

SNOHOMISH RIVER BASIN

1

12137800 SULTAN RIVER BELOW DIVERSION DAM, NEAR SULTAN, WA

LOCATION.--Lat 47°57'34", long 121°47'46", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.32, T.29 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on right bank 50 ft upstream from City of Everett diversion dam on Sultan River, 6.8 mi north of Sultan, and at mile 9.4.

DRAINAGE AREA.--77.1 mi².

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder and square notch sharp-crested weir in gate of dam. Datum of gage is 600.00 ft above sea level (City of Everett). Prior to Oct. 1, 1989, recording gage at site 350 ft downstream at different datum, Mar. 16 to Sept. 21, 1993, Jan. 7-10, 1994, Feb. 18 to Sept. 21, 1995, Dec. 3-7, 1995, Mar. 14 to Sept. 3, 1996, Mar. 13 to June 24, 1997, recording gage at site 1,200 ft downstream, at different datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow regulated at Spada Lake (station 12137300) since Apr. 5, 1965, unadjusted for storage. Since May 1984, water is diverted at Spada Lake through a 10-ft diameter pipeline for power generation at the Jackson Project, and for municipal water supply at Lake Chaplain. Since July 1984, undetermined flows are returned to river at diversion dam by pipeline from Lake Chaplain for maintenance of instream flow requirements. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--17 years (water years 1984-2000), 217 ft³/s, 157,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft³/s Nov. 24, 1990, gage height, 63.79 ft, from rating curve extended above 3,200 ft³/s; minimum discharge, 23 ft³/s Oct. 30, 1988, result of regulation; minimum daily, 35 ft³/s Aug. 23-25, 1983.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 2,140 ft³/s Dec. 15, gage height, 57.37 ft; minimum discharge, 68 ft³/s May. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| 1 | 178 | 140 | 313 | 176 | 341 | 227 | 189 | 198 | e194 | 103 | 110 | 111 |
| 2 | 178 | 105 | 382 | 180 | 376 | 194 | 192 | 201 | 195 | 104 | 111 | 112 |
| 3 | 178 | 107 | 225 | 162 | 229 | 204 | 192 | 202 | 194 | 104 | 111 | 113 |
| 4 | 177 | 107 | 156 | 345 | 217 | 224 | 194 | 202 | 193 | 104 | 111 | 113 |
| 5 | 178 | 107 | 146 | 265 | 215 | 192 | 189 | 194 | 199 | 103 | 112 | 111 |
| 6 | 178 | 129 | 257 | 171 | 201 | 189 | 203 | 193 | 199 | 102 | 112 | 113 |
| 7 | 179 | 107 | 245 | 165 | 211 | 188 | 192 | 195 | 202 | 103 | 112 | 112 |
| 8 | 349 | 107 | 170 | 308 | 240 | 187 | 193 | 197 | 199 | 103 | 112 | 111 |
| 9 | 185 | 120 | 167 | 264 | 197 | 190 | 192 | 217 | 200 | 103 | 109 | 111 |
| 10 | 176 | 313 | 199 | 177 | 175 | 190 | 190 | 274 | 199 | 102 | 108 | 117 |
| 11 | 179 | 293 | 617 | 139 | 170 | 191 | 192 | 290 | 197 | 102 | 109 | 110 |
| 12 | 176 | 654 | 547 | 120 | 172 | 194 | 190 | 223 | 262 | 106 | 108 | 110 |
| 13 | 182 | 201 | 319 | 116 | 171 | 191 | 208 | 191 | 200 | 108 | 108 | 112 |
| 14 | 175 | 206 | 307 | 173 | 174 | 196 | 395 | 192 | 244 | 111 | 108 | 131 |
