RIVER STAGES AND FLOODS FOR JANUARY 1949

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River stages during January were above normal in the eastern half of the country except in the Congaree Basin in South Carolina and in the lower portion of the Red Basin in Louisiana. In the western half they were mostly below normal along the West Gulf of Mexico drainage and in the Sacramento and Arkansas River Basins. The greatest positive departure was at Cairo, Ill., where the Ohio River averaged 16.4 feet above normal.

Significant and extensive flooding occurred during the month in the lower portion of the Ohio Basin. The flooding was severe on the central and lower Wabash and White River Basins in Indiana and on the Ohio River below Evansville, Ind. The floods in southeastern Indiana were generally the greatest since 1943 and the highest since 1937 on the White at Petersburg, Ind. Flood stage was exceeded by more than 3 feet on the Ohio River below Louisville, Ky. Record to near-record stages occurred on the upper Tombigbee in Mississippi and on the Black Warrior in Alabama. Heavy rainfall and melting snow caused moderate flooding on the Gila River in southwestern New Mexico.

Streams in the Eastern States remained nearly free of ice throughout January except in the extreme northern portion of New England. In the upper reaches of the Missouri and Mississippi Rivers the ice increased in thickness 10 and 16 inches respectively. It was 28 inches thick at Bismarck, N. Dak. and ranged from 26.5 inches at Minneapolis, Minn., to 1 inch thick at Davenport, Iowa, on the 31st. Near the middle of the month a severe ice gorge formed in the Missouri between Leavenworth and Atchison, Kans. causing near-record stages at Atchison due to backwater. There was some movement of ice in the Kansas River during the last decade of the month with gorging above Lawrence, Kans.

Precipitation during the month was above normal except in the Columbia and Sacramento—San Joaquin Basins in the west and along the south Atlantic and south Gulf of Mexico drainage areas in the east. It was excessive in the central portions ranging up to 6 times normal in the Arkansas Basin in southeastern Kansas. Precipitation was also exceptionally heavy over the lower Gila Basin in southwestern Arizona, averaging nearly 400 percent of normal. In the Missouri Basin the precipitation averaged near 270 percent of normal while in the Columbia and Sacramento—San Joaquin Basins it averaged approximately 40 percent of normal.

Most of the precipitation in the Western and North Central States was in the form of snow which increased the already deep snow cover to record depths at several points in Utah, Wyoming, and Nebraska. The snow was not only abnormally great in depth but also great in areal extent, reaching down into valleys where snow does not often accumulate. One of the most extensive areas of heavy snow ever to occur in this country during a single storm occurred on the 18th. During the 24-hour period ending 12:30 a. m. on the 19th, 3 to 10 inches of snow fell over an area 1,000 miles long and 150 to 200 miles wide extending northeastward from north-central Texas to northeastern Wisconsin. By the 31st, light to heavy snow covered most of the country except along the Coasts and in the extreme south. It was one of the most extensive snow covers of record. The snow-pack in the Columbia Basin on that date ranged from 110 percent of normal in the upper Columbia and Kootenai Drainage Basins in Canada to nearly 250 percent of normal in the Willamette Basin in Oregon.

Atlantic Slope drainage.—Heavy rains at the end of December caused minor flooding in the lowlands along the tributaries of the Saco and Androscoggin Rivers in Maine on the 1st. The Androscoggin reached its highest level since last spring on the 2d when it reached half bankfull stage at Lewiston, Maine.

A flood threat resulted from the heavy rain (1½ to 2 inches) over southern New England on the 5th–6th as it followed so closely the near-record to record floods resulting from the excessive rain (6 to 10 inches) on December 29 to 31 over much of the same area. The only flooding that resulted occurred on the Connecticut River at Hartford, Conn.

Light flooding occurred along the Susquehanna and Chenango Rivers in New York on the 6th–7th due to snow melt and moderate precipitation (0.74 inch) on the 5th–6th. The snow cover averaged nearly 10 inches over the drainage basins. Minor flooding occurred on the Schuylkill River at Reading, Pa., on the 6th due to rainfall averaging 2.26 inches on the 5th–6th.

Moderate to heavy rains on the 5th–6th caused moderate to heavy rises in the Potomac and Rappahannock Basins between the 6th and 7th with some flooding on the Monocacy River at Frederick, Md., for the second consecutive week. The rainfall over the Monocacy averaged 2 inches. Minor flooding occurred in the James River below Scottsville, Va., on the 6th–8th due to heavy rains on the 6th–7th averaging nearly 1.50 inches.

Heavy rains over the headwaters of the rivers in eastern North Carolina during the last two days of December caused minor flooding on the Cape Fear, Neuse, Tar, and Roanoke Rivers. Moderately heavy rains on the 5th–6th caused light flooding in the rivers in South Carolina. The rainfall over the Saluda, Broad, and Wateree River Basins averaged 1.75 inches.

