

Historical Perspective of Statewide Streamflows During the 2002 and 1977 Droughts in Colorado

By Gerhard Kuhn

Prepared in cooperation with the
Colorado Water Conservation Board

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Conversion Factors and Datums

| Multiply | By | To obtain |
|--------------------------------------------|---------|------------------------|
| square mile (mi ²) | 2.590 | square kilometer |
| acre-foot per year (acre-ft/yr) | 1,233 | cubic meter per year |
| cubic foot per second (ft ³ /s) | 0.02832 | cubic meter per second |

Vertical coordinate information is referenced to the North American Vertical Datum of 1988 (NAVD 88).

Horizontal coordinate information is referenced to the North American Datum of 1927 (NAD 27).

Abbreviations, Acronyms, and Definition of Terms

CWCB: Colorado Water Conservation Board

LOWESS: LOcally WEighted Scatterplot Smoothing

LP3: Log-Pearson type-III

N-day: Collectively refers to the 7-, 30-, 90-, and 180-day snowmelt or winter streamflows

SPI: Standardized precipitation index

WY: Water year—A continuous 12-month period representing an annual hydrologic cycle selected to present data relative to hydrologic or meteorological phenomena. The water year used by the U.S. Geological Survey (and herein) runs from October 1 through September 30 and is designated by the year in which it ends.

Historical Perspective of Statewide Streamflows During the 2002 and 1977 Droughts in Colorado

By Gerhard Kuhn

Abstract

Since 1890, Colorado has experienced a number of widespread drought periods; the most recent statewide drought began during 1999 and includes 2002, a year characterized by precipitation, snowpack accumulation, and streamflows that were much lower than normal. Because the drought of 2002 had a substantial effect on streamflows in Colorado, the U.S. Geological Survey, in cooperation with the Colorado Water Conservation Board, began a study in 2004 to analyze statewide streamflows during 2002 and develop a historical perspective of those streamflows. The purpose of this report is to describe an analysis of streamflows recorded throughout Colorado during the drought of 2002, as well as other drought years such as 1977, and to provide some historical perspective of drought-diminished streamflows in Colorado.

Because most streamflows in Colorado are derived from melting of mountain snowpacks during April through July, streamflows primarily were analyzed for the snowmelt (high-flow) period, but streamflows also were analyzed for the winter (low-flow) period. The snowmelt period is defined as April 1 through September 30 and the winter period is defined as October 1 through March 31. Historical daily average streamflows were analyzed on the basis of 7, 30, 90, and 180 consecutive-day periods (N-day) for 154 selected stations in Colorado. Methods used for analysis of the N-day snowmelt and winter streamflows include evaluation of trends in the historical streamflow records, computation of the rank of each annual N-day streamflow value for each station, analysis for years other than 2002 and 1977 with drought-diminished streamflows, and frequency analysis (on the basis of non-exceedance probability) of the 180-day streamflows.

Ranking analyses for the N-day snowmelt streamflows indicated that streamflows during 2002 were ranked as the lowest or second lowest historical values at 114–123 stations, or about 74–80 percent of the stations; by comparison, the N-day snowmelt streamflows during 1977 were ranked as the lowest or second lowest historical values at 69–87 stations, or about 47–59 percent of the stations. Many of the stations in the mountainous headwaters where snowmelt streamflows were ranked lowest during 2002 were ranked second lowest during 1977. These results indicate that snowmelt streamflows during

2002 were considerably more diminished than those during 1977.

The 180-day snowmelt streamflows were ranked among the five lowest historical values at about 90 percent of the stations during 2002 and were ranked among the five lowest historical values at about 77 percent of the stations during 1977. Other years during which the 180-day snowmelt streamflows were ranked among the five lowest values at a substantial percentage of stations include 1934, 1954, 1963, and 1981, but the percentages of stations with 180-day snowmelt streamflows ranked among the five lowest values were smaller during those years than during 2002 and 1977.

Frequency analysis of snowmelt streamflows indicated that recurrence intervals for the 180-day snowmelt streamflows during 2002 were greater than 50 years for about 57 percent of the stations and were more than 100 years for about 14 percent of the stations. By comparison, recurrence intervals for the 180-day snowmelt streamflows during 1977 were greater than 50 years only for about 15 percent of the stations and were more than 100 years only for about 1 percent of the stations. Generally, snowmelt streamflows during 2002 were more diminished and have higher recurrence intervals than snowmelt streamflows during 1977.

The N-day winter streamflows during 2002 and 1977 were not ranked among the five lowest historical values at about 86–103 stations, or about 58–70 percent of the stations, compared to about 10–27 percent of the stations for the N-day snowmelt streamflows. These results indicate that winter streamflows during the 2002 and 1977 droughts were diminished to a lesser extent than the snowmelt streamflows. The reasons for this partly are the result of streamflow augmentation from reservoir releases, winter ground-water discharge resulting from irrigation during summer, and return flows from municipal water use; the effects of these factors likely have resulted in increasing winter streamflows during the past 100 years.

The 180-day winter streamflows were ranked among the five lowest historical values only at about 39 percent of the stations during 2002 and only at about 37 percent of the stations during 1977, compared to about 90 percent of the stations during 2002 and about 77 percent of the stations during 1977 for the 180-day snowmelt streamflows. The 180-day winter streamflows were ranked among the five lowest

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historical values at a larger percentage of the stations during 1934, 1956, and 1963, which had the largest percentage, about 63 percent.

Frequency analysis of winter streamflows indicated that recurrence intervals for the 180-day winter streamflows during 2002 were greater than 50 years only for about 20 percent of the stations, were greater than 100 years only for about 6 percent of the stations, and were less than or equal to 20 years for about 66 percent of the stations. Thus, the 180-day winter streamflows recorded during 2002 were not exceptionally low compared to the 180-day snowmelt streamflows recorded during 2002; frequency analysis results for winter streamflows during 1977 were similar (less than 10 percent difference) to those for 2002. Winter streamflows in Colorado during 2002 and 1977 were not affected by lack of snowpack accumulation and melt to the same extent as snowmelt streamflows. Human activities probably have a greater effect on winter streamflows, and these effects probably have changed with the course of changes in water-resource management and infrastructure.

Introduction

Since 1890, Colorado has experienced a number of widespread drought periods that ranged from about 1 (1981) to 11 (1930–40) years in duration (Doesken, 2004; Doesken and McKee, 1999; McKee and others, 1999; McKee and others, 2000) (fig. 1); the standardized precipitation index (SPI)

method used in figure 1 is described in McKee and others (1993). The most recent statewide drought period began during 1999 and includes 2002, a year characterized by precipitation, snowpack accumulation, and streamflows that were much lower than normal.

Accumulated precipitation during September 2001 through August 2002 was the lowest on record for 9 of 16 long-term precipitation stations analyzed (Pielke and others, 2004). Statewide, mountain snowpack was about 52 percent of normal on April 1, 2002, the lowest since 1977, when the April 1 statewide snowpack was about 46 percent of normal (fig. 2). Warmer than normal temperatures and below-normal precipitation during April 2002 led to an early snowmelt of the already low snowpack (Doesken and Pielke, 2004), resulting in a statewide snowpack that was only 19 percent of normal on May 1 (Natural Resources Conservation Service, 2002), the lowest on record since 1968. The low snowpack and overall lack of precipitation resulted in very low streamflows throughout Colorado during 2002.

There are few previous analyses of drought-diminished streamflows in Colorado, including the individual drought years of 2002 and 1977. Several reports were published during the 1960s related to the general drought in the Southwest during 1942–56 (Gatewood and others, 1964; Thomas, 1962, 1963; Thomas and others, 1963a, 1963b), and a report describing the 1977 drought also was published (Matthai, 1979). These reports, however, generally present a regional perspective of the droughts and provide only limited analyses of streamflows at specific sites. A more detailed analysis of

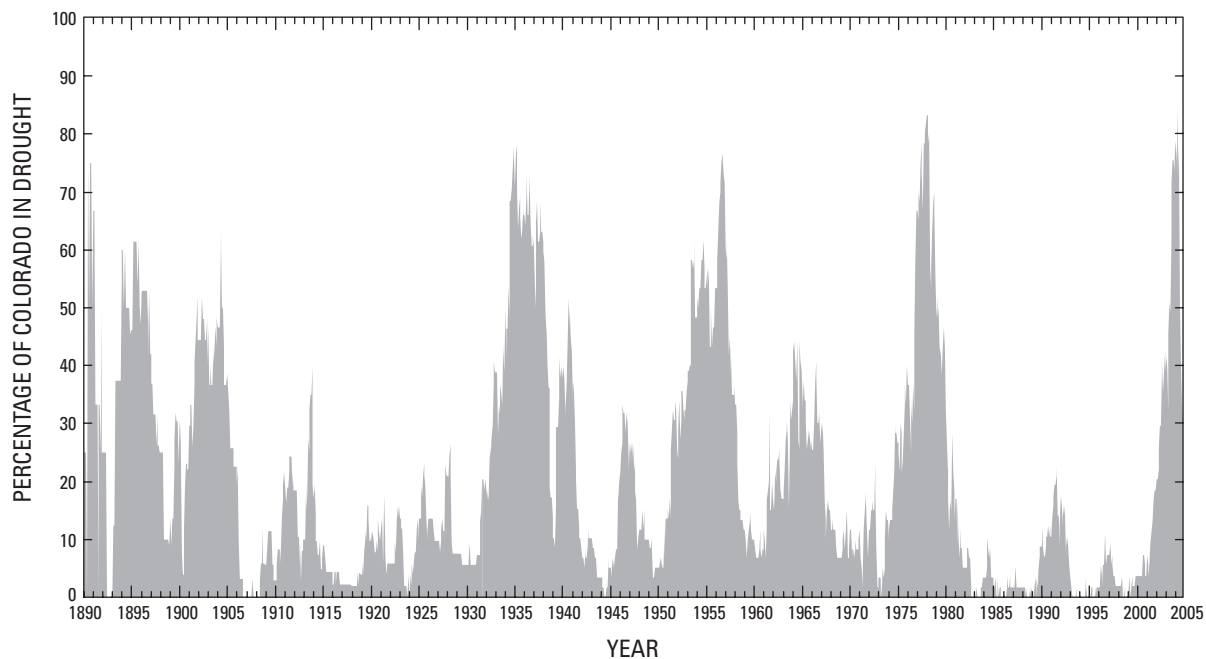


Figure 1. Percentage of Colorado in drought, 1890 through October 2005, on basis of 48-month standardized precipitation index. [Source: Doesken, 2004.]

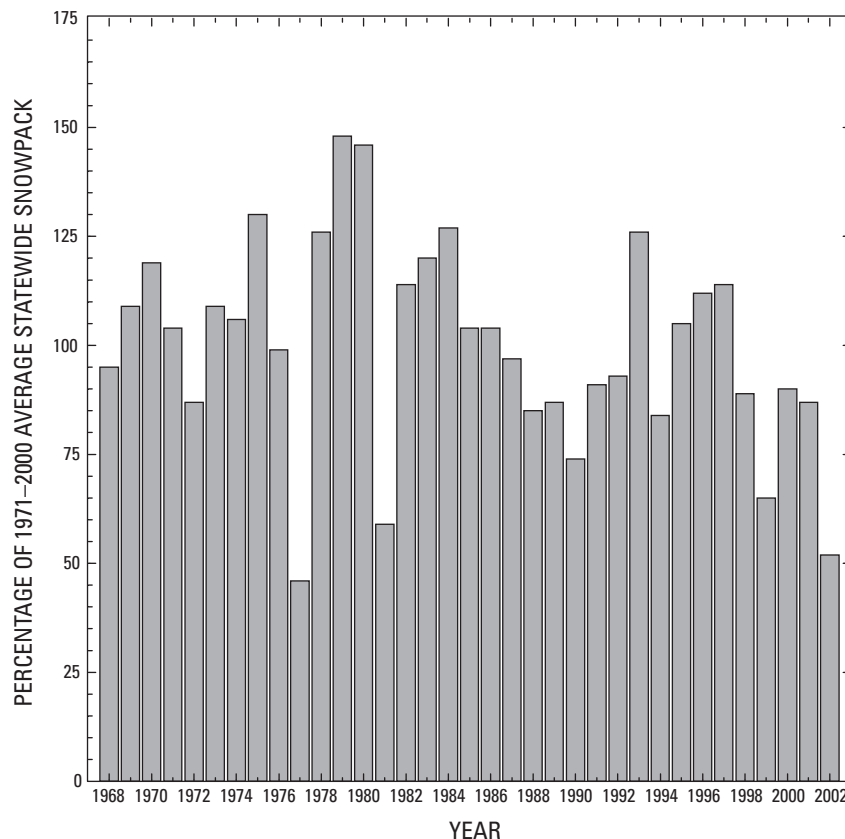


Figure 2. Statewide April 1 snowpack in Colorado during 1968–2002 as a percentage of long-term (1971–2000) average. [Source: Doesken and Pielke, 2004]

drought-diminished streamflows in Colorado was completed in 1991 as a part of a National Water Summary Report (Collins and others, 1991). The results, which were based on an analysis of annual departure from average annual streamflow for about 50 stations throughout Colorado, identified four periods of drought in Colorado: 1930–42, 1949–57, 1958–70, and 1976–82. More recently, an analysis of streamflow and water-quality data obtained at 146 stations during 1978–2002 (after 1977, the last year of greatly diminished streamflows throughout Colorado) indicated that average summer streamflows (July–September) during 2002 were the lowest on record during that 25-year period at 116 (about 79 percent) of the stations (D.T. Chafin, U.S. Geological Survey, written commun., 2004). Although that analysis indicated streamflows throughout much of Colorado during 2002 were the lowest on record since at least 1977, a more detailed analysis of long-term streamflow records would provide a better perspective of streamflows during the droughts of 2002 and 1977 in relation to the historical record.

Additionally, the Colorado Water Conservation Board (CWCB) is responsible for the appropriation, acquisition, and protection of instream-flow and natural lake-level water rights in Colorado. Since creation of the State's Instream Flow Program in 1973, the CWCB has appropriated instream-

flow water rights on more than 8,000 miles of streams and 475 natural lakes in the State (Colorado Water Conservation Board, 2004). Because the drought of 2002 had a substantial effect on minimum streamflows in Colorado, a better understanding of the magnitude and recurrence interval of minimum streamflows in Colorado during 2002 would help the CWCB to effectively manage the Instream Flow Program in the event of another severe drought. Therefore, the U.S. Geological Survey (USGS), in cooperation with the CWCB, began a study in 2004 to analyze statewide streamflows during 2002 and develop a historical perspective of those streamflows. This perspective will provide information to the CWCB, as well as other water-resource managers and planners, indicating the probability and recurrence intervals of similarly low streamflows; this information also may be useful in future water-supply planning for droughts in Colorado.

Purpose and Scope

The purpose of this report is to describe an analysis of streamflows recorded throughout Colorado during the drought year of 2002, as well as other drought years such as 1977, and to provide some historical perspective of drought-diminished streamflows in Colorado. Typically, in

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considering drought-diminished streamflows, periods of low flow often come to mind. Because most streamflows (the major source of water supply) in Colorado are derived from melting of mountain snowpacks during April through July, streamflows primarily were analyzed for the snowmelt (high-flow) period, but streamflows also were analyzed for the winter (low-flow) period. For the study described herein, the snowmelt period is defined as the 183-day period from April 1 through September 30 and the winter period is defined as the 182-day period from October 1 through March 31 (leap-day [February 29]) data were not included (fig. 3).

Streamflows were analyzed for selected streamflow-gaging stations throughout Colorado that (1) were operating both during 2002 and during 1977, (2) have about 25 years or more of record, and (3) are not immediately downstream from reservoirs. One hundred and fifty-four stations in Colorado meet these criteria (table 1; fig. 4). Some exceptions to the selection criteria were made: (1) Three of the stations listed in table 1 have less than 25 years of record (stations 06725450, 06746905, and 07134100) but were included to increase spatial coverage; (2) records for two or more stations were combined in two cases (stations 06709530 and 07108900) because of similarity in drainage areas (Kuhn and Nickless, 1994); and (3) some stations only have seasonal records for some years (stations 07091200, 07094500, 09089500, 09143000, 09143500, and 09241000). Some of the stations listed in exception 3 may have less than 25 years of record, especially during the winter period, but were included because the selection criteria generally were met for the snowmelt period. Daily average streamflow data for each station, from the beginning of the daily streamflow record through water year (WY) 2002, were used in the analyses; for the 2002 winter period, streamflow records for October 1 through March 31, 2003 (part of WY 2003), also were included. Analysis of data was limited to data stored in the USGS National Water Information System computer data base. [Note: See "Contents" for definition of water year.]

For the snowmelt and winter periods, streamflows for 7, 30, 90, and 180 consecutive-day periods (hereinafter, N-day, for general discussions) were computed for each year of record and ranked. [The N-day streamflows are described in the "Computation of 7-, 30-, 90-, and 180-Day Streamflows" section of this report.] Many of the analyses described in this report, however, will focus on the 30- and 180-day snowmelt and winter streamflows because (1) results of analyses of the four N-day streamflows always were very similar and (2) presentation of data (figures and tables) and discussion of results for each of the N-day streamflows would unnecessarily increase the report length without providing any additional benefit to the report findings.

Because periods of drought commonly are more than 1 year in length (fig. 1), various multiyear methods for analysis of drought-diminished streamflows have been used. One such method (Paulson and others, 1991, p. 160) calculates the accumulated departure of monthly streamflow from the long-term monthly average streamflow and assigns a frequency to

the drought on the basis of multiyear events (Furness, 1962; Carswell and Bond, 1980). However, for the study described herein, streamflows were analyzed strictly on an individual year basis because this approach provides a perspective of individual drought years, such as 2002 and 1977, which often are remembered for their exceptionally low streamflows.

Acknowledgments

The author would like to thank the following individuals for their assistance in preparation of this report: Jeffrey Baessler—Colorado Water Conservation Board (technical review); Kip Bossong, Harry Lins, and Bill Kirby—USGS (technical review); Mary Kidd—USGS (editorial review); Sharon Powers—USGS (preparation and layout of final manuscript); and John Evans—USGS (cover design).

Methods of Study

This section briefly illustrates the characteristics of streamflows in Colorado and defines the 7-, 30-, 90-, and 180-day streamflows. The section also describes how the N-day streamflows were computed, the methods used to evaluate trends in the historical streamflow records, and the methods used to perform frequency analysis.

The snowmelt period (April–September, fig. 3) consists of a spring snowmelt period and a summer recession period of lesser snowmelt when some streamflow also may be derived from rainfall. Snowmelt in Colorado usually begins during April or May and extends into June or July (fig. 3); typically, about 50 to 80 percent of the annual streamflow at a station results from snowmelt over a 3-month period, depending on proximity to the mountainous headwaters (Kuhn and Nickless, 1994). The beginning and end of the snowmelt period depend on several factors, including range of elevation upstream from a station, distance downstream from mountainous headwaters, areal extent and water content of snowpack in the basin, precipitation and temperature patterns before and during snowmelt, and other factors. The summer recession period is characterized by daily average streamflows that are substantially smaller than those during snowmelt but usually larger than streamflows during the winter period (fig. 3). The winter period (October–March, fig. 3) is characterized by only small variations in streamflow that generally decrease during winter and increase with the onset of spring.

For the stations shown in figure 3, streamflows recorded during 2002 and 1977 generally were less than the daily 10th-percentile streamflows for the period of record. The statistically computed streamflows (90th percentile, median, and 10th percentile; fig. 3) do not have much short-term variation because they are smoothed streamflow values, whereas the hydrographs for 2002 and 1977 represent actual streamflows that are subject to considerable variation over shorter time periods. Some of the abrupt increases in streamflow for station

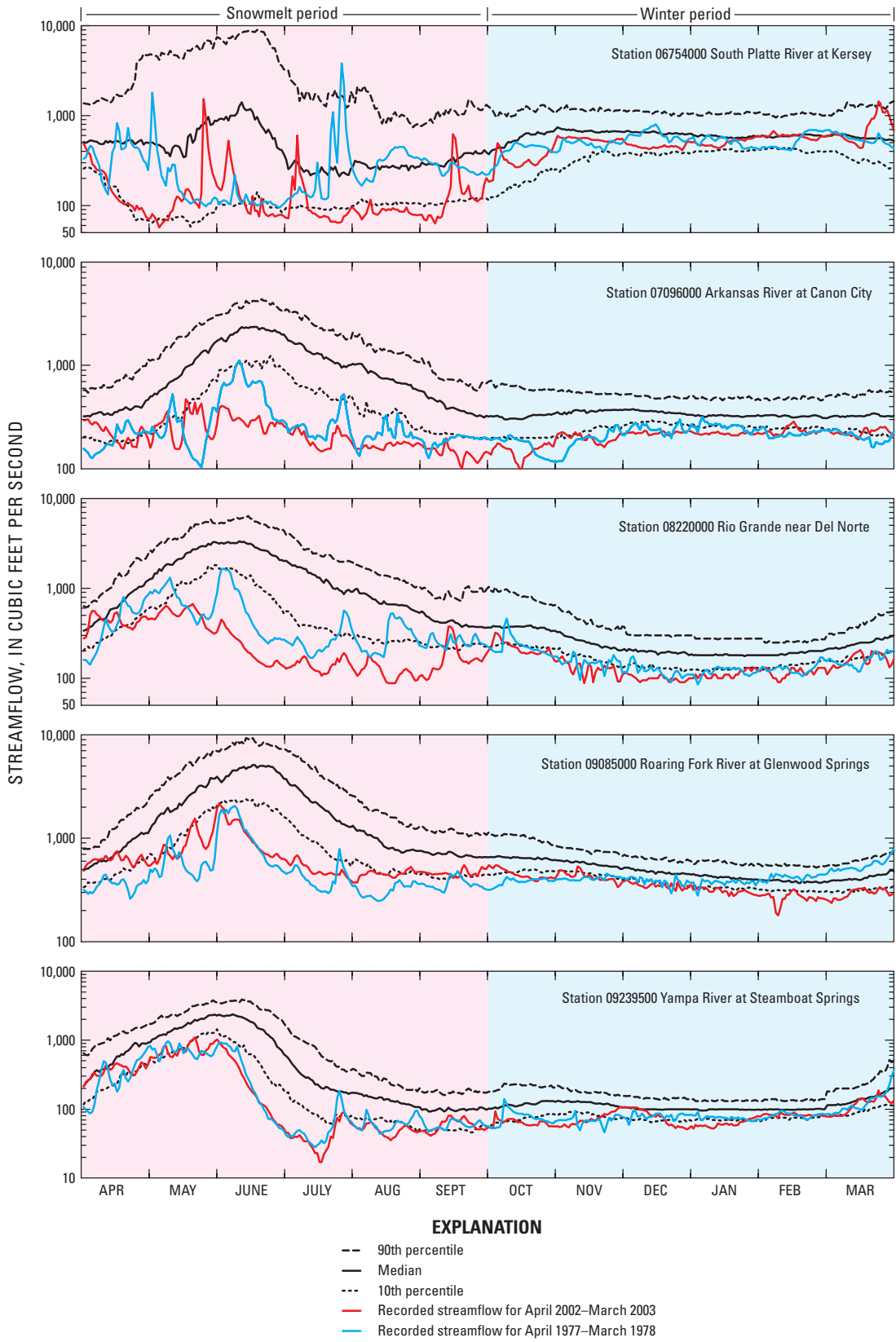


Figure 3. Selected statistics of daily average streamflows for period of record (table 1) and recorded daily average streamflows during April–March, 2002–03 and 1977–78, for selected stations in Colorado.

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Table 1. Periods of record for streamflow-gaging stations in Colorado used in analysis of historical 7-, 30-, 90-, and 180-day snowmelt (April–September) and winter (October–March) streamflows.

[--, not applicable; dg, degrees; mn, minutes; sc, seconds; map identification number in bold indicates station was used in LOWESS analysis]

| Map identi- fication (fig. 4) | Station number | Station name | Latitude | | | Longitude | | | Drainage area (square miles) | Periods of record ¹ (water years) | Number of years in each period | Cumula- tive number of years in periods |
|----------------------------------------|-----------------------|---------------------------------------------------------------|----------|----|----|-----------|----|----|---------------------------------------|-------------------------------------------------------|-----------------------------------------|--------------------------------------------------------|
| | | | dg | mn | sc | dg | mn | sc | | | | |
| 1 | 06614800 | Michigan River near Cameron Pass | 40 | 29 | 46 | 105 | 51 | 52 | 1.53 | 1974–2002 | 29 | 29 |
| 2 | 06620000 | North Platte River near Northgate | 40 | 56 | 15 | 106 | 20 | 16 | 1,431 | 1916–2002 | 87 | 87 |
| 3 | 06707500 | South Platte River at South Platte | 39 | 24 | 33 | 105 | 10 | 10 | 2,579 | 1896–1997; 1899–1900; 1902–1982; 2002 | 2; 2; 81; 1 | 2; 4; 85; 86 |
| -- | ² 06709500 | Plum Creek near Louviers | 39 | 29 | 04 | 105 | 00 | 07 | 302 | 1948–1991 | 44 | 44 |
| 4 | ² 06709530 | Plum Creek at Titan Road near Louviers | 39 | 30 | 27 | 105 | 01 | 26 | 315 | 1984–2002 | 19 | 19 |
| 5 | 06710500 | Bear Creek at Morrison | 39 | 39 | 11 | 105 | 11 | 43 | 164 | 1920–2002 | 83 | 83 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 39 | 39 | 08 | 105 | 01 | 57 | 260 | 1927–2002 | 76 | 76 |
| 7 | 06712000 | Cherry Creek near Franktown | 39 | 21 | 21 | 104 | 45 | 46 | 169 | 1940–2002 | 63 | 63 |
| 8 | 06714000 | South Platte River at Denver | 39 | 45 | 35 | 105 | 00 | 10 | 3,861 | 1896–2002 | 107 | 107 |
| 9 | 06716500 | Clear Creek near Lawson | 39 | 45 | 57 | 105 | 37 | 32 | 147 | 1946–1986; 1995–2002 | 41; 8 | 41; 49 |
| 10 | 06719505 | Clear Creek at Golden | 39 | 45 | 11 | 105 | 14 | 05 | 400 | 1975–2002 | 28 | 28 |
| 11 | 06720500 | South Platte River at Henderson | 39 | 55 | 19 | 104 | 52 | 04 | 4,713 | 1927–2002 | 76 | 76 |
| 12 | ³ 06725450 | St. Vrain Creek below Longmont | 40 | 09 | 30 | 105 | 00 | 48 | 424 | 1977–1982; 1985–2002 | 6; 18 | 6; 24 |
| 13 | 06730500 | Boulder Creek at mouth near Long- mont | 40 | 09 | 08 | 105 | 00 | 52 | 439 | 1927–1949; 1952–1955; 1979–1990; 1992–2002 | 23; 4; 12; 11 | 23; 27; 39; 50 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 40 | 25 | 18 | 105 | 13 | 34 | 305 | 1927–1928; 1930–1933; 1939–1949; 1951–2002 | 2; 4; 11; 52 | 2; 6; 17; 69 |
| 15 | ³ 06746095 | Joe Wright Creek above Joe Wright Reservoir | 40 | 32 | 24 | 105 | 52 | 56 | 3.01 | 1979–2002 | 24 | 24 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 40 | 39 | 52 | 105 | 13 | 26 | 1,056 | 1884–1903; 1905–1909; 1911–2002 | 20; 5; 92 | 20; 25; 117 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 40 | 35 | 21 | 105 | 04 | 09 | 1,127 | 1975–2002 | 28 | 28 |
| 18 | 06754000 | South Platte River near Kersey | 40 | 24 | 44 | 104 | 33 | 46 | 9,598 | 1902–1903; 1905–1912; 1914–2002 | 2; 8; 89 | 2; 10; 99 |
| 19 | 06758500 | South Platte River near Weldona | 40 | 19 | 19 | 103 | 55 | 17 | 13,245 | 1953–2002 | 50 | 50 |
| 20 | 06764000 | South Platte River at Julesburg | 40 | 58 | 46 | 102 | 15 | 15 | 23,193 | 1902–1906; 1908–1912; 1914–1922; 1925–2002 | 5; 5; 9; 78 | 5; 10; 19; 97 |

Table 1. Periods of record for streamflow-gaging stations in Colorado used in analysis of historical 7-, 30-, 90-, and 180-day snowmelt (April–September) and winter (October–March) streamflows.—Continued

[--, not applicable; dg, degrees; mn, minutes; sc, seconds; map identification number in bold indicates station was used in LOWESS analysis]

| Map identi- fication (fig. 4) | Station number | Station name | Latitude dg mn sc | Longitude dg mn sc | Drainage area (square miles) | Periods of record ¹ (water years) | Number of years in each period | Cumla- tive number of years in periods |
|----------------------------------------|-----------------------|--------------------------------------------------|----------------------|-----------------------|---------------------------------------|-------------------------------------------------------|-----------------------------------------|-------------------------------------------------------|
| 21 | 07081200 | Arkansas River near Leadville | 39 15 26 | 106 20 35 | 98.8 | 1968–1983; 1990–2002 | 16; 13 | 16; 29 |
| 22 | 07083000 | Halfmoon Creek near Malta | 39 10 20 | 106 23 19 | 23.6 | 1947–2002 | 56 | 56 |
| 23 | 07086000 | Arkansas River at Granite | 39 02 34 | 106 15 55 | 427 | 1910–2002 | 93 | 93 |
| 24 | ⁴ 07091200 | Arkansas River near Nathrop | 38 39 08 | 106 03 02 | 1,060 | 1965–1982; 1989–2002 | 18; 14 | 18; 32 |
| 25 | 07093700 | Arkansas River near Wellsville | 38 30 10 | 105 56 21 | 1,485 | 1961–2002 | 42 | 42 |
| 26 | ⁴ 07094500 | Arkansas River at Parkdale | 38 29 14 | 105 22 23 | 2,548 | 1946–1955; 1965–2002 | 10; 38 | 10; 48 |
| 27 | 07096000 | Arkansas River at Canon City | 38 26 02 | 105 15 24 | 3,117 | 1889–1994; 1896–2002 | 6; 107 | 6; 113 |
| 28 | 07097000 | Arkansas River at Portland | 38 23 18 | 105 00 56 | 4,024 | 1940–1952; 1975–2002 | 13; 28 | 13; 41 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 38 51 17 | 104 52 39 | 103 | 1958–2002 | 45 | 45 |
| 30 | 07103800 | West Monument Creek at U.S. Air Force Academy | 38 58 14 | 104 54 08 | 14.9 | 1971–2002 | 32 | 32 |
| 31 | 07104000 | Monument Creek at Pikeview | 38 55 04 | 104 49 05 | 204 | 1939–1949; 1976–2002 | 11; 27 | 11; 38 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 38 48 59 | 104 49 20 | 392 | 1976–2002 | 27 | 27 |
| 33 | 07105800 | Fountain Creek at Security | 38 43 46 | 104 44 00 | 495 | 1965–2002 | 38 | 38 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | 38 41 04 | 104 41 17 | 65.6 | 1976–2002 | 27 | 27 |
| 35 | 07106300 | Fountain Creek near Pinon | 38 26 23 | 104 35 35 | 849 | 1973–2002 | 30 | 30 |
| 36 | 07106500 | Fountain Creek at Pueblo | 38 17 16 | 104 36 02 | 926 | 1922–1925; 1941–1965; 1971–2002 | 4; 25; 32 | 4; 29; 61 |
| -- | ⁵ 07108500 | St. Charles River near Pueblo | 38 12 39 | 104 31 57 | 467 | 1941–1953 | 13 | 13 |
| -- | ⁵ 07108800 | St. Charles River near Vineland | 38 13 37 | 104 29 54 | 473 | 1968–1974 | 7 | 7 |
| 37 | ⁵ 07108900 | St. Charles River at Vineland | 38 14 44 | 104 29 09 | 474 | 1979–2002 | 24 | 24 |
| -- | ⁵ 07109000 | St. Charles River at mouth near Pueblo | 38 14 44 | 104 29 09 | 482 | 1922–1925 | 4 | 4 |
| 38 | 07109500 | Arkansas River near Avondale | 38 14 53 | 104 23 55 | 6,327 | 1940–1951; 1965–2002 | 12; 38 | 12; 50 |
| 39 | 07119500 | Apishapa River near Fowler | 38 05 28 | 103 58 52 | 1,125 | 1922–1925; 1940–2002 | 4; 63 | 4; 67 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 38 07 33 | 103 54 41 | 10,847 | 1965–2002 | 38 | 38 |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 38 00 11 | 103 39 20 | 496 | 1922–1925; 1968–2002 | 4; 35 | 4; 39 |

8 Historical Perspective of Statewide Streamflows During the 2002 and 1977 Droughts in Colorado

Table 1. Periods of record for streamflow-gaging stations in Colorado used in analysis of historical 7-, 30-, 90-, and 180-day snowmelt (April–September) and winter (October–March) streamflows.—Continued

[--, not applicable; dg, degrees; mn, minutes; sc, seconds; map identification number in bold indicates station was used in LOWESS analysis]

| Map identi- fication (fig. 4) | Station number | Station name | Latitude dg mn sc | Longitude dg mn sc | Drainage area (square miles) | Periods of record¹ (water years) | Number of years in each period | Cumula- tive number of years in periods |
|--------------------------------------------------|---------------------------|------------------------------------------------------------|------------------------------|-------------------------------|-------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------|
| 42 | 07123000 | Arkansas River at La Junta | 37 59 26 | 103 31 55 | 12,210 | 1912–2002 | 91 | 91 |
| 43 | 07124000 | Arkansas River at Las Animas | 38 04 51 | 103 13 09 | 13,976 | 1940–2002 | 63 | 63 |
| 44 | 07124200 | Purgatoire River at Madrid | 37 07 46 | 104 38 22 | 505 | 1972–2002 | 31 | 31 |
| 45 | 07126300 | Purgatoire River near Thatcher | 37 21 23 | 103 53 59 | 1,791 | 1967–2002 | 36 | 36 |
| 46 | 07128500 | Purgatoire River near Las Animas | 38 02 02 | 103 12 00 | 3,306 | 1922–1931; 1949–2002 | 10; 54 | 10; 64 |
| 47 | 07133000 | Arkansas River at Lamar | 38 06 21 | 102 37 05 | 19,780 | 1914–1955; 1959–2002 | 42; 44 | 42; 86 |
| 48 | ³ 07134100 | Big Sandy Creek near Lamar | 38 06 51 | 102 29 00 | 3,248 | 1968–1982; 1996–2002 | 15; 7 | 15; 22 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 37 39 25 | 106 38 55 | 216 | 1911–1922; 1937–1995; 1999–2002 | 12; 59; 4 | 12; 71; 75 |
| 50 | 08220000 | Rio Grande near Del Norte | 37 41 22 | 106 27 38 | 1,320 | 1890–1996; 1904–1906; 1908–2002 | 7; 3; 95 | 7; 10; 105 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | 38 13 13 | 106 05 21 | 45.4 | 1924–1926; 1937–1982; 1999–2002 | 3; 46; 4 | 3; 49; 53 |
| 52 | 08227000 | Saguache Creek near Saguache | 38 09 48 | 106 17 24 | 595 | 1911–1912; 1915–2002 | 2; 88 | 2; 90 |
| 53 | 08231000 | La Garita Creek near La Garita | 37 48 48 | 106 19 05 | 61.0 | 1919–1922; 1924–1928; 1930–1981; 1999–2002 | 4; 5; 52; 4 | 4; 9; 61; 65 |
| 54 | 08242500 | Ute Creek near Fort Garland | 37 26 50 | 105 25 30 | 32.0 | 1924–1981; 1999–2002 | 58; 4 | 58; 62 |
| 55 | 08246500 | Conejos River near Mogote | 37 03 14 | 106 11 13 | 282 | 1903–1905; 1912–2002 | 3; 91 | 3; 94 |
| 56 | 08247500 | San Antonio River at Ortiz | 36 59 35 | 106 02 17 | 110 | 1920; 1925–1929; 1934–2002 | 1; 5; 69 | 1; 6; 75 |
| 57 | 08248000 | Los Pinos River near Ortiz | 36 58 56 | 106 04 23 | 167 | 1915–1920; 1925–2002 | 6; 78 | 6; 84 |
| 58 | 08249000 | Conejos River near Lasausas | 37 18 01 | 105 44 47 | 887 | 1921–2002 | 82 | 82 |
| 59 | 08250000 | Culebra Creek at San Luis | 37 11 02 | 105 25 31 | 220 | 1927–1982; 1999–2002 | 56; 4 | 56; 60 |
| 60 | 08251500 | Rio Grande near Lobatos | 37 04 42 | 105 45 22 | 7,700 | 1900–2002 | 103 | 103 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 40 19 33 | 105 51 22 | 53.4 | 1954–2002 | 49 | 49 |
| 62 | 09024000 | Fraser River at Winter Park | 39 54 00 | 105 46 34 | 27.6 | 1911–2002 | 92 | 92 |

Table 1. Periods of record for streamflow-gaging stations in Colorado used in analysis of historical 7-, 30-, 90-, and 180-day snowmelt (April–September) and winter (October–March) streamflows.—Continued

[--, not applicable; dg, degrees; mn, minutes; sc, seconds; map identification number in bold indicates station was used in LOWESS analysis]

| Map identi- fication (fig. 4) | Station number | Station name | Latitude dg mn sc | Longitude dg mn sc | Drainage area (square miles) | Periods of record ¹ (water years) | Number of years in each period | Cumula- tive number of years in period |
|----------------------------------------|-------------------|------------------------------------------------------|----------------------|-----------------------|---------------------------------------|-------------------------------------------------------|-----------------------------------------|-------------------------------------------------------|
| 63 | 09025000 | Vasquez Creek at Winter Park | 39 55 13 | 105 47 05 | 27.8 | 1935–2002 | 68 | 68 |
| 64 | 09026500 | St. Louis Creek near Fraser | 39 54 36 | 105 52 40 | 32.9 | 1935–2002 | 68 | 68 |
| 65 | 09032000 | Ranch Creek near Fraser | 39 57 00 | 105 45 54 | 19.9 | 1935–2002 | 68 | 68 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | 39 45 37 | 105 54 21 | 5.49 | 1966–2002 | 37 | 37 |
| 67 | 09035500 | Williams Fork below Steelman Creek | 39 46 44 | 105 55 40 | 16.3 | 1934–1941; 1966–2002 | 8; 37 | 8; 45 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 39 47 50 | 106 01 32 | 35.0 | 1966–2002 | 37 | 37 |
| 69 | 09035800 | Darling Creek near Leal | 39 48 02 | 106 01 33 | 8.76 | 1966–2002 | 37 | 37 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 39 47 45 | 106 01 48 | 27.3 | 1966–2002 | 37 | 37 |
| 71 | 09036000 | Williams Fork near Leal | 39 50 02 | 106 03 21 | 89.5 | 1934–2002 | 69 | 69 |
| 72 | 09037500 | Williams Fork near Parshall | 40 00 01 | 106 10 45 | 184 | 1905–1924; 1934–2002 | 20; 69 | 20; 89 |
| 73 | 09046600 | Blue River near Dillon | 39 34 00 | 106 02 56 | 121 | 1958–2002 | 45 | 45 |
| 74 | 09047500 | Snake River near Montezuma | 39 36 20 | 105 56 33 | 57.7 | 1943–1946; 1952–2002 | 4; 51 | 4; 55 |
| 75 | 09047700 | Keystone Gulch near Dillon | 39 35 40 | 105 58 19 | 9.10 | 1958–2002 | 45 | 45 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 39 34 31 | 106 06 36 | 93.3 | 1958–2002 | 45 | 45 |
| 77 | 09058000 | Colorado River near Kremmling | 40 02 12 | 106 26 22 | 2,382 | 1905–1918; 1962–1970; 1972–2002 | 14; 9; 31 | 14; 23; 54 |
| 78 | 09058610 | Dickson Creek near Vail | 39 42 14 | 106 27 25 | 3.41 | 1972–2002 | 31 | 31 |
| 79 | 09058700 | Freeman Creek near Minturn | 39 41 54 | 106 26 42 | 2.94 | 1965–2002 | 38 | 38 |
| 80 | 09058800 | East Meadow Creek near Minturn | 39 43 54 | 106 25 34 | 3.61 | 1965–2002 | 38 | 38 |
| 81 | 09059500 | Piney River near State Bridge | 39 48 00 | 106 35 00 | 86.2 | 1945–2002 | 58 | 58 |
| 82 | 09063000 | Eagle River at Red Cliff | 39 30 30 | 106 21 58 | 70.0 | 1911–1925; 1945–2002 | 15; 58 | 15; 73 |
| 83 | 09063200 | Wearyman Creek near Red Cliff | 39 31 20 | 106 19 23 | 9.53 | 1965–2002 | 38 | 38 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 39 31 22 | 106 20 08 | 23.8 | 1964–2002 | 39 | 39 |
| 85 | 09063900 | Missouri Creek near Gold Park | 39 23 25 | 106 28 10 | 6.39 | 1973–2002 | 30 | 30 |
| 86 | 09064000 | Homestake Creek at Gold Park | 39 24 20 | 106 25 58 | 36.0 | 1948–1954; 1973–2002 | 7; 30 | 7; 37 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 39 28 24 | 106 22 02 | 58.2 | 1911–1918; 1945–2002 | 8; 58 | 8; 66 |
| 88 | 09065100 | Cross Creek near Minturn | 39 34 05 | 106 24 43 | 34.2 | 1957–1963; 1968–2002 | 7; 35 | 7; 42 |

10 Historical Perspective of Statewide Streamflows During the 2002 and 1977 Droughts in Colorado

Table 1. Periods of record for streamflow-gaging stations in Colorado used in analysis of historical 7-, 30-, 90-, and 180-day snowmelt (April–September) and winter (October–March) streamflows.—Continued

[--, not applicable; dg, degrees; mn, minutes; sc, seconds; map identification number in bold indicates station was used in LOWESS analysis]

| Map identi- fication (fig. 4) | Station number | Station name | Latitude | | | Longitude | | | Drain- age area (square miles) | Periods of record' (water years) | Number of years in each period | Cumla- tive number of years in periods |
|----------------------------------------|-----------------------|---------------------------------------------------|----------|----|----|-----------|----|----|-----------------------------------------|-------------------------------------------|-----------------------------------------|-------------------------------------------------------|
| | | | dg | mn | sc | dg | mn | sc | | | | |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 39 | 37 | 33 | 106 | 16 | 39 | 14.4 | 1948–1956; 1964–2002 | 9; 39 | 9; 48 |
| 90 | 09066000 | Black Gore Creek near Minturn | 39 | 35 | 47 | 106 | 15 | 52 | 12.6 | 1948–1956; 1964–2002 | 9; 39 | 9; 48 |
| 91 | 09066100 | Bighorn Creek near Minturn | 39 | 38 | 24 | 106 | 17 | 34 | 4.54 | 1964–2002 | 39 | 39 |
| 92 | 09066150 | Pitkin Creek near Minturn | 39 | 38 | 37 | 106 | 18 | 07 | 5.32 | 1967–2002 | 36 | 36 |
| 93 | 09066200 | Booth Creek near Minturn | 39 | 38 | 54 | 106 | 19 | 21 | 6.02 | 1965–2002 | 38 | 38 |
| 94 | 09066300 | Middle Creek near Minturn | 39 | 38 | 45 | 106 | 22 | 54 | 5.94 | 1965–2002 | 38 | 38 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | 39 | 40 | 58 | 106 | 24 | 03 | 7.32 | 1964–2002 | 39 | 39 |
| 96 | 09067000 | Beaver Creek at Avon | 39 | 37 | 47 | 106 | 31 | 20 | 14.8 | 1975–1987; 1989–2002 | 13; 14 | 13; 27 |
| 97 | 09070000 | Eagle River below Gypsum | 39 | 38 | 58 | 106 | 57 | 11 | 944 | 1947–2002 | 56 | 56 |
| 98 | 09070500 | Colorado River near Dotsero | 39 | 38 | 38 | 107 | 04 | 38 | 4,394 | 1941–2002 | 62 | 62 |
| 99 | 09073400 | Roaring Fork River near Aspen | 39 | 10 | 48 | 106 | 48 | 05 | 108 | 1965–2002 | 38 | 38 |
| 100 | 09074000 | Hunter Creek near Aspen | 39 | 12 | 21 | 106 | 47 | 49 | 41.1 | 1951–1956; 1970–2002 | 6; 33 | 6; 39 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 39 | 13 | 56 | 107 | 13 | 36 | 167 | 1956–2002 | 47 | 47 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 39 | 32 | 37 | 107 | 19 | 44 | 1,451 | 1906–1909; 1911–2002 | 4; 92 | 4; 96 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 39 | 33 | 18 | 107 | 20 | 13 | 6,013 | 1967–2002 | 36 | 36 |
| 104 | ⁴ 09089500 | West Divide Creek near Raven | 39 | 19 | 52 | 107 | 34 | 46 | 64.6 | 1956–2002 | 47 | 47 |
| 105 | 09095500 | Colorado River near Cameo | 39 | 14 | 21 | 108 | 15 | 56 | 8,050 | 1934–2002 | 69 | 69 |
| 106 | 09105000 | Plateau Creek near Cameo | 39 | 11 | 00 | 108 | 16 | 02 | 592 | 1937–1983; 1986–2002 | 47; 17 | 47; 64 |
| 107 | 09110000 | Taylor River at Almont | 38 | 39 | 52 | 106 | 50 | 41 | 477 | 1911–2002 | 92 | 92 |
| 108 | 09112500 | East River at Almont | 38 | 39 | 52 | 106 | 50 | 51 | 289 | 1911–1922; 1935–2002 | 12; 68 | 12; 80 |
| 109 | 09114500 | Gunnison River near Gunnison | 38 | 32 | 31 | 106 | 56 | 57 | 1,012 | 1911–1928; 1945–2002 | 18; 58 | 18; 76 |
| 110 | 09115500 | Tomichi Creek at Sargents | 38 | 24 | 42 | 106 | 25 | 20 | 149 | 1917–1922; 1938–1972; 1993–2002 | 6; 35; 10 | 6; 41; 51 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 38 | 31 | 18 | 106 | 56 | 25 | 1,061 | 1938–2002 | 65 | 65 |
| 112 | 09124500 | Lake Fork at Gateview | 38 | 17 | 56 | 107 | 13 | 46 | 334 | 1938–2002 | 65 | 65 |
| 113 | 09126000 | Cimarron River near Cimarron | 38 | 15 | 26 | 107 | 32 | 46 | 66.6 | 1955–2002 | 48 | 48 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 38 | 55 | 33 | 107 | 26 | 01 | 526 | 1934–2002 | 69 | 69 |

Table 1. Periods of record for streamflow-gaging stations in Colorado used in analysis of historical 7-, 30-, 90-, and 180-day snowmelt (April–September) and winter (October–March) streamflows.—Continued

[--, not applicable; dg, degrees; mn, minutes; sc, seconds; map identification number in bold indicates station was used in LOWESS analysis]

| Map identi- fication (fig. 4) | Station number | Station name | Latitude dg mn sc | Longitude dg mn sc | Drainage area (square miles) | Periods of record ¹ (water years) | Number of years in each period | Cumula- tive number of years in periods |
|----------------------------------------|-----------------------|-------------------------------------------------|----------------------|-----------------------|---------------------------------------|---------------------------------------------------------|-----------------------------------------|--------------------------------------------------------|
| 115 | 09134000 | Minnesota Creek near Paonia | 38 52 12 | 107 30 13 | 41.3 | 1937–1947; 1986–2002 | 11; 17 | 11; 28 |
| 116 | ⁴ 09143000 | Surface Creek near Cedaredge | 38 59 05 | 107 51 13 | 27.4 | 1940–2002 | 63 | 63 |
| 117 | ⁴ 09143500 | Surface Creek at Cedaredge | 38 54 06 | 107 55 14 | 39.0 | 1918–2002 | 85 | 85 |
| 118 | 09144250 | Gunnison River at Delta | 38 45 11 | 108 04 40 | 5,628 | 1977–2002 | 26 | 26 |
| 119 | 09146200 | Uncompahgre River near Ridgway | 38 11 02 | 107 44 43 | 149 | 1959–2002 | 44 | 44 |
| 120 | 09147000 | Dallas Creek near Ridgway | 38 10 40 | 107 45 28 | 97.2 | 1922–1927; 1956–1971; 1980–2002 | 6; 16; 23 | 6; 22; 45 |
| 121 | 09147500 | Uncompahgre River at Colona | 38 19 53 | 107 46 44 | 448 | 1913–2002 | 90 | 90 |
| 122 | 09149500 | Uncompahgre River at Delta | 38 44 31 | 108 04 49 | 1,115 | 1939–2002 | 64 | 64 |
| 123 | 09152500 | Gunnison River near Grand Junction | 38 59 00 | 108 27 00 | 7,928 | 1897–1999; 1902–1906; 1917–2002 | 3; 5; 86 | 3; 8; 94 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 39 07 58 | 109 01 35 | 17,843 | 1952–2002 | 51 | 51 |
| 125 | 09165000 | Dolores River below Rico | 37 38 20 | 108 03 35 | 105 | 1952–1996; 1999–2002 | 45; 4 | 45; 49 |
| 126 | 09166500 | Dolores River at Dolores | 37 28 21 | 108 29 49 | 504 | 1896–1903; 1911–1912; 1922–2002 | 8; 2; 81 | 8; 10; 91 |
| 127 | 09169500 | Dolores River at Bedrock | 38 18 37 | 108 53 05 | 2,024 | 1918–1922; 1972–2002 | 5; 31 | 5; 36 |
| 128 | 09171100 | Dolores River near Bedrock | 38 21 25 | 108 49 58 | 2,145 | 1972–2002 | 31 | 31 |
| 129 | 09172500 | San Miguel River near Placerville | 38 02 33 | 108 07 54 | 310 | 1911–1912; 1931–1934; 1942–2002 | 2; 4; 61 | 2; 6; 67 |
| 130 | 09177000 | San Miguel River at Uravan | 38 21 26 | 108 42 44 | 1,499 | 1955–1962; 1974–1994; 1997–2002 | 8; 21; 6 | 8; 29; 35 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 40 29 01 | 106 49 54 | 568 | 1905–1906; 1910–2002 | 2; 93 | 2; 95 |
| 132 | ⁴ 09241000 | Elk River at Clark | 40 43 03 | 106 54 55 | 216 | 1911–1916; 1918; 1920; 1932–1991; 1999–2002 | 6; 1; 1; 62; 4 | 6; 7; 8; 68; 72 |
| 133 | 09251000 | Yampa River near Maybell | 40 30 10 | 108 01 45 | 3,410 | 1917–2002 | 86 | 86 |
| 134 | 09253000 | Little Snake River near Slater | 40 59 58 | 107 08 34 | 285 | 1943–1947; 1951–1999; 2001–2002 | 5; 49; 2 | 5; 54; 56 |

12 Historical Perspective of Statewide Streamflows During the 2002 and 1977 Droughts in Colorado

Table 1. Periods of record for streamflow-gaging stations in Colorado used in analysis of historical 7-, 30-, 90-, and 180-day snowmelt (April–September) and winter (October–March) streamflows.—Continued

[--, not applicable; dg, degrees; mn, minutes; sc, seconds; map identification number in bold indicates station was used in LOWESS analysis]

| Map identi- fication (fig. 4) | Station number | Station name | Latitude | | | Longitude | | | Drainage area (square miles) | Periods of record ¹ (water years) | Number of years in each period | Cumula- tive number of years in periods |
|----------------------------------------|-------------------|---------------------------------------------------------------|----------|----|----|-----------|----|----|---------------------------------------|-------------------------------------------------------|-----------------------------------------|--------------------------------------------------------|
| | | | dg | mn | sc | dg | mn | sc | | | | |
| 135 | 09255000 | Slater Fork near Slater | 40 | 58 | 57 | 107 | 22 | 56 | 161 | 1932–2002 | 71 | 71 |
| 136 | 09260000 | Little Snake River near Lily | 40 | 32 | 50 | 108 | 25 | 25 | 3,730 | 1922–2002 | 81 | 81 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 40 | 00 | 18 | 107 | 49 | 29 | 648 | 1962–2002 | 41 | 41 |
| 138 | 09304500 | White River near Meeker | 40 | 02 | 01 | 107 | 51 | 42 | 755 | 1902–1906; 1910–2002 | 5; 93 | 5; 98 |
| 139 | 09304800 | White River below Meeker | 40 | 00 | 48 | 108 | 05 | 33 | 1,024 | 1962–2002 | 41 | 41 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 39 | 55 | 16 | 108 | 17 | 49 | 506 | 1965–1998; 2000–2002 | 34; 3 | 34; 37 |
| 141 | 09306222 | Piceance Creek at White River | 40 | 04 | 39 | 108 | 14 | 07 | 652 | 1965–1966; 1971–2002 | 2; 32 | 2; 34 |
| 142 | 09306242 | Corral Gulch near Rangely | 39 | 55 | 13 | 108 | 28 | 20 | 31.6 | 1974–2002 | 29 | 29 |
| 143 | 09306255 | Yellow Creek near White River | 40 | 10 | 07 | 108 | 24 | 02 | 262 | 1973–1982; 1989–2002 | 10; 14 | 10; 24 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 37 | 23 | 23 | 106 | 50 | 26 | 64.1 | 1957–1996; 1999–2002 | 40; 4 | 40; 44 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 37 | 15 | 58 | 107 | 00 | 37 | 298 | 1936–2002 | 67 | 67 |
| 146 | 09346400 | San Juan River near Carracas | 37 | 00 | 49 | 107 | 18 | 42 | 1,230 | 1962–2002 | 41 | 41 |
| 147 | 09349800 | Piedra River near Arboles | 37 | 05 | 18 | 107 | 23 | 50 | 629 | 1963–2002 | 40 | 40 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 37 | 28 | 39 | 107 | 32 | 35 | 72.5 | 1963–2002 | 40 | 40 |
| 149 | 09354500 | Los Pinos River at La Boca | 37 | 00 | 34 | 107 | 35 | 56 | 520 | 1951–2002 | 52 | 52 |
| 150 | 09361500 | Animas River at Durango | 37 | 16 | 45 | 107 | 52 | 47 | 692 | 1898; 1900; 1912–1925; 1928–2002 | 1; 1; 14; 75 | 1; 2; 16; 91 |
| 151 | 09365500 | La Plata River at Hesperus | 37 | 17 | 23 | 108 | 02 | 24 | 37 | 1918–2002 | 85 | 85 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 36 | 59 | 59 | 108 | 11 | 17 | 331 | 1921–2002 | 82 | 82 |
| 153 | 09371000 | Mancos River near Towaoc | 37 | 01 | 39 | 108 | 44 | 27 | 526 | 1921–1943; 1951–2002 | 23; 52 | 23; 75 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 37 | 19 | 27 | 109 | 00 | 54 | 346 | 1951–2002 | 52 | 52 |

¹Periods of record are for daily streamflow; periods of only monthly streamflow record are not included. Records through March 31, 2003, were included for analysis of streamflows for winter period.

