# OBSERVED DISCHARGE - MONTHLY AVERAGE

## 03294500 OHIO RIVER AT LOUISVILLE, KY.

USGS Flows - 1000cfs

* USACE Flows

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1928 | --- | --- | --- | 214.8 | 141.4 | 185.9 | 184.5 | 60.0 | 35.2 | 16.0 | 49.0 | 110.9 |
| 1929 | 174.1 | 100.5 | 344.9 | 213.5 | 298.4 | 73.5 | 82.8 | 24.6 | 21.7 | 77.1 | 180.9 | 143.4 |
| 1930 | 250.2 | 163.7 | 234.3 | 111.6 | 41.7 | 25.3 | 8.0 | 4.9 | 6.0 | 4.4 | 6.7 | 14.1 |
| 1931 | 21.6 | 58.5 | 79.8 | 226.1 | 123.9 | 56.6 | 38.6 | 54.0 | 41.2 | 21.6 | 22.5 | 172.2 |
| 1932 | 246.6 | 284.2 | 143.9 | 212.8 | 95.7 | 33.5 | 99.8 | 27.3 | 8.7 | 15.2 | 62.3 | 59.9 |
| 1933 | 216.1 | 187.4 | 345.2 | 259.7 | 263.6 | 58.5 | 28.8 | 37.3 | 29.8 | 12.2 | 23.9 | 100.3 |
| 1934 | 113.7 | 38.0 | 219.2 | 152.6 | 32.3 | 17.7 | 16.2 | 50.4 | 16.5 | 23.7 | 38.6 | 56.9 |
| 1935 | 167.9 | 105.4 | 299.8 | 233.7 | 252.2 | 104.8 | 70.2 | 143.8 | 65.3 | 16.3 | 65.1 | 118.8 |
| 1936 | 194.9 | 156.1 | 361.1 | 318.3 | 47.5 | 17.5 | 17.6 | 15.9 | 15.0 | 36.5 | 84.7 | 82.2 |
| 1937 | 595.8 | 331.9 | 114.1 | 123.4 | 183.5 | 100.9 | 68.3 | 43.1 | 33.4 | 46.2 | 82.1 | 124.0 |
| 1938 | 99.4 | 220.8 | 276.8 | 218.0 | 126.5 | 90.1 | 105.0 | 77.4 | 34.0 | 12.3 | 37.7 | 56.6 |
| 1939 | 92.3 | 430.4 | 304.7 | 329.7 | 52.3 | 68.9 | 70.4 | 33.2 | 8.6 | 14.6 | 17.8 | 29.5 |
| 1940 | 40.7 | 136.2 | 185.6 | 376.5 | 91.9 | 143.0 | 67.0 | 42.1 | 34.4 | 12.9 | 42.8 | 85.6 |
| 1941 | 128.4 | 70.4 | 98.2 | 94.1 | 29.4 | 103.3 | 62.7 | 30.0 | 22.2 | 16.2 | 34.8 | 51.9 |
| 1942 | 65.7 | 132.3 | 217.9 | 159.2 | 89.4 | 73.4 | 70.2 | 78.3 | 33.7 | 57.2 | 128.5 | 164.5 |
| 1943 | 295.6 | 201.2 | 322.4 | 193.5 | 184.2 | 99.0 | 53.1 | 50.6 | 12.8 | 12.5 | 27.5 | 22.0 |
| 1944 | 52.1 | 93.7 | 308.8 | 260.3 | 129.6 | 49.6 | 16.4 | 13.4 | 15.6 | 31.9 | 24.1 | 76.9 |
| 1945 | 182.7 | 195.0 | 524.3 | 194.2 | 172.2 | 112.9 | 34.3 | 35.4 | 56.1 | 70.5 | 112.7 | 116.9 |
| 1946 | 178.5 | 188.7 | 222.7 | 75.0 | 146.0 | 197.3 | 46.0 | 27.7 | 11.0 | 16.4 | 24.4 | 52.4 |
| 1947 | 225.8 | 124.5 | 116.7 | 214.4 | 198.2 | 155.4 | 56.7 | 52.5 | 37.3 | 16.1 | 41.1 | 53.2 |
| 1948 | 92.3 | 233.0 | 271.2 | 403.3 | 143.9 | 62.4 | 60.7 | 43.5 | 17.6 | 21.9 | 52.5 | 196.2 |