Only minor flooding occurred in the streams in Georgia due to the moderate to heavy rains on the 4th–6th which ranged from 1 inch in the middle and lower Altamaha system to more than 3 inches in the upper Chattahoochee in the East Gulf of Mexico drainage. Light rains occurred almost daily during the last decade with heavy general rains on the 31st but no important rises resulted.

East Gulf of Mexico drainage.—Light flooding occurred on the Chattahoochee at Norcross, Ga., and on the Apalachicola at Blountstown, Fla., from the moderate to heavy rains on the 4th–6th. The rain over the upper Chattahoochee during the 3-day period averaged more than 3 inches. The only loss from the flooding was due to suspension of business along the Apalachicola.

Moderately heavy rains (2 inches) on the 4th–5th caused light flooding in the lower Choctawhatchee River at Caryville, Fla. Rainfall averaging nearly 5 inches over the headwaters of the Cahaba and Coosa River basins in Alabama and 2.5 and 3.5 inches over the Etowah and Oastanaula Basins in Georgia on the 4th–5th caused light to moderate flooding in these drainage basins.

Unusually high and persistent flood stages occurred on the Warrior and Tombigbee Rivers from the heavy rains in northern and western Alabama and northeastern Mississippi on the 3d–5th. The rainfall averaged 7 inches over the Warrior, and 6.8 inches over the Upper Tombigbee. The rivers rose rapidly and the crests exceeded all records during the past 16 years except at Aberdeen, Miss. The situation was most dangerous at Columbus, Miss., as unusually high stages occurred on the Luxapallila Creek which empties into the Tombigbee just

south of the city. Fourteen hundred homes had to be abandoned temporarily at this point.

Heavy rainfall over the headwaters of the Pearl River on the 3d–5th resulted in a near-record stage at Edinburg, Miss., on the 7th. The precipitation averaged 6.57 inches above Jackson, Miss.

Upper Mississippi Basin.—The light flooding on the Pecatonica at Freeport, Ill., and on the Rock at Moline, Ill., was due to rain, snow melt, and local ice gorges.

Moderate to heavy rains over the Meramec Basin on the 17th–19th and again on the 24th caused light to moderate flooding at all points on the Meramec. The rain averaged 1.75 inches during the 1st period and 0.75 inches on the 24th.

Missouri Basin.—Precipitation during the month was above normal in the Missouri Basin except in a small sector in the extreme upper portion. It averaged 268 percent of normal or 1.96 inches over the entire basin. It was the second greatest amount of precipitation in January in the past 60 years. During January 1916 the precipitation averaged 2.16 inches or nearly 300 percent of normal. Temperatures averaged about 9° below normal in the entire basin and about 13° below normal in the upper basin above Bismarck, N. Dak. A summary of the precipitation conditions during January is given in table 1.

TABLE 1.—*Precipitation data for Missouri River Basin, January 1949*

[Based on reports from approximately 75 stations]

Basin or area	January (inches)	Normal (inches)	Excess (inches)	Percent of normal
Upper Missouri (Plains area above Bismarck, N. Dak.)	0.67	0.49	0.18	137
Middle Missouri and tributaries (Bismarck to Sioux City, Iowa)	1.05	.52	.47	202
Missouri, below Sioux City (exclusive of Platte and Kansas)	4.80	1.52	3.28	316
Platte Basin	1.38	.51	.87	271
Kansas Basin	1.91	.61	1.30	313
Entire Missouri Basin	1.96	.73	1.23	268

Ice caused intermittent minor flooding along the upper Missouri and tributaries during the month. The Missouri overflowed at Fort Benton, Mont., flooding several basements. The Madison flooded lowlands near Three Forks, Mont. closing the U. S. highway No. 10 for nearly 2 days and the Beaverhead was in flood near Dillon, Mont. The damage from these floods was minor.

Minor flooding occurred on the lower reaches of the Big Blue River in the vicinity of Randolph, Kans., and along the Kansas River near Lecompton, Kans., during the last decade due to ice gorges caused by the warm rain on the 22d–23d together with the above freezing temperatures.

The light flooding on the Osage in Missouri was due to moderately heavy rains on the 17th–19th and the 24th.

Ohio Basin.—Precipitation occurring mostly as rainfall during January in the Ohio River Basin produced monthly totals which exceeded the maximum of record at some stations and the greatest since the record flood month of January 1937 at many others. The greatest monthly totals occurred in southern Indiana and southwestern Ohio. At Cincinnati, Ohio, the total for the month was 9.6 inches which although considerably less than the record monthly amount of 13.68 inches recorded in January 1937 was greater than the second previous highest amount (9.49 inches) recorded in January 1876. Most of the flood-producing rain occurred during three major periods, 3d to 6th, 16th to 19th and 21st to 28th, which were sufficiently spaced to allow the peak flows to subside before the next heavy rain occurred.