²Data for the two Plum Creek stations were combined into one record; combined record length is 56 years.

³Stations 06725450, 06746095, and 07134100 were included because no other stations are in the vicinity.

⁴Indicates that station has seasonal record (only for snowmelt period) for some years.

⁵Data for the four St. Charles River stations were combined into one record; combined record length is 48 years.

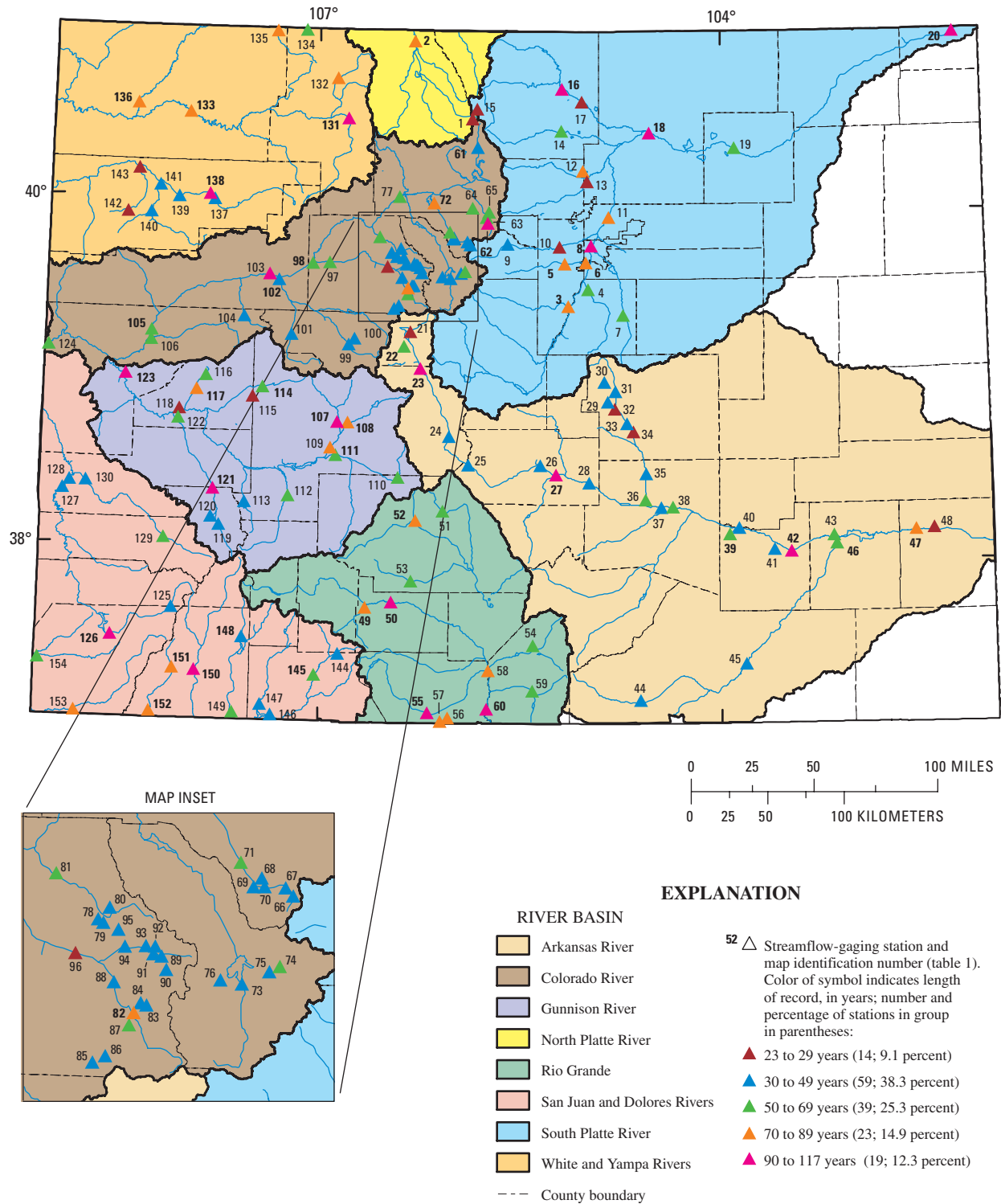


Figure 4. Major river basins in Colorado and location of streamflow-gaging stations used in analysis of historical 7-, 30-, 90-, and 180-day snowmelt and winter streamflows. [Map identification number in bold indicates station was used in LOWESS analysis.]

06754000 (fig. 3) during 2002 and 1977 likely are the result of precipitation runoff from the urban areas of metropolitan Denver, which are upstream from the station. A noticeable feature of the recorded streamflows for 2002 and 1977 (fig. 3, except for station 06754000) is that streamflows are especially poorly sustained during the recession just after the peak of snowmelt, probably owing to the very low snowpacks during drought years (fig. 2), which also may be accompanied by earlier than normal snowmelt.

Computation of 7-, 30-, 90-, and 180-Day Streamflows

A clear understanding of an N-day streamflow as used in this report is essential to understanding the results of the analyses. An N-day streamflow value is computed from the daily average streamflows for a given station and essentially is a “moving average” streamflow value for the specified number of days. For the snowmelt and winter periods, there will be numerous “moving average” 7-day values, a lesser number of 30- and 90-day values, and only 2 or 3 180-day values during any one year (fig. 3). For the snowmelt period, the largest N-day average streamflow value in each year is selected for analysis, whereas for the winter period, the smallest N-day average streamflow value in each year is selected for analysis. For each station, the number of N-day snowmelt and winter streamflow values actually used for analysis is equal to the number of years of record. Computations of the N-day snowmelt and winter streamflows were made using the SWSTAT computer program (U.S. Geological Survey, 2004); output

from SWSTAT includes the historical rank and year of each N-day value for each station.

For the snowmelt period, the largest N-day streamflow for a station usually will occur near (for shorter N-day periods) or include (for longer N-day periods) the peak of snowmelt (fig. 3), even during a drought year. The annual N-day snowmelt streamflows were ranked from smallest to largest and are discussed herein in terms of being the lowest (or second lowest, and so on) during the historical record. When considering the discussions relating to N-day snowmelt streamflows, it is important to remember that the lowest historical N-day snowmelt streamflow at a station during the period of record is, in fact, the largest N-day snowmelt streamflow during that particular year of the historical record. The above logic does not need to be applied to the N-day winter streamflows because the lowest N-day winter streamflow at a station during the period of record also is the smallest N-day winter streamflow during that particular year of the historical record.

Although 154 stations were used for the analyses described in this report, not every station has record for each and every year (table 1). In subsequent sections of this report, parts of the discussions will make reference to the number and percentage of stations for which streamflows were drought-diminished during various years. When considering these discussions, it will be important to have some idea of the number of stations that have streamflow record in any given year (fig. 5); the number of stations has been fairly constant for about the past 30 years. The use of percentages in the report discussions is preferred because it provides a better perspective of the extent of diminished streamflows during particular years than the actual numbers of stations, owing to the fewer

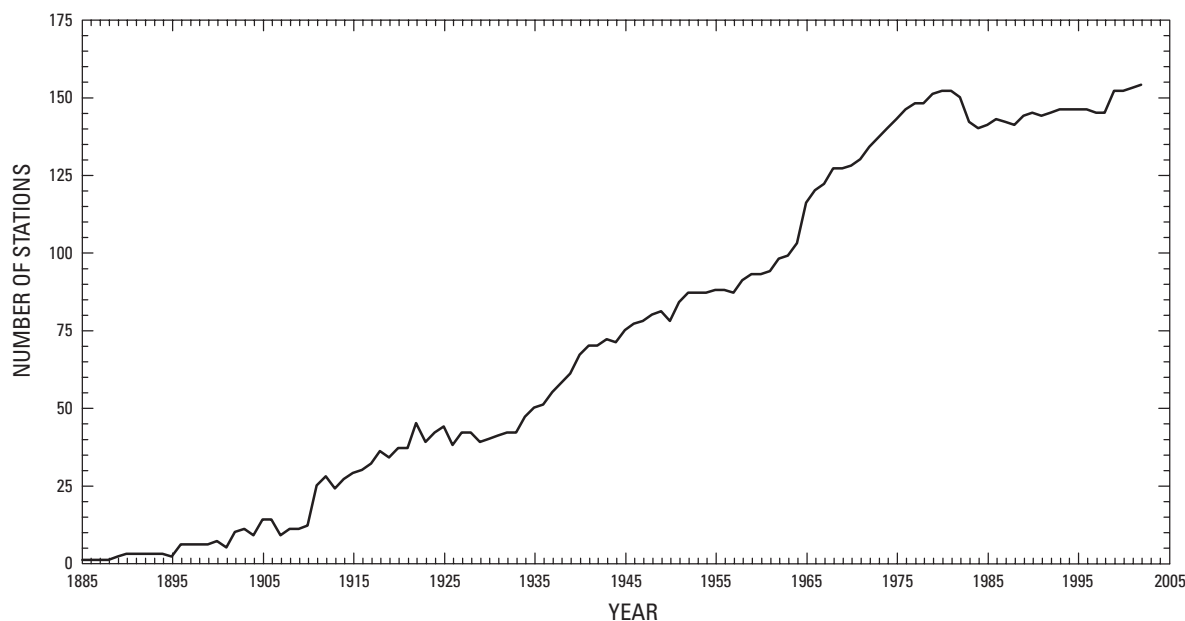


Figure 5. Number of stations in Colorado (for a selected station subset, see table 1) that have historical streamflow record, 1885–2002.

and fewer number of stations for the years prior to about 1975 (fig. 5).

Streamflow Trends Analysis

Streamflows at most of the stations (table 1) were affected to some extent by diversions for agricultural, industrial, and municipal uses, return flows, reservoir regulation, and transmountain diversions; however, limiting the study only to stations where streamflows were not (or only minimally) affected by human activities would result in too few stations for analysis. The effects of human activities on streamflows throughout Colorado have changed over time because of development of new water-resource projects, changes in existing projects or water use, population growth, and other factors. Consideration of changes in streamflows related to human activities is especially important in the frequency analysis described later in this report. For example, results of frequency analysis might be different for the streamflow record at a station prior to and after construction of an upstream reservoir.

To evaluate long-term trends in streamflows, the N-day snowmelt and winter streamflows for selected stations were analyzed by using the LOWESS smoothing procedure. LOWESS, or LOcally WEighted Scatterplot Smoothing, is a flexible and useful, but robust, smoothing algorithm (Helsel and Hirsch, 1995). The smoothness of a LOWESS curve can be modified by the use of a smoothness factor that increases or decreases the size of the “data window” used to compute the smoothed value at each data point. A value of 0.30 was used for the LOWESS analyses described herein; the value for the smoothing factor is determined subjectively, depending on the purpose of the result. A complete description of the LOWESS smooth procedure is beyond the scope of this report and is available in Helsel and Hirsch (1995) and other references cited therein.

LOWESS smooth curves, for both the N-day snowmelt and N-day winter streamflows, were developed for 44 of the stations listed in table 1; the stations primarily were selected on the basis of length of record and absence of extensive breaks in the record. Generally, two to four stations on the main stream and three to five stations on tributary streams within each major river basin (fig. 4; except for the North Platte River basin) were included in the LOWESS analysis. Presentation of the LOWESS curves for all 44 stations is beyond the scope of this report; however, examples of the curves are shown in figures 6 and 7.

Visual analysis of the LOWESS curves (figs. 6–7) shows some interesting streamflow trends, such as a period of generally higher streamflows during the early 1900s, a period of lower streamflows from the 1930s through the 1950s, then higher streamflows through the 1980s, followed by lower streamflows again through 2002. There are exceptions to this general trend, such as the snowmelt streamflows for station 09085000 (fig. 6) that seem to show a continuous downward trend. The downward trend in April–September streamflow

at station 09085000 partly could be attributed to depletion of streamflow in the Roaring Fork River basin by transmountain diversions, especially the Fryingpan-Arkansas Project (Bureau of Reclamation, 1972) that was completed during the 1970s. A substantial part of the transmountain diversions in the Roaring Fork River basin are used to supplement streamflows in the Arkansas River basin; interestingly, however, snowmelt streamflows at station 07096000 do not seem to have an upward trend corresponding to the downward trend at station 09085000 (fig. 6). On the other hand, there is a noticeable increase in winter streamflows at station 07096000 after about 1965 (fig. 7). Some of the increase in winter streamflows at station 07096000 after about 1965 could be attributable to a general streamflow increase because of a generally wet period; however, the persistence of the upward trend at station 07096000 after the 1980s, when many other streams have downward trends in streamflow (figs. 6–7), partly may be a result of the transmountain diversions.

Because streamflow records integrate all of the natural and human factors affecting streamflow at a station, it is not possible to precisely determine what factors are affecting the streamflow trends observed in the LOWESS curves. Certainly some of the factors are climate related, such as periods of low precipitation (droughts; fig. 1) and periods of high precipitation (the 1980s), and some of the factors are human related, such as development of reservoirs or transmountain diversion projects. To better understand the streamflow trends observed in the LOWESS curves, it could be possible to isolate, and perhaps remove, the effects of some of the factors from the streamflow records, or perform separate trend analyses of precipitation, snowpack, or diversion records. Such an analysis could help in understanding and management of water resources in Colorado, but such an analysis is beyond the scope of this report.

For purposes of this report, it was assumed that the effects of regulation were fairly uniform during the period of analysis. Most agricultural diversions have been in place and utilized uniformly for many years, commonly prior to the establishment of most streamflow-gaging stations; and, during most of the winter period, agricultural diversions were not in operation. In the case of reservoirs and transmountain water-diversion projects, effects of diversions or regulated streamflow usually began at a specific time, and the period of record most suitable to the analysis can be selected. Also, during snowmelt, when streamflows usually are largest, regulated streamflows are a smaller component of the total streamflow. The assumption of uniform regulation will not always be valid; however, the effects of nonuniform regulation likely will not influence the results substantially, and any observed effects can be considered in interpretation of the results.

Frequency Analysis

Frequency analysis is a method to relate the magnitude of a variable to frequency, or probability, of occurrence (Riggs,

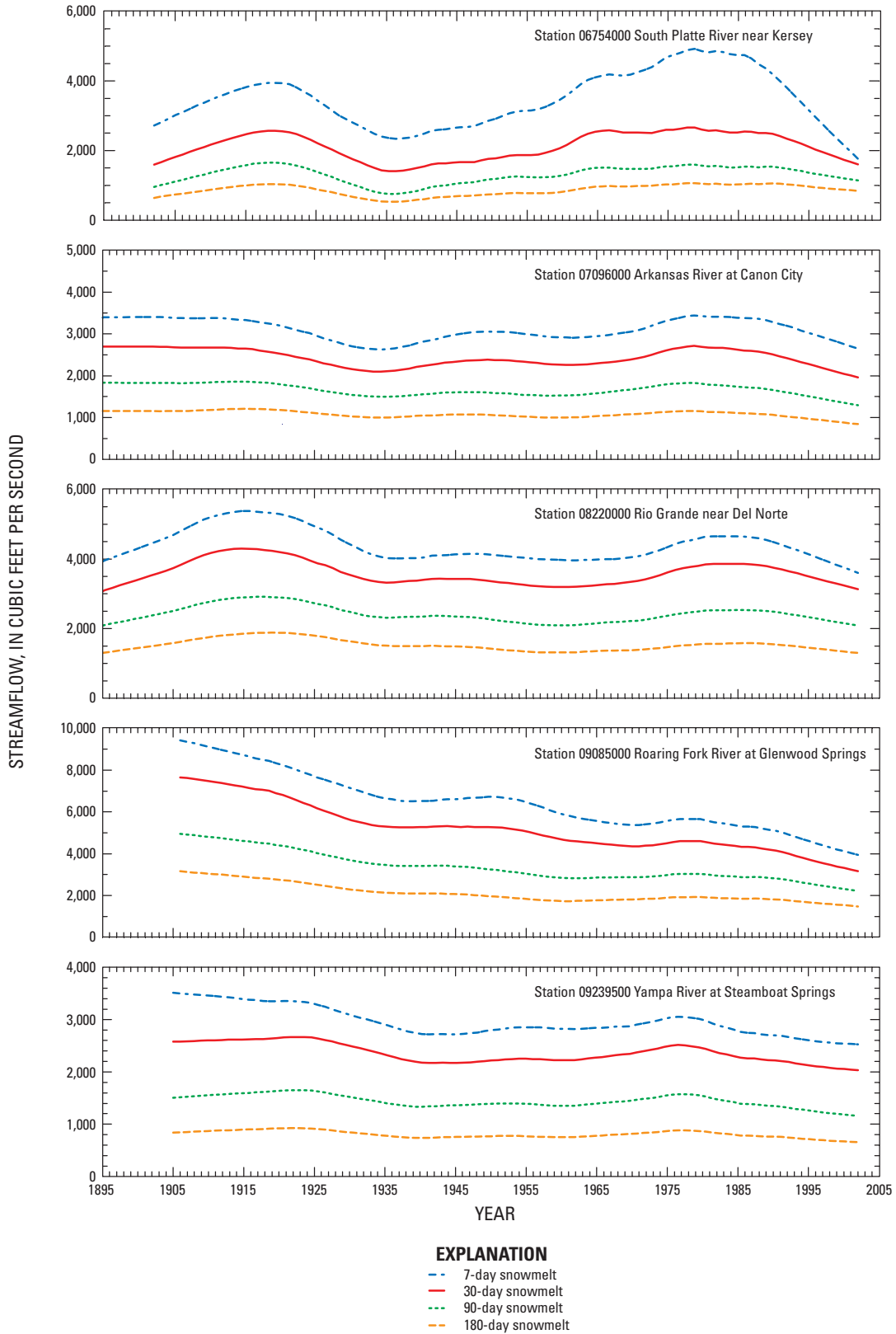


Figure 6. LOWESS curves of annual 7-, 30-, 90-, and 180-day snowmelt streamflows during April–September for selected stations in Colorado.

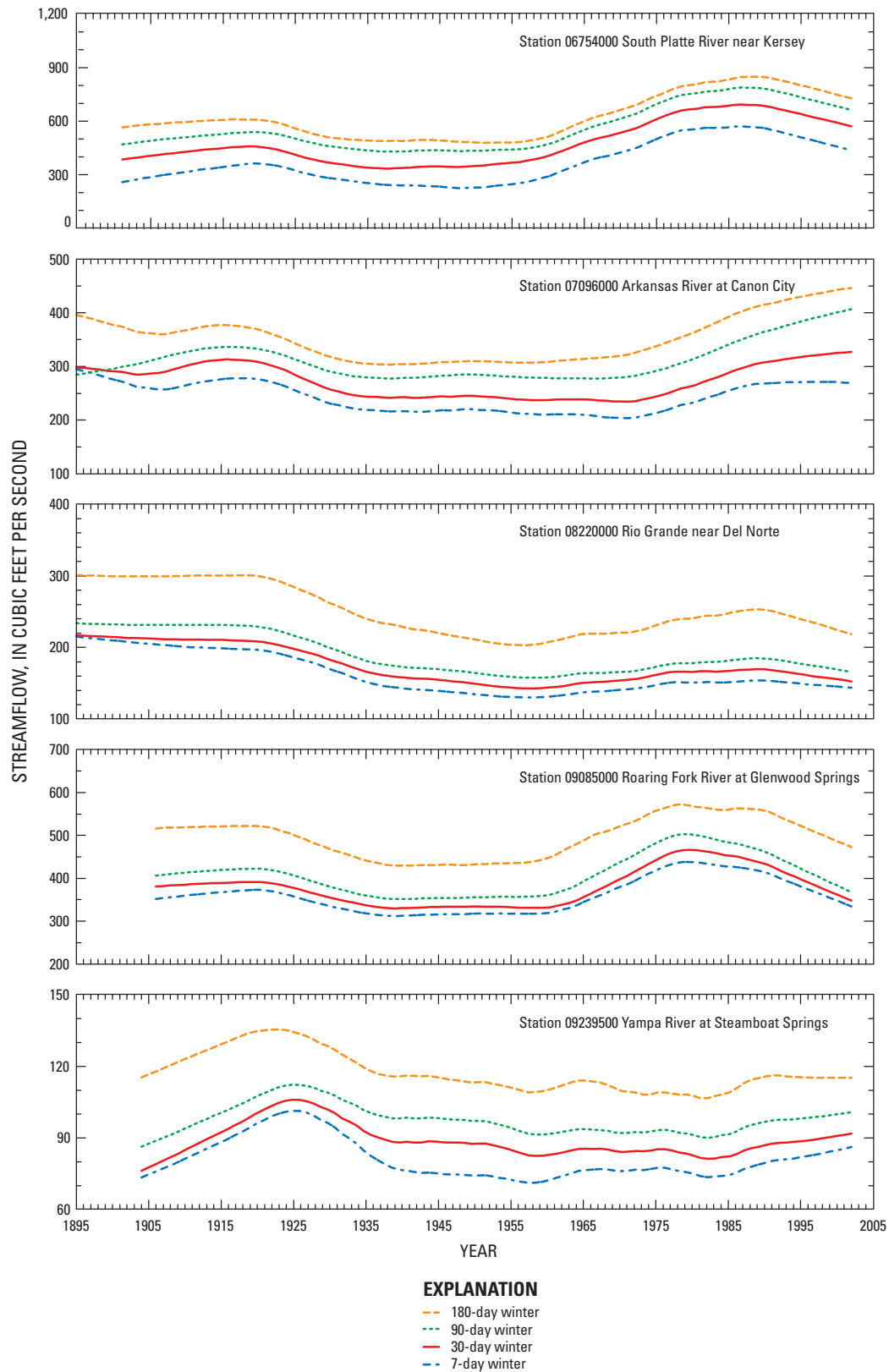


Figure 7. LOWESS curves of annual 7-, 30-, 90-, and 180-day winter streamflows during October–March for selected stations in Colorado.

1968). A number of mathematical distributions have been used to describe hydrologic events; a commonly used distribution to analyze streamflow frequency, especially instantaneous peak streamflow, is the log-Pearson type-III (hereinafter, LP3) distribution (log implies that the data are log-transformed before analysis). The LP3 distribution and its application to peak-flow frequency is described in detail in a report (Bulletin 17B) by the U.S. Interagency Advisory Committee on Water Data (1982). The capability to perform LP3 frequency analysis for N-day streamflows also is programed into the SWSTAT program (U.S. Geological Survey, 2004); however, some of the LP3 enhancements described in Bulletin 17B, such as weighting the skew (U.S. Interagency Advisory Committee on Water Data, 1982), are not used in the N-day frequency analysis within the SWSTAT program (U.S. Geological Survey, 2004). The SWSTAT program was used to compute estimated snowmelt and winter streamflows at each study station for nonexceedance probabilities of 0.01, 0.02, 0.05, and 0.10, equal, respectively, to recurrence intervals of 100, 50, 20, and 10 years; an example frequency curve is shown in figure 8.

Because streamflows throughout Colorado are affected to some degree by human activities, and because these activities and associated effects likely have changed during the past

100 years, the time period used to define the frequency or recurrence interval for streamflows can have an effect on the result. On the basis of visual comparison of the LOWESS curves for 44 of the study stations (see “Streamflow Trends Analysis” section), the 30-year period from 1973 through 2002 was selected for use in the frequency analysis; the number of stations during this time period also was fairly constant and near the maximum number (fig. 5).

Some stations (table 1) have substantial breaks in their record during the 1973–2002 period; therefore, in order to provide about 30 years of record for the frequency analysis, the 1955–2002 period was used for those stations. The stations included in the 1955–2002 period are 06707500, 07091200, 08224500, 08231000, 08242500, 08250000, 09115500, and 09241000. The use of a different time period for these few stations likely would not affect the results of the frequency analyses because there were no changes in diversion or modification of streamflow in the basins upstream from the stations during the longer time period. For most of the 154 stations (table 1), the length of record used for the frequency analyses ranged from 26 to 33 years, except that for 11 stations, the length of record used for the frequency analysis ranged from 17 to 24 years.

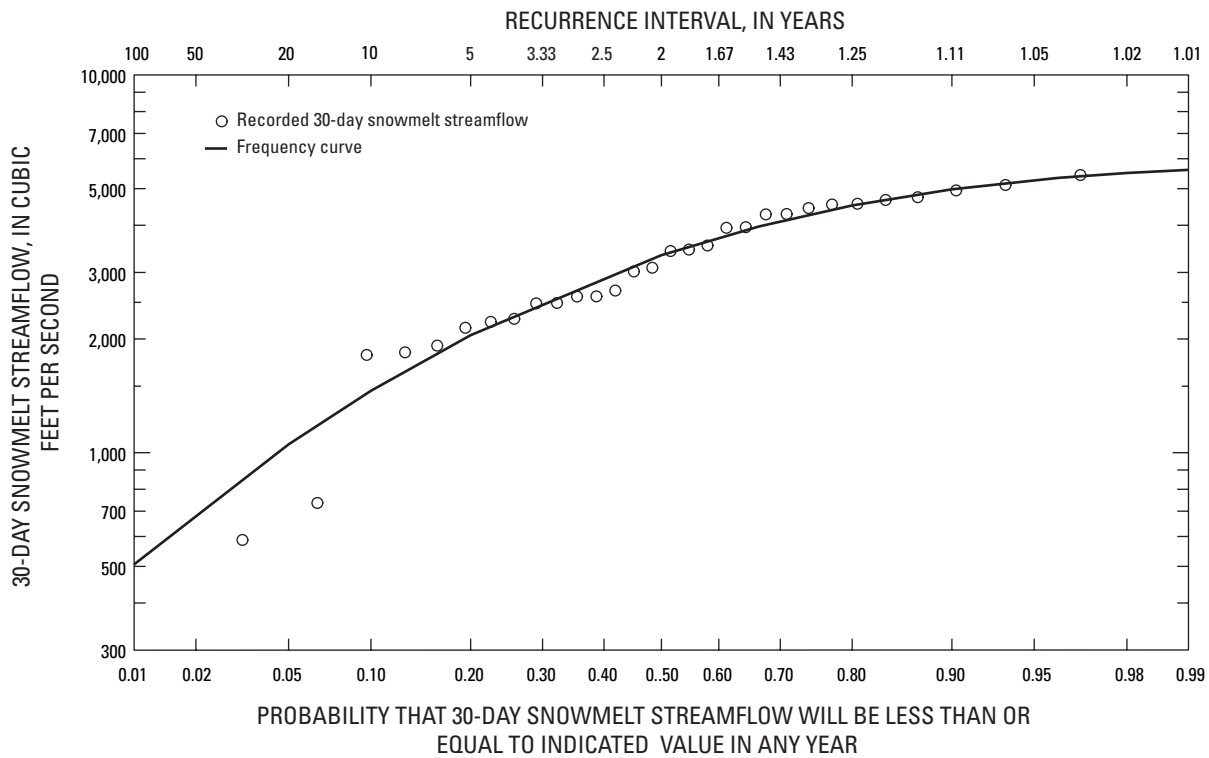


Figure 8. Frequency curve for the 30-day snowmelt streamflow during April–September for station 09361500 Animas River at Durango based on log-Pearson type-III frequency analysis for 1973–2002.

Historical Perspective of Statewide Streamflows

Analysis of 7-, 30-, 90-, and 180-Day Snowmelt Streamflows

This section describes results for analyzing the N-day snowmelt streamflows, which includes illustrating the ranks of statewide snowmelt streamflows during 2002 and 1977, analysis for other years with drought-diminished snowmelt streamflows, and frequency analysis. The frequency analysis included computation of estimated N-day snowmelt streamflows for selected nonexceedance probabilities and the associated recurrence intervals and assignment of recurrence intervals for the N-day snowmelt streamflows recorded during 2002 and 1977.

Historical Ranking of Snowmelt Streamflows During 2002 and 1977

The N-day snowmelt streamflows during 2002 were ranked as the lowest or second lowest historical values at 114–123 stations, or about 74–80 percent of the stations; by comparison, the N-day snowmelt streamflows during 1977 were ranked as the lowest or second lowest historical values at 69–87 stations, or about 47–59 percent of the stations (table 2). The numbers and percentages vary somewhat for the N-day values but generally increase as the number of days

increases. During 2002, N-day snowmelt streamflows were not ranked among the five lowest values only at about 7–10 percent of the stations, whereas during 1977, they were not ranked among the five lowest values at about 23–37 percent of the stations (table 2). These results indicate that snowmelt streamflows during 2002 were considerably smaller than those during 1977.

The 30- and 180-day snowmelt streamflows during 2002 were the lowest or second lowest on record throughout most of Colorado (figs. 9–10). Snowmelt streamflows for stations in the mountainous headwaters (figs. 9–10; especially map inset and upper Arkansas River basin just to the south) almost always were ranked lowest or second lowest, a clear confirmation of the record low snowpack during 2002 (fig. 2). (Also, recall that statewide May 1 snowpack was only 19 percent of average in 2002; see “Introduction” section.) Snowmelt streamflows in the Rio Grande and San Juan and Dolores River basins also were always ranked as lowest or second lowest (with two exceptions), partly because of the low snowpack in 2002 but also because southwestern Colorado had been in an extended drought period for several years. Most of the stations for which snowmelt streamflows were ranked higher than second lowest are located in eastern Colorado in the Arkansas and South Platte River basins, where streamflows were augmented by reservoir releases for agricultural irrigation.

The 30- and 180-day snowmelt streamflows during 1977 (figs. 11–12) show a pattern somewhat similar to that for 2002 (figs. 9–10); however, the number of stations for which the snowmelt streamflows were ranked as the lowest or near the lowest is much fewer for 1977 than for 2002 (table 2). Snowmelt streamflows were ranked second lowest during

Table 2. Number and percentage of Colorado study stations for which the 7-, 30-, 90-, and 180-day snowmelt streamflows during 2002 and 1977 were ranked among the five lowest historical values.

| Snowmelt streamflow | Number of stations for which streamflow was ranked | | | | | | Percentage of stations for which streamflow was ranked | | | | | |
|---------------------------------|----------------------------------------------------|---------------|--------------|---------------|--------------|------------------------------|--------------------------------------------------------|---------------|--------------|---------------|--------------|------------------------------|
| | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Not ranked among five lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Not ranked among five lowest |
| 2002 (153 stations with record) | | | | | | | | | | | | |
| 7-day | 83 | 31 | 13 | 7 | 4 | 15 | 54.2 | 20.3 | 8.5 | 4.6 | 2.6 | 9.8 |
| 30-day | 82 | 39 | 11 | 7 | 3 | 11 | 63.6 | 25.5 | 7.1 | 4.6 | 1.9 | 7.2 |
| 90-day | 86 | 36 | 9 | 8 | 2 | 12 | 56.2 | 23.5 | 5.9 | 5.2 | 1.3 | 7.9 |
| 180-day | 95 | 28 | 10 | 6 | 0 | 14 | 62.1 | 18.3 | 6.5 | 3.9 | 0.0 | 9.2 |
| 1977 (148 stations with record) | | | | | | | | | | | | |
| 7-day | 26 | 43 | 7 | 10 | 7 | 55 | 17.6 | 29.0 | 4.7 | 6.8 | 4.7 | 37.2 |
| 30-day | 33 | 44 | 16 | 6 | 8 | 41 | 22.3 | 29.7 | 10.8 | 4.1 | 5.4 | 27.7 |
| 90-day | 33 | 55 | 12 | 4 | 10 | 34 | 22.3 | 37.1 | 8.1 | 2.7 | 6.8 | 23.0 |
| 180-day | 29 | 58 | 11 | 9 | 7 | 34 | 19.6 | 39.2 | 7.4 | 6.1 | 4.7 | 23.0 |

1977 (figs. 11–12) at many of the stations in the mountainous headwaters for which snowmelt streamflows were ranked lowest during 2002 (figs. 9–10).

Snowmelt streamflows in the Arkansas and South Platte River basins generally were ranked higher during 1977 than during 2002. This partly could be the result of (1) reservoir storage throughout Colorado that probably was larger at the beginning of snowmelt during 1977 than during 2002, owing to the above-average snowpack for 3 of the 4 years prior to 1977, whereas 2002 was preceded by 4 years of below-average snowpack (fig. 2) and (2) above-average snowpacks prior to 1977 (fig. 2) that probably resulted in a larger residual snowpack at the beginning of WY 1977 compared to the residual snowpack at the beginning of WY 2002. Other factors, however, could have contributed to the higher ranked streamflows during 1977 in comparison to the ranks of streamflow during 2002.

Transmountain diversions of water from the headwaters of the Colorado and Gunnison Rivers (western slope) to the Arkansas and South Platte Rivers (eastern slope; hence, across the Continental Divide) are a major component of Colorado's water infrastructure and have a substantial effect on streamflows throughout the State. These transmountain diversions primarily are associated with the Denver Water Board, the Colorado-Big Thompson Project, the Fryingspan-Arkansas Project, and several other smaller entities. During a 10-year period (1973–82), these diversions exported an average of about 509,000 acre-ft/yr from the western slope of the Continental Divide to the eastern slope (Chaney and others, 1987). Because of the structure of water rights in Colorado, the majority of these transmountain diversions take place during the snowmelt period. The transmountain diversions result in decreased snowmelt streamflows at some western slope stations, especially during the height of snowmelt. On the eastern slope, however, the transmountain diversions result in augmented (increased) snowmelt streamflows at some stations, but the timing of the augmentation may vary, depending on whether the transmountain diversions are used immediately or stored in reservoirs for later use. These transmountain diversions have had some effect on streamflows every year (at least since their implementation). Whether the effects were greater or less during 2002 and 1977 than during more average years was not determined; however, if the rates of transmountain diversion during 2002 and 1977 were somewhat near the average rate, the proportional effect on snowmelt streamflows at stations on the western slope during 2002 and 1977 would have been greater than during an average year.

Other Years with Drought-Diminished Snowmelt Streamflows

A general indication of how much and where snowmelt streamflows were diminished in Colorado during the droughts of 2002 and 1977 is provided in table 2 and figures 9–12; however, to place these streamflows in a more historical perspective, drought-diminished streamflows during other drought periods in Colorado (fig. 1) were analyzed. For each station (table 1), the five lowest N-day snowmelt streamflows and the corresponding year for those streamflows were tabulated (Appendixes 1–4). Data for the 180-day snowmelt streamflows (Appendix 4) then were used to determine other years during which streamflows were drought diminished by calculating the percentage of stations for which the 180-day snowmelt streamflows were ranked among the five lowest values during each year from 1900 through 2002 (fig. 13A). The 180-day snowmelt streamflows were ranked among the five lowest historical values at about 90 percent of the stations during 2002 and were ranked among the five lowest historical values at about 77 percent of the stations during 1977 (fig. 13A). Other years during which the 180-day snowmelt streamflows were ranked among the five lowest values at a substantial percentage of stations include 1934 (about 60 percent), 1954 (about 51 percent), 1963 (about 39 percent), and 1981 (about 41 percent) (fig. 13A).

The number of stations with streamflow record was about the same during 1977, 1981, and 2002; however, for the years prior to about 1975, there generally were fewer and fewer stations with historical streamflow record (fig. 5). In order to determine if the higher percentages of stations with the five lowest 180-day snowmelt streamflows during 2002 and 1977 were influenced in any way by the larger number of stations (fig. 5), the analysis shown in figure 13A was repeated using only the stations that were operating during 1934 and again using only the stations that were operating during 1954. When only the 47 stations that were operating in 1934 were used, the percentages of stations for which the 180-day snowmelt streamflows were ranked among the five lowest values (fig. 13B) were about the same for specific years as when all 154 stations were used (fig. 13A). When only the 87 stations that were operating in 1954 were used, the percentages of stations for which the 180-day snowmelt streamflows were ranked among the five lowest values (fig. 13C) also were about the same for specific years as when all 154 stations were used (fig. 13A). The results shown in figure 13 provide additional confirmation that snowmelt streamflows during 2002 generally were the lowest on record since about 1900, followed by those during 1977, which generally were the second lowest on record. The pattern of years with low-ranking snowmelt streamflows (fig. 13) is somewhat similar to the pattern of drought years based on the 48-month SPI (fig. 1).

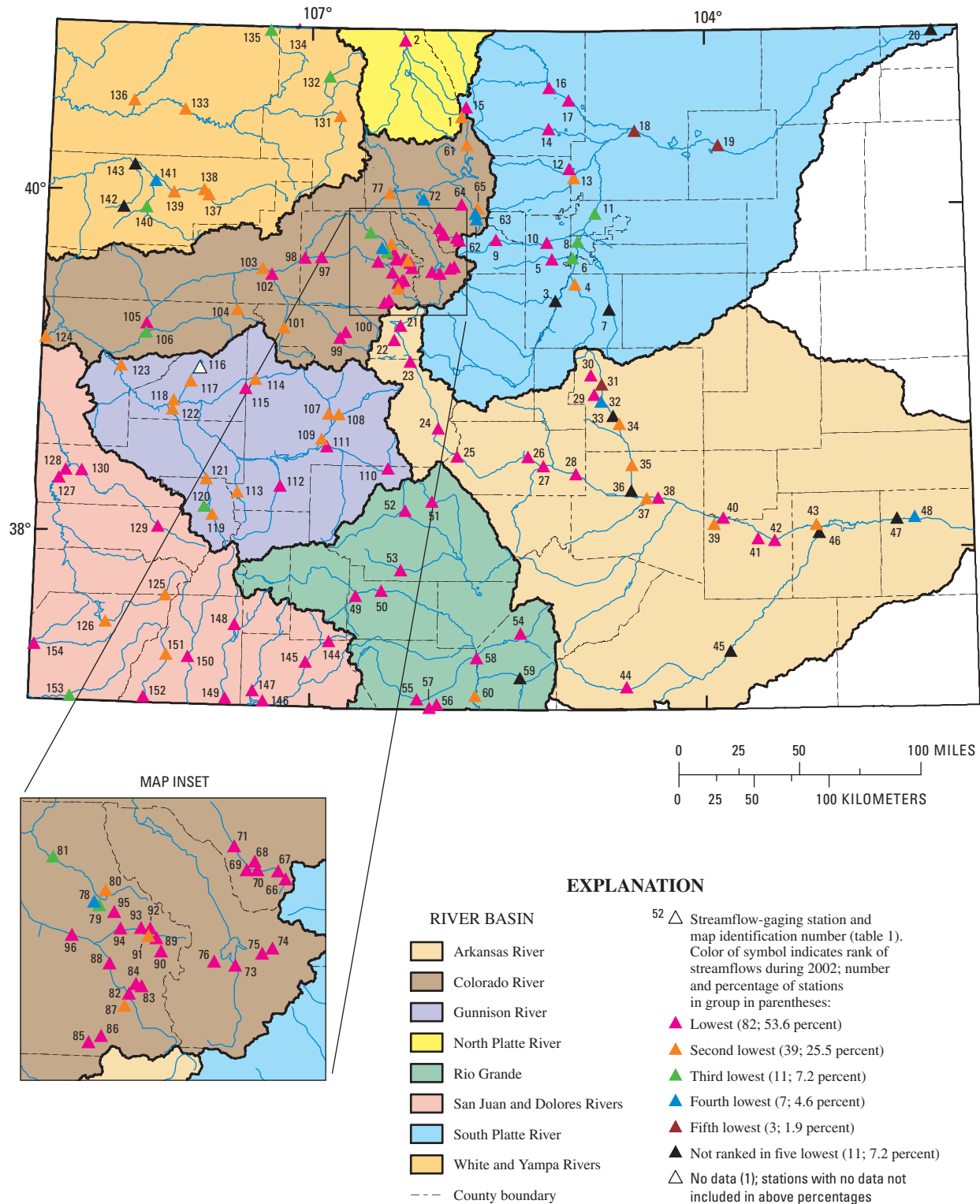


Figure 9. Ranking of 30-day snowmelt streamflows during April–September 2002, relative to period of record for selected stations in Colorado.

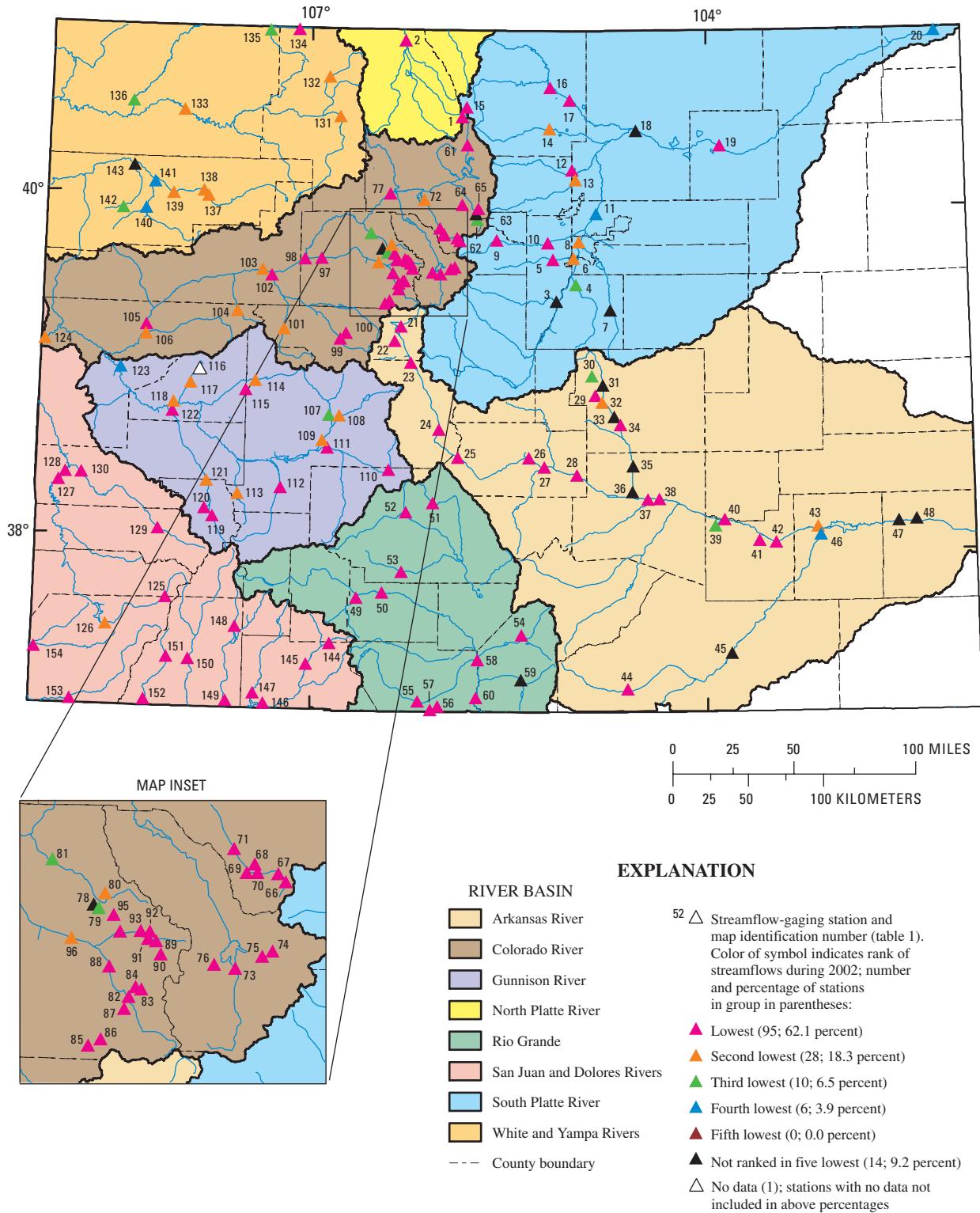


Figure 10. Ranking of 180-day snowmelt streamflows during April–September 2002, relative to period of record for selected stations in Colorado.

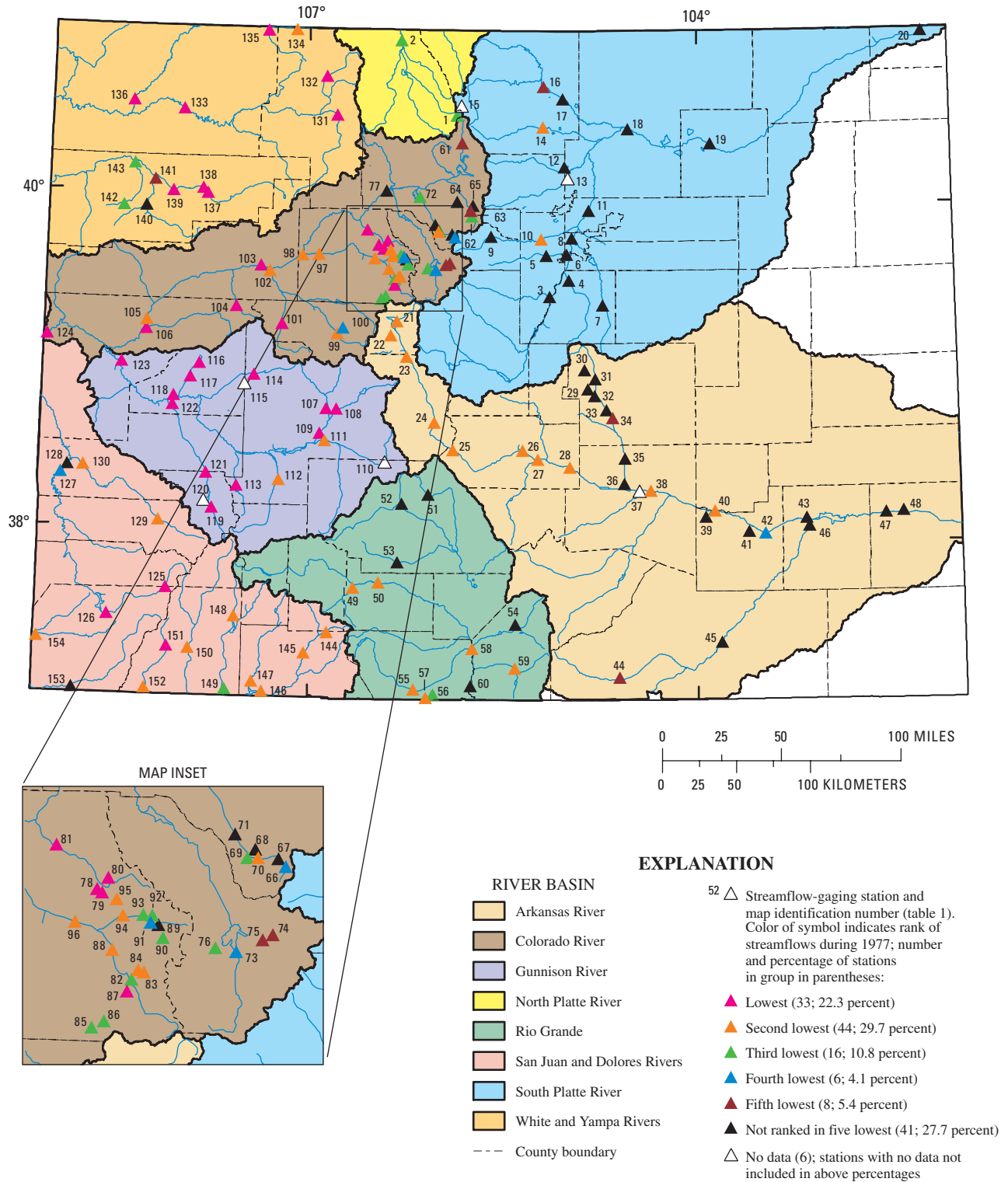


Figure 11. Ranking of 30-day snowmelt streamflows during April–September 1977, relative to period of record for selected stations in Colorado.

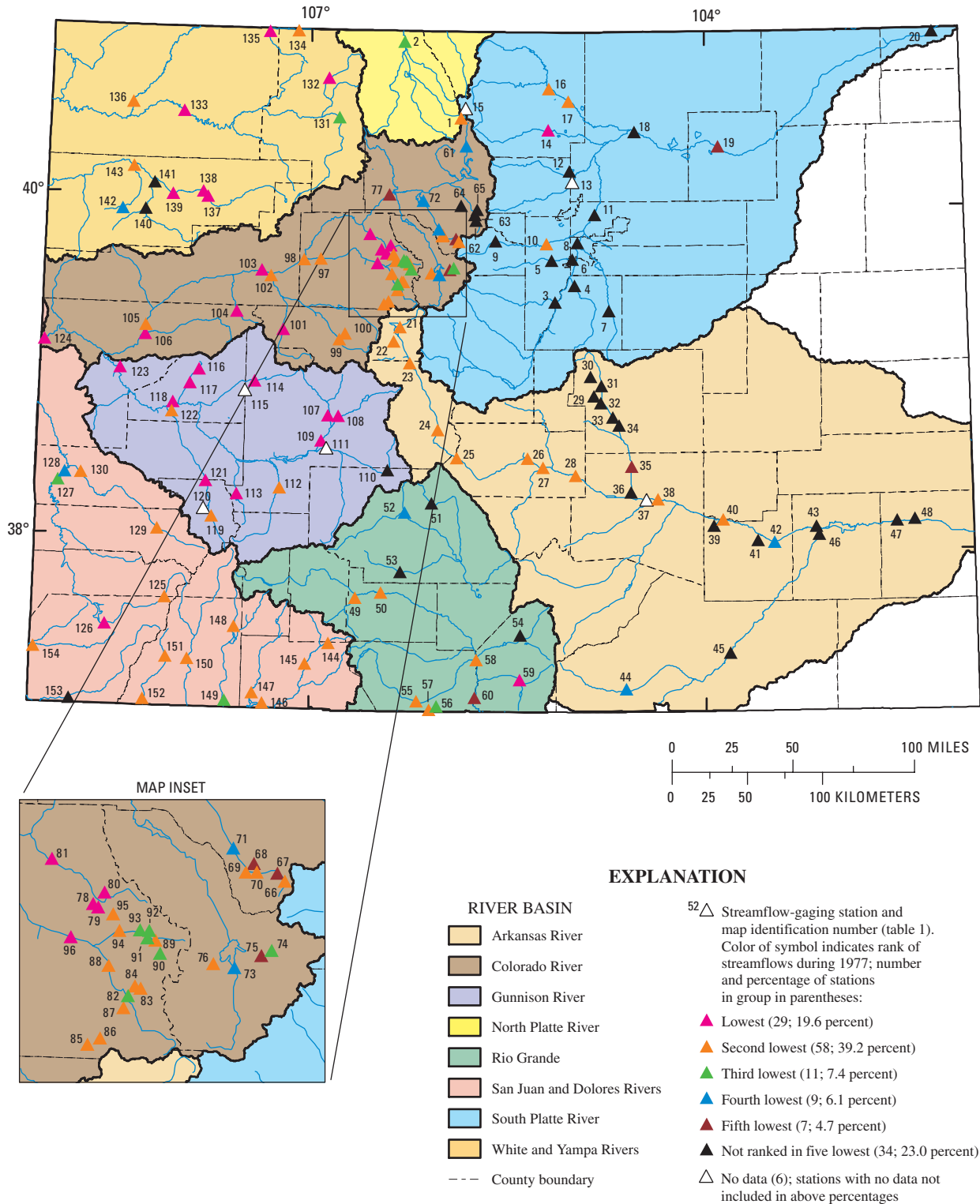


Figure 12. Ranking of 180-day snowmelt streamflows during April–September 1977, relative to period of record for selected stations in Colorado.