| 1949 | 278.6 | 312.5 | 193.1 | 162.1 | 92.1 | 45.3 | 55.5 | 35.8 | 23.5 | 19.0 | 40.9 | 127.8 |
| 1950 | 392.2 | 406.3 | 190.6 | 192.3 | 140.7 | 163.2 | 89.6 | 37.0 | 95.1 | 41.3 | 131.9 | 266.0 |
| 1951 | 286.0 | 357.2 | 283.5 | 242.8 | 120.2 | 91.7 | 49.7 | 16.0 | 18.2 | 12.4 | 64.7 | 212.8 |
| 1952 | 313.5 | 288.6 | 272.6 | 176.0 | 158.0 | 57.6 | 24.3 | 21.3 | 15.0 | 9.8 | 19.6 | 59.1 |
| 1953 | 150.3 | 146.5 | 191.6 | 160.3 | 167.4 | 77.6 | 31.5 | 18.5 | 10.3 | 7.3 | 9.2 | 23.2 |
| 1954 | 62.7 | 61.0 | 137.1 | 143.5 | 99.9 | 43.5 | 40.5 | 40.4 | 20.5 | 85.7 | 45.8 | 91.9 |
| 1955 | 154.0 | 230.2 | 481.9 | 122.4 | 82.5 | 43.7 | 38.3 | 27.1 | 11.7 | 33.0 | 67.3 | 45.1 |
| 1956 | 31.3 | 376.5 | 345.6 | 265.9 | 160.2 | 136.1 | 94.1 | 102.2 | 52.2 | 27.5 | 34.5 | 143.5 |
| 1957 | 159.9 | 303.0 | 136.4 | 290.8 | 104.7 | 57.7 | 55.7 | 12.9 | 17.9 | 19.5 | 67.6 | 187.6 |
| 1958 | 136.3 | 122.3 | 154.3 | 224.3 | 301.9 | 93.2 | 163.4 | 151.3 | 45.5 | 27.0 | 41.5 | 57.2 |
| 1959 | 219.8 | 242.6 | 154.3 | 171.3 | 113.9 | 48.0 | 29.9 | 24.8 | 14.5 | 37.9 | 64.8 | 157.0 |
| 1960 | 173.7 | 192.1 | 126.8 | 202.9 | 99.9 | 88.9 | 55.8 | 27.7 | 24.8 | 15.2 | 26.0 | 26.6 |
| 1961 | 83.0 | 140.2 | 360.4 | 266.1 | 262.3 | 126.0 | 70.9 | 64.5 | 17.1 | 24.0 | 50.0 | 125.3 |
| 1962 | 171.1 | 172.6 | 365.5 | 235.5 | 52.5 | 40.6 | 37.6 | 16.8 | 15.5 | 21.7 | 93.8 | 69.3 |
| 1963 | 95.7 | 89.9 | 469.4 | 126.8 | 57.3 | 60.0 | 19.5 | 18.7 | 12.1 | 8.2 | 18.2 | 33.0 |
| 1964 | 85.8 | 86.3 | 424.5 | 239.0 | 81.0 | 36.9 | 19.4 | 19.1 | 11.1 | 23.2 | 24.7 | 114.6 |
| 1965 | 181.2 | 177.3 | 242.0 | 272.0 | 70.6 | 23.6 | 23.1 | 12.4 | 35.9 | 35.6 | 36.6 | 38.5 |
| 1966 | 104.1 | 228.9 | 110.6 | 132.9 | 199.9 | 22.8 | 20.9 | 24.0 | 23.6 | 35.6 | 65.0 | 158.1 |
| 1967 | 72.0 | 111.7 | 378.1 | 161.3 | 281.8 | 45.3 | 34.3 | 29.8 | 19.6 | 43.7 | 60.4 | 145.9 |
| 1968 | 98.8 | 141.9 | 207.7 | 156.8 | 210.7 | 143.0 | 30.9 | 52.4 | 17.8 | 23.1 | 60.2 | 102.5 |
| 1969 | 142.4 | 168.3 | 69.4 | 161.0 | 105.6 | 43.2 | 72.2 | 57.6 | 22.8 | 18.6 | 47.8 | 78.7 |
| 1970 | 130.8 | 233.9 | 168.8 | 285.6 | 139.3 | 55.1 | 40.4 | 35.3 | 30.9 | 47.1 | 124.1 | 173.8 |
| 1971 | 149.4 | 270.0 | 223.3 | 79.8 | 174.2 | 65.5 | 48.4 | 52.0 | 70.8 | 36.1 | 37.2 | 125.6 |
