rend Lake	3.9	190.2	32.9	94.4	48.6	72.8	656.3
Snicarte	7.7	186.3	53.4	95.4	51.1	71.9	674.0
Springfield	5.1	186.3	39.8	93.1	51.3	72.3	667.7
St. Charles	5.3	153.3	39.2	90.9	43.7	67.2	619.9
Stelle	9.5	174.4	41.2	92.5	46.5	69.5	647.8

Table 2. continued

Station	Average Relative Humidity (%)	Total Precip. (in)	Average Dew Point (°F)	Total Potential Evapotranspiration (in)	Average Soil Temperature (°F) at			
					4" under Sod	8" under Sod	2" under Bare Soil	4" under Bare Soil
Belleville	77.5	3.94	64.5M	5.63M	73.1	72.2	79.4	73.6
Big Bend	76.4	6.07	61.4	5.4	74.3	72.6	76.8	74.7
Bondville	73.4	4.85	61.2	5.57M	71.6	72.0	75.2	74.2
Brownstown	76.4	7.92M	63.1M	5.49M	72.5M	70.7M	74.1M	73.6M
Carbondale	82.9M	6.95M	66.2M	5.51M	75.7M	73.3M	75.3M	75.0M
Champaign	71.4	3.70	60.9	5.5	74.8	73.6	78.4	77.3
DeKalb	72.2	2.58	58.2	5.4	68.3M	66.8M	71.4M	71.3M
Dixon Springs	78.1	5.83	63.8	5.5	76.6	75.1	78.0	76.1
Fairfield	76.5	9.35	63.7	5.7	74.0M	73.2	78.0	79.1
Freeport	76.5	4.41	59.9	4.8	71.7	68.7	71.5	70.6
Monmouth	73.7	4.15	61.3	6.0	71.4	69.3	74.8	74.4
Olney	74.4	6.31	62.9	5.8	74.7	74.1	76.1	76.4
Peoria	70.2	3.88M	60.1	5.9	72.3	66.7	74.3	72.9
Perry	77.8	6.01	63.7	4.8	72.0	70.6	75.5	74.1
Rend Lake	75.2	3.51	63.6	5.6	77.5	76.3M	76.7	76.0
Snicarte	71.8	4.02	61.3	5.9	77.3	76.0	79.1	76.6
Springfield	71.8	8.51	61.6	5.6	74.7	72.5	75.5	74.4
St. Charles	73.6	4.67	57.5	5.1	70.6	68.1	72.1	72.4
Stelle	72.4	3.53	59.2	5.6	69.7	68.4	72.9	72.1

M = Missing data.