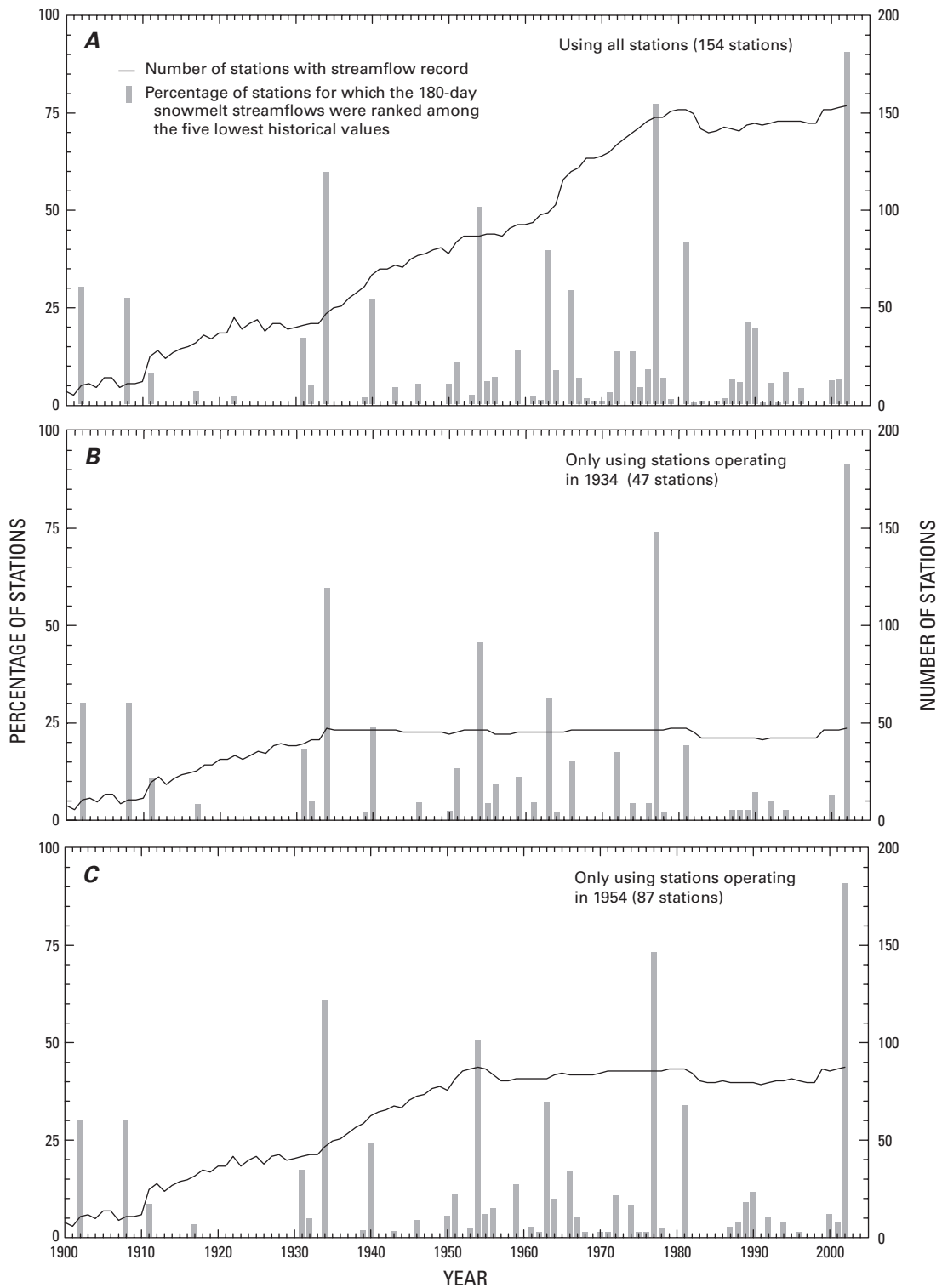


Figure 13. Number of stations in Colorado in three selected station subsets with streamflow record during 1900–2002 and percentage of those stations for which the 180-day snowmelt streamflows during April–September in any given year were ranked among the five lowest historical values.

Frequency Analysis of Snowmelt Streamflows

Although the previously described analyses have provided a historical perspective of snowmelt streamflows during 2002 and 1977, those analyses do not provide an indication of the frequency, or recurrence interval, for streamflows similar to those during 2002 or 1977. Estimated streamflows for recurrence intervals of 100, 50, 20, and 10 years were computed for the 180-day snowmelt streamflows (Appendix 5) by using the previously described methods (see “Frequency Analysis” section). Recurrence intervals, based on nonexceedance probability (see fig. 8), then were assigned to the 180-day snowmelt streamflows recorded during 2002 and 1977 (Appendix 5) by comparing the recorded streamflows during the 2 years to the estimated streamflows computed for the four recurrence intervals. The assigned recurrence intervals for the recorded 180-day snowmelt streamflows during 2002 and 1977 may be less than or greater than one of the four recurrence intervals used in the analysis, or between two of the recurrence intervals (Appendix 5). Although it would have been possible to estimate specific recurrence intervals for the snowmelt streamflows during 2002 and 1977 from each individual frequency curve, the resulting recurrence intervals likely would have had many values, ranging from about 10 to 100 years. The many recurrence intervals would have been difficult to compare and evaluate, so the recurrence intervals were assigned on the basis of the four recurrence intervals used in the frequency analysis (Appendix 5). Frequency analysis results are presented only for the 180-day snowmelt (and winter) streamflows because (1) the largest number of stations indicated drought-diminished streamflow for that period (table 2) and (2) results for the shorter N-day periods were similar.

Recurrence intervals for the 180-day snowmelt streamflows during 2002 (Appendix 5) were greater than 50 years for about 57 percent of the stations and greater than 100 years for about 14 percent of the stations (fig. 14). Thus, snowmelt streamflows as low as those recorded during 2002 would not be expected to occur more frequently than about every 51–100 years at somewhat more than one-half of the stations considered in the analysis; at about an additional one-fourth of the stations, snowmelt streamflows as low as those recorded during 2002 would not be expected to occur more frequently than about every 21–50 years (fig. 14). By comparison, recurrence intervals for the 180-day snowmelt streamflows during 1977 (Appendix 5) were greater than 50 years only for about 16 percent of the stations and were more than 100 years only for about 1 percent of the stations (fig. 15). Also, recurrence intervals for the 180-day snowmelt streamflows were less than

or equal to 20 years for about 42 percent of the stations during 1977 compared to only about 15 percent of the stations during 2002. Generally, snowmelt streamflows during 2002 were more drought-diminished and have higher recurrence intervals than snowmelt streamflows during 1977.

When considering the frequency analysis results discussed in the two previous paragraphs, it is important to keep the use of “recurrence interval” in proper context. The actual result of frequency analysis is probability of exceeding some specific value, or in the case of the analyses described herein, the probability of an N-day streamflow not exceeding (being less than or equal to) some specific value (fig. 8). Because annual data were used for analysis, the probabilities also are on an annual basis. For example, there is a 0.02 probability that the 30-day snowmelt streamflow for station 09361500 Animas River at Durango will be less than or equal to about 680 ft³/s in any given year (fig. 8). Recurrence interval (the reciprocal of probability) provides a convenient, and sometimes more easily understood, reinterpretation of probability. The recurrence interval for the 30-day streamflow just given for station 09361500 is 50 years (fig. 8); however, this does not mean that the 30-day snowmelt streamflow will be less than or equal to about 680 ft³/s only about every 50 years. Rather, it means that there is a 0.02 probability (or 2-percent chance) in any given year that the 30-day snowmelt streamflow will be less than or equal to about 680 ft³/s. On average, the 30-day streamflow would be expected to be less than or equal to 680 ft³/s about once every 50 years, but the streamflow always has a 2-percent chance of occurring in any year.

Analysis of 7-, 30-, 90-, and 180-Day Winter Streamflows

This section describes results for analyzing the N-day winter streamflows, which includes illustrating the ranks of statewide winter streamflows during 2002–03 and 1977–78, analysis for other years with drought-diminished winter streamflows, and frequency analysis. The frequency analysis included computation of estimated winter streamflows for selected nonexceedance probabilities and recurrence intervals and assignment of recurrence intervals for N-day winter streamflows recorded during 2002–03 and 1977–78. Winter streamflows, which are for the October–March period, are partly in two adjacent years; however, when discussing results of winter streamflow analyses, the first year of the 2-year period, which corresponds to the months of October–December, will be used (same year used for the snowmelt period).

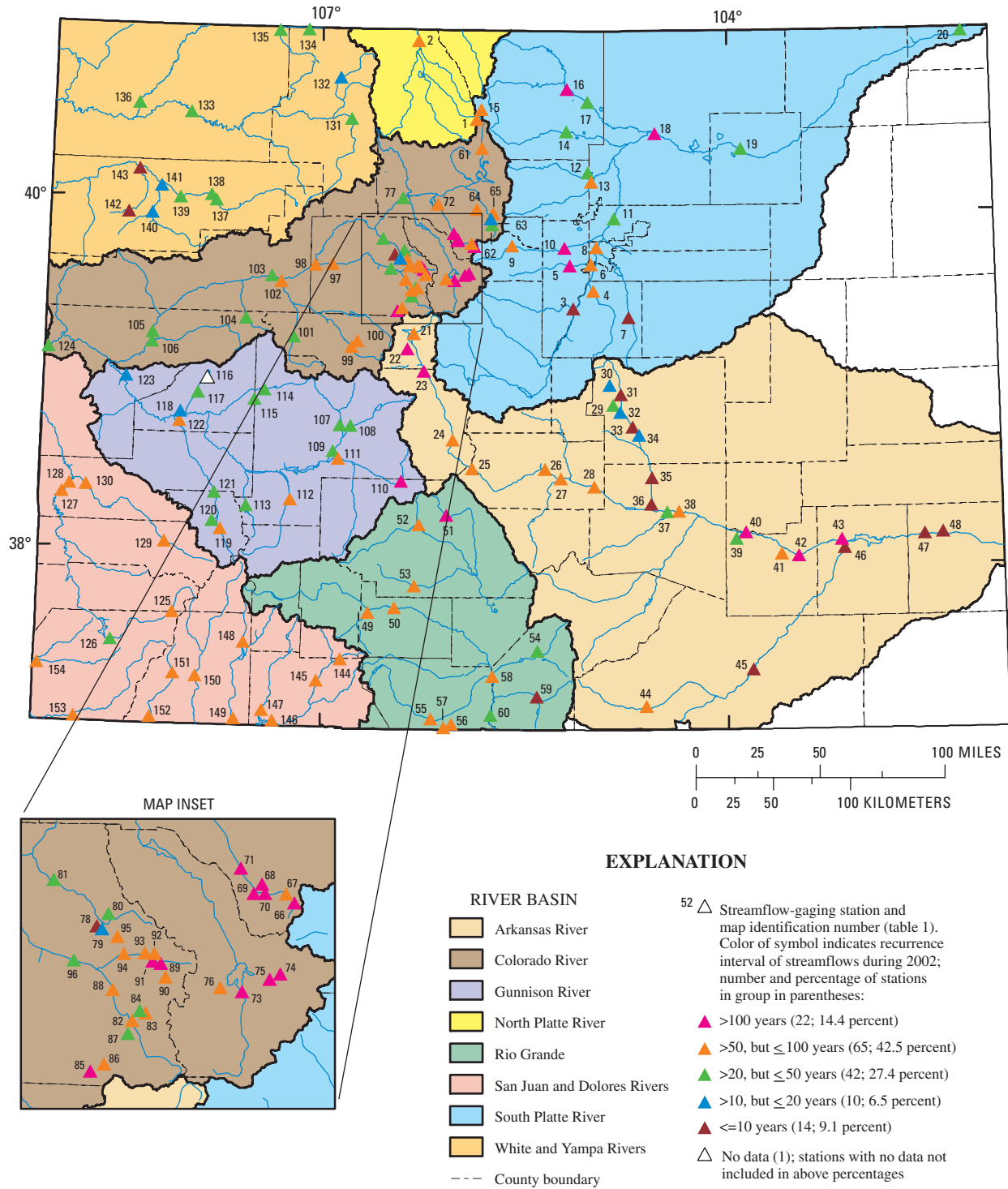


Figure 14. Recurrence interval of 180-day snowmelt streamflows during April–September 2002, for selected stations in Colorado based on log-Pearson type-III frequency analysis for 1973–2002. [Also see Appendix 5.]

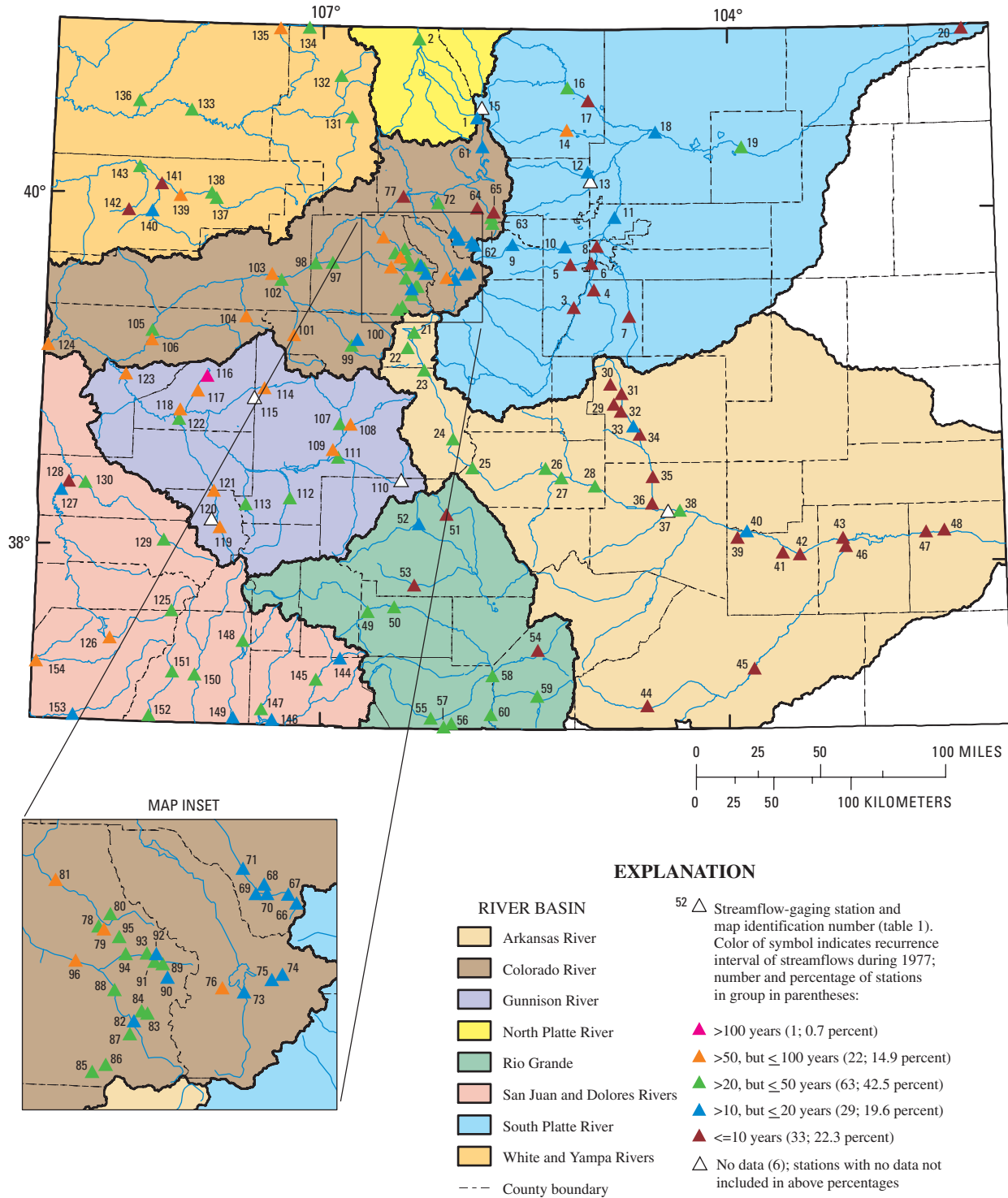


Figure 15. Recurrence interval of 180-day snowmelt streamflows during April–September 1977, for selected stations in Colorado based on log-Pearson type-III frequency analysis for 1973–2002. [Also see Appendix 5.]

Table 3. Number and percentage of Colorado study stations for which the 7-, 30-, 90-, and 180-day winter streamflows during 2002 and 1977 were ranked among the five lowest historical values.

| Winter stream-flow | Number of stations for which streamflow was ranked | | | | | | Percentage of stations for which streamflow was ranked | | | | | |
|----------------------------------|----------------------------------------------------|---------------|--------------|---------------|--------------|------------------------------|--------------------------------------------------------|---------------|--------------|---------------|--------------|------------------------------|
| | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Not ranked among five lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Not ranked among five lowest |
| 12002 (148 stations with record) | | | | | | | | | | | | |
| 7-day | 11 | 4 | 10 | 10 | 13 | 100 | 7.4 | 2.7 | 6.8 | 6.8 | 8.8 | 67.5 |
| 30-day | 14 | 9 | 10 | 15 | 9 | 91 | 9.5 | 6.1 | 6.8 | 10.1 | 6.1 | 61.5 |
| 90-day | 21 | 9 | 13 | 8 | 11 | 86 | 14.2 | 6.1 | 8.8 | 5.4 | 7.4 | 58.1 |
| 180-day | 27 | 10 | 7 | 10 | 6 | 88 | 18.2 | 6.8 | 4.7 | 6.8 | 4.0 | 59.5 |
| 11977 (148 stations with record) | | | | | | | | | | | | |
| 7-day | 10 | 9 | 15 | 6 | 5 | 103 | 6.8 | 6.1 | 10.1 | 4.0 | 3.4 | 69.6 |
| 30-day | 10 | 12 | 12 | 10 | 5 | 99 | 6.8 | 8.1 | 8.1 | 6.8 | 3.4 | 66.9 |
| 90-day | 14 | 13 | 13 | 7 | 2 | 99 | 9.5 | 8.8 | 8.8 | 4.7 | 1.3 | 66.9 |
| 180-day | 21 | 14 | 9 | 7 | 4 | 93 | 14.2 | 9.5 | 6.1 | 4.7 | 2.7 | 62.8 |

¹Years correspond to the October–December months of the winter period (October–March).

Historical Ranking of Winter Streamflows During 2002 and 1977

The N-day winter streamflows during 2002 and 1977 were not ranked among the five lowest historical values at 86–103 stations, or about 58–70 percent of the stations (table 3). By comparison, the N-day snowmelt streamflows (table 2) were not ranked among the five lowest historical values for less than 10 percent of the stations during 2002 and only for about 23–37 percent of the stations during 1977. These results indicate that winter streamflows during the 2002 and 1977 droughts were diminished to a lesser extent than the snowmelt streamflows. The reasons for this are not clear but partly are the result of streamflow augmentation from reservoir releases, winter ground-water discharge resulting from irrigation during summer, and return flows from municipal water use; the effects of these factors likely have resulted in increasing winter streamflows during the past 100 years.

The overall lack of low-ranked 30- and 180-day winter streamflows during 2002 and 1977 (table 3) is clearly evident in figures 16–19, especially when compared to figures 9–12, which show the ranking for the 30- and 180-day snowmelt streamflows. The higher ranking of 30- and 180-day winter streamflows during 2002 in the mountainous areas (figs. 16–17; inset area and some Gunnison River basin stations) is somewhat surprising based on the very low April 1 and May 1 snowpack and the low ranking of the snowmelt streamflows during 2002 (figs. 9–10). This partly may be the result of increased precipitation during the October 2002–March 2003 period. The pattern of ranking in the lower Arkansas River basin, where low-ranked stations seem to

alternate with higher ranked stations probably results from some of the low-ranked stations (such as stations 39, 41, and 48) being on tributary streams where streamflow is not augmented to the extent that it is on the main streams; this pattern also is evident along Fountain and Monument Creeks (stations 30–36) (figs. 16–17). The distribution and pattern of the 30- and 180-day winter streamflows during 1977 (figs. 18–19) is not substantially different from that during 2002 (figs. 16–17) except that the winter streamflows at some stations in the mountainous areas (map inset area) were ranked lower during 1977 than during 2002.

Other Years with Drought-Diminished Winter Streamflows

Because the N-day winter streamflows during 2002 and 1977 were not ranked in the five lowest values for a large percentage of the stations (table 3; figs. 16–19), the question “When were winter streamflows most diminished by droughts?” comes to mind. For each station (table 1), the five lowest N-day winter streamflows and the corresponding year for those streamflows were tabulated (Appendixes 6–9). Data for the 180-day winter streamflows (Appendix 9) then were used to determine years during which winter streamflows were drought diminished by calculating the percentage of stations for which the 180-day winter streamflows were ranked as any of the five lowest values during each year from 1900 through 2002 (fig. 20). The 180-day winter streamflows were ranked among the five lowest historical values only at about 39 percent of the stations during 2002 and only at about 37 percent of the stations during 1977 (fig. 20), compared to

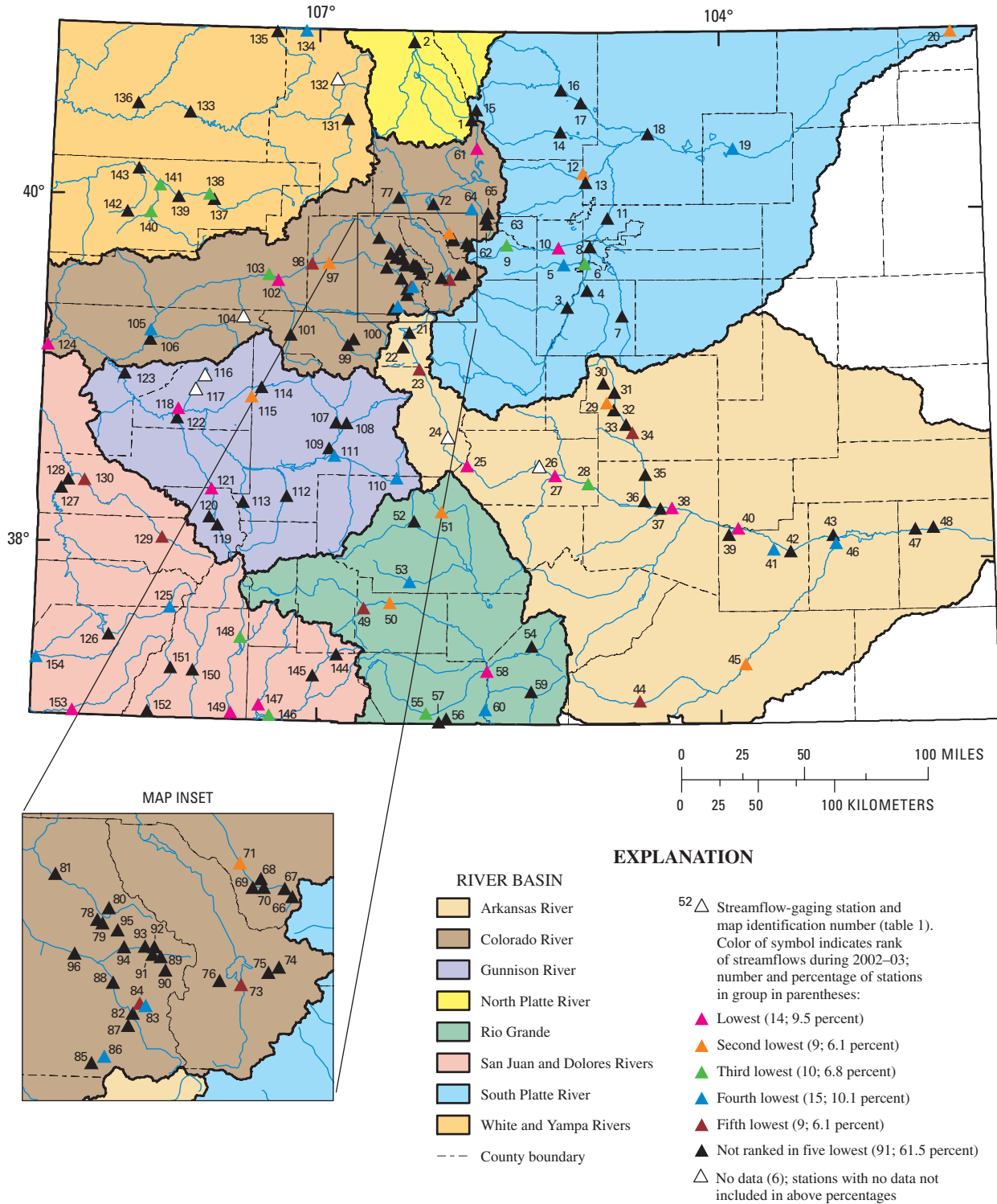


Figure 16. Ranking of 30-day winter streamflows during October 2002–March 2003, relative to period of record for selected stations in Colorado.

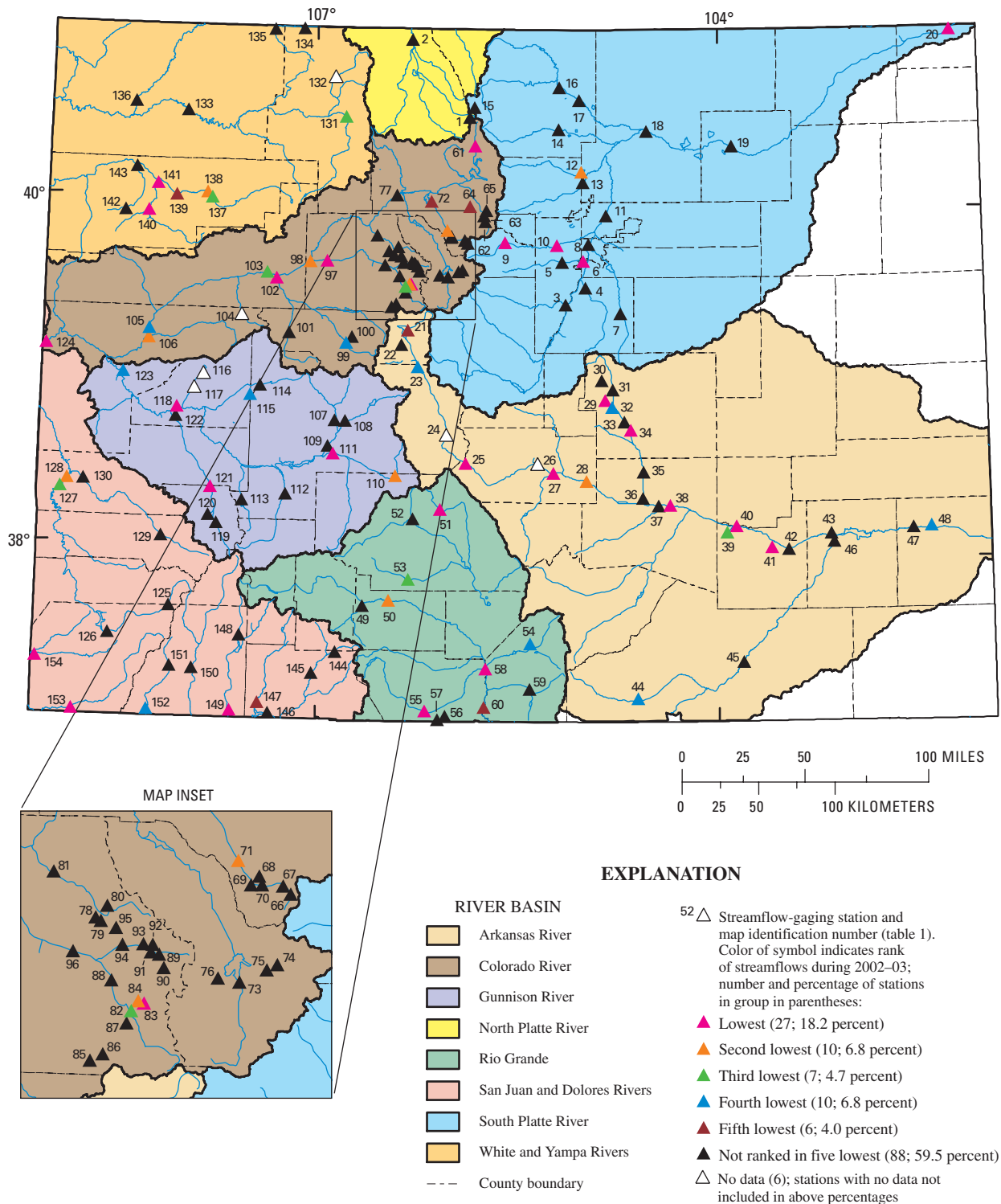


Figure 17. Ranking of 180-day winter streamflows during October 2002–March 2003, relative to period of record for selected stations in Colorado.

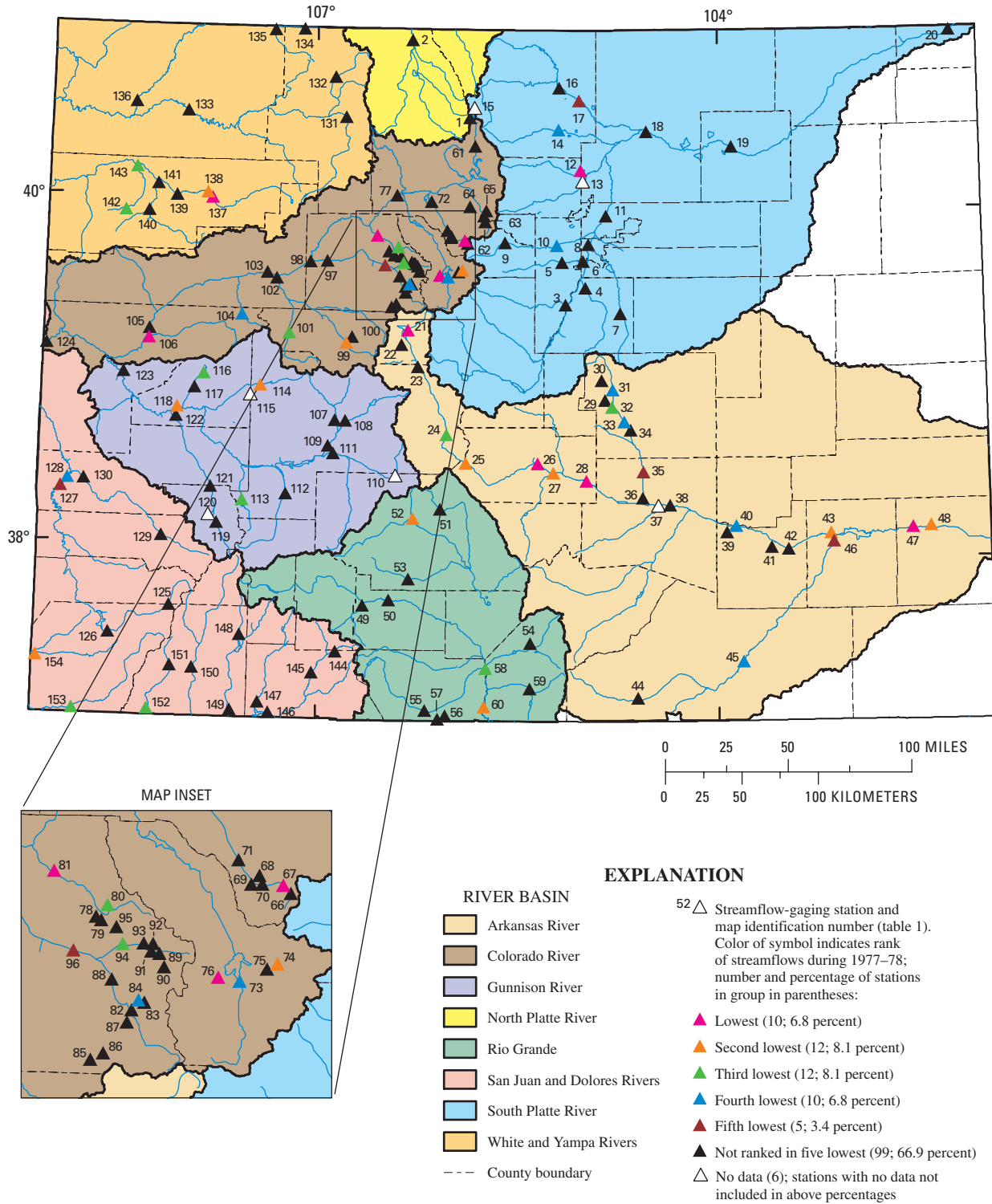


Figure 18. Ranking of 30-day winter streamflows during October 1977–March 1978, relative to period of record for selected stations in Colorado.

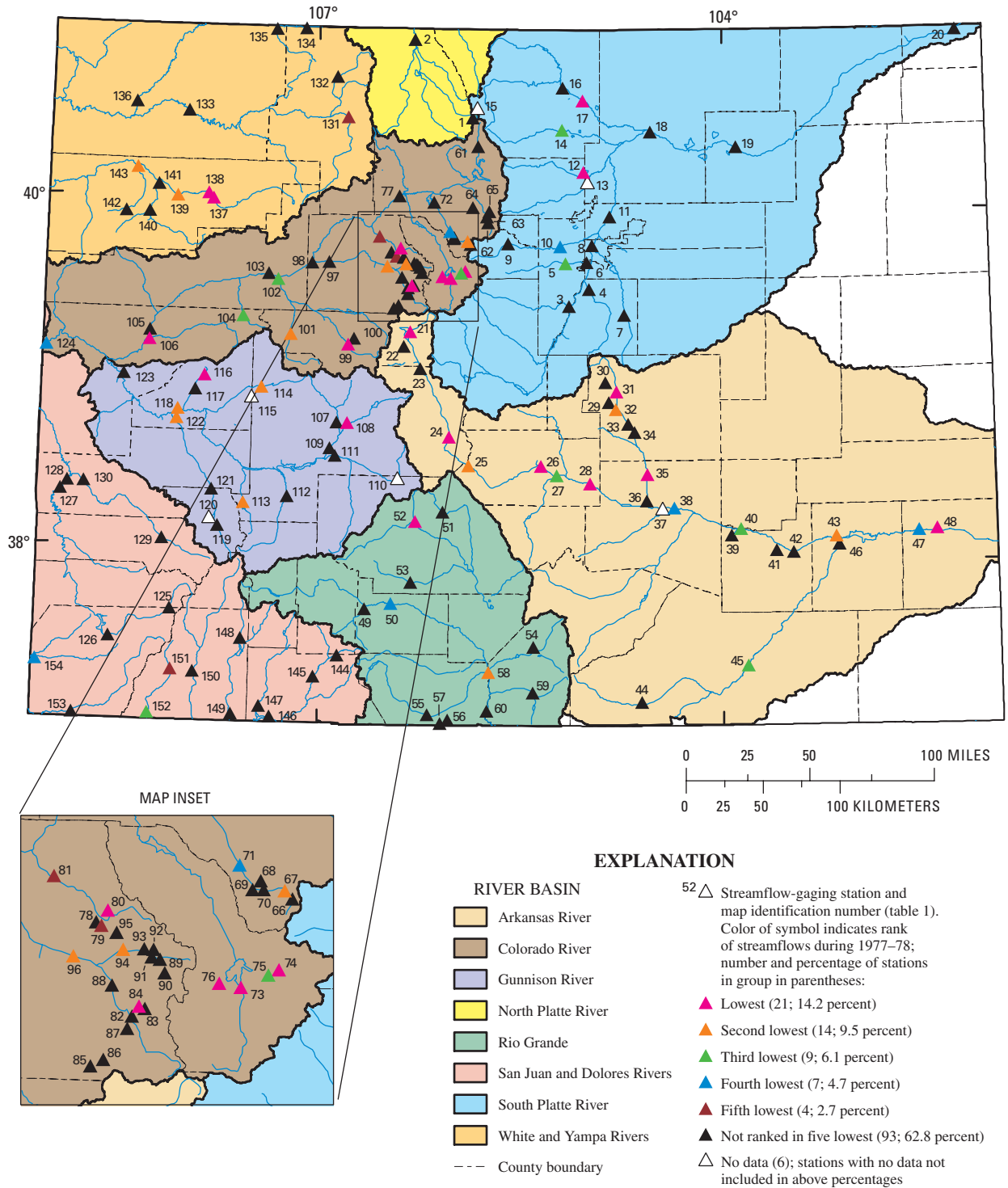


Figure 19. Ranking of 180-day winter streamflows during October 1977–March 1978, relative to period of record for selected stations in Colorado.

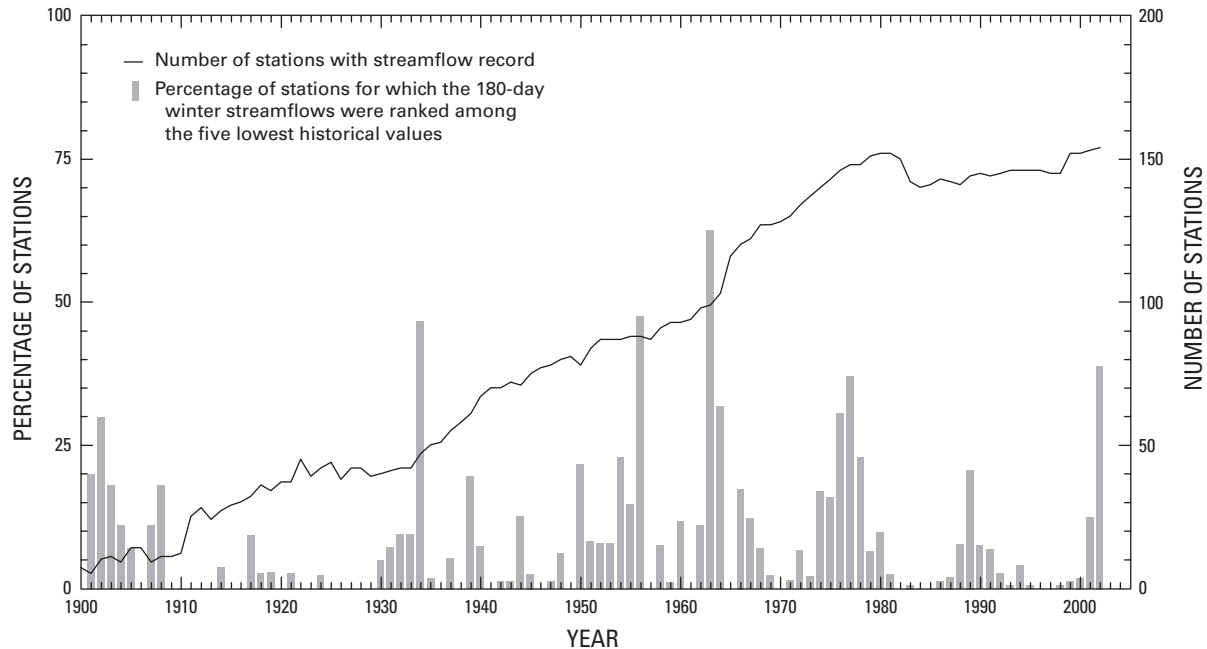


Figure 20. Number of stations in Colorado (for a selected station subset, see table 1) with streamflow record during 1900–2002 and percentage of those stations for which the 180-day winter streamflows during October–March in any given year were ranked among the five lowest historical values.

about 90 percent of the stations during 2002 and about 77 percent of the stations during 1977 for the 180-day snowmelt streamflows (fig. 13). The 180-day winter streamflows were ranked among the five lowest historical values at a larger percentage of the stations during 1934 (about 47 percent), 1956 (about 48 percent), and 1963, which had the largest percentage, about 63 percent (fig. 20).

Winter streamflows in Colorado were not affected by lack of snowpack accumulation and melt to the extent that snowmelt streamflows were. Some of the human activities previously described in various sections of this report probably have a greater effect on winter streamflows, and these effects probably have changed with the course of changes in water-resource management and infrastructure. Because of this, winter streamflows likely were diminished to a greater degree during the earlier drought periods than during the later drought periods. The pattern of years with low-ranking winter streamflows (fig. 20) also is somewhat similar to the pattern of drought years based on the 48-month SPI (fig. 1).

Frequency Analysis of Winter Streamflows

By using the previously described methods (see “Frequency Analysis” section), estimated streamflows for recurrence intervals of 100, 50, 20, and 10 years were computed for the 180-day winter streamflows (Appendix 10). Recurrence intervals, based on nonexceedance probability (see fig. 8), then were assigned to the 180-day winter streamflows

recorded during 2002 and 1977 (Appendix 10) by comparing the recorded streamflows during the 2 years to the estimated streamflows computed for the four recurrence intervals. Exact recurrence intervals also were not computed for the winter streamflows during 2002 and 1977, so the recurrence intervals for the recorded 180-day winter streamflows may be less than or greater than a specific recurrence interval, or between two specific recurrence intervals (Appendix 10). (Also see p. 26.)

Recurrence intervals for the 180-day winter streamflows during 2002 (Appendix 10) were greater than 50 years only for about 20 percent of the stations, were greater than 100 years only for about 6 percent of the stations, and were less than or equal to 20 years for about 66 percent of the stations (fig. 26). This indicates that the 180-day winter streamflows recorded during 2002 were not exceptionally low compared to the 180-day snowmelt streamflows (fig. 14). The percentages of stations in the various recurrence-interval periods for the 180-day winter streamflows during 1977 (fig. 22) are very similar (less than 10-percent difference) to the percentages during 2002 (fig. 21), also indicating that 180-day winter streamflows recorded during 1977 were not exceptionally low compared to the 180-day snowmelt streamflows during 1977 (fig. 15).

Summary

Since 1890, Colorado has experienced a number of widespread drought periods that ranged from about 1 (1981)

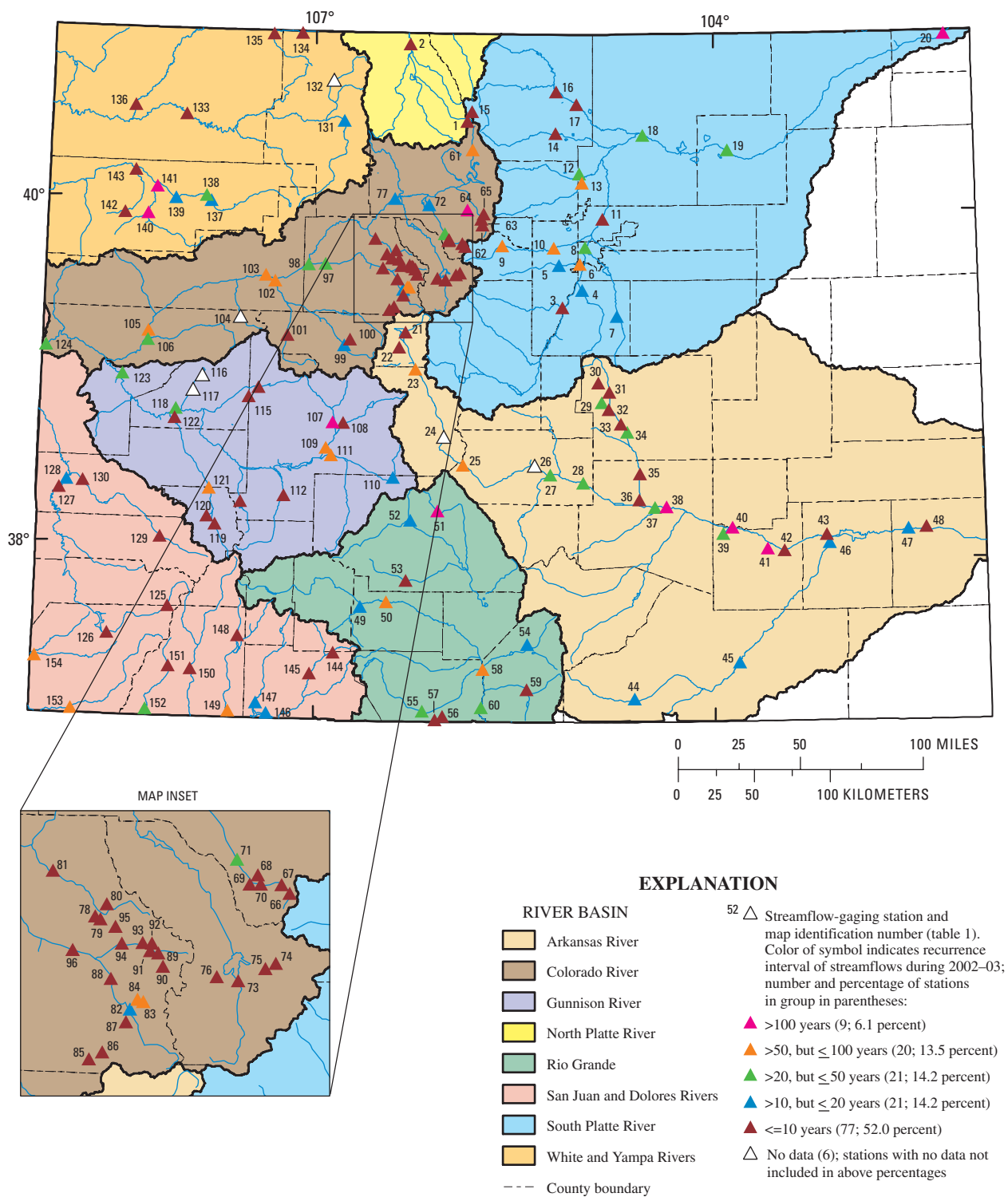


Figure 21. Recurrence interval of 180-day winter streamflows during October 2002–March 2003, for selected stations in Colorado based on log-Pearson type-III frequency analysis for 1973–2002. [Also see Appendix 10.]

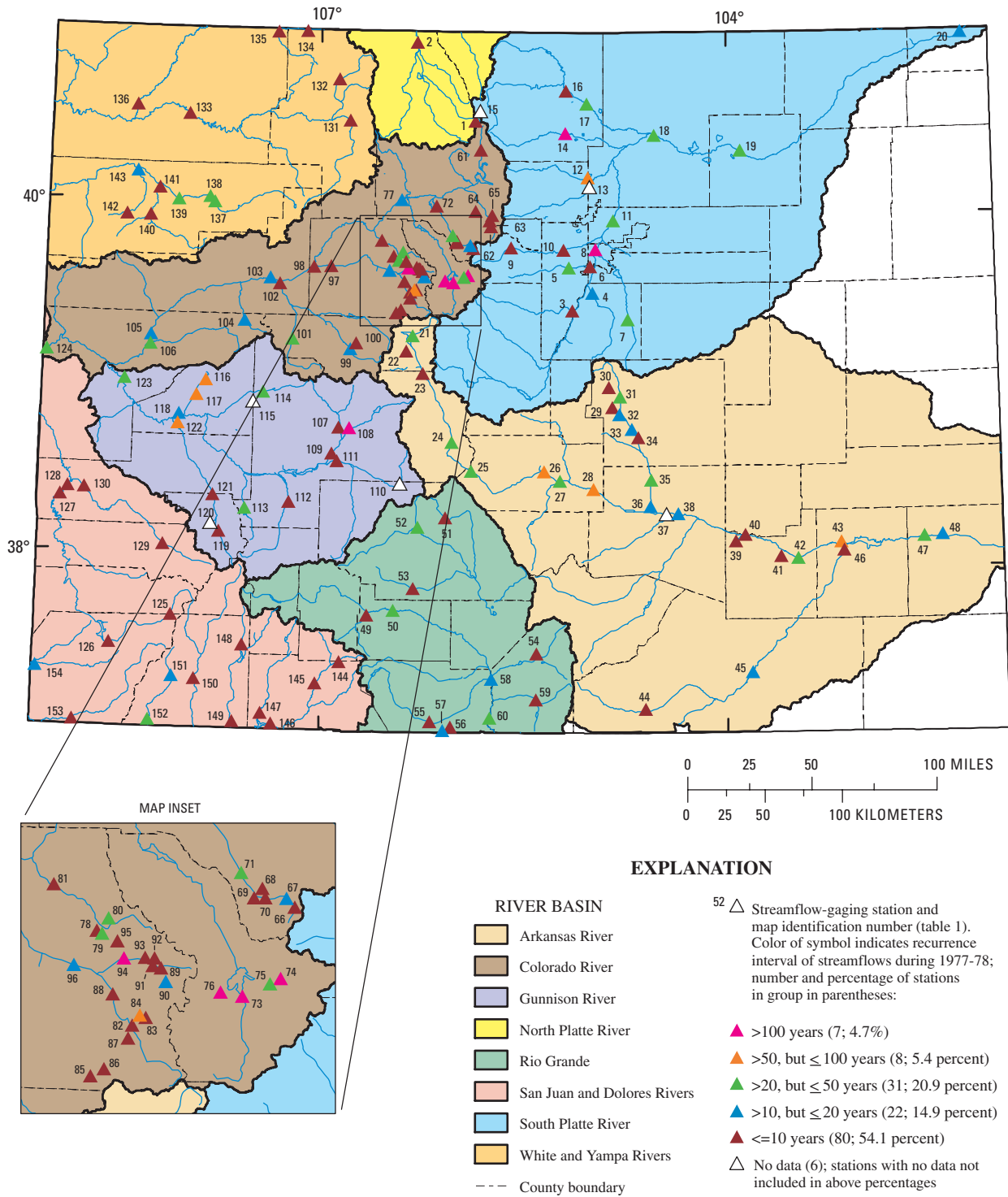


Figure 22. Recurrence interval of 180-day winter streamflows during October 1977–March 1978, for selected stations in Colorado based on log-Pearson type-III frequency analysis for 1973–2002. [Also see Appendix 10.]

to 11 (1930–40) years in duration. The most recent statewide drought began during 1999 and includes 2002, a year characterized by precipitation, snowpack accumulation, and streamflows that were much lower than normal. Because the drought of 2002 had a substantial effect on minimum streamflows in Colorado, a better understanding of the magnitude and recurrence interval of minimum streamflows in Colorado during 2002 would help the Colorado Water Conservation Board to effectively manage the State's Instream Flow Program in the event of another severe drought. Therefore, the U.S. Geological Survey, in cooperation with the Colorado Water Conservation Board, began a study in 2004 to analyze statewide streamflows during 2002 and develop a historical perspective of those streamflows. This perspective will provide information to the Colorado Water Conservation Board, as well as other water-resource managers and planners, indicating the probability and recurrence intervals of similarly low streamflows; this information also may be useful in future water-supply planning for droughts in Colorado.

The purpose of this report is to describe an analysis of streamflows recorded throughout Colorado during the drought of 2002, as well as other drought years such as 1977, and to provide some historical perspective of drought-diminished streamflows in Colorado. Because most streamflows (the major source of water supply) in Colorado are derived from melting of mountain snowpacks during April through July, streamflows primarily were analyzed for the snowmelt period, but streamflows also were analyzed for the winter period. The snowmelt period is defined as April 1 through September 30 and the winter period is defined as October 1 through March 31. The streamflow analyses were made for streamflow-gaging stations throughout Colorado that (1) were operating both during 2002 and during 1977, (2) have about 25 years or more of record, and (3) are not immediately downstream from reservoirs. One hundred and fifty-four stations in Colorado meet these criteria. Daily average streamflow data for each station, from the beginning of the daily average streamflow record through water year 2002 were used in the analyses; for the 2002 winter period, streamflow records through March 31, 2003, also were included. For the snowmelt and winter periods, streamflows for 7, 30, 90, and 180 consecutive-day periods (N-day) were computed for each year and analyzed.

The methods used for analysis of the N-day snowmelt and winter streamflows include evaluation of trends in the historical streamflow records, computation of the rank of each annual N-day streamflow value for each station, and frequency analysis. To evaluate long-term trends in streamflow, the N-day snowmelt and winter streamflows at 44 stations were analyzed by using the LOWESS (LOcally WEighted Scatterplot Smoothing) procedure, a flexible and useful, but robust, smoothing algorithm. Log-Pearson type-III frequency analysis was used to compute estimated snowmelt and winter streamflows at each study station for nonexceedance probabilities of 0.01, 0.02, 0.05, and 0.10, equal, respectively, to recurrence intervals of 100, 50, 20, and 10 years. On the basis of visual comparison of the LOWESS curves for 44 of the study sta-

tions, the 30-year period from 1973 through 2002 was selected for use in the frequency analysis. Eight stations have substantial breaks in their record during the 1973–2002 period, so the 1955 through 2002 period was used for those stations in order to provide about 30 years of record for the frequency analysis.

Ranking analyses for the N-day snowmelt streamflows indicated that streamflows during 2002 were ranked as the lowest or second lowest historical values at 114–123 stations, or about 74–80 percent of the stations; by comparison, the N-day snowmelt streamflows during 1977 were ranked as the lowest or second lowest historical values at 69–87 stations, or about 47–59 percent of the stations. During 2002, N-day snowmelt streamflows were not ranked among the five lowest values only at about 7–10 percent of the stations, whereas during 1977, the N-day snowmelt streamflows were not ranked among the five lowest values at about 23–27 percent of the stations. Many of the stations in the mountainous headwaters where snowmelt streamflows were ranked lowest during 2002 were ranked second lowest during 1977. These results indicate that snowmelt streamflows during 2002 were considerably more diminished than those during 1977.

Ranking of the 180-day snowmelt streamflows was used to evaluate other years during which streamflows were diminished by droughts. The results indicated that streamflows were ranked among the five lowest historical values at about 90 percent of the stations during 2002 and were ranked among the five lowest historical values at about 77 percent of the stations during 1977. Other years during which the 180-day snowmelt streamflows were ranked among the five lowest values at a substantial percentage of stations include 1934, 1954, 1963, and 1981. By only using the 54 stations that were operating during 1934 and again by only using the 87 stations that were operating during 1954, the percentages of stations for which the 180-day snowmelt streamflows were ranked among the five lowest values were about the same for specific years as when all 154 stations were used. These results provide additional confirmation that snowmelt streamflows during 2002 generally were the lowest on record since about 1900, followed by those during 1977, which generally were the second lowest on record.

Results for frequency analysis of snowmelt streamflows indicated that recurrence intervals for the 180-day snowmelt streamflows during 2002 were greater than 50 years for about 57 percent of the stations and were more than 100 years for about 14 percent of the stations. By comparison, the recurrence intervals for the 180-day snowmelt streamflows during 1977 were greater than 50 years only for about 16 percent of the stations and were more than 100 years only for about 1 percent of the stations. Also, recurrence intervals for the 180-day snowmelt streamflows were less than or equal to 20 years for about 15 percent of the stations during 2002 compared to about 42 percent of the stations during 1977. Generally, snowmelt streamflows during 2002 were more drought diminished and have higher recurrence intervals than snowmelt streamflows during 1977.