| 1972 | 191.8 | 193.1 | 288.6 | 336.5 | 142.0 | 108.3 | 119.3 | 55.0 | 28.3 | 53.7 | 187.6 | 321.3 |
| 1973 | 120.1 | 168.1 | 226.8 | 248.8 | 208.5 | 123.1 | 67.8 | 42.0 | 22.9 | 36.1 | 110.0 | 177.5 |
| 1974 | 332.0 | 149.6 | 230.9 | 214.6 | 128.4 | 160.3 | 58.0 | 42.3 | 98.9 | 36.3 | 86.8 | 206.4 |
| 1975 | 239.3 | 318.5 | 386.3 | 233.3 | 183.8 | 101.1 | 36.0 | 34.6 | 96.6 | 109.9 | 75.6 | 133.6 |
| 1976 | 231.3 | 259.2 | 179.6 | 96.1 | 42.2 | 57.2 | 65.8 | 37.9 | 26.5 | 112.5 | 68.9 | 82.6 |
| 1977 | 38.6 | 104.2 | 253.7 | 200.0 | 76.4 | 29.1 | 54.2 | 74.2 | 44.3 | 89.1 | 113.6 | 240.7 |
| 1978 | 195.8 | 113.4 | 324.5 | 191.7 | 218.5 | 69.8 | 60.7 | 61.7 | 38.7 | 41.8 | 58.7 | 311.5 |
| 1979 | 322.5 | 191.0 | 330.0 | 249.6 | 128.9 | 116.5 | 80.5 | 120.7 | 166.6 | 153.5 | 149.2 | 167.2 |
| 1980 | 155.3 | 98.9 | 263.0 | 253.4 | 134.2 | 107.8 | 96.8 | 146.7 | 39.0 | 30.3 | 54.3 | 71.6 |
| 1981 | 40.9 | 216.4 | 149.9 | 199.3 | 184.3 | 234.4 | 61.9 | 29.0 | 41.3 | 37.1 | 53.8 | 90.2 |
| 1982 | 164.4 | 257.1 | 271.7 | 134.5 | 58.4 | 142.1 | 51.3 | 31.1 | 28.8 | 23.0 | 57.0 | 164.5 |
| 1983 | 88.8 | 136.6 | 123.4 | 240.5 | 330.0 | 82.8 | 46.2 | 21.0 | 15.1 | 56.6 | 97.2 | 188.8 |
| 1984 | 82.1 | 179.0 | 239.2 | 315.6 | 227.0 | 79.2 | 55.5 | 50.7 | 24.9 | 32.2 | 113.5 | 176.5 |
| 1985 | 121.0 | 199.8 | 223.9 | 159.5 | 94.7 | 62.7 | 41.9 | 29.2 | 15.2 | 31.6 | 227.7 | 230.7 |
| 1986 | 102.0 | 277.6 | 199.6 | 80.1 | 70.0 | 121.8 | 92.4 | 26.9 | 33.9 | 78.3 | 146.8 | 215.2 |
| 1987 | 114.2 | 123.5 | 145.1 | 285.4 | 100.3 | 66.2 | 73.6 | 25.3 | 46.2 | 32.7 | 37.4 | 109.1 |
| 1988 | 102.5 | 172.8 | 136.6 | 134.1 | 83.7 | 17.6 | 21.3 | 14.5 | 25.3 | 22.0 | 89.6 | 83.0 |
| 1989 | 167.8 | 289.6 | 227.7 | 235.2 | 283.1 | 201.6 | 100.7 | 64.3 | 80.4 | 114.0 | 113.6 | 58.5 |
| 1990 | 203.6 | 340.0 | 133.4 | 162.1 | 204.2 | 156.4 | 106.9 | 53.8 | 75.0 | 107.0 | 94.9 | 285.6 |
| 1991 | 348.2 | 256.0 | 280.9 | 194.7 | 75.2 | 36.1 | 33.8 | 19.8 | 20.3 | 15.9 | 30.1 | 144.0 |
| 1992 | 114.4 | 99.5 | 200.6 | 150.6 | 97.4 | 82.6 | 107.3 | 92.2 | 56.4 | 39.5 | 110.8 | 131.3 |
| 1993 | 192.6 | 139.7 | 316.6 | 239.2 | 99.9 | 70.5 | 47.3 | 25.8 | 29.4 | 41.5 | 132.0 | 169.4 |