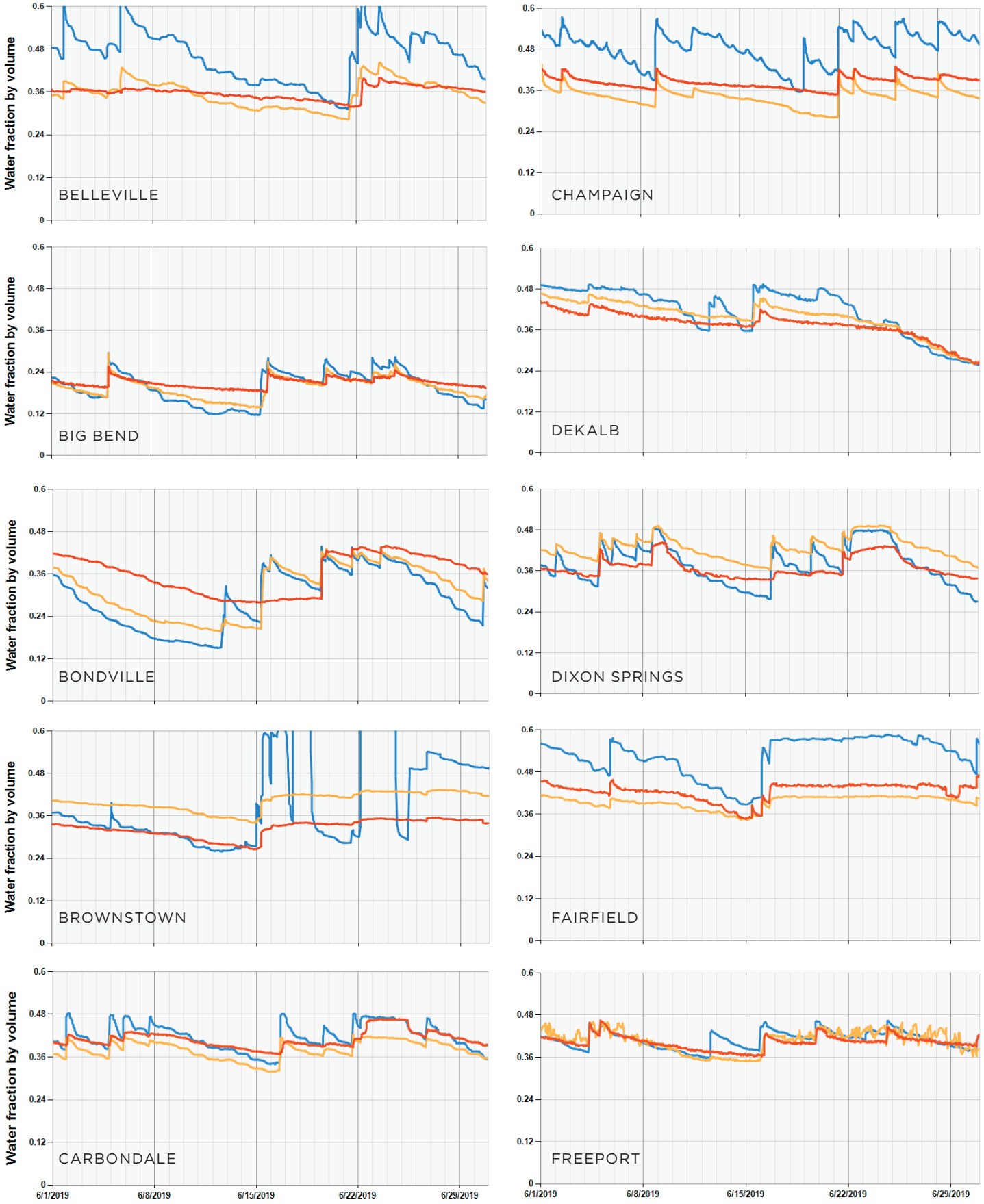
