Water-Data Report 2012

# 08151500 Llano River at Llano, TX

Middle Colorado-Llano Basin
Llano Subbasin

LOCATION.--Lat 30°45′04″, long 98°40′10″ referenced to North American Datum of 1927, Llano County, TX, Hydrologic Unit 12090204, on right bank in Llano, 0.4 mi downstream from bridge on State Highway 16, 7.0 mi upstream from Little Llano River, and 29.3 mi upstream from mouth.

DRAINAGE AREA.--4,197 $mi^2$ of which 5 $mi^2$ probably is noncontributing.

## SURFACE-WATER RECORDS

PERIOD OF RECORD.--Sept. 1939 to current year.

PERIOD OF RECORD, Water-Quality.--
CHEMICAL DATA: Apr. 1948 to Oct. 1967, Apr. 1979 to Aug. 1986.
BIOCHEMICAL DATA: Apr. 1979 to Aug. 1986.
BIOLOGICAL DATA: Apr. 1979 to Aug. 1986.
SEDIMENT DATA: Sept. 1964, Apr. 1979 to Aug. 1986.
RADIOCHEMICAL DATA: Mar. to July 1981.
TAXONOMIC DATA: May 1979 to Sept. 1981.

PERIOD OF DAILY RECORD, Water-Quality.--
SPECIFIC CONDUCTANCE: Apr. 1979 to Sept. 1980.
WATER TEMPERATURE: Apr. 1979 to Sept. 1980.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 970.01 ft above NGVD of 1929. Radio telemeter at station. Satellite telemeter at station.

COOPERATION.--Lower Colorado River Authority provides operation and maintenance of the gage and verification of stage-discharge relation at low stages. U.S. Geological Survey maintains stage-discharge relation at medium to high stages, computes and publishes streamflow record.

REMARKS.--Records fair. No known regulation or diversions. Part of the flow of the Llano River disappears into various formations, many of which are faulted, between Llano River near Junction (station 08150000) and this station. No flow at times. Some records listed in the "Period of Record" for surface water and water quality may not be available electronically.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 41.5 ft, June 14, 1935, discharge, 380,000 $ft^3/s$, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 $ft^3/s$ and (or) maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|
| Oct 9 | 0430 | *7,510 | *6.79 |
| May 11 | 1105 | 6,990 | 6.56 |

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**DISCHARGE, CUBIC FEET PER SECOND**
**WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012**
**DAILY MEAN VALUES**

