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Scientific Investigations Report 2006–5322

U.S. Department of the Interior
U.S. Geological Survey

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Contents

Figures

Tables

Conversion Factors and Datums

Multiply	By	To obtain
	Volume	
liter (L)	0.2642	gallon (gal)
	Mass	
gram (g)	0.03527	ounce, avoirdupois (oz)
	Streamflow	
cubic meters per second (m^3/s)	35.31	cubic feet per second (ft^3/s)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F=(1.8×°C)+32$$

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 or Terms

as N	as quantified, as measured nitrogen
as P	as quantified, as measured phosphorus
col/100 mL	colonies per 100 milliliters
µg/L	micrograms per liter
µS/cm	microsiemens per centimeter at 25 degrees Celsius
mg/L	milligrams per liter
Q%	percentile
SU	standard units (pH)

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Abstract

During 2002, Colorado experienced the State's worst drought since 1977. In 2003, the U.S. Geological Survey entered into cooperative agreement with the Colorado Department of Public Health and Environment to evaluate the general effects of drought on the water quality of streams in Colorado during summer 2002 by analyzing a water-quality data set obtained during summer 2002 in cooperation with a variety of State and local governments. Water samples were collected at 148 stream sites in Colorado and were measured or analyzed for field properties, major ions, nutrients, organic carbon, bacteria, and dissolved and total recoverable metals.

Mean annual streamflow was analyzed at 134 sites in Colorado, and mean summer (July–September) streamflow for 2002 was determined for 146 sites for water years 1978–2002. Mean annual streamflow for 2002 had an average percentile of 29.4 and mean summer streamflow for 2002 had an average percentile of 7.6 relative to 1978–2002. These results indicate that streamflow in Colorado was substantially less than median streamflow for the period and that the effect of drought on streamflow was greater during summer 2002 than during water year 2002 (October 1, 2001, through September 30, 2002).

Few measured constituent concentrations or values were elevated or depressed on a widespread basis during summer 2002. Specific conductance was elevated (in the upper quartile relative to historical data) in five of the seven basins that had sufficient data for characterization, indicating that specific conductance likely was affected by drought in those basins. Chloride concentrations were elevated in three of five basins with sufficient data and indicate that chloride concentration generally was affected by drought in those basins. Sulfate concentration was elevated in four of six basins with sufficient data. The widespread elevation of specific conductance and concentrations of chloride and sulfate indicates that salinity generally was affected by drought in Colorado streams during July–September 2002, likely because streamflow at most sites was dominated by base flow of ground water, which usually has substantially greater salinity compared to runoff from precipitation. Total-recoverable iron and manganese concentrations were depressed (in the lower quartile of historical data) in the Arkansas River Basin, which likely was due to reduced land-surface washoff of sediment containing oxyhydroxides of these metals.

Of the 246 water samples collected at 148 sites during the summer of 2002, constituents in 115 exceeded Colorado water-quality standards. Constituents that exceeded water-quality standards were pH (all 9.0 standard unit exceedances; 9 samples), chloride (1 sample), sulfate (9 samples), dissolved ammonia (10 samples), dissolved nitrite nitrogen (3 samples), *E. coli* (*Escherichia coli*) bacteria (34 samples, 20 in Arkansas River Basin), fecal-coliform bacteria (18 samples, all in Arkansas River Basin), dissolved copper (1 sample), dissolved iron (3 samples), total-recoverable iron (3 samples), dissolved manganese (13 samples), dissolved selenium (10 samples), and dissolved zinc (1 sample). Of these 115 exceedances, historical data were sufficient to conclude that 21 probably were affected by drought, that 39 probably were not affected by drought, and that 55 were of indeterminate nature.

Specific conductance indicates that the San Juan River Basin (average percentile 95.2) experienced the greatest effects of drought on water quality during summer 2002 compared to other basins in Colorado, followed by the Upper Colorado (90.0) and Dolores River (85.7) Basins. The South Platte River Basin (70.9) experienced the least effect of drought, and the Yampa and White River Basin group (73.7) had the second smallest effect. The Gunnison River (82.1) and Arkansas River (81.2) Basins had intermediate drought effects. The Rio Grande had insufficient data to rank the relative effect of drought on salinity.

Introduction

During 2002, Colorado experienced the State's worst drought since 1977 (Kuhn, 2005). To determine the effects of the 2002 drought on streamflow and stream-water quality in the State during the summer months, a variety of State and local governments cooperated with the U.S. Geological Survey (USGS) to collect water-quality samples at 148 stream sites in the nine major river basins in Colorado (fig. 1). In 2003, the U.S. Geological Survey, in cooperation with the Colorado Department of Public Health and Environment, began

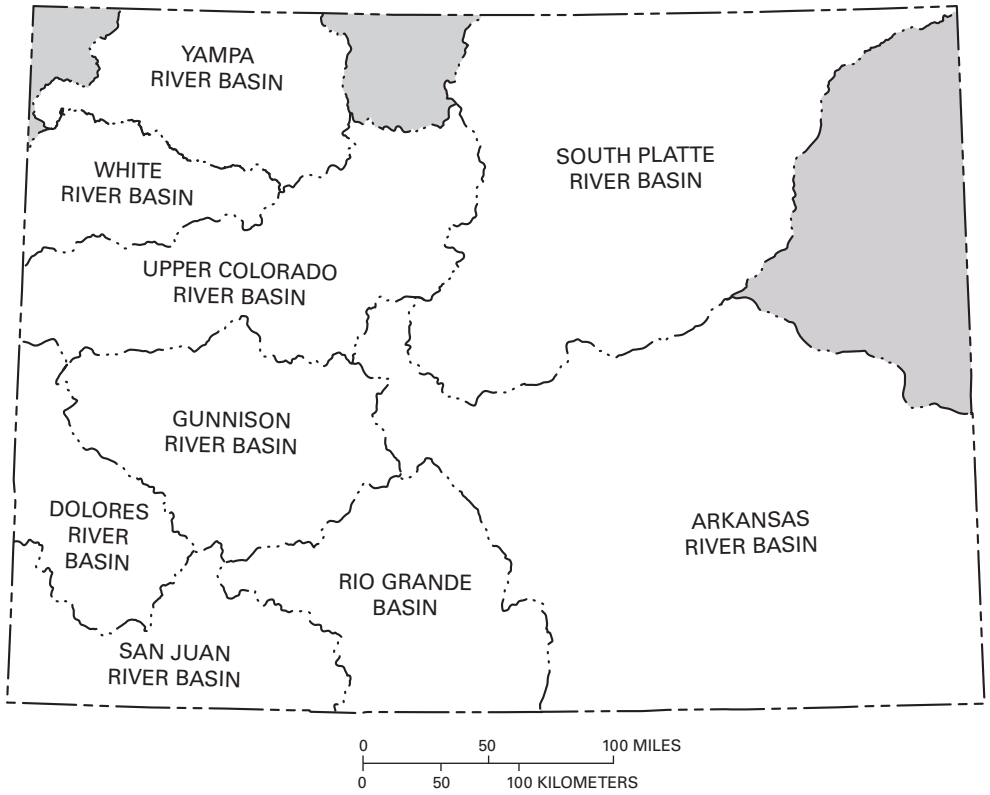

Figure 1. River basins in Colorado sampled for this study.

to examine these data. Water samples were analyzed for field properties, major ions, nutrients, organic carbon, bacteria, and dissolved metals at all sites, although individual constituents in these categories varied among basins. Results of the analyses were reported in Crowfoot, Payne, and O'Neill (2003) and in Crowfoot, Boulger, and O'Neill (2003).

Purpose and Scope

This report presents water-quality data collected at 148 sites on rivers and creeks in Colorado during drought conditions for the period July–September 2002. The report summarizes water-quality data for 2002 relative to data from 1978 through 2001 and percentiles of constituent concentrations during summer 2002 relative to historical data for each site for the months of July through September during 1978 through 2001. In addition, the report presents exceedances of Colorado water-quality standards for constituents sampled during summer 2002.

Methods

Between July 11, 2002, and September 30, 2002, 148 stream sites (table 1) were sampled by the equal-width-increment method (U.S. Geological Survey, 1998) to obtain representative water-quality samples. Water samples were collected twice at 98 of these sites for a total of 246 samples.

Water samples collected at these sites are hereinafter referred to as "drought samples." Individual drought samples were measured for field properties (dissolved oxygen, pH, specific conductance, and water temperature) and collected for laboratory analysis and were processed, preserved, and shipped according to standard guidelines (U.S. Geological Survey, 1998). All samples were shipped to the USGS National Water-Quality Laboratory in Lakewood, Colorado, for laboratory analyses. Data are reported by basin in tables 11–18 in the Appendix at the back of this report.

Ranking by Percentiles

The primary tool used to evaluate concentrations of constituents in water-quality samples collected during summer 2002 was ranking by percentile. Percentiles were calculated for each water-quality constituent for each site sampled during the 2002 drought by using the population of all samples for each site from July through September for 1978 through 2002 that had 20 or more samples (including the samples collected during the drought). Percentiles calculated for fewer than 20 samples were not considered to be statistically reliable. Percentiles were calculated only for the months of July–September to maintain a common basis for comparison among years so that the effects of drought during July–September 2002 could be assessed. Data collected prior to 1978 were not included, primarily to preclude comparison

Table 1. Colorado stream sites where water-quality samples were collected during July through September 2002.

Site number in figures 4–7	U.S. Geological Survey station number	U.S. Geological Survey station name
		Yampa River Basin (figure 4)
1	09238900	Fish Creek at upper station near Steamboat Springs
2	09239500	Yampa River at Steamboat Springs
3	09242500	Elk River near Milner
4	09246400	Elkhead Creek below Maynard Gulch near Craig
5	09247600	Yampa River below Craig
6	09249750	Williams Fork at mouth
7	09251000	Yampa River near Maybell
8	09260050	Yampa River at Deerlodge Park
		White River Basin (figure 4)
9	09303000	North Fork White River at Buford
10	09304000	South Fork White River at Buford
11	09304200	White River above Coal Creek near Meeker
12	09304800	White River below Meeker
13	09306200	Piceance Creek below Ryan Gulch near Rio Blanco
14	09306222	Piceance Creek at White River
15	09306242	Corral Gulch near Rangely
16	09306255	Yellow Creek near White
17	09306290	White River below Boise Creek near Rangely
18	09306305	White River below Taylor Draw Reservoir near Rangely
19	395650107435600	White River above Dry Creek
		Upper Colorado River Basin (figure 4)
20	09019000	Colorado River below Lake Granby
21	09022000	Fraser River at upper station near Winter Park
22	09023750	Fraser River below Buck Creek at Winter Park
23	09025010	Fraser River below Vasquez Creek at Winter Park
24	09027100	Fraser River at Tabernash
25	09033100	Ranch Creek below Meadow Creek near Tabernash
26	09033300	Fraser River below Crooked Creek at Tabernash
27	09034250	Colorado River at Windy Gap near Granby
28	09038500	Williams Fork below Williams Fork Reservoir
29	09040500	Troublesome Creek near Troublesome
30	09041090	Muddy Creek above Antelope Creek near Kremmling
31	09041400	Muddy Creek below Wolford Mountain Reservoir near Kremmling
32	09057700	Blue River at mouth near Kremmling
33	09058000	Colorado River near Kremmling
34	09063000	Eagle River at Red Cliff
35	09066510	Gore Creek at mouth near Minturn
36	09067005	Eagle River at Avon
37	09069000	Eagle River at Gypsum

Table 1. Colorado stream sites where water-quality samples were collected during July through September 2002.—Continued

Site number in figures 4–7	U.S. Geological Survey station number	U.S. Geological Survey station name
		Upper Colorado River Basin (figure 4)—Continued
38	09070500	Colorado River near Dotsero
39	09071750	Colorado River above Glenwood Springs
40	09073300	Roaring Fork River above Difficult Creek near Aspen
41	09081000	Roaring Fork River near Emma
42	09081600	Crystal River above Avalanche Creek near Redstone
43	09083800	Crystal River below Carbondale
44	09085000	Roaring Fork River at Glenwood Springs
45	09087600	Colorado River at New Castle
46	09095300	Dry Fork at upper station near De Beque
47	09095500	Colorado River near Cameo
48	09105000	Plateau Creek near Cameo
49	09106150	Colorado River below Grand Valley diversion near Palisade
50	09106500	Colorado River at Grand Junction
51	09153000	Colorado River near Fruita
52	09163500	Colorado River near Colorado-Utah state line
53	390318108273200	Colorado River at 32 Road near Clifton
54	390521108373300	Colorado River at Redlands Parkway near Grand Junction
55	392511106164000	East Fork Eagle River near Red Cliff
56	393143107465200	Colorado River near Rifle
57	394220106431500	Eagle River below Milk Creek near Wolcott
58	400453105554200	Fraser River at Highway 40 at Granby
		Rio Grande Basin (figure 5)
59	08220000	Rio Grande near Del Norte
60	08246500	Conejos River near Mogote
61	08251500	Rio Grande near Lobatos
62	374900106545100	Rio Grande above Deep Creek near Creede
		Gunnison River Basin (figure 5)
63	09112200	East River below Cement Creek near Crested Butte
64	09112500	East River at Almont
65	09113980	Ohio Creek above mouth near Gunnison
66	09114500	Gunnison River near Gunnison
67	09119000	Tomichi Creek at Gunnison
68	09128000	Gunnison River below Gunnison Tunnel
69	09135950	North Fork of Gunnison River below Leroux Creek near Hotchkiss
70	09144250	Gunnison River at Delta
71	09146020	Uncompahgre River near Ouray
72	09146200	Uncompahgre River near Ridgway
73	09149500	Uncompahgre River at Delta
74	09152500	Gunnison River near Grand Junction

Table 1. Colorado stream sites where water-quality samples were collected during July through September 2002.—Continued

Site number in figures 4–7	U.S. Geological Survey station number	U.S. Geological Survey station name
		Gunnison River Basin (figure 5)—Continued
75	383103106594200	Gunnison River at County Road 32 below Gunnison
76	383126106475600	Tomichi Creek below Chetopa Creek near Parlin
77	383604106312400	Quartz Creek below Pitkin
78	384624107570701	Gunnison River at 2200 Road bridge at Austin
79	384950106544200	East River above Slate River near Crested Butte
80	385224106590100	Coal Creek above mouth at Crested Butte
81	385240106583600	Slate River above Coal Creek near Crested Butte
82	385325106581200	Washington Gulch below Woods Creek at Mount Crested Butte
83	385408106543600	East River above Crested Butte
		Dolores River Basin (figure 5)
84	09166500	Dolores River at Dolores
85	09169500	Dolores River at Bedrock
86	09171100	Dolores River near Bedrock
87	09172500	San Miguel River near Placerville
88	09177000	San Miguel River at Uravan
		San Juan River Basin (figure 5)
89	09349800	Piedra River near Arboles
90	09352900	Vallecito Creek near Bayfield
91	09354500	Los Pinos River at La Boca
92	09359020	Animas River below Silverton
93	09361500	Animas River at Durango
94	09363200	Florida River at mouth at Bondad
95	09366500	La Plata River at Colorado-New Mexico state line
96	09370000	Mancos River near Mancos
97	09371492	Mud Creek at State Highway 32 near Cortez
98	09371520	McElmo Creek above Trail Canyon near Cortez
99	09372000	McElmo Creek near Colorado-Utah state line
100	370907107530401	Animas River at Weaselskin Bridge near La Posta
101	371319107515001	Animas River near Carbon Junction
102	371500107004601	San Juan River below Pagosa Springs
		South Platte River Basin (figure 6)
103	06713500	Cherry Creek at Denver
104	06714000	South Platte River at Denver
105	06719505	Clear Creek at Golden
106	06720500	South Platte River at Henderson
107	06733000	Big Thompson River at Estes Park
108	06734900	Olympus tunnel at Lake Estes
109	06735500	Big Thompson River near Estes Park
110	06736000	North Fork Big Thompson River at Drake

Table 1. Colorado stream sites where water-quality samples were collected during July through September 2002.—Continued

Site number in figures 4–7	U.S. Geological Survey station number	U.S. Geological Survey station name
		South Platte River Basin (figure 6)—Continued
111	06741510	Big Thompson River at Loveland
112	06741530	Big Thompson River at Interstate 25 near Loveland
113	06752260	Cache la Poudre River at Fort Collins
114	06752280	Cache la Poudre River above Boxelder Canyon near Timnath
115	06753990	Lonetree Creek near Greeley
116	06754000	South Platte River near Kersey
117	06758500	South Platte River near Weldona
118	06764000	South Platte River at Julesburg
119	09013000	Alva B. Adams Tunnel at East Portal near Estes Park
120	393948105053501	Bear Creek below Estes Road at Lakewood
121	402114105350101	Big Thompson River below Moraine Park near Estes Park
122	402533105124300	Big Thompson River below Sulzer Gulch near Loveland
123	402535105105700	Buckhorn Creek at County Road 24 near Loveland
124	402554105202100	Big Thompson River above North Fork of Big Thompson at Drake
125	403048105042701	Fossil Creek at College Avenue at Fort Collins
		Arkansas River Basin (figure 7)
126	07086000	Arkansas River at Granite
127	07096000	Arkansas River at Canon City
128	07097000	Arkansas River at Portland
129	07099200	Arkansas River near Portland
130	07099400	Arkansas River above Pueblo
131	07099970	Arkansas River at Moffat Street at Pueblo
132	07103700	Fountain Creek near Colorado Springs
133	07103780	Monument Creek above North Gate Boulevard at U.S. Air Force Academy
134	07103970	Monument Creek above Woodmen Road at Colorado Springs
135	07104905	Monument Creek at Bijou Street at Colorado Springs
136	07105500	Fountain Creek at Colorado Springs
137	07105530	Fountain Creek below Janitell Road below Colorado Springs
138	07105800	Fountain Creek at Security
139	07106000	Fountain Creek near Fountain
140	07106300	Fountain Creek near Pinon
141	07109500	Arkansas River near Avondale
142	07119700	Arkansas River at Catlin Dam near Fowler
143	07120500	Arkansas River near Rocky Ford
144	07123000	Arkansas River at La Junta
145	07124000	Arkansas River at Las Animas
146	07124200	Purgatoire River at Madrid
147	07126500	Purgatoire River at Ninemile Dam near Higbee
148	07133000	Arkansas River at Lamar

with data that were collected during earlier droughts, including the last one, which ended in 1977. This restriction also minimized comparison of 2002 data with data that were collected before construction of major reservoirs in the 1960s and 1970s. For major ions, percentiles were calculated only for chloride and sulfate because they are the only major ions for which Colorado water-quality standards have been established. Percentiles also were calculated for mean annual and mean summer streamflow during 2002 relative to 1978–2002 to evaluate the effect of drought on streamflow.

The percentile for a specific observation in a data set is defined as the percentage of the number of observations in the data set that have values less than or equal to that of the specific observation (Helsel and Hirsch, 1992). For example, if a pH value of 7.4 in a data set is ranked at the 30th percentile, then about 30 percent of the ranked pH values are less than or equal to 7.4. Percentiles were calculated using the Weibull formula as described by (Helsel and Hirsch, 1992):

$$Q\% = 100 \times R/(N+1) \quad (1)$$

where

$Q\%$ is the value of the percentile for a given observation,

R is the whole-number, high rank of the observation (ascending order),

and

N is the number of observations in the ranked data set

Calculation of percentiles for censored data sets—those having some observations reported as "less than" (<) a threshold concentration—required recensoring to a common basis when the threshold concentration varied among censored observations or when uncensored concentrations were less than one or more censored concentrations. Recensoring was required because of the inability to distinguish ranks given the varying thresholds for censored data. For example, dissolved cadmium concentrations of <0.1, <1, and <50 µg/L (micrograms per liter) cannot be distinguished by rank because the actual concentrations reported as <1 µg/L and <50 µg/L might be smaller than the actual concentration reported as <0.1 µg/L. Therefore, the smaller two of these concentrations would require recensoring to <50 µg/L, as would any uncensored concentration less than 50 µg/L (Helsel, 1990). In this example, if only one or two observations were reported as <50 µg/L, the drought sample was censored at a smaller threshold concentration, and the <50 µg/L observations was discarded from the data set (assuming at least 20 observations remained) to allow better resolution of the percentile for the drought sample; then recensoring would be done to the largest censored concentration that remained. Recensoring was not necessary when the drought sample had a concentration that exceeded the largest censored concentration or when the censored drought sample was unambiguously the smallest concentration.