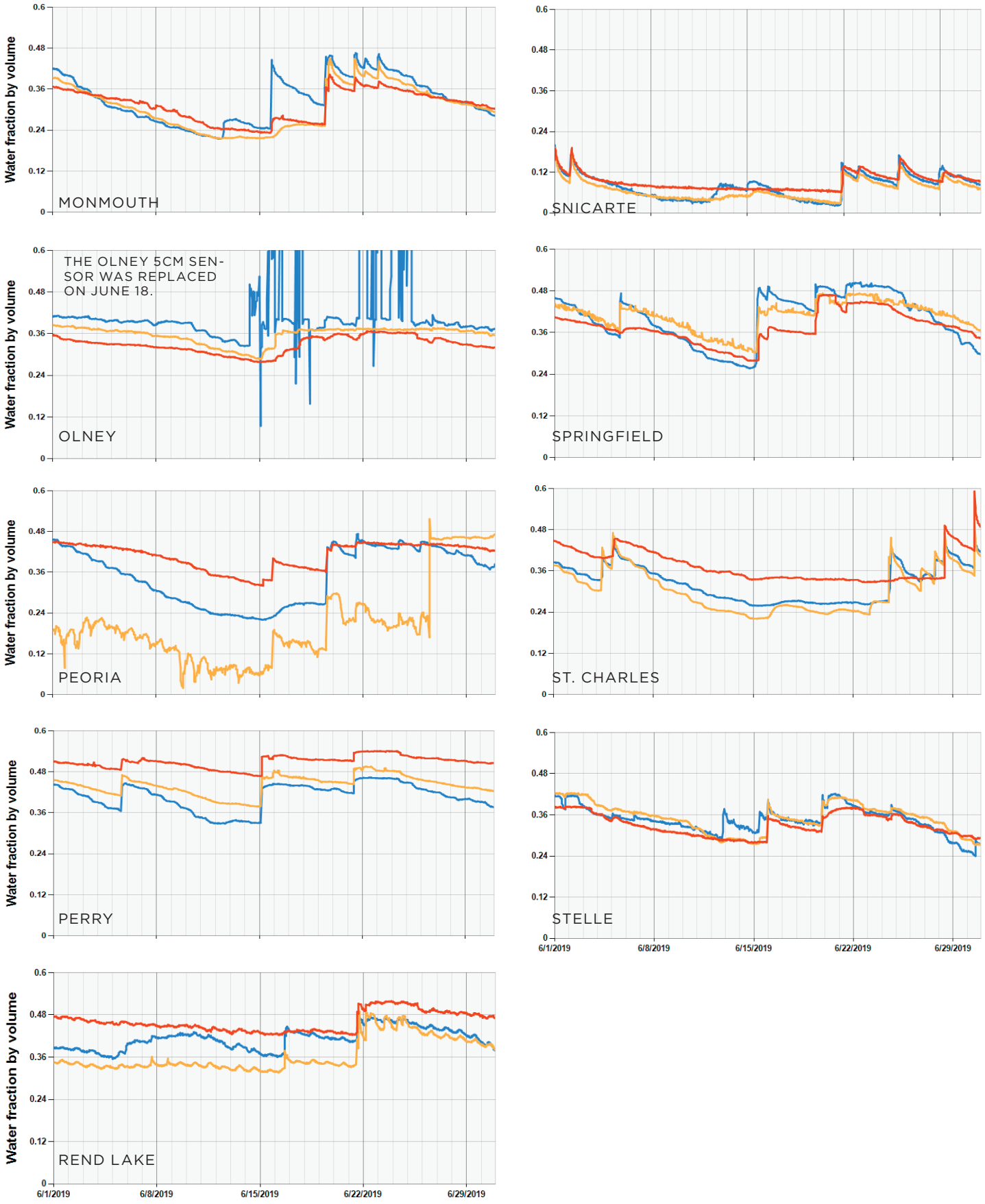