Slight flooding occurred in the lower portion of the Monongahela River from Lock 5, Brownsville, Pa., to Lock, 2, Braddock, Pa., on the 27th from the rain during the latter period. The amount of run-off during this period was considerably less than normally experienced under similar circumstances. Navigation was interrupted on the middle and lower reaches of the Monongahela and the dams on the Ohio River were lowered below Pittsburgh. Pool stage was exceeded at Pittsburgh during the last 7 days of the month.

Flood stage was slightly exceeded on the Hocking River from the 28th–29th due to the rain from the 21st–28th that averaged over 3 inches. Only slight damage resulted from flooded basements and closed roads.

The heavy rains caused the Scioto River to exceed bank-full stage during the 1st and last decade of the month. The damages from the overflows were negligible as far as crop land and private property were concerned but caused some inconvenience to the traveling public as numerous low places on highways were covered for some time.

Moderately heavy rains on the 4th–6th resulted in flooding on the Whitewater at Brookville, Ind., and on the Little and Great Miami Rivers for a short period beginning on the 5th. The precipitation averaged 4.28 inches on the Whitewater at Brookville, Ind., 2.4 inches on the Little Miami at Kings Mills, Ohio, and 4.85 inches on the Great Miami at Middletown and 2.79 inches at Pleasant Hill, Ohio.

Flood stages were reached on the Green River twice during the month from the moderately heavy rains on the 4th–5th and the 22d–28th. The rainfall averaged 1.9 inches during the 1st period and 3 inches during the latter. The flood losses were negligible.

Floods in the lower Wabash and the entire White River Basins in Indiana were among the highest of record. The most severe flooding occurred on the East and West Forks of the White, the main White and the Wabash from Vincennes, Ind., to the mouth. This severe flooding was due to frequent heavy rains beginning on the 3d, followed by two other major rains and several less important ones with the last important one occurring on the 24th–25th. The heaviest rains occurred along the East Fork and the main branches of the White. The storm of the 3d–5th produced rainfall in excess of 4 inches with 5.79 inches measured at Columbus, Ind., in the headwaters of the East Fork. On the 16th–19th, the rainfall averaged nearly 2 inches in the East Fork and on the 24th–25th in excess of 5 inches over the lower East Fork and main branch of the White River and 1 inch in the headwaters of the Wabash and West Fork of the White. Several stations in the basins reported monthly totals in excess of 12 inches. Petersburg, Ind., at the junction of the East and West Forks reported a monthly total of 15.51 inches. Most of the smaller streams receded below flood stage between storms but the lower portions of the main rivers remained above bank-full stage from the beginning of the heavy rains on the 3d beyond the end of the month. The relative severity of these floods compared with previous ones is given in table 2.

Flood stages were exceeded in the Cumberland Basin from the 6th–15th due to the heavy precipitation (4 inches) on the 3d to the 5th. Some flooding occurred again in the lower portion at Eddyville, Ky., from the 27th through the first week in February due to the heavy rain during the last decade of the month.

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TABLE 2.—*Comparative crests for selected stations in southeastern Indiana*

River and station	March 1913	January 1937	March or May 1943	January 1949
EAST FORK OF WHITE	*Feet*	*Feet*	*Feet*	*Feet*
Columbus, Ind	17.9	15.1	----------	14.7
Seymour, Ind	23.0	19.5	19.8	19.7
Shoals, Ind	42.2	37.0	31.4	31.2
WEST FORK OF WHITE				
Spencer, Ind	28.5	23.2	----------	20.1
Elliston, Ind	31.3	26.5	30.0	26.6
Edwardsport, Ind	----------	20.8	25.0	24.1
WHITE				
Petersburg, Ind	29.5	28.1	24.3	25.5
Hazleton, Ind	29.6	31.6	26.3	27.9
WABASH				
Terre Haute, Ind	31.3	21.3	30.5	20.6
Vincennes, Ind	----------	24.8	29.0	23.9
Mount Carmel, Ill	31.0	27.0	27.5	25.9

The second flood-producing rain of the current winter season over the Tennessee River Basin occurred from the 3d to 6th. The heaviest rain (4.5 inches) fell over the main river and tributaries below Chattanooga, Tenn. The rain was especially heavy over the area draining into the Tennessee between Guntersville Dam and Pickwick Dam, averaging 6.6 inches over the area. The storm was not severe over the upper half of the Basin. A new crest record was established on Big Nance Creek at Courtland, Ala., which had slightly more than 8 inches of rain during the 4-day period. The Elk River crested at a near record stage of 27.1 feet at Fayetteville, Tenn., 0.4 foot below the record stage of 27.5 feet. Flash floods occurred at Huntsville, Ala., and Knoxville, Tenn., from the flooding of small creeks flowing through the cities. Only minor damage occurred from the flash floods. On the Elk River, the greatest damage occurred at Fayetteville, Tenn., where 50 families were affected. Light damage occurred along the Duck River, except at Shelbyville, Tenn.