The N-day winter streamflows during 2002 and 1977 were not ranked in the five lowest historical values at 86–103 stations, or about 58–70 percent of the stations, compared to about 10–27 percent of the stations for the N-day snowmelt streamflows. These results indicate that winter streamflows during the 2002 and 1977 droughts were diminished to a lesser extent than the snowmelt streamflows. The reasons for this partly are the result of streamflow augmentation from reservoir releases, winter ground-water discharge resulting from irrigation during summer, and return flows from municipal water use; the effects of these factors likely have resulted in increasing winter streamflows during the past 100 years.

The 180-day winter streamflows were ranked among the five lowest historical values only at about 39 percent of the stations during 2002 and only at about 37 percent of the stations during 1977, compared to about 90 percent of the stations during 2002 and about 77 percent of the stations during 1977 for the 180-day snowmelt streamflows. The 180-day winter streamflows were ranked among the five lowest historical values at a larger percentage of the stations during 1934, 1956, and 1963, which had the largest percentage, about 63 percent.

Results for frequency analysis of winter streamflows indicated that recurrence intervals for the 180-day winter streamflows during 2002 were greater than 50 years only for about 20 percent of the stations, were greater than 100 years only for about 6 percent of the stations, and were less than or equal to 20 years for about 66 percent of the stations. Thus, the 180-day winter streamflows recorded during 2002 were not exceptionally low compared to the 180-day snowmelt streamflows. The percentages of stations in the various recurrence-interval periods during 1977 are very similar (less than 10-percent difference) to the percentages during 2002, also indicating that 180-day winter streamflows during 1977 were not exceptionally low compared to the 180-day snowmelt streamflows during 1977. Winter streamflows in Colorado during 2002 and 1977 were not affected by lack of snowpack accumulation and melt to the extent that snowmelt streamflows were. Human activities probably have a greater effect on winter streamflows, and these effects probably have changed with the course of changes in water-resource management and infrastructure.

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Appendixes 1–10

Appendix 1. Five lowest historical 7-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded.

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 7-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 7-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 1 | 06614800 | Michigan River near Cameron Pass | 13.9 | 14.4 | 17.6 | 17.7 | 17.9 | 1992 | 1989 | 2001 | 2002 | 1976 |
| 2 | 06620000 | North Platte River near Northgate | 460 | 466 | 581 | 596 | 643 | 2002 | 1934 | 1977 | 1954 | 1989 |
| 3 | 06707500 | South Platte River at South Platte | 437 | 482 | 489 | 528 | 545 | 1902 | 1908 | 1963 | 1954 | 1940 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | 8.27 | 14.3 | 19.0 | 24.1 | 25.7 | 1963 | 2002 | 1950 | 1996 | 1989 |
| 5 | 06710500 | Bear Creek at Morrison | 25.0 | 37.0 | 42.4 | 53.1 | 54.0 | 2002 | 1954 | 1940 | 1963 | 1946 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 9.90 | 12.8 | 17.7 | 19.0 | 19.3 | 1954 | 1932 | 2002 | 1966 | 1940 |
| 7 | 06712000 | Cherry Creek near Franktown | 9.94 | 10.5 | 10.8 | 13.2 | 13.4 | 1968 | 1994 | 1989 | 1991 | 1970 |
| 8 | 06714000 | South Platte River at Denver | 95.0 | 202 | 271 | 331 | 407 | 1902 | 1908 | 2002 | 1954 | 1925 |
| 9 | 06716500 | Clear Creek near Lawson | 223 | 273 | 288 | 292 | 431 | 2002 | 1966 | 1963 | 1954 | 1964 |
| 10 | 06719505 | Clear Creek at Golden | 234 | 566 | 621 | 623 | 635 | 2002 | 1977 | 1989 | 1976 | 1994 |
| 11 | 06720500 | South Platte River at Henderson | 367 | 516 | 572 | 577 | 635 | 1954 | 1966 | 1940 | 2002 | 1927 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 95.7 | 148 | 167 | 184 | 199 | 2002 | 1977 | 1981 | 2001 | 1988 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | 4.79 | 24.6 | 25.9 | 42.1 | 42.6 | 1954 | 2002 | 1946 | 1932 | 1940 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 144 | 170 | 173 | 176 | 180 | 1977 | 1966 | 2002 | 1981 | 1964 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | 37.3 | 45.1 | 47.9 | 50.6 | 54.7 | 1989 | 1987 | 1979 | 2002 | 1984 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 572 | 801 | 915 | 923 | 1087 | 2002 | 1954 | 1963 | 1966 | 1989 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 330 | 349 | 359 | 381 | 401 | 2002 | 1977 | 1976 | 2001 | 1989 |
| 18 | 06754000 | South Platte River near Kersey | 254 | 298 | 406 | 412 | 427 | 1954 | 1908 | 1940 | 1911 | 1934 |
| 19 | 06758500 | South Platte River near Weldona | 273 | 317 | 353 | 358 | 413 | 1954 | 1955 | 1968 | 1966 | 2002 |
| 20 | 06764000 | South Platte River at Julesburg | 87.6 | 94.6 | 134 | 156 | 170 | 1956 | 1940 | 2002 | 1916 | 1911 |
| 21 | 07081200 | Arkansas River near Leadville | 113 | 181 | 205 | 269 | 272 | 2002 | 1977 | 1981 | 1992 | 1998 |
| 22 | 07083000 | Halfmoon Creek near Malta | 68.6 | 84.9 | 87.7 | 95.3 | 95.4 | 2002 | 1963 | 1954 | 1977 | 1966 |
| 23 | 07086000 | Arkansas River at Granite | 350 | 757 | 809 | 845 | 950 | 2002 | 1931 | 1977 | 1934 | 1940 |
| 24 | 07091200 | Arkansas River near Nathrop | 549 | 1,067 | 1,316 | 1,371 | 1,559 | 2002 | 1977 | 1992 | 1981 | 1966 |
| 25 | 07093700 | Arkansas River near Wellsville | 497 | 990 | 1,434 | 1,496 | 1,500 | 2002 | 1977 | 1992 | 1981 | 1966 |
| 26 | 07094500 | Arkansas River at Parkdale | 544 | 1,019 | 1,509 | 1,599 | 1,704 | 2002 | 1977 | 1966 | 1992 | 1989 |
| 27 | 07096000 | Arkansas River at Canon City | 396 | 895 | 1,107 | 1,204 | 1,249 | 2002 | 1977 | 1940 | 1902 | 1931 |
| 28 | 07097000 | Arkansas River at Portland | 393 | 915 | 1214 | 1,457 | 1,577 | 2002 | 1977 | 1940 | 1981 | 1989 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 9.34 | 11.6 | 13.1 | 16 | 16.8 | 2002 | 1978 | 1989 | 1993 | 1972 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | 0.46 | 1.25 | 1.29 | 1.77 | 1.81 | 2002 | 1993 | 1989 | 1978 | 1988 |
| 31 | 07104000 | Monument Creek at Pikeview | 27.7 | 32.3 | 43.0 | 46.7 | 51.7 | 1943 | 1978 | 1946 | 1986 | 1940 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 104 | 109 | 139 | 154 | 175 | 1986 | 1989 | 1978 | 1988 | 1993 |
| 33 | 07105800 | Fountain Creek at Security | 77.0 | 101 | 130 | 134 | 147 | 1966 | 1968 | 1974 | 1970 | 1978 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | 2.36 | 3.06 | 3.17 | 3.23 | 4.09 | 2002 | 1987 | 1978 | 1983 | 1992 |
| 35 | 07106300 | Fountain Creek near Pinon | 135 | 153 | 191 | 192 | 250 | 1974 | 1989 | 2002 | 1978 | 1986 |
| 36 | 07106500 | Fountain Creek at Pueblo | 64.5 | 74.3 | 75.0 | 79.1 | 81.7 | 1962 | 1954 | 1953 | 1960 | 1943 |
| 37 | 07108900 | St. Charles River at Vineland | 24.1 | 24.3 | 29.0 | 36.3 | 40 | 2002 | 1971 | 1974 | 1922 | 1979 |
| 38 | 07109500 | Arkansas River near Avondale | 700 | 1,229 | 1,746 | 1,796 | 1,889 | 2002 | 1977 | 1940 | 1974 | 1966 |
| 39 | 07119500 | Apishapa River near Fowler | 18.2 | 23.9 | 29.9 | 37.8 | 39.1 | 1974 | 1988 | 2001 | 1971 | 2000 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 537 | 1,043 | 1,097 | 1,447 | 1,460 | 2002 | 1977 | 1974 | 1989 | 1988 |

Appendix 1. Five lowest historical 7-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded.—Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 7-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 7-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 37.6 | 52.7 | 54.9 | 118 | 122 | 2002 | 1974 | 1975 | 2000 | 1970 |
| 42 | 07123000 | Arkansas River at La Junta | 38 | 194 | 339 | 416 | 426 | 2002 | 1959 | 1931 | 1977 | 1988 |
| 43 | 07124000 | Arkansas River at Las Animas | 33.0 | 39.1 | 205 | 366 | 421 | 1959 | 2002 | 1988 | 1963 | 2000 |
| 44 | 07124200 | Purgatoire River at Madrid | 34.2 | 55.6 | 65.6 | 97.6 | 113 | 2002 | 1972 | 1974 | 1989 | 1996 |
| 45 | 07126300 | Purgatoire River near Thatcher | 28.7 | 72.5 | 77.2 | 109 | 118 | 1974 | 1971 | 1989 | 1975 | 1997 |
| 46 | 07128500 | Purgatoire River near Las Animas | 46.3 | 93.9 | 96.1 | 157 | 214 | 1975 | 1974 | 1989 | 1959 | 1992 |
| 47 | 07133000 | Arkansas River at Lamar | 46.1 | 138 | 213 | 255 | 273 | 1939 | 1917 | 1952 | 1918 | 1975 |
| 48 | 07134100 | Big Sandy Creek near Lamar | 10.0 | 21.0 | 22.1 | 26.7 | 30.2 | 1981 | 1974 | 1982 | 1972 | 2002 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 160 | 306 | 476 | 489 | 513 | 2002 | 1977 | 1959 | 1940 | 1954 |
| 50 | 08220000 | Rio Grande near Del Norte | 613 | 1,500 | 1,604 | 2,236 | 2,400 | 2002 | 1977 | 1904 | 1931 | 1934 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | 6.83 | 12.9 | 13.9 | 17.9 | 20.0 | 2002 | 1981 | 1967 | 1950 | 1963 |
| 52 | 08227000 | Saguache Creek near Saguache | 47.1 | 55.4 | 62.4 | 64.3 | 68.6 | 2002 | 1963 | 1940 | 1981 | 1955 |
| 53 | 08231000 | La Garita Creek near La Garita | 11.0 | 11.2 | 14.3 | 14.9 | 14.9 | 1940 | 2002 | 1950 | 1951 | 1956 |
| 54 | 08242500 | Ute Creek near Fort Garland | 7.89 | 15.6 | 19.4 | 20.7 | 23.1 | 2002 | 1963 | 1972 | 2000 | 1956 |
| 55 | 08246500 | Conejos River near Mogote | 388 | 562 | 684 | 754 | 965 | 2002 | 1977 | 1904 | 1972 | 1934 |
| 56 | 08247500 | San Antonio River at Ortiz | 12.8 | 37.9 | 44.0 | 45.3 | 54.1 | 2002 | 1972 | 1981 | 1977 | 1934 |
| 57 | 08248000 | Los Pinos River near Ortiz | 110 | 184 | 228 | 307 | 312 | 2002 | 1977 | 1972 | 2000 | 1963 |
| 58 | 08249000 | Conejos River near Lasausas | 1.97 | 26.3 | 28.3 | 31.6 | 31.7 | 2002 | 1934 | 1977 | 1954 | 1972 |
| 59 | 08250000 | Culebra Creek at San Luis | 55.6 | 80.9 | 85.0 | 87.3 | 89.0 | 1963 | 1946 | 1964 | 1967 | 1951 |
| 60 | 08251500 | Rio Grande near Lobatos | 78.4 | 153 | 158 | 170 | 170 | 1954 | 1959 | 1934 | 1951 | 2002 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 140 | 173 | 173 | 207 | 213 | 1954 | 1955 | 2002 | 1966 | 1989 |
| 62 | 09024000 | Fraser River at Winter Park | 10.6 | 12.9 | 12.9 | 13.1 | 15.0 | 1954 | 1963 | 1977 | 2002 | 1966 |
| 63 | 09025000 | Vasquez Creek at Winter Park | 6.83 | 8.56 | 9.23 | 9.96 | 12.9 | 1963 | 2002 | 1954 | 1966 | 1977 |
| 64 | 09026500 | St. Louis Creek near Fraser | 16.7 | 28.3 | 33.3 | 36.6 | 38.3 | 2002 | 1989 | 1981 | 1966 | 1963 |
| 65 | 09032000 | Ranch Creek near Fraser | 5.90 | 7.36 | 8.23 | 13.1 | 14.6 | 2002 | 1963 | 1966 | 1989 | 1955 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | 33.4 | 43.1 | 57.6 | 57.9 | 58 | 2002 | 1966 | 1989 | 1976 | 1987 |
| 67 | 09035500 | Williams Fork below Steelman Creek | 10.2 | 34.6 | 36.6 | 45.4 | 50.9 | 2002 | 1940 | 1966 | 1976 | 1977 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 51.4 | 71.4 | 94.6 | 118 | 162 | 2002 | 1966 | 1976 | 1989 | 1981 |
| 69 | 09035800 | Darling Creek near Leal | 21.1 | 26.3 | 33.0 | 36.3 | 38.7 | 2002 | 1966 | 1989 | 1977 | 1992 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 72.3 | 105 | 114 | 121 | 122 | 2002 | 1966 | 1977 | 1992 | 1998 |
| 71 | 09036000 | Williams Fork near Leal | 177 | 180 | 182 | 258 | 295 | 1963 | 1954 | 2002 | 1966 | 1955 |
| 72 | 09037500 | Williams Fork near Parshall | 87.6 | 124 | 159 | 165 | 236 | 1963 | 1954 | 2002 | 1966 | 1977 |
| 73 | 09046600 | Blue River near Dillon | 86.9 | 119 | 146 | 207 | 209 | 2002 | 1963 | 1966 | 1977 | 1967 |
| 74 | 09047500 | Snake River near Montezuma | 92.0 | 125 | 138 | 160 | 192 | 2002 | 1966 | 1963 | 1954 | 1977 |
| 75 | 09047700 | Keystone Gulch near Dillon | 4.24 | 8.00 | 9.14 | 9.67 | 10.6 | 2002 | 1966 | 1963 | 1981 | 1977 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 244 | 245 | 299 | 332 | 400 | 2002 | 1963 | 1966 | 1977 | 1992 |
| 77 | 09058000 | Colorado River near Kremmling | 859 | 942 | 958 | 1,034 | 1,093 | 2002 | 1963 | 1966 | 1981 | 1992 |
| 78 | 09058610 | Dickson Creek near Vail | 1.53 | 3.7 | 3.77 | 4.36 | 4.59 | 1977 | 1989 | 2002 | 1988 | 1981 |
| 79 | 09058700 | Freeman Creek near Minturn | 2.47 | 3.43 | 3.90 | 5.27 | 6.43 | 1977 | 1981 | 2002 | 1990 | 1969 |

Appendix 1. Five lowest historical 7-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded.—Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 7-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 7-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 80 | 09058800 | East Meadow Creek near Minturn | 11.8 | 15 | 18.9 | 19.1 | 19.6 | 2002 | 1977 | 1989 | 1992 | 1966 |
| 81 | 09059500 | Piney River near State Bridge | 182 | 187 | 201 | 214 | 259 | 1977 | 2002 | 1954 | 1963 | 1955 |
| 82 | 09063000 | Eagle River at Red Cliff | 43.4 | 78.0 | 81.4 | 82.1 | 83.3 | 2002 | 1963 | 1977 | 1955 | 1981 |
| 83 | 09063200 | Wearyman Creek near Red Cliff | 18.9 | 25.4 | 25.6 | 32.7 | 34.0 | 2002 | 1977 | 1966 | 1998 | 1992 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 43.1 | 64.4 | 65 | 75.1 | 75.9 | 2002 | 1977 | 1966 | 1981 | 1989 |
| 85 | 09063900 | Missouri Creek near Gold Park | 19.1 | 22.1 | 23.4 | 28.7 | 31.0 | 2002 | 2001 | 1992 | 1989 | 1998 |
| 86 | 09064000 | Homestake Creek at Gold Park | 59.3 | 66 | 68.6 | 71.1 | 79.1 | 1992 | 2002 | 1989 | 1974 | 1977 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 87.4 | 99.4 | 106 | 124 | 129 | 1977 | 2002 | 1989 | 1981 | 1992 |
| 88 | 09065100 | Cross Creek near Minturn | 180 | 211 | 214 | 217 | 231 | 2002 | 1992 | 1963 | 1989 | 1998 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 105 | 109 | 111 | 118 | 126 | 1966 | 1992 | 1955 | 2002 | 1964 |
| 90 | 09066000 | Black Gore Creek near Minturn | 43.7 | 62.6 | 65.1 | 68.6 | 80.1 | 2002 | 1977 | 1954 | 1966 | 1987 |
| 91 | 09066100 | Bighorn Creek near Minturn | 23.9 | 34.9 | 39.6 | 39.7 | 41.9 | 1966 | 2002 | 1964 | 1969 | 1967 |
| 92 | 09066150 | Pitkin Creek near Minturn | 32.0 | 39.7 | 41.6 | 42.3 | 44.4 | 1989 | 1977 | 2002 | 1987 | 1990 |
| 93 | 09066200 | Booth Creek near Minturn | 40.0 | 41.9 | 47.6 | 49.1 | 53.3 | 1966 | 2002 | 1992 | 1989 | 1987 |
| 94 | 09066300 | Middle Creek near Minturn | 18.6 | 22.3 | 23.7 | 23.7 | 27.7 | 2002 | 1966 | 1989 | 1992 | 1987 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | 22.9 | 33.1 | 36.0 | 38.7 | 39.7 | 2002 | 1977 | 1966 | 1992 | 1987 |
| 96 | 09067000 | Beaver Creek at Avon | 30.3 | 35.1 | 43.7 | 46.3 | 58.3 | 2002 | 1992 | 1989 | 1977 | 1990 |
| 97 | 09070000 | Eagle River below Gypsum | 1,074 | 1,181 | 1,369 | 1,403 | 1,563 | 2002 | 1963 | 1954 | 1977 | 1966 |
| 98 | 09070500 | Colorado River near Dotsero | 1,677 | 2,346 | 2,987 | 3,036 | 3,239 | 2002 | 1977 | 1963 | 1954 | 1992 |
| 99 | 09073400 | Roaring Fork River near Aspen | 140 | 211 | 279 | 299 | 323 | 2002 | 1977 | 1966 | 2001 | 1992 |
| 100 | 09074000 | Hunter Creek near Aspen | 58.0 | 124 | 154 | 158 | 205 | 2002 | 1992 | 1989 | 1982 | 2001 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 707 | 743 | 1036 | 1037 | 1089 | 1977 | 2002 | 1966 | 1992 | 1989 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 1,777 | 1,901 | 2,350 | 2,631 | 2,661 | 2002 | 1977 | 1992 | 1954 | 1989 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 3,539 | 4,086 | 5,776 | 6,323 | 7,214 | 2002 | 1977 | 1992 | 1989 | 2001 |
| 104 | 09089500 | West Divide Creek near Raven | 31 | 56.6 | 79.1 | 112 | 117 | 1977 | 2002 | 1963 | 1990 | 1967 |
| 105 | 09095500 | Colorado River near Cameo | 3,641 | 4,364 | 7,126 | 7,133 | 7,151 | 2002 | 1977 | 1963 | 1992 | 1954 |
| 106 | 09105000 | Plateau Creek near Cameo | 95.1 | 114 | 138 | 225 | 236 | 1977 | 2002 | 1990 | 1963 | 1972 |
| 107 | 09110000 | Taylor River at Almont | 252 | 303 | 389 | 438 | 447 | 1977 | 2002 | 1981 | 1992 | 1989 |
| 108 | 09112500 | East River at Almont | 481 | 573 | 935 | 958 | 1,034 | 1977 | 2002 | 1992 | 1954 | 1940 |
| 109 | 09114500 | Gunnison River near Gunnison | 606 | 690 | 1144 | 1291 | 1463 | 1977 | 2002 | 1954 | 1963 | 1981 |
| 110 | 09115500 | Tomichi Creek at Sargents | 41.3 | 66.3 | 89.6 | 107 | 109 | 2002 | 1954 | 1967 | 1955 | 1946 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 134 | 135 | 142 | 183 | 183 | 2002 | 1977 | 1981 | 1940 | 1954 |
| 112 | 09124500 | Lake Fork at Gateview | 309 | 463 | 597 | 658 | 804 | 2002 | 1977 | 1954 | 1989 | 1992 |
| 113 | 09126000 | Cimarron River near Cimarron | 118 | 124 | 146 | 272 | 316 | 1977 | 2002 | 1981 | 1963 | 1972 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 429 | 592 | 1,008 | 1,199 | 1,224 | 1977 | 2002 | 1954 | 1934 | 1990 |
| 115 | 09134000 | Minnesota Creek near Paonia | 20.6 | 41.1 | 41.1 | 45.0 | 45.1 | 2002 | 1990 | 2000 | 2001 | 1989 |
| 116 | 09143000 | Surface Creek near Cedaredge | 35.3 | 94.9 | 99.14 | 106 | 108 | 1977 | 1981 | 1990 | 1963 | 1961 |
| 117 | 09143500 | Surface Creek at Cedaredge | 36.7 | 45.3 | 59.0 | 68.3 | 69.3 | 1977 | 2002 | 1990 | 1946 | 1972 |
| 118 | 09144250 | Gunnison River at Delta | 568 | 1,127 | 1,413 | 1,946 | 1,969 | 1977 | 2002 | 1990 | 1988 | 1981 |

Appendix 1. Five lowest historical 7-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded.—Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 7-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 7-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 119 | 09146200 | Uncompahgre River near Ridgway | 240 | 252 | 374 | 413 | 521 | 2002 | 1977 | 1989 | 1963 | 1966 |
| 120 | 09147000 | Dallas Creek near Ridgway | 41.3 | 45.0 | 45.1 | 55.1 | 66.7 | 1989 | 1996 | 1990 | 1956 | 1966 |
| 121 | 09147500 | Uncompahgre River at Colona | 239 | 289 | 292 | 374 | 405 | 2002 | 1989 | 1977 | 1988 | 1954 |
| 122 | 09149500 | Uncompahgre River at Delta | 322 | 354 | 381 | 427 | 468 | 2002 | 1977 | 1989 | 1951 | 1950 |
| 123 | 09152500 | Gunnison River near Grand Junction | 877 | 1,457 | 2,413 | 2,483 | 2,680 | 1977 | 2002 | 1990 | 1981 | 1954 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 3,853 | 4,373 | 8,723 | 9,627 | 10,106 | 2002 | 1977 | 1989 | 1954 | 1963 |
| 125 | 09165000 | Dolores River below Rico | 135 | 144 | 385 | 476 | 506 | 2002 | 1977 | 1959 | 1972 | 1989 |
| 126 | 09166500 | Dolores River at Dolores | 312 | 360 | 862 | 977 | 1,062 | 1977 | 2002 | 1934 | 1931 | 1959 |
| 127 | 09169500 | Dolores River at Bedrock | 115 | 131 | 144 | 382 | 440 | 1990 | 1996 | 2002 | 2001 | 1977 |
| 128 | 09171100 | Dolores River near Bedrock | 116 | 128 | 154 | 419 | 594 | 1990 | 2002 | 1996 | 2001 | 1972 |
| 129 | 09172500 | San Miguel River near Placerville | 242 | 326 | 461 | 485 | 536 | 2002 | 1977 | 1954 | 1931 | 1934 |
| 130 | 09177000 | San Miguel River at Uravan | 298 | 420 | 591 | 699 | 744 | 2002 | 1977 | 1989 | 1959 | 1981 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 868 | 901 | 1,122 | 1,479 | 1,519 | 1977 | 2002 | 1934 | 1954 | 1989 |
| 132 | 09241000 | Elk River at Clark | 855 | 868 | 954 | 1,053 | 1,144 | 1977 | 1989 | 1987 | 2002 | 1934 |
| 133 | 09251000 | Yampa River near Maybell | 2,810 | 2,987 | 3,500 | 4,170 | 4,436 | 2002 | 1977 | 1934 | 1989 | 1992 |
| 134 | 09253000 | Little Snake River near Slater | 444 | 504 | 612 | 753 | 768 | 2002 | 1977 | 1992 | 1954 | 1987 |
| 135 | 09255000 | Slater Fork near Slater | 122 | 132 | 176 | 233 | 244 | 1934 | 1977 | 2002 | 1990 | 1992 |
| 136 | 09260000 | Little Snake River near Lily | 767 | 783 | 822 | 1,185 | 1,483 | 1977 | 2002 | 1934 | 1992 | 1954 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 537 | 611 | 1,083 | 1,171 | 1,220 | 1977 | 2002 | 1994 | 1989 | 1992 |
| 138 | 09304500 | White River near Meeker | 640 | 700 | 968 | 1,196 | 1,221 | 1977 | 2002 | 1934 | 1994 | 1989 |
| 139 | 09304800 | White River below Meeker | 621 | 626 | 1,160 | 1,344 | 1,503 | 1977 | 2002 | 1994 | 1989 | 1966 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 10.7 | 12.9 | 14.2 | 14.7 | 15.7 | 1966 | 2002 | 1972 | 1967 | 1990 |
| 141 | 09306222 | Piceance Creek at White River | 7.07 | 13.7 | 18.1 | 19.0 | 19.1 | 1972 | 1990 | 1966 | 1977 | 2002 |
| 142 | 09306242 | Corral Gulch near Rangely | .44 | .58 | .59 | .70 | .71 | 1991 | 1992 | 1990 | 2002 | 1994 |
| 143 | 09306255 | Yellow Creek near White River | 2.27 | 2.31 | 2.71 | 2.84 | 2.87 | 1976 | 1975 | 1981 | 1982 | 1980 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 63.4 | 149 | 230 | 236 | 242 | 2002 | 1977 | 2000 | 1972 | 1959 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 199 | 606 | 874 | 980 | 1,024 | 2002 | 1977 | 1959 | 1972 | 1946 |
| 146 | 09346400 | San Juan River near Carracas | 340 | 804 | 1,021 | 1,053 | 1,196 | 2002 | 1977 | 1972 | 1971 | 2000 |
| 147 | 09349800 | Piedra River near Arboles | 177 | 369 | 697 | 744 | 816 | 2002 | 1977 | 1971 | 1972 | 1996 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 200 | 283 | 430 | 487 | 499 | 2002 | 1977 | 1974 | 1992 | 1991 |
| 149 | 09354500 | Los Pinos River at La Boca | 77.9 | 132 | 158 | 163 | 175 | 2002 | 1951 | 1956 | 1959 | 1972 |
| 150 | 09361500 | Animas River at Durango | 699 | 1,119 | 1,733 | 1,784 | 2,109 | 2002 | 1977 | 1931 | 1934 | 1939 |
| 151 | 09365500 | La Plata River at Hesperus | 33.1 | 35.3 | 56.7 | 93.6 | 98.0 | 1977 | 2002 | 1972 | 1934 | 1959 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 15.0 | 44.7 | 53.0 | 59.3 | 62.4 | 2002 | 1972 | 1934 | 1977 | 1971 |
| 153 | 09371000 | Mancos River near Towaoc | 12.9 | 26.3 | 26.4 | 32.9 | 33.6 | 1972 | 1996 | 1951 | 1974 | 1956 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 30.9 | 35.0 | 60.6 | 75.0 | 80.3 | 1977 | 2002 | 1974 | 1959 | 1951 |

Appendix 2. Five lowest historical 30-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded.

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 30-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 30-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 1 | 06614800 | Michigan River near Cameron Pass | 11.1 | 11.2 | 11.4 | 12.1 | 12.5 | 1992 | 2002 | 1977 | 1981 | 1989 |
| 2 | 06620000 | North Platte River near Northgate | 231 | 317 | 359 | 363 | 417 | 2002 | 1934 | 1977 | 1954 | 1966 |
| 3 | 06707500 | South Platte River at South Platte | 260 | 395 | 395 | 420 | 447 | 1902 | 1908 | 1940 | 1963 | 1954 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | 5.72 | 8.76 | 10.5 | 21.0 | 23.5 | 1963 | 2002 | 1950 | 1996 | 1989 |
| 5 | 06710500 | Bear Creek at Morrison | 18.1 | 26.0 | 35.5 | 39.5 | 41.8 | 2002 | 1954 | 1940 | 1966 | 1963 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 4.86 | 8.50 | 8.93 | 10.5 | 10.9 | 1954 | 1932 | 2002 | 1963 | 1940 |
| 7 | 06712000 | Cherry Creek near Franktown | 6.45 | 6.85 | 7.58 | 7.66 | 8.01 | 1968 | 1978 | 1963 | 1953 | 1994 |
| 8 | 06714000 | South Platte River at Denver | 95.0 | 166 | 196 | 206 | 223 | 1902 | 1908 | 2002 | 1963 | 1954 |
| 9 | 06716500 | Clear Creek near Lawson | 184 | 233 | 234 | 256 | 304 | 2002 | 1963 | 1954 | 1966 | 1981 |
| 10 | 06719505 | Clear Creek at Golden | 202 | 384 | 429 | 458 | 527 | 2002 | 1977 | 1981 | 1976 | 1994 |
| 11 | 06720500 | South Platte River at Henderson | 219 | 298 | 339 | 395 | 448 | 1954 | 1963 | 2002 | 1966 | 1946 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 79.5 | 111 | 137 | 156 | 157 | 2002 | 1977 | 1981 | 2001 | 1988 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | 2.69 | 8.81 | 9.88 | 12.8 | 18.3 | 1954 | 2002 | 1946 | 1940 | 1955 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 112 | 123 | 125 | 138 | 151 | 2002 | 1977 | 1992 | 1981 | 1964 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | 31.8 | 31.9 | 34.0 | 37.1 | 38.9 | 2002 | 1989 | 1987 | 1979 | 1985 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 421 | 590 | 640 | 645 | 674 | 2002 | 1954 | 1966 | 1963 | 1977 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 220 | 223 | 255 | 261 | 263 | 2002 | 1989 | 2001 | 2000 | 1976 |
| 18 | 06754000 | South Platte River near Kersey | 171 | 202 | 231 | 258 | 261 | 1954 | 1908 | 1911 | 1932 | 2002 |
| 19 | 06758500 | South Platte River near Weldona | 206 | 227 | 260 | 272 | 291 | 1954 | 1955 | 1966 | 1968 | 2002 |
| 20 | 06764000 | South Platte River at Julesburg | 51.7 | 59.8 | 66.0 | 73.4 | 79.2 | 1956 | 1911 | 1940 | 1936 | 1916 |
| 21 | 07081200 | Arkansas River near Leadville | 95.5 | 125 | 131 | 205 | 228 | 2002 | 1977 | 1981 | 1998 | 1992 |
| 22 | 07083000 | Halfmoon Creek near Malta | 49.8 | 62.6 | 67.7 | 72.7 | 85.8 | 2002 | 1977 | 1954 | 1963 | 1981 |
| 23 | 07086000 | Arkansas River at Granite | 288 | 606 | 652 | 759 | 763 | 2002 | 1977 | 1931 | 1934 | 1954 |
| 24 | 07091200 | Arkansas River near Nathrop | 483 | 746 | 960 | 1,095 | 1,327 | 2002 | 1977 | 1981 | 1992 | 1966 |
| 25 | 07093700 | Arkansas River near Wellsville | 442 | 731 | 1,001 | 1,153 | 1,176 | 2002 | 1977 | 1981 | 1963 | 1992 |
| 26 | 07094500 | Arkansas River at Parkdale | 476 | 717 | 1,115 | 1,180 | 1,318 | 2002 | 1977 | 1954 | 1981 | 1966 |
| 27 | 07096000 | Arkansas River at Canon City | 324 | 620 | 799 | 919 | 929 | 2002 | 1977 | 1902 | 1954 | 1940 |
| 28 | 07097000 | Arkansas River at Portland | 329 | 591 | 914 | 1,000 | 1,304 | 2002 | 1977 | 1981 | 1940 | 1989 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 8.12 | 9.64 | 10.1 | 10.7 | 11.8 | 2002 | 1989 | 1978 | 1972 | 1963 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .40 | .63 | .83 | .94 | 1.24 | 2002 | 1989 | 1993 | 1986 | 1972 |
| 31 | 07104000 | Monument Creek at Pikeview | 20.9 | 21.9 | 23.5 | 27.0 | 27.1 | 1976 | 1946 | 1943 | 1978 | 2002 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 56 | 62.7 | 64.7 | 66.0 | 67.9 | 1986 | 1989 | 1978 | 2002 | 1976 |
| 33 | 07105800 | Fountain Creek at Security | 61.1 | 77.0 | 93.3 | 96.3 | 97.7 | 1966 | 1968 | 1978 | 1970 | 1974 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | 2.22 | 2.23 | 2.42 | 2.44 | 2.62 | 1978 | 2002 | 1990 | 1992 | 1977 |
| 35 | 07106300 | Fountain Creek near Pinon | 66.4 | 86.8 | 89.0 | 93.4 | 94.7 | 1989 | 2002 | 1975 | 1974 | 1978 |
| 36 | 07106500 | Fountain Creek at Pueblo | 18.8 | 22.0 | 22.5 | 22.6 | 26.4 | 1962 | 1950 | 1964 | 1953 | 1954 |
| 37 | 07108900 | St. Charles River at Vineland | 8.42 | 8.67 | 13.4 | 15.0 | 18.0 | 1974 | 2002 | 1971 | 1943 | 1922 |
| 38 | 07109500 | Arkansas River near Avondale | 483 | 656 | 1,197 | 1,234 | 1,368 | 2002 | 1977 | 1940 | 1981 | 1966 |
| 39 | 07119500 | Apishapa River near Fowler | 10.1 | 15.6 | 16.8 | 18.8 | 19.8 | 1974 | 2002 | 1971 | 1959 | 1988 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 345 | 652 | 842 | 1,078 | 1,078 | 2002 | 1977 | 1974 | 1981 | 1988 |

Appendix 2. Five lowest historical 30-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 30-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 30-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 23.2 | 40.5 | 40.8 | 81.7 | 82.7 | 2002 | 1975 | 1974 | 1976 | 1991 |
| 42 | 07123000 | Arkansas River at La Junta | 25.9 | 152 | 187 | 205 | 236 | 2002 | 1959 | 2000 | 1977 | 1954 |
| 43 | 07124000 | Arkansas River at Las Animas | 18.7 | 25.1 | 150 | 152 | 152 | 1959 | 2002 | 1988 | 2000 | 1964 |
| 44 | 07124200 | Purgatoire River at Madrid | 17.9 | 37.4 | 38.8 | 70.5 | 71.7 | 2002 | 1974 | 1972 | 1989 | 1977 |
| 45 | 07126300 | Purgatoire River near Thatcher | 16.5 | 32.2 | 35.8 | 39.3 | 51.8 | 1974 | 1989 | 1971 | 1975 | 2001 |
| 46 | 07128500 | Purgatoire River near Las Animas | 20.5 | 22.3 | 32.6 | 78.4 | 86.3 | 1975 | 1974 | 1989 | 2001 | 1959 |
| 47 | 07133000 | Arkansas River at Lamar | 19.2 | 67.8 | 88.1 | 91.0 | 92.2 | 1939 | 1917 | 1931 | 1932 | 1940 |
| 48 | 07134100 | Big Sandy Creek near Lamar | 7.43 | 9.30 | 12.0 | 12.4 | 12.7 | 1981 | 1979 | 1975 | 2002 | 1974 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 147 | 215 | 370 | 420 | 430 | 2002 | 1977 | 1946 | 1981 | 1959 |
| 50 | 08220000 | Rio Grande near Del Norte | 533 | 865 | 1,204 | 1,785 | 1,903 | 2002 | 1977 | 1904 | 1940 | 1931 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | 5.82 | 10.3 | 11.8 | 15.9 | 17.3 | 2002 | 1981 | 1967 | 1950 | 1954 |
| 52 | 08227000 | Saguache Creek near Saguache | 38.3 | 43.7 | 45.3 | 55.6 | 56.7 | 2002 | 1963 | 1981 | 1940 | 1955 |
| 53 | 08231000 | La Garita Creek near La Garita | 7.07 | 9.03 | 10.1 | 11.0 | 12.2 | 2002 | 1940 | 1963 | 1951 | 1950 |
| 54 | 08242500 | Ute Creek near Fort Garland | 6.82 | 11.5 | 14.3 | 17.1 | 17.7 | 2002 | 1963 | 1950 | 1972 | 2000 |
| 55 | 08246500 | Conejos River near Mogote | 304 | 356 | 525 | 655 | 732 | 2002 | 1977 | 1904 | 1972 | 2000 |
| 56 | 08247500 | San Antonio River at Ortiz | 8.15 | 22.2 | 24.9 | 32.5 | 33.9 | 2002 | 1972 | 1977 | 1981 | 1934 |
| 57 | 08248000 | Los Pinos River near Ortiz | 82.2 | 148 | 182 | 241 | 242 | 2002 | 1977 | 1972 | 1981 | 1963 |
| 58 | 08249000 | Conejos River near Lasausas | 1.47 | 9.84 | 11.6 | 19.8 | 21.4 | 2002 | 1977 | 1972 | 1954 | 1934 |
| 59 | 08250000 | Culebra Creek at San Luis | 46.7 | 56.7 | 63.5 | 64.2 | 67.5 | 1963 | 1977 | 1964 | 1967 | 1946 |
| 60 | 08251500 | Rio Grande near Lobatos | 60.1 | 80.5 | 87.0 | 94.5 | 114 | 1954 | 2002 | 1964 | 1951 | 1959 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 110 | 116 | 143 | 144 | 153 | 1954 | 2002 | 1981 | 1955 | 1977 |
| 62 | 09024000 | Fraser River at Winter Park | 9.4 | 10.6 | 11.2 | 11.2 | 13.0 | 1954 | 1963 | 1977 | 2002 | 1966 |
| 63 | 09025000 | Vasquez Creek at Winter Park | 6.15 | 6.71 | 7.6 | 8.19 | 8.88 | 1963 | 1954 | 1966 | 2002 | 1977 |
| 64 | 09026500 | St. Louis Creek near Fraser | 14.6 | 25.6 | 25.6 | 29.9 | 31.7 | 2002 | 1989 | 2001 | 1981 | 1966 |
| 65 | 09032000 | Ranch Creek near Fraser | 5.16 | 5.27 | 7.07 | 10.3 | 11.3 | 1963 | 2002 | 1966 | 1989 | 1964 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | 24.3 | 32.7 | 37.8 | 38.6 | 42.8 | 2002 | 1966 | 1976 | 1977 | 1987 |
| 67 | 09035500 | Williams Fork below Steelman Creek | 7.71 | 19.5 | 19.9 | 20.5 | 27.1 | 2002 | 1976 | 1966 | 1940 | 1981 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 36.3 | 64.9 | 69.6 | 83.1 | 87.3 | 2002 | 1966 | 1976 | 1989 | 1981 |
| 69 | 09035800 | Darling Creek near Leal | 16.0 | 22.9 | 23.2 | 27.3 | 31.1 | 2002 | 1966 | 1977 | 1989 | 1987 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 53.3 | 82.5 | 88.2 | 96.0 | 98.6 | 2002 | 1977 | 1966 | 1987 | 1981 |
| 71 | 09036000 | Williams Fork near Leal | 134 | 144 | 151 | 219 | 242 | 2002 | 1954 | 1963 | 1966 | 1955 |
| 72 | 09037500 | Williams Fork near Parshall | 66.3 | 76.2 | 102 | 104 | 123 | 1963 | 1954 | 1977 | 2002 | 1966 |
| 73 | 09046600 | Blue River near Dillon | 72.2 | 89.9 | 128 | 141 | 146 | 2002 | 1963 | 1966 | 1977 | 1981 |
| 74 | 09047500 | Snake River near Montezuma | 70.1 | 108 | 122 | 123 | 135 | 2002 | 1966 | 1963 | 1954 | 1977 |
| 75 | 09047700 | Keystone Gulch near Dillon | 3.92 | 7.35 | 7.51 | 7.52 | 9.13 | 2002 | 1981 | 1963 | 1966 | 1977 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 183 | 215 | 224 | 226 | 318 | 2002 | 1963 | 1977 | 1966 | 1998 |
| 77 | 09058000 | Colorado River near Kremmling | 757 | 820 | 858 | 1,002 | 1,013 | 1963 | 2002 | 1966 | 1981 | 1992 |
| 78 | 09058610 | Dickson Creek near Vail | 1.31 | 3.15 | 3.37 | 3.62 | 3.68 | 1977 | 1981 | 1989 | 2002 | 1987 |

Appendix 2. Five lowest historical 30-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 30-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 30-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 79 | 09058700 | Freeman Creek near Minturn | 1.68 | 2.21 | 2.63 | 3.64 | 4.72 | 1977 | 1981 | 2002 | 1990 | 1989 |
| 80 | 09058800 | East Meadow Creek near Minturn | 9.05 | 9.76 | 13.9 | 14.8 | 16.1 | 1977 | 2002 | 1981 | 1989 | 1994 |
| 81 | 09059500 | Piney River near State Bridge | 115 | 143 | 145 | 166 | 232 | 1977 | 1954 | 2002 | 1963 | 1955 |
| 82 | 09063000 | Eagle River at Red Cliff | 39.9 | 57.2 | 67.3 | 68.7 | 76.1 | 2002 | 1981 | 1977 | 1963 | 1954 |
| 83 | 09063200 | Wearyman Creek near Red Cliff | 13.9 | 17.1 | 21.7 | 24.6 | 27.1 | 2002 | 1977 | 1966 | 1981 | 1992 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 36.1 | 44.4 | 55.5 | 58 | 65.7 | 2002 | 1977 | 1966 | 1981 | 1998 |
| 85 | 09063900 | Missouri Creek near Gold Park | 11.3 | 17.0 | 17.3 | 19.7 | 19.7 | 2002 | 1992 | 1977 | 1976 | 2001 |
| 86 | 09064000 | Homestake Creek at Gold Park | 42.6 | 49.8 | 49.9 | 52.9 | 55.5 | 2002 | 1992 | 1977 | 1981 | 1989 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 60.3 | 70.3 | 78.3 | 89.1 | 100 | 1977 | 2002 | 1981 | 1989 | 1987 |
| 88 | 09065100 | Cross Creek near Minturn | 124 | 138 | 158 | 167 | 169 | 2002 | 1977 | 1963 | 1992 | 1998 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 76.3 | 86.6 | 91.1 | 93.2 | 94 | 2002 | 1966 | 1954 | 1992 | 1955 |
| 90 | 09066000 | Black Gore Creek near Minturn | 37.0 | 46.7 | 47.5 | 55.4 | 57.3 | 2002 | 1954 | 1977 | 1966 | 1981 |
| 91 | 09066100 | Bighorn Creek near Minturn | 20.6 | 23.2 | 30.4 | 30.5 | 33.0 | 1966 | 2002 | 1969 | 1977 | 1964 |
| 92 | 09066150 | Pitkin Creek near Minturn | 27.7 | 28.6 | 31.4 | 31.9 | 34.9 | 2002 | 1989 | 1977 | 1987 | 1969 |
| 93 | 09066200 | Booth Creek near Minturn | 31.7 | 34.1 | 38.0 | 39.2 | 43.6 | 2002 | 1966 | 1977 | 1992 | 1989 |
| 94 | 09066300 | Middle Creek near Minturn | 13.3 | 17.9 | 18.0 | 19.8 | 21.2 | 2002 | 1977 | 1966 | 1989 | 1992 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | 18 | 23.2 | 29.5 | 31.6 | 32.2 | 2002 | 1977 | 1987 | 1966 | 1992 |
| 96 | 09067000 | Beaver Creek at Avon | 21.8 | 24.7 | 32.1 | 39.9 | 44.0 | 2002 | 1977 | 1992 | 1989 | 1990 |
| 97 | 09070000 | Eagle River below Gypsum | 802 | 848 | 983 | 1,038 | 1,304 | 2002 | 1977 | 1954 | 1963 | 1966 |
| 98 | 09070500 | Colorado River near Dotsero | 1,382 | 1,690 | 2,329 | 2,600 | 2,870 | 2002 | 1977 | 1954 | 1963 | 1966 |
| 99 | 09073400 | Roaring Fork River near Aspen | 116 | 140 | 220 | 262 | 264 | 2002 | 1977 | 1966 | 1992 | 1998 |
| 100 | 09074000 | Hunter Creek near Aspen | 52.7 | 110 | 116 | 124 | 125 | 2002 | 1992 | 1989 | 1977 | 2001 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 418 | 569 | 830 | 871 | 919 | 1977 | 2002 | 1992 | 1966 | 1963 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 1,167 | 1,318 | 1,845 | 1,937 | 2,362 | 1977 | 2002 | 1954 | 1992 | 1963 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 2,817 | 2,842 | 4,924 | 5,361 | 5,616 | 2002 | 1977 | 1992 | 1981 | 1989 |
| 104 | 09089500 | West Divide Creek near Raven | 23.6 | 47.2 | 57.2 | 87.1 | 91.2 | 1977 | 2002 | 1963 | 1967 | 1990 |
| 105 | 09095500 | Colorado River near Cameo | 3,133 | 3,134 | 5,192 | 5,855 | 5,886 | 2002 | 1977 | 1954 | 1981 | 1963 |
| 106 | 09105000 | Plateau Creek near Cameo | 75.2 | 95.6 | 96.9 | 117 | 187 | 1977 | 1990 | 2002 | 1963 | 1972 |
| 107 | 09110000 | Taylor River at Almont | 241 | 287 | 325 | 401 | 409 | 1977 | 2002 | 1981 | 1988 | 1989 |
| 108 | 09112500 | East River at Almont | 313 | 456 | 679 | 695 | 807 | 1977 | 2002 | 1954 | 1981 | 1992 |
| 109 | 09114500 | Gunnison River near Gunnison | 430 | 558 | 797 | 1,013 | 1,109 | 1977 | 2002 | 1954 | 1981 | 1963 |
| 110 | 09115500 | Tomichi Creek at Sargents | 27.9 | 51.6 | 70.9 | 87.5 | 92.6 | 2002 | 1954 | 1967 | 1946 | 1955 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 70.2 | 83 | 101 | 107 | 145 | 2002 | 1977 | 1981 | 1954 | 1940 |
| 112 | 09124500 | Lake Fork at Gateview | 268 | 288 | 444 | 563 | 576 | 2002 | 1977 | 1954 | 1981 | 1989 |
| 113 | 09126000 | Cimarron River near Cimarron | 114 | 121 | 128 | 199 | 226 | 1977 | 2002 | 1981 | 1972 | 1967 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 327 | 506 | 827 | 859 | 928 | 1977 | 2002 | 1954 | 1981 | 1934 |
| 115 | 09134000 | Minnesota Creek near Paonia | 17.2 | 32.1 | 35.6 | 35.8 | 40.6 | 2002 | 1990 | 2001 | 2000 | 1989 |
| 116 | 09143000 | Surface Creek near Cedaredge | 30.9 | 76 | 76.8 | 78.9 | 84.8 | 1977 | 1981 | 1946 | 1990 | 1963 |
| 117 | 09143500 | Surface Creek at Cedaredge | 31.6 | 37.8 | 52.6 | 53 | 56.8 | 1977 | 2002 | 1990 | 1946 | 1989 |

Appendix 2. Five lowest historical 30-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 30-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 30-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 118 | 09144250 | Gunnison River at Delta | 424 | 813 | 1,133 | 1,284 | 1,660 | 1977 | 2002 | 1990 | 1981 | 1988 |
| 119 | 09146200 | Uncompahgre River near Ridgway | 180 | 201 | 339 | 350 | 394 | 1977 | 2002 | 1989 | 1963 | 1981 |
| 120 | 09147000 | Dallas Creek near Ridgway | 24.9 | 27.5 | 38.5 | 38.6 | 38.9 | 1989 | 1990 | 2002 | 1996 | 1967 |
| 121 | 09147500 | Uncompahgre River at Colona | 193 | 204 | 245 | 264 | 332 | 1977 | 2002 | 1989 | 1954 | 1988 |
| 122 | 09149500 | Uncompahgre River at Delta | 194 | 240 | 294 | 326 | 339 | 1977 | 2002 | 1989 | 1951 | 1939 |
| 123 | 09152500 | Gunnison River near Grand Junction | 729 | 1,165 | 1,677 | 1,818 | 1,904 | 1977 | 2002 | 1981 | 1954 | 1990 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 2,999 | 3,151 | 6,679 | 7,085 | 7,683 | 1977 | 2002 | 1954 | 1981 | 1989 |
| 125 | 09165000 | Dolores River below Rico | 102 | 119 | 323 | 367 | 393 | 1977 | 2002 | 1959 | 1981 | 1972 |
| 126 | 09166500 | Dolores River at Dolores | 258 | 332 | 715 | 733 | 736 | 1977 | 2002 | 1934 | 1981 | 1959 |
| 127 | 09169500 | Dolores River at Bedrock | 45.8 | 63.1 | 81.1 | 179 | 240 | 2002 | 1990 | 1996 | 1977 | 2001 |
| 128 | 09171100 | Dolores River near Bedrock | 40.4 | 65.1 | 94.5 | 248 | 378 | 2002 | 1990 | 1996 | 2001 | 1972 |
| 129 | 09172500 | San Miguel River near Placerville | 211 | 232 | 360 | 398 | 441 | 2002 | 1977 | 1954 | 1934 | 1931 |
| 130 | 09177000 | San Miguel River at Uravan | 177 | 184 | 466 | 475 | 499 | 2002 | 1977 | 1989 | 1981 | 1959 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 742 | 782 | 828 | 1,118 | 1,213 | 1977 | 2002 | 1934 | 1954 | 1981 |
| 132 | 09241000 | Elk River at Clark | 522 | 738 | 762 | 812 | 836 | 1977 | 1987 | 2002 | 1989 | 1954 |
| 133 | 09251000 | Yampa River near Maybell | 2,141 | 2,206 | 2,691 | 3,488 | 3,592 | 1977 | 2002 | 1934 | 1954 | 1989 |
| 134 | 09253000 | Little Snake River near Slater | 387 | 439 | 547 | 589 | 661 | 2002 | 1977 | 1992 | 1954 | 1989 |
| 135 | 09255000 | Slater Fork near Slater | 94.3 | 99.63 | 149 | 152 | 172 | 1977 | 1934 | 2002 | 1992 | 1990 |
| 136 | 09260000 | Little Snake River near Lily | 566 | 669 | 682 | 952 | 1,180 | 1977 | 2002 | 1934 | 1992 | 1989 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 484 | 566 | 955 | 974 | 1,029 | 1977 | 2002 | 1981 | 1994 | 1990 |
| 138 | 09304500 | White River near Meeker | 538 | 616 | 772 | 1,039 | 1,046 | 1977 | 2002 | 1934 | 1981 | 1994 |
| 139 | 09304800 | White River below Meeker | 437 | 579 | 1,019 | 1,137 | 1,197 | 1977 | 2002 | 1994 | 1981 | 1966 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 7.69 | 8.52 | 9.59 | 10.1 | 10.8 | 1972 | 1966 | 2002 | 1967 | 1990 |
| 141 | 09306222 | Piceance Creek at White River | 5.20 | 7.63 | 11.0 | 11.9 | 12.6 | 1972 | 1990 | 1966 | 2002 | 1977 |
| 142 | 09306242 | Corral Gulch near Rangely | .36 | .43 | .55 | .55 | .68 | 1991 | 1992 | 1977 | 1990 | 1994 |
| 143 | 09306255 | Yellow Creek near White River | 1.95 | 2.03 | 2.05 | 2.12 | 2.20 | 1975 | 1976 | 1977 | 1982 | 1981 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 53.5 | 79.5 | 186 | 194 | 213 | 2002 | 1977 | 2000 | 1959 | 1972 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 163 | 293 | 631 | 730 | 821 | 2002 | 1977 | 1946 | 1959 | 2000 |
| 146 | 09346400 | San Juan River near Carracas | 277 | 418 | 921 | 936 | 974 | 2002 | 1977 | 1972 | 2000 | 1971 |
| 147 | 09349800 | Piedra River near Arboles | 142 | 189 | 619 | 625 | 638 | 2002 | 1977 | 1981 | 1974 | 1971 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 136 | 177 | 356 | 386 | 429 | 2002 | 1977 | 1974 | 1989 | 1972 |
| 149 | 09354500 | Los Pinos River at La Boca | 67.0 | 101 | 110 | 119 | 139 | 2002 | 1951 | 1977 | 1959 | 1956 |
| 150 | 09361500 | Animas River at Durango | 587 | 736 | 1,346 | 1,415 | 1,688 | 2002 | 1977 | 1934 | 1931 | 1954 |
| 151 | 09365500 | La Plata River at Hesperus | 22.9 | 24.1 | 51.9 | 77.7 | 78.2 | 1977 | 2002 | 1972 | 1959 | 1934 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 10.3 | 19.8 | 31.7 | 33.8 | 37.8 | 2002 | 1977 | 1934 | 1925 | 1972 |
| 153 | 09371000 | Mancos River near Towaoc | 5.52 | 8.05 | 8.26 | 11.8 | 14.5 | 1972 | 1951 | 2002 | 1974 | 1959 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 13.3 | 14.3 | 25.8 | 41.6 | 43.5 | 2002 | 1977 | 1959 | 1978 | 1951 |

Appendix 3. Five lowest historical 90-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded.