Figure 5. June soil moisture levels at ICN stations: 2 in, 4 in, and 8 in



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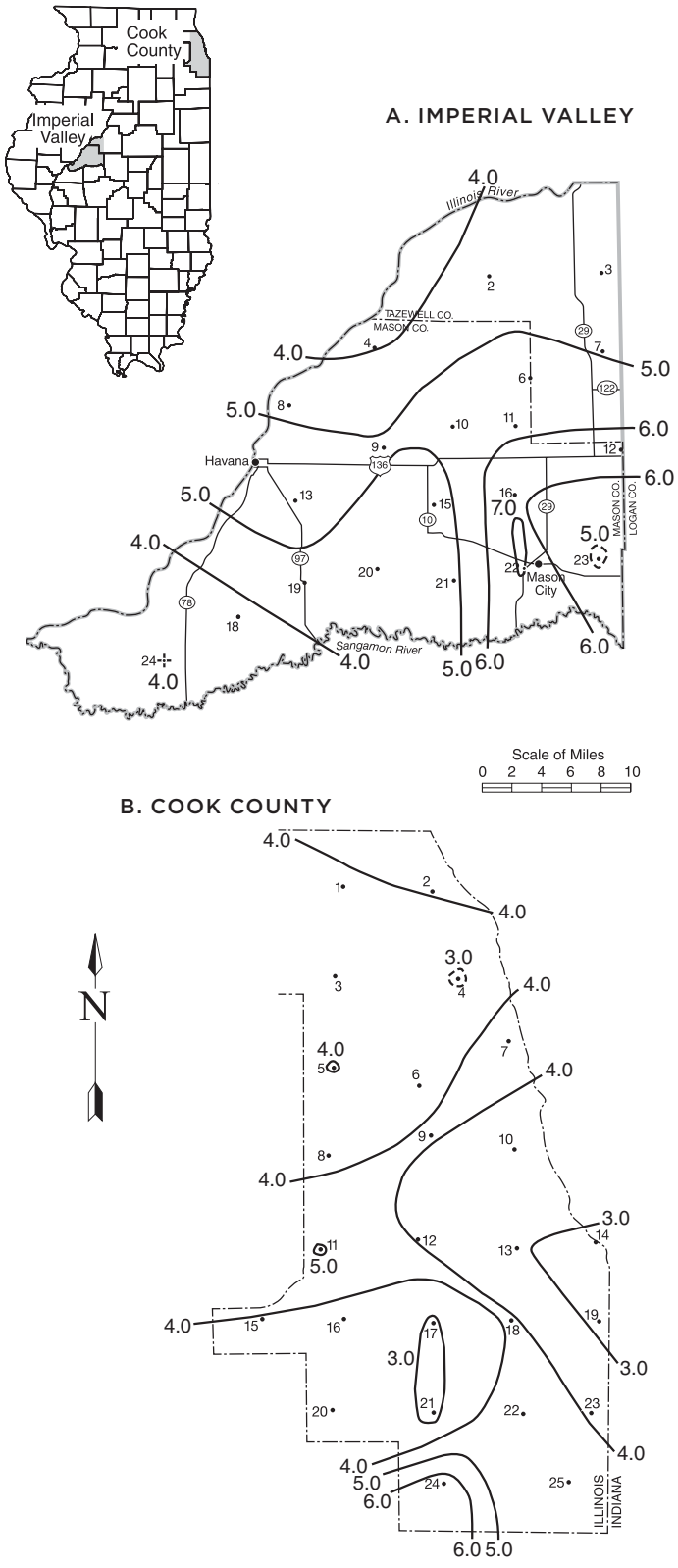

Figure 6. Precipitation totals (inches) for (A) Imperial Valley Water Authority and (B) Cook County raingage networks June 2019.

Other Precipitation Networks

— ERIN BAUER

Imperial Valley. The average network precipitation for June 2019 was 5.07 inches, which is above the previous 26-year network average (Figure 6A). The largest monthly gage total was in the southeastern portion of the network. Monthly gage totals varied 3.45 inches across the network, from 3.69 inches at site #18, near Kilbourne, to 7.14 inches at site #22, near Mason City. The 1981–2010 30-year average precipitation amounts for June at Havana and Mason City are 4.36 and 4.04 inches, respectively. The June 2019 network average of 5.07 inches is 120 percent of the 26-year (1993–2018) IVWA June network average of 4.24 inches. The Imperial Valley Water Authority funds this 20-station precipitation network operated by the Illinois State Water Survey.

Cook County. During June 2019, precipitation in Cook County was slightly below average (Figure 6B). Precipitation was highest in the southwestern region of the network. The lowest precipitation was also in the southwestern region of the network. Precipitation values ranged from 2.48 inches at site #21 (Tinley Park, near 167th St. and Lockwood Ave.) to 6.50 inches at site #24 (Matteson, near 211th St. and Cicero Ave.). Across the network, precipitation varied 4.02 inches. The network average of 3.82 inches is about 95 percent of the 29-year (1990–2018) June network average of 4.02 inches. The Illinois State Water Survey operates this 25-station precipitation network funded by the U.S. Army Corps of Engineers.