Light flooding occurred at Florence, Ala., on the 24th–25th from the heavy rain over the western and central portions of the Tennessee Basin on the 21st–23d, averaging 1.75 inches below Chattanooga, Tenn.

There were two periods of flooding on the lower Ohio at and below Newburgh, Ind. The first flood was due to heavy rains which occurred over the Tennessee and Ohio Valleys from the 2d to the 5th. The precipitation averaged 2.4 inches along the Ohio Valley below Cincinnati, Ohio, and about 3 inches over the Tennessee during this 4-day period. This flood was a minor one and caused little property damage or inconvenience to the public. The flooding in the reach from Dam 51 to Dam 52 compares closely to the flood of February–March 1948 and in the reach below to that of March–April 1948.

After the passage of the crest, the Ohio fell for 1 week before the third period of heavy precipitation began. The rain from the 21st to the 28th ranged from about 3.5 inches in the upper Ohio to about 7.2 inches in its lower reaches. The greatest 24-hour amount of precipitation on record at Cairo, Ill., occurred on the 23d–24th when 6.09 inches was measured. These rains produced the second flood on the Ohio which extended downstream from Point Pleasant, W. Va., to its mouth, a distance of 716 miles. Bank-full stage was reached but not exceeded at Marietta, Ohio. Flooding was severe in the reach below Evansville, Ind., a distance of 189 miles. Crest stages attained in this flood have often been exceeded and were considerably below the record stages established in 1937.

Four lives were lost during the high water as an indirect result of the flood. Flood damage in the basin was light and consisted mostly of crop losses.

Arkansas and Red Basins.—There were two periods of minor flooding in the Arkansas Basin during the month. Most of the overflows were due to light rain falling on a snow and sleet cover except those in the Poteau and lower Arkansas Basins. The flooding in the Poteau Basin was due to heavy rainfall (8.3 inches) that occurred over the basin below the Wister Reservoir from the 24th–28th. During this 5-day period 11.05 inches was recorded at Poteau, Okla. In the Arkansas Basin between Muskogee, Okla., and Van Buren, Ark., 6 inches of rain was recorded during this storm with the heaviest rain (9 inches) occurring in the lower portion. No major damage resulted from the flooding.

The major flooding that developed in the Red Basin during the latter part of the month extended into February. The flood in the Little River approached within 0.9 foot of the record stage established at Whitecliffs, Ark., in August 1915, and was due to rains averaging 7 inches over the basin from the 23d–25th. Several stations reported storm totals in excess of 10 inches.

The flooding in the Sulphur Basin was due to rains that averaged between 4.75 and 5.25 inches during the same period with 1.5 to 2.5 inches additional on the 26th. The crest at Hagansport, Tex., approached within 2.6 feet of the record stage of 44.7 feet established May 1941.

The flooding on the Red River was due to rains similar in amounts to those over the Little and Suphur.

Lower Mississippi Basin.—Light flooding occurred in the St. Francis River from the 7th to the 14th, due to moderate rains on the 3d–5th averaging 1.5–1.75 inches. Moderate flooding developed during the last decade and continued into February. This flooding was due to heavy rain averaging nearly 5 inches over the basin from the 22d to the 28th.

Moderate to severe flooding developed in the Yazoo–Tallahatchie Basins in Mississippi from the heavy rains on the 2d–5th. The rain averaged 5–9 inches over the southeastern half and 2–5 inches over the northern quarter of the basin. The heaviest rain (9 inches) occurred over the Yalobusha at Grenada, Miss., and over the Yazoo in the vicinity of Greenwood, Miss. Abnormally high stages occurred in these rivers prior to this storm from the heavy rains during the latter part of November. The crests in the Tallahatchie–Yazoo Rivers ranged from 4 to 6 feet above bank-full stage. The crest of the Yazoo at Greenwood, Miss., approached within 1.2 feet of the record stage of 40.1 feet of January 1932. Light flooding occurred on the Coldwater at Sarah, Miss., on the 3d–4th. Two periods of flooding occurred on the lower Mississippi at New Madrid and Caruthersville, Mo. The first was due mainly to the high water from the Ohio resulting from the heavy rains on the 2d to the 5th. The other was due to moderate rains (1.5 inches) over the upper Mississippi on the 23d–28th and the high water from the Ohio.

West Gulf of Mexico drainage.—Minor flooding occurred in the headwaters of the Sabine Basin in Texas due to the heavy rain (4 inches) on the 24th–27th. Damage was negligible.