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 90-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 90-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 1 | 06614800 | Michigan River near Cameron Pass | 5.09 | 5.91 | 6.86 | 7.12 | 7.41 | 2002 | 1977 | 1981 | 2001 | 1989 |
| 2 | 06620000 | North Platte River near Northgate | 164 | 233 | 243 | 283 | 348 | 2002 | 1934 | 1977 | 1954 | 1981 |
| 3 | 06707500 | South Platte River at South Platte | 190 | 311 | 320 | 371 | 393 | 1902 | 1908 | 1940 | 1963 | 1934 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | 2.48 | 6.83 | 6.98 | 9.25 | 14.4 | 1963 | 1950 | 2002 | 1956 | 1989 |
| 5 | 06710500 | Bear Creek at Morrison | 13.7 | 17.5 | 25.2 | 28.0 | 28.4 | 2002 | 1954 | 1963 | 1940 | 1966 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 3.94 | 5.33 | 6.58 | 7.16 | 7.22 | 1954 | 1963 | 1932 | 1966 | 1940 |
| 7 | 06712000 | Cherry Creek near Franktown | 3.80 | 4.00 | 4.50 | 4.97 | 4.97 | 1968 | 1963 | 1955 | 1978 | 1970 |
| 8 | 06714000 | South Platte River at Denver | 84.5 | 133 | 140 | 146 | 156 | 1902 | 2002 | 1963 | 1908 | 1954 |
| 9 | 06716500 | Clear Creek near Lawson | 120 | 173 | 179 | 191 | 192 | 2002 | 1963 | 1954 | 1966 | 1981 |
| 10 | 06719505 | Clear Creek at Golden | 141 | 247 | 260 | 335 | 346 | 2002 | 1977 | 1981 | 1976 | 1994 |
| 11 | 06720500 | South Platte River at Henderson | 177 | 216 | 274 | 280 | 285 | 1954 | 1963 | 2002 | 1966 | 1934 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 69.5 | 96.3 | 103 | 131 | 142 | 2002 | 1977 | 1981 | 1988 | 2001 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | 1.66 | 5.92 | 7.73 | 8.02 | 8.40 | 1954 | 2002 | 1946 | 1940 | 1955 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 81.8 | 98.5 | 110 | 115 | 119 | 2002 | 1977 | 1992 | 1981 | 2001 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | 13.7 | 17.7 | 19.1 | 20.9 | 22.2 | 2002 | 1989 | 1981 | 1985 | 1979 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 243 | 359 | 408 | 421 | 438 | 2002 | 1977 | 1966 | 1954 | 1963 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 102 | 146 | 152 | 154 | 168 | 2002 | 1977 | 2001 | 1989 | 1976 |
| 18 | 06754000 | South Platte River near Kersey | 131 | 146 | 149 | 159 | 176 | 1954 | 1940 | 1908 | 1911 | 2002 |
| 19 | 06758500 | South Platte River near Weldona | 183 | 193 | 199 | 212 | 223 | 1954 | 1955 | 2002 | 1977 | 1956 |
| 20 | 06764000 | South Platte River at Julesburg | 28.3 | 42.2 | 51.1 | 56.7 | 58.5 | 1911 | 1956 | 1940 | 2002 | 1936 |
| 21 | 07081200 | Arkansas River near Leadville | 65.6 | 78.3 | 81.9 | 168 | 168 | 2002 | 1981 | 1977 | 1976 | 1998 |
| 22 | 07083000 | Halfmoon Creek near Malta | 29.4 | 37.0 | 53.5 | 53.9 | 54.1 | 2002 | 1977 | 1981 | 1963 | 1954 |
| 23 | 07086000 | Arkansas River at Granite | 223 | 399 | 454 | 477 | 578 | 2002 | 1977 | 1934 | 1931 | 1940 |
| 24 | 07091200 | Arkansas River near Nathrop | 367 | 478 | 785 | 935 | 1,140 | 2002 | 1977 | 1981 | 1992 | 1966 |
| 25 | 07093700 | Arkansas River near Wellsville | 360 | 482 | 762 | 888 | 994 | 2002 | 1977 | 1981 | 1963 | 1992 |
| 26 | 07094500 | Arkansas River at Parkdale | 387 | 490 | 843 | 890 | 1,106 | 2002 | 1977 | 1981 | 1954 | 1955 |
| 27 | 07096000 | Arkansas River at Canon City | 267 | 375 | 515 | 648 | 675 | 2002 | 1977 | 1902 | 1934 | 1940 |
| 28 | 07097000 | Arkansas River at Portland | 260 | 357 | 704 | 713 | 1,078 | 2002 | 1977 | 1981 | 1940 | 1988 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 6.31 | 8.06 | 8.82 | 8.86 | 9.95 | 2002 | 1989 | 1978 | 1972 | 1963 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .37 | .37 | .38 | .58 | .78 | 2002 | 1993 | 1989 | 1986 | 1978 |
| 31 | 07104000 | Monument Creek at Pikeview | 10.5 | 10.6 | 16.1 | 17.1 | 21.0 | 1946 | 1976 | 1978 | 1943 | 2002 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 34.8 | 39.4 | 44.3 | 45.5 | 49.4 | 1976 | 2002 | 1986 | 1978 | 1989 |
| 33 | 07105800 | Fountain Creek at Security | 45.1 | 45.8 | 56.8 | 68.6 | 72.9 | 1966 | 1968 | 1978 | 1974 | 1972 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | 1.66 | 1.71 | 1.73 | 1.76 | 1.82 | 1978 | 1977 | 2002 | 1990 | 1989 |
| 35 | 07106300 | Fountain Creek near Pinon | 42.2 | 43.0 | 50.6 | 55.8 | 59.1 | 1974 | 1978 | 1975 | 1989 | 1977 |
| 36 | 07106500 | Fountain Creek at Pueblo | 9.67 | 10.2 | 10.7 | 12.6 | 14.0 | 1962 | 1953 | 1964 | 1952 | 1950 |
| 37 | 07108900 | St. Charles River at Vineland | 3.98 | 5.80 | 8.38 | 8.50 | 13.7 | 2002 | 1974 | 1943 | 1971 | 1922 |
| 38 | 07109500 | Arkansas River near Avondale | 418 | 582 | 772 | 1,041 | 1,168 | 2002 | 1977 | 1940 | 1981 | 1966 |
| 39 | 07119500 | Apishapa River near Fowler | 5.99 | 7.51 | 8.89 | 11.1 | 11.3 | 1974 | 2002 | 1964 | 1971 | 1959 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 242 | 423 | 643 | 757 | 774 | 2002 | 1977 | 1974 | 1981 | 1966 |

Appendix 3. Five lowest historical 90-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 90-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 90-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 20.5 | 33.2 | 36.9 | 49.5 | 49.7 | 2002 | 1975 | 1974 | 1981 | 1976 |
| 42 | 07123000 | Arkansas River at La Junta | 22.2 | 114 | 116 | 129 | 131 | 2002 | 1959 | 2000 | 1977 | 1934 |
| 43 | 07124000 | Arkansas River at Las Animas | 15.5 | 20.7 | 91.4 | 101 | 105 | 1959 | 2002 | 1988 | 1963 | 1967 |
| 44 | 07124200 | Purgatoire River at Madrid | 12.9 | 28.3 | 34.3 | 53.5 | 58.2 | 2002 | 1972 | 1974 | 1989 | 1977 |
| 45 | 07126300 | Purgatoire River near Thatcher | 10.1 | 20.8 | 25.9 | 26.1 | 26.4 | 1974 | 1989 | 1976 | 1971 | 1975 |
| 46 | 07128500 | Purgatoire River near Las Animas | 9.91 | 13.1 | 23.8 | 41.6 | 44.7 | 1975 | 1974 | 1989 | 2002 | 2001 |
| 47 | 07133000 | Arkansas River at Lamar | 12.7 | 36.1 | 44.7 | 46.6 | 51.7 | 1939 | 1917 | 1940 | 1932 | 1922 |
| 48 | 07134100 | Big Sandy Creek near Lamar | 4.64 | 5.06 | 5.52 | 7.12 | 8.56 | 1979 | 1981 | 1975 | 2002 | 1974 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 107 | 148 | 266 | 268 | 269 | 2002 | 1977 | 2000 | 1959 | 1940 |
| 50 | 08220000 | Rio Grande near Del Norte | 391 | 639 | 867 | 1,029 | 1,114 | 2002 | 1977 | 1904 | 1940 | 1934 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | 4.61 | 8.28 | 8.30 | 10.9 | 12.3 | 2002 | 1967 | 1981 | 1954 | 1963 |
| 52 | 08227000 | Saguache Creek near Saguache | 27.3 | 33.1 | 40.3 | 40.4 | 44.6 | 2002 | 1963 | 1981 | 1940 | 1977 |
| 53 | 08231000 | La Garita Creek near La Garita | 4.53 | 6.29 | 7.01 | 7.97 | 8.11 | 2002 | 1963 | 1940 | 1954 | 1951 |
| 54 | 08242500 | Ute Creek near Fort Garland | 4.36 | 8.98 | 10.9 | 11.4 | 11.9 | 2002 | 1963 | 1956 | 1950 | 1964 |
| 55 | 08246500 | Conejos River near Mogote | 202 | 245 | 379 | 412 | 443 | 2002 | 1977 | 1904 | 1934 | 1972 |
| 56 | 08247500 | San Antonio River at Ortiz | 3.03 | 9.52 | 9.54 | 12.9 | 14.3 | 2002 | 1972 | 1977 | 1934 | 1981 |
| 57 | 08248000 | Los Pinos River near Ortiz | 41.8 | 79.5 | 122 | 131 | 132 | 2002 | 1977 | 1972 | 1934 | 2000 |
| 58 | 08249000 | Conejos River near Lasausas | .58 | 3.91 | 4.88 | 11.6 | 11.8 | 2002 | 1977 | 1972 | 1954 | 1934 |
| 59 | 08250000 | Culebra Creek at San Luis | 38.9 | 40.8 | 49.6 | 54.1 | 55.1 | 1963 | 1977 | 1951 | 1976 | 1964 |
| 60 | 08251500 | Rio Grande near Lobatos | 44.4 | 44.7 | 61.0 | 64.2 | 66.3 | 1954 | 2002 | 1951 | 1964 | 1977 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 67.5 | 72.9 | 88.7 | 96.3 | 106 | 2002 | 1954 | 1981 | 1977 | 1955 |
| 62 | 09024000 | Fraser River at Winter Park | 7.45 | 9.06 | 10.3 | 10.3 | 10.6 | 1954 | 1963 | 1977 | 2002 | 1966 |
| 63 | 09025000 | Vasquez Creek at Winter Park | 3.37 | 3.93 | 4.38 | 4.93 | 5.96 | 1954 | 1963 | 1940 | 1966 | 1964 |
| 64 | 09026500 | St. Louis Creek near Fraser | 13.1 | 20.3 | 21.3 | 24.1 | 26.3 | 2002 | 2001 | 1989 | 1981 | 1990 |
| 65 | 09032000 | Ranch Creek near Fraser | 4.27 | 4.32 | 5.05 | 6.27 | 6.5 | 1963 | 2002 | 1966 | 1954 | 1964 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | 13.3 | 19.9 | 22.9 | 24.4 | 25.2 | 2002 | 1977 | 1966 | 1976 | 1987 |
| 67 | 09035500 | Williams Fork below Steelman Creek | 4.53 | 13.3 | 13.6 | 14.0 | 15.1 | 2002 | 1976 | 1981 | 1940 | 1966 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 22.0 | 46.0 | 49.3 | 50.0 | 53.2 | 2002 | 1966 | 1976 | 1981 | 1977 |
| 69 | 09035800 | Darling Creek near Leal | 9.6.0 | 14.0 | 15.2 | 16.6 | 16.9 | 2002 | 1977 | 1966 | 1989 | 1981 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 32.1 | 49.8 | 54.4 | 56.4 | 65.3 | 2002 | 1977 | 1966 | 1981 | 1987 |
| 71 | 09036000 | Williams Fork near Leal | 79.6 | 105 | 106 | 144 | 144 | 2002 | 1963 | 1954 | 1966 | 1977 |
| 72 | 09037500 | Williams Fork near Parshall | 45.6 | 56.8 | 63.0 | 64.5 | 83.9 | 1963 | 1954 | 1977 | 2002 | 1966 |
| 73 | 09046600 | Blue River near Dillon | 56.9 | 75.5 | 100 | 103 | 110 | 2002 | 1963 | 1966 | 1981 | 1977 |
| 74 | 09047500 | Snake River near Montezuma | 46.5 | 80.8 | 88.5 | 89.9 | 90.4 | 2002 | 1966 | 1981 | 1954 | 1977 |
| 75 | 09047700 | Keystone Gulch near Dillon | 3.14 | 5.22 | 5.50 | 5.78 | 6.55 | 2002 | 1963 | 1981 | 1966 | 1977 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 118 | 135 | 139 | 151 | 175 | 2002 | 1977 | 1963 | 1966 | 1981 |
| 77 | 09058000 | Colorado River near Kremmling | 648 | 719 | 789 | 803 | 809 | 1963 | 2002 | 1992 | 1964 | 1966 |
| 78 | 09058610 | Dickson Creek near Vail | 1.02 | 2.05 | 2.23 | 2.34 | 2.62 | 1977 | 1981 | 1989 | 1987 | 1988 |
| 79 | 09058700 | Freeman Creek near Minturn | .84 | 1.15 | 1.40 | 1.88 | 2.19 | 1977 | 1981 | 2002 | 1990 | 1987 |

Appendix 3. Five lowest historical 90-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

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|----------------------------------------|-------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 80 | 09058800 | East Meadow Creek near Minturn | 5.27 | 5.30 | 7.91 | 8.13 | 8.18 | 1977 | 2002 | 1981 | 1989 | 1994 |
| 81 | 09059500 | Piney River near State Bridge | 79.7 | 86.7 | 102 | 105 | 142 | 1977 | 1954 | 2002 | 1963 | 1981 |
| 82 | 09063000 | Eagle River at Red Cliff | 31.4 | 37.5 | 46.4 | 46.8 | 47.6 | 2002 | 1981 | 1977 | 1954 | 1963 |
| 83 | 09063200 | Wearymen Creek near Red Cliff | 8.11 | 9.5.0 | 13.3 | 14.0 | 15.5 | 2002 | 1977 | 1981 | 1966 | 1990 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 24.2 | 26.6 | 31 | 34.3 | 41.1 | 2002 | 1977 | 1981 | 1966 | 1998 |
| 85 | 09063900 | Missouri Creek near Gold Park | 9.6.0 | 12.4 | 13.7 | 14.5 | 14.6 | 2002 | 1977 | 2001 | 1994 | 1981 |
| 86 | 09064000 | Homestake Creek at Gold Park | 34.6 | 37.3 | 39.9 | 42.7 | 43.1 | 2002 | 1977 | 1981 | 1992 | 1976 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 50.7 | 51.0 | 61.3 | 63.5 | 71.7 | 1977 | 2002 | 1981 | 1990 | 1967 |
| 88 | 09065100 | Cross Creek near Minturn | 74.8 | 81.8 | 112 | 118 | 120 | 2002 | 1977 | 1963 | 1961 | 1989 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 41.8 | 55.0 | 55.1 | 55.5 | 65.6 | 2002 | 1954 | 1977 | 1966 | 1981 |
| 90 | 09066000 | Black Gore Creek near Minturn | 22.6 | 25.6 | 27.2 | 29.9 | 31.2 | 2002 | 1954 | 1977 | 1966 | 1981 |
| 91 | 09066100 | Bighorn Creek near Minturn | 13.9 | 15.0 | 17.8 | 21.4 | 22.7 | 2002 | 1966 | 1977 | 1969 | 1972 |
| 92 | 09066150 | Pitkin Creek near Minturn | 16.2 | 19.4 | 20.0 | 22.9 | 24.4 | 2002 | 1989 | 1977 | 1987 | 1990 |
| 93 | 09066200 | Booth Creek near Minturn | 18.8 | 21.5 | 22.4 | 26.5 | 26.8 | 2002 | 1966 | 1977 | 1989 | 1994 |
| 94 | 09066300 | Middle Creek near Minturn | 7.26 | 8.77 | 10.3 | 10.6 | 11.8 | 2002 | 1977 | 1989 | 1966 | 1990 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | 10.9 | 14.2 | 17.3 | 17.9 | 19.5 | 2002 | 1977 | 1987 | 1966 | 1989 |
| 96 | 09067000 | Beaver Creek at Avon | 13.1 | 14.0 | 24.1 | 24.4 | 25 | 1977 | 2002 | 1981 | 1990 | 1992 |
| 97 | 09070000 | Eagle River below Gypsum | 529 | 539 | 671 | 734 | 786 | 2002 | 1977 | 1954 | 1963 | 1981 |
| 98 | 09070500 | Colorado River near Dotsero | 1,254 | 1,468 | 1,693 | 1,910 | 1,979 | 2002 | 1977 | 1954 | 1963 | 1966 |
| 99 | 09073400 | Roaring Fork River near Aspen | 83.5 | 96.3 | 147 | 157 | 157 | 2002 | 1977 | 1966 | 1981 | 2001 |
| 100 | 09074000 | Hunter Creek near Aspen | 39.0 | 69.8 | 69.9 | 78.0 | 83.1 | 2002 | 1977 | 2001 | 1989 | 1992 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 264 | 370 | 537 | 560 | 575 | 1977 | 2002 | 1981 | 1963 | 1990 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 721 | 883 | 1,378 | 1,490 | 1,569 | 1977 | 2002 | 1954 | 1981 | 1963 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 2,217 | 2,241 | 3,556 | 3,948 | 4,094 | 2002 | 1977 | 1981 | 1990 | 1992 |
| 104 | 09089500 | West Divide Creek near Raven | 12.9 | 29.7 | 33.2 | 51.8 | 54.0 | 1977 | 2002 | 1963 | 1990 | 1967 |
| 105 | 09095500 | Colorado River near Cameo | 2,481 | 2,512 | 3,616 | 3,806 | 3,868 | 1977 | 2002 | 1954 | 1981 | 1963 |
| 106 | 09105000 | Plateau Creek near Cameo | 42.3 | 49.4 | 71.6 | 87.7 | 138 | 1977 | 2002 | 1990 | 1963 | 1981 |
| 107 | 09110000 | Taylor River at Almont | 233 | 270 | 299 | 312 | 333 | 1977 | 2002 | 1931 | 1981 | 1934 |
| 108 | 09112500 | East River at Almont | 233 | 322 | 393 | 448 | 510 | 1977 | 2002 | 1981 | 1954 | 1990 |
| 109 | 09114500 | Gunnison River near Gunnison | 346 | 442 | 631 | 651 | 910 | 1977 | 2002 | 1954 | 1981 | 1990 |
| 110 | 09115500 | Tomichi Creek at Sargents | 22.6 | 37.3 | 49.7 | 64.3 | 67.7 | 2002 | 1954 | 1967 | 1955 | 1940 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 34.8 | 52.1 | 70.7 | 89.4 | 103 | 2002 | 1977 | 1954 | 1981 | 1940 |
| 112 | 09124500 | Lake Fork at Gateview | 171 | 191 | 328 | 359 | 380 | 2002 | 1977 | 1981 | 1954 | 1989 |
| 113 | 09126000 | Cimarron River near Cimarron | 97.5 | 100 | 105 | 135 | 139 | 1977 | 2002 | 1981 | 1972 | 1967 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 271 | 409 | 522 | 554 | 583 | 1977 | 2002 | 1934 | 1954 | 1990 |
| 115 | 09134000 | Minnesota Creek near Paonia | 13.5 | 21.2 | 25.6 | 26.7 | 32.6 | 2002 | 1990 | 2000 | 2001 | 1999 |
| 116 | 09143000 | Surface Creek near Cedaredge | 22.0 | 57.2 | 58.0 | 63.1 | 64.0 | 1977 | 1963 | 1990 | 1981 | 1959 |
| 117 | 09143500 | Surface Creek at Cedaredge | 18.7 | 27.7 | 31.5 | 37.9 | 40.7 | 1977 | 2002 | 1934 | 1990 | 1946 |
| 118 | 09144250 | Gunnison River at Delta | 371 | 643 | 800 | 1,007 | 1,372 | 1977 | 2002 | 1990 | 1981 | 1989 |

Appendix 3. Five lowest historical 90-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 90-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 90-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 119 | 09146200 | Uncompahgre River near Ridgway | 129 | 140 | 234 | 258 | 261 | 1977 | 2002 | 1989 | 1963 | 1972 |
| 120 | 09147000 | Dallas Creek near Ridgway | 14.4 | 17.9 | 19.6 | 25.8 | 28.5 | 2002 | 1989 | 1990 | 1996 | 1967 |
| 121 | 09147500 | Uncompahgre River at Colona | 154 | 180 | 220 | 224 | 235 | 1977 | 2002 | 1989 | 1954 | 1988 |
| 122 | 09149500 | Uncompahgre River at Delta | 144 | 158 | 220 | 226 | 233 | 2002 | 1977 | 1951 | 1989 | 1988 |
| 123 | 09152500 | Gunnison River near Grand Junction | 644 | 1,008 | 1,224 | 1,350 | 1,417 | 1977 | 2002 | 1954 | 1981 | 1990 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 2,218 | 2,613 | 4,301 | 4,836 | 4,853 | 1977 | 2002 | 1954 | 1981 | 1990 |
| 125 | 09165000 | Dolores River below Rico | 78.6 | 85.9 | 181 | 227 | 241 | 1977 | 2002 | 1959 | 1967 | 1954 |
| 126 | 09166500 | Dolores River at Dolores | 183 | 220 | 388 | 435 | 525 | 1977 | 2002 | 1934 | 1959 | 1931 |
| 127 | 09169500 | Dolores River at Bedrock | 17.6 | 50.4 | 67.9 | 82.0 | 132 | 2002 | 1990 | 1996 | 1977 | 2001 |
| 128 | 09171100 | Dolores River near Bedrock | 16.6 | 50.4 | 72.1 | 132 | 167 | 2002 | 1990 | 1996 | 2001 | 1977 |
| 129 | 09172500 | San Miguel River near Placerville | 158 | 158 | 259 | 294 | 295 | 2002 | 1977 | 1934 | 1954 | 1931 |
| 130 | 09177000 | San Miguel River at Uravan | 127 | 140 | 339 | 364 | 379 | 2002 | 1977 | 1981 | 1959 | 1989 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 456 | 476 | 479 | 623 | 734 | 1934 | 1977 | 2002 | 1954 | 1966 |
| 132 | 09241000 | Elk River at Clark | 339 | 454 | 529 | 561 | 565 | 1977 | 2002 | 1987 | 1981 | 1934 |
| 133 | 09251000 | Yampa River near Maybell | 1,431 | 1,534 | 1,548 | 2,225 | 2,409 | 1977 | 2002 | 1934 | 1954 | 1992 |
| 134 | 09253000 | Little Snake River near Slater | 272 | 277 | 344 | 347 | 380 | 2002 | 1977 | 1954 | 1992 | 1987 |
| 135 | 09255000 | Slater Fork near Slater | 54.4 | 56.6 | 86.0 | 93.1 | 106 | 1977 | 1934 | 2002 | 1992 | 1961 |
| 136 | 09260000 | Little Snake River near Lily | 332 | 413 | 466 | 658 | 721 | 1934 | 1977 | 2002 | 1992 | 1961 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 326 | 362 | 559 | 579 | 651 | 1977 | 2002 | 1990 | 1994 | 1981 |
| 138 | 09304500 | White River near Meeker | 415 | 451 | 514 | 642 | 648 | 1977 | 2002 | 1934 | 1994 | 1990 |
| 139 | 09304800 | White River below Meeker | 353 | 435 | 656 | 708 | 740 | 1977 | 2002 | 1994 | 1990 | 1966 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 6.50 | 6.71 | 7.50 | 7.79 | 8.81 | 1972 | 1967 | 1966 | 2002 | 1990 |
| 141 | 09306222 | Piceance Creek at White River | 3.68 | 5.02 | 5.40 | 6.53 | 6.71 | 1972 | 1966 | 1990 | 2002 | 1971 |
| 142 | 09306242 | Corral Gulch near Rangely | .31 | .32 | .42 | .42 | 0.46 | 1992 | 1991 | 1977 | 2002 | 1990 |
| 143 | 09306255 | Yellow Creek near White River | 1.32 | 1.55 | 1.58 | 1.62 | 1.84 | 1977 | 1976 | 1982 | 1975 | 1981 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 39.5 | 57.3 | 119 | 120 | 138 | 2002 | 1977 | 1959 | 2000 | 1996 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 124 | 188 | 439 | 469 | 519 | 2002 | 1977 | 1959 | 1946 | 2000 |
| 146 | 09346400 | San Juan River near Carracas | 198 | 296 | 638 | 649 | 663 | 2002 | 1977 | 2000 | 1996 | 1972 |
| 147 | 09349800 | Piedra River near Arboles | 87.2 | 139 | 358 | 395 | 476 | 2002 | 1977 | 1996 | 1974 | 1967 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 96.4 | 128 | 233 | 263 | 264 | 2002 | 1977 | 1974 | 1963 | 1996 |
| 149 | 09354500 | Los Pinos River at La Boca | 42.2 | 89.0 | 89.5 | 105 | 128 | 2002 | 1977 | 1951 | 1959 | 1972 |
| 150 | 09361500 | Animas River at Durango | 412 | 504 | 789 | 940 | 1,058 | 2002 | 1977 | 1934 | 1931 | 1959 |
| 151 | 09365500 | La Plata River at Hesperus | 17.6 | 18.1 | 39.8 | 44.6 | 48.9 | 1977 | 2002 | 1972 | 1934 | 1959 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 6.9 | 10.1 | 13.4 | 21.6 | 22.1 | 2002 | 1977 | 1934 | 1925 | 1959 |
| 153 | 09371000 | Mancos River near Towaoc | 2.57 | 3.11 | 4.03 | 4.86 | 4.91 | 1972 | 2002 | 1974 | 1959 | 1951 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 6.67 | 7.94 | 15.6 | 23.8 | 31.2 | 2002 | 1977 | 1959 | 1951 | 1974 |

Appendix 4. Five lowest historical 180-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded.

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 180-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 180-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 1 | 06614800 | Michigan River near Cameron Pass | 2.87 | 3.64 | 4.07 | 4.10 | 4.12 | 2002 | 1977 | 2001 | 1981 | 1989 |
| 2 | 06620000 | North Platte River near Northgate | 105 | 131 | 176 | 192 | 230 | 2002 | 1934 | 1977 | 1954 | 1981 |
| 3 | 06707500 | South Platte River at South Platte | 137 | 255 | 261 | 323 | 327 | 1902 | 1908 | 1940 | 1896 | 1934 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | 1.52 | 3.61 | 3.74 | 5.88 | 7.47 | 1963 | 1950 | 2002 | 1956 | 1996 |
| 5 | 06710500 | Bear Creek at Morrison | 9.75 | 16.2 | 19.8 | 22.7 | 25.2 | 2002 | 1954 | 1963 | 1978 | 1940 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 3.13 | 4.90 | 4.95 | 5.61 | 6.00 | 1954 | 2002 | 1963 | 1932 | 1956 |
| 7 | 06712000 | Cherry Creek near Franktown | 2.81 | 3.07 | 3.23 | 3.25 | 3.49 | 1963 | 1968 | 1994 | 1970 | 1978 |
| 8 | 06714000 | South Platte River at Denver | 62.5 | 111 | 113 | 117 | 121 | 1902 | 2002 | 1954 | 1963 | 1908 |
| 9 | 06716500 | Clear Creek near Lawson | 83.7 | 116 | 125 | 127 | 128 | 2002 | 1954 | 1966 | 1981 | 1963 |
| 10 | 06719505 | Clear Creek at Golden | 99.6 | 167 | 172 | 218 | 220 | 2002 | 1977 | 1981 | 1994 | 1976 |
| 11 | 06720500 | South Platte River at Henderson | 138 | 178 | 200 | 235 | 235 | 1954 | 1963 | 1934 | 2002 | 1966 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 58.8 | 70.1 | 75.7 | 102 | 111 | 2002 | 1977 | 1981 | 1988 | 1989 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | 1.20 | 4.45 | 5.11 | 5.44 | 5.82 | 1954 | 2002 | 1955 | 1940 | 1946 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 59.2 | 65.9 | 90.3 | 90.6 | 97.7 | 1977 | 2002 | 1981 | 1992 | 1964 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | 7.27 | 10.6 | 10.8 | 11.1 | 12.4 | 2002 | 1981 | 1989 | 1985 | 1979 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 146 | 232 | 245 | 245 | 281 | 2002 | 1977 | 1954 | 1966 | 1963 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 56.2 | 81.5 | 85.2 | 88.3 | 93.3 | 2002 | 1977 | 2001 | 1989 | 1976 |
| 18 | 06754000 | South Platte River near Kersey | 107 | 130 | 139 | 140 | 141 | 1954 | 1911 | 1934 | 1940 | 1908 |
| 19 | 06758500 | South Platte River near Weldona | 150 | 159 | 179 | 181 | 190 | 2002 | 1954 | 1955 | 1966 | 1977 |
| 20 | 06764000 | South Platte River at Julesburg | 24.3 | 32.8 | 35.4 | 39.1 | 44.5 | 1911 | 1956 | 1940 | 2002 | 1954 |
| 21 | 07081200 | Arkansas River near Leadville | 41.3 | 52.2 | 56.4 | 99.67 | 105 | 2002 | 1977 | 1981 | 1974 | 1994 |
| 22 | 07083000 | Halfmoon Creek near Malta | 18.6 | 24.1 | 33.8 | 35.1 | 36 | 2002 | 1977 | 1954 | 1981 | 1963 |
| 23 | 07086000 | Arkansas River at Granite | 178 | 281 | 306 | 315 | 381 | 2002 | 1977 | 1934 | 1931 | 1940 |
| 24 | 07091200 | Arkansas River near Nathrop | 300 | 365 | 589 | 676 | 784 | 2002 | 1977 | 1981 | 1992 | 2001 |
| 25 | 07093700 | Arkansas River near Wellsville | 305 | 369 | 563 | 675 | 717 | 2002 | 1977 | 1981 | 1963 | 1988 |
| 26 | 07094500 | Arkansas River at Parkdale | 327 | 393 | 615 | 629 | 766 | 2002 | 1977 | 1954 | 1981 | 1955 |
| 27 | 07096000 | Arkansas River at Canon City | 220 | 289 | 384 | 450 | 452 | 2002 | 1977 | 1902 | 1940 | 1934 |
| 28 | 07097000 | Arkansas River at Portland | 207 | 277 | 486 | 493 | 734 | 2002 | 1977 | 1940 | 1981 | 1988 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 5.00 | 7.63 | 7.95 | 8.36 | 8.42 | 2002 | 1989 | 1978 | 1972 | 1963 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .19 | .25 | .33 | .41 | 0.47 | 1993 | 1989 | 2002 | 1986 | 1978 |
| 31 | 07104000 | Monument Creek at Pikeview | 10.1 | 10.4 | 10.5 | 11.1 | 16.3 | 1976 | 1978 | 1946 | 1943 | 1940 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 26.9 | 28.3 | 30.2 | 38.1 | 38.3 | 1976 | 2002 | 1978 | 1986 | 1989 |
| 33 | 07105800 | Fountain Creek at Security | 35.3 | 35.9 | 48.3 | 52.7 | 54.5 | 1966 | 1968 | 1978 | 1974 | 1972 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | 1.15 | 1.23 | 1.35 | 1.38 | 1.63 | 2002 | 1990 | 1978 | 1989 | 1983 |
| 35 | 07106300 | Fountain Creek near Pinon | 23.7 | 26.0 | 29.0 | 40.5 | 44.8 | 1974 | 1975 | 1978 | 1976 | 1977 |
| 36 | 07106500 | Fountain Creek at Pueblo | 6.21 | 7.12 | 7.44 | 7.65 | 8.91 | 1953 | 1964 | 1950 | 1962 | 1943 |
| 37 | 07108900 | St. Charles River at Vineland | 3.66 | 4.3 | 6.43 | 6.78 | 10.1 | 2002 | 1974 | 1971 | 1943 | 1922 |
| 38 | 07109500 | Arkansas River near Avondale | 306 | 478 | 535 | 775 | 823 | 2002 | 1977 | 1940 | 1981 | 1974 |
| 39 | 07119500 | Apishapa River near Fowler | 3.77 | 5.24 | 5.34 | 6.84 | 8.53 | 1974 | 1964 | 2002 | 1971 | 1959 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 159 | 343 | 406 | 508 | 567 | 2002 | 1977 | 1974 | 1981 | 1966 |

Appendix 4. Five lowest historical 180-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded.—Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 180-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 180-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 15.9 | 26.2 | 26.7 | 34.2 | 38.0 | 2002 | 1975 | 1974 | 1981 | 1976 |
| 42 | 07123000 | Arkansas River at La Junta | 18.4 | 81.5 | 87.2 | 97.6 | 98.3 | 2002 | 1959 | 2000 | 1977 | 1934 |
| 43 | 07124000 | Arkansas River at Las Animas | 12.0 | 17.1 | 59.6 | 65.1 | 71.3 | 1959 | 2002 | 1967 | 1964 | 1988 |
| 44 | 07124200 | Purgatoire River at Madrid | 12.3 | 23.1 | 25.6 | 41.7 | 44.1 | 2002 | 1972 | 1974 | 1977 | 1989 |
| 45 | 07126300 | Purgatoire River near Thatcher | 6.79 | 15.3 | 15.9 | 17.0 | 17.9 | 1974 | 1975 | 1976 | 1989 | 1971 |
| 46 | 07128500 | Purgatoire River near Las Animas | 5.75 | 9.31 | 15.9 | 25.1 | 26.6 | 1975 | 1974 | 1989 | 2002 | 1964 |
| 47 | 07133000 | Arkansas River at Lamar | 9.59 | 22.1 | 24.8 | 29.5 | 30.3 | 1939 | 1917 | 1932 | 1931 | 1940 |
| 48 | 07134100 | Big Sandy Creek near Lamar | 3.10 | 3.42 | 3.76 | 4.76 | 4.91 | 1979 | 1981 | 1975 | 1978 | 1974 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 67.0 | 110 | 154 | 163 | 167 | 2002 | 1977 | 2000 | 1940 | 1963 |
| 50 | 08220000 | Rio Grande near Del Norte | 268 | 456 | 643 | 688 | 703 | 2002 | 1977 | 1940 | 1934 | 1951 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | 2.72 | 6.15 | 7.15 | 7.36 | 7.39 | 2002 | 1981 | 1967 | 1950 | 1954 |
| 52 | 08227000 | Saguache Creek near Saguache | 21.1 | 30.6 | 30.9 | 35.3 | 38.4 | 2002 | 1963 | 1940 | 1977 | 1981 |
| 53 | 08231000 | La Garita Creek near La Garita | 3.24 | 4.71 | 4.82 | 5.32 | 5.80 | 2002 | 1940 | 1963 | 1951 | 1956 |
| 54 | 08242500 | Ute Creek near Fort Garland | 2.68 | 6.02 | 7.94 | 8.16 | 8.92 | 2002 | 1956 | 1950 | 1963 | 2000 |
| 55 | 08246500 | Conejos River near Mogote | 115 | 170 | 240 | 253 | 271 | 2002 | 1977 | 1934 | 1972 | 1963 |
| 56 | 08247500 | San Antonio River at Ortiz | 1.71 | 4.77 | 5.18 | 6.98 | 8.03 | 2002 | 1972 | 1977 | 1934 | 1981 |
| 57 | 08248000 | Los Pinos River near Ortiz | 23.8 | 46.4 | 68.3 | 72.4 | 72.9 | 2002 | 1977 | 1972 | 2000 | 1934 |
| 58 | 08249000 | Conejos River near Lasausas | .29 | 1.98 | 2.45 | 6.19 | 7.39 | 2002 | 1977 | 1972 | 1954 | 1934 |
| 59 | 08250000 | Culebra Creek at San Luis | 29.2 | 29.5 | 29.8 | 35.0 | 36.5 | 1977 | 1963 | 1951 | 1976 | 1972 |
| 60 | 08251500 | Rio Grande near Lobatos | 27.3 | 32.3 | 36.1 | 38.2 | 42.3 | 2002 | 1954 | 1951 | 1964 | 1977 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 42.3 | 45.7 | 53.9 | 61.6 | 63.6 | 2002 | 1954 | 1981 | 1977 | 1989 |
| 62 | 09024000 | Fraser River at Winter Park | 5.68 | 7.56 | 8.30 | 8.51 | 8.89 | 1954 | 1963 | 2002 | 1966 | 1955 |
| 63 | 09025000 | Vasquez Creek at Winter Park | 2.22 | 3.01 | 3.05 | 3.17 | 3.40 | 1954 | 1963 | 1966 | 1940 | 1964 |
| 64 | 09026500 | St. Louis Creek near Fraser | 9.88 | 15.2 | 16.3 | 17.0 | 17.2 | 2002 | 2001 | 1989 | 1963 | 1981 |
| 65 | 09032000 | Ranch Creek near Fraser | 2.93 | 3.46 | 3.99 | 4.08 | 4.70 | 2002 | 1966 | 1963 | 1964 | 1954 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | 8.13 | 11.6 | 13.5 | 13.6 | 14.5 | 2002 | 1977 | 1966 | 1976 | 1987 |
| 67 | 09035500 | Williams Fork below Steelman Creek | 2.67 | 7.45 | 7.49 | 8.48 | 9.76 | 2002 | 1981 | 1976 | 1966 | 1977 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 14.2 | 28.0 | 30.0 | 30.0 | 31.4 | 2002 | 1966 | 1976 | 1981 | 1977 |
| 69 | 09035800 | Darling Creek near Leal | 6.03 | 8.62 | 9.54 | 10.2 | 10.5 | 2002 | 1977 | 1966 | 1981 | 1989 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 20.9 | 31.5 | 32.6 | 36.3 | 40.0 | 2002 | 1977 | 1966 | 1981 | 1987 |
| 71 | 09036000 | Williams Fork near Leal | 50.4 | 68.5 | 70.5 | 88.8 | 88.8 | 2002 | 1954 | 1963 | 1977 | 1966 |
| 72 | 09037500 | Williams Fork near Parshall | 38.9 | 39.7 | 44.9 | 50.7 | 53.1 | 1963 | 2002 | 1954 | 1977 | 1966 |
| 73 | 09046600 | Blue River near Dillon | 45.5 | 65 | 73.9 | 79.9 | 80.3 | 2002 | 1963 | 1966 | 1977 | 1981 |
| 74 | 09047500 | Snake River near Montezuma | 33.6 | 55.1 | 55.8 | 57.0 | 60.2 | 2002 | 1966 | 1977 | 1954 | 1981 |
| 75 | 09047700 | Keystone Gulch near Dillon | 2.28 | 3.92 | 4.02 | 4.17 | 4.39 | 2002 | 1963 | 1981 | 1966 | 1977 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 73.4 | 78.9 | 90.0 | 95.1 | 111 | 2002 | 1977 | 1966 | 1963 | 1981 |
| 77 | 09058000 | Colorado River near Kremmling | 575 | 612 | 689 | 706 | 758 | 2002 | 1963 | 1966 | 1981 | 1977 |
| 78 | 09058610 | Dickson Creek near Vail | .87 | 1.39 | 1.57 | 1.7 | 1.71 | 1977 | 1989 | 1981 | 1988 | 1987 |
| 79 | 09058700 | Freeman Creek near Minturn | .47 | .62 | .75 | 1.03 | 1.20 | 1977 | 1981 | 2002 | 1990 | 1987 |

Appendix 4. Five lowest historical 180-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 180-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 180-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 80 | 09058800 | East Meadow Creek near Minturn | 3.02 | 3.02 | 4.61 | 4.63 | 4.81 | 1977 | 2002 | 1994 | 1981 | 1989 |
| 81 | 09059500 | Piney River near State Bridge | 44.0 | 49.5 | 57.9 | 62.9 | 81.1 | 1977 | 1954 | 2002 | 1963 | 1981 |
| 82 | 09063000 | Eagle River at Red Cliff | 20.2 | 25.2 | 29.2 | 30.2 | 37.3 | 2002 | 1981 | 1977 | 1954 | 1963 |
| 83 | 09063200 | Wearymen Creek near Red Cliff | 5.08 | 5.87 | 8.11 | 8.47 | 9.34 | 2002 | 1977 | 1981 | 1966 | 1988 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 15.3 | 15.9 | 18.8 | 20.7 | 23.7 | 2002 | 1977 | 1981 | 1966 | 1994 |
| 85 | 09063900 | Missouri Creek near Gold Park | 6.69 | 7.94 | 9.03 | 9.15 | 9.37 | 2002 | 1977 | 1994 | 1987 | 2001 |
| 86 | 09064000 | Homestake Creek at Gold Park | 23.3 | 24.9 | 27.4 | 29.6 | 29.7 | 2002 | 1977 | 1981 | 1974 | 1988 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 31.6 | 33.9 | 38.8 | 39.7 | 48.9 | 2002 | 1977 | 1990 | 1981 | 1989 |
| 88 | 09065100 | Cross Creek near Minturn | 45.4 | 48.4 | 70.8 | 74.1 | 74.3 | 2002 | 1977 | 1963 | 1989 | 1990 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 24.3 | 31.8 | 32.0 | 32.0 | 39.3 | 2002 | 1977 | 1966 | 1954 | 1981 |
| 90 | 09066000 | Black Gore Creek near Minturn | 12.8 | 14.4 | 15.9 | 16.9 | 18 | 2002 | 1954 | 1977 | 1966 | 1981 |
| 91 | 09066100 | Bighorn Creek near Minturn | 8.31 | 9.00 | 10.5 | 12.5 | 12.8 | 2002 | 1966 | 1977 | 1969 | 1964 |
| 92 | 09066150 | Pitkin Creek near Minturn | 9.81 | 12.3 | 12.7 | 13.5 | 14.6 | 2002 | 1989 | 1977 | 1987 | 1994 |
| 93 | 09066200 | Booth Creek near Minturn | 10.3 | 12.1 | 12.3 | 14.2 | 15.0 | 2002 | 1966 | 1977 | 1994 | 1989 |
| 94 | 09066300 | Middle Creek near Minturn | 3.97 | 4.69 | 5.75 | 5.83 | 6.36 | 2002 | 1977 | 1989 | 1966 | 1990 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | 6.10 | 7.95 | 9.39 | 9.97 | 11.1 | 2002 | 1977 | 1987 | 1966 | 1989 |
| 96 | 09067000 | Beaver Creek at Avon | 7.70 | 8.94 | 14.3 | 14.8 | 15.6 | 1977 | 2002 | 1981 | 1990 | 1992 |
| 97 | 09070000 | Eagle River below Gypsum | 341 | 355 | 433 | 506 | 512 | 2002 | 1977 | 1954 | 1981 | 1963 |
| 98 | 09070500 | Colorado River near Dotsero | 1,073 | 1,361 | 1,390 | 1,529 | 1,614 | 2002 | 1977 | 1954 | 1963 | 1966 |
| 99 | 09073400 | Roaring Fork River near Aspen | 57.3 | 62.9 | 96.9 | 97.1 | 98.4 | 2002 | 1977 | 1981 | 1966 | 1976 |
| 100 | 09074000 | Hunter Creek near Aspen | 23.9 | 40.7 | 45.1 | 47.0 | 49.5 | 2002 | 1977 | 2001 | 1994 | 1989 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 169 | 224 | 321 | 336 | 340 | 1977 | 2002 | 1981 | 1963 | 1990 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 533 | 676 | 936 | 1,005 | 1,008 | 1977 | 2002 | 1954 | 1934 | 1981 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 1,830 | 1,941 | 2,677 | 2,970 | 3,177 | 2002 | 1977 | 1981 | 1990 | 1992 |
| 104 | 09089500 | West Divide Creek near Raven | 6.46 | 14.9 | 17.1 | 27.0 | 29.2 | 1977 | 2002 | 1963 | 1990 | 1967 |
| 105 | 09095500 | Colorado River near Cameo | 2,013 | 2,120 | 2,748 | 2,796 | 2,867 | 2002 | 1977 | 1954 | 1981 | 1963 |
| 106 | 09105000 | Plateau Creek near Cameo | 29.0 | 34.3 | 51.8 | 69.8 | 99.2 | 1977 | 2002 | 1990 | 1963 | 1989 |
| 107 | 09110000 | Taylor River at Almont | 210 | 212 | 216 | 247 | 252 | 1977 | 1931 | 2002 | 1934 | 1981 |
| 108 | 09112500 | East River at Almont | 155 | 201 | 253 | 285 | 315 | 1977 | 2002 | 1981 | 1954 | 1990 |
| 109 | 09114500 | Gunnison River near Gunnison | 309 | 358 | 490 | 587 | 616 | 1977 | 2002 | 1981 | 1954 | 1990 |
| 110 | 09115500 | Tomichi Creek at Sargents | 16.7 | 28.2 | 37.0 | 43.0 | 43.5 | 2002 | 1954 | 1967 | 1940 | 1955 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 30.2 | 49.6 | 61.8 | 68.4 | 77.5 | 2002 | 1977 | 1954 | 1981 | 1940 |
| 112 | 09124500 | Lake Fork at Gateview | 117 | 139 | 217 | 232 | 237 | 2002 | 1977 | 1981 | 1954 | 1967 |
| 113 | 09126000 | Cimarron River near Cimarron | 68.6 | 74.7 | 77.3 | 86.9 | 100 | 1977 | 2002 | 1981 | 1967 | 1963 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 174 | 269 | 290 | 333 | 383 | 1977 | 2002 | 1934 | 1954 | 1990 |
| 115 | 09134000 | Minnesota Creek near Paonia | 8.40 | 13.2 | 16.8 | 17.6 | 21.8 | 2002 | 1990 | 2001 | 2000 | 1989 |
| 116 | 09143000 | Surface Creek near Cedaredge | 17.2 | 42.9 | 43.1 | 45.1 | 45.3 | 1977 | 1990 | 1963 | 1981 | 2001 |
| 117 | 09143500 | Surface Creek at Cedaredge | 12.5 | 18.4 | 19.3 | 26.0 | 27.1 | 1977 | 2002 | 1934 | 1990 | 1946 |
| 118 | 09144250 | Gunnison River at Delta | 331 | 628 | 639 | 739 | 962 | 1977 | 2002 | 1990 | 1981 | 1989 |
| 119 | 09146200 | Uncompahgre River near Ridgway | 102 | 103 | 167 | 173 | 178 | 2002 | 1977 | 1989 | 1972 | 1981 |

Appendix 4. Five lowest historical 180-day snowmelt streamflows during April–September for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through September 30, 2002; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 180-day snowmelt streamflows during April–September, in cubic feet per second | | | | | Years in which the 180-day snowmelt streamflows listed to the left were recorded | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 120 | 09147000 | Dallas Creek near Ridgway | 9.76 | 13.2 | 13.4 | 17.8 | 20.0 | 2002 | 1990 | 1989 | 1967 | 1963 |
| 121 | 09147500 | Uncompahgre River at Colona | 114 | 150 | 165 | 170 | 170 | 1977 | 2002 | 1954 | 1989 | 1988 |
| 122 | 09149500 | Uncompahgre River at Delta | 115 | 143 | 170 | 177 | 178 | 2002 | 1977 | 1956 | 1951 | 1954 |
| 123 | 09152500 | Gunnison River near Grand Junction | 619 | 834 | 948 | 983 | 1,078 | 1977 | 1934 | 1954 | 2002 | 1931 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 1,955 | 2,190 | 3,203 | 3,730 | 3,750 | 1977 | 2002 | 1954 | 1990 | 1981 |
| 125 | 09165000 | Dolores River below Rico | 53.7 | 60.5 | 110 | 143 | 145 | 2002 | 1977 | 1959 | 1974 | 1972 |
| 126 | 09166500 | Dolores River at Dolores | 132 | 153 | 219 | 276 | 307 | 1977 | 2002 | 1934 | 1959 | 1931 |
| 127 | 09169500 | Dolores River at Bedrock | 17.1 | 37.5 | 43.1 | 63.9 | 100 | 2002 | 1990 | 1977 | 1996 | 2001 |
| 128 | 09171100 | Dolores River near Bedrock | 15.5 | 37.5 | 67.4 | 87.0 | 97.1 | 2002 | 1990 | 1996 | 1977 | 2001 |
| 129 | 09172500 | San Miguel River near Placerville | 120 | 126 | 184 | 204 | 209 | 2002 | 1977 | 1934 | 1931 | 1951 |
| 130 | 09177000 | San Miguel River at Uravan | 82.7 | 112 | 224 | 232 | 238 | 2002 | 1977 | 1990 | 1959 | 1989 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 243 | 265 | 268 | 343 | 407 | 1934 | 2002 | 1977 | 1954 | 1966 |
| 132 | 09241000 | Elk River at Clark | 200 | 253 | 306 | 314 | 326 | 1977 | 2002 | 1934 | 1981 | 1987 |
| 133 | 09251000 | Yampa River near Maybell | 756 | 779 | 786 | 1,207 | 1,320 | 1977 | 2002 | 1934 | 1954 | 1981 |
| 134 | 09253000 | Little Snake River near Slater | 145 | 151 | 185 | 195 | 205 | 2002 | 1977 | 1954 | 1992 | 1987 |
| 135 | 09255000 | Slater Fork near Slater | 29.1 | 30.5 | 44.5 | 50.0 | 58.1 | 1977 | 1934 | 2002 | 1992 | 1961 |
| 136 | 09260000 | Little Snake River near Lily | 166 | 223 | 234 | 346 | 371 | 1934 | 1977 | 2002 | 1992 | 1961 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 192 | 193 | 329 | 343 | 415 | 1977 | 2002 | 1994 | 1990 | 1981 |
| 138 | 09304500 | White River near Meeker | 277 | 291 | 353 | 418 | 439 | 1977 | 2002 | 1934 | 1994 | 1990 |
| 139 | 09304800 | White River below Meeker | 275 | 301 | 446 | 473 | 487 | 1977 | 2002 | 1994 | 1990 | 1966 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 5.03 | 5.33 | 6.43 | 7.55 | 7.91 | 1967 | 1972 | 1966 | 2002 | 1990 |
| 141 | 09306222 | Piceance Creek at White River | 3.26 | 3.78 | 4.54 | 5.69 | 6.04 | 1972 | 1966 | 1990 | 2002 | 1971 |
| 142 | 09306242 | Corral Gulch near Rangely | .23 | .31 | .37 | .38 | .40 | 1992 | 1991 | 2002 | 1977 | 1990 |
| 143 | 09306255 | Yellow Creek near White River | 1.12 | 1.17 | 1.37 | 1.38 | 1.58 | 1976 | 1977 | 1975 | 1981 | 1982 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 24.8 | 52.7 | 69.4 | 73.2 | 80.8 | 2002 | 1977 | 2000 | 1959 | 1972 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 72.5 | 176 | 263 | 280 | 287 | 2002 | 1977 | 1959 | 2000 | 1946 |
| 146 | 09346400 | San Juan River near Carracas | 116 | 285 | 364 | 385 | 404 | 2002 | 1977 | 2000 | 1972 | 1996 |
| 147 | 09349800 | Piedra River near Arboles | 57.6 | 129 | 226 | 236 | 283 | 2002 | 1977 | 1996 | 1974 | 1972 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 70.7 | 105 | 149 | 162 | 164 | 2002 | 1977 | 1974 | 2000 | 1996 |
| 149 | 09354500 | Los Pinos River at La Boca | 32.4 | 65.0 | 68.7 | 86 | 99.6 | 2002 | 1951 | 1977 | 1959 | 1953 |
| 150 | 09361500 | Animas River at Durango | 305 | 422 | 501 | 629 | 681 | 2002 | 1977 | 1934 | 1931 | 1959 |
| 151 | 09365500 | La Plata River at Hesperus | 12.2 | 14.1 | 24.7 | 27.3 | 29.7 | 2002 | 1977 | 1972 | 1934 | 1959 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 4.12 | 6.38 | 10.5 | 13.0 | 13.4 | 2002 | 1977 | 1934 | 1972 | 1974 |
| 153 | 09371000 | Mancos River near Towaoc | 1.75 | 2.38 | 2.48 | 3.32 | 3.41 | 2002 | 1972 | 1959 | 1974 | 1951 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 5.34 | 5.80 | 12.8 | 18.1 | 24.0 | 2002 | 1977 | 1959 | 1951 | 1974 |

Appendix 5. Estimated 180-day snowmelt streamflows during April–September for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado.