Assigning ranks to censored or tied values involves some ambiguity. This ambiguity is illustrated in the following generic example with eight observations, which shows how "low ranks" and "high ranks" may be assigned to such values. The low and high ranks bound the possible range of ranks that might be associated with censored values:

Value	High rank	Low rank
<1	3	1
<1	3	1
<1	3	1
1	4	4
2	5	5
3	7	6
3	7	6
4	8	8

Using high ranking as previously described, ties (censored, recensored, or uncensored) in some data sets resulted in drought-sample percentiles that assumed the maximum possible rank for the tied data. For example, if a hypothetical drought sample and 94 historical samples for a site had a dissolved-iron concentration of <10 µg/L and only 4 historical samples exceeded this concentration, the resulting drought-sample percentile of 95 percent would spuriously indicate an elevated drought-sample concentration when, as far as the data can indicate, the true drought-sample concentration could fall anywhere in the lowest 95 percent of the data. Similarly, in some cases, ties of uncensored observations spuriously indicate elevated drought-sample values or concentrations. For example, if a drought sample and 10 historical samples for a site had a pH of 8.1, 82 historical samples had lower pH, and 6 historical samples had higher pH, then the calculated drought-sample percentile would be 93 percent when, in fact, the true drought-sample pH (which hypothetically could be indicated by values reported with greater precision) might rank anywhere between a percentile of 83 and 93 percent (inclusive). In cases where tied ranks caused uncertainty in calculated percentiles, the possible percentile range was calculated by using both low and high ranks, and the possible percentile range was reported and flagged by footnotes indicating the type of ties in tables 11–18 (at the back of this report).

To determine the effect of drought on the water quality of individual basins, a mean percentile was calculated for each constituent with a calculated percentile for all sites in the basin. For sites with more than one drought sample, only the most recent sample was used to compute the average percentile for that constituent for that basin. Also, the mean percentile was used in place of percentile ranges for individual samples when calculating basin constituent percentiles. The constituent was concluded to be "elevated" in concentration or value when the mean percentile was equal to or greater than 75 (that is, was in the upper quartile of the data). The

constituent was concluded to be "depressed" when the mean percentile was less than 25 (that is, was in the lower quartile of the data). The constituent was considered to be "medial" when the mean percentile was between 25 and 74.9 (that is, was in the interquartile range of the data). Basins with fewer than three sites with calculated constituent percentiles were not rated. In cases where tied observations caused a range in possible percentile for one or more sites, the mean (midpoint) of the range(s) was used to calculate mean percentile for the basin. In cases where the conclusion of average effect was an "elevated" or "depressed" value or concentration and the uncertainty associated with the percentile range(s) indicated the possibility of another conclusion, the conclusion was designated as "tentative" and identified as such in tables 2–9 in the "Effect of Drought on Water Quality" section and in table 10 in the "Statewide Overview" section.

Colorado Water-Quality-Standard Exceedances

Water-quality data collected during July through September 2002 were compared to regulatory standards promulgated by the State of Colorado (Colorado Department of Public Health and Environment, 2005) to determine which constituents had concentrations or values that exceeded regulatory standards. Because prolonged exceedances are required before there is a legal violation of the water-quality standard, the designation of exceedances in this report are not be considered as actual legal violations of water-quality standards.

Most dissolved-metal concentrations in samples were compared to standards based on water hardness (a function of dissolved calcium and magnesium concentrations). The standard for un-ionized ammonia was applied by calculating the fraction of un-ionized ammonia in each sample, using total dissolved-ammonia concentration, water temperature, and pH. Water-quality exceedances for drought samples at each site were compared to historical exceedances for each site for July–September 1978 through 2001 to determine whether the drought-sample exceedances might have been affected by drought. Exceedances for samples collected during the drought are assumed to be affected by the drought: (1) if there is a total of 6 or more historical samples at the same site as the drought sample, all of which show no exceedances and the maximum historical value is one-half or less of the value of the lowest drought exceedance; or (2) if there are 10 or more historical samples at the same site with no more than 10 percent exceeding the standard.

Effect of Drought on Streamflow

To determine the effect of the 2002 drought on streamflow in Colorado for the 25-water-year period 1978 through 2002, percentiles were calculated for mean annual streamflow and mean summer (defined as July 1 through September 30) streamflow, using equation 1. (Mean annual streamflow is based on water year, which begins on October 1 and ends on September 30 of the following year.)

Mean annual streamflow was analyzed at 134 sites in Colorado for years 1978–2002 (fig. 2). Forty-one of these sites also were sampled during the 2002 drought. Mean annual streamflow for 2002 had an average percentile of 29.4 percent during this period, indicating that overall streamflow in Colorado was substantially less than median percentile streamflow for the period. Twenty sites (15 percent) had the smallest mean annual streamflow during 2002, and only 16 sites (12 percent) had percentiles for 2002 that exceeded median streamflow during 1978–2002. These data indicate substantial drought conditions during water year 2002.

Mean summer (July–September) streamflow for 2002 (fig. 3) was determined for 146 sites in Colorado, and percentiles averaged 7.6 percent when compared to summer streamflow for 1978–2002 for 134 sites across Colorado. Fifty-two of these sites were sampled during the 2002 drought. During 2002, 116 sites (79 percent) had the smallest mean summer streamflow for 1978–2002, and only 3 sites (2 percent) had percentiles for 2002 that exceeded median streamflow for the period. Furthermore, because mean summer streamflow for 2002 had a substantially smaller average percentile (7.6 percent) than did mean annual streamflow for 2002 (29.4 percent), one can conclude that the effect of drought on streamflow was greater during summer 2002 than during water year 2002.

Effect of Drought on Water Quality

Results of water-quality sampling during 2002, calculated percentiles (Q%), number (N) of 1978–2002 samples (including only drought samples for 2002), and Colorado water-quality exceedances are shown by river basin in tables 11–18 in the Appendix at the back of this report. Percentiles are not reported for major ions except chloride and sulfate or for any property or constituent that did not have at least 20 samples at a site. Columns showing percentile and number of samples were omitted for properties or constituents with no reported percentile in each table. The following sections discuss results for the following river basins (fig. 1): (1) Yampa and White (combined); (2) Upper Colorado; (3) Rio Grande; (4) Gunnison; (5) Dolores; (6) San Juan; (7) South Platte; and (8) Arkansas. Finally, a statewide overview section discusses general results for all of these basins, including properties or constituents for which results were too infrequent for discussion by basin.

Yampa and White River Basins

Drought samples were collected at 8 sites in the Yampa River Basin and at 11 sites in the White River Basin (table 11, fig. 4). Because both basins are adjacent, independent tributaries of the Green River, samples collected in these basins

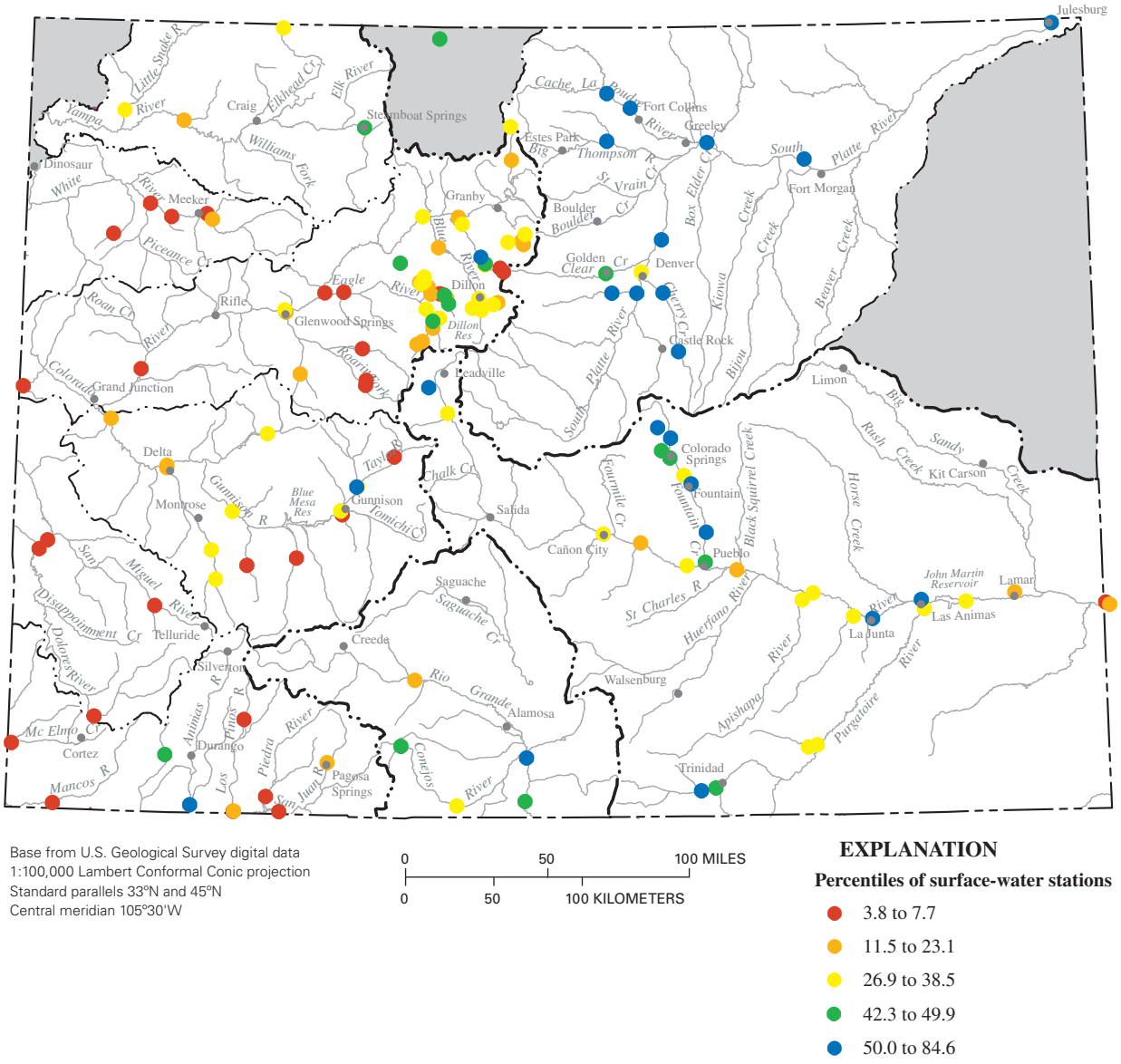

Figure 2. Percentiles of mean annual flow in Colorado for water year 2002 relative to mean annual flow during 1978–2002.

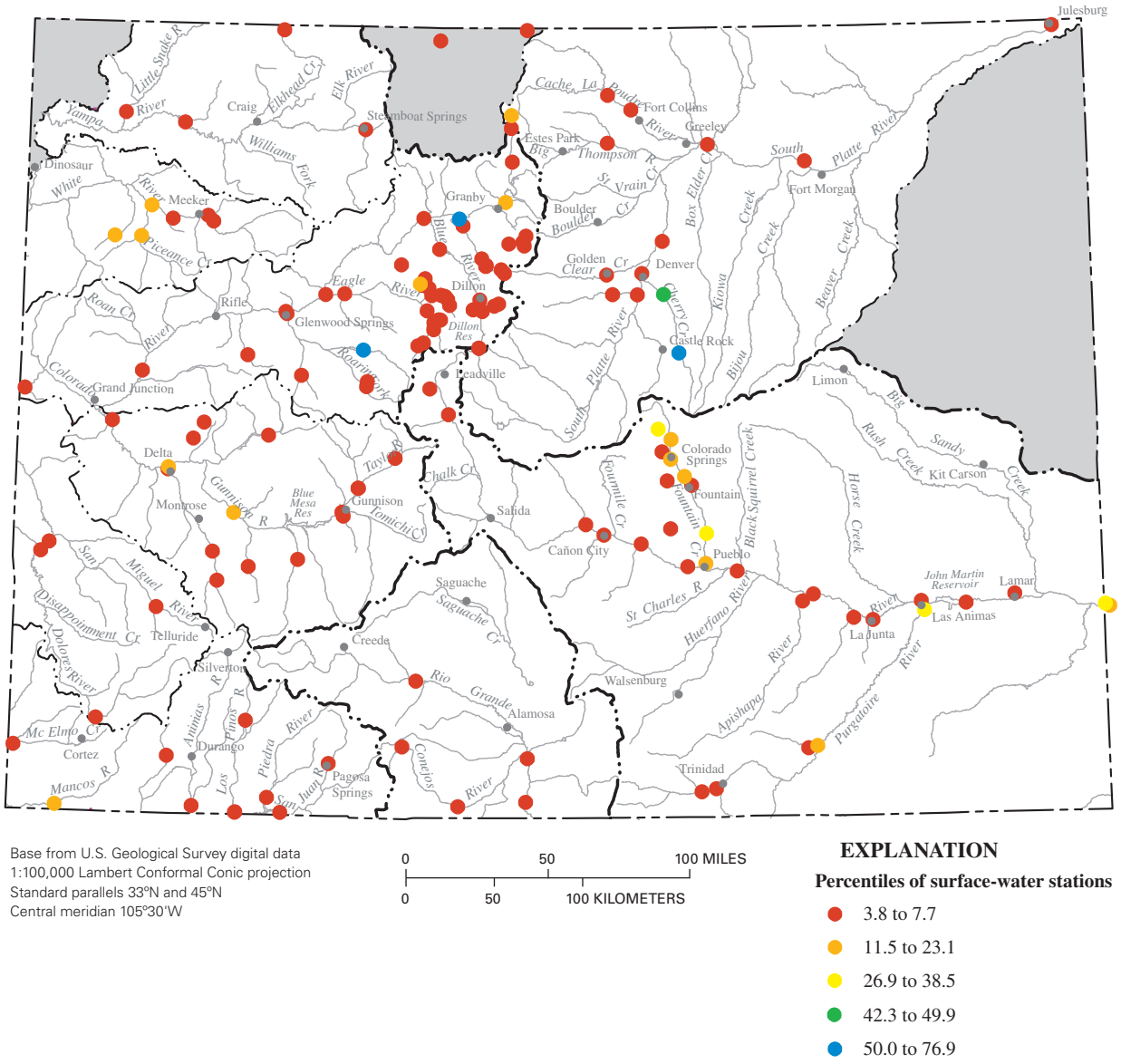

Figure 3. Percentiles of mean summer (July–September) flow in Colorado for 2002 relative to mean summer flow during 1978–2002.

were jointly interpreted. Average percentile for properties and constituents (table 2) indicate medial values or concentrations for all properties or constituents with sufficient data—including field properties, dissolved major and minor constituents (chloride, fluoride, silica, and sulfate), most dissolved and total-recoverable nutrients, and dissolved boron and iron. Thus, it appears that drought conditions did not have a substantial influence on concentrations of these constituents. Dissolved organic carbon and dissolved metals (manganese, selenium, and zinc) had fewer than three useful percentiles and could not be characterized. Total-recoverable metals were not sampled in these two basins.

Only two drought samples exceeded Colorado water-quality standards (table 11). On July 29, 2002, the pH at site 2 was 9.3 SU, exceeding the upper standard for aquatic life, recreational use, and domestic water supply of 9.0 standard units. Eleven historical samples had a maximum pH of 8.9. Because of the potential diurnal fluctuation of pH at these sites and variable measurement time (Chafin, 2002), it is uncertain if this exceedance was affected by drought. On September 4, 2002, the dissolved manganese concentration at site 8 was 65 µg/L, exceeding the drinking-water standard of 50 µg/L; five historical samples showed a maximum concentration of 7.2 µg/L. In summary, only the dissolved manganese exceedance at site 8 was drought affected.

Upper Colorado River Basin

Drought samples were collected at 39 sites in the Colorado River Basin (table 12 in Appendix, fig. 4). Average percentile for properties and constituents (table 3) indicate elevated specific conductance and elevated concentrations of chloride, fluoride (tentative), and sulfate relative to nondrought

Table 2. Average percentiles and results for summer 2002 drought water-quality data from sites in the Yampa and White River Basins, relative to historical data from July through September, 1978–2002.

[Q%, percentile; Medial, average Q% between 25 and 74.9; ID, insufficient number of sites (fewer than 3) to determine result]

Property or constituent	Average Q%	Number of sites	Result
Oxygen, dissolved	44.0	12	Medial
pH	50.4	12	Medial
Specific conductance	73.7	17	Medial
Temperature, water	54.1	17	Medial
Chloride, dissolved	70.2	9	Medial
Fluoride, dissolved	69.2	7	Medial
Silica, dissolved	42.0	6	Medial
Sulfate, dissolved	69.4	9	Medial
Nitrogen, ammonia, dissolved	38.7	8	Medial
Nitrogen, organic plus ammonia, dissolved	55.0	6	Medial
Nitrogen, organic plus ammonia, total recoverable	71.5	3	Medial
Nitrogen, nitrite plus nitrate, dissolved	35.8	10	Medial
Nitrogen, nitrite, dissolved	48.9	7	Medial
Phosphorus, dissolved	58.9	7	Medial
Phosphorus, total recoverable	72.1	3	Medial
Phosphorus, orthophosphate, dissolved	49.0	8	Medial
Carbon, organic, dissolved	60.0	1	ID
Boron, dissolved	48.5	4	Medial
Iron, dissolved	42.3	4	Medial
Manganese, dissolved	41.3	2	ID
Selenium, dissolved	81.0	1	ID
Zinc, dissolved	40.4	2	ID

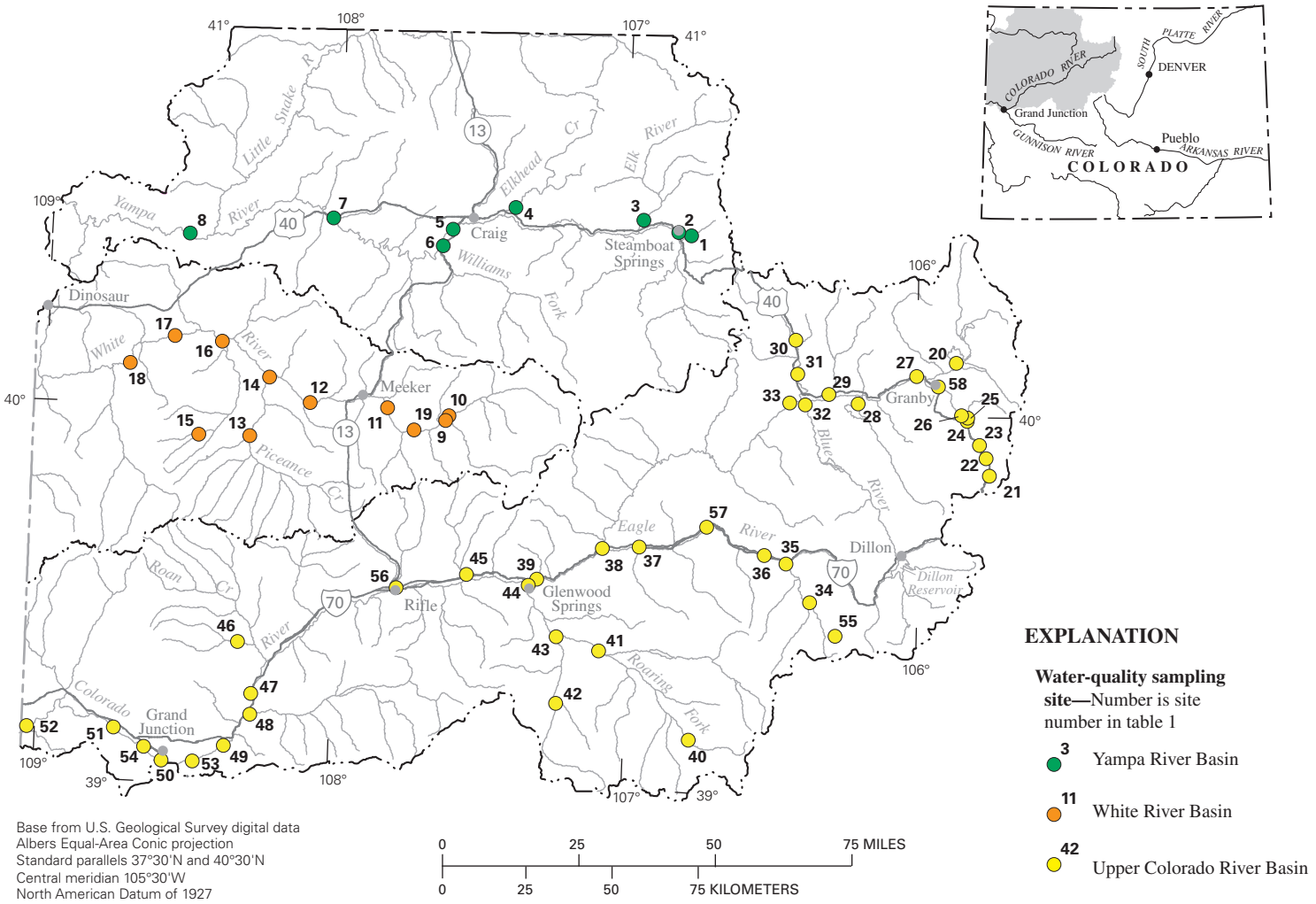

Figure 4. Sampling sites in the Yampa, White, and Upper Colorado River Basins.

conditions. All other constituents with sufficient data (field properties, silica, dissolved and total-recoverable nutrients, dissolved iron, and dissolved manganese) indicate medial values or concentrations. Other dissolved metals and the only total-recoverable metals sampled (iron and manganese) had too few sites and associated percentiles for characterization.