Very little run-off occurred from the light rains on the 9th–18th over the upper Trinity Basin in Texas as it followed one of the worst dry spells of recent years in that section. It, however, thoroughly moistened the soil and set the stage for the moderate flooding that followed the rains that occurred during the period from the 21st to the 30th. The rain averaged 4.63 inches in the upper Trinity

Basin during the week of the 22d to the 28th. Flash floods occurred in the smaller tributaries of the Trinity River System from the heavy downpours of rain that occurred during the night of the 23d–24th. No damage of consequence occurred.

Colorado Basin.—Moderate flooding occurred in the upper Gila River in New Mexico during the 13th–14th. This flooding was due to rapid snow-melt accompanied by light rain (0.5 inch) at lower elevations and heavy rain (1–2 inches) at higher elevations. The snow pack was quite extensive over the mountainous regions in the upper basins and ranged from 2–4 feet in depth prior to the 13th as 3 to 4 inches of precipitation occurred during the last week of December and the 1st decade of January and occurred mostly as snow above the 4 thousand foot level. The high waters that exceeded flood stage by 4.6 feet at Cliff, N. Mex., approached within 1.2 feet of the record stage of 13.8 feet that occurred in September 1941. Thirty-nine hundred acres of land was inundated along the Gila River but very little damage resulted as most crops had been harvested. Bridges at Virden, N. Mex., and Pima, Ariz., were damaged.

Pacific slope drainage.—Minor flooding occurred in the Imperial and Colorado River Valleys in southern California with more serious flooding in the Sonora Province of Mexico following the locally moderate rains of the 10th–13th.

The month of January was one of the coldest of record in the Sacramento Basin and precipitation was in the form of snow in the foothills and mountains. The streams continued unusually low for the winter season as there was no melting due to the continuously cold weather. The American River near Sacramento, Calif., was frozen over with thin ice on the 11th which is very rare in the Sacramento Valley.

The Eel River in California was the lowest of record for an entire month during the winter season. Rainfall over the basin was also the lowest on record for January.

Ice jams formed in the Columbia Basin on the Salmon below Challis, Idaho, and on the Big Wood near Hailey, Idaho, causing some overflow over adjacent highways. There was considerable ice in the Columbia River with barge lines operating upstream only as far as The Dalles, Oreg., during the last half of the month. In the Willamette River, there was considerable ice in the lower portion above Oregon City, Oreg., but very little in the middle and upper portions.

FLOOD STAGE REPORT FOR JANUARY 1949

[All dates in January unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest[1]	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE	*Feet*			*Feet*	
Lake Erie					
St. Marys: Decatur, Ind.	13	10	11	14.0	11
		19	22	15.1	19
		28	29	15.6	28
St. Joseph: Montpelier, Ohio	10	7	8	10.5	8
		20	22	11.7	21
Maumee:					
Fort Wayne, Ind.	15	19	21	16.7	19
		28	29	15.8	28
Defiance, Ohio	10	20	20	10.0	20
ATLANTIC SLOPE DRAINAGE					
Connecticut: Hartford, Conn.	16	7	8	16.0	8
Schuylkill: Reading, Pa.	13	6	6	13.1	6
Tioughnioga: Whitney Point, N. Y.	12	6	6	12.2	6
Chenango:					
Sherburne, N. Y.	8	6	6	8.7	6
Greene, N. Y.	8	7	7	8.6	6
Susquehanna:					
Oneonta, N. Y.	12	6	7	14.2	6,7
Bainbridge, N. Y.	13	6	7	14.4	7
Vestal, N. Y.	16	7	7	17.5	7
Monocacy: Frederick, Md.	15	6	7	16.0	6

See footnotes at end of table.