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day snowmelt streamflows during April–September for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-----------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 | 0.02 | 0.05 | 0.10 | 2002 | | 1977 | |
| | | | NonexP; 100-year RI | NonexP; 50-year RI | NonexP; 20-year RI | NonexP; 10-year RI | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 1 | 06614800 | Michigan River near Cameron Pass | 2.82 | 3.1 | 3.47 | 3.87 | 2.87 | >50, but <=100 | 3.64 | >10, but <=20 |
| 2 | 06620000 | North Platte River near Northgate | 88.9 | 124 | 178 | 247 | 105 | >50, but <=100 | 176 | >20, but <=50 |
| 3 | ¹ 06707500 | South Platte River at South Platte | 302 | 314 | 336 | 360 | 529 | <=10 | 437 | <=10 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | 3.08 | 4.49 | 6.58 | 9.82 | 3.74 | >50, but <=100 | 34.9 | <=10 |
| 5 | 06710500 | Bear Creek at Morrison | 10.4 | 14 | 19.4 | 26.6 | 9.75 | >100 | 41.3 | <=10 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 4.29 | 6.35 | 10.4 | 16.2 | 4.9 | >50, but <=100 | 22.8 | <=10 |
| 7 | 06712000 | Cherry Creek near Franktown | 2.76 | 2.99 | 3.44 | 4 | 6.74 | <=10 | 4.87 | <=10 |
| 8 | 06714000 | South Platte River at Denver | 106 | 123 | 156 | 194 | 111 | >50, but <=100 | 211 | <=10 |
| 9 | 06716500 | Clear Creek near Lawson | 72.7 | 91.1 | 117 | 145 | 83.7 | >50, but <=100 | 131 | >10, but <=20 |
| 10 | 06719505 | Clear Creek at Golden | 103 | 124 | 150 | 181 | 99.63 | >100 | 167 | >10, but <=20 |
| 11 | 06720500 | South Platte River at Henderson | 202 | 226 | 268 | 317 | 235 | >20, but <=50 | 303 | >10, but <=20 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 50.6 | 57.4 | 69.5 | 82.8 | 58.8 | >20, but <=50 | 70.1 | >10, but <=20 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | 4.29 | 7.1 | 11.9 | 19.4 | 4.45 | >50, but <=100 | -- | -- |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 55.4 | 62 | 73.3 | 85.4 | 65.9 | >20, but <=50 | 59.2 | >50, but <=100 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | 6.85 | 7.79 | 9.11 | 10.5 | 7.27 | >50, but <=100 | -- | -- |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 151 | 182 | 233 | 290 | 146 | >100 | 232 | >20, but <=50 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 41.9 | 48.3 | 60.9 | 76.3 | 56.2 | >20, but <=50 | 81.5 | <=10 |
| 18 | 06754000 | South Platte River near Kersey | 151 | 189 | 266 | 361 | 146 | >100 | 299 | >10, but <=20 |
| 19 | 06758500 | South Platte River near Weldona | 124 | 148 | 196 | 257 | 150 | >20, but <=50 | 190 | >20, but <=50 |
| 20 | 06764000 | South Platte River at Julesburg | 23.2 | 32.5 | 54.3 | 85.7 | 39.1 | >20, but <=50 | 131 | <=10 |
| 21 | 07081200 | Arkansas River near Leadville | 32.6 | 41.4 | 54.2 | 68.6 | 41.3 | >50, but <=100 | 52.2 | >20, but <=50 |
| 22 | 07083000 | Halfmoon Creek near Malta | 18.8 | 22.3 | 26.9 | 31.9 | 18.6 | >100 | 24.1 | >20, but <=50 |
| 23 | 07086000 | Arkansas River at Granite | 180 | 230 | 300 | 380 | 178 | >100 | 281 | >20, but <=50 |
| 24 | ¹ 07091200 | Arkansas River near Nathrop | 250 | 315 | 416 | 525 | 300 | >50, but <=100 | 365 | >20, but <=50 |
| 25 | 07093700 | Arkansas River near Wellsville | 274 | 339 | 451 | 568 | 305 | >50, but <=100 | 369 | >20, but <=50 |
| 26 | 07094500 | Arkansas River at Parkdale | 299 | 379 | 495 | 625 | 327 | >50, but <=100 | 393 | >20, but <=50 |
| 27 | 07096000 | Arkansas River at Canon City | 200 | 269 | 375 | 501 | 220 | >50, but <=100 | 289 | >20, but <=50 |
| 28 | 07097000 | Arkansas River at Portland | 178 | 249 | 362 | 500 | 207 | >50, but <=100 | 277 | >20, but <=50 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 4.13 | 4.81 | 6.14 | 7.72 | 5.00 | >20, but <=50 | 10.3 | <=10 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .15 | .19 | .27 | .38 | .33 | >10, but <=20 | 1.22 | <=10 |
| 31 | 07104000 | Monument Creek at Pikeview | 8.22 | 9.65 | 12.4 | 15.5 | 16.4 | <=10 | 19.4 | <=10 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 18.8 | 21.5 | 26.9 | 33.1 | 28.3 | >10, but <=20 | 42.1 | <=10 |
| 33 | 07105800 | Fountain Creek at Security | 37.3 | 42.6 | 52.4 | 63.5 | 98.6 | <=10 | 60.4 | >10, but <=20 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | .87 | .97 | 1.15 | 1.35 | 1.15 | >10, but <=20 | 1.69 | <=10 |
| 35 | 07106300 | Fountain Creek near Pinon | 15.9 | 19.9 | 27.9 | 37.8 | 60.8 | <=10 | 44.8 | <=10 |

Appendix 5. Estimated 180-day snowmelt streamflows during April–September for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado. —Continued

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day snowmelt streamflows during April–September for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-----------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 | 0.02 | 0.05 | 0.10 | 2002 | | 1977 | |
| | | | NonexP; 100-year RI | NonexP; 50-year RI | NonexP; 20-year RI | NonexP; 10-year RI | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 36 | 07106500 | Fountain Creek at Pueblo | 15.3 | 19.3 | 27.4 | 37.6 | 57.8 | <=10 | 47.3 | <=10 |
| 37 | 07108900 | St. Charles River at Vineland | 2.10 | 3.56 | 6.63 | 11.4 | 3.66 | >20, but <=50 | -- | -- |
| 38 | 07109500 | Arkansas River near Avondale | 300 | 395 | 533 | 696 | 306 | >50, but <=100 | 478 | >20, but <=50 |
| 39 | 07119500 | Apishapa River near Fowler | 3.03 | 4.35 | 6.39 | 9.09 | 5.34 | >20, but <=50 | 30.1 | <=10 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 161 | 220 | 324 | 448 | 159 | >100 | 343 | >10, but <=20 |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 14.0 | 18.1 | 25.7 | 34.1 | 15.9 | >50, but <=100 | 43.3 | <=10 |
| 42 | 07123000 | Arkansas River at La Junta | 22.9 | 34.0 | 58.4 | 91.4 | 18.4 | >100 | 97.6 | <=10 |
| 43 | 07124000 | Arkansas River at Las Animas | 19.4 | 29.6 | 46.8 | 72.4 | 17.1 | >100 | 73.9 | <=10 |
| 44 | 07124200 | Purgatoire River at Madrid | 11.3 | 16.6 | 25.7 | 37.6 | 12.3 | >50, but <=100 | 41.7 | <=10 |
| 45 | 07126300 | Purgatoire River near Thatcher | 5.75 | 8.77 | 13.1 | 19.7 | 21.2 | <=10 | 69.9 | <=10 |
| 46 | 07128500 | Purgatoire River near Las Animas | 4.67 | 7.43 | 12.1 | 19.0 | 25.1 | <=10 | 95.1 | <=10 |
| 47 | 07133000 | Arkansas River at Lamar | 34.1 | 40.1 | 51.7 | 65.6 | 78.4 | <=10 | 90.6 | <=10 |
| 48 | 07134100 | Big Sandy Creek near Lamar | 1.52 | 1.88 | 2.60 | 3.51 | 5.71 | <=10 | 7.29 | <=10 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 57.2 | 77.0 | 114 | 157 | 67.0 | >50, but <=100 | 110 | >20, but <=50 |
| 50 | 08220000 | Rio Grande near Del Norte | 258 | 353 | 502 | 681 | 268 | >50, but <=100 | 456 | >20, but <=50 |
| 51 | ¹ 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | 2.96 | 4.02 | 5.47 | 7.36 | 2.72 | >100 | 9.72 | <=10 |
| 52 | 08227000 | Saguache Creek near Saguache | 17.2 | 22.2 | 30.0 | 38.9 | 21.1 | >50, but <=100 | 35.3 | >10, but <=20 |
| 53 | ¹ 08231000 | La Garita Creek near La Garita | 2.46 | 3.30 | 4.34 | 5.82 | 3.24 | >50, but <=100 | 6.80 | <=10 |
| 54 | ¹ 08242500 | Ute Creek near Fort Garland | 2.37 | 3.44 | 5.47 | 8.10 | 2.68 | >50, but <=100 | 11.5 | <=10 |
| 55 | 08246500 | Conejos River near Mogote | 107 | 144 | 203 | 271 | 115 | >50, but <=100 | 170 | >20, but <=50 |
| 56 | 08247500 | San Antonio River at Ortiz | 1.47 | 2.58 | 5.19 | 9.21 | 1.71 | >50, but <=100 | 5.18 | >20, but <=50 |
| 57 | 08248000 | Los Pinos River near Ortiz | 21.7 | 31.7 | 51.5 | 76.0 | 23.8 | >50, but <=100 | 46.4 | >20, but <=50 |
| 58 | 08249000 | Conejos River near Lasauses | .20 | .67 | 3.16 | 10.7 | .29 | >50, but <=100 | 1.98 | >20, but <=50 |
| 59 | ¹ 08250000 | Culebra Creek at San Luis | 25.6 | 29.2 | 33.5 | 38.3 | 55.8 | <=10 | 29.2 | >20, but <=50 |
| 60 | 08251500 | Rio Grande near Lobatos | 15.7 | 26.7 | 52.8 | 94.1 | 27.3 | >20, but <=50 | 42.3 | >20, but <=50 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 38.1 | 44.3 | 53.5 | 63.5 | 42.3 | >50, but <=100 | 61.6 | >10, but <=20 |
| 62 | 09024000 | Fraser River at Winter Park | 5.84 | 6.96 | 9.07 | 11.5 | 8.30 | >20, but <=50 | 8.94 | >20, but <=50 |
| 63 | 09025000 | Vasquez Creek at Winter Park | 4.54 | 5.20 | 6.46 | 7.92 | 6.74 | >10, but <=20 | 6.35 | >20, but <=50 |
| 64 | 09026500 | St. Louis Creek near Fraser | 9.72 | 10.8 | 13.6 | 16.4 | 9.88 | >50, but <=100 | 19.8 | <=10 |
| 65 | 09032000 | Ranch Creek near Fraser | 2.42 | 3.16 | 4.53 | 6.24 | 2.93 | >50, but <=100 | 6.94 | <=10 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | 8.46 | 9.61 | 11.5 | 13.2 | 8.13 | >100 | 11.6 | >10, but <=20 |
| 67 | 09035500 | Williams Fork below Steelman Creek | 2.32 | 3.76 | 7.08 | 11.6 | 2.67 | >50, but <=100 | 9.76 | >10, but <=20 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 14.3 | 18.8 | 25.5 | 33.4 | 14.2 | >100 | 31.4 | >10, but <=20 |
| 69 | 09035800 | Darling Creek near Leal | 6.43 | 7.29 | 8.42 | 9.69 | 6.03 | >100 | 8.62 | >10, but <=20 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 22.1 | 25.7 | 30.5 | 35.7 | 20.9 | >100 | 31.5 | >10, but <=20 |

Appendix 5. Estimated 180-day snowmelt streamflows during April–September for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado. —Continued

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day snowmelt streamflows during April–September for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 | 0.02 | 0.05 | 0.10 | 2002 | | 1977 | |
| | | | NonexP; 100-year RI | NonexP; 50-year RI | NonexP; 20-year RI | NonexP; 10-year RI | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 71 | 09036000 | Williams Fork near Leal | 53.8 | 64.3 | 81.4 | 99.16 | 50.4 | >100 | 88.0 | >10, but <=20 |
| 72 | 09037500 | Williams Fork near Parshall | 36.0 | 44.2 | 58.9 | 75.5 | 39.7 | >50, but <=100 | 50.7 | >20, but <=50 |
| 73 | 09046600 | Blue River near Dillon | 48.5 | 58.3 | 73.2 | 89.2 | 45.5 | >100 | 79.9 | >10, but <=20 |
| 74 | 09047500 | Snake River near Montezuma | 34.6 | 42.4 | 54.3 | 66.7 | 33.6 | >100 | 55.8 | >10, but <=20 |
| 75 | 09047700 | Keystone Gulch near Dillon | 2.39 | 3.02 | 3.89 | 4.92 | 2.28 | >100 | 4.39 | >10, but <=20 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 67.4 | 79.9 | 95.3 | 113 | 73.4 | >50, but <=100 | 78.9 | >50, but <=100 |
| 77 | 09058000 | Colorado River near Kremmling | 505 | 556 | 644 | 742 | 575 | >20, but <=50 | 758 | <=10 |
| 78 | 09058610 | Dickson Creek near Vail | .75 | .97 | 1.29 | 1.69 | 1.88 | <=10 | .87 | >50, but <=100 |
| 79 | 09058700 | Freeman Creek near Minturn | .38 | .50 | .70 | .95 | .75 | >10, but <=20 | .47 | >50, but <=100 |
| 80 | 09058800 | East Meadow Creek near Minturn | 2.54 | 2.99 | 3.62 | 4.32 | 3.02 | >20, but <=50 | 3.02 | >20, but <=50 |
| 81 | 09059500 | Piney River near State Bridge | 40.8 | 49.4 | 62.0 | 75.9 | 57.9 | >20, but <=50 | 44.0 | >50, but <=100 |
| 82 | 09063000 | Eagle River at Red Cliff | 18.0 | 22.4 | 27.9 | 34.6 | 20.2 | >50, but <=100 | 29.2 | >10, but <=20 |
| 83 | 09063200 | Wearyman Creek near Red Cliff | 4.60 | 5.40 | 6.67 | 8.04 | 5.08 | >50, but <=100 | 5.87 | >20, but <=50 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 12.7 | 14.9 | 17.9 | 21.3 | 15.3 | >20, but <=50 | 15.9 | >20, but <=50 |
| 85 | 09063900 | Missouri Creek near Gold Park | 7.50 | 7.69 | 8.09 | 8.58 | 6.69 | >100 | 7.94 | >20, but <=50 |
| 86 | 09064000 | Homestake Creek at Gold Park | 22.7 | 23.5 | 25.2 | 27.1 | 23.3 | >50, but <=100 | 24.9 | >20, but <=50 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 28.7 | 31.2 | 35.7 | 40.5 | 31.6 | >20, but <=50 | 33.9 | >20, but <=50 |
| 88 | 09065100 | Cross Creek near Minturn | 41.8 | 47.8 | 56.0 | 64.6 | 45.4 | >50, but <=100 | 48.4 | >20, but <=50 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 24.5 | 27.6 | 32.4 | 37.2 | 24.3 | >100 | 31.8 | >20, but <=50 |
| 90 | 09066000 | Black Gore Creek near Minturn | 11.4 | 13.1 | 15.7 | 18.4 | 12.8 | >50, but <=100 | 15.9 | >10, but <=20 |
| 91 | 09066100 | Bighorn Creek near Minturn | 8.64 | 9.71 | 11.1 | 12.5 | 8.31 | >100 | 10.5 | >20, but <=50 |
| 92 | 09066150 | Pitkin Creek near Minturn | 9.10 | 10.0 | 11.5 | 13.1 | 9.81 | >50, but <=100 | 12.7 | >10, but <=20 |
| 93 | 09066200 | Booth Creek near Minturn | 9.79 | 11.2 | 12.8 | 14.6 | 10.3 | >50, but <=100 | 12.3 | >20, but <=50 |
| 94 | 09066300 | Middle Creek near Minturn | 3.38 | 4.02 | 4.89 | 5.88 | 3.97 | >50, but <=100 | 4.69 | >20, but <=50 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | 5.61 | 6.76 | 8.23 | 9.89 | 6.10 | >50, but <=100 | 7.95 | >20, but <=50 |
| 96 | 09067000 | Beaver Creek at Avon | 6.84 | 8.17 | 10.4 | 12.7 | 8.94 | >20, but <=50 | 7.70 | >50, but <=100 |
| 97 | 09070000 | Eagle River below Gypsum | 296 | 351 | 431 | 518 | 341 | >50, but <=100 | 355 | >20, but <=50 |
| 98 | 09070500 | Colorado River near Dotsero | 990 | 1,163 | 1,379 | 1,638 | 1,073 | >50, but <=100 | 1,361 | >20, but <=50 |
| 99 | 09073400 | Roaring Fork River near Aspen | 54.8 | 61.3 | 72.8 | 85.0 | 57.3 | >50, but <=100 | 62.9 | >20, but <=50 |
| 100 | 09074000 | Hunter Creek near Aspen | 23.8 | 29.1 | 35.5 | 43.1 | 23.9 | >50, but <=100 | 40.7 | >10, but <=20 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 162 | 200 | 247 | 302 | 224 | >20, but <=50 | 169 | >50, but <=100 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 488 | 605 | 761 | 945 | 676 | >20, but <=50 | 533 | >50, but <=100 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 1,555 | 1,880 | 2,245 | 2,699 | 1,830 | >50, but <=100 | 1,941 | >20, but <=50 |
| 104 | 09089500 | West Divide Creek near Raven | 6.41 | 9.77 | 16.1 | 24.5 | 14.9 | >20, but <=50 | 6.46 | >50, but <=100 |
| 105 | 09095500 | Colorado River near Cameo | 1,679 | 2,002 | 2,422 | 2,921 | 2,013 | >20, but <=50 | 2,120 | >20, but <=50 |

Appendix 5. Estimated 180-day snowmelt streamflows during April–September for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado. —Continued

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day snowmelt streamflows during April–September for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-----------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 | 0.02 | 0.05 | 0.10 | 2002 | | 1977 | |
| | | | NonexP; 100-year RI | NonexP; 50-year RI | NonexP; 20-year RI | NonexP; 10-year RI | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 106 | 09105000 | Plateau Creek near Cameo | 19.7 | 29.4 | 44.3 | 66.3 | 34.3 | >20, but <=50 | 29.0 | >50, but <=100 |
| 107 | 09110000 | Taylor River at Almont | 184 | 204 | 236 | 270 | 216 | >20, but <=50 | 210 | >20, but <=50 |
| 108 | 09112500 | East River at Almont | 137 | 174 | 227 | 288 | 201 | >20, but <=50 | 155 | >50, but <=100 |
| 109 | 09114500 | Gunnison River near Gunnison | 267 | 336 | 438 | 556 | 358 | >20, but <=50 | 309 | >50, but <=100 |
| 110 | ¹ 09115500 | Tomichi Creek at Sargents | 17.5 | 23.3 | 30.9 | 40.6 | 16.7 | >100 | -- | -- |
| 111 | 09119000 | Tomichi Creek at Gunnison | 27.5 | 38.1 | 59.2 | 85.1 | 30.2 | >50, but <=100 | 49.6 | >20, but <=50 |
| 112 | 09124500 | Lake Fork at Gateview | 105 | 132 | 172 | 216 | 117 | >50, but <=100 | 139 | >20, but <=50 |
| 113 | 09126000 | Cimarron River near Cimarron | 56.3 | 67.9 | 80.7 | 96.49 | 74.7 | >20, but <=50 | 68.6 | >20, but <=50 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 162 | 213 | 289 | 381 | 269 | >20, but <=50 | 174 | >50, but <=100 |
| 115 | 09134000 | Minnesota Creek near Paonia | 6.41 | 8.27 | 10.3 | 13.2 | 8.40 | >20, but <=50 | -- | -- |
| 116 | 09143000 | Surface Creek near Cedaredge | 18.2 | 23.7 | 31.8 | 41.2 | -- | -- | 17.2 | >100 |
| 117 | 09143500 | Surface Creek at Cedaredge | 11.8 | 15.0 | 18.9 | 23.9 | 18.4 | >20, but <=50 | 12.5 | >50, but <=100 |
| 118 | 09144250 | Gunnison River at Delta | 254 | 348 | 518 | 735 | 628 | >10, but <=20 | 331 | >50, but <=100 |
| 119 | 09146200 | Uncompahgre River near Ridgway | 87.1 | 105 | 131 | 159 | 102 | >50, but <=100 | 103 | >50, but <=100 |
| 120 | 09147000 | Dallas Creek near Ridgway | 6.38 | 8.37 | 12.3 | 17.1 | 9.76 | >20, but <=50 | -- | -- |
| 121 | 09147500 | Uncompahgre River at Colona | 94.5 | 117 | 151 | 192 | 150 | >20, but <=50 | 114 | >50, but <=100 |
| 122 | 09149500 | Uncompahgre River at Delta | 105 | 126 | 155 | 190 | 115 | >50, but <=100 | 143 | >20, but <=50 |
| 123 | 09152500 | Gunnison River near Grand Junction | 544 | 706 | 945 | 1,244 | 983 | >10, but <=20 | 619 | >50, but <=100 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 1,598 | 2,002 | 2,739 | 3,576 | 2,190 | >20, but <=50 | 1,955 | >50, but <=100 |
| 125 | 09165000 | Dolores River below Rico | 43.1 | 58.3 | 82.9 | 112 | 53.7 | >50, but <=100 | 60.5 | >20, but <=50 |
| 126 | 09166500 | Dolores River at Dolores | 104 | 147 | 226 | 321 | 153 | >20, but <=50 | 132 | >50, but <=100 |
| 127 | 09169500 | Dolores River at Bedrock | 9.53 | 17.8 | 39.2 | 76.3 | 17.1 | >50, but <=100 | 43.1 | >10, but <=20 |
| 128 | 09171100 | Dolores River near Bedrock | 10.3 | 19.7 | 42.2 | 81.7 | 15.5 | >50, but <=100 | 87.0 | <=10 |
| 129 | 09172500 | San Miguel River near Placerville | 96.7 | 125 | 162 | 208 | 120 | >50, but <=100 | 126 | >20, but <=50 |
| 130 | 09177000 | San Miguel River at Uravan | 63.0 | 88.3 | 139 | 201 | 82.7 | >50, but <=100 | 112 | >20, but <=50 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 209 | 262 | 326 | 405 | 265 | >20, but <=50 | 268 | >20, but <=50 |
| 132 | ¹ 09241000 | Elk River at Clark | 165 | 199 | 247 | 301 | 253 | >10, but <=20 | 200 | >20, but <=50 |
| 133 | 09251000 | Yampa River near Maybell | 572 | 726 | 968 | 1,247 | 779 | >20, but <=50 | 756 | >20, but <=50 |
| 134 | 09253000 | Little Snake River near Slater | 102 | 130 | 166 | 210 | 145 | >20, but <=50 | 151 | >20, but <=50 |
| 135 | 09255000 | Slater Fork near Slater | 23.7 | 31.5 | 44.9 | 60.6 | 44.5 | >20, but <=50 | 29.1 | >50, but <=100 |
| 136 | 09260000 | Little Snake River near Lily | 155 | 212 | 285 | 383 | 234 | >20, but <=50 | 223 | >20, but <=50 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 139 | 184 | 262 | 351 | 193 | >20, but <=50 | 192 | >20, but <=50 |
| 138 | 09304500 | White River near Meeker | 215 | 266 | 353 | 446 | 291 | >20, but <=50 | 277 | >20, but <=50 |
| 139 | 09304800 | White River below Meeker | 224 | 288 | 372 | 473 | 301 | >20, but <=50 | 275 | >50, but <=100 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 3.54 | 4.34 | 5.97 | 8.04 | 7.55 | >10, but <=20 | 7.93 | >10, but <=20 |

Appendix 5. Estimated 180-day snowmelt streamflows during April–September for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado. —Continued

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day snowmelt streamflows during April–September for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day snowmelt streamflows during April–September, 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 | 0.02 | 0.05 | 0.10 | 2002 | | 1977 | |
| | | | NonexP; 100-year RI | NonexP; 50-year RI | NonexP; 20-year RI | NonexP; 10-year RI | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 141 | 09306222 | Piceance Creek at White River | 2.35 | 3.10 | 4.74 | 6.95 | 5.69 | >10, but <=20 | 7.20 | <=10 |
| 142 | 09306242 | Corral Gulch near Rangely | .11 | .15 | .24 | .36 | .37 | <=10 | .38 | <=10 |
| 143 | 09306255 | Yellow Creek near White River | .99 | 1.05 | 1.18 | 1.33 | 2.18 | <=10 | 1.17 | >20, but <=50 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 23.3 | 32.1 | 49.1 | 68.7 | 24.8 | >50, but <=100 | 52.7 | >10, but <=20 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 71.5 | 111 | 178 | 267 | 72.5 | >50, but <=100 | 176 | >20, but <=50 |
| 146 | 09346400 | San Juan River near Carracas | 114 | 164 | 258 | 373 | 116 | >50, but <=100 | 285 | >10, but <=20 |
| 147 | 09349800 | Piedra River near Arboles | 53.3 | 86.0 | 147 | 231 | 57.6 | >50, but <=100 | 129 | >20, but <=50 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 67.9 | 84.9 | 114 | 144 | 70.7 | >50, but <=100 | 105 | >20, but <=50 |
| 149 | 09354500 | Los Pinos River at La Boca | 29.7 | 44.5 | 67.3 | 99.9 | 32.4 | >50, but <=100 | 68.7 | >10, but <=20 |
| 150 | 09361500 | Animas River at Durango | 276 | 361 | 506 | 668 | 305 | >50, but <=100 | 422 | >20, but <=50 |
| 151 | 09365500 | La Plata River at Hesperus | 9.60 | 13.6 | 20.4 | 28.9 | 12.2 | >50, but <=100 | 14.1 | >20, but <=50 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 3.51 | 5.18 | 8.28 | 12.6 | 4.12 | >50, but <=100 | 6.38 | >20, but <=50 |
| 153 | 09371000 | Mancos River near Towaoc | .86 | 1.78 | 4.06 | 8.39 | 1.75 | >50, but <=100 | 4.16 | >10, but <=20 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 3.74 | 6.42 | 12.7 | 21.1 | 5.34 | >50, but <=100 | 5.80 | >50, but <=100 |

¹Data for 1955–2002 were used for the frequency analysis because of missing record during 1973–2002.

Appendix 6. Five lowest historical 7-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded.

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 7-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 7-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 1 | 06614800 | Michigan River near Cameron Pass | 0.14 | 0.15 | 0.16 | 0.16 | 0.16 | 1978 | 1976 | 1980 | 1990 | 1973 |
| 2 | 06620000 | North Platte River near Northgate | 24.1 | 28.1 | 28.6 | 30.0 | 33.4 | 1976 | 1941 | 1934 | 1932 | 1963 |
| 3 | 06707500 | South Platte River at South Platte | 28.3 | 35.1 | 35.9 | 35.9 | 37.3 | 1932 | 1959 | 1935 | 1939 | 1954 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | .00 | .00 | .00 | .00 | .00 | 1958 | 1991 | 1993 | 1994 | 1996 |
| 5 | 06710500 | Bear Creek at Morrison | 2.91 | 3.00 | 3.04 | 4.00 | 4.11 | 2002 | 1932 | 1980 | 1939 | 1949 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | .96 | 1.37 | 2.31 | 2.50 | 2.57 | 1954 | 1956 | 2002 | 1962 | 1944 |
| 7 | 06712000 | Cherry Creek near Franktown | .76 | .80 | .83 | .86 | .86 | 1950 | 1953 | 1952 | 1954 | 1978 |
| 8 | 06714000 | South Platte River at Denver | 14.3 | 21.6 | 27.3 | 27.7 | 28.1 | 1956 | 1902 | 1955 | 1934 | 1950 |
| 9 | 06716500 | Clear Creek near Lawson | 15.0 | 16.4 | 16.4 | 16.7 | 17.4 | 1954 | 1950 | 1962 | 2002 | 1948 |
| 10 | 06719505 | Clear Creek at Golden | 18.6 | 24.0 | 24.0 | 24.6 | 26.4 | 2002 | 1985 | 1994 | 1975 | 1977 |
| 11 | 06720500 | South Platte River at Henderson | 9.93 | 11.7 | 11.8 | 12.6 | 13.3 | 1956 | 1948 | 1962 | 1949 | 1954 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 22.0 | 24.0 | 25.4 | 26.3 | 29.0 | 1990 | 1977 | 1981 | 2002 | 1978 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | .29 | .39 | .39 | .44 | .47 | 1934 | 1952 | 1954 | 1939 | 1953 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | .20 | 5.57 | 8.00 | 9.86 | 9.86 | 1969 | 1978 | 1932 | 1939 | 1975 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | .20 | .20 | .27 | .30 | .35 | 1978 | 1980 | 1981 | 1988 | 1979 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 3.90 | 5.89 | 6.57 | 6.86 | 8.00 | 1938 | 1962 | 1934 | 1959 | 1981 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | .00 | .78 | .98 | 1.23 | 1.30 | 1987 | 1995 | 2002 | 1986 | 1988 |
| 18 | 06754000 | South Platte River near Kersey | 70.9 | 71.1 | 91.4 | 101 | 108 | 1954 | 1934 | 1956 | 1911 | 1939 |
| 19 | 06758500 | South Platte River near Weldona | 55.9 | 57.9 | 59.0 | 63.1 | 63.6 | 1964 | 1963 | 1989 | 1954 | 1955 |
| 20 | 06764000 | South Platte River at Julesburg | 4.20 | 10.3 | 14.0 | 17.1 | 20.6 | 1903 | 1911 | 2002 | 1956 | 1964 |
| 21 | 07081200 | Arkansas River near Leadville | 7.00 | 8.50 | 9.0 | 10.1 | 10.1 | 1977 | 1973 | 1976 | 1975 | 1981 |
| 22 | 07083000 | Halfmoon Creek near Malta | 1.20 | 1.40 | 1.50 | 1.50 | 1.60 | 1947 | 1952 | 1948 | 1976 | 1975 |
| 23 | 07086000 | Arkansas River at Granite | 30.6 | 33.3 | 38.0 | 43.3 | 44.0 | 1917 | 1976 | 1918 | 2002 | 1911 |
| 24 | 07091200 | Arkansas River near Nathrop | 104 | 120 | 126 | 140 | 153 | 1976 | 1972 | 1977 | 1978 | 1980 |
| 25 | 07093700 | Arkansas River near Wellsville | 147 | 164 | 166 | 178 | 187 | 1962 | 1988 | 1977 | 1976 | 2002 |
| 26 | 07094500 | Arkansas River at Parkdale | 204 | 223 | 244 | 245 | 245 | 1977 | 1976 | 1970 | 1953 | 1951 |
| 27 | 07096000 | Arkansas River at Canon City | 104 | 118 | 119 | 120 | 121 | 1934 | 2002 | 1977 | 1939 | 1903 |
| 28 | 07097000 | Arkansas River at Portland | 76.1 | 120 | 127 | 131 | 148 | 1977 | 1944 | 2002 | 1976 | 1939 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 2.99 | 3.13 | 3.24 | 3.26 | 3.29 | 1964 | 1972 | 1970 | 1975 | 1989 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .00 | .00 | .00 | .00 | .00 | 1975 | 1990 | 1991 | 1992 | 1993 |
| 31 | 07104000 | Monument Creek at Pikeview | 1.27 | 1.30 | 1.41 | 2.40 | 2.46 | 1939 | 1978 | 1938 | 1944 | 1976 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 3.33 | 7.54 | 8.00 | 8.09 | 10.9 | 1978 | 1977 | 1979 | 1993 | 1989 |
| 33 | 07105800 | Fountain Creek at Security | 4.24 | 7.67 | 9.11 | 10.1 | 11.3 | 1964 | 1971 | 1975 | 1978 | 1976 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | .22 | .51 | .60 | .63 | .73 | 1989 | 1984 | 1977 | 1990 | 1987 |
| 35 | 07106300 | Fountain Creek near Pinon | .00 | .00 | .00 | .00 | .00 | 1974 | 1975 | 1977 | 1978 | 1979 |
| 36 | 07106500 | Fountain Creek at Pueblo | .34 | .36 | .40 | .40 | .46 | 1975 | 1979 | 1951 | 1978 | 1949 |
| 37 | 07108900 | St. Charles River at Vineland | 0.20 | 0.20 | 0.20 | 0.57 | 0.64 | 1943 | 1951 | 1952 | 1944 | 1945 |
| 38 | 07109500 | Arkansas River near Avondale | 118 | 133 | 140 | 144 | 150 | 1978 | 1939 | 2002 | 1940 | 1950 |
| 39 | 07119500 | Apishapa River near Fowler | .16 | .60 | .77 | .80 | .96 | 1950 | 1939 | 1964 | 1956 | 1954 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 24.4 | 39.6 | 46.4 | 53.9 | 66.0 | 2002 | 2001 | 1978 | 1966 | 1990 |

Appendix 6. Five lowest historical 7-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 7-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 7-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 5.73 | 6.00 | 6.89 | 7.13 | 9.44 | 1978 | 1974 | 2002 | 1979 | 1988 |
| 42 | 07123000 | Arkansas River at La Junta | 1.20 | 2.51 | 2.99 | 3.56 | 4.37 | 1964 | 1950 | 1978 | 1939 | 1963 |
| 43 | 07124000 | Arkansas River at Las Animas | 2.84 | 3.34 | 4.24 | 4.43 | 4.44 | 1956 | 1963 | 1977 | 1964 | 1974 |
| 44 | 07124200 | Purgatoire River at Madrid | 3.00 | 5.93 | 6.29 | 7.00 | 8.14 | 1976 | 1972 | 1977 | 1982 | 1978 |
| 45 | 07126300 | Purgatoire River near Thatcher | .00 | .10 | .10 | .16 | .25 | 1972 | 1975 | 1974 | 1978 | 2002 |
| 46 | 07128500 | Purgatoire River near Las Animas | .36 | .69 | .97 | 1.00 | 1.24 | 1974 | 1975 | 1964 | 1924 | 2002 |
| 47 | 07133000 | Arkansas River at Lamar | .00 | .21 | .24 | .31 | 1.00 | 1913 | 1964 | 1977 | 1978 | 1926 |
| 48 | 07134100 | Big Sandy Creek near Lamar | .00 | .00 | .34 | .43 | .54 | 1977 | 1978 | 1975 | 1974 | 1979 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 11.0 | 15.7 | 16.1 | 16.9 | 17.7 | 1976 | 1960 | 2002 | 1954 | 1963 |
| 50 | 08220000 | Rio Grande near Del Norte | 76.4 | 87.0 | 88.6 | 89.3 | 93.6 | 1976 | 1950 | 1963 | 1956 | 2002 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | .00 | .00 | .44 | 1.00 | 1.20 | 1976 | 2002 | 1971 | 1959 | 1963 |
| 52 | 08227000 | Saguache Creek near Saguache | 8.29 | 11.0 | 11.3 | 11.7 | 12.9 | 1976 | 1950 | 1977 | 1965 | 1978 |
| 53 | 08231000 | La Garita Creek near La Garita | .50 | .59 | .77 | 1.10 | 1.14 | 1963 | 1976 | 1956 | 1950 | 2002 |
| 54 | 08242500 | Ute Creek near Fort Garland | .10 | .16 | 1.30 | 1.37 | 1.50 | 1956 | 1951 | 1963 | 1953 | 1950 |
| 55 | 08246500 | Conejos River near Mogote | 17.4 | 20.0 | 20.4 | 21.1 | 22.3 | 1956 | 1917 | 1976 | 1939 | 1963 |
| 56 | 08247500 | San Antonio River at Ortiz | .00 | .00 | .00 | .00 | .00 | 1949 | 1951 | 1953 | 1954 | 1955 |
| 57 | 08248000 | Los Pinos River near Ortiz | 4.43 | 5.00 | 5.93 | 6.00 | 6.50 | 1989 | 1917 | 1976 | 1956 | 1963 |
| 58 | 08249000 | Conejos River near Lasauses | .00 | .00 | .00 | .00 | .00 | 1956 | 1963 | 1966 | 1977 | 1989 |
| 59 | 08250000 | Culebra Creek at San Luis | 5.00 | 5.70 | 6.74 | 7.09 | 7.49 | 1950 | 1951 | 1945 | 1956 | 1954 |
| 60 | 08251500 | Rio Grande near Lobatos | 5.14 | 9.66 | 10.4 | 10.8 | 15.3 | 1956 | 1964 | 1963 | 1955 | 1977 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 3.20 | 3.50 | 3.57 | 3.80 | 3.86 | 2002 | 1976 | 1962 | 1956 | 1980 |
| 62 | 09024000 | Fraser River at Winter Park | 2.10 | 2.54 | 2.67 | 2.80 | 2.80 | 1956 | 1964 | 1968 | 1963 | 1966 |
| 63 | 09025000 | Vasquez Creek at Winter Park | .26 | .30 | .49 | .60 | .79 | 1966 | 1964 | 1962 | 1954 | 1958 |
| 64 | 09026500 | St. Louis Creek near Fraser | 1.83 | 2.00 | 2.00 | 2.23 | 2.29 | 1967 | 1959 | 1960 | 2002 | 1962 |
| 65 | 09032000 | Ranch Creek near Fraser | .53 | .55 | .60 | .61 | .80 | 1960 | 1988 | 1963 | 1991 | 1964 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | .46 | .50 | .50 | .51 | .57 | 1971 | 1968 | 1978 | 1992 | 1988 |
| 67 | 09035500 | Williams Fork below Steelman Creek | .27 | .29 | .32 | .33 | .33 | 1970 | 1977 | 1981 | 1966 | 1969 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 3.00 | 3.13 | 3.17 | 3.50 | 3.56 | 1979 | 1976 | 1974 | 1978 | 1989 |
| 69 | 09035800 | Darling Creek near Leal | 1.10 | 1.17 | 1.29 | 1.30 | 1.39 | 1974 | 1975 | 1973 | 1988 | 1981 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 2.76 | 3.09 | 4.40 | 4.50 | 5.49 | 1966 | 1967 | 1978 | 1968 | 1969 |
| 71 | 09036000 | Williams Fork near Leal | 13.7 | 13.7 | 13.7 | 13.9 | 14.1 | 1939 | 1963 | 1966 | 2002 | 2001 |
| 72 | 09037500 | Williams Fork near Parshall | 10.8 | 11.6 | 12.4 | 14.4 | 15.7 | 1966 | 1955 | 1964 | 2002 | 1956 |
| 73 | 09046600 | Blue River near Dillon | 16.0 | 16.6 | 17.0 | 17.6 | 17.9 | 1994 | 1992 | 1991 | 1977 | 1960 |
| 74 | 09047500 | Snake River near Montezuma | 6.00 | 6.29 | 6.77 | 6.91 | 7.00 | 1962 | 1963 | 1977 | 1954 | 1945 |
| 75 | 09047700 | Keystone Gulch near Dillon | 1.27 | 1.39 | 1.39 | 1.39 | 1.40 | 1963 | 1972 | 1991 | 1966 | 1960 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 7.86 | 8.83 | 8.93 | 9.43 | 9.50 | 1959 | 1977 | 1975 | 1976 | 1963 |
| 77 | 09058000 | Colorado River near Kremmling | 208 | 220 | 240 | 264 | 265 | 1914 | 1907 | 1905 | 1963 | 2001 |
| 78 | 09058610 | Dickson Creek near Vail | .00 | .00 | .02 | .22 | .24 | 1983 | 1989 | 1972 | 1976 | 1988 |
| 79 | 09058700 | Freeman Creek near Minturn | .00 | .00 | .00 | .00 | .00 | 1964 | 1965 | 1966 | 1967 | 1970 |

Appendix 6. Five lowest historical 7-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded.— Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 7-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 7-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------|----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 80 | 09058800 | East Meadow Creek near Minturn | .33 | .36 | .39 | .40 | .41 | 1978 | 1977 | 2000 | 1964 | 1999 |
| 81 | 09059500 | Piney River near State Bridge | 2.93 | 4.13 | 5.37 | 5.54 | 5.69 | 1956 | 1955 | 1977 | 1978 | 1950 |
| 82 | 09063000 | Eagle River at Red Cliff | 3.77 | 4.14 | 4.86 | 4.86 | 5.57 | 1988 | 1914 | 1917 | 1961 | 1980 |
| 83 | 09063200 | Wearyman Creek near Red Cliff | .40 | .76 | .79 | .80 | .85 | 1966 | 1967 | 1991 | 1964 | 2002 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 1.00 | 1.50 | 1.84 | 1.90 | 1.93 | 1963 | 1986 | 1977 | 2001 | 1976 |
| 85 | 09063900 | Missouri Creek near Gold Park | .25 | .26 | .27 | .32 | .32 | 1976 | 1988 | 1975 | 1973 | 1978 |
| 86 | 09064000 | Homestake Creek at Gold Park | 1.89 | 2.40 | 2.80 | 2.90 | 2.96 | 1975 | 1948 | 1989 | 1997 | 1953 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 1.00 | 2.50 | 2.74 | 2.97 | 2.99 | 1914 | 1986 | 1958 | 1960 | 1946 |
| 88 | 09065100 | Cross Creek near Minturn | .13 | .13 | .60 | .80 | .81 | 1962 | 1976 | 1969 | 1960 | 1968 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 1.29 | 1.40 | 1.50 | 1.50 | 1.64 | 1976 | 1965 | 1963 | 1988 | 1997 |
| 90 | 09066000 | Black Gore Creek near Minturn | .90 | .99 | 1.00 | 1.07 | 1.10 | 1978 | 1967 | 1969 | 1980 | 1970 |
| 91 | 09066100 | Bighorn Creek near Minturn | .20 | .25 | .26 | .30 | .30 | 1980 | 1978 | 1966 | 1963 | 1965 |
| 92 | 09066150 | Pitkin Creek near Minturn | .26 | .41 | .43 | .46 | .76 | 1972 | 1966 | 1983 | 1980 | 1970 |
| 93 | 09066200 | Booth Creek near Minturn | .33 | .33 | .34 | .37 | .37 | 1966 | 1976 | 1980 | 1969 | 1970 |
| 94 | 09066300 | Middle Creek near Minturn | .00 | .00 | .00 | .03 | .04 | 1964 | 1966 | 1967 | 1969 | 1977 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | .34 | .40 | .44 | .50 | .55 | 1969 | 1986 | 1976 | 1966 | 1978 |
| 96 | 09067000 | Beaver Creek at Avon | 1.26 | 1.33 | 1.37 | 1.46 | 1.54 | 1976 | 1980 | 1981 | 1994 | 1977 |
| 97 | 09070000 | Eagle River below Gypsum | 117 | 118 | 119 | 121 | 125 | 2002 | 1956 | 1991 | 1994 | 1989 |
| 98 | 09070500 | Colorado River near Dotsero | 417 | 465 | 509 | 523 | 527 | 1943 | 1942 | 1963 | 2002 | 1954 |
| 99 | 09073400 | Roaring Fork River near Aspen | 15.0 | 16.0 | 16.4 | 17.6 | 18.1 | 1976 | 1977 | 1972 | 2002 | 1978 |
| 100 | 09074000 | Hunter Creek near Aspen | 1.91 | 1.96 | 2.63 | 2.76 | 2.93 | 1980 | 1976 | 2001 | 1989 | 2000 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 27.0 | 27.0 | 28.7 | 32.1 | 32.1 | 1963 | 2001 | 1977 | 1976 | 2002 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 229 | 234 | 248 | 278 | 279 | 1934 | 2002 | 1963 | 1954 | 1939 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 820 | 923 | 978 | 988 | 1,031 | 2002 | 2001 | 1976 | 1980 | 1994 |
| 104 | 09089500 | West Divide Creek near Raven | .00 | .00 | .00 | .04 | .16 | 1956 | 1960 | 1976 | 1955 | 1977 |
| 105 | 09095500 | Colorado River near Cameo | 852 | 856 | 857 | 927 | 970 | 1939 | 1934 | 1963 | 1940 | 2002 |
| 106 | 09105000 | Plateau Creek near Cameo | 20.9 | 22.7 | 31.3 | 35.7 | 36.0 | 1977 | 1956 | 1990 | 1950 | 1959 |
| 107 | 09110000 | Taylor River at Almont | 27.1 | 29.1 | 31.4 | 37.7 | 38.0 | 1940 | 1937 | 1962 | 1939 | 1959 |
| 108 | 09112500 | East River at Almont | 20.9 | 30.0 | 32.4 | 35.3 | 36.6 | 1939 | 1934 | 1974 | 1975 | 1976 |
| 109 | 09114500 | Gunnison River near Gunnison | 95.0 | 103 | 109 | 111 | 112 | 1962 | 1954 | 1960 | 1963 | 1955 |
| 110 | 09115500 | Tomichi Creek at Sargents | 8.50 | 9.00 | 11.4 | 11.7 | 12.4 | 2001 | 1966 | 1996 | 2002 | 1946 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 13.6 | 14.4 | 21.0 | 25.6 | 26.6 | 1977 | 1963 | 1950 | 1955 | 2002 |
| 112 | 09124500 | Lake Fork at Gateview | 23.1 | 25.6 | 28.1 | 29.7 | 29.7 | 1975 | 2001 | 1989 | 1976 | 1980 |
| 113 | 09126000 | Cimarron River near Cimarron | .00 | 5.19 | 6.24 | 6.46 | 7.46 | 1970 | 1976 | 1989 | 1977 | 1974 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 25.3 | 26.1 | 27.0 | 27.7 | 32.3 | 1977 | 1989 | 1976 | 1978 | 1963 |
| 115 | 09134000 | Minnesota Creek near Paonia | 1.40 | 1.44 | 1.46 | 1.56 | 1.57 | 1998 | 1989 | 2002 | 1999 | 1936 |
| 116 | 09143000 | Surface Creek near Cedaredge | .89 | 1.30 | 1.31 | 1.41 | 1.86 | 1976 | 1975 | 1977 | 1989 | 1974 |
| 117 | 09143500 | Surface Creek at Cedaredge | .11 | .24 | .27 | .27 | .34 | 1953 | 1921 | 1956 | 1959 | 1939 |
| 118 | 09144250 | Gunnison River at Delta | 362 | 374 | 380 | 416 | 436 | 2002 | 1990 | 1977 | 1976 | 1989 |

Appendix 6. Five lowest historical 7-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded.— Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 7-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 7-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 119 | 09146200 | Uncompahgre River near Ridgway | 30.0 | 31.0 | 31.1 | 31.4 | 31.7 | 1989 | 1980 | 1976 | 1978 | 1962 |
| 120 | 09147000 | Dallas Creek near Ridgway | 1.11 | 1.31 | 2.56 | 2.71 | 4.00 | 1955 | 1956 | 1963 | 1967 | 1980 |
| 121 | 09147500 | Uncompahgre River at Colona | 18.0 | 18.6 | 27.6 | 28.7 | 29.7 | 1953 | 1955 | 1960 | 1963 | 2002 |
| 122 | 09149500 | Uncompahgre River at Delta | 42.0 | 44.7 | 44.9 | 47.3 | 47.9 | 1958 | 1950 | 1962 | 1969 | 1946 |
| 123 | 09152500 | Gunnison River near Grand Junction | 197 | 326 | 427 | 475 | 482 | 1934 | 1898 | 1902 | 1922 | 1956 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 1,616 | 1,634 | 1,671 | 1,721 | 1,783 | 1963 | 2002 | 1990 | 1976 | 1956 |
| 125 | 09165000 | Dolores River below Rico | 6.29 | 7.07 | 7.57 | 8.64 | 8.89 | 1989 | 1993 | 1960 | 1990 | 2002 |
| 126 | 09166500 | Dolores River at Dolores | 15.9 | 17.9 | 19.1 | 19.9 | 21.0 | 1989 | 1898 | 1939 | 1901 | 1976 |
| 127 | 09169500 | Dolores River at Bedrock | 3.86 | 4.70 | 5.44 | 5.44 | 5.94 | 1978 | 1979 | 1974 | 1980 | 1975 |
| 128 | 09171100 | Dolores River near Bedrock | 5.26 | 6.07 | 6.51 | 7.70 | 7.84 | 1978 | 1979 | 1974 | 1977 | 1980 |
| 129 | 09172500 | San Miguel River near Placerville | 31.1 | 34.9 | 34.9 | 38.9 | 39.0 | 1976 | 1956 | 1989 | 1988 | 1959 |
| 130 | 09177000 | San Miguel River at Uravan | 20.0 | 27.6 | 27.6 | 31.0 | 32.9 | 1956 | 1978 | 2001 | 1989 | 1955 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 43.4 | 45.0 | 47.1 | 47.7 | 48.0 | 1934 | 1915 | 1919 | 1955 | 1986 |
| 132 | 09241000 | Elk River at Clark | 24.6 | 27.7 | 28.0 | 28.0 | 29.3 | 1963 | 1933 | 1936 | 1952 | 1953 |
| 133 | 09251000 | Yampa River near Maybell | 55.7 | 75.9 | 78.1 | 79.4 | 80.1 | 1944 | 1979 | 1994 | 1956 | 1963 |
| 134 | 09253000 | Little Snake River near Slater | 8.31 | 11.0 | 11.8 | 12.1 | 12.6 | 2002 | 1976 | 1987 | 1956 | 1960 |
| 135 | 09255000 | Slater Fork near Slater | 3.93 | 4.31 | 4.57 | 5.33 | 5.86 | 1991 | 1960 | 1962 | 1956 | 1931 |
| 136 | 09260000 | Little Snake River near Lily | .00 | .00 | .00 | .00 | .03 | 1934 | 1942 | 1956 | 1960 | 1953 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 70.4 | 153 | 175 | 177 | 177 | 1977 | 1976 | 1963 | 1992 | 1994 |
| 138 | 09304500 | White River near Meeker | 165 | 195 | 201 | 209 | 209 | 1977 | 1980 | 1989 | 1963 | 1976 |
| 139 | 09304800 | White River below Meeker | 213 | 213 | 215 | 220 | 222 | 1977 | 1975 | 2001 | 1976 | 2002 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 1.60 | 3.30 | 3.83 | 3.87 | 4.84 | 1964 | 1967 | 2000 | 1971 | 2002 |
| 141 | 09306222 | Piceance Creek at White River | .86 | 2.33 | 4.41 | 5.87 | 5.94 | 1964 | 1991 | 2002 | 2000 | 1994 |
| 142 | 09306242 | Corral Gulch near Rangely | .14 | .18 | .23 | .23 | .24 | 2002 | 1977 | 1976 | 1992 | 1991 |
| 143 | 09306255 | Yellow Creek near White River | .00 | .06 | .41 | .48 | .85 | 1978 | 1972 | 1976 | 1977 | 1979 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 3.69 | 4.51 | 5.36 | 5.57 | 5.59 | 1958 | 1989 | 1960 | 1976 | 2000 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 11.5 | 13.1 | 20.9 | 23.7 | 23.9 | 1956 | 1953 | 1989 | 1950 | 1955 |
| 146 | 09346400 | San Juan River near Carracas | 60.1 | 61.0 | 62.9 | 64.4 | 72.3 | 1989 | 1976 | 1963 | 2002 | 1967 |
| 147 | 09349800 | Piedra River near Arboles | 18.0 | 25.7 | 27.1 | 29.4 | 34.7 | 2002 | 1989 | 1963 | 2001 | 1976 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 7.36 | 7.74 | 10.2 | 10.3 | 11.1 | 1976 | 2001 | 2002 | 1973 | 1989 |
| 149 | 09354500 | Los Pinos River at La Boca | 15.0 | 17.9 | 24.1 | 29.6 | 29.7 | 2002 | 1959 | 2001 | 1963 | 1951 |
| 150 | 09361500 | Animas River at Durango | 100 | 103 | 110 | 114 | 120 | 1917 | 1932 | 1912 | 1989 | 1950 |
| 151 | 09365500 | La Plata River at Hesperus | 1.90 | 1.99 | 2.11 | 2.37 | 2.49 | 1917 | 1937 | 1964 | 1938 | 1989 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | .00 | .00 | .00 | .00 | .00 | 1934 | 1950 | 1956 | 1977 | 1978 |
| 153 | 09371000 | Mancos River near Towaoc | .00 | .00 | .00 | .00 | .00 | 1922 | 1924 | 1934 | 1956 | 1960 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | .56 | .95 | 1.91 | 2.53 | 4.26 | 1956 | 1977 | 1960 | 1951 | 1953 |

¹Listed years are for the year corresponding to October–December of the October–March period.

Appendix 7. Five lowest historical 30-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded.