Drought samples collected in the basin had water-quality exceedances for pH and concentrations of chloride, sulfate, nitrite nitrogen, dissolved iron, dissolved manganese, and dissolved selenium (table 12). pH exceeded the upper standard of 9.0 at sites 24, 25, 26, and 27. Out of 85 historical pH measurements at site 24, 28 showed pH exceedances; no historical exceedances were measured at site 25 (13 samples), site 26 (8 samples), or site 27 (6 samples); therefore, drought probably did not cause the exceedance at site 24, but the data are insufficient to assess drought effect for sites 25–27 because of the potential diurnal fluctuation of pH at these sites and variable measurement time. The chloride standard of 250 mg/L was exceeded only at site 57 on September 4, 2002 (292 mg/L); six historical samples showed a maximum concentration of 120 mg/L. Thus, historical samples and elevated average percentile for chloride in this basin indicate that drought may have caused the exceedance at site 57.

The sulfate water-supply standard of 250 mg/L was exceeded at sites 37 (256 and 310 mg/L), 46 (1,910 mg/L), 50 (338 mg/L), and 53 (259 mg/L). Sites 51, 52, and 54 also had sulfate concentrations in excess of 250 mg/L, but no sulfate standards have been established for these reaches. Historical samples showed sulfate exceedances for 2 out of 29 samples at site 37 (maximum 260 mg/L); 15 out of 15 samples at site 46 (maximum 1,860 mg/L); zero out of 6 samples at site 50 (maximum 240 mg/L); and zero out of 3 samples at site 53 (all in 1994; maximum 180 mg/L). Historical samples and elevated sulfate concentration in this basin indicate that the greater exceedance at site 37 and the exceedance at site 50 were likely affected by drought; the exceedance at site 53 appears to have been affected by drought, but the data are insufficient to allow a more definitive conclusion.

Other drought samples collected in the basin for which samples exceeded water-quality standards were nitrite nitrogen, dissolved iron, dissolved manganese, and dissolved selenium. Nitrite nitrogen exceeded the chronic standard of 0.05 mg/L at site 57 (0.081 and 0.117 mg/L). Six historical samples from 2000 through 2001 showed no exceedances; however, because the 2002 concentrations at this site exceeded the historical samples by 5 to 8 times, these exceedances likely are affected by drought.

Dissolved iron exceeded the chronic standard of 300 µg/L at site 26 (339 and 383 µg/L); one of seven historical samples exceeded this standard (maximum 354 µg/L). Medial concentrations of iron in this basin and these historical data strongly indicate that this exceedance is not affected by drought. Dissolved manganese exceeded the hardness-based chronic standard of 50 µg/L at sites 30 (60 and 115 µg/L) and 31 (250 µg/L); 2 of 26 historical samples from site 30 showed exceedances (68 and 83 µg/L), and 3 of 19 samples from site 31 showed exceedances (maximum 342 µg/L). Therefore, the exceedances at site 30 probably were affected by drought, but the exceedance at site 31 probably was not. Dissolved selenium exceeded the chronic standard of 4.6 µg/L at sites 51 (6.3 µg/L), 52 (8.8 and 11 µg/L), and 54 (5.8 µg/L); this standard was exceeded by 3 of 6 historical samples from site 51 (maximum 6 µg/L), by 27 of 45 samples from site 52 (maximum 16 µg/L), and by 3 of 6 samples from site 54 (maximum 6 µg/L), indicating that the dissolved selenium exceedances at these sites were not affected by drought. In summary, the data indicate drought-affected exceedances only for chloride at site 57, sulfate at sites 37 and 50, nitrite at site 57, and dissolved manganese (chronic standard) at site 30.

Rio Grande Basin

Drought samples were collected at four sites in the Rio Grande Basin (table 13 in Appendix, fig. 5). Average percentiles for properties and constituents (table 4) only indicate a medial percentile for water temperature. All other properties and constituents had too few data to calculate percentiles for basinwide characterization.

The only water-quality exceedance for this basin was for dissolved zinc at site 59 (54 µg/L) (table 13), which exceeded the acute and chronic standards of 49.3 µg/L and 49.7 µg/L. Only two historical samples (1984) were analyzed for dissolved zinc, and they did not exceed these hardness-based standards. Therefore, these data are insufficient to indicate whether this dissolved zinc exceedance was affected by drought.

Gunnison River Basin

Drought samples were collected at 21 sites in the Gunnison River Basin (table 14 in Appendix, fig. 5). Average percentiles for properties and constituents (table 5) indicate elevated specific conductance and elevated concentrations of dissolved chloride, dissolved silica, and dissolved sulfate. All other constituents with sufficient data—including other field properties and most dissolved and total-recoverable nutrients—indicated medial values or concentrations. Fluoride, total-recoverable organic plus ammonia nitrogen, and dissolved metals had too few percentiles for calculation. Total-recoverable metals were not sampled in this basin before 2002; and, therefore, no percentiles could be calculated.

Drought samples collected in the basin for which samples exceeded water-quality standards were sulfate, *E. coli* bacteria, total-recoverable iron, dissolved manganese, and dissolved selenium (table 14). Sulfate exceeded the water-supply standard of 480 mg/L at site 74 on September 24, 2002, and 12 of 55 historical samples (maximum 670 mg/L) exceeded this standard. No sulfate standards have been established for sites 69 and 73, which showed concentrations from 608 to 743 mg/L. *E. coli* bacteria exceeded the standard of 126 col/100 mL (colonies per 100 milliliters) at sites 69

Table 3. Average percentiles and results for summer 2002 drought water-quality data from sites in the Upper Colorado River Basin, relative to historical data from July through September, 1978–2002.

[Q%, percentile; Medial, average Q% between 25 and 74.9; elevated, average Q% greater than or equal to 75; ID, insufficient number of sites (fewer than 3) to determine result; text in bold type highlights elevated average percentiles]

Property or constituent	Average Q%	Number of sites	Result
Oxygen, dissolved	33.3	13	Medial
pH	63.6	15	Medial
Specific conductance	90.0	24	**Elevated**
Temperature, water	66.1	23	Medial
Chloride, dissolved	95.0	14	**Elevated**
Fluoride, dissolved	80.1	5	**Elevated**[1]
Silica, dissolved	32.7	10	Medial
Sulfate, dissolved	81.6	11	**Elevated**
Nitrogen, ammonia, dissolved	37.1	10	Medial
Nitrogen, organic plus ammonia, dissolved	68.0	5	Medial
Nitrogen, organic plus ammonia, total recoverable	71.2	5	Medial
Nitrogen, nitrite plus nitrate, dissolved	55.8	11	Medial
Nitrogen, nitrite, dissolved	48.9	10	Medial
Phosphorus, dissolved	56.7	10	Medial
Phosphorus, total recoverable	63.5	6	Medial
Phosphorus, orthophosphate, dissolved	48.1	10	Medial
Carbon, organic, dissolved	87.5	1	ID
Cadmium, dissolved	44.5	2	ID
Chromium, dissolved	50.0	1	ID
Copper, dissolved	66.4	2	ID
Iron, dissolved	51.6	5	Medial
Iron, total recoverable	70.0	2	ID
Lead, dissolved	47.7	2	ID
Manganese, dissolved	73.9	5	Medial
Manganese, total recoverable	93.7	2	ID
Molybdenum, dissolved	63.6	1	ID
Nickel, dissolved	47.7	1	ID
Selenium, dissolved	95.8	1	ID
Silver, dissolved	46.7	2	ID
Zinc, dissolved	30.4	2	ID

[1] Tentative result because of possible range of Q% for two sites (table 3); minimum values in ranges result in average Q% of 71.7 (medial result).

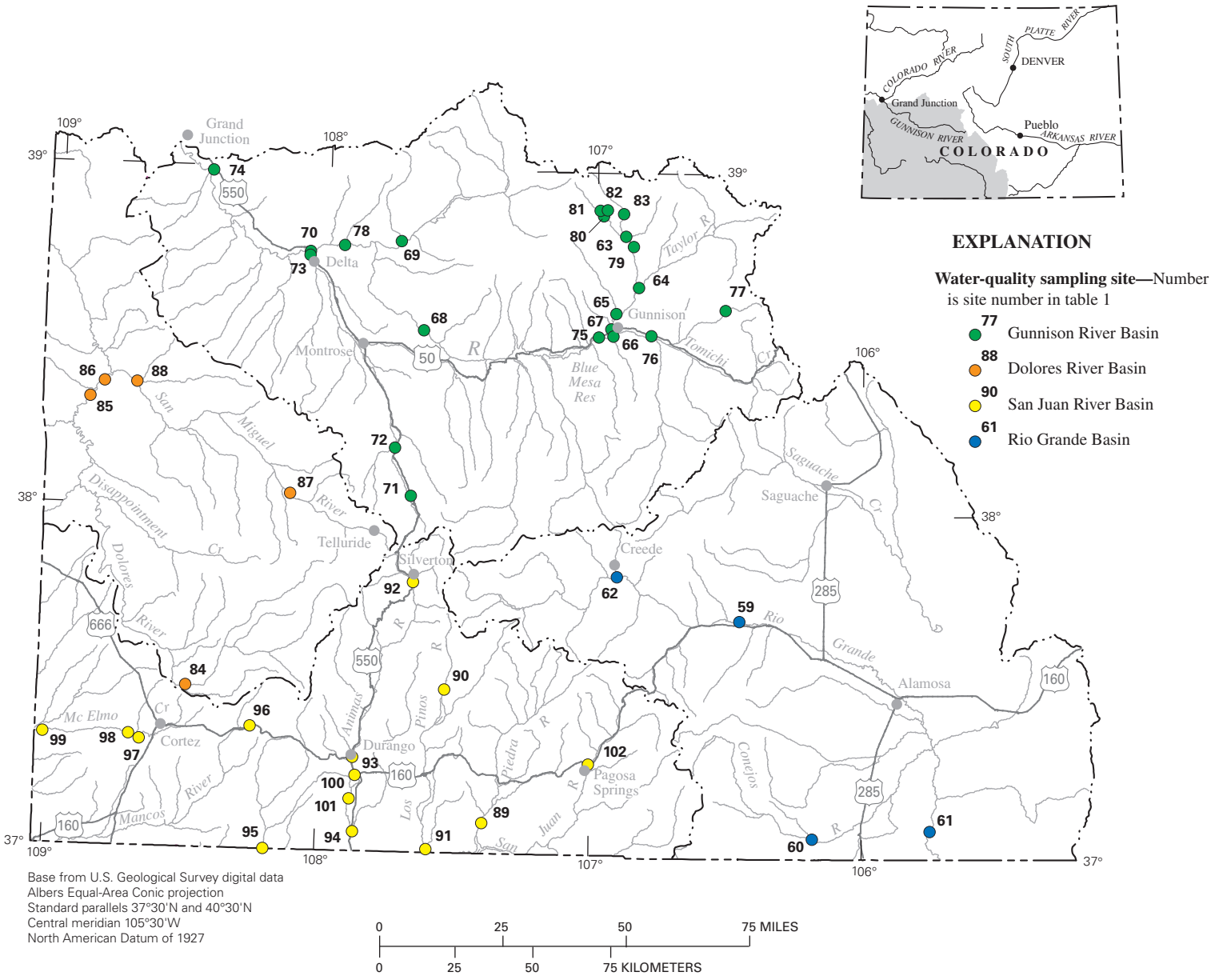

Figure 5. Sampling sites in the Rio Grande, Gunnison, Dolores, and San Juan River Basins.

Table 4. Average percentiles and results for summer 2002 drought water-quality data from sites in the Rio Grande Basin, relative to historical data from July through September, 1978–2002.

[Q%, percentile; medial, average Q% between 25 and 74.9; elevated, average Q% greater than or equal to 75; depressed, average Q% less than 25; ID, insufficient number of sites (fewer than 3) to determine result]

Property or constituent	Average Q%	Number of sites	Result
Oxygen, dissolved	38.2	1	ID
pH	94.6	1	ID
Specific conductance	62.9	1	ID
Temperature, water	26.6	3	Medial
Chloride, dissolved	97.1	1	ID
Fluoride, dissolved	97.1	1	ID
Silica, dissolved	2.9	1	ID
Sulfate dissolved	68.6	1	ID
Nitrogen, ammonia, dissolved	40.3	1	ID
Nitrogen, organic plus ammonia, dissolved	65.4	1	ID
Nitrogen, organic plus ammonia, total recoverable	56.8	1	ID
Nitrogen, nitrite plus nitrate, dissolved	45.5	1	ID
Nitrogen, nitrite, dissolved	50.0	1	ID
Phosphorus, dissolved	10.8	1	ID
Phosphorus, total recoverable	4.1	1	ID
Phosphorus, orthophosphate, dissolved	10.0	1	ID
Bacteria, fecal coliform	40.9	1	ID
Iron, dissolved	29.6	1	ID
Manganese, dissolved	86.0	1	ID

(580 and 210 col/100 mL), 72 (210 col/100 mL), 73 (280 and 210 col/100 mL), and 82 (800 col/100 mL); however, the effect of drought cannot be determined for these sites because of insufficient historical data. The chronic standard of 1,500 µg/L for total-recoverable iron was exceeded at sites 71 (4,050 µg/L) and 72 (2,640 µg/L); two of two 2001 historical samples for site 71 exceeded this standard (maximum 6,520 µg/L), and two of three historical samples for site 72 exceeded this standard (maximum 19,900 µg/L). The hardness-based, chronic standard for dissolved manganese was exceeded at site 67 on August 7, 2002 (57 µg/L); zero of nine historical samples exceeded this standard (maximum 35 µg/L). The hardness-based chronic dissolved selenium standard of 4.6 µg/L was exceeded at site 70 on August 8 (5.0 µg/L) and September 11, 2002 (7 µg/L). The fixed chronic standard of 6.0 µg/L was exceeded at site 74 on September 24, 2002 (8 µg/L). For site 70, 6 of 13 historical samples for the seasonal period of record and 31 of 50 samples for site 74 exceeded these standards (maximum 8 and 25 µg/L, respectively). In summary, the only exceedance that was affected by drought was dissolved manganese (chronic standard) at site 67. The data indicate that the exceedances for sulfate, total iron, and dissolved selenium were not affected by drought.

Dolores River Basin

Drought samples were collected at five sites in the Dolores River Basin (table 15 in Appendix, fig. 5). Average percentiles (table 6) indicate that specific conductance was elevated and that water temperature had medial values. pH, chloride, fluoride, silica, and sulfate had too few sites for basin characterization, although all had high average percentiles, indicating elevated levels for the available data.

Table 5. Average percentiles and results for summer 2002 drought water-quality data from sites in the Gunnison River Basin relative to historical data from July through September, 1978–2002.

[Q%, percentile; Medial, average Q% between 25 and 74.9; elevated, average Q% greater than or equal to 75; ID, insufficient number of sites (fewer than 3) to determine result; text in bold type highlights elevated average percentiles]

Property or constituent	Average Q%	Number of sites	Result
Oxygen, dissolved	35.5	4	Medial
pH	70.8	5	Medial
Specific conductance	82.1	9	**Elevated**
Temperature, water	47.5	9	Medial
Chloride, dissolved	79.0	3	**Elevated**
Fluoride, dissolved	77.8	1	ID
Silica, dissolved	75.9	3	**Elevated**[1]
Sulfate, dissolved	84.4	3	**Elevated**
Nitrogen, ammonia, dissolved	35.8	3	Medial
Nitrogen, organic plus ammonia, dissolved	48.6	3	Medial
Nitrogen, organic plus ammonia, total recoverable	50.0	1	ID
Nitrogen, nitrite plus nitrate, dissolved	44.0	3	Medial
Nitrogen, nitrite, dissolved	41.9	3	Medial
Phosphorus, dissolved	49.9	3	Medial
Phosphorus, total recoverable	64.3	3	Medial
Phosphorus, orthophosphate, dissolved	36.8	3	Medial
Cadmium, dissolved	48.1	1	ID
Copper, dissolved	76.9	1	ID
Iron, dissolved	27.9	2	ID
Lead, dissolved	46.2	1	ID
Manganese, dissolved	25.6	1	ID
Selenium, dissolved	68.3	2	ID
Silver, dissolved	93.3	1	ID
Zinc, dissolved	42.3	1	ID

[1] Tentative result because of possible range of Q% for one site (table 5); minimum value in range results in average Q% of 74.7 (medial result).

E. coli bacteria was the only constituent showing a water-quality exceedance in this basin: site 87 exceeded the standard of 126 col/100 mL on August 6, 2002 (210 col/100 mL). However, because there are no historical samples for this constituent at this site, no conclusion can be made about the effect of drought on this exceedance.

San Juan River Basin

Drought samples were collected at 14 sites in the San Juan River Basin (table 16 in Appendix, fig. 5). Average percentiles (table 7) indicate that specific conductance and concentrations of chloride, fluoride, and sulfate were elevated and likely were affected by drought. pH and water temperature values and silica concentrations indicated medial values. Dissolved and total-recoverable nutrients had too few sites for characterization. Metals were sampled too infrequently to allow calculation of reliable percentiles.

Drought samples exceeded water-quality standards for sulfate, *E. coli* bacteria, and dissolved iron (table 16). The sulfate standard of 250 mg/L was exceeded at site 102 on September 6, 2002 (419 mg/L); no historical samples exist for this constituent at this site. The standard of 126 col/100 mL for *E. coli* bacteria was exceeded at site 94 on August 2, 2002 (140 col/100 mL), at site 95 on September 4, 2002

Table 6. Average percentiles and results for summer 2002 drought water-quality data from sites in the Dolores River Basin relative to historical data from July through September, 1978–2002.

[Q%, percentile; medial, average Q% between 25 and 74.9; elevated, average Q% greater than or equal to 75; ID, insufficient number of sites (fewer than 3) to determine result; text in bold type highlights elevated average percentiles]

Property or constituent	Average Q%	Number of sites	Result
pH	88.8	2	ID
Specific conductance	85.7	5	**Elevated**
Temperature, water	36.8	5	Medial
Chloride, dissolved	95.0	2	ID
Fluoride, dissolved	82.0	2	ID
Silica, dissolved	95.0	2	ID
Sulfate dissolved	86.5	2	ID

Table 7. Average percentiles and results for summer 2002 drought water-quality data from sites in the San Juan River Basin, relative to historical data from July through September, 1978–2002.

[Q%, percentile; medial, average Q% between 25 and 50; elevated, average Q% greater than or equal to 75; ID, insufficient number of sites (fewer than 3) to determine result; text in bold type highlights elevated average percentiles]

Property or constituent	Average Q%	Number of sites	Result
pH	43.8	4	Medial
Specific conductance	95.2	6	**Elevated**
Temperature, water	53.3	7	Medial
Chloride, dissolved	86.0	4	**Elevated**
Fluoride, dissolved	92.9	3	**Elevated**
Silica, dissolved	41.8	4	Medial
Sulfate, dissolved	88.2	6	**Elevated**
Nitrogen, ammonia, dissolved	30.6	1	ID
Nitrogen, organic plus ammonia, total recoverable	26.1	1	ID
Nitrogen, nitrite plus nitrate, dissolved	94.7	1	ID
Phosphorus, dissolved	34.8	1	ID
Phosphorus, total recoverable	27.4	1	ID

(380 col/100 mL), at site 97 (220 and 260 col/100 mL) August 7 and September 18, 2002, at site 98 on September 10, 2002 (540 col/100 mL), and at site 99 on August 7 and September 10, 2002 (220 and 1,100 col/100 mL); no historical data exist for this constituent at any of these sites, so the effect of drought cannot be assessed. The monthly dependent, chronic standard of 1,286 µg/L for dissolved iron at site 92 was exceeded on July 31, 2002, with a concentration of 1,900 µg/L. Seven historical samples show zero exceedances for dissolved iron (maximum 1,200 µg/L), although the maximum historical value is more than half of the drought exceedance. In summary, it is unknown if any of the standard exceedances were affected by drought.