FLOOD STAGE REPORT FOR JANUARY 1949—Continued

River and station	Flood stage	Above flood stages—dates		Crest[1]	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE—CON.					
James:					
Bremo Bluff, Va.	19	7	7	19.0	7
Columbia, Va.	18	6	8	20.2	6
				19.6	7
State Farm, Va.	12	7	7	13.6	7
Richmond, Va.	8	7	8	8.3	7
Roanoke:					
Alta Vista, Va.	10	Dec. 30	Dec. 31		
		6	7	18.3	6
Randolph, Va.	21	Dec. 31	1	23.2	1
Weldon, N. C.	31	1	3	37.3	2
		8	9	35.3	9
Scotland Neck, N. C.	28	3	4	30.6	3
		10	10	30.1	10
Williamston, N. C.	10	2	20	11.3	7–9, 13–14
Tar: Tarboro, N. C.	18	3	3	18.3	3
Neuse:					
Neuse, N. C.	14	Dec. 31	3	16.2	2
		8	8	14.1	8
Smithfield, N. C.	13	Dec. 31	4	15.9	3
		8	10	13.8	9
Goldsboro, N. C.	14	3	12	16.1	7
Kinston, N. C.	14	6	12	14.9	9–10
Cape Fear: Elizabethtown, N. C.	20	1	4	27.5	2
		8	10	24.1	8–9
Pee Dee:					
Cheraw, S. C.	30	7	8	35.4	7
Pee Dee, S. C.	19	1	16	22.7	12
Saluda:					
Pelzer, S. C.	6	6	9	8.0	6
Chappells, S. C.	13	7	9	16.1	8
Broad: Blairs, S. C.	14	6	8	18.6	7
Waterec: Camden, S. C.	23	7	8	24.5	7
Edisto: Givhans Ferry, S. C.	10	Nov. 29	Dec. 31	14.6	Dec. 3
Broad: Carlton, Ga.	15	16	16	16.6	16
Savannah: Butler Creek, Ga.	21	7	9	23.4	8
Ogeechee: Dover, Ga.	7	6	16	7.5	9
Ocmulgee: Abbeville, Ga.	11	4	10	11.8	7
Oconee: Mount Vernon, Ga.	16	6	9	16.5	7
Altamaha: Charlotte, Ga.	12	1	21	16.3	9, 10
EAST GULF OF MEXICO DRAINAGE					
Chattahoochee: Norcross, Ga.	16	7	7	20.2	7
Apalachicola: Blountstown, Fla.	15	Dec. 1	(2)	23.6	Dec. 6
				20.6	11
Choctawhatchee: Caryville, Fla.	12	9	10	12.4	9
Oostanaula:					
Resaca, Ga.	22	6	10	27.6	8
Rome, Ga.	25	6	10	27.8	7
Etowah:					
Canton, Ga.	17	6	7	21.5	6
Cartersville, Ga.	18	6	7	20.5	6
Coosa:					
Gadsden, Ala.	20	5	15	27.8	7
Childersburg, Ala.	20	5	7	25.2	7
Cahaba:					
Centerville, Ala.	23	5	8	32.0	5
Marion Junction, Ala.	36	8	10	38.3	9
Alabama:					
Montgomery, Ala.	35	6	12	43.4	9
Selma, Ala.	45	10	11	45.8	11
Millers Ferry, Ala.	40	8	17	47.9	13
Black Warrior:					
Tuscaloosa Lock and Dam, Ala.	47	5	9	64.4	6
Lock No. 7, Eutaw, Ala.	35	6	30	54.6	10
Tombigbee:					
Aberdeen, Miss.	34	4	11	43.2	6
		23	28	38.8	24
Columbus, Miss.	29	5	12	39.3	7
		24	28	31.4	25–26
Gainesville, Ala.	36	7	(2)	53.7	11
Lock No. 4, Dempolis, Ala.	39	9	(2)	65.2	14
Lock No. 3	33	Nov. 21	(2)	61.5	16
Lock No. 1	31	6	(2)	43.8	20
Pearl:					
Edinburg, Miss.	20	Nov. 27	12	26.0	Dec. 1
				26.0	7
		21	29	23.8	24
Jackson, Miss.	18	Nov. 20	(2)	32.9	Dec. 6
				33.1	12
				30.5	26
Monticello, Miss.	15	5	(2)	20.8	7
				22.9	20
Columbia, Miss.	17	7	(2)	19.7	11
				22.4	23
				16.7	Nov. 30
Pearl River, La.	12	Nov. 24	(2)	15.0	15
				15.8	27
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Pecatonica: Freeport, Ill.	10	6	10	10.3	6, 9
		17	20	10.9	17
Rock: Moline, Ill.	10	17	17	10.0	17
Meramec:					
Sullivan, Mo.	11	19	20	13.6	19
		25	26	13.8	26
		29	29	11.5	29
Pacific, Mo.	11	20	21	14.3	21
		25	30	15.2	26
				13.2	30
		20	22	17.1	21
Valley Park, Mo.	14	26	30	19.4	27
				16.2	30