Surface Water Information

— BILL SAYLOR

River and stream discharge and stage data are obtained from gaging stations operated by the U.S. Geological Survey (USGS) or the U.S. Army Corps of Engineers (USACE). The USGS gaging station network is supported, in part, by the Illinois Department of Natural Resources Office of Water Resources, the Illinois State Water Survey (ISWS), and the USACE. Provisional discharge data are obtained from the USGS.

Table 3 lists the provisional peak stage for the current month compared to flood stage at selected streamgaging stations located on the Illinois, Mississippi, and Ohio Rivers. Peak stage is represented here by morning readings posted daily by the USACE or the National Weather Service. Flood stage is defined locally for each gage location.

Based on data posted by the USACE, Illinois River water levels were above or just below the local flood stages between the Fox River confluence and Havana throughout the month and remained above the local flood stages from Havana downstream to the Mississippi River during the entire month. At the beginning of June, the Mississippi

River was above the local flood stages at all stations along the Illinois border. Mississippi River water levels remained above the local community flood stages throughout the month from Quincy downstream to the confluence of the Ohio River. The Ohio River remained above the flood stage at Cairo during the entire month and rose above the local flood stages at stations elsewhere along the Illinois border toward the end of June.

Provisional monthly mean flows for 26 streamgaging stations located throughout Illinois are shown in Table 4. Mean values posted by the USGS are listed if available; otherwise, daily mean discharge data posted by the USGS are used to estimate the mean flow for the month. Long-term mean flows for each month are published by the USGS. The month's median flow for each station listed in Table 4 was determined by ranking the June mean flow for each year of record and selecting the middle value, 50 percent exceedence probability.

The statewide percent of historical mean flow and percent of historical median flow are calculated by dividing the sum of the average flows this month at stations in Table 4 by the sum of the historical mean and median flows

Table 3. Peak Stages for Major Rivers during June 2019

River	Station	River mile*	Flood stage (feet)*	Peak stage (feet)**	Date
Illinois	Morris	263.1	16	13.4	01
	La Salle	224.7	20	28.1	01
	Peoria	164.6	18	28.8	02
	Havana	119.6	14	26.7	03
	Beardstown	88.6	14	28.7	04
	Hardin	21.5	25	40.2	07–08
Mississippi	Dubuque	579.9	17	20.7	01
	Keokuk	364.2	16	24.4	02
	Quincy	327.9	17	31.0	02
	Grafton	218.0	18	35.5	07–08
	St. Louis	180.0	30	45.8	09
	Chester	109.9	27	46.3	10
	Thebes	43.7	33	43.6	11
Ohio	Cairo	2.0	40	51.5	25–28

Notes:
* River mile and flood stage from *River Stages in Illinois: Flood and Damage Data*, Illinois Department of Natural Resources, Office of Water Resources, August 2004 (and Addendum, February 2007).
**Peak stage based on daily a.m. readings, not instantaneous peak. Stage data obtained from U.S. Army Corps of Engineers.