South Platte River Basin

Drought samples were collected at 23 sites in the South Platte River Basin (table 17 in Appendix, fig. 6). Average percentiles (table 8) indicated medial values and concentrations for field properties, most dissolved and total-recoverable nutrients, dissolved organic carbon, and some dissolved trace metals (copper, iron, manganese, and silver). Too few sites had reliable percentiles to allow characterization of dissolved organic plus ammonia nitrogen, total-recoverable organic carbon, total-recoverable iron, dissolved lead, and dissolved nickel.

Drought samples exceeded water-quality standards for pH, dissolved ammonia, dissolved nitrite, dissolved copper, and dissolved manganese (table 17). The upper standard of 9.0 SU for pH was exceeded at sites 108 (9.1) and 109 (9.1) on September 9, 2002, and at site 119 (9.3) on September 10, 2002; historical samples for site 108 (maximum pH of 8.2) show 1 out of 47 pH measurements was above the acceptable range, but that measurement was below the 6.5 standard; zero of 6 historical samples for site 109 exceeded the pH standard (maximum 7.8); 2 of 58 historical samples for site 119 (maximum 8.5) had pH less than the 6.5 standard, but none exceeded the upper standard. Therefore, although all three of the upper-standard pH exceedances appear to be affected by drought, the problem of diurnal variation in pH and variable measurement times (Chafin, 2002) preclude a valid basis for comparing drought and historical measurements, so no causative conclusion can be made.

The reach-specific chronic standard for dissolved ammonia was exceeded in drought samples at sites 104, 106, 108, 109, 116, and 122 (table 17). Sites 104, 106, 108, and 122 also exceeded their reach-specific chronic standards for ammonia more than two-thirds of the time during the seasonal period of record, and site 116 exceeded the standard about one-half of the time. The effect of drought on site 109 is uncertain because one ammonia concentration in six exceeded the standard during the seasonal period of record. These results indicate that the chronic ammonia exceedances in the South Platte River Basin during 2002 were not directly affected by drought.

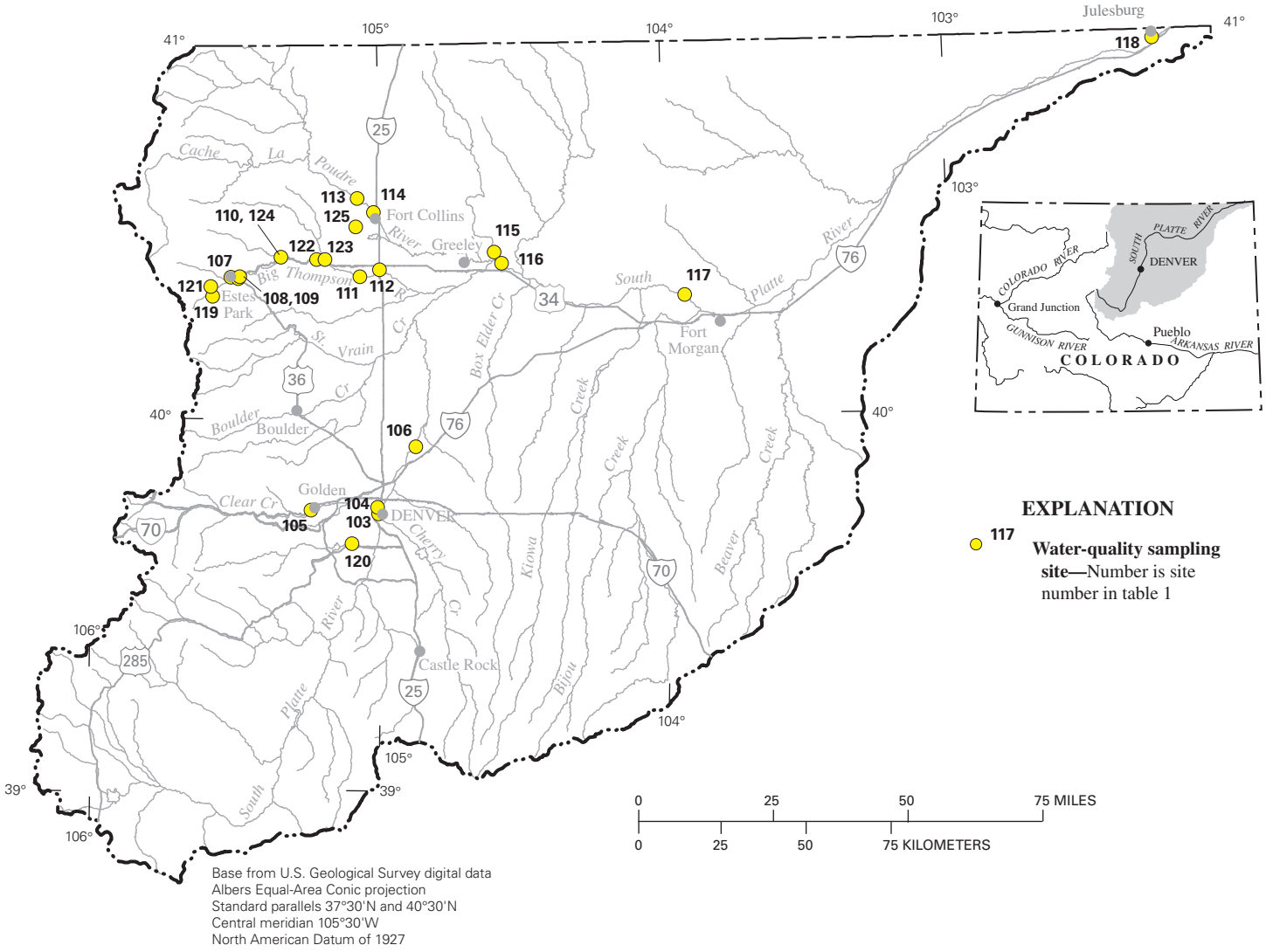

Figure 6. Sampling sites in the South Platte River Basin.

Table 8. Average percentiles and results for summer 2002 drought water-quality data from sites in the South Platte River Basin relative to historical data from July through September, 1978–2002.

[Q%, percentile; Medial, average Q% between 25 and 74.9; elevated, average Q% greater than or equal to 75; ID, insufficient number of sites (fewer than 3) to determine result]

Property or constituent	Average Q%	Number of sites	Result
Oxygen, dissolved	43.7	12	Medial
pH	53.0	12	Medial
Specific conductance	70.9	13	Medial
Temperature, water	56.3	15	Medial
Chloride, dissolved	74.9	9	Medial
Silica, dissolved	66.7	7	Medial
Sulfate, dissolved	59.3	9	Medial
Nitrogen, ammonia, dissolved	43.7	11	Medial
Nitrogen, organic plus ammonia, dissolved	83.9	1	ID
Nitrogen, organic plus ammonia, total recoverable	35.2	6	Medial
Nitrogen, nitrite plus nitrate, dissolved	68.2	12	Medial
Nitrogen, nitrite, dissolved	60.2	7	Medial
Phosphorus, dissolved	46.2	8	Medial
Phosphorus, total recoverable	46.0	9	Medial
Phosphorus, orthophosphate, dissolved	53.4	10	Medial
Carbon, organic, dissolved	58.8	3	Medial
Carbon, organic, total recoverable	25.9	1	ID
Copper, dissolved	62.3	5	Medial
Iron, dissolved	33.4	10	Medial
Iron, total recoverable	42.0	2	ID
Lead, dissolved	48.5	1	ID
Manganese, dissolved	63.5	6	Medial
Nickel, dissolved	50.0	1	ID
Silver, dissolved	45.9	4	Medial

Dissolved nitrite nitrogen exceeded the reach-specific standard of 1.0 at site 106 on August 13, 2002 (1.21 mg/L); one of 22 historical samples exceeded the standard (maximum 1.1 mg/L), making it likely that the drought-sample exceedance was affected by drought. Dissolved copper exceeded the hardness-based acute and chronic standards at site 110 on August 6, 2002 (1.9 µg/L); six historical samples showed no exceedances, but four of these samples had reported concentrations of less than 2 µg/L; therefore, no conclusion can be reached about the effect of drought on the dissolved copper exceedances at site 110. The drinking-water standard for dissolved manganese was exceeded at site 120 on August 22 (69 µg/L) and September 16, 2002 (63 µg/L), but there are no historical data for manganese for this site, so the effect of drought cannot be determined.

In summary, the 2002 drought appears to have caused an exceedance for nitrite at one site when compared to the seasonal period of record for all sites.

Arkansas River Basin

Drought samples were collected at 23 sites in the Arkansas River Basin (table 18 in Appendix, fig. 7). Percentiles for specific conductance (table 9) indicated elevated values for specific conductance and sulfate concentration; concentrations of total-recoverable iron and manganese (tentative) were depressed. Dissolved oxygen, pH, most dissolved and total-recoverable nutrients, fecal-coliform bacteria, dissolved cadmium, iron, lead, manganese, and zinc, and total-recoverable cadmium, chromium, and zinc indicated medial values and concentrations. Too few sites had reliable percentiles for total-recoverable organic plus ammonia nitrogen; dissolved arsenic, chromium, copper, nickel, selenium, and silver; and total-recoverable copper, mercury, and nickel.

Drought samples indicate water-quality exceedances for sulfate, *E. coli* bacteria, fecal-coliform bacteria, total-recoverable iron, dissolved manganese, and dissolved selenium (table 18). Sulfate exceeded the reach-specific standard of 1,078 µg/L at sites 144 (1,080 µg/L) and 145 (1,590 µg/L); historical samples showed no exceedances in 5 samples at site 144 (maximum 940 µg/L) and 1 exceedance in 10 samples at site 145 (maximum 1,440 µg/L). Historical-sample exceedances are inconclusive indicators of drought effect on sulfate exceedance at site 144; however, elevated average percentile for sulfate in this basin indicates that drought could have caused some exceedances of water-quality standards and probably did so for the drought samples collected at sites 144 and 145.

Most sites (16 of 23) had samples with *E. coli* colonies that exceeded the standard of 126 col/100 mL (maximum 3,900 colonies per 100 mL); however, all historical samples were collected in 2001 and no more than three samples were collected at each site. Therefore, no conclusion can be made about the effect of drought on these *E. coli* exceedances. Most sites (14 of 23) also had drought samples with fecal-coliform colonies that exceeded the general standard of 200 col/100 mL. More than one-half of the samples collected at these sites historically had exceedances that generally were substantially larger than drought samples (except for site 143, which had no historical data, and for site 131, which had one exceedance in seven historical samples and for which drought-sample colonies substantially exceeded the maximum historical count by 3 to 25 times). Therefore, exceedances of water-quality standards for fecal coliform for 14 of 18 samples collected in this basin probably were not affected by drought conditions.

The reach-specific chronic standard of 2,690 µg/L for total-recoverable iron was exceeded at site 140 (3,840 µg/L); historical data for the seasonal period of record show 11 exceedances in 18 samples (maximum 54,100 µg/L), indicating that the drought-sample exceedance was not affected by drought conditions—a conclusion supported by the depressed average percentile for total-recoverable iron.

The chronic dissolved manganese standard of 50 µg/L was exceeded at sites 130 (162 µg/L), 131 (141 µg/L), 133 (52 µg/L), 141 (71 µg/L), 143 (115 µg/L), and 145 (133 µg/L); historical samples show one exceedance out of 14 samples at site 130 (maximum 80 µg/L), zero out of 12 at site 131 (maximum 30 µg/L); 23 out of 45 at site 133 (maximum 150 µg/L); zero out of 9 at site 141; and zero out of 10 at site 145 (maximum 30 µg/L). There are no historical data for site 143. These data indicate that the drought-sample exceedance at site 133 was not affected by drought conditions, whereas those at sites 130, 131, 141, and 145 probably were, and those at site 143 are indeterminate.

The acute and chronic standards for dissolved selenium were exceeded at site 131 (28 µg/L); the variable chronic standard also was exceeded at sites 135 (15 µg/L) and 136 (14 µg/L). Historical data indicate no exceedances for site 131 (11 samples; maximum 6 µg/L) and 135 (4 samples; maximum 9 µg/L); site 136 had one exceedance out of 25 samples (maximum 7 µg/L). These data indicate that exceedances at sites 131 and 136 probably were affected by drought, but the effect at site 135 is uncertain.

In summary, drought conditions probably contributed to exceedances of water-quality standards for sulfate at site 144 and site 145. Fourteen of 18 exceedances in fecal-coliform colonies probably were not affected by drought, but two exceedances (site 131) possibly were affected by drought and two (site 143) could not be assessed for cause. The chronic standard for total-recoverable iron at site 140 probably was not affected by drought. The chronic dissolved manganese exceedance at site 133 probably was not affected by drought conditions, whereas those at sites 130, 131, 141, and 145 probably were, and the exceedance at site 143 cannot be assessed for cause. Exceedances in dissolved selenium at sites 131 (acute and chronic) and 136 (chronic) probably were affected by drought, but the chronic exceedance at site 135 could not be characterized.

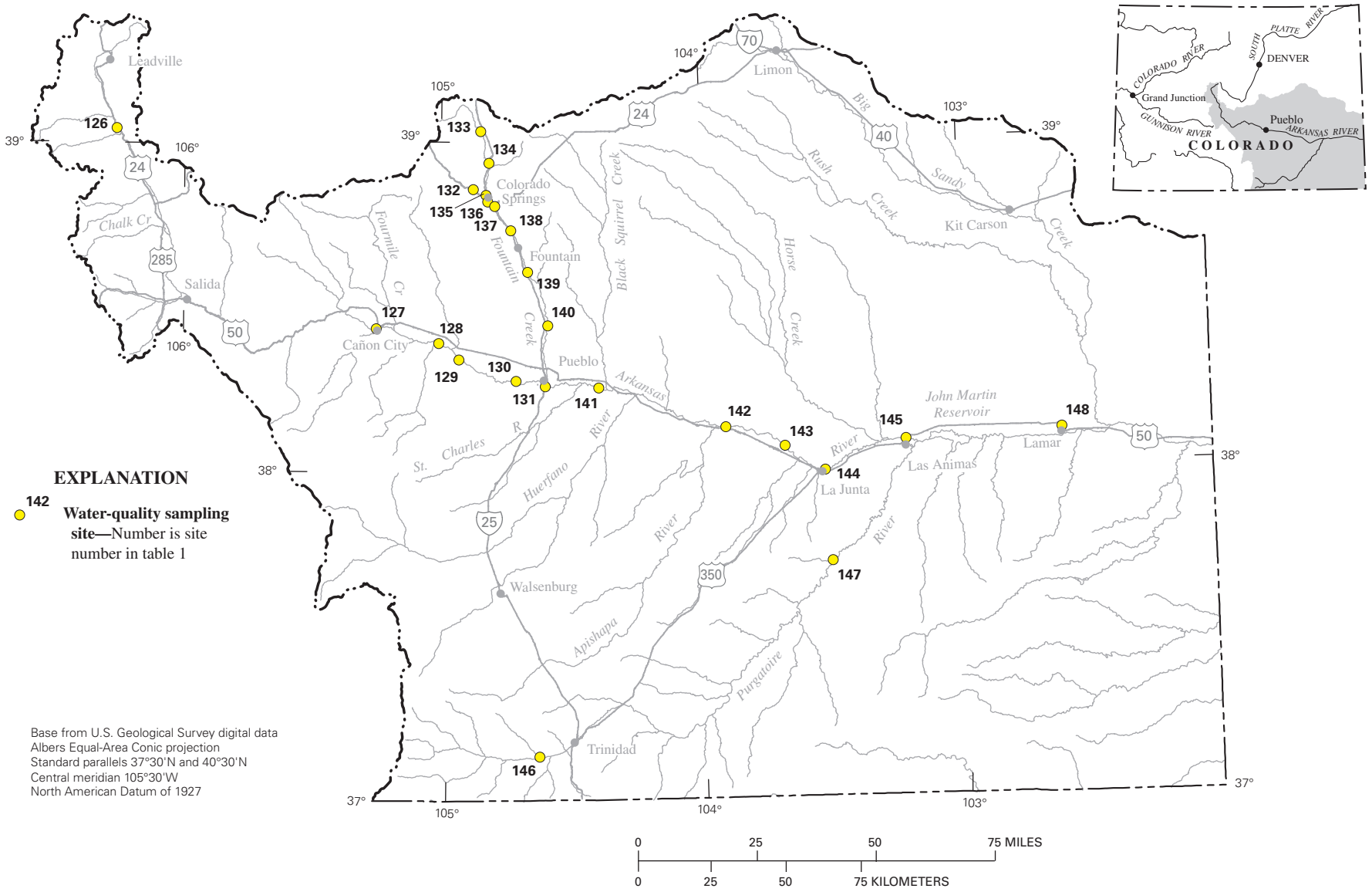

Figure 7. Sampling sites in the Arkansas River Basin.

Table 9. Average percentiles and results for summer 2002 drought water-quality data from sites in the Arkansas River Basin relative to historical data from July through September, 1978–2002.

[Q%, percentile; medial, average Q% between 25 and 74.9; elevated, average Q% greater than or equal to 75; depressed, average Q% less than 25; ID, insufficient number of sites (fewer than 3) to determine result; text in bold type highlights depressed or elevated average percentiles]

Property or constituent	Average Q%	Number of sites	Result
Oxygen, dissolved	55.5	10	Medial
pH	64.9	11	Medial
Specific conductance	81.2	20	**Elevated**
Temperature, water	63.8	19	Medial
Fluoride, dissolved	49.6	6	Medial
Sulfate dissolved	86.7	6	**Elevated**
Nitrogen, ammonia, dissolved	25.1	5	Medial
Nitrogen, organic plus ammonia, total recoverable	46.9	1	ID
Nitrogen, nitrite plus nitrate, dissolved	54.7	6	Medial
Phosphorus, total recoverable	47.9	4	Medial
Phosphorus, orthophosphate, dissolved	51.4	4	Medial
Bacteria, fecal coliform	48.7	6	Medial
Arsenic, dissolved	31.0	1	ID
Cadmium, dissolved	48.2	4	Medial
Cadmium, total recoverable	47.6	4	Medial
Chromium, dissolved	95.7	1	ID
Chromium, total recoverable	51.8	5	Medial
Copper, dissolved	46.4	1	ID
Copper, total recoverable	62.8	1	ID
Iron, dissolved	25.6	7	Medial
Iron, total recoverable	20.4	6	**Depressed**
Lead, dissolved	46.8	5	Medial
Manganese, dissolved	42.6	5	Medial
Manganese, total recoverable	24.4	6	**Depressed**[1]
Mercury, total recoverable	47.6	1	ID
Nickel, dissolved	79.3	1	ID
Nickel, total recoverable	89.3	1	ID
Selenium, dissolved	87.7	2	ID
Silver, dissolved	48.3	1	ID
Zinc, dissolved	59.6	6	Medial
Zinc, total recoverable	28.3	6	Medial

[1] Tentative result because of possible range of Q% for four sites (table 18 in Appendix); maximum values in ranges result in average Q% of 25.6 (medial result).