FLOOD STAGE REPORT FOR JANUARY 1949—Continued

River and station	Flood stage	Above flood stages—dates From—	Above flood stages—dates To—	Crest [1] Stage	Crest [1] Date
MISSISSIPPI SYSTEM—continued					
Missouri Basin					
Big Blue: Randolph, Kans	22	24	25	22.3	24
Kansas: Lecompton, Kans	17	24	24	17.8	24
Osage:					
Warsaw, Mo	31	24	26	31.8	24, 25
Lakeside (Bagnell Dam), Mo	60	24	Feb. 1	61.1	25
Ohio Basin					
Monongahela:					
Lock No. 5 (lower gage), Brownsville, Pa	29	27	27	29.6	27
Lock No. 4 (upper gage), Charleroi, Pa	24	27	27	25.2	27
Lock No. 3 (lower gage), Elizabeth, Pa	26	27	27	27.3	27
McKeesport, Pa	12	27	27	12.4	27
Lock No. 2 (upper gage), Braddock, Pa	22	27	27	22.6	27
Muskingum: Lock No. 1, Marietta, Ohio	35	29	29	35.0	29
Hocking:					
Enterprise, Ohio	12	28	28	13.0	28
Athens, Ohio	17	29	29	17.2	29
Elk: Clay, W. Va	16	28	28	16.0	28
Scioto:					
La Rue, Ohio	11	5	6	12.5	6
		27	29	11.3	27, 28
		7	8	11.0	7
Prospect, Ohio	10	29	29	10.3	29
Circleville, Ohio	14	6	7	18.0	7
		25	30	17.8	29
		7	8	17.3	7
Chillicothe, Ohio	16	26	26	16.0	26
		28	30	18.5	30
Piketon, Ohio	15	6	9	20.0	7
		25	31	22.5	29
Little Miami: Kings Mills, Ohio	17	5	5	20.0	5
Stillwater: Pleasant Hill, Ohio	13	5	6	16.0	5
Whitewater: Brookville, Ind	20	5	5	24.2	5
Miami: Middletown, Ohio	15	5	7	16.4	6
Green:					
Bowling Green, Ky	28	6	8	30.2	7
Lock No. 4, Woodbury, Ky	33	7	11	37.7	8
		25	31	36.6	29
Lock No. 2, Rumsey, Ky	34	9	15	36.4	12
		25	31	----	----
West Fork:					
Muncie, Ind	----	----	----	9.7	5
		5	7	16.2	6
Anderson, Ind	10	19	20	13.4	19
		28	29	11.6	28
		7	7	14.9	7
Noblesville, Ind	14	20	20	15.0	20
Indianapolis, Ind	12	20	20	12.0	20
Spencer, Ind	----	----	----	20.1	6
		1	2	19.6	1
Elliston, Ind	18	5	12	25.4	8
		18	(2)	26.6	23
Newberry, Ind	----	----	----	21.2	24
Edwardsport, Ind	12	Dec. 30	(2)	17.8	2
				24.1	25
East Fork:					
Columbus, Ind	----	----	----	14.7	6
Seymour, Ind	14	5	9	19.7	5
		19	30	18.0	25
Bedford, Ind	----	----	----	32.5	8
Williams, Ind	10	7	13	20.4	9
		23	(2)	18.7	28
Shoals, Ind	25	9	13	31.2	10
		25	(2)	30.5	29
White:					
Petersburg, Ind	16	4	(2)	25.5	26
Hazleton, Ind	16	4	(2)	27.9	27
Wabash:					
Bluffton, Ind	10	7	8	10.0	7, 8
		18	21	11.0	18
		5	8	17.0	5
Wabash, Ind	12	19	22	20.1	19
		27	30	17.6	28
		1	1	13.2	1
La Fayette, Ind	11	6	13	18.6	7
		18	(2)	21.7	20–21
		1	2	17.6	1
Covington, Ind	16	6	14	21.2	9
		19	(2)	25.0	22
Terre Haute, Ind	14	5	(2)	20.6	23
Hutsonville, Ill	----	----	----	24.5	25
Riverton, Ind	----	----	----	21.9	26
Vincennes, Ind	16	7	(2)	23.9	27, 28
Mt. Carmel, Ill	17	5	(2)	25.9	28
New Harmony, Ind	15	7	(2)	22.0	29
Cumberland:					
Williamsburg, Ky	19	6	7	20.8	7
Burnside, Ky	50	6	6	51.7	6
Celina, Tenn	40	8	9	41.6	9
Lock F, Eddyville, Ky	50	8	15	52.5	13
		27	Feb. 7	57.0	31
First Creek: Knoxville, Tenn	5	5	6	7.4	5
Richland Creek: Dayton, Tenn	8	5	5	8.2	5
South Chickamauga Creek: Chickamauga, Tenn	10	4	7	18.9	6
Elk: Fayetteville, Tenn	18	4	8	27.1	5
Duck: Shelbyville, Tenn	21	4	7	30.8	6
Columbia, Tenn	32	6	8	35.8	8
Tennessee:					
Gilbertsville, Tenn	34	5	31	49.0	30
Savannah, Tenn	39	5	14	45.6	10