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 30-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 30-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 1 | 06614800 | Michigan River near Cameron Pass | 0.15 | 0.16 | 0.17 | 0.17 | 0.19 | 1976 | 1980 | 1973 | 1990 | 1978 |
| 2 | 06620000 | North Platte River near Northgate | 27.4 | 30.7 | 31.4 | 35.8 | 37.2 | 1976 | 1941 | 1934 | 1932 | 1963 |
| 3 | 06707500 | South Platte River at South Platte | 36.9 | 43.9 | 45.9 | 47.2 | 49.0 | 1932 | 1939 | 1904 | 1935 | 1958 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | .00 | .00 | .10 | .13 | .15 | 1994 | 1996 | 1963 | 1964 | 1952 |
| 5 | 06710500 | Bear Creek at Morrison | 3.37 | 5.10 | 5.25 | 5.44 | 6.00 | 1932 | 1949 | 1978 | 2002 | 1935 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 1.48 | 3.34 | 3.50 | 3.58 | 4.16 | 1954 | 1944 | 2002 | 1956 | 1962 |
| 7 | 06712000 | Cherry Creek near Franktown | 0.96 | 1.06 | 1.08 | 1.13 | 1.14 | 1952 | 1978 | 1954 | 1953 | 1955 |
| 8 | 06714000 | South Platte River at Denver | 25.4 | 32.2 | 33.5 | 33.6 | 36.9 | 1956 | 1934 | 1902 | 1955 | 1932 |
| 9 | 06716500 | Clear Creek near Lawson | 17.0 | 17.4 | 17.6 | 18.7 | 19.2 | 1954 | 1950 | 2002 | 1948 | 1962 |
| 10 | 06719505 | Clear Creek at Golden | 23.9 | 25.7 | 28.0 | 30.0 | 30.5 | 2002 | 1994 | 1991 | 1977 | 1978 |
| 11 | 06720500 | South Platte River at Henderson | 21.7 | 23.6 | 28.3 | 28.4 | 30.0 | 1962 | 1948 | 1956 | 1933 | 1954 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 25.6 | 27.2 | 29.0 | 29.6 | 29.9 | 1977 | 2002 | 1981 | 1990 | 1978 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | .46 | .62 | .68 | .84 | 1.13 | 1954 | 1953 | 1952 | 1939 | 1934 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | .45 | 6.30 | 8.33 | 12.3 | 13.0 | 1969 | 1978 | 1932 | 1944 | 1975 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | .20 | .20 | .30 | .33 | .37 | 1978 | 1980 | 1981 | 1988 | 1986 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 7.36 | 9.00 | 10.2 | 10.5 | 11.1 | 1938 | 1929 | 1966 | 1962 | 1969 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 1.10 | 1.31 | 1.73 | 1.75 | 1.75 | 1995 | 1986 | 1987 | 2001 | 1977 |
| 18 | 06754000 | South Platte River near Kersey | 79.7 | 118 | 126 | 145 | 147 | 1934 | 1939 | 1954 | 1922 | 1956 |
| 19 | 06758500 | South Platte River near Weldona | 58.4 | 77.3 | 83.2 | 89.1 | 89.5 | 1964 | 1976 | 1955 | 2002 | 1963 |
| 20 | 06764000 | South Platte River at Julesburg | 5.40 | 14.8 | 18.7 | 23.0 | 24.1 | 1903 | 2002 | 1911 | 1910 | 1964 |
| 21 | 07081200 | Arkansas River near Leadville | 7.60 | 8.82 | 9.13 | 11.2 | 11.3 | 1977 | 1973 | 1976 | 1968 | 1974 |
| 22 | 07083000 | Halfmoon Creek near Malta | 1.20 | 1.40 | 1.50 | 1.63 | 1.76 | 1947 | 1952 | 1948 | 1976 | 1975 |
| 23 | 07086000 | Arkansas River at Granite | 38.3 | 39.1 | 44.8 | 45.0 | 48.5 | 1917 | 1976 | 1911 | 1918 | 2002 |
| 24 | 07091200 | Arkansas River near Nathrop | 127 | 131 | 148 | 153 | 167 | 1976 | 1972 | 1977 | 1978 | 1980 |
| 25 | 07093700 | Arkansas River near Wellsville | 195 | 199 | 205 | 224 | 224 | 2002 | 1977 | 1976 | 1966 | 1968 |
| 26 | 07094500 | Arkansas River at Parkdale | 225 | 263 | 267 | 269 | 271 | 1977 | 1953 | 1954 | 1976 | 1951 |
| 27 | 07096000 | Arkansas River at Canon City | 152 | 153 | 166 | 167 | 175 | 2002 | 1977 | 1939 | 1963 | 1903 |
| 28 | 07097000 | Arkansas River at Portland | 122 | 161 | 167 | 183 | 185 | 1977 | 1950 | 2002 | 1976 | 1951 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 3.85 | 3.88 | 4.02 | 4.32 | 4.36 | 1993 | 2002 | 1989 | 1971 | 1975 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .00 | .00 | .00 | .00 | .00 | 1975 | 1992 | 1993 | 1990 | 1991 |
| 31 | 07104000 | Monument Creek at Pikeview | 1.88 | 2.13 | 3.21 | 3.40 | 3.57 | 1939 | 1978 | 1944 | 1977 | 1948 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 5.14 | 10.2 | 10.7 | 14.0 | 14.4 | 1978 | 1993 | 1977 | 1976 | 1989 |
| 33 | 07105800 | Fountain Creek at Security | 11.4 | 11.6 | 11.7 | 15.2 | 15.4 | 1964 | 1971 | 1975 | 1977 | 1968 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | .67 | .79 | .83 | .89 | .93 | 1989 | 1987 | 1984 | 1990 | 2002 |
| 35 | 07106300 | Fountain Creek near Pinon | .77 | 4.21 | 5.09 | 9.02 | 9.63 | 1975 | 1974 | 1978 | 1979 | 1977 |
| 36 | 07106500 | Fountain Creek at Pueblo | .60 | .61 | .64 | .80 | .83 | 1962 | 1975 | 1951 | 1953 | 1952 |
| 37 | 07108900 | St. Charles River at Vineland | 0.23 | 0.26 | 0.29 | 0.90 | 1.00 | 1943 | 1952 | 1951 | 1944 | 1950 |
| 38 | 07109500 | Arkansas River near Avondale | 151 | 163 | 167 | 168 | 178 | 2002 | 1939 | 1950 | 1978 | 1940 |
| 39 | 07119500 | Apishapa River near Fowler | .83 | 1.06 | 1.08 | 1.23 | 1.76 | 1939 | 1964 | 1956 | 1954 | 1952 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 34.1 | 72.6 | 90.4 | 106 | 117 | 2002 | 2001 | 1978 | 1977 | 1990 |

Appendix 7. Five lowest historical 30-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 30-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 30-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 7.11 | 7.68 | 8.10 | 8.45 | 11.4 | 1974 | 1978 | 1979 | 2002 | 1975 |
| 42 | 07123000 | Arkansas River at La Junta | 3.88 | 6.34 | 6.53 | 6.83 | 7.45 | 1978 | 1975 | 1934 | 1924 | 1963 |
| 43 | 07124000 | Arkansas River at Las Animas | 4.05 | 5.12 | 5.13 | 5.41 | 5.53 | 1956 | 1977 | 1964 | 1963 | 1974 |
| 44 | 07124200 | Purgatoire River at Madrid | 5.15 | 7.30 | 8.96 | 9.88 | 10.0 | 1976 | 1972 | 1978 | 1974 | 2002 |
| 45 | 07126300 | Purgatoire River near Thatcher | .37 | .44 | .70 | 1.31 | 1.31 | 1972 | 2002 | 1978 | 1977 | 1975 |
| 46 | 07128500 | Purgatoire River near Las Animas | .72 | 1.17 | 1.19 | 1.27 | 1.47 | 1974 | 1964 | 1975 | 2002 | 1977 |
| 47 | 07133000 | Arkansas River at Lamar | .37 | .45 | .49 | .67 | 1.07 | 1977 | 1964 | 1978 | 1913 | 1934 |
| 48 | 07134100 | Big Sandy Creek near Lamar | .07 | .27 | .57 | .69 | 1.00 | 1978 | 1977 | 1974 | 1975 | 1979 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 12.8 | 17.5 | 18.0 | 18.8 | 18.9 | 1976 | 1960 | 1954 | 1963 | 2002 |
| 50 | 08220000 | Rio Grande near Del Norte | 84.7 | 98.4 | 101 | 105 | 105 | 1976 | 2002 | 1956 | 1963 | 1989 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | .00 | .05 | .86 | 1.00 | 1.20 | 1976 | 2002 | 1971 | 1959 | 1963 |
| 52 | 08227000 | Saguache Creek near Saguache | 10.8 | 12.0 | 12.6 | 12.9 | 13.0 | 1976 | 1977 | 1950 | 1965 | 1963 |
| 53 | 08231000 | La Garita Creek near La Garita | 0.50 | 0.66 | 1.10 | 1.29 | 1.36 | 1963 | 1976 | 1950 | 2002 | 1940 |
| 54 | 08242500 | Ute Creek near Fort Garland | .37 | .71 | 1.40 | 1.80 | 2.03 | 1956 | 1951 | 1963 | 1950 | 1955 |
| 55 | 08246500 | Conejos River near Mogote | 22.2 | 23.1 | 24.9 | 26.5 | 26.8 | 1917 | 1976 | 2002 | 1934 | 1963 |
| 56 | 08247500 | San Antonio River at Ortiz | .00 | .00 | .00 | .00 | .10 | 1951 | 1955 | 1976 | 1989 | 1956 |
| 57 | 08248000 | Los Pinos River near Ortiz | 5.00 | 5.13 | 6.50 | 6.87 | 7.00 | 1917 | 1989 | 1963 | 1976 | 1934 |
| 58 | 08249000 | Conejos River near Lasauses | .00 | .03 | .11 | .13 | .18 | 2002 | 2000 | 1977 | 1963 | 1989 |
| 59 | 08250000 | Culebra Creek at San Luis | 5.51 | 6.17 | 7.81 | 7.91 | 8.76 | 1950 | 1951 | 1956 | 1954 | 1945 |
| 60 | 08251500 | Rio Grande near Lobatos | 12.5 | 17.7 | 18.1 | 19.7 | 25.5 | 1956 | 1977 | 1902 | 2002 | 1964 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 3.42 | 3.78 | 3.90 | 3.97 | 4.12 | 2002 | 1976 | 1956 | 1980 | 1962 |
| 62 | 09024000 | Fraser River at Winter Park | 2.65 | 2.66 | 2.88 | 2.94 | 2.97 | 1964 | 1956 | 1966 | 1968 | 1963 |
| 63 | 09025000 | Vasquez Creek at Winter Park | .62 | .67 | .81 | .94 | .95 | 1964 | 1962 | 1959 | 1958 | 1960 |
| 64 | 09026500 | St. Louis Creek near Fraser | 2.00 | 2.01 | 2.33 | 2.33 | 2.46 | 1960 | 1967 | 1959 | 2002 | 1968 |
| 65 | 09032000 | Ranch Creek near Fraser | .65 | .86 | .91 | 1.00 | 1.02 | 1963 | 1964 | 1968 | 1966 | 1962 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | .48 | .52 | .53 | .53 | .60 | 1971 | 1978 | 1992 | 1968 | 1972 |
| 67 | 09035500 | Williams Fork below Steelman Creek | .30 | .35 | .35 | .39 | .40 | 1977 | 1975 | 1986 | 1966 | 1969 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 3.13 | 3.38 | 3.50 | 3.54 | 3.69 | 1979 | 1974 | 1978 | 1976 | 1989 |
| 69 | 09035800 | Darling Creek near Leal | 1.10 | 1.19 | 1.33 | 1.43 | 1.45 | 1974 | 1975 | 1973 | 1988 | 1989 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 2.85 | 3.30 | 4.40 | 4.71 | 5.57 | 1966 | 1967 | 1978 | 1968 | 1972 |
| 71 | 09036000 | Williams Fork near Leal | 14.0 | 14.0 | 14.2 | 14.7 | 14.8 | 1963 | 2002 | 1966 | 2000 | 2001 |
| 72 | 09037500 | Williams Fork near Parshall | 16.5 | 19.0 | 21.7 | 21.7 | 21.8 | 1955 | 1970 | 1976 | 1963 | 1980 |
| 73 | 09046600 | Blue River near Dillon | 16.7 | 17.0 | 17.2 | 17.9 | 18.0 | 1994 | 1992 | 1991 | 1977 | 2002 |
| 74 | 09047500 | Snake River near Montezuma | 6.70 | 6.95 | 7.03 | 7.07 | 7.37 | 1962 | 1977 | 1963 | 1945 | 1972 |
| 75 | 09047700 | Keystone Gulch near Dillon | 1.34 | 1.40 | 1.40 | 1.40 | 1.41 | 1963 | 1966 | 1972 | 1991 | 1960 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 8.98 | 9.06 | 9.82 | 10.0 | 10.0 | 1977 | 1975 | 1976 | 1959 | 1963 |
| 77 | 09058000 | Colorado River near Kremmling | 235 | 256 | 271 | 283 | 303 | 1914 | 1907 | 1963 | 1905 | 1908 |
| 78 | 09058610 | Dickson Creek near Vail | .00 | .04 | .06 | .24 | .27 | 1983 | 1989 | 1972 | 1976 | 1988 |
| 79 | 09058700 | Freeman Creek near Minturn | .00 | .00 | .00 | .00 | .01 | 1964 | 1967 | 1990 | 1991 | 1966 |
| 80 | 09058800 | East Meadow Creek near Minturn | .35 | .40 | .40 | .41 | .43 | 1978 | 1964 | 1977 | 1999 | 1975 |

Appendix 7. Five lowest historical 30-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 30-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 30-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 81 | 09059500 | Piney River near State Bridge | 6.42 | 6.65 | 6.75 | 6.80 | 7.38 | 1977 | 1956 | 1979 | 1978 | 1963 |
| 82 | 09063000 | Eagle River at Red Cliff | 4.53 | 4.58 | 5.67 | 6.27 | 6.60 | 1914 | 1988 | 1980 | 1968 | 1987 |
| 83 | 09063200 | Wearyman Creek near Red Cliff | .45 | .80 | .81 | .86 | .89 | 1966 | 1964 | 1991 | 2002 | 1967 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 1.00 | 1.92 | 2.02 | 2.03 | 2.11 | 1963 | 1986 | 1980 | 1977 | 2002 |
| 85 | 09063900 | Missouri Creek near Gold Park | .27 | .28 | .28 | .36 | .37 | 1976 | 1988 | 1975 | 1973 | 1978 |
| 86 | 09064000 | Homestake Creek at Gold Park | 1.97 | 2.41 | 2.80 | 3.09 | 3.29 | 1975 | 1948 | 1989 | 2002 | 1997 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 1.00 | 2.93 | 3.00 | 3.00 | 3.08 | 1914 | 1986 | 1946 | 1962 | 1960 |
| 88 | 09065100 | Cross Creek near Minturn | .16 | .19 | .85 | .93 | 1.05 | 1962 | 1976 | 1969 | 1968 | 1960 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 1.37 | 1.49 | 1.56 | 1.78 | 1.79 | 1976 | 1965 | 1963 | 1975 | 1988 |
| 90 | 09066000 | Black Gore Creek near Minturn | .90 | 1.03 | 1.10 | 1.20 | 1.40 | 1978 | 1969 | 1967 | 1970 | 1980 |
| 91 | 09066100 | Bighorn Creek near Minturn | .29 | .30 | .32 | .35 | .40 | 1978 | 1963 | 1980 | 1966 | 1965 |
| 92 | 09066150 | Pitkin Creek near Minturn | .56 | .72 | .72 | .78 | .84 | 1966 | 1983 | 1980 | 1991 | 1969 |
| 93 | 09066200 | Booth Creek near Minturn | .37 | .37 | .39 | .48 | .50 | 1966 | 1976 | 1980 | 1969 | 1970 |
| 94 | 09066300 | Middle Creek near Minturn | .00 | .00 | .04 | .07 | .10 | 1964 | 1967 | 1977 | 1966 | 1980 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | .46 | .48 | .50 | .56 | .56 | 1986 | 1969 | 1976 | 1966 | 1978 |
| 96 | 09067000 | Beaver Creek at Avon | 1.41 | 1.46 | 1.48 | 1.49 | 1.60 | 1980 | 1981 | 1976 | 1994 | 1977 |
| 97 | 09070000 | Eagle River below Gypsum | 124 | 125 | 128 | 130 | 137 | 1991 | 2002 | 1956 | 1989 | 1963 |
| 98 | 09070500 | Colorado River near Dotsero | 507 | 533 | 545 | 548 | 556 | 1942 | 1943 | 1963 | 2001 | 2002 |
| 99 | 09073400 | Roaring Fork River near Aspen | 15.4 | 17.2 | 17.7 | 18.6 | 19.2 | 1976 | 1977 | 1972 | 1978 | 1975 |
| 100 | 09074000 | Hunter Creek near Aspen | 2.02 | 2.16 | 2.90 | 2.90 | 3.02 | 1976 | 1980 | 2001 | 1989 | 2000 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 28.2 | 31.0 | 32.7 | 33.0 | 34.2 | 1963 | 2001 | 1977 | 1976 | 1960 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 250 | 259 | 260 | 292 | 293 | 1934 | 1963 | 2002 | 1954 | 1939 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 900 | 987 | 1,007 | 1,024 | 1,088 | 2002 | 2001 | 1976 | 1980 | 1994 |
| 104 | 09089500 | West Divide Creek near Raven | .00 | .09 | .14 | .23 | .41 | 1976 | 1956 | 1955 | 1977 | 1960 |
| 105 | 09095500 | Colorado River near Cameo | 931 | 935 | 991 | 1,046 | 1,046 | 1934 | 1963 | 1939 | 2002 | 1940 |
| 106 | 09105000 | Plateau Creek near Cameo | 24.8 | 29.2 | 40.6 | 40.9 | 41.8 | 1977 | 1956 | 1959 | 1960 | 1990 |
| 107 | 09110000 | Taylor River at Almont | 34.4 | 34.7 | 38.7 | 42.6 | 42.9 | 1940 | 1937 | 1962 | 1954 | 1959 |
| 108 | 09112500 | East River at Almont | 22.5 | 31.0 | 35.9 | 37.7 | 41.3 | 1939 | 1934 | 1974 | 1976 | 1975 |
| 109 | 09114500 | Gunnison River near Gunnison | 108 | 115 | 116 | 119 | 122 | 1954 | 1960 | 1963 | 1944 | 1955 |
| 110 | 09115500 | Tomichi Creek at Sargents | 10.4 | 10.7 | 12.0 | 13.5 | 13.9 | 1966 | 2001 | 1996 | 2002 | 1946 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 32.1 | 34.7 | 34.8 | 37.0 | 37.7 | 1963 | 1955 | 1978 | 2002 | 1966 |
| 112 | 09124500 | Lake Fork at Gateview | 27.8 | 29.4 | 30.2 | 30.3 | 30.5 | 1975 | 2001 | 1976 | 1989 | 1980 |
| 113 | 09126000 | Cimarron River near Cimarron | 1.45 | 6.41 | 6.77 | 7.86 | 7.97 | 1970 | 1989 | 1977 | 1974 | 1990 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 29.2 | 30.6 | 33.0 | 34.7 | 35.1 | 1989 | 1977 | 1978 | 1976 | 1963 |
| 115 | 09134000 | Minnesota Creek near Paonia | 1.57 | 1.64 | 1.70 | 1.89 | 1.95 | 1989 | 2002 | 1999 | 1998 | 1937 |
| 116 | 09143000 | Surface Creek near Cedaredge | .91 | 1.37 | 1.49 | 1.62 | 2.05 | 1976 | 1975 | 1977 | 1989 | 1978 |
| 117 | 09143500 | Surface Creek at Cedaredge | .26 | .39 | .50 | .65 | .77 | 1953 | 1939 | 1933 | 1959 | 1955 |
| 118 | 09144250 | Gunnison River at Delta | 376 | 399 | 443 | 479 | 512 | 2002 | 1977 | 1990 | 1989 | 1988 |
| 119 | 09146200 | Uncompahgre River near Ridgway | 31.2 | 32.3 | 33.4 | 34.1 | 35.4 | 1989 | 1976 | 1980 | 1974 | 1963 |
| 120 | 09147000 | Dallas Creek near Ridgway | 2.02 | 2.53 | 6.27 | 7.47 | 8.41 | 1956 | 1955 | 1967 | 1922 | 1980 |

Appendix 7. Five lowest historical 30-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 30-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 30-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 121 | 09147500 | Uncompahgre River at Colona | 31.4 | 31.8 | 40.0 | 40.0 | 40.0 | 2002 | 1955 | 1914 | 1930 | 1934 |
| 122 | 09149500 | Uncompahgre River at Delta | 65.7 | 68.6 | 69.6 | 70.5 | 71.0 | 1942 | 1946 | 1945 | 1961 | 1950 |
| 123 | 09152500 | Gunnison River near Grand Junction | 268 | 437 | 486 | 537 | 550 | 1934 | 1898 | 1902 | 1950 | 1956 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 1,805 | 1,814 | 1,899 | 1,923 | 2,014 | 2002 | 1963 | 1956 | 1955 | 1954 |
| 125 | 09165000 | Dolores River below Rico | 7.08 | 7.45 | 8.05 | 9.52 | 9.68 | 1989 | 1993 | 1960 | 2002 | 1990 |
| 126 | 09166500 | Dolores River at Dolores | 17.7 | 20.0 | 21.5 | 22.1 | 23.7 | 1989 | 1901 | 1939 | 1898 | 1976 |
| 127 | 09169500 | Dolores River at Bedrock | 6.10 | 6.24 | 6.70 | 7.27 | 7.61 | 1979 | 1978 | 1975 | 1974 | 1977 |
| 128 | 09171100 | Dolores River near Bedrock | 8.11 | 8.24 | 8.84 | 11.7 | 12.5 | 1979 | 1978 | 1974 | 1977 | 1975 |
| 129 | 09172500 | San Miguel River near Placerville | 34.9 | 36.7 | 43.4 | 43.7 | 43.8 | 1976 | 1989 | 1974 | 1988 | 2002 |
| 130 | 09177000 | San Miguel River at Uravan | 29.0 | 45.0 | 48.9 | 49.5 | 52.3 | 1956 | 1976 | 1955 | 1989 | 2002 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 45.0 | 49.5 | 52.6 | 54.8 | 56.1 | 1915 | 1934 | 1986 | 1988 | 1980 |
| 132 | 09241000 | Elk River at Clark | 27.2 | 28.5 | 30.0 | 30.6 | 31.7 | 1963 | 1936 | 1934 | 1952 | 1960 |
| 133 | 09251000 | Yampa River near Maybell | 115 | 116 | 120 | 123 | 130 | 1933 | 1963 | 1934 | 1956 | 1955 |
| 134 | 09253000 | Little Snake River near Slater | 13.6 | 15.5 | 15.9 | 16.0 | 17.3 | 1976 | 1962 | 1944 | 2002 | 1943 |
| 135 | 09255000 | Slater Fork near Slater | 4.40 | 6.95 | 7.20 | 7.40 | 8.27 | 1991 | 1931 | 1933 | 1962 | 1960 |
| 136 | 09260000 | Little Snake River near Lily | .00 | 1.00 | 1.83 | 2.80 | 4.78 | 1934 | 1933 | 1935 | 1955 | 1964 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 137 | 176 | 208 | 209 | 218 | 1977 | 1976 | 1963 | 1990 | 1991 |
| 138 | 09304500 | White River near Meeker | 210 | 213 | 225 | 226 | 229 | 1980 | 1977 | 2002 | 1976 | 1934 |
| 139 | 09304800 | White River below Meeker | 228 | 242 | 251 | 254 | 256 | 1975 | 1990 | 1976 | 1963 | 2001 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 2.68 | 4.24 | 5.10 | 6.18 | 6.48 | 1964 | 1967 | 2002 | 1966 | 1972 |
| 141 | 09306222 | Piceance Creek at White River | 1.57 | 4.16 | 4.74 | 6.46 | 8.00 | 1964 | 1991 | 2002 | 2000 | 1972 |
| 142 | 09306242 | Corral Gulch near Rangely | .24 | .27 | .27 | .29 | .30 | 1992 | 1991 | 1977 | 1976 | 1990 |
| 143 | 09306255 | Yellow Creek near White River | .00 | .07 | .52 | .60 | 1.08 | 1978 | 1972 | 1977 | 1976 | 1979 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 4.21 | 4.85 | 5.73 | 6.40 | 6.43 | 1958 | 1989 | 1960 | 2000 | 1976 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 22.8 | 23.8 | 28.9 | 29.7 | 30.8 | 1956 | 1989 | 1963 | 1955 | 1976 |
| 146 | 09346400 | San Juan River near Carracas | 66.5 | 67.2 | 69.5 | 70.2 | 82.2 | 1989 | 1963 | 2002 | 1976 | 1967 |
| 147 | 09349800 | Piedra River near Arboles | 19.6 | 28.2 | 31.5 | 33.9 | 37.5 | 2002 | 1989 | 1963 | 2001 | 1976 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 8.06 | 9.43 | 11.2 | 11.6 | 12.2 | 1976 | 2001 | 2002 | 1963 | 1975 |
| 149 | 09354500 | Los Pinos River at La Boca | 15.6 | 26.5 | 31.5 | 33.0 | 33.1 | 2002 | 1959 | 2001 | 1963 | 1999 |
| 150 | 09361500 | Animas River at Durango | 103 | 121 | 135 | 135 | 135 | 1932 | 1989 | 1930 | 2001 | 1899 |
| 151 | 09365500 | La Plata River at Hesperus | 2.09 | 2.64 | 2.87 | 3.23 | 3.36 | 1937 | 1917 | 1989 | 1956 | 1964 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | .00 | .12 | .12 | .47 | .60 | 1934 | 1939 | 1977 | 1978 | 1976 |
| 153 | 09371000 | Mancos River near Towaoc | .01 | .07 | .10 | .20 | .20 | 2002 | 1924 | 1977 | 1959 | 1956 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 1.44 | 2.52 | 8.92 | 10.5 | 14.7 | 1956 | 1977 | 1955 | 2002 | 1951 |

¹Listed years are for the year corresponding to October–December of the October–March period.

Appendix 8. Five lowest historical 90-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded.

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 90-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 90-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 1 | 06614800 | Michigan River near Cameron Pass | 0.18 | 0.19 | 0.21 | 0.21 | 0.24 | 1976 | 1980 | 1978 | 2001 | 1990 |
| 2 | 06620000 | North Platte River near Northgate | 33.8 | 40.5 | 44.7 | 45.4 | 46.4 | 1976 | 1963 | 1944 | 1941 | 1934 |
| 3 | 06707500 | South Platte River at South Platte | 47.8 | 49.9 | 50.6 | 53.2 | 54.0 | 1932 | 1939 | 1904 | 1935 | 1903 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | .25 | .74 | .76 | .90 | 1.37 | 1956 | 1954 | 1963 | 1978 | 1952 |
| 5 | 06710500 | Bear Creek at Morrison | 4.61 | 6.51 | 7.16 | 7.36 | 7.92 | 1932 | 1978 | 2002 | 1977 | 1931 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 4.03 | 5.08 | 5.58 | 7.43 | 7.55 | 2002 | 1944 | 1954 | 1934 | 1939 |
| 7 | 06712000 | Cherry Creek near Franktown | 1.28 | 1.35 | 1.42 | 1.45 | 1.61 | 1954 | 1952 | 1955 | 1953 | 1963 |
| 8 | 06714000 | South Platte River at Denver | 35.7 | 37.6 | 41.3 | 41.4 | 44.6 | 1956 | 1934 | 1955 | 1932 | 1954 |
| 9 | 06716500 | Clear Creek near Lawson | 18.1 | 19.4 | 19.5 | 20.6 | 22.0 | 1954 | 2002 | 1950 | 1948 | 1962 |
| 10 | 06719505 | Clear Creek at Golden | 26.4 | 30.5 | 31.9 | 32.3 | 33.1 | 2002 | 1994 | 1989 | 1977 | 1991 |
| 11 | 06720500 | South Platte River at Henderson | 39.3 | 44.6 | 44.7 | 45.6 | 45.7 | 1954 | 1956 | 1934 | 1952 | 1948 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 27.5 | 28.4 | 30.9 | 33.3 | 33.7 | 1977 | 2002 | 1981 | 1976 | 1998 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | .71 | 1.48 | 1.65 | 1.69 | 2.23 | 1954 | 1953 | 1939 | 1934 | 1932 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 7.62 | 11.9 | 14.4 | 14.8 | 15.1 | 1978 | 1932 | 1939 | 1944 | 1964 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | .22 | .23 | .34 | .42 | .42 | 1980 | 1978 | 1981 | 1988 | 1986 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 11.5 | 11.7 | 12.3 | 13.6 | 13.6 | 1929 | 1966 | 1969 | 1938 | 1964 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 1.87 | 2.27 | 3.16 | 3.19 | 3.28 | 1977 | 1976 | 1978 | 1987 | 1975 |
| 18 | 06754000 | South Platte River near Kersey | 138 | 213 | 216 | 286 | 295 | 1934 | 1939 | 1954 | 1956 | 1955 |
| 19 | 06758500 | South Platte River near Weldona | 89.3 | 97.1 | 110 | 116 | 121 | 1964 | 1955 | 1963 | 1960 | 1968 |
| 20 | 06764000 | South Platte River at Julesburg | 20.2 | 22.0 | 49.1 | 55.4 | 62.1 | 2002 | 1911 | 1964 | 1939 | 1940 |
| 21 | 07081200 | Arkansas River near Leadville | 9.17 | 9.35 | 10.0 | 11.8 | 12.5 | 1973 | 1976 | 1977 | 1968 | 2002 |
| 22 | 07083000 | Halfmoon Creek near Malta | 1.77 | 1.78 | 2.00 | 2.13 | 2.21 | 1952 | 1947 | 1948 | 1976 | 1975 |
| 23 | 07086000 | Arkansas River at Granite | 46.4 | 47.2 | 47.7 | 54.6 | 56.1 | 1918 | 1911 | 1976 | 1944 | 1933 |
| 24 | 07091200 | Arkansas River near Nathrop | 143 | 151 | 161 | 178 | 188 | 1976 | 1972 | 1977 | 1978 | 1968 |
| 25 | 07093700 | Arkansas River near Wellsville | 207 | 213 | 232 | 236 | 247 | 2002 | 1976 | 1977 | 1968 | 1963 |
| 26 | 07094500 | Arkansas River at Parkdale | 260 | 274 | 288 | 300 | 300 | 1977 | 1976 | 1954 | 1978 | 1972 |
| 27 | 07096000 | Arkansas River at Canon City | 182 | 191 | 201 | 211 | 217 | 1939 | 2002 | 1977 | 1963 | 1934 |
| 28 | 07097000 | Arkansas River at Portland | 171 | 201 | 203 | 209 | 211 | 1977 | 2002 | 1976 | 1950 | 1978 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 4.19 | 4.41 | 4.90 | 4.93 | 5.03 | 2002 | 1989 | 1993 | 1978 | 1963 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .00 | .00 | .04 | .04 | .05 | 1993 | 1992 | 1991 | 1975 | 1989 |
| 31 | 07104000 | Monument Creek at Pikeview | 3.46 | 4.17 | 4.90 | 5.62 | 5.90 | 1978 | 1939 | 1977 | 1976 | 1948 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 6.41 | 13.3 | 14.9 | 15.7 | 16.2 | 1978 | 1977 | 1976 | 1993 | 2002 |
| 33 | 07105800 | Fountain Creek at Security | 16.7 | 17.5 | 18.0 | 19.7 | 21.9 | 1964 | 1971 | 1975 | 1968 | 1967 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | 0.96 | 1.00 | 1.09 | 1.11 | 1.13 | 1989 | 2002 | 1990 | 1984 | 1987 |
| 35 | 07106300 | Fountain Creek near Pinon | 16.7 | 20.6 | 24.8 | 27.4 | 28.3 | 1978 | 1975 | 1977 | 1974 | 1976 |
| 36 | 07106500 | Fountain Creek at Pueblo | .96 | 1.09 | 1.59 | 1.75 | 2.22 | 1954 | 1953 | 1956 | 1964 | 1951 |
| 37 | 07108900 | St. Charles River at Vineland | 0.97 | 1.10 | 2.30 | 2.35 | 2.63 | 1952 | 1950 | 1948 | 1972 | 1951 |
| 38 | 07109500 | Arkansas River near Avondale | 171 | 185 | 193 | 246 | 254 | 2002 | 1978 | 1939 | 1977 | 1950 |
| 39 | 07119500 | Apishapa River near Fowler | 1.51 | 1.60 | 1.68 | 2.26 | 2.28 | 1956 | 1954 | 1939 | 1978 | 2002 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 44.2 | 145 | 178 | 185 | 195 | 2002 | 1978 | 2001 | 1964 | 1977 |

Appendix 8. Five lowest historical 90-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 90-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 90-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 12.2 | 13.5 | 13.8 | 13.9 | 14.4 | 1974 | 2002 | 1989 | 1978 | 1987 |
| 42 | 07123000 | Arkansas River at La Junta | 9.59 | 13.8 | 15.3 | 15.3 | 15.6 | 1975 | 1924 | 1978 | 1963 | 1934 |
| 43 | 07124000 | Arkansas River at Las Animas | 5.68 | 6.69 | 7.43 | 7.56 | 7.66 | 1956 | 1977 | 1954 | 1974 | 1964 |
| 44 | 07124200 | Purgatoire River at Madrid | 7.39 | 8.05 | 11.0 | 11.1 | 11.7 | 1976 | 1972 | 2002 | 1978 | 1980 |
| 45 | 07126300 | Purgatoire River near Thatcher | 3.66 | 5.12 | 5.49 | 6.76 | 7.59 | 2002 | 1974 | 1978 | 1975 | 1972 |
| 46 | 07128500 | Purgatoire River near Las Animas | 1.77 | 2.00 | 2.04 | 2.52 | 2.78 | 2002 | 1978 | 1964 | 1975 | 1956 |
| 47 | 07133000 | Arkansas River at Lamar | 0.66 | 0.91 | 1.30 | 2.03 | 2.19 | 1964 | 1977 | 1978 | 1934 | 1963 |
| 48 | 07134100 | Big Sandy Creek near Lamar | 0.37 | 0.43 | 1.04 | 2.41 | 2.41 | 1977 | 1978 | 1975 | 2002 | 1976 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 16.7 | 19.4 | 20.7 | 21.3 | 21.4 | 1976 | 1960 | 1954 | 1963 | 2002 |
| 50 | 08220000 | Rio Grande near Del Norte | 103 | 107 | 108 | 117 | 118 | 1976 | 1956 | 2002 | 1964 | 1989 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | .74 | .83 | 1.23 | 1.60 | 1.78 | 2002 | 1976 | 1963 | 2001 | 1956 |
| 52 | 08227000 | Saguache Creek near Saguache | 13.6 | 14.3 | 15.6 | 16.5 | 16.8 | 1977 | 1963 | 1976 | 1980 | 1950 |
| 53 | 08231000 | La Garita Creek near La Garita | .57 | 1.43 | 1.57 | 1.72 | 1.97 | 1963 | 1976 | 2002 | 1940 | 1950 |
| 54 | 08242500 | Ute Creek near Fort Garland | .95 | 1.00 | 1.63 | 2.10 | 2.33 | 1956 | 1951 | 1963 | 1950 | 2002 |
| 55 | 08246500 | Conejos River near Mogote | 28.5 | 28.7 | 29.8 | 30.8 | 30.9 | 1917 | 1976 | 2002 | 1930 | 1963 |
| 56 | 08247500 | San Antonio River at Ortiz | .27 | .31 | .50 | .89 | .95 | 1976 | 1989 | 1945 | 1963 | 1956 |
| 57 | 08248000 | Los Pinos River near Ortiz | 6.56 | 6.81 | 7.81 | 8.12 | 8.88 | 1917 | 1963 | 1989 | 1976 | 1934 |
| 58 | 08249000 | Conejos River near Lasausas | 5.73 | 8.38 | 9.94 | 12.8 | 14.6 | 2002 | 1977 | 2000 | 1956 | 1976 |
| 59 | 08250000 | Culebra Creek at San Luis | 6.35 | 7.19 | 8.89 | 9.54 | 9.81 | 1950 | 1951 | 1954 | 1956 | 1974 |
| 60 | 08251500 | Rio Grande near Lobatos | 22.4 | 45.6 | 53.4 | 59.9 | 70.8 | 1902 | 1956 | 1963 | 1977 | 2002 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 3.67 | 4.13 | 4.15 | 4.67 | 4.70 | 2002 | 1976 | 1956 | 1962 | 1958 |
| 62 | 09024000 | Fraser River at Winter Park | 2.83 | 2.93 | 3.08 | 3.17 | 3.53 | 1964 | 1966 | 1963 | 1968 | 1969 |
| 63 | 09025000 | Vasquez Creek at Winter Park | 1.09 | 1.45 | 1.50 | 1.50 | 1.51 | 1964 | 1960 | 1959 | 1986 | 1962 |
| 64 | 09026500 | St. Louis Creek near Fraser | 2.12 | 2.47 | 2.54 | 2.70 | 2.74 | 1967 | 2002 | 1960 | 1964 | 1966 |
| 65 | 09032000 | Ranch Creek near Fraser | .76 | .94 | 1.04 | 1.08 | 1.13 | 1963 | 1964 | 1968 | 1966 | 1967 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | .52 | .58 | .59 | .65 | .68 | 1971 | 1968 | 1978 | 1992 | 1990 |
| 67 | 09035500 | Williams Fork below Steelman Creek | .32 | .35 | .37 | .42 | .43 | 1977 | 1986 | 1975 | 1966 | 1976 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 3.59 | 3.80 | 3.86 | 3.90 | 3.98 | 1974 | 1979 | 1976 | 1989 | 1990 |
| 69 | 09035800 | Darling Creek near Leal | 1.21 | 1.23 | 1.51 | 1.52 | 1.54 | 1974 | 1975 | 1973 | 1989 | 1988 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 2.98 | 4.27 | 4.71 | 4.81 | 5.81 | 1966 | 1967 | 1978 | 1968 | 1972 |
| 71 | 09036000 | Williams Fork near Leal | 14.0 | 14.8 | 15.5 | 15.5 | 15.6 | 1963 | 1966 | 1976 | 1990 | 1988 |
| 72 | 09037500 | Williams Fork near Parshall | 23.0 | 23.9 | 24.8 | 25.0 | 25.7 | 1963 | 1970 | 1956 | 1976 | 1980 |
| 73 | 09046600 | Blue River near Dillon | 17.3 | 18.2 | 18.5 | 18.8 | 18.8 | 1994 | 1991 | 1992 | 1977 | 2002 |
| 74 | 09047500 | Snake River near Montezuma | 8.14 | 8.23 | 8.35 | 8.38 | 8.43 | 1977 | 1963 | 1954 | 1945 | 1962 |
| 75 | 09047700 | Keystone Gulch near Dillon | 1.39 | 1.44 | 1.48 | 1.57 | 1.57 | 1963 | 1991 | 1966 | 1960 | 1972 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 10.2 | 10.4 | 10.7 | 10.8 | 11.2 | 1977 | 1975 | 1960 | 1963 | 1976 |
| 77 | 09058000 | Colorado River near Kremmling | 257 | 283 | 289 | 314 | 323 | 1914 | 1963 | 1907 | 1904 | 1905 |
| 78 | 09058610 | Dickson Creek near Vail | .00 | .10 | .25 | .39 | .41 | 1983 | 1972 | 1976 | 1988 | 1989 |
| 79 | 09058700 | Freeman Creek near Minturn | .00 | .01 | .02 | .02 | .04 | 1964 | 1990 | 1991 | 1967 | 1970 |
| 80 | 09058800 | East Meadow Creek near Minturn | .40 | .42 | .43 | .43 | .47 | 1978 | 1977 | 1964 | 1999 | 1975 |

Appendix 8. Five lowest historical 90-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 90-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 90-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 81 | 09059500 | Piney River near State Bridge | 7.38 | 9.02 | 9.24 | 9.30 | 9.47 | 1979 | 1978 | 1962 | 1977 | 1976 |
| 82 | 09063000 | Eagle River at Red Cliff | 5.04 | 6.34 | 6.93 | 7.32 | 7.37 | 1988 | 1980 | 1914 | 1974 | 1954 |
| 83 | 09063200 | Wearyman Creek near Red Cliff | .82 | .86 | .92 | .94 | .96 | 1966 | 1991 | 2002 | 1964 | 1988 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 1.69 | 2.19 | 2.28 | 2.31 | 2.32 | 1963 | 1977 | 2002 | 1986 | 1980 |
| 85 | 09063900 | Missouri Creek near Gold Park | .31 | .31 | .43 | .43 | .44 | 1976 | 1975 | 1988 | 1979 | 1989 |
| 86 | 09064000 | Homestake Creek at Gold Park | 2.18 | 2.68 | 3.04 | 3.54 | 3.56 | 1975 | 1948 | 1989 | 1953 | 2002 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 1.34 | 3.41 | 3.46 | 3.48 | 3.57 | 1914 | 1960 | 1980 | 1962 | 1958 |
| 88 | 09065100 | Cross Creek near Minturn | .48 | .65 | 1.24 | 1.34 | 1.37 | 1976 | 1962 | 1968 | 1969 | 1978 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 1.67 | 1.71 | 1.92 | 1.94 | 2.08 | 1976 | 1963 | 1965 | 1975 | 1990 |
| 90 | 09066000 | Black Gore Creek near Minturn | 1.15 | 1.20 | 1.33 | 1.62 | 1.65 | 1978 | 1969 | 1970 | 1967 | 1963 |
| 91 | 09066100 | Bighorn Creek near Minturn | .40 | .40 | .40 | .44 | .47 | 1978 | 1963 | 1980 | 1966 | 1976 |
| 92 | 09066150 | Pitkin Creek near Minturn | .75 | .84 | .87 | .99 | .99 | 1966 | 1991 | 1980 | 1970 | 1990 |
| 93 | 09066200 | Booth Creek near Minturn | .50 | .53 | .57 | .57 | .58 | 1976 | 1966 | 1970 | 1980 | 1974 |
| 94 | 09066300 | Middle Creek near Minturn | .00 | .06 | .11 | .12 | .14 | 1964 | 1977 | 1967 | 1966 | 1980 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | .49 | .53 | .64 | .65 | .65 | 1986 | 1976 | 1978 | 1966 | 1969 |
| 96 | 09067000 | Beaver Creek at Avon | 1.53 | 1.61 | 1.68 | 1.83 | 1.84 | 1980 | 1976 | 1977 | 1975 | 1994 |
| 97 | 09070000 | Eagle River below Gypsum | 133 | 134 | 137 | 143 | 145 | 2002 | 1991 | 1989 | 1963 | 1976 |
| 98 | 09070500 | Colorado River near Dotsero | 521 | 563 | 566 | 580 | 587 | 1942 | 1963 | 2001 | 1954 | 2002 |
| 99 | 09073400 | Roaring Fork River near Aspen | 16.3 | 18.2 | 18.6 | 19.4 | 19.8 | 1976 | 1977 | 1972 | 1978 | 1975 |
| 100 | 09074000 | Hunter Creek near Aspen | 2.53 | 2.77 | 3.06 | 3.14 | 3.33 | 1976 | 1980 | 2001 | 1989 | 2000 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 31.5 | 32.9 | 34.5 | 35.0 | 37.8 | 1963 | 2001 | 1977 | 1976 | 1960 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 277 | 288 | 289 | 304 | 316 | 1934 | 1963 | 2002 | 1939 | 1954 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 936 | 1,035 | 1,086 | 1,113 | 1,142 | 2002 | 2001 | 1980 | 1976 | 1994 |
| 104 | 09089500 | West Divide Creek near Raven | .00 | .26 | .29 | .56 | .61 | 1976 | 1956 | 1977 | 1960 | 1955 |
| 105 | 09095500 | Colorado River near Cameo | 974 | 977 | 1,030 | 1,074 | 1,125 | 1934 | 1963 | 1939 | 2002 | 1940 |
| 106 | 09105000 | Plateau Creek near Cameo | 37.0 | 39.5 | 43.7 | 45.9 | 47.0 | 1977 | 1956 | 2002 | 1963 | 1959 |
| 107 | 09110000 | Taylor River at Almont | 38.3 | 40.0 | 44.2 | 46.0 | 46.3 | 1940 | 1962 | 1954 | 1959 | 1963 |
| 108 | 09112500 | East River at Almont | 32.1 | 40.0 | 41.2 | 44.2 | 46.6 | 1939 | 1976 | 1974 | 1934 | 1963 |
| 109 | 09114500 | Gunnison River near Gunnison | 119 | 119 | 122 | 127 | 133 | 1963 | 1954 | 1960 | 1955 | 1944 |
| 110 | 09115500 | Tomichi Creek at Sargents | 11.6 | 11.9 | 14.1 | 15.5 | 15.6 | 1966 | 2001 | 1996 | 2002 | 1994 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 41.0 | 48.1 | 48.4 | 48.4 | 49.8 | 1978 | 2002 | 1963 | 1937 | 1954 |
| 112 | 09124500 | Lake Fork at Gateview | 31.0 | 31.4 | 32.8 | 32.9 | 34.4 | 2001 | 1976 | 1989 | 1980 | 1955 |
| 113 | 09126000 | Cimarron River near Cimarron | 2.61 | 7.10 | 7.13 | 8.27 | 9.13 | 1970 | 1989 | 1977 | 1990 | 1980 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 31.8 | 32.1 | 37.7 | 42.3 | 42.4 | 1989 | 1977 | 1963 | 1974 | 1976 |
| 115 | 09134000 | Minnesota Creek near Paonia | 1.73 | 1.89 | 1.92 | 2.01 | 2.16 | 1999 | 1989 | 2002 | 1998 | 1940 |
| 116 | 09143000 | Surface Creek near Cedaredge | 1.05 | 1.68 | 1.74 | 2.52 | 2.55 | 1976 | 1975 | 1977 | 1978 | 1992 |
| 117 | 09143500 | Surface Creek at Cedaredge | .53 | .66 | .76 | .94 | .96 | 1939 | 1933 | 1953 | 1921 | 1959 |
| 118 | 09144250 | Gunnison River at Delta | 389 | 434 | 488 | 515 | 552 | 2002 | 1977 | 1989 | 1990 | 1988 |
| 119 | 09146200 | Uncompahgre River near Ridgway | 34.1 | 35.3 | 37.9 | 38.5 | 38.5 | 1976 | 1989 | 1974 | 1978 | 1980 |
| 120 | 09147000 | Dallas Creek near Ridgway | 10.6 | 12.5 | 12.5 | 12.5 | 12.7 | 1956 | 1955 | 1959 | 1980 | 1979 |

Appendix 8. Five lowest historical 90-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 90-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 90-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|-----------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 121 | 09147500 | Uncompahgre River at Colona | 32.3 | 41.4 | 46.6 | 48.1 | 48.3 | 2002 | 1914 | 1934 | 1930 | 1932 |
| 122 | 09149500 | Uncompahgre River at Delta | 74.9 | 85.1 | 86.0 | 92.2 | 97.1 | 1942 | 1940 | 1946 | 1950 | 1989 |
| 123 | 09152500 | Gunnison River near Grand Junction | 479 | 495 | 520 | 625 | 657 | 1898 | 1902 | 1934 | 2002 | 1904 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 1,859 | 1,881 | 2,112 | 2,157 | 2,178 | 2002 | 1963 | 1954 | 1989 | 1956 |
| 125 | 09165000 | Dolores River below Rico | 7.78 | 8.77 | 9.86 | 10.2 | 11.0 | 1989 | 1993 | 1960 | 2002 | 1963 |
| 126 | 09166500 | Dolores River at Dolores | 19.7 | 20.0 | 27.5 | 28.0 | 29.9 | 1989 | 1901 | 1976 | 1956 | 1939 |
| 127 | 09169500 | Dolores River at Bedrock | 9.54 | 14.5 | 15.7 | 18.1 | 18.7 | 1976 | 1975 | 1979 | 1974 | 1977 |
| 128 | 09171100 | Dolores River near Bedrock | 14.5 | 20.1 | 21.0 | 21.7 | 21.8 | 1976 | 1974 | 1979 | 1975 | 2002 |
| 129 | 09172500 | San Miguel River near Placerville | 40.5 | 41.4 | 46.3 | 47.2 | 48.3 | 1976 | 1989 | 1974 | 2002 | 1991 |
| 130 | 09177000 | San Miguel River at Uravan | 50.3 | 50.8 | 54.0 | 59.5 | 60.7 | 1956 | 1976 | 1989 | 2002 | 1955 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 50.5 | 59.9 | 61.2 | 62.5 | 63.2 | 1915 | 1986 | 1976 | 1934 | 1963 |
| 132 | 09241000 | Elk River at Clark | 30.1 | 31.6 | 33.3 | 33.3 | 37.3 | 1963 | 1934 | 1960 | 1952 | 1964 |
| 133 | 09251000 | Yampa River near Maybell | 144 | 151 | 165 | 166 | 172 | 1963 | 1976 | 1934 | 1933 | 1980 |
| 134 | 09253000 | Little Snake River near Slater | 17.7 | 18.9 | 19.2 | 19.5 | 20.0 | 1944 | 1962 | 1952 | 1958 | 1943 |
| 135 | 09255000 | Slater Fork near Slater | 7.43 | 7.52 | 7.63 | 8.66 | 10.2 | 1933 | 1991 | 1931 | 1962 | 1960 |
| 136 | 09260000 | Little Snake River near Lily | 10.6 | 31.7 | 32.0 | 32.5 | 32.6 | 1934 | 1939 | 1963 | 1930 | 1933 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 191 | 205 | 231 | 232 | 235 | 1976 | 1977 | 1990 | 2002 | 1963 |
| 138 | 09304500 | White River near Meeker | 234 | 239 | 242 | 246 | 247 | 1977 | 1976 | 2002 | 1934 | 1963 |
| 139 | 09304800 | White River below Meeker | 260 | 269 | 271 | 271 | 274 | 1990 | 1963 | 1975 | 1977 | 1976 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 5.49 | 6.79 | 9.09 | 9.61 | 11.3 | 2002 | 1967 | 1964 | 1966 | 1990 |
| 141 | 09306222 | Piceance Creek at White River | 5.37 | 9.22 | 13.1 | 13.6 | 15.2 | 2002 | 1964 | 1990 | 1972 | 1991 |
| 142 | 09306242 | Corral Gulch near Rangely | .28 | .28 | 0.30 | .31 | .31 | 1977 | 1992 | 1991 | 1976 | 1990 |
| 143 | 09306255 | Yellow Creek near White River | .11 | .50 | .77 | .97 | 1.26 | 1978 | 1972 | 1977 | 1976 | 1975 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 5.46 | 5.53 | 6.47 | 6.99 | 7.04 | 1958 | 1989 | 1960 | 1976 | 2000 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 27.5 | 32.0 | 32.0 | 34.3 | 35.3 | 1989 | 1963 | 1956 | 1945 | 1976 |
| 146 | 09346400 | San Juan River near Carracas | 72.2 | 74.9 | 78.6 | 82.9 | 90.4 | 1963 | 1989 | 2002 | 1976 | 1967 |
| 147 | 09349800 | Piedra River near Arboles | 26.2 | 31.6 | 34.0 | 39.0 | 40.1 | 2002 | 1989 | 1963 | 1976 | 2001 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 8.60 | 12.2 | 12.7 | 13.2 | 13.5 | 1976 | 2001 | 1963 | 1999 | 2002 |
| 149 | 09354500 | Los Pinos River at La Boca | 17.7 | 36.1 | 36.7 | 37.8 | 37.8 | 2002 | 1977 | 1963 | 1989 | 1999 |
| 150 | 09361500 | Animas River at Durango | 125 | 126 | 144 | 145 | 145 | 1989 | 1932 | 1976 | 1930 | 1953 |
| 151 | 09365500 | La Plata River at Hesperus | 2.85 | 3.21 | 3.22 | 3.61 | 3.62 | 1937 | 1917 | 1989 | 1956 | 1964 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 1.04 | 1.38 | 1.79 | 1.86 | 2.15 | 1977 | 1956 | 1939 | 1955 | 1976 |
| 153 | 09371000 | Mancos River near Towaoc | .38 | .40 | .77 | .86 | 2.78 | 1959 | 2002 | 1977 | 1934 | 1956 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 10.1 | 10.2 | 14.1 | 18.4 | 18.6 | 1977 | 1956 | 2002 | 1963 | 2001 |

¹Listed years are for the year corresponding to October–December of the October–March period.

Appendix 9. Five lowest historical 180-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded.