Statewide Overview

A summary of characterization of percentiles for all drought samples collected in Colorado during summer 2002 (table 10) indicates that few measured properties or constituents were elevated or depressed in concentration or value on a widespread basis. Specific conductance was elevated in five of the seven basins (or basin groups) that had sufficient data for characterization (that is, those not showing "ID" or "--" in table 10); although specific conductance was medial in the Yampa and White and the South Platte River Basins, large average percentiles of 73.7 (table 2) and 70.9 (table 8) indicate that specific conductance likely was affected by drought in those basins. For the 95 sites for which a specific-conductance percentile could be calculated, the average percentile of 81.8 indicates substantial elevation on a statewide basis. Similarly, chloride concentrations were elevated in three of five basins with sufficient data; although chloride concentration was medial in the Yampa and White and the South Platte River Basins, above-median average percentiles of 70.2 (table 2) and 74.9 (table 8) indicate that chloride concentration generally was affected by drought in those basins, too (average percentile of 83.7 for 43 sites). Sulfate concentration was elevated in four of six basins with sufficient data; the Yampa and White and the South Platte River Basins had medial concentrations; an above-median average percentile of 69.4 (table 2) in the Yampa and White River Basin group indicates some increase in sulfate concentration there; sulfate concentration was slightly increased in the South Platte River Basin (average percentile equals 59.3; table 8). All basins that exhibited elevated concentrations of chloride and sulfate also exhibited elevated specific conductance. The widespread elevation of specific conductance and concentrations of chloride and sulfate indicates that salinity generally was affected by drought in Colorado streams during July through September 2002, undoubtedly because streamflow at most sites was dominated by base flow of ground water, which usually has considerable salinity compared to runoff from precipitation (Winter and others, 1999).

Fluoride concentrations were elevated in two (tentative in Upper Colorado; San Juan) of four basins with sufficient data to characterize, and two of the other basins (Yampa/White and Arkansas) had medial concentrations. Both basins with elevated concentrations of fluoride had elevated specific conductance and concentrations of chloride and sulfate, which is consistent with a ground-water source for fluoride; however, the Arkansas River Basin had medial concentrations of fluoride despite having elevated specific conductance and sulfate concentrations. The reasons for this apparent contradiction cannot be readily determined but may be the result of basin geology, an artifact of sampling-site distribution, or both.

Dissolved and total-recoverable nutrients (nitrogen and phosphorus) showed medial (and near medial) concentrations in the five basins with sufficient data to characterize. However, dissolved ammonia concentrations were below median concentrations (average percentile less than 50) in the five basins with sufficient data to characterize; the Arkansas River Basin nearly had depressed average percentile (25.1; table 9). The widespread below-median concentration of dissolved ammonia indicates that drought affected the ammonia concentrations. The overall pronounced consistency of medial concentrations of nutrients probably is the result of nutrient uptake by aquatic plants upstream from most sites that were sampled—which tends to keep nutrient concentrations low during summer, low-flow conditions (Sprague and others, 2002). This mechanism would explain why reduced dilution of nutrients did not cause elevated nutrient concentration at some sites that receive sewage-wastewater effluent.

Dissolved organic carbon could be characterized only for the South Platte River Basin, which had medial concentrations. *E. coli* bacteria could not be characterized for any basin. Fecal-coliform bacteria could be characterized only for the Arkansas River Basin, which had medial percentiles.

Dissolved and total-recoverable concentrations of metals—except those for dissolved iron and manganese—could only be characterized for one constituent each in four separate basins: the Arkansas River Basin had medial concentrations of cadmium (dissolved and total-recoverable), total-recoverable chromium, dissolved lead, and zinc (dissolved and total-recoverable); the Yampa and White River Basin had medial concentrations of dissolved boron; and the South Platte River Basin had medial concentrations of dissolved copper and silver. Dissolved iron showed medial concentrations in the Yampa and White, Upper Colorado, South Platte, and Arkansas Basins. Dissolved manganese showed medial concentrations in the Upper Colorado, South Platte, and Arkansas Basins. Total-recoverable iron and manganese could only be characterized for the Arkansas River Basin, which had depressed concentrations of both constituents (tentative for manganese).

Medial concentrations of all of these metals except for copper, iron, and manganese result from the fact that most historical and drought samples had censored, recensored, or low (near-censored) concentrations, probably due to limitations of source and solubility. Medial concentrations of dissolved copper, iron, and manganese possibly resulted from the fact that these metals are abundant enough in drainage basins (from natural and anthropogenic sources) to dissolve into the runoff component of streamflow in concentrations similar to those found in ground water; if so, the greater dominance of ground-water base flow during drought conditions would not be expected to shift concentrations substantially compared to historical summer periods when runoff contributed a larger fraction of streamflow.

The depressed concentrations of total-recoverable iron and manganese in the Arkansas River Basin during drought conditions of 2002 probably were the result of reduced land-surface washoff of sediment containing oxyhydroxides of these metals; the relatively low average percentile of 28.3 for total-recoverable zinc indicates the same effect, although censored and recensored concentrations of total-recoverable zinc for many drought and historical samples could preclude

Table 10. Summary of characterization of percentiles for properties and constituents in drought samples collected from sites in Colorado during summer 2002 compared to 1978–2002.

[Medial, average basin percentile between 25 and 74.9; elevated, average basin percentile greater than or equal to 75; depressed, average basin percentile less than 25; ID, insufficient number (less than 3) of sites to calculate average percentile; --, constituent not measured in drought samples or had insufficient number (fewer than 20) of historical and drought samples at any site to calculate percentile. Constituents for which there were too few or no drought samples for all study river bains are not included in this table; text in bold highlights depressed or elevated average percentiles]

Property or constituent	River basin							
	Yampa and White (table 2)	Upper Colorado (table 3)	Rio Grande (table 4)	Gunnison (table 5)	Dolores (table 6)	San Juan (table 7)	South Platte (table 8)	Arkansas (table 9)
Oxygen, dissolved	Medial	Medial	ID	Medial	--	--	Medial	Medial
pH	Medial	Medial	ID	Medial	ID	Medial	Medial	Medial
Specific conductance	Medial	**Elevated**	ID	**Elevated**	**Elevated**	**Elevated**	Medial	**Elevated**
Temperature, water	Medial	Medial	Medial	Medial	Medial	Medial	Medial	Medial
Chloride, dissolved	Medial	**Elevated**	ID	**Elevated**	ID	**Elevated**	Medial	--
Fluoride, dissolved	Medial	**Elevated**[1]	ID	ID	ID	**Elevated**	--	Medial
Silica, dissolved	Medial	Medial	ID	**Elevated**[1]	ID	Medial	Medial	--
Sulfate, dissolved	Medial	**Elevated**	ID	**Elevated**	ID	**Elevated**	Medial	**Elevated**
Nitrogen, ammonia, dissolved	Medial	Medial	ID	Medial	--	ID	Medial	Medial
Nitrogen, organic plus ammonia, dissolved	Medial	Medial	ID	Medial	--	--	ID	--
Nitrogen, organic plus ammonia, total recoverable	Medial	Medial	ID	ID	--	ID	Medial	ID
Nitrogen, nitrite plus nitrate, dissolved	Medial	Medial	ID	Medial	--	ID	Medial	Medial
Nitrogen, nitrite, dissolved	Medial	Medial	ID	Medial	--	--	Medial	--
Phosphorus, dissolved	Medial	Medial	ID	Medial	--	ID	Medial	--
Phosphorus, total recoverable	Medial	Medial	ID	Medial	--	ID	Medial	Medial
Phosphorus, orthophosphate, dissolved	Medial	Medial	ID	Medial	--	--	Medial	Medial
Carbon, organic, dissolved	ID	ID	--	--	--	--	Medial	--
Bacteria, fecal coliform	--	--	ID	--	--	--	--	Medial
Boron, dissolved	Medial	--	--	--	--	--	--	--
Cadmium, dissolved	--	ID	--	ID	--	--	--	Medial
Cadmium, total recoverable	--	--	--	--	--	--	--	Medial
Chromium, total recoverable	--	--	--	--	--	--	--	Medial
Copper, dissolved	--	ID	--	ID	--	--	Medial	ID
Iron, dissolved	Medial	Medial	ID	ID	--	--	Medial	Medial
Iron, total recoverable	--	ID	--	--	--	--	ID	**Depressed**
Lead, dissolved	--	ID	--	ID	--	--	ID	Medial
Manganese, dissolved	ID	Medial	ID	ID	--	--	Medial	Medial
Manganese, total recoverable	--	ID	--	--	--	--	--	**Depressed**[1]
Nickel, dissolved	--	ID	--	--	--	--	ID	ID
Silver, dissolved	--	ID	--	ID	--	--	Medial	ID
Zinc, dissolved	ID	ID	--	ID	--	--	--	Medial
Zinc, total recoverable	--	--	--	--	--	--	--	Medial

[1] Tentative (borderline) result; see table listed in column heading for details.

the ability of average percentile to indicate depressed concentration.

In total, 115 exceedances of 2002 Colorado water-quality standards were identified in the 246 drought samples collected at 148 sites. Constituents showing exceedances of water quality-standards were pH (all 9.0 exceedances; 9 samples), chloride (1 sample), sulfate (9 samples), dissolved ammonia (10 samples), dissolved nitrite nitrogen (3 samples), *E. coli* bacteria (34 samples, 20 in the Arkansas River Basin), fecal-coliform bacteria (18 samples, all in the Arkansas River Basin), dissolved copper (1 sample), dissolved iron (3 samples), total-recoverable iron (3 samples), dissolved manganese (13 samples), dissolved selenium (10 samples), and dissolved zinc (1 sample). Of these 115 exceedances, historical data were sufficient to conclude that 21 probably were affected by drought, 39 probably were not affected by drought, and 55 were of indeterminate nature (that is, were considered to be possibly or apparently affected by drought, or data were insufficient for judging). Excluding all of the exceedances of *E. coli* and fecal-coliform bacteria (52) because of their overrepresentation in the Arkansas River Basin, 19 of the total 63 exceedances probably were affected by drought, 25 probably were not, and 19 were of indeterminate nature. Therefore, based on the first two categories, about 38 percent of the exceedances probably would have occurred under nondrought conditions. However, eight dissolved manganese exceedances were affected by drought compared to two that were considered not to be affected by drought, and sulfate showed five exceedances that were affected by drought and two that were not affected by drought. Overall, the data indicate that most water-quality exceedances probably were not drought related but that drought affected concentrations of some constituents (especially dissolved manganese and sulfate) were enough to cause local exceedances of water-quality standards.

Specific-conductance values indicate that the San Juan River Basin (average percentile 95.2; table 7) experienced the greatest effects of drought on water quality during summer 2002 compared to other basins in Colorado, followed by the Upper Colorado (90.0; table 3) and Dolores River (85.7; table 6) Basins. The South Platte River Basin (70.9; table 8) experienced the least effect of drought, and the Yampa and White River Basin group (73.7; table 2) had the second smallest drought effect. The Gunnison River (82.1; table 5) and Arkansas River (81.2; table 9) Basins showed an intermediate drought effect. The Rio Grande Basin had insufficient data to determine the relative effect of drought on water quality.

Summary

During 2002, Colorado experienced the State's worst drought since 1977. To determine the effects of this drought on the water quality of streams in the State during the summer of 2002, a variety of State and local governments cooperated with the U.S. Geological Survey to collect water-quality samples at 148 stream sites in all major river basins in Colorado. Water samples were analyzed for field properties, major ions, nutrients, organic carbon, bacteria, and dissolved metals at all sites, although individual constituents in these categories varied among basins. At some sites, water samples also were analyzed for total-recoverable metals. In 2003, the U.S. Geological Survey, in cooperation with the Colorado Department of Public Health and Environment, analyzed these data to determine the general effects of drought on the water quality of streams in Colorado during summer 2002. This report summarizes streamflow for 2002 relative to the 1978 through 2001 period and presents percentiles of concentrations of water-quality constituents from the summer of 2002 relative to historical data for each site for the months of July through September during 1978 through 2001. Exceedances of Colorado water-quality standards for constituents sampled during summer 2002 are included.

Mean annual streamflow was analyzed at 134 sites in Colorado for water years 1978–2002. Mean annual streamflow for 2002 had an average percentile of 29.4 percent during this period, indicating that streamflow in Colorado during 2002 was substantially less than median percentile streamflow for 1978–2002. Mean summer (July–September) streamflow for 2002 was analyzed for 146 sites in Colorado, and percentiles averaged 7.6 percent when compared to summer streamflow for 1978–2002 for 134 sites across Colorado. Because mean summer streamflow for 2002 had a substantially smaller average percentile (7.6 percent) than did mean annual streamflow for 2002 (29.4 percent), the effect of drought on streamflow was greater during summer 2002 than during water year 2002.

Drought samples were collected at 8 sites in the Yampa River Basin and at 11 sites in the White River Basin. Average percentiles (for July–September 1978–2002) for constituents collected in both basins indicate medial (in interquartile range of 25–75) values or concentrations for all constituents with sufficient data—including field properties, chloride, fluoride, silica, and sulfate, most dissolved and total-recoverable nutrients, and dissolved boron and iron. The only exceedances of 2002 Colorado water-quality standards were for pH (upper standard of 9.0 SU) at one site and for dissolved manganese at another.

Drought samples were collected at 39 sites in the Upper Colorado River Basin. Average percentiles for properties and constituents indicate elevated (in upper quartile range of 75 or greater) specific conductance and elevated concentrations of chloride, fluoride (tentative), and sulfate. All other constituents with sufficient data (field properties, silica, dissolved and total-recoverable nutrients, dissolved iron and manganese) indicate medial values or concentrations.

Drought samples from the Upper Colorado River Basin had water-quality exceedances for pH and concentrations of chloride, sulfate, nitrite nitrogen, dissolved iron, dissolved manganese, and dissolved selenium. pH exceeded the upper standard of 9.0 SU five times at four sites; the effect of the drought on these exceedances is unknown. The chloride standard of 250 mg/L was exceeded once at one site, and the

exceedance was likely a result of the drought. The sulfate standard of 250 mg/L was exceeded five times at four sites, and three of the exceedances were likely an effect of the drought. Nitrite nitrogen exceeded the chronic standard of 0.05 mg/L twice at one site, and the exceedances were likely affected by drought. Dissolved iron exceeded the chronic standard of 300 µg/L twice at one site and the exceedances were not affected by drought. Dissolved manganese exceeded the hardness-based chronic standard of 50 µg/L three times at two sites; two exceedances at one site were affected by drought. Dissolved selenium exceeded the chronic standard of 4.6 µg/L four times at three sites; historical data indicate that these exceedances were not affected by drought.

Drought samples were collected at four sites in the Rio Grande Basin. Average percentiles for properties and constituents only indicate result for medial water temperature, but all other properties and constituents had too few percentiles for characterization. The only water-quality exceedance for this basin was for dissolved zinc in one sample at one site; it is unknown if this sample was affected by drought.

Drought samples were collected at 21 sites in the Gunnison River Basin. Average percentiles for properties and constituents indicate elevated specific conductance and elevated concentrations of dissolved chloride, dissolved silica, and dissolved sulfate. All other constituents with sufficient data—including other field properties and most dissolved and total-recoverable nutrients—indicated medial values or concentrations. Drought samples collected in the basin had water-quality exceedances for sulfate (one sample, one site), *E. coli* bacteria (four samples, three sites), total-recoverable iron (two samples, two sites), dissolved manganese (one sample, one site), and dissolved selenium (three samples, two sites). The only exceedance that likely was affected by drought was dissolved manganese.

Drought samples were collected at five sites in the Dolores River Basin. Average percentiles indicate that specific conductance was elevated and that temperature was medial. pH, chloride, fluoride, silica, and sulfate had too few sites for basin characterization, although all had high average percentiles, indicating elevated levels. *E. coli* bacteria was the only constituent showing a water-quality exceedance (one sample, one site) and it is unknown if the exceedance was affected by drought.

Drought samples were collected at 14 sites in the San Juan River Basin. Average percentiles indicate that specific conductance and concentrations of chloride, fluoride, and sulfate were elevated, whereas pH and temperature values and silica concentrations had medial values. Dissolved and total-recoverable nutrients had too few sites for characterization. Metals were sampled too infrequently to allow calculation of reliable percentiles. Drought samples had water-quality exceedances for sulfate (one sample, one site), *E. coli* bacteria (seven samples, five sites), and dissolved iron (one sample, one site). It is unknown if any of the exceedances were affected by drought.

Drought samples were collected at 23 sites in the South Platte River Basin. Average percentiles indicated medial values and concentrations for field properties, most dissolved and total-recoverable nutrients, dissolved organic carbon, and some dissolved trace metals (copper, iron, manganese, and silver). Too few sites had reliable percentiles to allow characterization of dissolved organic plus ammonia nitrogen, total-recoverable organic carbon, total-recoverable iron, dissolved lead, and dissolved nickel.

Drought samples exceeded water-quality standards for pH (9.0 standard units; 3 samples, three sites), dissolved ammonia (10 samples, six sites), dissolved nitrite (1 sample, one site), dissolved copper (1 sample, one site), and dissolved manganese (2 samples, one site). Historical data indicate that the single nitrite exceedance likely was affected by drought.

Drought samples were collected at 23 sites in the Arkansas River Basin. Average percentiles indicate elevated specific conductance values and elevated sulfate concentration; concentrations of total-recoverable iron and manganese (tentative) were depressed. Dissolved oxygen, pH, most dissolved and total-recoverable nutrients, fecal-coliform bacteria, some dissolved metals (cadmium, iron, lead, manganese, and zinc), and some total-recoverable metals (cadmium, chromium, and zinc) indicated medial values and concentrations. Too few sites had reliable percentiles for total-recoverable organic plus ammonia nitrogen, some dissolved metals (arsenic, chromium, copper, nickel, selenium, and silver), and some total-recoverable metals (copper, mercury, and nickel). Drought samples indicate water-quality exceedances for sulfate (2 samples, 2 sites), *E. coli* bacteria (20 samples, 16 sites), fecal-coliform bacteria (18 samples, 14 sites), total-recoverable iron (1 sample, 1 site), dissolved manganese (6 samples, 6 sites), and dissolved selenium (3 samples, 3 sites). Drought conditions probably caused exceedances of water-quality standards for sulfate at two sites, fecal coliform at one site, manganese at four sites, and selenium at two sites.

Percentiles for all drought samples collected in Colorado during summer 2002 indicate that few measured constituents were elevated or depressed in concentration or value on a widespread basis. Specific conductance was elevated at five of the seven basins (or basin groups) that had sufficient data for characterization. Similarly, chloride concentrations were elevated in three of five basins with sufficient data, indicating that chloride concentration generally was affected by drought in those basins. Sulfate concentration was elevated in four of six basins with sufficient data. All basins that exhibited elevated concentrations of chloride and sulfate also exhibited elevated specific conductance. The widespread elevation of specific conductance and concentrations of chloride and sulfate indicates that salinity generally was affected by drought in Colorado streams during July through September 2002—undoubtedly because streamflow at most sites was dominated by base flow of ground water, which usually has considerable salinity compared to runoff from precipitation.

Fluoride showed elevated concentrations in two of four basins with sufficient data to characterize (Upper Colorado

(tentative); San Juan). Both basins with elevated concentrations of fluoride exhibited elevated specific conductance and elevated concentrations of chloride and sulfate, which is consistent with a ground-water source for fluoride. Dissolved and total-recoverable nutrients (nitrogen and phosphorus) showed medial (and near-medial) concentrations in all basins with sufficient data to characterize. Dissolved and total-recoverable concentrations of metals were mostly medial and could for the most part only be characterized for individual basins. Percentiles for concentrations of total recoverable iron and total recoverable manganese in the Arkansas Basin were depressed.

In total, 115 of the 246 water samples collected at 148 sites in the summer of 2002 exceeded Colorado water-quality standards. Constituents that exceeded water-quality standards were pH (all exceeding 9.0; 9 samples), chloride (1 sample), sulfate (9 samples), dissolved ammonia (10 samples), dissolved nitrite nitrogen (3 samples), *E. coli* bacteria (34 samples, 20 in Arkansas River Basin), fecal-coliform bacteria (18 samples, all in Arkansas River Basin), dissolved copper (1 sample), dissolved iron (3 samples), total-recoverable iron (3 samples), dissolved manganese (13 samples), dissolved selenium (10 samples), and dissolved zinc (1 sample). For these 115 exceedances, historical data were sufficient to conclude that 21 probably were affected by drought, 39 probably were not affected by drought, and 55 were of indeterminate nature. Overall, the data indicate that some water-quality exceedances probably would have occurred during July through September 2002 without drought but that drought probably affected concentrations of some constituents (especially dissolved manganese and sulfate) enough to locally cause exceedances of water-quality standards.

Specific-conductance values indicate the San Juan River Basin (average percentile 95.2) experienced the greatest effects of drought on water quality during summer 2002 compared to other basins in Colorado, followed by the Upper Colorado (90.0) and Dolores River (85.7) Basins. The South Platte River Basin (70.9) experienced the least effect of drought, and the Yampa and White River Basin group (73.7) had the second smallest effect. The Gunnison River (82.1) and Arkansas River (81.2) Basins had intermediate drought effects. The Rio Grande Basin had insufficient data to rank the relative effect of drought on salinity.