| 15 | 175 | 156 | 1170 | 196 | 173 | 190 | 313 | 193 | 208 | 111 | 108 | 163 |
| 16 | 176 | 134 | 421 | 181 | 173 | 204 | 189 | 191 | 136 | 111 | 108 | 160 |
| 17 | 176 | 180 | 271 | 185 | 172 | 202 | 193 | 192 | 102 | 111 | 108 | 160 |
| 18 | 174 | 146 | 383 | 172 | 172 | 251 | 192 | 192 | 102 | 111 | 110 | 162 |
| 19 | 174 | 150 | 231 | 171 | 172 | 249 | 193 | 198 | 107 | 111 | 111 | 162 |
| 20 | 177 | 232 | 171 | 170 | 174 | 220 | 192 | 194 | 110 | 115 | 111 | 161 |
| 21 | 176 | 202 | 146 | 194 | 182 | 192 | 197 | 198 | 113 | 112 | 109 | 166 |
| 22 | 175 | 206 | 128 | 172 | 195 | 268 | 195 | 194 | 117 | 112 | 110 | 171 |
| 23 | 174 | 215 | 119 | 174 | 182 | 240 | 197 | 189 | 104 | 114 | 112 | 170 |
| 24 | 176 | 295 | 114 | 175 | 172 | 191 | 196 | 201 | 102 | 112 | 110 | 171 |
| 25 | 174 | 414 | 109 | 182 | 174 | 188 | 193 | 207 | 101 | 111 | 111 | 170 |
| 26 | 174 | 278 | 109 | 175 | 174 | 192 | 195 | 188 | 101 | 117 | 112 | 170 |
| 27 | 178 | 201 | 108 | 172 | 180 | 193 | 196 | 191 | 101 | 113 | 111 | 171 |
| 28 | 196 | 174 | 107 | 174 | 180 | 196 | 197 | 193 | 102 | 111 | 112 | 170 |
| 29 | 179 | 149 | 110 | 173 | 199 | 189 | 193 | 194 | 104 | 111 | 113 | 188 |
| 30 | 175 | 254 | 109 | 173 | --- | 189 | 199 | e194 | 103 | 111 | 114 | 427 |
| 31 | 210 | --- | 117 | 173 | --- | 189 | --- | e194 | --- | 111 | 111 | --- |
| TOTAL | 5707 | 6082 | 7973 | 5773 | 5763 | 6300 | 6141 | 6272 | 4690 | 3363 | 3422 | 4529 |
| MEAN | 184 | 203 | 257 | 186 | 199 | 203 | 205 | 202 | 156 | 108 | 110 | 151 |
| MAX | 349 | 654 | 1170 | 345 | 376 | 268 | 395 | 290 | 262 | 117 | 114 | 427 |
| MIN | 174 | 105 | 107 | 116 | 170 | 187 | 189 | 188 | 101 | 102 | 108 | 110 |
| AC-FT | 11320 | 12060 | 15810 | 11450 | 11430 | 12500 | 12180 | 12440 | 9300 | 6670 | 6790 | 8980 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2000, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 235 | 444 | 182 | 232 | 241 | 245 | 231 | 254 | 192 | 173 | 123 | 173 |
| MAX | 726 | 1606 | 306 | 898 | 715 | 610 | 484 | 675 | 652 | 983 | 162 | 448 |
| (WY) | 1986 | 1996 | 1996 | 1984 | 1984 | 1984 | 1984 | 1984 | 1983 | 1983 | 1985 | 1983 |
| MIN | 159 | 91.9 | 93.8 | 117 | 166 | 193 | 179 | 178 | 118 | 108 | 60.6 | 139 |
| (WY) | 1988 | 1988 | 1988 | 1988 | 1988 | 1989 | 1987 | 1988 | 1996 | 1999 | 1983 | 1999 |

| SUMMARY STATISTICS | FOR 1999 CALENDAR YEAR | FOR 2000 WATER YEAR | WATER YEARS 1983 - 2000 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 67305 | 66015 | |
| ANNUAL MEAN | 184 | 180 | 217 |
| HIGHEST ANNUAL MEAN | | | 433 |
| LOWEST ANNUAL MEAN | | | 144 |
| HIGHEST DAILY MEAN | 1170 | Dec 15 | 16600 |
| LOWEST DAILY MEAN | 103 | Jul 9 | Nov 24 1990 |
| ANNUAL SEVEN-DAY MINIMUM | 105 | Jul 27 | 35 |
| ANNUAL RUNOFF (AC-FT) | 133500 | 130900 | Aug 23 1983 |
| 10 PERCENT EXCEEDS | 257 | 241 | 275 |
| 50 PERCENT EXCEEDS | 178 | 176 | 177 |
| 90 PERCENT EXCEEDS | 107 | 108 | 114 |

e Estimated