Table 4. Provisional Mean Flows, June 2019

Station	Drainage area (sq mi)	Years of record	2019 mean flow (cfs)	Long-term flows		Flow condition	Percent chance of exceedence	Days of data this month
				Mean* (cfs)	Median (cfs)			
Rock River at Rockton	6,363	82	10,114	5,084	4,359	much above normal	8	30
Rock River near Joslin	9,549	74	19,570	8,351	6,925	much above normal	9	30
Pecatonica River at Freeport	1,326	98	2,371	1,124	935	much above normal	7	30
Green River near Geneseo	1,003	79	3,481	999	815	much above normal	2	30
Edwards River near New Boston	445	79	2,148	499	360	much above normal	2	30
Kankakee River at Momence	2,294	100	4,930	2,326	2,068	much above normal	7	30
Iroquois River near Chebanse	2,091	93	3,158	2,295	1,685	above normal	23	30
Fox River at Dayton	2,642	98	5,458	2,165	1,723	much above normal	6	30
Vermilion River at Pontiac	579	73	892	596	406	above normal	21	30
Spoon River at Seville	1,636	100	4,784	1,759	1,128	much above normal	5	30
LaMoine River at Ripley	1,293	94	5,879	1,315	779	much above normal	3	30
Bear Creek near Marceline	349	73	1,199	364	132	much above normal	9	30
Mackinaw River near Congerville	767	72	1,441	817	594	above normal	19	30
Salt Creek near Greenview	1,804	75	2,971	2,039	1,624	above normal	21	30
Sangamon River at Monticello	550	105	615	556	403	normal	34	30
South Fork Sangamon near Rochester	867	67	3,279	956	569	much above normal	3	30
Illinois River at Valley City	26,743	78	76,640	31,960	28,013	much above normal	3	30
Macoupin Creek near Kane	868	88	N/A	649	326	N/A	N/A	N/A
Vermilion River near Danville	1,290	95	1,249	1,356	1,050	normal	40	30
Kaskaskia River at Vandalia	1,940	47	3,332	1,855	1,673	above normal	14	30
Shoal Creek near Breese	735	73	1,205	617	364	above normal	16	30
Embarras River at Ste. Marie	1,516	103	3,985	1,441	975	much above normal	8	30
Skillet Fork at Wayne City	464	97	1,456	356	149	much above normal	4	30
Little Wabash below Clay City	1,131	102	3,868	958	494	much above normal	6	30
Big Muddy at Plumfield	794	46	1,764	830	652	above normal	15	30
Cache River at Forman	244	93	753	214	131	much above normal	7	30

Notes:
Source streamflow data are obtained from the U.S. Geological Survey.
N/A = not available (due to ice or equipment problems).
*As reported in U.S. Geological Survey (USGS) Water Resources Data, Illinois, Water Year 2016.

Much below normal flow = 90-100% chance of exceedence.
Below normal flow = 70-90% chance of exceedence.
Normal flow = 30-70% chance of exceedence.
Above normal flow = 10-30% chance of exceedence.
Much above normal flow = 0-10% chance of exceedence.

calculated for the month, respectively, at the same stations. This method is intended to weight individual observations proportionately in the aggregate comparison. (The Illinois River and Rock River stations are excluded from the statewide calculation because other rivers listed in Table 4 contribute to their flow.)

Mean provisional flow aggregated statewide, using the available monthly mean data shown this month in Table 4, was above the median value for June (approximately 320 percent of the median) and above the mean for June (approximately 240 percent of the mean). Monthly mean discharge values ranged primarily from above normal to much above normal for June. The June 2019 monthly mean streamflow values were the second highest for the month of June in the respective periods of record of the following Table 4 stations: the Green River near Geneseo, the Edwards River near New Boston, the South Fork Sangamon River near Rochester, and the Illinois River at Valley City.

Water-Supply Lakes and Major Reservoirs. Table 5 lists reservoirs in Illinois, their normal pool or target water surface elevation, and other data related to observed variations in water surface elevations. Reservoir levels are obtained from a network of cooperating reservoir operators who are contacted each month by ISWS staff for the current water levels. Reservoir levels are reported in terms of their difference from normal pool (or target level). The average of the month-end readings for the period of record is reported in terms of the difference from normal pool or target level (column 6 of Table 5), and the number of years of record for each reservoir also is given (column 7). Most reservoirs serve as public water supplies, with the exceptions noted in the last column.