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Appendix

This appendix contains data tables in support of the findings for this study.

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L			pH, in standard units		
				Conc	Q%	N	Value	Q%	N
Yampa River Basin									
1	7-29-2002	1415	3.0	6.2	ID	5	7.5	ID	8
	9-3-2002	1130	2.4	7.9	ID	5	7.6	ID	8
2	7-29-2002	1540	65.0	8.2	ID	9	**9.3**	ID	12
3	7-30-2002	850	54.0	8.3	ID	11	8.1	ID	11
	9-3-2002	1400	8.3	7.8	ID	11	8.2	ID	11
4	7-30-2002	1100	1.9	7.3	ID	19	8.8	ID	19
5	7-30-2002	1520	57.0	9.8	[1]66.7–71.4	20	8.8	[1]73.9–91.3	22
6	7-30-2002	1400	20.0	6.9	[1]14.3–19.0	20	8.4	[1]59.1–63.6	21
	9-3-2002	1655	2.9	7.6	42.9	20	8.0	9.1	21
7	7-31-2002	850	48.0	6.6	2.2	45	8.4	[1]39.1–54.3	45
	9-4-2002	910	4.0	8.4	60.9	45	8.2	[1]15.2–28.3	45
8	7-31-2002	1020	70.0	7.0	ID	7	8.4	ID	8
	9-4-2002	1130	4.2	8.6	ID	7	8.4	ID	8
White River Basin									
9	7-29-2002	1230	140.0	8.2	[1]26.1–30.4	22	8.6	96.0	24
	9-9-2002	1400	119.0	8.1	[1]17.4–21.7	22	8.5	[1]76.0–92.0	24
10	7-29-2002	1425	119.0	8.2	[1]45.5–50.0	21	8.6	[1]72.0–84.0	24
	9-9-2002	1555	122.0	8.2	[1]45.5–50.0	21	8.6	[1]72.0–84.0	24
11	7-30-2002	1250	24.0	7.3	13.0	22	8.6	[1]82.5–92.2	102
	9-10-2002	1035	12.0	8.2	[1]43.5–47.8	22	8.3	[1]33.0–49.5	102
12	7-30-2002	1505	205.0	7.7	5.6	35	8.6	[1]83.3–92.2	101
	9-10-2002	1400	180.0	7.9	[1]13.9–16.7	35	8.4	[1]59.8–74.5	101
13	9-11-2002	1155	8.6	9.0	[1]54.3–56.5	45	8.3	[1]38.8–71.4	48
14	7-31-2002	900	3.0	8.9	64.1	38	8.8	[1]78.6–95.2	41
15	9-11-2002	1049	0.4	9.0	89.3	27	7.9	[1]32.1–60.7	27
16	7-31-2002	1107	1.6	8.4	27.6	28	8.5	[1]10.3–20.7	28
17	7-31-2002	1400	176.0	7.8	27.5	39	8.5	[1]53.2–72.3	46
	9-10-2002	1715	176.0	7.7	17.5	39	8.3	[1]6.4–27.7	46
18	7-31-2002	1600	180.0	7.2	ID	16	8.5	ID	16
	9-10-2002	1944	176.0	7.8	ID	16	8.4	ID	16
19	7-30-2002	1030	266.0	8.1	ID	9	8.6	ID	9
	9-9-2002	1750	290.0	8.1	ID	9	8.6	ID	9

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Specific conductance, in µS/cm			Temperature, water, in °C			Hardness, total, in mg/L as $CaCO_3$	Calcium, dissolved, in mg/L	Magnesium, dissolved, in mg/L
		Value	Q%	N	Value	Q%	N			
Yampa River Basin—Continued										
1	7-29-2002	25	[1]30.8–41	38	16.5	89.5	37	9	2.7	0.5
	9-3-2002	24	28.2	38	11.5	[1]23.7–26.3	37	8	2.5	0.5
2	7-29-2002	199	31.3	63	24.0	[1]96.8–98.4	62	86	22.7	7.2
3	7-30-2002	147	90.7	42	16.0	[1]46.5–53.5	42	64	19.2	4.0
	9-3-2002	229	97.7	42	16.6	55.8	42	98	28.3	6.6
4	7-30-2002	343	57.9	26	22.5	59.3	27	130	30.7	12.5
5	7-30-2002	373	[1]60.2–61.2	102	25.0	96.1	102	120	29.7	11.4
6	7-30-2002	684	[1]83.2–85.1	100	24.0	[1]90.3–94.2	102	240	48.9	29.0
	9-3-2002	1,040	99.0	100	19.9	[1]62.1–63.1	102	240	44.1	32.1
7	7-31-2002	866	93.9	65	18.5	[1]25.6–31.1	89	250	49.0	30.2
	9-4-2002	1,350	98.5	65	13.9	6.7	89	350	78.9	37.0
8	7-31-2002	956	93.9	48	22.5	[1]63.5–65.4	51	260	59.9	27.3
	9-4-2002	972	98.0	48	16.1	1.9	51	290	62.6	31.8
White River Basin—Continued										
9	7-29-2002	374	96.0	74	16.5	90.8	75	190	59.9	10.7
	9-9-2002	397	98.7	74	15.5	[1]85.5–86.8	75	--	--	--
10	7-29-2002	336	[1]96.9–98.4	63	17.3	87.5	63	180	52.5	10.8
	9-9-2002	287	50.0	63	16.8	84.4	63	--	--	--
11	7-30-2002	570	98.6	145	22.5	98.6	143	290	87.9	16.4
	9-10-2002	576	99.3	145	15.1	[1]61.8–62.5	143	--	--	--
12	7-30-2002	785	94.8	133	22.7	98.6	138	380	102.0	31.9
	9-10-2002	891	99.3	133	19.2	[1]82.7–83.5	138	420	107.0	37.5
13	9-11-2002	1,620	39.4	65	13.7	18.6	85	480	62.1	77.7
14	7-31-2002	4,330	94.4	70	15.0	[1]17.8–23.8	100	400	13.6	88.9
15	9-11-2002	1,390	22.4	48	12.2	[1]13.7–15.1	72	550	100.0	71.2
16	7-31-2002	3,720	80.0	54	21.5	[1]70.6–71.8	84	690	22.7	152.0
17	7-31-2002	843	90.0	79	23.7	93.9	130	350	83.7	35.2
	9-10-2002	1,030	98.8	79	21.7	74.0	130	--	--	--
18	7-31-2002	930	ID	16	23.9	ID	16	350	77.8	36.9
	9-10-2002	966	ID	16	20.2	ID	16	--	--	--
19	7-30-2002	418	ID	9	15.0	ID	9	220	66.8	12.0
	9-9-2002	400	ID	9	16.0	ID	9	--	--	--

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Alkalinity, laboratory, in mg/L as $CaCO_3$	Chloride, dissolved, in mg/L			Fluoride, dissolved, in mg/L		
					Conc	Q%	N	Conc	Q%	N
Yampa River Basin—Continued										
1	7-29-2002	0.6	1.2	11	0.2	ID	8	--	--	--
	9-3-2002	0.6	1.2	10	0.3	ID	8	--	--	--
2	7-29-2002	1.4	7.7	--	--	--	--	--	--	--
3	7-30-2002	1.6	4.3	62	1.7	ID	11	--	--	--
	9-3-2002	1.8	7.5	85	3.9	ID	11	--	--	--
4	7-30-2002	1.6	20.5	107	4.4	ID	19	0.2	ID	19
5	7-30-2002	2.8	29.9	116	12.4	81.0	20	0.3	[1]66.7–95.2	20
6	7-30-2002	3.0	54.7	266	6.3	ID	18	--	--	--
	9-3-2002	3.7	146.0	417	11.6	ID	18	--	--	--
7	7-31-2002	4.7	95.1	219	30.6	90.9	43	--	--	--
	9-4-2002	6.2	154.0	232	126.0	97.7	43	0.5	[1]95.3–97.7	42
8	7-31-2002	4.8	102.0	187	75.3	ID	9	0.4	ID	8
	9-4-2002	4.9	95.6	197	62.9	ID	9	--	--	--
White River Basin—Continued										
9	7-29-2002	1.0	2.8	98	0.4	ID	11	--	--	--
	9-9-2002	--	--	--	--	--	--	--	--	--
10	7-29-2002	1.0	2.2	130	0.5	ID	10	--	--	--
	9-9-2002	--	--	--	--	--	--	--	--	--
11	7-30-2002	1.7	11.3	197	5.8	95.8	94	--	--	--
	9-10-2002	--	--	--	--	--	--	--	--	--
12	7-30-2002	2.0	28.1	231	10.7	38.9	94	0.3	[1]61.5–92.3	25
	9-10-2002	2.8	38.8	245	13.0	[1]48.4–49.5	94	0.4	96.2	25
13	9-11-2002	2.7	194.0	471	16.9	45.0	39	0.7	[1]25.0–40.0	39
14	7-31-2002	5.1	989.0	1,970	169.0	91.7	35	3.4	94.4	35
15	9-11-2002	1.8	109.0	398	12.7	46.4	27	0.3	28.6	27
16	7-31-2002	3.8	746.0	1,290	109.0	48.3	28	1.9	55.2	28
17	7-31-2002	2.4	49.0	217	14.7	76.7	29	--	--	--
	9-10-2002	--	--	--	--	--	--	--	--	--
18	7-31-2002	2.8	74.2	237	22.7	ID	5	--	--	--
	9-10-2002	--	--	--	--	--	--	--	--	--
19	7-30-2002	1.0	2.9	122	0.6	ID	1	--	--	--
	9-9-2002	--	--	--	--	--	--	--	--	--

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Silica, dissolved, in mg/L as SiO_2			Sulfate, dissolved, in mg/L as SO_4			Solids, dissolved, residue on evaporation at 180 °C, in mg/L	Nitrogen, ammonia, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N		Conc	Q%	N
Yampa River Basin—Continued											
1	7-29-2002	5.8	ID	8	1.5	ID	8	--	<0.015	ID	7
	9-3-2002	5.3	ID	8	1.3	ID	8	--	0.01	ID	7
2	7-29-2002	--	--	--	--	--	--	--	0.01	ID	7
3	7-30-2002	3.3	ID	11	10.1	ID	11	--	<0.015	ID	7
	9-3-2002	2.3	ID	11	24.0	ID	11	--	<0.015	ID	7
4	7-30-2002	6.6	ID	19	61.3	ID	19	--	<0.04	ID	19
5	7-30-2002	1.5	ID	19	51.6	57.1	20	--	<0.04	ID	8
6	7-30-2002	14.4	ID	18	94.0	ID	18	--	<0.04	ID	11
	9-3-2002	12.9	ID	18	135.0	ID	18	--	0.06	ID	11
7	7-31-2002	5.8	72.7	43	195.0	93.2	43	565	<0.04	24.2–62.5	23
	9-4-2002	6.9	[1]84.1–86.4	43	276.0	97.7	43	859	<0.04	24.2–62.5	23
8	7-31-2002	13.3	ID	9	193.0	ID	9	--	<0.04	ID	7
	9-4-2002	11.4	ID	9	209.0	ID	9	--	<0.04	ID	7
White River Basin—Continued											
9	7-29-2002	18.4	ID	11	90.4	ID	11	--	<0.02	24.3–56.5	22
	9-9-2002	--	--	--	--	--	--	--	<0.02	24.3–56.5	22
10	7-29-2002	14.9	ID	10	48.6	ID	10	--	<0.02	24.5–63.6	21
	9-9-2002	--	--	--	--	--	--	--	<0.02	24.5–63.6	21
11	7-30-2002	17.3	ID	11	106.0	97.8	89	--	<0.04	24.5–90.9	21
	9-10-2002	--	--	--	--	--	--	--	<0.04	24.5–90.9	21
12	7-30-2002	14.0	[1]7.7–23.1	25	192.0	96.6	88	--	<0.04	24.0–80.0	24
	9-10-2002	16.6	80.8	25	224.0	98.9	88	--	<0.04	24.0–80.0	24
13	9-11-2002	11.8	7.5	39	425.0	50.0	39	1,120	<0.04	23.2–74.2	30
14	7-31-2002	--	--	--	473.0	52.8	35	2,980	<0.04	24.2--70.8	23
15	9-11-2002	21.2	[1]37.0–40.7	26	363.0	21.4	27	--	<0.04	ID	17
16	7-31-2002	7.9	[1]31.0–34.5	28	839.0	62.1	28	--	<0.04	ID	19
17	7-31-2002	10.5	6.9	28	220.0	86.7	29	--	<0.04	22.9–91.2	33
	9-10-2002	--	--	--	--	--	--	--	<0.04	22.9–91.2	33
18	7-31-2002	9.9	ID	4	234.0	ID	5	--	0.02	ID	16
	9-10-2002	--	--	--	--	--	--	--	<0.04	ID	16
19	7-30-2002	16.3	ID	1	93.9	ID	1	--	<0.015	ID	9
	9-9-2002	--	--	--	--	--	--	--	<0.015	ID	9

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nitrogen, organic plus ammonia, dissolved, in mg/L as N			Nitrogen, organic plus ammonia, total recoverable, in mg/L as N			Nitrogen, nitrite plus nitrate, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
Yampa River Basin—Continued										
1	7-29-2002	0.13	ID	7	--	--	--	0.072	ID	7
	9-3-2002	0.23	ID	7	--	--	--	0.090	ID	7
2	7-29-2002	0.42	ID	7	0.73	ID	8	<0.013	ID	9
3	7-30-2002	0.29	ID	7	--	--	--	<0.013	ID	7
	9-3-2002	0.23	ID	7	--	--	--	<0.013	ID	7
4	7-30-2002	--	--	--	0.55	ID	19	0.030	ID	19
5	7-30-2002	--	--	--	0.54	ID	16	<0.05	ID	8
6	7-30-2002	0.33	ID	11	--	--	--	<0.05	ID	11
	9-3-2002	0.33	ID	11	--	--	--	<0.013	ID	11
7	7-31-2002	0.46	ID	12	--	--	--	<0.1	[2]3.8–92.3	25
	9-4-2002	--	--	--	0.59	44.0	24	<0.1	[2]3.8–92.3	25
8	7-31-2002	--	--	--	0.39	ID	6	<0.05	ID	9
	9-4-2002	0.28	ID	6	--	--	--	<0.05	ID	9
White River Basin—Continued										
9	7-29-2002	0.11	[2]4.5–68.2	21	--	--	--	<0.1	[2]4.3–91.3	22
	9-9-2002	--	--	--	0.13	ID	16	<0.1	[2]4.3–91.3	22
10	7-29-2002	0.11	[2]4.8–76.2	20	--	--	--	<0.1	[2]4.5–90.9	21
	9-9-2002	--	--	--	0.11	ID	16	<0.1	[2]4.5–90.9	21
11	7-30-2002	0.18	81.0	20	--	--	--	<0.1	[2]4.5–90.9	21
	9-10-2002	--	--	--	0.20	ID	17	<0.1	[2]4.5–90.9	21
12	7-30-2002	--	--	--	0.46	[1]70.0–73.3	29	<0.1	[2]4.0–92.0	24
	9-10-2002	--	--	--	0.52	83.3	29	<0.1	[2]4.0–92.0	24
13	9-11-2002	0.35	28.6	27	--	--	--	<0.1	[2]2.5–42.5	39
14	7-31-2002	0.69	61.9	20	--	--	--	<0.05	[2]3.1–34.4	31
15	9-11-2002	0.29	ID	17	--	--	--	0.280	42.9	20
16	7-31-2002	0.66	ID	19	--	--	--	<0.05	4.8	20
17	7-31-2002	0.37	81.8	32	--	--	--	<0.05	[2]3.3–56.7	29
	9-10-2002	--	--	--	0.88	[1]85.2–88.9	26	<0.05	[2]3.3–56.7	29
18	7-31-2002	0.46	ID	15	--	--	--	0.030	ID	16
	9-10-2002	--	--	--	0.53	ID	15	<0.05	ID	16
19	7-30-2002	0.12	ID	8	--	--	--	<0.013	ID	9
	9-9-2002	--	--	--	0.18	ID	8	<0.013	ID	9

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nitrogen, nitrite, dissolved, in mg/L as N			Phosphorus, dissolved, in mg/L as P			Phosphorus, total recoverable, in mg/L as P		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
Yampa River Basin—Continued										
1	7-29-2002	<0.002	ID	7	0.002	ID	7	0.006	ID	2
	9-3-2002	<0.002	ID	7	0.005	ID	7	0.008	ID	2
2	7-29-2002	0.002	ID	7	0.077	ID	7	0.121	ID	8
3	7-30-2002	<0.002	ID	7	0.008	ID	7	0.019	ID	6
	9-3-2002	<0.002	ID	7	0.004	ID	7	0.009	ID	6
4	7-30-2002	<0.008	ID	19	--	--	--	0.032	ID	19
5	7-30-2002	<0.008	ID	8	--	--	--	0.063	ID	16
6	7-30-2002	<0.008	ID	11	<0.06	ID	11	<0.06	ID	11
	9-3-2002	<0.002	ID	11	0.005	ID	11	0.033	ID	11
7	7-31-2002	<0.008	ID	13	<0.06	[2]3.6–89.3	27	0.040	[1]57.7–61.5	25
	9-4-2002	<0.008	ID	13	--	--	--	0.044	65.4	25
8	7-31-2002	<0.008	ID	7	--	--	--	0.035	ID	7
	9-4-2002	<0.008	ID	7	<0.06	ID	6	0.040	ID	7
White River Basin—Continued										
9	7-29-2002	<0.01	[2]4.3–87.0	22	--	--	--	0.022	ID	17
	9-9-2002	<0.01	[2]4.3–87.0	22	0.017	63.6	21	0.023	ID	17
10	7-29-2002	<0.01	[2]4.5–90.9	21	0.013	81.0	20	0.016	ID	17
	9-9-2002	<0.01	[2]4.5–90.9	21	--	--	--	0.011	ID	17
11	7-30-2002	<0.01	[2]4.5–90.9	21	0.058	90.5	20	0.056	ID	18
	9-10-2002	<0.01	[2]4.5–90.9	21	--	--	--	0.024	ID	18
12	7-30-2002	<0.01	[2]4.2–91.7	23	--	--	--	0.053	[1]70.0–73.3	29
	9-10-2002	<0.01	[2]4.2--91.7	23	--	--	--	0.053	[1]70.0–73.3	29
13	9-11-2002	<0.008	67.7	30	0.030	50.0	27	0.060	ID	10
14	7-31-2002	<0.02	[2]4.2–79.2	23	<0.05	[2]4.8–57.1	20	0.058	ID	10
15	9-11-2002	0.005	ID	15	<0.06	ID	15	0.198	ID	2
16	7-31-2002	<0.008	ID	15	<0.06	ID	16	0.024	ID	4
17	7-31-2002	<0.01	[2]2.9–85.3	33	<0.06	[2]2.9–97.1	33	0.030	31.0	28
	9-10-2002	<0.01	[2]2.9–85.3	33	--	--	--	0.166	79.3	28
18	7-31-2002	0.007	ID	16	<0.06	ID	15	<0.06	ID	16
	9-10-2002	<0.008	ID	16	--	--	--	0.026	ID	16
19	7-30-2002	<0.002	ID	9	0.014	ID	8	0.035	ID	9
	9-9-2002	<0.002	ID	9	--	--	--	0.023	ID	9