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 180-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 180-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 1 | 06614800 | Michigan River near Cameron Pass | 0.25 | 0.29 | 0.30 | 0.30 | 0.31 | 1978 | 1980 | 1975 | 1991 | 1994 |
| 2 | 06620000 | North Platte River near Northgate | 55.5 | 58.9 | 59.3 | 63.9 | 71.6 | 1963 | 1934 | 1976 | 1944 | 1956 |
| 3 | 06707500 | South Platte River at South Platte | 58.7 | 74.4 | 74.8 | 83.3 | 87.1 | 1902 | 1958 | 1956 | 1939 | 1908 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | 2.06 | 2.08 | 3.15 | 3.67 | 4.16 | 1956 | 1954 | 1950 | 1952 | 1964 |
| 5 | 06710500 | Bear Creek at Morrison | 9.08 | 9.46 | 10.1 | 10.3 | 10.6 | 1978 | 1934 | 1977 | 1962 | 1956 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 6.41 | 7.72 | 7.86 | 7.87 | 8.65 | 2002 | 1954 | 1934 | 1944 | 1940 |
| 7 | 06712000 | Cherry Creek near Franktown | 1.88 | 2.18 | 2.20 | 2.30 | 2.59 | 1955 | 1953 | 1954 | 1971 | 1968 |
| 8 | 06714000 | South Platte River at Denver | 41.0 | 50.4 | 53.4 | 55.4 | 58.4 | 1956 | 1955 | 1954 | 1934 | 1964 |
| 9 | 06716500 | Clear Creek near Lawson | 24.2 | 26.1 | 26.8 | 27.2 | 27.6 | 2002 | 1950 | 1954 | 1960 | 1962 |
| 10 | 06719505 | Clear Creek at Golden | 34.4 | 39.7 | 39.9 | 41.0 | 41.2 | 2002 | 1994 | 1989 | 1977 | 1981 |
| 11 | 06720500 | South Platte River at Henderson | 45.6 | 49.0 | 54.2 | 54.6 | 64.4 | 1954 | 1934 | 1952 | 1955 | 1962 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 32.9 | 34.9 | 37.8 | 39.8 | 41.0 | 1977 | 2002 | 1981 | 1976 | 1990 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | 2.23 | 3.47 | 5.24 | 6.70 | 7.22 | 1934 | 1939 | 1932 | 1953 | 1931 |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 17.4 | 19.3 | 20.9 | 21.2 | 21.9 | 1978 | 1964 | 1932 | 1944 | 1939 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | .33 | .35 | .54 | .65 | .69 | 1980 | 1978 | 1979 | 1988 | 1981 |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 17.1 | 20.2 | 24.2 | 24.6 | 25.6 | 1964 | 1966 | 1994 | 1956 | 1988 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 2.35 | 3.07 | 3.55 | 3.87 | 4.07 | 1977 | 1976 | 1978 | 1987 | 1975 |
| 18 | 06754000 | South Platte River near Kersey | 165 | 269 | 311 | 337 | 350 | 1934 | 1954 | 1955 | 1956 | 1932 |
| 19 | 06758500 | South Platte River near Weldona | 121 | 123 | 143 | 144 | 158 | 1963 | 1955 | 1964 | 1953 | 1956 |
| 20 | 06764000 | South Platte River at Julesburg | 34.0 | 84.3 | 96.8 | 97.5 | 102 | 2002 | 1964 | 1934 | 1940 | 1956 |
| 21 | 07081200 | Arkansas River near Leadville | 12.1 | 12.7 | 13.0 | 14.1 | 14.8 | 1977 | 1973 | 1976 | 1974 | 2002 |
| 22 | 07083000 | Halfmoon Creek near Malta | 3.63 | 3.80 | 3.94 | 4.15 | 4.22 | 1948 | 1975 | 1974 | 1991 | 1956 |
| 23 | 07086000 | Arkansas River at Granite | 65.9 | 69.1 | 71.9 | 72.0 | 75.0 | 1944 | 1931 | 1933 | 2002 | 1930 |
| 24 | 07091200 | Arkansas River near Nathrop | 177 | 204 | 208 | 221 | 221 | 1977 | 1978 | 1972 | 1974 | 1968 |
| 25 | 07093700 | Arkansas River near Wellsville | 213 | 241 | 265 | 280 | 282 | 2002 | 1977 | 1963 | 1978 | 1968 |
| 26 | 07094500 | Arkansas River at Parkdale | 269 | 305 | 310 | 324 | 328 | 1977 | 1954 | 1978 | 1950 | 1974 |
| 27 | 07096000 | Arkansas River at Canon City | 209 | 214 | 215 | 220 | 224 | 2002 | 1939 | 1977 | 1934 | 1963 |
| 28 | 07097000 | Arkansas River at Portland | 175 | 202 | 215 | 229 | 241 | 1977 | 2002 | 1950 | 1978 | 1944 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 4.80 | 5.38 | 5.50 | 5.53 | 5.60 | 2002 | 1978 | 1964 | 1963 | 1974 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .01 | .06 | .09 | .10 | .10 | 1992 | 1993 | 1988 | 1991 | 1989 |
| 31 | 07104000 | Monument Creek at Pikeview | 6.16 | 6.78 | 7.19 | 7.43 | 7.58 | 1977 | 1939 | 1978 | 1948 | 1976 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 12.0 | 16.5 | 18.2 | 20.3 | 21.4 | 1978 | 1977 | 1976 | 2002 | 1979 |
| 33 | 07105800 | Fountain Creek at Security | 18.9 | 24.3 | 27.3 | 28.5 | 30.8 | 1964 | 1968 | 1967 | 1975 | 1966 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | 1.13 | 1.18 | 1.26 | 1.39 | 1.40 | 2002 | 1989 | 1990 | 1987 | 1995 |
| 35 | 07106300 | Fountain Creek near Pinon | 30.5 | 36.0 | 38.9 | 40.3 | 45.5 | 1977 | 1975 | 1974 | 1978 | 1976 |
| 36 | 07106500 | Fountain Creek at Pueblo | 1.27 | 1.41 | 1.81 | 2.72 | 3.89 | 1953 | 1954 | 1956 | 1952 | 1964 |
| 37 | 07108900 | St. Charles River at Vineland | 2.04 | 2.28 | 2.70 | 2.93 | 3.52 | 1950 | 1952 | 1948 | 1951 | 1971 |
| 38 | 07109500 | Arkansas River near Avondale | 208 | 235 | 261 | 267 | 303 | 2002 | 1978 | 1939 | 1977 | 1950 |
| 39 | 07119500 | Apishapa River near Fowler | 2.36 | 2.49 | 2.93 | 3.02 | 3.07 | 1956 | 1954 | 2002 | 1978 | 1939 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 84.3 | 202 | 226 | 227 | 255 | 2002 | 1978 | 1977 | 1964 | 2001 |

Appendix 9. Five lowest historical 180-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 180-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 180-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 15.3 | 24.0 | 24.1 | 26.5 | 27.9 | 2002 | 1978 | 1974 | 1975 | 1991 |
| 42 | 07123000 | Arkansas River at La Junta | 21.1 | 23.3 | 24.9 | 25.8 | 26.3 | 1934 | 1956 | 1972 | 1950 | 1963 |
| 43 | 07124000 | Arkansas River at Las Animas | 6.94 | 10.3 | 11.9 | 12.0 | 12.6 | 1956 | 1977 | 1974 | 1964 | 1963 |
| 44 | 07124200 | Purgatoire River at Madrid | 9.97 | 11.3 | 13.0 | 13.0 | 13.7 | 1972 | 1976 | 1978 | 2002 | 2001 |
| 45 | 07126300 | Purgatoire River near Thatcher | 8.32 | 8.92 | 9.31 | 9.61 | 10.7 | 1974 | 1975 | 1977 | 1978 | 1972 |
| 46 | 07128500 | Purgatoire River near Las Animas | 2.66 | 3.49 | 3.71 | 4.13 | 4.75 | 1975 | 1956 | 1978 | 1964 | 1976 |
| 47 | 07133000 | Arkansas River at Lamar | 2.34 | 2.42 | 2.44 | 2.45 | 3.08 | 1964 | 1934 | 1978 | 1977 | 1963 |
| 48 | 07134100 | Big Sandy Creek near Lamar | 1.12 | 1.38 | 2.07 | 2.49 | 2.50 | 1977 | 1978 | 1975 | 2002 | 1976 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 27.4 | 28.0 | 28.9 | 29.4 | 30.0 | 1963 | 1954 | 1976 | 1960 | 1958 |
| 50 | 08220000 | Rio Grande near Del Norte | 130 | 138 | 147 | 151 | 153 | 1956 | 2002 | 1964 | 1977 | 1963 |
| 51 | 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | 1.54 | 1.85 | 2.16 | 2.22 | 2.26 | 2002 | 1963 | 1950 | 2001 | 1956 |
| 52 | 08227000 | Saguache Creek near Saguache | 18.7 | 18.7 | 20.4 | 20.8 | 20.8 | 1977 | 1963 | 1950 | 1980 | 1956 |
| 53 | 08231000 | La Garita Creek near La Garita | 1.28 | 2.29 | 2.48 | 2.67 | 2.80 | 1963 | 1940 | 2002 | 1978 | 1951 |
| 54 | 08242500 | Ute Creek near Fort Garland | 1.72 | 2.08 | 2.09 | 2.85 | 2.93 | 1956 | 1951 | 1963 | 2002 | 1950 |
| 55 | 08246500 | Conejos River near Mogote | 38.0 | 39.1 | 39.6 | 42.8 | 43.7 | 2002 | 1951 | 1930 | 1917 | 1950 |
| 56 | 08247500 | San Antonio River at Ortiz | 1.51 | 1.81 | 2.15 | 2.32 | 2.47 | 1976 | 1963 | 1947 | 1945 | 1989 |
| 57 | 08248000 | Los Pinos River near Ortiz | 9.99 | 11.4 | 11.5 | 11.7 | 12.0 | 1963 | 1976 | 1917 | 1951 | 2001 |
| 58 | 08249000 | Conejos River near Lasauses | 12.2 | 22.4 | 23.9 | 26.1 | 27.7 | 2002 | 1977 | 1956 | 1954 | 1963 |
| 59 | 08250000 | Culebra Creek at San Luis | 6.71 | 8.52 | 10.7 | 11.0 | 11.1 | 1950 | 1951 | 1956 | 1954 | 1972 |
| 60 | 08251500 | Rio Grande near Lobatos | 23.9 | 63.3 | 102 | 111 | 121 | 1902 | 1956 | 1963 | 1903 | 2002 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 5.59 | 5.79 | 6.48 | 7.29 | 7.47 | 2002 | 1956 | 1958 | 1964 | 1953 |
| 62 | 09024000 | Fraser River at Winter Park | 3.11 | 3.28 | 3.41 | 3.51 | 4.03 | 1966 | 1963 | 1964 | 1968 | 1969 |
| 63 | 09025000 | Vasquez Creek at Winter Park | 1.19 | 1.61 | 2.00 | 2.05 | 2.15 | 1964 | 1962 | 1963 | 1960 | 1986 |
| 64 | 09026500 | St. Louis Creek near Fraser | 2.89 | 3.17 | 3.18 | 3.18 | 3.27 | 1964 | 1963 | 1967 | 1962 | 2002 |
| 65 | 09032000 | Ranch Creek near Fraser | 1.07 | 1.08 | 1.17 | 1.27 | 1.28 | 1968 | 1963 | 1964 | 1966 | 1962 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | .91 | 1.01 | 1.02 | 1.07 | 1.07 | 1978 | 1979 | 1975 | 1973 | 1991 |
| 67 | 09035500 | Williams Fork below Steelman Creek | .55 | .60 | .63 | .66 | .68 | 1986 | 1977 | 1966 | 1976 | 1974 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 4.61 | 4.78 | 5.09 | 5.12 | 5.24 | 1979 | 1989 | 1974 | 1976 | 1966 |
| 69 | 09035800 | Darling Creek near Leal | 1.61 | 1.87 | 1.96 | 2.10 | 2.17 | 1975 | 1974 | 1989 | 1981 | 1980 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 4.31 | 6.05 | 6.24 | 6.48 | 7.03 | 1966 | 1967 | 1968 | 1978 | 1969 |
| 71 | 09036000 | Williams Fork near Leal | 15.6 | 18.0 | 18.1 | 18.1 | 18.3 | 1963 | 2002 | 1966 | 1977 | 1964 |
| 72 | 09037500 | Williams Fork near Parshall | 26.9 | 30.1 | 30.7 | 31.0 | 31.6 | 1963 | 1956 | 1989 | 1964 | 2002 |
| 73 | 09046600 | Blue River near Dillon | 22.0 | 25.0 | 25.0 | 25.7 | 25.8 | 1977 | 1992 | 1994 | 1966 | 1964 |
| 74 | 09047500 | Snake River near Montezuma | 10.6 | 11.4 | 12.0 | 12.3 | 12.3 | 1977 | 1944 | 1964 | 1966 | 1962 |
| 75 | 09047700 | Keystone Gulch near Dillon | 1.57 | 1.81 | 1.81 | 1.90 | 1.94 | 1963 | 1966 | 1977 | 1960 | 1975 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 10.9 | 14.3 | 14.6 | 14.6 | 14.7 | 1977 | 1963 | 1960 | 1966 | 1975 |
| 77 | 09058000 | Colorado River near Kremmling | 369 | 386 | 395 | 396 | 403 | 1963 | 1908 | 1905 | 1907 | 1904 |
| 78 | 09058610 | Dickson Creek near Vail | .00 | .13 | .30 | .48 | .54 | 1983 | 1972 | 1976 | 1988 | 1989 |
| 79 | 09058700 | Freeman Creek near Minturn | .04 | .04 | .05 | .06 | .06 | 1964 | 1990 | 1992 | 1967 | 1977 |
| 80 | 09058800 | East Meadow Creek near Minturn | .51 | .55 | .55 | .57 | .58 | 1977 | 1978 | 1964 | 1999 | 1990 |

Appendix 9. Five lowest historical 180-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded.—Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 180-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 180-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------|------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 81 | 09059500 | Piney River near State Bridge | 8.24 | 9.66 | 10.0 | 10.8 | 11.3 | 1979 | 1978 | 1963 | 1976 | 1977 |
| 82 | 09063000 | Eagle River at Red Cliff | 7.69 | 7.99 | 8.70 | 8.75 | 8.92 | 1988 | 1980 | 2002 | 1954 | 1976 |
| 83 | 09063200 | Wearyman Creek near Red Cliff | 1.11 | 1.17 | 1.18 | 1.20 | 1.34 | 2002 | 1991 | 1988 | 1966 | 1964 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 2.70 | 2.76 | 2.82 | 3.04 | 3.17 | 1977 | 2002 | 1963 | 1994 | 1976 |
| 85 | 09063900 | Missouri Creek near Gold Park | .54 | .55 | .63 | .72 | .75 | 1975 | 1979 | 1978 | 1988 | 1989 |
| 86 | 09064000 | Homestake Creek at Gold Park | 3.86 | 3.98 | 3.98 | 4.10 | 4.22 | 1953 | 1948 | 1975 | 1989 | 1952 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 4.02 | 4.84 | 4.86 | 5.35 | 5.43 | 1958 | 1960 | 1956 | 1944 | 1962 |
| 88 | 09065100 | Cross Creek near Minturn | 2.16 | 2.24 | 2.33 | 2.78 | 2.79 | 1956 | 1962 | 1968 | 1978 | 1974 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 2.24 | 2.28 | 2.60 | 2.69 | 2.91 | 1975 | 1963 | 1964 | 1988 | 1948 |
| 90 | 09066000 | Black Gore Creek near Minturn | 1.76 | 2.00 | 2.06 | 2.08 | 2.09 | 1963 | 1966 | 1967 | 1969 | 1980 |
| 91 | 09066100 | Bighorn Creek near Minturn | .63 | .71 | .81 | .84 | .87 | 1963 | 1979 | 1974 | 1978 | 1966 |
| 92 | 09066150 | Pitkin Creek near Minturn | 1.00 | 1.39 | 1.39 | 1.39 | 1.50 | 1966 | 1975 | 1991 | 1988 | 1974 |
| 93 | 09066200 | Booth Creek near Minturn | .67 | .72 | .79 | .87 | .91 | 1974 | 1964 | 1975 | 1967 | 1973 |
| 94 | 09066300 | Middle Creek near Minturn | .06 | .21 | .28 | .29 | .29 | 1964 | 1977 | 1966 | 1975 | 1967 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | .75 | .76 | .80 | .83 | .84 | 1988 | 1976 | 1987 | 1978 | 1989 |
| 96 | 09067000 | Beaver Creek at Avon | 1.82 | 2.00 | 2.24 | 2.35 | 2.37 | 1980 | 1977 | 1976 | 1975 | 1991 |
| 97 | 09070000 | Eagle River below Gypsum | 148 | 150 | 154 | 162 | 163 | 2002 | 1989 | 1963 | 1991 | 1964 |
| 98 | 09070500 | Colorado River near Dotsero | 609 | 664 | 680 | 684 | 724 | 1942 | 2002 | 1954 | 1963 | 2001 |
| 99 | 09073400 | Roaring Fork River near Aspen | 20.3 | 21.1 | 21.6 | 21.7 | 21.8 | 1977 | 1978 | 1976 | 2002 | 1972 |
| 100 | 09074000 | Hunter Creek near Aspen | 3.63 | 4.01 | 4.62 | 4.86 | 5.02 | 1989 | 1980 | 2001 | 2000 | 1976 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 39.2 | 40.9 | 41.6 | 45.4 | 45.7 | 1963 | 1977 | 2001 | 1976 | 1974 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 322 | 335 | 346 | 367 | 371 | 1934 | 1963 | 2002 | 1955 | 1939 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 1,083 | 1,217 | 1,282 | 1,339 | 1,342 | 2002 | 2001 | 1977 | 1976 | 1966 |
| 104 | 09089500 | West Divide Creek near Raven | .37 | .66 | .76 | .79 | 1.07 | 1976 | 1956 | 1977 | 1960 | 1955 |
| 105 | 09095500 | Colorado River near Cameo | 1,011 | 1,196 | 1,204 | 1,213 | 1,343 | 1934 | 1963 | 1939 | 2002 | 1935 |
| 106 | 09105000 | Plateau Creek near Cameo | 43.3 | 49.5 | 50.4 | 56.3 | 56.7 | 1977 | 2002 | 1956 | 1990 | 1955 |
| 107 | 09110000 | Taylor River at Almont | 47.8 | 50.7 | 53.1 | 55.8 | 62.3 | 1940 | 1937 | 1962 | 1954 | 1959 |
| 108 | 09112500 | East River at Almont | 51.2 | 53.8 | 54.5 | 54.7 | 56.3 | 1977 | 1939 | 1963 | 1976 | 1934 |
| 109 | 09114500 | Gunnison River near Gunnison | 158 | 158 | 158 | 170 | 172 | 1962 | 1944 | 1954 | 1963 | 1955 |
| 110 | 09115500 | Tomichi Creek at Sargents | 16.4 | 17.5 | 18.1 | 19.3 | 19.6 | 1966 | 2002 | 1954 | 1963 | 1955 |
| 111 | 09119000 | Tomichi Creek at Gunnison | 52.6 | 53.4 | 56.5 | 58.3 | 61.4 | 2002 | 1963 | 1954 | 1937 | 1950 |
| 112 | 09124500 | Lake Fork at Gateview | 39.2 | 40.4 | 41.0 | 41.4 | 42.0 | 1976 | 1956 | 1955 | 1980 | 1989 |
| 113 | 09126000 | Cimarron River near Cimarron | 11.6 | 12.2 | 12.7 | 13.0 | 13.3 | 1990 | 1977 | 1976 | 1956 | 1989 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 39.6 | 43.1 | 48.6 | 52.0 | 52.2 | 1989 | 1977 | 1963 | 1974 | 2001 |
| 115 | 09134000 | Minnesota Creek near Paonia | 2.03 | 2.62 | 2.77 | 2.80 | 2.84 | 1999 | 1998 | 2000 | 2002 | 1989 |
| 116 | 09143000 | Surface Creek near Cedaredge | 2.87 | 3.78 | 4.04 | 4.06 | 4.12 | 1977 | 1974 | 1989 | 1975 | 1963 |
| 117 | 09143500 | Surface Creek at Cedaredge | 1.42 | 1.74 | 1.78 | 1.95 | 2.37 | 1919 | 1933 | 1921 | 1918 | 1939 |
| 118 | 09144250 | Gunnison River at Delta | 422 | 519 | 563 | 637 | 640 | 2002 | 1977 | 1989 | 1990 | 1988 |
| 119 | 09146200 | Uncompahgre River near Ridgway | 42.9 | 43.7 | 45.9 | 46.3 | 46.8 | 1976 | 1989 | 1974 | 1980 | 1978 |
| 120 | 09147000 | Dallas Creek near Ridgway | 13.4 | 14.2 | 14.2 | 14.5 | 14.5 | 1956 | 1980 | 1967 | 1979 | 1989 |

Appendix 9. Five lowest historical 180-day winter streamflows during October–March for selected stations in Colorado and the corresponding years in which the streamflows were recorded. —Continued

[Listed data are from beginning of record through March 31, 2003; see table 1 for exact periods of record]

| Map identi- fication (fig. 4) | Station number | Station name | Five lowest 180-day winter streamflows during October–March, in cubic feet per second | | | | | Years in which the 180-day winter streamflows listed to the left were recorded ¹ | | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|------------------------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
| | | | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest | Lowest | Second lowest | Third lowest | Fourth lowest | Fifth lowest |
| 121 | 09147500 | Uncompahgre River at Colona | 45.8 | 52.6 | 56.9 | 61.8 | 64.2 | 2002 | 1989 | 1934 | 1932 | 1914 |
| 122 | 09149500 | Uncompahgre River at Delta | 132 | 139 | 150 | 153 | 157 | 1950 | 1977 | 1939 | 1966 | 1940 |
| 123 | 09152500 | Gunnison River near Grand Junction | 501 | 553 | 618 | 768 | 781 | 1902 | 1898 | 1934 | 2002 | 1903 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 2,126 | 2,136 | 2,302 | 2,362 | 2,437 | 2002 | 1963 | 1956 | 1977 | 1955 |
| 125 | 09165000 | Dolores River below Rico | 12.8 | 14.7 | 14.8 | 16.0 | 16.1 | 1989 | 1951 | 1963 | 1956 | 1968 |
| 126 | 09166500 | Dolores River at Dolores | 24.3 | 34.2 | 37.0 | 39.8 | 39.9 | 1901 | 1989 | 1934 | 1963 | 1956 |
| 127 | 09169500 | Dolores River at Bedrock | 14.7 | 25.9 | 31.3 | 35.5 | 35.8 | 1976 | 1980 | 2002 | 1975 | 1974 |
| 128 | 09171100 | Dolores River near Bedrock | 19.3 | 29.9 | 35.3 | 38.1 | 40.4 | 1976 | 2002 | 1980 | 2001 | 1974 |
| 129 | 09172500 | San Miguel River near Placerville | 49.9 | 52.7 | 52.8 | 54.2 | 56.0 | 1989 | 1976 | 1956 | 1974 | 1980 |
| 130 | 09177000 | San Miguel River at Uravan | 59.4 | 67.1 | 67.6 | 70.5 | 73.4 | 1989 | 1976 | 1955 | 1956 | 2001 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 67.5 | 72.3 | 79.0 | 81.5 | 83.3 | 1963 | 1976 | 2002 | 1934 | 1977 |
| 132 | 09241000 | Elk River at Clark | 33.6 | 39.0 | 39.7 | 41.1 | 41.5 | 1963 | 1952 | 1964 | 1960 | 1956 |
| 133 | 09251000 | Yampa River near Maybell | 160 | 203 | 205 | 226 | 226 | 1963 | 1976 | 1943 | 1980 | 1944 |
| 134 | 09253000 | Little Snake River near Slater | 20.1 | 22.1 | 23.8 | 24.0 | 24.2 | 1944 | 1963 | 1958 | 1952 | 1954 |
| 135 | 09255000 | Slater Fork near Slater | 10.4 | 10.7 | 11.5 | 11.8 | 12.4 | 1933 | 1931 | 1960 | 1932 | 1963 |
| 136 | 09260000 | Little Snake River near Lily | 46.2 | 51.3 | 54.9 | 62.7 | 64.7 | 1963 | 1934 | 1933 | 1939 | 1976 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 220 | 225 | 240 | 241 | 242 | 1977 | 1976 | 2002 | 1990 | 1963 |
| 138 | 09304500 | White River near Meeker | 245 | 255 | 259 | 260 | 264 | 1977 | 2002 | 1967 | 1934 | 1963 |
| 139 | 09304800 | White River below Meeker | 283 | 290 | 298 | 303 | 304 | 1963 | 1977 | 1967 | 1990 | 2002 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 7.79 | 9.40 | 11.4 | 11.7 | 13.6 | 2002 | 1967 | 1964 | 1966 | 2000 |
| 141 | 09306222 | Piceance Creek at White River | 8.51 | 13.4 | 16.2 | 16.4 | 18.5 | 2002 | 1964 | 1990 | 1972 | 2001 |
| 142 | 09306242 | Corral Gulch near Rangely | .30 | .32 | .35 | .36 | .43 | 1992 | 1991 | 1976 | 1990 | 1994 |
| 143 | 09306255 | Yellow Creek near White River | .78 | 1.08 | 1.28 | 1.38 | 1.8 | 1978 | 1977 | 1972 | 1976 | 1974 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 8.98 | 9.10 | 9.94 | 10.6 | 10.7 | 1958 | 1960 | 1963 | 1976 | 1956 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 40.0 | 45.0 | 45.7 | 47.0 | 48.2 | 1963 | 2001 | 1950 | 1956 | 1945 |
| 146 | 09346400 | San Juan River near Carracas | 98.0 | 108 | 116 | 120 | 121 | 1963 | 2001 | 1976 | 1989 | 1967 |
| 147 | 09349800 | Piedra River near Arboles | 46.4 | 48.8 | 58.5 | 59.6 | 61.9 | 1963 | 2001 | 1976 | 1967 | 2002 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 16.8 | 18.8 | 19.0 | 19.7 | 19.8 | 2001 | 1979 | 1975 | 1967 | 1963 |
| 149 | 09354500 | Los Pinos River at La Boca | 30.0 | 51.8 | 53.3 | 56.0 | 63.2 | 2002 | 1963 | 1989 | 2001 | 1967 |
| 150 | 09361500 | Animas River at Durango | 160 | 166 | 172 | 173 | 177 | 1989 | 1934 | 2001 | 1950 | 1953 |
| 151 | 09365500 | La Plata River at Hesperus | 4.20 | 4.36 | 4.38 | 4.42 | 4.97 | 1956 | 1917 | 1937 | 1989 | 1977 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 2.59 | 3.24 | 3.29 | 3.44 | 3.98 | 1976 | 1956 | 1977 | 2002 | 1950 |
| 153 | 09371000 | Mancos River near Towaoc | 4.25 | 5.61 | 6.18 | 6.74 | 7.89 | 2002 | 1934 | 1958 | 1924 | 2001 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 16.1 | 22.8 | 24.0 | 24.0 | 25.9 | 2002 | 1963 | 1956 | 1977 | 1960 |

¹Listed years are for the year corresponding to October–December of the October–March period.

Appendix 10. Estimated 180-day winter streamflows during October–March for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day winter streamflows during October–March, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado.

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; =, equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day winter streamflows during October–March for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day winter streamflows during October–March 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-----------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 NonexP; 100-year RI | 0.02 NonexP; 50-year RI | 0.05 NonexP; 20-year RI | 0.10 NonexP; 10-year RI | '2002 | | '1977 | |
| | | | | | | | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 1 | 06614800 | Michigan River near Cameron Pass | 0.22 | 0.24 | 0.27 | 0.30 | 0.41 | <10 | 0.54 | <10 |
| 2 | 06620000 | North Platte River near Northgate | 55.7 | 59.6 | 66.4 | 73.9 | 81.0 | <10 | 92.8 | <10 |
| 3 | ² 06707500 | South Platte River at South Platte | 56.4 | 64.9 | 79.6 | 94.5 | 248 | <10 | 231 | <10 |
| 4 | 06709530 | Plum Creek at Titan Road near Louviers | 3.99 | 4.48 | 5.37 | 6.39 | 6.29 | >10, but <=20 | 6.24 | >10, but <=20 |
| 5 | 06710500 | Bear Creek at Morrison | 8.76 | 9.58 | 11.0 | 12.4 | 11.2 | >10, but <=20 | 10.1 | >20, but <=50 |
| 6 | 06711500 | Bear Creek at mouth at Sheridan | 6.22 | 7.47 | 9.72 | 12.1 | 6.41 | >50, but <=100 | 15.9 | <10 |
| 7 | 06712000 | Cherry Creek near Franktown | 3.14 | 3.40 | 3.88 | 4.40 | 4.03 | >10, but <=20 | 3.66 | >20, but <=50 |
| 8 | 06714000 | South Platte River at Denver | 93.2 | 94.9 | 98.6 | 103 | 97.2 | >20, but <=50 | 87.2 | >100 |
| 9 | 06716500 | Clear Creek near Lawson | 23.6 | 25.0 | 27.2 | 29.4 | 24.2 | >50, but <=100 | 30.8 | <10 |
| 10 | 06719505 | Clear Creek at Golden | 33.7 | 35.2 | 37.7 | 40.2 | 34.4 | >50, but <=100 | 41.0 | <10 |
| 11 | 06720500 | South Platte River at Henderson | 163 | 172 | 187 | 204 | 267 | <10 | 183 | >20, but <=50 |
| 12 | 06725450 | St. Vrain Creek below Longmont | 32.5 | 33.4 | 35.1 | 37.0 | 34.9 | >20, but <=50 | 32.9 | >50, but <=100 |
| 13 | 06730500 | Boulder Creek at mouth near Longmont | 24.7 | 28.7 | 35.2 | 41.5 | 25.7 | >50, but <=100 | -- | -- |
| 14 | 06738000 | Big Thompson River at mouth of canyon near Drake | 11.1 | 13.6 | 17.6 | 21.6 | 31.1 | <10 | 10.5 | >100 |
| 15 | 06746095 | Joe Wright Creek above Joe Wright Reservoir | .26 | .31 | .41 | .51 | .93 | <10 | -- | -- |
| 16 | 06752000 | Cache La Poudre River at mouth of canyon near Fort Collins | 19.2 | 20.3 | 22.4 | 24.8 | 25.7 | <10 | 29.4 | <10 |
| 17 | 06752260 | Cache La Poudre River at Fort Collins | 1.18 | 1.57 | 2.43 | 3.61 | 7.28 | <10 | 2.35 | >20, but <=50 |
| 18 | 06754000 | South Platte River near Kersey | 475 | 499 | 541 | 585 | 526 | >20, but <=50 | 520 | >20, but <=50 |
| 19 | 06758500 | South Platte River near Weldona | 151 | 175 | 219 | 265 | 214 | >20, but <=50 | 195 | >20, but <=50 |
| 20 | 06764000 | South Platte River at Julesburg | 36.5 | 55.7 | 99.26 | 157 | 34.0 | >100 | 131 | >10, but <=20 |
| 21 | 07081200 | Arkansas River near Leadville | 10.8 | 11.5 | 12.6 | 13.7 | 14.8 | <10 | 12.1 | >20, but <=50 |
| 22 | 07083000 | Halfmoon Creek near Malta | 3.38 | 3.55 | 3.85 | 4.15 | 4.25 | <10 | 4.33 | <10 |
| 23 | 07086000 | Arkansas River at Granite | 67.9 | 75.4 | 88.2 | 101 | 72.0 | >50, but <=100 | 110 | <10 |
| 24 | ² 07091200 | Arkansas River near Nathrop | 165 | 175 | 190 | 204 | -- | -- | 177 | >20, but <=50 |
| 25 | 07093700 | Arkansas River near Wellsville | 209 | 227 | 254 | 281 | 213 | >50, but <=100 | 241 | >20, but <=50 |
| 26 | 07094500 | Arkansas River at Parkdale | 256 | 274 | 301 | 327 | -- | -- | 269 | >50, but <=100 |
| 27 | 07096000 | Arkansas River at Canon City | 184 | 204 | 237 | 269 | 209 | >20, but <=50 | 215 | >20, but <=50 |
| 28 | 07097000 | Arkansas River at Portland | 159 | 181 | 218 | 253 | 202 | >20, but <=50 | 175 | >50, but <=100 |
| 29 | 07103700 | Fountain Creek near Colorado Springs | 3.98 | 4.36 | 5.00 | 5.69 | 4.80 | >20, but <=50 | 6.71 | <10 |
| 30 | 07103800 | West Monument Creek at Air Force Academy | .01 | .02 | .04 | .07 | .32 | <10 | .18 | <10 |
| 31 | 07104000 | Monument Creek at Pikeview | 4.80 | 5.75 | 7.45 | 9.28 | 13.8 | <10 | 6.16 | >20, but <=50 |
| 32 | 07105500 | Fountain Creek at Colorado Springs | 12.0 | 13.2 | 15.4 | 17.7 | 20.3 | <10 | 16.5 | >10, but <=20 |
| 33 | 07105800 | Fountain Creek at Security | 21.4 | 25.5 | 32.8 | 40.7 | 80.9 | <10 | 33.2 | >10, but <=20 |
| 34 | 07105900 | Jimmy Camp Creek at Fountain | 1.00 | 1.08 | 1.20 | 1.32 | 1.13 | >20, but <=50 | 1.78 | <10 |
| 35 | 07106300 | Fountain Creek near Pinon | 23.4 | 27.8 | 35.9 | 44.7 | 86.6 | <10 | 30.5 | >20, but <=50 |
| 36 | 07106500 | Fountain Creek at Pueblo | 25.4 | 30.3 | 39.2 | 48.8 | 97.3 | <10 | 41.4 | >10, but <=20 |

Appendix 10. Estimated 180-day winter streamflows during October–March for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day winter streamflows during October–March, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado.—Continued

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; =, equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day winter streamflows during October–March for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day winter streamflows during October–March 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-----------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 | 0.02 | 0.05 | 0.10 | '2002 | | '1977 | |
| | | | NonexP; 100-year RI | NonexP; 50-year RI | NonexP; 20-year RI | NonexP; 10-year RI | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 37 | 07108900 | St. Charles River at Vineland | 4.19 | 4.71 | 5.64 | 6.64 | 5.29 | >20, but <=50 | -- | -- |
| 38 | 07109500 | Arkansas River near Avondale | 214 | 230 | 256 | 283 | 208 | >100 | 267 | >10, but <=20 |
| 39 | 07119500 | Apishapa River near Fowler | 2.41 | 2.71 | 3.26 | 3.85 | 2.93 | >20, but <=50 | 5.95 | <10 |
| 40 | 07119700 | Arkansas River at Catlin Dam near Fowler | 103 | 125 | 163 | 203 | 84.3 | >100 | 226 | <10 |
| 41 | 07121500 | Timpas Creek at mouth near Swink | 15.5 | 17.8 | 21.6 | 25.5 | 15.3 | >100 | 35.2 | <10 |
| 42 | 07123000 | Arkansas River at La Junta | 17.8 | 21.9 | 29.9 | 39.3 | 42.0 | <10 | 29.7 | >20, but <=50 |
| 43 | 07124000 | Arkansas River at Las Animas | 7.03 | 10.7 | 19.3 | 31.2 | 53.7 | <10 | 10.3 | >50, but <=100 |
| 44 | 07124200 | Purgatoire River at Madrid | 8.68 | 9.74 | 11.5 | 13.3 | 13.0 | >10, but <=20 | 14.2 | <10 |
| 45 | 07126300 | Purgatoire River near Thatcher | 5.03 | 6.31 | 8.72 | 11.4 | 11.3 | >10, but <=20 | 9.31 | >10, but <=20 |
| 46 | 07128500 | Purgatoire River near Las Animas | 1.60 | 2.48 | 4.52 | 7.32 | 6.61 | >10, but <=20 | 8.67 | <10 |
| 47 | 07133000 | Arkansas River at Lamar | 1.80 | 2.43 | 3.78 | 5.59 | 4.23 | >10, but <=20 | 2.45 | >20, but <=50 |
| 48 | 07134100 | Big Sandy Creek near Lamar | 0.39 | 0.59 | 1.10 | 1.86 | 2.49 | <10 | 1.12 | >10, but <=20 |
| 49 | 08219500 | South Fork Rio Grande at South Fork | 24.4 | 26.4 | 29.7 | 33.1 | 30.3 | >10, but <=20 | 38.8 | <10 |
| 50 | 08220000 | Rio Grande near Del Norte | 130 | 138 | 152 | 166 | 138 | =50 | 151 | >20, but <=50 |
| 51 | ² 08224500 | Kerber Creek above Little Kerber Creek near Villa Grove | 1.59 | 1.73 | 1.96 | 2.20 | 1.54 | >100 | 2.95 | <10 |
| 52 | 08227000 | Saguache Creek near Saguache | 16.8 | 18.0 | 19.9 | 21.7 | 21.0 | >10, but <=20 | 18.7 | >20, but <=50 |
| 53 | ² 08231000 | La Garita Creek near La Garita | 1.48 | 1.70 | 2.08 | 2.48 | 2.48 | =10 | 3.19 | <10 |
| 54 | ² 08242500 | Ute Creek near Fort Garland | 1.62 | 1.97 | 2.58 | 3.21 | 2.85 | >10, but <=20 | 4.23 | <10 |
| 55 | 08246500 | Conejos River near Mogote | 34.2 | 36.8 | 41.3 | 45.9 | 38.0 | >20, but <=50 | 51.7 | <10 |
| 56 | 08247500 | San Antonio River at Ortiz | 1.45 | 1.65 | 2.03 | 2.46 | 6.83 | <10 | 3.62 | <10 |
| 57 | 08248000 | Los Pinos River near Ortiz | 10.1 | 10.8 | 12.1 | 13.4 | 14.6 | <10 | 12.6 | >10, but <=20 |
| 58 | 08249000 | Conejos River near Lasausas | 11.9 | 15.2 | 21.4 | 28.4 | 12.2 | >50, but <=100 | 22.4 | >10, but <=20 |
| 59 | ² 08250000 | Culebra Creek at San Luis | 8.75 | 9.30 | 10.3 | 11.2 | 11.3 | <10 | 12.6 | <10 |
| 60 | 08251500 | Rio Grande near Lobatos | 107 | 120 | 143 | 167 | 121 | >20, but <=50 | 127 | >20, but <=50 |
| 61 | 09010500 | Colorado River below Baker Gulch near Grand Lake | 5.51 | 5.93 | 6.65 | 7.39 | 5.59 | >50, but <=100 | 11.1 | <10 |
| 62 | 09024000 | Fraser River at Winter Park | 3.86 | 3.94 | 4.11 | 4.29 | 4.92 | <10 | 5.48 | <10 |
| 63 | 09025000 | Vasquez Creek at Winter Park | 1.81 | 2.04 | 2.43 | 2.83 | 5.40 | <10 | 2.87 | <10 |
| 64 | 09026500 | St. Louis Creek near Fraser | 3.96 | 4.18 | 4.54 | 4.90 | 3.27 | >100 | 5.19 | <10 |
| 65 | 09032000 | Ranch Creek near Fraser | 1.89 | 1.96 | 2.07 | 2.18 | 2.38 | <10 | 2.77 | <10 |
| 66 | 09034900 | Bobtail Creek near Jones Pass | .89 | .92 | .98 | 1.04 | 1.23 | <10 | 1.16 | <10 |
| 67 | 09035500 | Williams Fork below Steelman Creek | .27 | .34 | .49 | .67 | .73 | <10 | .60 | >10, but <=20 |
| 68 | 09035700 | Williams Fork above Darling Creek near Leal | 4.00 | 4.21 | 4.58 | 5.00 | 5.27 | <10 | 5.80 | <10 |
| 69 | 09035800 | Darling Creek near Leal | 1.66 | 1.73 | 1.85 | 1.97 | 2.20 | <10 | 2.26 | <10 |
| 70 | 09035900 | South Fork Williams Fork near Leal | 6.40 | 6.68 | 7.14 | 7.58 | 7.62 | <10 | 8.91 | <10 |

Appendix 10. Estimated 180-day winter streamflows during October–March for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day winter streamflows during October–March, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado.—Continued

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; =, equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day winter streamflows during October–March for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day winter streamflows during October–March 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-----------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 NonexP; 100-year RI | 0.02 NonexP; 50-year RI | 0.05 NonexP; 20-year RI | 0.10 NonexP; 10-year RI | '2002 | | '1977 | |
| | | | | | | | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 71 | 09036000 | Williams Fork near Leal | 16.6 | 17.2 | 18.3 | 19.3 | 18.0 | >20, but <=50 | 18.1 | >20, but <=50 |
| 72 | 09037500 | Williams Fork near Parshall | 29.2 | 29.8 | 31.0 | 32.2 | 31.6 | >10, but <=20 | 34.1 | <10 |
| 73 | 09046600 | Blue River near Dillon | 22.2 | 22.8 | 24.0 | 25.2 | 26.0 | <10 | 22.0 | >100 |
| 74 | 09047500 | Snake River near Montezuma | 11.5 | 11.9 | 12.5 | 13.1 | 16.7 | <10 | 10.6 | >100 |
| 75 | 09047700 | Keystone Gulch near Dillon | 1.67 | 1.76 | 1.91 | 2.05 | 2.06 | <10 | 1.81 | >20, but <=50 |
| 76 | 09050100 | Tenmile Creek below North Tenmile Creek at Frisco | 11.2 | 12.2 | 13.8 | 15.4 | 23.4 | <10 | 10.9 | >100 |
| 77 | 09058000 | Colorado River near Kremmling | 352 | 372 | 405 | 438 | 429 | >10, but <=20 | 431 | >10, but <=20 |
| 78 | ³ 09058610 | Dickson Creek near Vail | -- | -- | -- | -- | 0.80 | -- | 0.56 | -- |
| 79 | 09058700 | Freeman Creek near Minturn | .04 | .04 | .06 | .07 | .08 | <10 | 0.06 | =20 |
| 80 | 09058800 | East Meadow Creek near Minturn | .47 | .50 | .54 | .59 | .70 | <10 | 0.51 | >20, but <=50 |
| 81 | 09059500 | Piney River near State Bridge | 8.00 | 8.61 | 9.62 | 10.6 | 14.5 | <10 | 11.3 | <10 |
| 82 | 09063000 | Eagle River at Red Cliff | 7.79 | 7.99 | 8.34 | 8.71 | 8.70 | >10, but <=20 | 9.26 | <10 |
| 83 | 09063200 | Wearymen Creek near Red Cliff | 1.08 | 1.14 | 1.24 | 1.34 | 1.11 | >50, but <=100 | 1.57 | <10 |
| 84 | 09063400 | Turkey Creek near Red Cliff | 2.68 | 2.77 | 2.93 | 3.09 | 2.76 | >50, but <=100 | 2.70 | >50, but <=100 |
| 85 | 09063900 | Missouri Creek near Gold Park | .40 | .46 | .57 | .69 | 1.68 | <10 | 1.13 | <10 |
| 86 | 09064000 | Homestake Creek at Gold Park | 3.54 | 3.88 | 4.44 | 5.01 | 8.14 | <10 | 7.33 | <10 |
| 87 | 09064500 | Homestake Creek near Red Cliff | 5.18 | 5.56 | 6.21 | 6.89 | 11.6 | <10 | 10.0 | <10 |
| 88 | 09065100 | Cross Creek near Minturn | 2.03 | 2.33 | 2.85 | 3.38 | 7.69 | <10 | 5.84 | <10 |
| 89 | 09065500 | Gore Creek at upper station near Minturn | 2.51 | 2.57 | 2.69 | 2.85 | 4.73 | <10 | 4.80 | <10 |
| 90 | 09066000 | Black Gore Creek near Minturn | 1.99 | 2.01 | 2.06 | 2.14 | 2.77 | <10 | 2.13 | >10, but <=20 |
| 91 | 09066100 | Bighorn Creek near Minturn | .72 | .75 | .81 | .87 | 1.49 | <10 | 1.20 | <10 |
| 92 | 09066150 | Pitkin Creek near Minturn | 1.21 | 1.28 | 1.40 | 1.51 | 2.59 | <10 | 2.37 | <10 |
| 93 | 09066200 | Booth Creek near Minturn | .71 | .74 | .81 | .89 | 1.57 | <10 | 1.51 | <10 |
| 94 | 09066300 | Middle Creek near Minturn | .23 | .24 | .26 | .29 | 0.40 | <10 | 0.21 | >100 |
| 95 | 09066400 | Red Sandstone Creek near Minturn | .66 | .70 | .78 | .86 | 1.03 | <10 | 1.01 | <10 |
| 96 | 09067000 | Beaver Creek at Avon | 1.68 | 1.80 | 1.99 | 2.18 | 2.75 | <10 | 2.00 | >10, but <=20 |
| 97 | 09070000 | Eagle River below Gypsum | 140 | 145 | 154 | 162 | 148 | >20, but <=50 | 171 | <10 |
| 98 | 09070500 | Colorado River near Dotsero | 615 | 653 | 714 | 773 | 664 | >20, but <=50 | 776 | <10 |
| 99 | 09073400 | Roaring Fork River near Aspen | 17.3 | 18.4 | 20.2 | 22.0 | 21.7 | >10, but <=20 | 20.3 | >10, but <=20 |
| 100 | 09074000 | Hunter Creek near Aspen | 3.29 | 3.63 | 4.20 | 4.79 | 6.17 | <10 | 7.10 | <10 |
| 101 | 09081600 | Crystal River above Avalanche Creek near Redstone | 36.7 | 38.2 | 41.1 | 44.1 | 50.4 | <10 | 40.9 | >20, but <=50 |
| 102 | 09085000 | Roaring Fork River at Glenwood Springs | 342 | 362 | 395 | 426 | 346 | >50, but <=100 | 416 | >10, but <=20 |
| 103 | 09085100 | Colorado River below Glenwood Springs | 1,034 | 1,093 | 1,188 | 1,279 | 1,083 | >50, but <=100 | 1,282 | <10 |
| 104 | 09089500 | West Divide Creek near Raven | .34 | .47 | .74 | 1.09 | -- | -- | .76 | >10, but <=20 |
| 105 | 09095500 | Colorado River near Cameo | 1,167 | 1,231 | 1,337 | 1,440 | 1,213 | >50, but <=100 | 1,426 | >10, but <=20 |

Appendix 10. Estimated 180-day winter streamflows during October–March for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day winter streamflows during October–March, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado.—Continued

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; =, equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day winter streamflows during October–March for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day winter streamflows during October–March 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-----------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 | 0.02 | 0.05 | 0.10 | '2002 | | '1977 | |
| | | | NonexP; 100-year RI | NonexP; 50-year RI | NonexP; 20-year RI | NonexP; 10-year RI | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 106 | 09105000 | Plateau Creek near Cameo | 38.0 | 43.2 | 51.9 | 60.5 | 49.5 | >20, but <=50 | 43.3 | >20, but <=50 |
| 107 | 09110000 | Taylor River at Almont | 94.3 | 101 | 111 | 121 | 92.7 | >100 | 133 | <10 |
| 108 | 09112500 | East River at Almont | 51.3 | 52.8 | 55.5 | 58.5 | 63.0 | <10 | 51.2 | >100 |
| 109 | 09114500 | Gunnison River near Gunnison | 190 | 197 | 208 | 219 | 195 | >50, but <=100 | 226 | <10 |
| 110 | ² 09115500 | Tomichi Creek at Sargents | 15.1 | 16.0 | 17.3 | 18.7 | 17.5 | >10, but <=20 | -- | -- |
| 111 | 09119000 | Tomichi Creek at Gunnison | 51.3 | 54.4 | 59.5 | 64.4 | 52.6 | >50, but <=100 | 70.3 | <10 |
| 112 | 09124500 | Lake Fork at Gateview | 33.9 | 36.0 | 39.5 | 42.9 | 49.2 | <10 | 44.3 | <10 |
| 113 | 09126000 | Cimarron River near Cimarron | 10.4 | 11.1 | 12.4 | 13.6 | 15.2 | <10 | 12.2 | >20, but <=50 |
| 114 | 09132500 | North Fork Gunnison River near Somerset | 34.0 | 37.4 | 43.5 | 50.1 | 62.2 | <10 | 43.1 | >20, but <=50 |
| 115 | 09134000 | Minnesota Creek near Paonia | 1.68 | 1.85 | 2.14 | 2.45 | 2.80 | <10 | -- | -- |
| 116 | 09143000 | Surface Creek near Cedaredge | 2.84 | 3.09 | 3.52 | 3.97 | -- | -- | 2.87 | >50, but <=100 |
| 117 | 09143500 | Surface Creek at Cedaredge | 2.90 | 3.04 | 3.31 | 3.61 | -- | -- | 3.02 | >50, but <=100 |
| 118 | 09144250 | Gunnison River at Delta | 314 | 378 | 495 | 625 | 422 | >20, but <=50 | 519 | >10, but <=20 |
| 119 | 09146200 | Uncompahgre River near Ridgway | 39.5 | 41.1 | 43.7 | 46.3 | 51.7 | <10 | 49.8 | <10 |
| 120 | 09147000 | Dallas Creek near Ridgway | 12.5 | 13.2 | 14.5 | 15.7 | 19.4 | <10 | -- | -- |
| 121 | 09147500 | Uncompahgre River at Colona | 43.4 | 48.6 | 57.0 | 65.0 | 45.8 | >50, but <=100 | 70.6 | <10 |
| 122 | 09149500 | Uncompahgre River at Delta | 135 | 143 | 155 | 168 | 194 | <10 | 139 | >50, but <=100 |
| 123 | 09152500 | Gunnison River near Grand Junction | 622 | 721 | 890 | 1,063 | 768 | >20, but <=50 | 801 | >20, but <=50 |
| 124 | 09163500 | Colorado River near Colorado-Utah State Line | 1,930 | 2,099 | 2,377 | 2,653 | 2,126 | >20, but <=50 | 2,362 | >20, but <=50 |
| 125 | 09165000 | Dolores River below Rico | 12.0 | 12.9 | 14.5 | 16.1 | 18.6 | <10 | 20.9 | <10 |
| 126 | 09166500 | Dolores River at Dolores | 31.1 | 34.2 | 39.7 | 45.6 | 53.4 | <10 | 56.0 | <10 |
| 127 | 09169500 | Dolores River at Bedrock | 15.3 | 18.0 | 23.1 | 29.0 | 31.3 | <10 | 42.5 | <10 |
| 128 | 09171100 | Dolores River near Bedrock | 18.9 | 21.9 | 27.6 | 34.1 | 29.9 | >10, but <=20 | 54.0 | <10 |
| 129 | 09172500 | San Miguel River near Placerville | 42.6 | 45.3 | 49.8 | 54.3 | 60.5 | <10 | 56.3 | <10 |
| 130 | 09177000 | San Miguel River at Uravan | 51.6 | 55.6 | 62.5 | 70.0 | 82.1 | <10 | 73.5 | <10 |
| 131 | 09239500 | Yampa River at Steamboat Springs | 69.8 | 72.2 | 76.5 | 81.3 | 79.0 | >10, but <=20 | 83.3 | <10 |
| 132 | ² 09241000 | Elk River at Clark | 32.0 | 34.1 | 37.8 | 41.5 | -- | -- | 48.3 | <10 |
| 133 | 09251000 | Yampa River near Maybell | 188 | 198 | 216 | 236 | 283 | <10 | 256 | <10 |
| 134 | 09253000 | Little Snake River near Slater | 21.2 | 22.3 | 24.2 | 26.2 | 29.2 | <10 | 34.7 | <10 |
| 135 | 09255000 | Slater Fork near Slater | 12.2 | 12.7 | 13.7 | 14.8 | 15.9 | <10 | 14.8 | =10 |
| 136 | 09260000 | Little Snake River near Lily | 55.9 | 62.4 | 73.6 | 85.4 | 120 | <10 | 160 | <10 |
| 137 | 09304200 | White River above Coal Creek near Meeker | 203 | 213 | 228 | 243 | 240 | >10, but <=20 | 220 | >20, but <=50 |
| 138 | 09304500 | White River near Meeker | 231 | 241 | 256 | 272 | 255 | >20, but <=50 | 245 | >20, but <=50 |
| 139 | 09304800 | White River below Meeker | 271 | 278 | 291 | 305 | 304 | >10, but <=20 | 290 | >20, but <=50 |
| 140 | 09306200 | Piceance Creek below Ryan Gulch near Rio Blanco | 8.21 | 9.28 | 11.2 | 13.2 | 7.79 | >100 | 16.6 | <10 |

Appendix 10. Estimated 180-day winter streamflows during October–March for selected nonexceedance probabilities and recurrence intervals based on frequency analysis for 1973–2002; recorded 180-day winter streamflows during October–March, 2002 and 1977; and recurrence intervals for those recorded streamflows for selected stations in Colorado.—Continued

[All streamflow values are in cubic feet per second; NonexP, nonexceedance probability; RI, recurrence interval; >, greater than; <=, less than or equal to; =, equal to; --, no data]

| Map identi- fication (fig. 4) | Station number | Station name | Estimated 180-day winter streamflows during October–March for indicated nonexceedance probability and the associated recurrence interval | | | | Recorded 180-day winter streamflows during October–March 2002 and 1977; and recurrence intervals for those recorded streamflows based on frequency analysis results shown to the left | | | |
|----------------------------------------|-------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| | | | 0.01 | 0.02 | 0.05 | 0.10 | '2002 | | '1977 | |
| | | | NonexP; 100-year RI | NonexP; 50-year RI | NonexP; 20-year RI | NonexP; 10-year RI | Stream- flow | RI, in years | Stream- flow | RI, in years |
| 141 | 09306222 | Piceance Creek at White River | 9.19 | 10.7 | 13.3 | 16.1 | 8.51 | >100 | 20.4 | <10 |
| 142 | 09306242 | Corral Gulch near Rangely | .22 | .25 | .31 | .37 | .45 | <10 | .47 | <10 |
| 143 | 09306255 | Yellow Creek near White River | .66 | .79 | 1.04 | 1.31 | 3.25 | <10 | 1.08 | >10, but <=20 |
| 144 | 09339900 | East Fork San Juan River above Sand Creek near Pagosa Springs | 8.28 | 8.93 | 10.1 | 11.3 | 14.1 | <10 | 16.9 | <10 |
| 145 | 09342500 | San Juan River at Pagosa Springs | 36.4 | 40.1 | 46.6 | 53.6 | 56.3 | <10 | 80.3 | <10 |
| 146 | 09346400 | San Juan River near Carracas | 80.9 | 91.8 | 111 | 132 | 126 | >10, but <=20 | 174 | <10 |
| 147 | 09349800 | Piedra River near Arboles | 37.2 | 43.1 | 53.6 | 65.2 | 61.9 | >10, but <=20 | 74.6 | <10 |
| 148 | 09352900 | Vallecito Creek near Bayfield | 13.6 | 15.0 | 17.5 | 20.1 | 30.5 | <10 | 23.6 | <10 |
| 149 | 09354500 | Los Pinos River at La Boca | 29.3 | 35.8 | 47.9 | 61.4 | 30.0 | >50, but <=100 | 65.3 | <10 |
| 150 | 09361500 | Animas River at Durango | 142 | 150 | 164 | 179 | 201 | <10 | 191 | <10 |
| 151 | 09365500 | La Plata River at Hesperus | 3.93 | 4.27 | 4.88 | 5.55 | 8.25 | <10 | 4.97 | >10, but <=20 |
| 152 | 09366500 | La Plata River at Colorado-New Mexico State Line | 1.83 | 2.44 | 3.69 | 5.24 | 3.44 | >20, but <=50 | 3.29 | >20, but <=50 |
| 153 | 09371000 | Mancos River near Towaoc | 3.73 | 4.85 | 7.03 | 9.60 | 4.25 | >50, but <=100 | 14.4 | <10 |
| 154 | 09372000 | McElmo Creek near Colorado-Utah State Line | 15.4 | 18.2 | 23.0 | 28.0 | 16.1 | >50, but <=100 | 24.0 | >10, but <=20 |

¹2002 and 1977 are the years corresponding to October–December of the October–March period (January–March are in subsequent year).

²Data for 1955–2002 were used for the frequency analysis because of missing record during 1973–2002.

³Frequency computation not made because skew coefficient was outside of acceptable range.