Compared to end-of-May water levels at 23 reservoirs for which levels were reported last month and this month, reported end-of-June water levels were lower at 9 reservoirs, higher at 9 reservoirs, and about the same as at

Table 5. Reservoir Levels in Illinois, June 2019

Reservoir	County	Normal pool or target level (feet)	Current level difference from normal or target (feet)	Monthly change (feet)	Average difference from normal or target (feet)	Years of record	April reported pumpage (million gallons)
Altamont	Effingham	582.0	0.0	–0.2	–0.9	34	6.5
Bloomington	McLean	719.5	+0.2	–0.1	–0.5	32	N/A
Carlinville	Macoupin	571.1	0.0	0.0	–0.3	33	25.2
Carlyle[1]	Clinton	444.0	+7.4	+2.4	+2.3	41	N/A
Decatur[1,3]	Macon	612.5	+0.2	0.0	–0.1	35	N/A
Evergreen[4]	Woodford	720.0	+0.2	–0.1	–0.9	28	N/A
Glenn Shoals[2]	Montgomery	590.0	+2.0	+1.0	–0.1	25	w/Hillsboro
Highland	Madison	500.0	+0.1	+0.1	0.0	30	31.8
Hillsboro[2]	Montgomery	589.0	N/A	N/A	–0.1	25	38.4
Jacksonville[2]	Morgan	644.0	N/A	N/A	0.0	19	w/Mauvaise Terre
Kinkaid	Jackson	420.0	+0.1	+0.1	0.0	30	63.8
Lake of Egypt	Williamson	500.0	N/A	N/A	–0.2	24	N/A
Mattoon	Coles	632.0	0.0	0.0	–0.1	25	w/Paradise
Mauvaise Terre[2]	Morgan	588.5	N/A	N/A	0.0	20	no meter
Mt. Olive (new)	Macoupin	600.0	N/A	N/A	–0.1	10	w/Mt. Olive (old)
Mt. Olive (old)	Macoupin	654.0	–0.2	–0.2	–0.5	20	4.8
Pana	Christian	641.6	+0.2	+0.1	–0.4	34	N/A
Paradise	Coles	685.0	0.0	0.0	–0.2	29	64.0
Paris (east)	Edgar	660.0	+0.2	+0.1	+0.1	33	Not PWS
Paris (west)	Edgar	660.1	+0.2	+0.1	+0.1	23	w/Paris (east)
Raccoon[1]	Marion	477.0	+0.4	–0.3	N/A	N/A	91.8
Rend	Franklin	405.0	+4.5	–0.7	+2.6	41	N/A
Salem[3]	Marion	546.5	0.0	+0.5	–0.6	24	26.0
Shelbyville[1]	Shelby	596.0	+10.2	+6.9	+5.5	41	Not PWS
Sparta[3]	Randolph	497.0	–1.5	–0.8	–1.1	21	N/A
Spring[3,4]	McDonough	654.0	N/A	N/A	0.0	34	46.
Springfield[1,3]	Sangamon	560.0	+0.5	–0.1	0.0	35	46.1
Taylorville	Christian	590.0	+0.2	–0.4	+0.1	26	583.6
Vermilion[4]	Vermilion	581.7	0.0	0.0	–0.1	34	197.8

Notes:
Normal pool and target level datum is NGVD 1929.
Current levels reported represent water surface levels at the end of the month, not the monthly average.
Average difference from normal or target level is the arithmetic average of reported month-end values for the period of record indicated.
Years of record = total number of monthly readings included in month-end average. Total period of record may be longer.
Not PWS = not a public water supply.
N/A = not available.
[1] Target operating level may vary. Seasonal target levels this month represent June 1 values.
[2] Instrumentation not available to measure height of water elevation above spillway.
[3] Natural inflow can be supplemented by other sources.
[4] Normal pool elevations have changed during period of record reported.