| 1994 | 208.0 | 342.9 | 335.0 | 341.9 | 151.1 | 51.5 | 50.9 | 79.5 | 34.8 | 26.4 | 51.6 | 107.7 |
| 1995 | 171.0 | 148.9 | 172.1 | 104.2 | 258.9 | 108.7 | 48.8 | 58.1 | 18.0 | 37.6 | 83.0 | 103.8 |
| 1996 | 270.2 | 208.7 | 277.5 | 197.9 | 401.7 | 181.8 | 80.2 | 73.8 | 82.8 | 92.2 | 148.7 | 236.2 |
| 1997 | 138.7 | 189.0 | 435.2 | 114.2 | 137.8 | 206.4 | 52.2 | 45.6 | 22.3 | 24.0 | 75.8 | 92.4 |
| 1998 | 199.4 | 227.5 | 201.5 | 242.5 | 218.2 | 167.4 | 114.4 | 34.7 | 20.0 | 23.3 | 24.1 | 43.8 |
| 1999 | 219.9 | 166.0 | 210.8 | 132.5 | 73.2 | 22.2 | 19.6 | 17.4 | 11.8 | 21.0 | 41.3 | 78.2 |
| 2000 | 77.4 | 221.8 | 142.2 | 213.1 | 84.7 | 94.0 | 68.6 | 63.9 | 44.2 | 38.3 | 32.9 | 104.3 |
| 2001 | 63.8 | 179.0 | 141.0 | 144.0 | 134.0 | 94.6 | 71.8 | 62.2 | 27.5 | 42.6 | 38.3 | 118.7 |
| 2002 | 94.2 | 111.9 | 205.7 | 233.7 | 281.7 | 104.0 | 36.5 | 18.0 | 20.5 | 44.9 | 122.8 | 145.5 |
| 2003 | 126.3 | 228.1 | 240.5 | 179.4 | 229.2 | 212.3 | 127.9 | 114.8 | 141.9 | 92.2 | 225.1 | 226.6 |
| 2004 | 264.2 | 207.0 | 217.7 | 257.3 | 194.7 | 215.2 | 67.8 | 78.4 | 195.5 | 95.7 | 161.0 | 215.1 |
| 2005 | 383.9 | 208.1 | 202.5 | 230.2 | 137.2 | 40.1 | 41.9 | 26.7 | 29.7 | 34.2 | 70.6 | 107.8 |
| 2006 | 202.7 | 129.7 | 133.1 | 165.2 | 87.2 | 78.8 | 97.2 | 34.5 | 94.9 | 159.9 | 180.9 | 122.7 |
| 2007 | 257.4 | 127.6 | 283.2 | 214.6 | 80.5 | 29.5 | 28.4 | 39.9 | 18.9 | 31.3 | 53.8 | 226.3 |
| 2008 | 144.3 | 267.5 | 381.7 | 200.2 | 177.4 | 113.9 | 72.1 | 22.9 | 29.3 | 16.0 | 25.0 | 144.0 |
| 2009 | 146.8 | 189.8 | 130.0 | 189.8 | 180.0 | 111.6 | 46.3 | 89.5 | 39.3 | 71.5 | 73.6 | 164.3 |
| 2010 | 170.3 | 168.6 | 232.9 | 94.8 | 207.3 | 118.4 | 50.1 | 29.1 | 14.4 | 22.6 | 42.5 | 116.0 |
| 2011 | 85.0 | 166.4 | 415.0 | 463.4 | 326.5 | 94.4 | 52.1 | 30.9 | 61.8 | 101.7 | 181.2 | 278.7 |
| 2012 | 230.6 | 159.3 | 228.3 | 77.9 | 143.9 | 29.4 | 34.8 | 23.7 | 27.1 | 27.9 | 92.2 | 168.0 |
| 2013 | 181.3 | 187.4 | 250.7 | 164.7 | 125.8 | 100.1 | 172.5 | 69.3 | 43.4 | 41.9 | 88.0 | 238.7 |
| 2014 | 183.1 | 228.2 | 169.1 | 214.0 | 206.4 | 105.4 | 60.0 | 64.4 | 38.7 | 58.9 | 67.6 | 125.6 |
| 2015 | 106.0 | 102.2 | 429.6 | 352.7 | 69.3 | 126.5 | 225.7 | 35.5 | 22.9 | 46.0 | 69.6 | 165.8 |
| 2016 | 138.6 | 245.4 | 202.0 | 129.4 | 192.5 | --- | --- | --- | --- | --- | --- | --- |