| Day | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30 | 58 | 78 | 92 | 139 | 162 | 188 | 70 | 65 | 32 | 12 | 11 |
| 2 | 28 | 60 | 82 | 91 | 131 | 152 | 166 | 69 | 68 | 35 | 4.1 | 11 |
| 3 | 28 | 55 | 84 | 89 | 130 | 141 | 154 | 68 | 62 | 31 | 4.0 | 11 |
| 4 | 26 | 58 | 125 | 89 | 122 | 130 | 142 | 67 | 59 | 29 | 4.1 | 13 |
| 5 | 25 | 58 | 267 | 89 | 117 | 125 | 133 | 68 | 59 | 29 | 4.0 | 12 |
| 6 | 24 | 57 | 229 | 89 | 112 | 119 | 127 | 98 | 55 | 29 | 3.9 | 12 |
| 7 | 23 | 58 | 206 | 89 | 107 | 115 | 121 | 351 | 66 | 28 | 4.0 | 13 |
| 8 | 24 | 61 | 160 | 89 | 104 | 112 | 117 | 354 | 67 | 44 | 4.0 | 12 |
| 9 | 1,480 | 61 | 135 | 114 | 101 | 239 | 113 | 196 | 59 | 102 | 4.0 | 9.8 |
| 10 | 138 | 61 | 120 | 110 | 104 | 733 | 111 | 565 | 54 | 128 | 3.8 | 9.6 |
| 11 | 157 | 63 | 147 | 124 | 101 | 744 | 324 | 3,320 | 64 | 117 | 3.8 | 9.1 |
| 12 | 325 | 63 | 162 | 118 | 101 | 630 | 241 | 1,250 | 60 | 155 | 3.6 | 8.9 |
| 13 | 231 | 61 | 158 | 106 | 119 | 471 | 185 | 506 | 59 | 213 | 3.5 | 15 |
| 14 | 166 | 61 | 154 | 99 | 120 | 354 | 157 | 317 | 54 | 125 | 3.5 | 95 |
| 15 | 128 | 64 | 145 | 96 | 127 | 292 | 146 | 1,510 | 54 | 92 | 3.5 | 86 |
| 16 | 109 | 68 | 135 | 96 | 119 | 257 | 133 | 1,000 | 47 | 79 | 3.5 | 136 |
| 17 | 100 | 75 | 125 | 96 | 171 | 232 | 129 | 529 | 79 | 68 | 4.1 | 203 |
| 18 | 86 | 89 | 119 | 97 | 1,570 | 212 | 117 | 327 | 253 | 58 | 6.2 | 101 |
| 19 | 79 | 98 | 116 | 98 | 1,640 | 222 | 114 | 243 | 105 | 52 | 5.5 | 100 |
| 20 | 73 | 93 | 110 | 97 | 868 | 1,580 | 108 | 201 | 85 | 47 | 5.4 | 92 |
| 21 | 70 | 87 | 107 | 96 | 537 | 1,510 | 104 | 171 | 91 | 40 | 5.5 | 78 |
| 22 | 68 | 85 | 114 | 95 | 391 | 679 | 100 | 148 | 97 | 34 | 5.8 | 69 |
| 23 | 67 | 87 | 105 | 92 | 309 | 459 | 94 | 131 | 98 | 30 | 6.2 | 62 |
| 24 | 65 | 110 | 105 | 98 | 251 | 357 | 93 | 114 | 79 | 28 | 7.2 | 55 |
| 25 | 64 | 103 | 104 | 153 | 213 | 301 | 90 | 104 | 66 | 25 | 8.4 | 49 |
| 26 | 63 | 105 | 101 | 196 | 187 | 264 | 86 | 94 | 59 | 22 | 9.5 | 45 |
| 27 | 62 | 89 | 100 | 365 | 172 | 236 | 82 | 87 | 51 | 20 | 14 | 42 |
| 28 | 59 | 86 | 99 | 273 | 171 | 240 | 78 | 81 | 44 | 19 | 14 | 44 |
| 29 | 59 | 82 | 96 | 202 | 169 | 265 | 74 | 76 | 36 | 18 | 15 | 59 |
| 30 | 59 | 78 | 96 | 167 | --- | 231 | 72 | 65 | 32 | 17 | 14 | 59 |
| 31 | 58 | --- | 95 | 148 | --- | 207 | --- | 65 | --- | 16 | 11 | --- |
| Total | 3,974 | 2,234 | 3,979 | 3,853 | 8,503 | 11,771 | 3,899 | 12,245 | 2,127 | 1,762 | 201.1 | 1,522.4 |
| Mean | 128 | 74.5 | 128 | 124 | 293 | 380 | 130 | 395 | 70.9 | 56.8 | 6.49 | 50.7 |
| Max | 1,480 | 110 | 267 | 365 | 1,640 | 1,580 | 324 | 3,320 | 253 | 213 | 15 | 203 |
| Min | 23 | 55 | 78 | 89 | 101 | 112 | 72 | 65 | 32 | 16 | 3.5 | 8.9 |
| Ac-ft | 7,880 | 4,430 | 7,890 | 7,640 | 16,870 | 23,350 | 7,730 | 24,290 | 4,220 | 3,490 | 399 | 3,020 |

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2012, BY WATER YEAR (WY)**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 488 | 375 | 280 | 273 | 371 | 328 | 365 | 501 | 548 | 244 | 294 | 398 |
| Max | 3,700 | 7,149 | 3,179 | 2,483 | 3,754 | 2,798 | 3,115 | 3,350 | 4,620 | 1,796 | 3,605 | 3,891 |
| (WY) | (1974) | (2001) | (1992) | (1968) | (1992) | (1997) | (1977) | (1957) | (1997) | (1988) | (1974) | (1952) |
| Min | 18.0 | 20.7 | 27.5 | 31.7 | 37.7 | 23.7 | 20.9 | 41.0 | 7.93 | 0.00 | 0.09 | 0.56 |
| (WY) | (1952) | (1957) | (1955) | (1957) | (1954) | (1954) | (1955) | (1984) | (1953) | (1956) | (1952) | (1954) |