Table 6. Month-End Shallow Groundwater Level Data Sites, June 2019

No.	Well name	County	Well depth (feet)	This month's reading (depth to water, feet)	Deviation from			
					15-year avg. level (feet)	Period of record avg. (feet)	Previous month (feet)	Previous year (feet)
1	Galena	JoDaviess	25.00	17.47	1.66	2.70	–0.42	2.68
2	Mt. Morris	Ogle	55.00	11.09	4.48	5.50	–6.41	N/A
3	Crystal Lake	McHenry	18.00	3.09	0.54	1.19	–0.61	–0.09
4	Fermi Lab	DuPage	15.00	7.17	–0.57	–0.73	–5.36	–4.05
5	Good Hope	McDonough	30.00	4.01	0.64	1.65	–0.86	1.40
6	Snicarte	Mason	42.00	39.24	–2.40	–2.85	0.89	–4.12
7	Coffman	Pike	28.00	7.96	2.74	2.90	–1.64	9.70
8	Greenfield	Greene	20.70	8.69	1.64	1.19	–2.47	4.41
9	Janesville	Coles	11.00	4.67	0.25	0.71	0.34	–0.01
10	St. Peter	Fayette	15.00	N/A	N/A	N/A	N/A	N/A
11	SWS #2	St. Clair	80.00	11.40	1.06	2.54	–0.03	1.52
12	Boyleston	Wayne	23.00	5.46	–1.22	–0.88	–0.35	N/A
13	Sparta	Randolph	27.00	N/A	N/A	N/A	N/A	N/A
14	SE College	Saline	11.00	2.70	2.64	2.27	0.19	0.56
15	Bondville	Champaign	21.00	4.79	–0.56	–0.87	–0.67	–1.82
				Averages	**0.84**	**1.18**	**–1.34**	**0.93**

Notes: N/A = Data not available.

the end of last month at 5 reservoirs. For the 23 reservoirs with measurements reported at the end of June, water levels were below normal target pool or spillway level at 2 reservoirs, above normal target pool or spillway level at 15 reservoirs, and at about full pool level at 6 reservoirs.

Major Reservoirs. Compared to water levels at the end of May, at the end of June the water level at Lake Shelbyville was 6.9 feet higher, Carlyle Lake was 2.4 feet higher, and Rend Lake was 0.7 feet lower. At the end of June, Lake Shelbyville was 10.2 feet above the summer target level, Carlyle Lake was 7.4 feet above the summer target level, and Rend Lake was 4.5 feet above the spillway level.

Great Lakes. Current month mean and end-of-month values are provisional and are relative to International Great Lakes Datum 1985. The June 2019 mean level for Lake Michigan was 581.8 feet. The monthly mean level one year ago (June 2018) was 580.7 feet. The long-term average lake level for June is 579.2 feet, based on 1918-2018 data. In this period of record, the lowest mean level for Lake Michigan for June occurred in 1964 at 576.6 feet, and the highest mean level for June occurred in 1986 at 581.8 feet. The month-end level of Lake Michigan was 581.9 feet. All values are provided by the U.S. Army Corps of Engineers Detroit District.

Groundwater Information

— JENNIE ATKINS

Comparison to Period of Record. Shallow groundwater levels in 13 observation wells, which are remote from pumping centers, were above normal for the month of June. Levels averaged 1.18 feet above normal and ranged from 2.85 feet below to 5.50 feet above normal levels (Table 6).

Comparison to May 2019. Shallow groundwater levels were below those of the previous month. Levels averaged 1.34 feet below and ranged from 6.41 feet below to 0.89 feet above May levels.

Comparison to June 2018. Shallow groundwater levels in June were above levels from one year ago. Levels averaged 0.93 feet above and ranged from 4.12 feet below to 9.70 feet above June 2018 levels.

Data sources for this publication include the following:
CPC - Climate Prediction Center, http://www.cpc.ncep.noaa.gov/index.php
ISWS - Illinois State Water Survey, http://www.isws.illinois.edu
MRCC - Midwestern Regional Climate Center, http://mrcc.illinois.edu
NCDC - National Climatic Data Center, http://www.ncdc.noaa.gov
NWS - National Weather Service, http://www.nws.noaa.gov
USACE - U.S. Army Corps of Engineers, http://rivergages.com, https://www.lre.usace.army.mil
USGS - U.S. Geological Survey, http://waterdata.usgs.gov/il/nwis
WARM - Water and Atmospheric Resources Monitoring Program, http://www.isws.illinois.edu/warm

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