# OBSERVED DISCHARGE - MONTHLY AVERAGE

## 03294500 OHIO RIVER AT LOUISVILLE, KY.

USGS Flows - 1000cfs

* USACE Flows

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max | 595.8 | 430.4 | 524.3 | 463.4 | 401.7 | 234.4 | 225.7 | 151.3 | 195.5 | 159.9 | 227.7 | 321.3 |
| +0.43 SD | 208.6 | 228.0 | 286.0 | 237.6 | 183.6 | 114.1 | 78.9 | 59.1 | 51.3 | 55.3 | 95.5 | 161.2 |
| Average | 168.6 | 193.3 | 243.7 | 205.3 | 150.5 | 91.7 | 62.5 | 46.1 | 37.2 | 41.5 | 74.4 | 131.1 |
| -0.43 SD | 128.7 | 158.5 | 201.5 | 172.9 | 117.3 | 69.4 | 46.2 | 33.1 | 23.1 | 27.7 | 53.4 | 101.1 |
| Min | 21.6 | 38.0 | 69.4 | 75.0 | 29.4 | 17.5 | 8.0 | 4.9 | 6.0 | 4.4 | 6.7 | 14.1 |

# 03294500 OHIO RIVER AT LOUISVILLE, KY.
# PREDICTED FLOW RANGE PROBABILITIES

Next month forecast

## Forecast Percent Probability of Flow Range

Observed Flow

| January | February - | February N | February + |
|---|---|---|---|
| - | 55 | 27 | 18 |
| N | 30 | 36 | 33 |
| + | 14 | 41 | 45 |

| February | March - | March N | March + |
|---|---|---|---|
| - | 39 | 26 | 35 |
| N | 23 | 50 | 27 |
| + | 44 | 33 | 22 |

| March | April - | April N | April + |
|---|---|---|---|
| - | 52 | 32 | 16 |
| N | 41 | 34 | 25 |
| + | 16 | 32 | 52 |