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Phosphorus, orthophosphate, dissolved, in mg/L as P			Carbon, organic, dissolved, in mg/L			Carbon, organic, total recoverable, in mg/L	Bacteria, *E. coli*, in colonies per 100 Ml	Bacteria, fecal coliform, in colonies per 100 mL	Aluminum, dissolved, in µg/L
		Conc	Q%	N	Conc	Q%	N				
Yampa River Basin—Continued											
1	7-29-2002	<0.007	ID	7	--	--	--	--	3	--	--
	9-3-2002	<0.007	ID	7	--	--	--	--	3	--	--
2	7-29-2002	0.056	ID	7	6.2	ID	2	--	25	20	--
3	7-30-2002	<0.007	ID	7	--	--	--	--	14	--	--
	9-3-2002	<0.007	ID	7	--	--	--	--	7	--	--
4	7-30-2002	<0.02	ID	19	6.9	ID	10	7.4	14	21	<20
5	7-30-2002	0.010	ID	8	5.5	ID	9	--	28	52	--
6	7-30-2002	<0.02	ID	11	--	--	--	--	23	--	--
	9-3-2002	<0.007	ID	11	--	--	--	--	12	--	--
7	7-31-2002	<0.02	[2]4.8–85.7	20	--	--	--	--	40	--	--
	9-4-2002	<0.02	[2]4.8–85.7	20	--	--	--	--	28	--	--
8	7-31-2002	<0.02	ID	7	4.4	ID	3	--	40	93	--
	9-4-2002	<0.02	ID	7	5.7	ID	3	--	18	--	<20
White River Basin—Continued											
9	7-29-2002	0.013	[1]47.8–69.6	22	--	--	--	--	25	--	--
	9-9-2002	0.01	[1]34.8–43.5	22	--	--	--	--	8	--	--
10	7-29-2002	<0.01	[2]4.5–63.6	21	--	--	--	--	27	--	--
	9-9-2002	<0.01	[2]4.5–63.6	21	--	--	--	--	11	--	--
11	7-30-2002	0.041	95.5	21	--	--	--	--	32	--	--
	9-10-2002	0.01	[1]45.5–68.2	21	--	--	--	--	15	--	--
12	7-30-2002	0.02	[1]68.0–84.0	24	4.5	ID	13	--	12	--	<20
	9-10-2002	0.03	88.0	24	6.6	ID	13	--	24	--	<20
13	9-11-2002	0.03	[1]40.0–60.0	39	6.1	ID	11	--	15	--	2
14	7-31-2002	0.02	[1]24.2–39.4	32	10.1	ID	11	--	15	--	3
15	9-11-2002	0.02	ID	16	7.0	60.0	24	--	8	--	--
16	7-31-2002	<0.02	ID	18	11.4	ID	19	--	12	--	--
17	7-31-2002	<0.02	[2]2.9–91.2	33	--	--	--	--	28	--	--
	9-10-2002	<0.02	[2]2.9–91.2	33	--	--	--	--	26	--	--
18	7-31-2002	<0.02	ID	16	--	--	--	--	18	--	--
	9-10-2002	<0.02	ID	16	--	--	--	--	17	--	--
19	7-30-2002	0.008	ID	9	--	--	--	--	20	--	--
	9-9-2002	<0.007	ID	9	--	--	--	--	18	--	--

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Arsenic, dissolved, in µg/L	Boron, dissolved, in µg/L			Cadmium, dissolved, in µg/L	Chromium, dissolved, in µg/L	Copper, dissolved, in µg/L	Iron, dissolved, in µg/L			Iron, total recoverable, in µg/L
			Conc	Q%	N				Conc	Q%	N	
Yampa River Basin—Continued												
1	7-29-2002	--	--	--	--	--	--	--	74	ID	3	--
	9-3-2002	--	--	--	--	--	--	--	221	ID	3	--
2	7-29-2002	--	--	--	--	<0.1	--	1.4	--	--	--	370
3	7-30-2002	--	--	--	--	--	--	--	69	ID	3	--
	9-3-2002	--	--	--	--	--	--	--	74	ID	3	--
4	7-30-2002	--	--	--	--	<0.04	--	1.7	14	ID	--	--
5	7-30-2002	--	--	--	--	<0.2	--	0.6	--	--	--	190
6	7-30-2002	--	--	--	--	--	--	--	10	ID	10	--
	9-3-2002	--	--	--	--	--	--	--	8	ID	10	--
7	7-31-2002	--	--	--	--	--	--	--	<10	[2]4.5–27.3	21	--
	9-4-2002	--	--	--	--	--	--	--	--	--	--	--
8	7-31-2002	--	--	--	--	<0.2	--	0.7	--	--	--	330
	9-4-2002	--	--	--	--	<0.04	--	1.7	<10	ID	1	--
White River Basin—Continued												
9	7-29-2002	--	--	--	--	--	--	--	--	--	--	--
	9-9-2002	--	--	--	--	--	--	--	6	ID	5	--
10	7-29-2002	--	--	--	--	--	--	--	9	ID	4	--
	9-9-2002	--	--	--	--	--	--	--	--	--	--	--
11	7-30-2002	--	--	--	--	--	--	--	18	ID	5	--
	9-10-2002	--	--	--	--	--	--	--	--	--	--	--
12	7-30-2002	--	--	--	--	0.20	--	0.7	15	ID	17	--
	9-10-2002	--	--	--	--	<0.04	--	1.8	23	ID	17	--
13	9-11-2002	2	210	[1]35–37.5	39	0.13	<0.8	2.6	14	50.0	23	--
14	7-31-2002	7	700	83.3	35	0.05	<0.8	3.1	<30	[2]4.3–60.9	22	--
15	9-11-2002	--	100	[1]3.6–17.9	27	--	--	--	--	--	--	--
16	7-31-2002	7	650	[1]62.1–65.5	28	--	--	--	11	ID	14	--
17	7-31-2002	--	--	--	--	--	--	--	17	70.8	23	--
	9-10-2002	--	--	--	--	--	--	--	--	--	--	--
18	7-31-2002	--	--	--	--	--	--	--	<10	ID	3	--
	9-10-2002	--	--	--	--	--	--	--	--	--	--	--
19	7-30-2002	--	--	--	--	--	--	--	6	ID	1	--
	9-9-2002	--	--	--	--	--	--	--	--	--	--	--

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Lead, dissolved, in µg/L	Manganese, dissolved, in µg/L			Manganese, total recoverable, in µg/L	Mercury, dissolved, in µg/L	Molybdenum, dissolved, in µg/L	Nickel, dissolved, in µg/L
			Conc	Q%	N				
Yampa River Basin—Continued									
1	7-29-2002	--	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--	--
2	7-29-2002	<1	26.6	ID	9	88.1	<0.01	--	--
3	7-30-2002	--	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--	--
4	7-30-2002	0.1	23.7	ID	7	--	--	--	--
5	7-30-2002	<1	15.4	ID	15	71.3	<0.01	--	--
6	7-30-2002	--	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--	--
7	7-31-2002	--	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--	--
8	7-31-2002	<1	4.6	ID	7	50.4	<0.01	--	--
	9-4-2002	<0.08	**65c**	ID	7	--	--	--	--
White River Basin—Continued									
9	7-29-2002	--	--	--	--	--	--	--	--
	9-9-2002	--	--	--	--	--	--	--	--
10	7-29-2002	--	--	--	--	--	--	--	--
	9-9-2002	--	--	--	--	--	--	--	--
11	7-30-2002	--	--	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--	--	--
12	7-30-2002	<1	32.1	ID	10	--	--	--	--
	9-10-2002	0.1	21.9	ID	10	--	--	--	--
13	9-11-2002	0.1	47.8	47.8	22	--	0.01	7.6	5.2
14	7-31-2002	<0.2	1.3	[2]4.3–65.2	22	--	<0.06	10.3	1.2
15	9-11-2002	--	--	--	--	--	--	--	--
16	7-31-2002	--	1.5	ID	14	--	--	27.3	1.0
17	7-31-2002	--	--	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--	--	--
18	7-31-2002	--	--	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--	--	--
19	7-30-2002	--	--	--	--	--	--	--	--
	9-9-2002	--	--	--	--	--	--	--	--

Table 11. Water-quality data for the Yampa and White River Basins, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25˚Celsius; ˚C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Selenium, dissolved, in µg/L			Silver, dissolved, in µg/L	Zinc, dissolved, in µg/L		
		Conc	Q%	N		Conc	Q%	N
				Yampa River Basin—Continued				
1	7-29-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
2	7-29-2002	<2	ID	10	<0.1	<24	ID	9
3	7-30-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
4	7-30-2002	--	--	--	--	<1	ID	5
5	7-30-2002	<2	ID	17	<0.2	<24	ID	13
6	7-30-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
7	7-31-2002	0.7	[1]69.0–72.4	28	--	--	--	--
	9-4-2002	1.0	[1]75.9–86.2	28	--	--	--	--
8	7-31-2002	<2	ID	7	<0.2	<24	ID	7
	9-4-2002	--	--	--	--	1.0	ID	7
				White River Basin—Continued				
9	7-29-2002	--	--	--	--	--	--	--
	9-9-2002	--	--	--	--	--	--	--
10	7-29-2002	--	--	--	--	--	--	--
	9-9-2002	--	--	--	--	--	--	--
11	7-30-2002	--	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--	--
12	7-30-2002	--	--	--	--	<24	ID	6
	9-10-2002	--	--	--	--	1.0	ID	6
13	9-11-2002	<2	ID	14	<1	<20	[2]4.2–83.3	23
14	7-31-2002	<2	ID	17	<2	<20	[2]4.3–69.6	22
15	9-11-2002	--	--	--	--	--	--	--
16	7-31-2002	--	--	--	--	<24	ID	14
17	7-31-2002	--	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--	--
18	7-31-2002	--	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--	--
19	7-30-2002	--	--	--	--	--	--	--
	9-9-2002	--	--	--	--	--	--	--

[1] Possible percentile range because of uncensored ties in data.

[2] Possible percentile range because of censored or recensored ties in data.

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L		
				Conc	Q%	N
20	8-1-2002	1300	40	9.0	ID	2
21	7-15-2002	1415	7.5	8.0	15.4	25
	9-4-2002	1030	2.7	7.3	[1]3.8–7.7	25
22	7-15-2002	1330	14	7.9	[1]1.3–3.8	77
	9-4-2002	1115	5.7	7.9	[1]1.3–3.8	77
23	7-15-2002	1230	16	7.4	[1]2.4–3.7	81
	9-4-2002	1415	11	8.3	[1]20.7–28.0	81
24	7-15-2002	1015	11	8.9	[1]42.7–46.3	81
	9-4-2002	1230	11	9.0	[1]47.6–52.4	81
25	7-15-2002	1115	3.8	8.6	ID	15
	9-4-2002	1315	3.7	10.4	ID	15
26	7-17-2002	1115	23	9.5	ID	10
	9-6-2002	1130	17	10.8	ID	10
27	8-1-2002	1130	119	9.0	ID	9
28	8-8-2002	1315	234	6.6	ID	10
	9-11-2002	1215	214	6.1	ID	10
29	8-8-2002	1215	9.1	9.9	ID	2
	9-11-2002	1300	7.9	7.8	ID	2
30	7-29-2002	1200	3.0	8.5	[1]84.8–89.1	45
	9-10-2002	1300	0.8	6.4	4.3	45
31	7-29-2002	1330	21	8.9	[1]60.0–64.0	24
	9-10-2002	1130	223	8.6	48	24
32	8-8-2002	1100	257	10.0	ID	5
	9-11-2002	1115	62	8.6	ID	5
33	7-30-2002	1115	919	7.0	[1]13.0–17.4	22
34	7-30-2002	1035	8.7	7.2	ID	9
35	7-30-2002	1330	22	7.5	4.3	22
	9-3-2002	1215	12	8.2	17.4	22
36	7-30-2002	1555	58	6.8	ID	18
	9-3-2002	1620	32	7.7	ID	18
37	7-31-2002	1735	97	7.8	[1]5.9–11.8	33
	9-4-2002	1320	74	10.5	97.1	33

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L		
				Conc	Q%	N
38	8-1-2002	0900	982	7.4	ID	14
	9-5-2002	1500	596	9.6	ID	14
39	8-1-2002	1130	1,040	7.1	9.1	32
	9-6-2002	0910	746	8.4	[1]54.5–63.6	32
40	7-29-2002	1350	24	8.2	ID	12
	9-3-2002	1700	13	7.8	ID	12
41	7-29-2002	1610	237	8.1	ID	11
	9-4-2002	0910	308	9.4	ID	11
42	7-30-2002	0905	70	8.7	ID	12
	9-4-2002	1205	44	8.8	ID	12
43	7-30-2002	1035	45	9.4	ID	6
	9-4-2002	1455	30	9.3	ID	6
44	7-30-2002	1320	392	11.0	ID	16
	9-5-2002	0945	445	10.6	ID	16
45	7-31-2002	0915	1,460	8.0	ID	2
	9-6-2002	1035	1,180	8.4	ID	2
46	8-2-2002	1340	<0.01	9.3	ID	16
47	8-1-2002	1300	1,440	7.2	[1]2.4–4.9	40
	9-3-2002	1030	1,270	7.9	[1]34.1–41.5	40
48	8-1-2002	1000	8.7	7.4	7.7	25
	9-5-2002	1030	16	7.8	30.8	25
49	7-31-2002	0930	75	7.1	ID	4
50	7-31-2002	1645	256	--	--	--
51	8-1-2002	1515	1,050	8.2	ID	1
52	8-1-2002	0910	1,280	6.6	[1]1.9–5.6	53
	9-17-2002	0940	2,520	7.4	[1]35.2–46.3	53
53	7-31-2002	1145	216	10.2	ID	1
54	8-1-2002	1145	992	7.4	ID	1
55	7-30-2002	0840	1.4	7.5	ID	7
56	7-31-2002	1200	1,460	9.1	ID	2
	9-5-2002	1325	1,190	9.5	ID	2
57	7-31-2002	1515	72	7.1	ID	8
	9-4-2002	1015	57	10.4	ID	8
58	7-16-2002	1315	14	8.0	ID	6
	9-5-2002	0915	9.4	8.5	ID	6

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	pH, in standard units			Specific conductance, in µS/cm		
		Value	Q%	N	Value	Q%	N
20	8-1-2002	7.6	ID	2	61	ID	12
21	7-15-2002	8.0	[1]30.8–38.5	25	74	[1]65.6–71.9	63
	9-4-2002	8.0	[1]30.8–38.5	25	108	98.4	63
22	7-15-2002	8.4	[1]94.0–96.4	82	85	[1]82.1–83.3	83
	9-4-2002	8.1	[1]62.7–80.7	82	108	98.8	83
23	7-15-2002	8.1	[1]69.0–78.2	86	75	[1]84.1–86.4	87
	9-4-2002	8.4	[1]90.8–94.3	86	96	98.9	87
24	7-15-2002	8.7	[1]48.9–56.8	107	115	97.7	87
	9-4-2002	**9.1**	[1]68.2–73.9	107	133	98.9	87
25	7-15-2002	8.7	ID	15	160	96.2	25
	9-4-2002	**9.2**	ID	15	154	92.3	25
26	7-17-2002	**9.1**	ID	10	132	ID	11
	9-6-2002	**9.1**	ID	10	143	ID	11
27	8-1-2002	**9.1**	ID	7	120	[1]23.6–27.3	54
28	8-8-2002	7.5	ID	10	121	[1]84.6–86.2	64
	9-11-2002	8.1	ID	10	133	98.5	64
29	8-8-2002	8.3	ID	2	559	ID	2
	9-11-2002	8.5	ID	2	555	ID	2
30	7-29-2002	8.4	[1]40.4–66.0	46	664	77.1	47
	9-10-2002	8.1	[1]6.4–14.9	46	589	[1]66.7–68.8	47
31	7-29-2002	8.3	[1]56.0–76.0	24	719	92.0	24
	9-10-2002	8.0	[1]12.0–16.0	24	722	96.0	24
32	8-8-2002	8.4	ID	5	232	ID	5
	9-11-2002	8.5	ID	5	255	ID	5
33	7-30-2002	8.4	[1]91.7–95.8	23	220	[1]56.9–58.8	50
34	7-30-2002	8.5	ID	9	247	94.2	51
35	7-30-2002	9.0	[1]87.5–91.7	23	364	[1]88.0–92.0	24
	9-3-2002	8.9	[1]79.2–83.3	23	466	96.0	24
36	7-30-2002	8.6	ID	18	297	92.1	37
	9-3-2002	8.6	ID	18	416	97.4	37
37	7-31-2002	8.5	[1]68.6–82.9	34	1,050	91.2	33
	9-4-2002	8.5	[1]68.6–82.9	34	1,360	97.1	33

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	pH, in standard units			Specific conductance, in µS/cm		
		Value	Q%	N	Value	Q%	N
38	8-1-2002	8.3	[1]75.0–80.0	39	420	[1]47.7–50.5	110
	9-5-2002	8.6	97.5	39	621	99.1	110
39	8-1-2002	8.5	[1]81.0–90.5	41	618	62.8	42
	9-6-2002	8.4	[1]59.5–78.6	41	932	97.7	42
40	7-29-2002	7.9	ID	12	77	85.7	55
	9-3-2002	7.8	ID	12	90	94.6	55
41	7-29-2002	8.3	ID	11	392	ID	16
	9-4-2002	8.1	ID	11	327	ID	16
42	7-30-2002	7.8	ID	12	519	96.6	57
	9-4-2002	7.7	ID	12	655	98.3	57
43	7-30-2002	8.4	ID	6	633	ID	10
	9-4-2002	8.4	ID	6	658	ID	10
44	7-30-2002	8.6	93.0	42	702	91.4	115
	9-5-2002	8.5	[1]83.7–90.7	42	653	81.0	115
45	7-31-2002	8.2	ID	2	1,060	ID	2
	9-6-2002	8.3	ID	2	1,330	ID	2
46	8-2-2002	9.0	ID	16	3,850	ID	16
47	8-1-2002	8.5	[1]64.8–80.3	70	1,100	95.5	178
	9-3-2002	8.4	[1]47.9–63.4	70	1,210	[1]98.3–98.9	178
48	8-1-2002	8.6	[1]46.4–75.0	27	769	86.6	66
	9-5-2002	8.6	[1]46.4–75.0	27	774	[1]88.1–89.6	66
49	7-31-2002	8.5	ID	7	1,070	[1]91.7–93.8	47
50	7-31-2002	8.3	ID	4	1,470	94.7	18
51	8-1-2002	8.4	ID	4	1,240	ID	7
52	8-1-2002	8.3	[1]51.6–67.2	63	1,400	[1]85.7–87.1	69
	9-17-2002	8.2	[1]26.6–50.0	63	1,600	[1]97.1–98.6	69
53	7-31-2002	8.2	ID	1	1,350	ID	14
54	8-1-2002	8.3	ID	4	1,180	ID	7
55	7-30-2002	8.2	ID	8	164	ID	8
56	7-31-2002	8.5	ID	2	1,070	ID	2
	9-5-2002	8.5	ID	2	1,290	ID	2
57	7-31-2002	8.8	ID	8	1,090	ID	8
	9-4-2002	8.6	ID	8	1,500	ID	8
58	7-16-2002	8.4	ID	6	150	ID	6
	9-5-2002	8.1	ID	6	168	ID	6

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Temperature, water, in °C			Hardness, total, in mg/L as $CaCO_3$	Calcium, dissolved, in mg/L	Magnesium, dissolved, in mg/L
		Value	Q%	N			
20	8-1-2002	14.5	ID	12	24	7.5	1.3
21	7-15-2002	13.0	98.4	63	23	5.3	2.3
	9-4-2002	6.0	[1]23.4–28.1	63	33	7.4	3.7
22	7-15-2002	14.0	98.8	83	26	6.4	2.5
	9-4-2002	10.0	[1]83.3–88.1	83	37	9.3	3.4
23	7-15-2002	16.0	98.9	87	25	6.6	2.1
	9-4-2002	14.0	[1]95.5–96.6	87	33	8.3	3.0
24	7-15-2002	16.0	[1]76.1–78.4	87	38	10.8	2.7
	9-4-2002	16.0	[1]76.1–78.4	87	48	13.9	3.3
25	7-15-2002	17.0	[1]61.5–65.4	25	--	--	--
	9-4-2002	18.0	76.9	25	--	--	--
26	7-17-2002	18.0	ID	11	52	16.0	2.9
	9-6-2002	15.0	ID	11	59	17.9	3.4
27	8-1-2002	19.5	[1]92.7–94.5	54	51	16.2	2.7
28	8-8-2002	10.0	[1]70.8–83.1	64	52	16.4	2.7
	9-11-2002	15.0	98.5	64	59	18.6	3.0
29	8-8-2002	18.0	ID	2	190	63	7.5
	9-11-2002	16.0	ID	2	190	63	7.2
30	7-29-2002	17.0	[1]40.0–46.0	49	320	85	24.8
	9-10-2002	17.0	[1]40.0–46.0	49	240	63	20.1
31	7-29-2002	12.0	[1]44.0–52.0	24	330	85	29.1
	9-10-2002	14.0	76.0	24	320	81	29.0
32	8-8-2002	15.0	ID	5	98	31	5.0
	9-11-2002	17.0	ID	5	120	36	6.2
33	7-30-2002	16.0	[1]78.8–80.8	51	98	30	5.3
34	7-30-2002	14.5	[1]77.4–81.1	52	130	31	13.6
35	7-30-2002	17.5	96.0	24	180	57	9.7
	9-3-2002	14.5	92.0	24	230	72	12.1
36	7-30-2002	20.0	97.4	37	150	42	10.6
	9-3-2002	14.5	68.4	37	200	58	14.4
37	7-31-2002	24.0	97.1	34	400	123	21.6
	9-4-2002	18.5	[1]85.7–88.6	34	490	152	25.4