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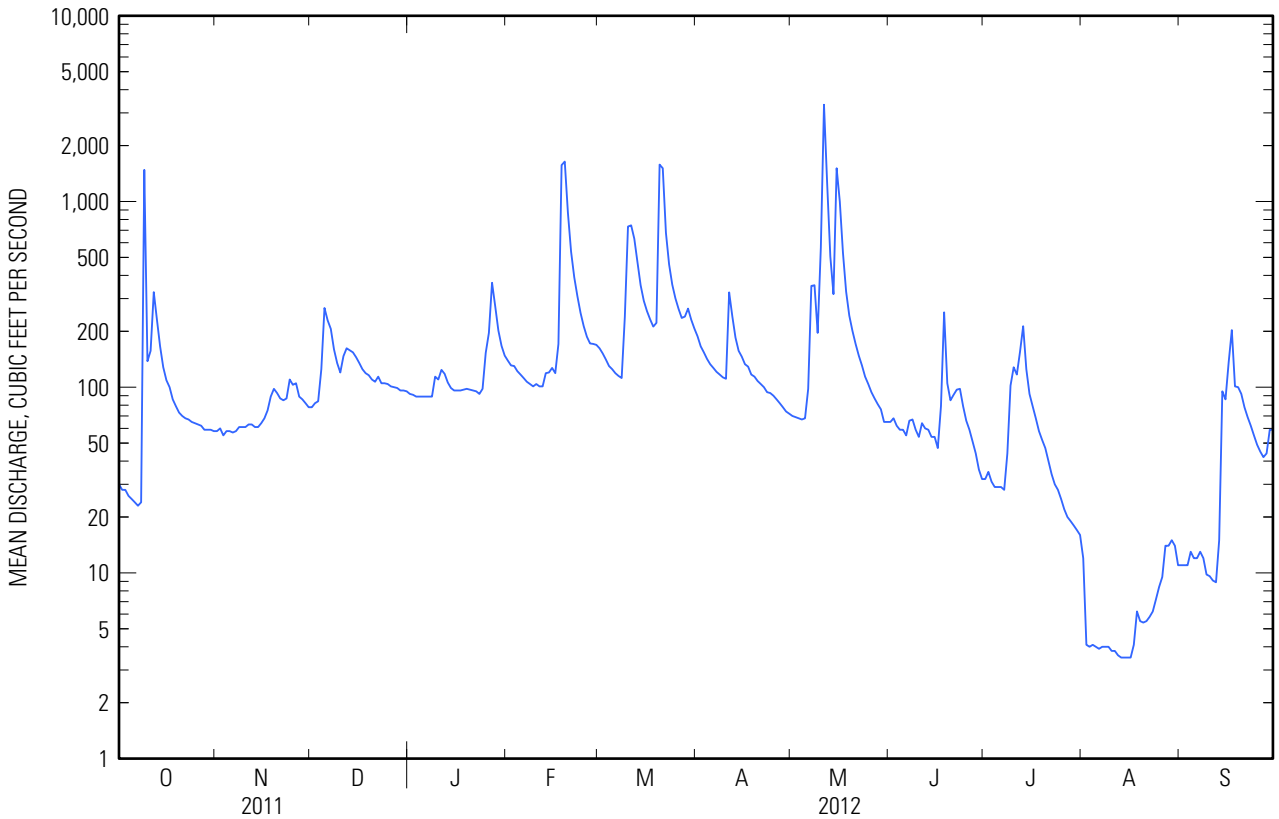
**SUMMARY STATISTICS**

| | Calendar Year 2011 | | Water Year 2012 | | Water Years 1939 - 2012 | |
|---|---|---|---|---|---|---|
| **Annual total** | 24,380.2 | | 56,070.5 | | | |
| **Annual mean** | 66.8 | | 153 | | 372 | |
| **Highest annual mean** | | | | | 1,308 | 1997 |
| **Lowest annual mean** | | | | | 50.0 | 1954 |
| **Highest daily mean** | 1,480 | Oct 9 | 3,320 | May 11 | 88,500 | Nov 4, 2000 |
| **Lowest daily mean** | 2.0 | Aug 19 | 3.5 | Aug 13 | 0.00 | Aug 5, 1952 |
| **Annual seven-day minimum** | 2.3 | Sep 4 | 3.6 | Aug 10 | 0.00 | Aug 27, 1952 |
| **Maximum peak flow** | | | 7,510 | Oct 9 | [i]260,000 | Jun 23, 1997 |
| **Maximum peak stage** | | | 6.79 | Oct 9 | [a]38.86 | Jun 23, 1997 |
| **Annual runoff (ac-ft)** | 48,360 | | 111,200 | | 269,200 | |
| **10 percent exceeds** | 124 | | 264 | | 529 | |
| **50 percent exceeds** | 60 | | 93 | | 153 | |
| **90 percent exceeds** | 3.6 | | 12 | | 43 | |

[a] From floodmark.
[i] From indirect measurement of peak flow.