| April | May - | May N | May + |
|---|---|---|---|
| - | 55 | 24 | 21 |
| N | 23 | 33 | 43 |
| + | 35 | 35 | 31 |

| May | June - | June N | June + |
|---|---|---|---|
| - | 68 | 21 | 12 |
| N | 33 | 41 | 26 |
| + | 11 | 43 | 46 |

| June | July - | July N | July + |
|---|---|---|---|
| - | 69 | 29 | 3 |
| N | 13 | 60 | 27 |
| + | 9 | 43 | 48 |

| July | August - | August N | August + |
|---|---|---|---|
| - | 70 | 30 | 0 |
| N | 32 | 39 | 29 |
| + | 15 | 30 | 55 |

| August | September - | September N | September + |
|---|---|---|---|
| - | 64 | 33 | 3 |
| N | 43 | 33 | 23 |
| + | 5 | 59 | 36 |

| September | October - | October N | October + |
|---|---|---|---|
| - | 62 | 30 | 8 |
| N | 37 | 46 | 17 |
| + | 12 | 25 | 62 |

| October | November - | November N | November + |
|---|---|---|---|
| - | 76 | 24 | 0 |
| N | 19 | 52 | 29 |
| + | 5 | 26 | 68 |

| November | December - | December N | December + |
|---|---|---|---|
| - | 58 | 36 | 6 |
| N | 30 | 33 | 37 |
| + | 5 | 23 | 73 |

| December | January - | January N | January + |
|---|---|---|---|
| - | 55 | 29 | 16 |
| N | 36 | 46 | 18 |
| + | 21 | 38 | 41 |

# 03294500 OHIO RIVER AT LOUISVILLE, KY.
# PREDICTED FLOW RANGE PROBABILITIES

Two month forecast

## Forecast Percent Probability of Flow Range

Observed Flow

| January | March - | March N | March + |
|---|---|---|---|
| - | 39 | 33 | 27 |
| N | 33 | 30 | 36 |
| + | 32 | 50 | 18 |

| February | April - | April N | April + |
|---|---|---|---|
| - | 35 | 32 | 32 |
| N | 37 | 33 | 30 |
| + | 41 | 33 | 26 |

| March | May - | May N | May + |
|---|---|---|---|
| - | 52 | 23 | 26 |
| N | 31 | 34 | 34 |
| + | 32 | 32 | 36 |

| April | June - | June N | June + |
|---|---|---|---|
| - | 48 | 27 | 24 |
| N | 27 | 47 | 27 |
| + | 42 | 27 | 31 |

| May | July - | July N | July + |
|---|---|---|---|
| - | 44 | 41 | 15 |
| N | 33 | 37 | 30 |
| + | 21 | 50 | 29 |

| June | August - | August N | August + |
|---|---|---|---|
| - | 60 | 34 | 6 |
| N | 33 | 27 | 40 |
| + | 22 | 43 | 35 |

| July | September - | September N | September + |
|---|---|---|---|
| - | 67 | 27 | 7 |
| N | 34 | 53 | 13 |
| + | 20 | 35 | 45 |

| August | October - | October N | October + |
|---|---|---|---|
| - | 50 | 39 | 11 |
| N | 43 | 37 | 20 |
| + | 32 | 27 | 41 |

| September | November - | November N | November + |
|---|---|---|---|
| - | 51 | 35 | 14 |
| N | 43 | 37 | 20 |
| + | 12 | 25 | 62 |

| October | December - | December N | December + |
|---|---|---|---|
| - | 58 | 29 | 13 |
| N | 19 | 39 | 42 |
| + | 16 | 26 | 58 |

| November | January - | January N | January + |
|---|---|---|---|
| - | 50 | 33 | 17 |
| N | 30 | 43 | 27 |
| + | 27 | 36 | 36 |

| December | February - | February N | February + |
|---|---|---|---|
| - | 45 | 19 | 35 |
| N | 39 | 46 | 14 |
| + | 21 | 38 | 41 |