

Water-Data Report 2011

04216000 NIAGARA RIVER AT BUFFALO, NY

Eastern Lake Erie Basin
Niagara Subbasin

LOCATION.--Lat 42°52'40", long 78°55'00" referenced to North American Datum of 1927, Erie County, NY, Hydrologic Unit 04120104, at head of Niagara River at Buffalo, and 34.3 mi upstream from mouth.

DRAINAGE AREA.--263,700 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--January 1860 to September 1960 (monthly discharges only published in WSP 1912), October 1960 to current year. Records of January 1926 to September 1960 daily discharges available in files of U.S. Department of Commerce and U.S. Geological Survey.

REVISED RECORDS.--WSP 1912: 1862 (M), 1955 (M), 1936 (M). WDR NY-77-1: Drainage area.

GAGE.--Discharge determined from several powerplants at Niagara Falls and discharge over the falls. Discharge before 1926 determined from records of Corps of Engineers gages at Buffalo and Cleveland.

COOPERATION.--Records of daily discharge provided by Detroit District, U.S. Army Corps of Engineers and Canada Department of the Environment, not reviewed by the USGS.

REMARKS.--Records do not include water diverted from Lake Michigan by Illinois and Michigan Canal during period of its operation prior to 1910 and by Chicago Sanitary and Ship Canal, which began operation in 1900, and from Lake Erie by Welland and New York State Canals before 1918. Records include water diverted into Lake Superior from Hudson Bay drainage by the Long Lake project, which began operation in July 1939, and by the Ogoki project, which began operation in July 1943. Figures of monthly mean discharge for 1860 to 1960 and daily discharge for 1961 to 1965, published in WSP 1912, are the official records of the U.S. Lake Survey, and have been coordinated with and concurred by the counterpart Canadian agencies, as have been the extremes for period of record through December 1976 and records October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 347,000 ft³/s, Dec. 2, 1985, result of high, storm-generated Lake Erie level; minimum daily, 90,000 ft³/s, Jan. 13, 1964, Aug. 29, 1984. Maximum monthly mean discharge, 268,400 ft³/s, June 1986; minimum monthly mean, 116,200 ft³/s, Feb. 1936. Maximum and minimum instantaneous discharges not determined.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 252,000 ft³/s, June 1; minimum daily discharge, 150,000 ft³/s, Feb. 1. Maximum and minimum instantaneous discharge not determined.