FLOOD STAGE REPORT FOR JANUARY 1949—Continued

River and station	Flood stage	Above flood stages—dates From—	Above flood stages—dates To—	Crest [1] Stage	Crest [1] Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Tennessee—Continued					
Florence, Ala	18	3	13	25.9	8
				19.7	13
		22	22	19.3	22
		24	25	19.3	24
Ohio:					
Point Pleasant, W. Va	40	28	31	42.1	29
Dam No. 29, Ashland, Ky	51	30	30	51.0	30
Dam No. 30, near Greenup, Ky	52	30	30	52.0	30
Portsmouth, Ohio	50	30	31	50.7	30
Dam No. 33, near Maysville, Ky	50	30	Feb. 1	51.6	31
Dam No. 34, Chilo, Ohio	49	30	31	49.9	30
Dam No. 35, New Richmond, Ohio	48	29	Feb. 1	49.2	31
Cincinnati, Ohio	52	28	Feb. 1	52.6	30
Dam No. 37, Fernbank, Ohio	50	28	Feb. 1	52.5	29
Dam No. 38, near Grant, Ky	51	29	31	51.8	29
Dam No. 41, Louisville, Ky.:					
Upper gage	28	28	Feb. 1	29.6	29
Lower gage	55	28	Feb. 1	56.4	29
Dam No. 43, Evans Landing, Ind	57	29	Feb. 1	58.0	29–30
Dam No. 44, Leavenworth, Ind	53	27	Feb. 4	57.8	30
Dam No. 45, Addison, Ky	47	28	Feb. 4	50.5	31
Tell City, Ind	38	27	31	43.7	31
Dam No. 46, Owensboro, Ky	41	29	(2)	----	----
Dam No. 47, Newburgh, Ind	38	9	13	38.6	11
		26	(2)	----	----
Evansville, Ind	42	30	(2)	----	----
Dam No. 48, near Henderson, Ky	38	27	(2)	----	----
Mount Vernon, Ind	35	10	15	36.2	13
		26	(2)	----	----
Dam No. 49, Uniontown, Ky	37	10	17	38.7	13
		26	(2)	----	----
Shawneetown, Ill	33	7	(2)	38.8	14
Dam No. 50, Fords Ferry, Ky	34	7	(2)	41.7	15
				----	----
Dam No. 51, Golconda, Ill	40	12	17	40.7	14
		27	Feb. 13	48.5	Feb. 4
Paducah, Ky	39	9	19	41.8	13
		24	Feb. 13	46.1	Feb. 4
Dam No. 52, Brookport, Ill	37	7	21	43.5	13
		22	Feb. 12	48.0	30
Dam No. 53, near Mound City, Ill	42	7	----	47.7	15
				52.6	30
Cairo, Ill	40	9	----	44.4	16
				50.5	31
Arkansas Basin					
Little Arkansas: Sedgwick, Kans	18	23	25	22.5	23
Verdigris:					
Independence, Kans	30	16	16	30.2	16
Inola, Okla	41.5	25	28	43.0	26
Cottonwood: Emporia, Kans	20	16	17	21.4	17
Neosho:		24	26	22.4	25
Emporia, Kans	20	16	17	24.0	16
		24	25	24.8	24
Oswego, Kans	17	16	18	18.6	17
		24	26	18.6	25
Poteau: Poteau, Okla	21	24	----	30.5	25
Arkansas: Van Buren, Ark	22	28	22	22.0	28
Red Basin					
Little:					
Horatio, Ark	----	----	----	35.6	27
Whitecliffs, Ark	25	26	----	31.1	28
Sulphur:					
Hagansport, Tex	38	25	----	42.1	28
Naples, Tex	22	27	----	30.8	30
Red:					
Fulton, Ark	25	27	----	32.0	30
Garland, Ark	25	28	----	29.9	31
Lower Mississippi Basin					
St. Francis:					
Fisk, Mo	20	7	9	20.5	8
		20	(2)	23.8	27–29
St. Francis, Ark	18	11	14	18.4	12–13
		22	(2)	22.6	28–29
Coldwater: Sarah, Miss	18	3	4	19.0	3
Tallabatchie: Swan Lake, Miss	26	4	(2)	30.5	9–10
Yazoo:					
Greenwood, Miss	35	7	(2)	38.8	12
Yazoo City, Miss	29	3	(2)	35.0	31
Mississippi:					
New Madrid, Mo	34	14	20	34.8	17
		25	----	39.6	Feb. 1
Caruthersville, Mo	32	15	21	32.8	17–18
		26	(2)	----	----
Atchafalaya Basin					
Atchafalaya: Atchafalaya, La	25	17	(2)	----	----
WEST GULF OF MEXICO DRAINAGE					
Sabine: Mineola, Tex	14	28	Feb. 4	17.7	30
East Fork: Rockwall, Tex	10	24	31	17.0	26
Trinity:					
Dallas, Tex	28	24	25	30.9	25
Rosser, Tex	26	27	31	31.0	29
Trinidad, Tex	28	29	Feb. 3	34.0	Feb. 2
GULF OF CALIFORNIA DRAINAGE					
Colorado Basin					
San Francisco: Clifton, Ariz	----	----	----	15.3	13
Gila:					
Cliff, N. Mex	8	13	14	12.6	14
Virden, N. Mex	----	----	----	17.4	14
Safford, Ariz	----	----	----	13.1	14

[1] Provisional.

[2] Continued at end of month.