04216000 NIAGARA RIVER AT BUFFALO, NY—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

| Day | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1 | 183,000 | 179,000 | 219,000 | 188,000 | 150,000 | 182,000 | 198,000 | 218,000 | 252,000 | 222,000 | 223,000 | 208,000 |
| 2 | 178,000 | 178,000 | 212,000 | 212,000 | 167,000 | 188,000 | 199,000 | 222,000 | 244,000 | 223,000 | 221,000 | 206,000 |
| 3 | 162,000 | 182,000 | 193,000 | 194,000 | 178,000 | 179,000 | 196,000 | 221,000 | 240,000 | 226,000 | 220,000 | 209,000 |
| 4 | 175,000 | 184,000 | 187,000 | 196,000 | 180,000 | 177,000 | 200,000 | 229,000 | 237,000 | 222,000 | 211,000 | 213,000 |
| 5 | 183,000 | 183,000 | 195,000 | 187,000 | 171,000 | 190,000 | 209,000 | 231,000 | 239,000 | 222,000 | 213,000 | 206,000 |
| 6 | 187,000 | 181,000 | 206,000 | 177,000 | 178,000 | 198,000 | 202,000 | 227,000 | 234,000 | 222,000 | 215,000 | 193,000 |
| 7 | 195,000 | 188,000 | 202,000 | 187,000 | 172,000 | 195,000 | 198,000 | 224,000 | 237,000 | 216,000 | 221,000 | 182,000 |
| 8 | 196,000 | 182,000 | 196,000 | 181,000 | 175,000 | 187,000 | 195,000 | 220,000 | 242,000 | 217,000 | 218,000 | 192,000 |
| 9 | 184,000 | 178,000 | 184,000 | 185,000 | 169,000 | 189,000 | 197,000 | 219,000 | 241,000 | 217,000 | 221,000 | 203,000 |
| 10 | 187,000 | 175,000 | 191,000 | 168,000 | 172,000 | 203,000 | 198,000 | 215,000 | 231,000 | 216,000 | 230,000 | 205,000 |
| 11 | 186,000 | 176,000 | 183,000 | 165,000 | 166,000 | 236,000 | 205,000 | 214,000 | 232,000 | 220,000 | 221,000 | 208,000 |
| 12 | 185,000 | 180,000 | 186,000 | 180,000 | 176,000 | 213,000 | 194,000 | 215,000 | 234,000 | 222,000 | 219,000 | 212,000 |
| 13 | 184,000 | 177,000 | 200,000 | 184,000 | 173,000 | 210,000 | 197,000 | 219,000 | 235,000 | 217,000 | 215,000 | 215,000 |
| 14 | 189,000 | 191,000 | 201,000 | 184,000 | 180,000 | 199,000 | 192,000 | 219,000 | 227,000 | 212,000 | 212,000 | 207,000 |
| 15 | 187,000 | 184,000 | 199,000 | 195,000 | 167,000 | 193,000 | 164,000 | 213,000 | 225,000 | 209,000 | 210,000 | 206,000 |
| 16 | 190,000 | 173,000 | 194,000 | 168,000 | 170,000 | 202,000 | 192,000 | 222,000 | 227,000 | 212,000 | 215,000 | 204,000 |
| 17 | 191,000 | 207,000 | 193,000 | 151,000 | 170,000 | 199,000 | 222,000 | 220,000 | 227,000 | 215,000 | 216,000 | 199,000 |
| 18 | 185,000 | 190,000 | 202,000 | 177,000 | 187,000 | 201,000 | 192,000 | 224,000 | 225,000 | 217,000 | 216,000 | 200,000 |
| 19 | 190,000 | 186,000 | 188,000 | 179,000 | 190,000 | 196,000 | 192,000 | 234,000 | 218,000 | 215,000 | 213,000 | 205,000 |
| 20 | 197,000 | 196,000 | 183,000 | 173,000 | 178,000 | 191,000 | 223,000 | 234,000 | 216,000 | 216,000 | 213,000 | 205,000 |
| 21 | 195,000 | 174,000 | 178,000 | 188,000 | 158,000 | 197,000 | 220,000 | 231,000 | 219,000 | 220,000 | 216,000 | 203,000 |
| 22 | 191,000 | 188,000 | 180,000 | 167,000 | 166,000 | 195,000 | 204,000 | 228,000 | 222,000 | 215,000 | 215,000 | 206,000 |
| 23 | 191,000 | 203,000 | 182,000 | 179,000 | 176,000 | 171,000 | 216,000 | 229,000 | 227,000 | 218,000 | 214,000 | 205,000 |
| 24 | 184,000 | 182,000 | 182,000 | 175,000 | 177,000 | 189,000 | 214,000 | 233,000 | 232,000 | 219,000 | 220,000 | 205,000 |
| 25 | 185,000 | 177,000 | 177,000 | 177,000 | 174,000 | 198,000 | 208,000 | 226,000 | 234,000 | 219,000 | 225,000 | 201,000 |
| 26 | 186,000 | 224,000 | 170,000 | 174,000 | 176,000 | 198,000 | 219,000 | 234,000 | 227,000 | 220,000 | 211,000 | 202,000 |
| 27 | 196,000 | 219,000 | 180,000 | 178,000 | 176,000 | 197,000 | 221,000 | 241,000 | 222,000 | 214,000 | 211,000 | 206,000 |
| 28 | 213,000 | 188,000 | 204,000 | 176,000 | 182,000 | 200,000 | 237,000 | 240,000 | 231,000 | 218,000 | 200,000 | 206,000 |
| 29 | 195,000 | 181,000 | 185,000 | 172,000 | --- | 199,000 | 230,000 | 241,000 | 232,000 | 225,000 | 211,000 | 216,000 |
| 30 | 203,000 | 183,000 | 178,000 | 173,000 | --- | 194,000 | 216,000 | 242,000 | 226,000 | 221,000 | 211,000 | 229,000 |
| 31 | 183,000 | --- | 179,000 | 165,000 | --- | 196,000 | --- | 241,000 | --- | 221,000 | 206,000 | --- |
| Total | 5,836,000 | 5,589,000 | 5,909,000 | 5,555,000 | 4,854,000 | 6,062,000 | 6,150,000 | 7,026,000 | 6,935,000 | 6,768,000 | 6,683,000 | 6,157,000 |
| Mean | 188,300 | 186,300 | 190,600 | 179,200 | 173,400 | 195,500 | 205,000 | 226,600 | 231,200 | 218,300 | 215,600 | 205,200 |
| Max | 213,000 | 224,000 | 219,000 | 212,000 | 190,000 | 236,000 | 237,000 | 242,000 | 252,000 | 226,000 | 230,000 | 229,000 |
| Min | 162,000 | 173,000 | 170,000 | 151,000 | 150,000 | 171,000 | 164,000 | 213,000 | 216,000 | 209,000 | 200,000 | 182,000 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2011, BY WATER YEAR (WY)

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|-------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Mean | 199,500 | 199,700 | 200,800 | 195,500 | 192,900 | 199,100 | 207,600 | 215,900 | 215,100 | 211,500 | 207,600 | 202,900 |
| Max | 254,000 | 248,000 | 260,900 | 254,000 | 241,600 | 255,500 | 264,200 | 264,700 | 268,400 | 265,200 | 253,500 | 243,700 |
| (WY) | (1987) | (1987) | (1986) | (1987) | (1987) | (1986) | (1985) | (1974) | (1986) | (1986) | (1986) | (1986) |
| Min | 152,700 | 148,100 | 149,800 | 138,500 | 116,200 | 142,700 | 152,000 | 159,100 | 158,000 | 154,100 | 155,000 | 153,900 |
| (WY) | (1935) | (1935) | (1965) | (1964) | (1936) | (1934) | (1935) | (1934) | (1934) | (1934) | (1934) | (1934) |

04216000 NIAGARA RIVER AT BUFFALO, NY—Continued

SUMMARY STATISTICS

| | Calendar Year 2010 | | Water Year 2011 | | Water Years 1926 - 2011 | |
|---------------------------------|--------------------|--------|-----------------|--------|-------------------------|--------------|
| Annual total | 71,475,000 | | 73,524,000 | | | |
| Annual mean | 195,800 | | 201,400 | | 204,400 | |
| Highest annual mean | | | | | 249,600 | 1986 |
| Lowest annual mean | | | | | 155,300 | 1934 |
| Highest daily mean | 235,000 | May 8 | 252,000 | Jun 1 | 347,000 | Dec 2, 1985 |
| Lowest daily mean | 155,000 | Jan 30 | 150,000 | Feb 1 | 90,000 | Jan 13, 1964 |
| Annual seven-day minimum | 177,000 | Jan 29 | 169,000 | Jan 27 | 105,000 | Feb 6, 1936 |
| 10 percent exceeds | 212,000 | | 227,000 | | 238,000 | |
| 50 percent exceeds | 196,000 | | 200,000 | | 204,000 | |
| 90 percent exceeds | 182,000 | | 176,000 | | 172,000 | |