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q% percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia col*i; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Temperature, water, in °C			Hardness, total, in mg/L as $CaCO_3$	Calcium, dissolved, in mg/L	Magnesium, dissolved, in mg/L
		Value	Q%	N			
38	8-1-2002	18.0	[1]80.2–87.4	110	150	45	8.5
	9-5-2002	18.0	[1]80.2–87.4	110	230	67	16.0
39	8-1-2002	20.5	97.7	42	160	49	9.3
	9-6-2002	18.0	[1]58.1–62.8	42	250	71	16.7
40	7-29-2002	14.7	96.5	56	30	9.5	1.6
	9-3-2002	11.6	[1]63.2–64.9	56	--	--	--
41	7-29-2002	17.0	ID	16	190	58	9.6
	9-4-2002	9.5	ID	16	--	--	--
42	7-30-2002	13.1	[1]49.2–50.8	58	220	75	8.6
	9-4-2002	13.8	[1]54.2–55.9	58	--	--	--
43	7-30-2002	14.5	ID	10	310	95	16.3
	9-4-2002	16.3	ID	10	--	--	--
44	7-30-2002	18.5	95.8	117	270	83	15.0
	9-5-2002	12.0	[1]16.9–20.3	117	--	--	--
45	7-31-2002	18.6	ID	2	210	64	12.0
	9-6-2002	15.2	ID	2	270	79	16.5
46	8-2-2002	24.3	ID	16	1,100	46	228.0
47	8-1-2002	22.0	[1]96.0–98.0	200	220	66	14.4
	9-3-2002	17.5	[1]36.3–40.8	200	250	73	16.7
48	8-1-2002	20.5	[1]71.6–74.6	66	250	29	41.8
	9-5-2002	16.5	[1]22.4–25.4	66	270	40	41.6
49	7-31-2002	22.8	[1]77.1–79.2	47	230	67	15.1
50	7-31-2002	--	--	--	430	116	34.9
51	8-1-2002	24.3	ID	7	450	121	34.9
52	8-1-2002	23.5	[1]88.7–93.0	70	520	139	42.2
	9-17-2002	18.0	[1]15.5–19.7	70	600	171	42.4
53	7-31-2002	23.3	ID	14	380	106	27.4
54	8-1-2002	23.1	ID	7	440	119	33.3
55	7-30-2002	9.5	ID	8	88	21	8.8
56	7-31-2002	20.2	ID	2	210	64	12.8
	9-5-2002	17.9	ID	2	260	77	16.7
57	7-31-2002	23.0	ID	8	250	74	16.0
	9-4-2002	13.5	ID	8	320	93	20.1
58	7-16-2002	21.0	ID	6	--	--	--
	9-5-2002	10.0	ID	6	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Acid-neutralizing capacity, in mg/L as $CaCO_3$	Alkalinity, laboratory, in mg/L as $CaCO_3$	Alkalinity, onsite, in mg/L as $CaCO_3$
20	8-1-2002	0.69	2.1	--	26	--
21	7-15-2002	--	--	--	--	--
	9-4-2002	--	--	--	--	--
22	7-15-2002	--	--	--	--	--
	9-4-2002	--	--	--	--	--
23	7-15-2002	--	--	--	--	--
	9-4-2002	--	--	--	--	--
24	7-15-2002	--	--	--	--	--
	9-4-2002	--	--	--	--	--
25	7-15-2002	--	--	--	--	--
	9-4-2002	--	--	--	--	--
26	7-17-2002	1.4	6.1	--	55	--
	9-6-2002	2.0	7.5	--	61	--
27	8-1-2002	1.1	5.5	58	--	--
28	8-8-2002	--	3.1	--	57	--
	9-11-2002	1.7	3.3	--	62	--
29	8-8-2002	5.6	45	--	229	--
	9-11-2002	5.5	45	--	222	--
30	7-29-2002	2.9	33	246	--	--
	9-10-2002	2.4	33	195	--	--
31	7-29-2002	2.5	33	132	--	--
	9-10-2002	2.4	33	139	--	--
32	8-8-2002	1.8	5.3	--	73	--
	9-11-2002	1.9	6.3	--	82	--
33	7-30-2002	1.9	6.2	71	--	--
34	7-30-2002	1.0	2.8	--	130	107
35	7-30-2002	1.5	8.8	--	123	102
	9-3-2002	1.8	11.3	--	141	122
36	7-30-2002	1.1	5.1	--	101	88
	9-3-2002	1.3	7.7	--	120	99
37	7-31-2002	3.9	84	--	138	120
	9-4-2002	4.0	102	--	--	148

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Acid-neutralizing capacity, in mg/L as $CaCO_3$	Alkalinity, laboratory, in mg/L as $CaCO_3$	Alkalinity, onsite, in mg/L as $CaCO_3$
38	8-1-2002	2.2	25	--	91	--
	9-5-2002	2.4	41	--	114	--
39	8-1-2002	2.5	63	--	94	--
	9-6-2002	3.1	97	--	121	--
40	7-29-2002	0.37	1.8	--	28	--
	9-3-2002	--	--	--	--	--
41	7-29-2002	1.2	4.0	--	109	--
	9-4-2002	--	--	--	--	--
42	7-30-2002	1.5	16.4	--	111	--
	9-4-2002	--	--	--	--	--
43	7-30-2002	1.7	12.0	--	197	--
	9-4-2002	--	--	--	--	--
44	7-30-2002	1.7	40	--	150	--
	9-5-2002	--	--	--	--	--
45	7-31-2002	3.8	125	--	120	--
	9-6-2002	4.1	160	--	137	--
46	8-2-2002	3.6	581	--	326	274
47	8-1-2002	4.1	131	--	130	--
	9-3-2002	3.8	142	--	133	--
48	8-1-2002	7.6	81	--	325	--
	9-5-2002	7.0	75	--	320	--
49	7-31-2002	4.0	125	--	132	--
50	7-31-2002	4.9	144	--	135	--
51	8-1-2002	4.1	95	--	153	--
52	8-1-2002	4.4	113	--	161	138
	9-17-2002	5.3	132	--	182	156
53	7-31-2002	4.4	135	--	160	--
54	8-1-2002	3.8	84	--	152	--
55	7-30-2002	0.84	1.6	--	86	--
56	7-31-2002	3.8	125	--	126	--
	9-5-2002	4.1	154	--	138	--
57	7-31-2002	3.9	123	--	126	108
	9-4-2002	4.6	182	--	141	136
58	7-16-2002	--	--	--	--	--
	9-5-2002	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Chloride, dissolved, in mg/L			Fluoride, dissolved, in mg/L		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	0.47	ID	2	--	--	--
21	7-15-2002	9.1	89.3	27	--	--	--
	9-4-2002	10.1	92.9	27	--	--	--
22	7-15-2002	9.3	88.9	26	--	--	--
	9-4-2002	10.6	96.3	26	--	--	--
23	7-15-2002	5.9	79.2	23	--	--	--
	9-4-2002	7.1	95.8	23	--	--	--
24	7-15-2002	7.9	92.0	24	--	--	--
	9-4-2002	9.9	96.0	24	--	--	--
25	7-15-2002	2.5	ID	15	--	--	--
	9-4-2002	2.0	ID	15	--	--	--
26	7-17-2002	6.5	ID	10	0.22	ID	9
	9-6-2002	7.9	ID	10	0.3	ID	9
27	8-1-2002	2.5	ID	7	0.18	ID	7
28	8-8-2002	1.4	ID	6	--	--	--
	9-11-2002	1.3	ID	6	--	--	--
29	8-8-2002	6.7	ID	2	--	--	--
	9-11-2002	6.9	ID	2	--	--	--
30	7-29-2002	3.3	89.6	47	0.23	81.3	47
	9-10-2002	3.5	91.7	47	0.25	83.3	47
31	7-29-2002	3.9	92.0	24	0.19	20.0	24
	9-10-2002	4.3	96.0	24	0.21	96.0	24
32	8-8-2002	6.3	ID	2	--	--	--
	9-11-2002	6.4	ID	2	--	--	--
33	7-30-2002	5.4	95.8	23	0.31	75.0	23
34	7-30-2002	1.1	ID	6	0.1	ID	6
35	7-30-2002	15.4	91.3	22	0.1	[1]43.5–95.7	22
	9-3-2002	20	95.7	22	0.1	[1]43.5–95.7	22
36	7-30-2002	6.5	ID	12	0.1	ID	12
	9-3-2002	9.0	ID	12	0.1	ID	12
37	7-31-2002	129	93.8	31	0.2	[1]62.5–90.6	31
	9-4-2002	165	96.9	31	0.2	[1]62.5–90.6	31

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Chloride, dissolved, in mg/L			Fluoride, dissolved, in mg/L		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	33	90.1	80	--	--	--
	9-5-2002	46	98.8	80	--	--	--
39	8-1-2002	91	92.7	40	--	--	--
	9-6-2002	135	97.6	40	--	--	--
40	7-29-2002	0.53	ID	6	0.4	ID	6
	9-3-2002	--	--	--	--	--	--
41	7-29-2002	3.5	ID	6	0.2	ID	6
	9-4-2002	--	--	--	--	--	--
42	7-30-2002	7.4	ID	6	0.3	ID	6
	9-4-2002	--	--	--	--	--	--
43	7-30-2002	4.5	ID	3	0.2	ID	3
	9-4-2002	--	--	--	--	--	--
44	7-30-2002	55	92.0	74	0.2	ID	7
	9-5-2002	--	--	--	--	--	--
45	7-31-2002	188	ID	2	--	--	--
	9-6-2002	237	ID	2	--	--	--
46	8-2-2002	18.3	ID	16	0.3	ID	16
47	8-1-2002	184	96.9	64	--	--	--
	9-3-2002	210	98.5	64	--	--	--
48	8-1-2002	8.6	88.9	26	--	--	--
	9-5-2002	7.9	85.2	26	--	--	--
49	7-31-2002	179	ID	9	--	--	--
50	7-31-2002	179	ID	7	--	--	--
51	8-1-2002	77	ID	7	--	--	--
52	8-1-2002	98	[1]87.3–88.9	62	--	--	--
	9-17-2002	112	96.8	62	--	--	--
53	7-31-2002	182	ID	4	--	--	--
54	8-1-2002	60	ID	7	--	--	--
55	7-30-2002	0.41	ID	5	0.1	ID	5
56	7-31-2002	188	ID	2	--	--	--
	9-5-2002	227	ID	2	--	--	--
57	7-31-2002	198	ID	8	0.1	ID	8
	9-4-2002	**292**	ID	8	0.2	ID	8
58	7-16-2002	5.8	ID	6	--	--	--
	9-5-2002	6.9	ID	6	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Silica, dissolved, in mg/L as SiO_2			Sulfate, dissolved, in mg/L as SO_4			Solids, dissolved, residue on evaporation at 180°C, in mg/L
		Conc	Q%	N	Conc	Q%	N	
20	8-1-2002	4.5	33.3	2	3.2	66.7	2	--
21	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
26	7-17-2002	13.3	ID	9	2.3	ID	9	94
	9-6-2002	12.9	ID	9	2.8	ID	9	100
27	8-1-2002	8.7	ID	7	3.0	ID	7	--
28	8-8-2002	12.0	ID	6	5.5	ID	6	--
	9-11-2002	12.8	ID	6	5.9	ID	6	--
29	8-8-2002	29	ID	2	69	ID	2	--
	9-11-2002	29	ID	2	70	ID	2	--
30	7-29-2002	10.6	83.3	47	116	[1]66.7–68.8	47	438
	9-10-2002	9.3	64.6	47	116	[1]66.7–68.8	47	391
31	7-29-2002	8.2	[1]40.0–48.0	24	246	92.0	24	517
	9-10-2002	7.8	20.0	24	237	[1]84.0–88.0	24	524
32	8-8-2002	4.8	ID	2	35	ID	2	--
	9-11-2002	4.9	ID	2	39	ID	2	--
33	7-30-2002	7.1	16.7	23	32	20.8	23	126
34	7-30-2002	6.9	ID	6	11.2	ID	6	--
35	7-30-2002	3.9	17.4	22	53	91.3	22	--
	9-3-2002	3.9	26.1	22	75	95.7	22	--
36	7-30-2002	5.1	ID	12	48	ID	12	--
	9-3-2002	5.2	ID	12	83	ID	12	--
37	7-31-2002	6.8	28.1	31	**256**	87.5	31	--
	9-4-2002	4.4	6.3	31	**310**	96.9	31	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Silica, dissolved, in mg/L as SiO_2			Sulfate, dissolved, in mg/L as SO_4			Solids, dissolved, residue on evaporation at 180°C, in mg/L
		Conc	Q%	N	Conc	Q%	N	
38	8-1-2002	6.1	ID	14	64	33.3	80	--
	9-5-2002	8.1	ID	14	132	98.8	80	--
39	8-1-2002	6.3	2.4	40	68	24.4	40	358
	9-6-2002	7.8	31.7	40	137	97.6	40	549
40	7-29-2002	5.2	ID	6	7.9	ID	6	--
	9-3-2002	--	--	--	--	--	--	--
41	7-29-2002	7.6	ID	6	81	ID	6	--
	9-4-2002	--	--	--	--	--	--	--
42	7-30-2002	8.5	ID	6	134	ID	6	--
	9-4-2002	--	--	--	--	--	--	--
43	7-30-2002	12.9	ID	3	133	ID	3	--
	9-4-2002	--	--	--	--	--	--	--
44	7-30-2002	10.3	ID	7	130	80.0	74	--
	9-5-2002	--	--	--	--	--	--	--
45	7-31-2002	7.4	ID	2	99	ID	2	--
	9-6-2002	7.5	ID	2	143	ID	2	--
46	8-2-2002	0.30	ID	16	**1,910**	ID	16	--
47	8-1-2002	6.4	11.1	53	114	56.9	64	--
	9-3-2002	5.6	1.9	53	144	89.2	64	--
48	8-1-2002	28	63.0	26	94	92.6	26	--
	9-5-2002	26	33.3	26	91	85.2	26	--
49	7-31-2002	7.6	ID	9	121	ID	9	--
50	7-31-2002	7.5	ID	7	**338**	ID	7	--
51	8-1-2002	8.1	ID	7	388	ID	7	--
52	8-1-2002	6.8	4.8	62	437	87.3	62	--
	9-17-2002	12.9	93.7	62	496	93.7	62	--
53	7-31-2002	7.8	ID	4	**259**	ID	4	--
54	8-1-2002	8.2	ID	7	370	ID	7	--
55	7-30-2002	4.7	ID	5	5.9	ID	5	--
56	7-31-2002	7.2	ID	2	103	ID	2	--
	9-5-2002	6.8	ID	2	140	ID	2	--
57	7-31-2002	3.9	ID	8	113	ID	8	--
	9-4-2002	3.7	ID	8	165	ID	8	--
58	7-16-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nitrogen, ammonia, dissolved, in mg/L as N			Nitrogen, organic plus ammonia, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	<0.007	ID	2	--	--	--
21	7-15-2002	<0.002	[2]4.2–54.2	23	--	--	--
	9-4-2002	<0.002	[2]4.2–54.2	23	--	--	--
22	7-15-2002	<0.002	[2]3.3–56.7	29	--	--	--
	9-4-2002	<0.002	[2]3.3–56.7	29	--	--	--
23	7-15-2002	<0.015	[2]2.9–88.2	33	--	--	--
	9-4-2002	<0.015	[2]2.9–88.2	33	--	--	--
24	7-15-2002	0.011	41.2	33	--	--	--
	9-4-2002	0.010	[1]35.3–38.2	33	--	--	--
25	7-15-2002	<0.015	ID	15	--	--	--
	9-4-2002	<0.015	ID	15	--	--	--
26	7-17-2002	0.008	ID	10	0.30	ID	9
	9-6-2002	<0.015	ID	10	0.28	ID	9
27	8-1-2002	<0.04	ID	8	0.26	ID	8
28	8-8-2002	<0.015	ID	5	0.15	ID	5
	9-11-2002	0.010	ID	5	0.16	ID	5
29	8-8-2002	<0.015	ID	2	0.34	ID	2
	9-11-2002	<0.015	ID	2	0.30	ID	2
30	7-29-2002	<0.02	[2]2.6–56.4	38	0.53	92.3	38
	9-10-2002	<0.02	[2]2.6–56.4	38	0.37	[1]61.5–64.1	38
31	7-29-2002	0.028	66.7	23	0.33	[1]70.8–79.2	23
	9-10-2002	0.081	87.5	23	0.41	87.5	23
32	8-8-2002	<0.015	ID	2	0.12	ID	2
	9-11-2002	0.014	ID	2	0.18	ID	2
33	7-30-2002	<0.015	[2]4.3–39.1	22	--	--	--
34	7-30-2002	<0.015	ID	9	0.07	ID	9
35	7-30-2002	0.025	86.4	21	0.19	[2]4.3–91.3	22
	9-3-2002	0.010	40.9	21	0.17	[2]4.3–91.3	22
36	7-30-2002	0.009	ID	18	0.12	ID	18
	9-3-2002	0.009	ID	18	0.12	ID	18
37	7-31-2002	0.050	[1]85.7–90.5	20	0.22	64.5	30
	9-4-2002	<0.02	[2]4.8–28.6	20	0.21	61.3	30

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nitrogen, ammonia, dissolved, in mg/L as N			Nitrogen, organic plus ammonia, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	<0.015	ID	12	0.18	ID	12
	9-5-2002	<0.015	ID	12	0.20	ID	12
39	8-1-2002	0.013	ID	2	0.16	ID	2
	9-6-2002	<0.015	ID	2	0.20	ID	2
40	7-29-2002	<0.015	ID	12	0.05	ID	12
	9-3-2002	<0.015	ID	12	0.09	ID	12
41	7-29-2002	0.016	ID	11	0.13	ID	11
	9-4-2002	<0.015	ID	11	0.11	ID	11
42	7-30-2002	0.017	ID	12	<0.1	ID	12
	9-4-2002	0.008	ID	12	0.05	ID	12
43	7-30-2002	0.034	ID	6	0.09	ID	6
	9-4-2002	0.013	ID	6	0.12	ID	6
44	7-30-2002	0.021	ID	13	0.11	ID	13
	9-5-2002	<0.015	ID	13	0.12	ID	13
45	7-31-2002	<0.015	ID	2	0.15	ID	2
	9-6-2002	<0.015	ID	2	0.20	ID	2
46	8-2-2002	<0.04	ID	16	--	--	--
47	8-1-2002	<0.04	ID	17	0.15	ID	17
	9-3-2002	<0.04	ID	17	0.16	ID	17
48	8-1-2002	<0.04	ID	3	0.43	ID	2
	9-5-2002	<0.04	ID	3	0.36	ID	2
49	7-31-2002	0.023	ID	1	0.18	ID	1
50	7-31-2002	0.035	ID	1	0.26	ID	1
51	8-1-2002	0.061	ID	1	0.35	ID	1
52	8-1-2002	<0.04	[1]2.1–64.6	47	0.29	67.7	30
	9-17-2002	<0.04	[1]2.1–64.6	47	0.33	80.6	30
53	7-31-2002	0.092	ID	1	0.29	ID	1
54	8-1-2002	0.042	ID	1	0.27	ID	1
55	7-30-2002	<0.015	ID	8	0.08	ID	8
56	7-31-2002	<0.04	ID	2	0.15	ID	2
	9-5-2002	0.030	ID	2	0.18	ID	2
57	7-31-2002	0.026	ID	8	0.26	ID	8
	9-4-2002	0.014	ID	8	0.27	ID	8
58	7-16-2002	0.014	ID	6	--	--	--
	9-5-2002	<0.015	ID	6	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nitrogen, organic plus ammonia, total recoverable, in mg/L as N			Nitrogen, nitrite plus nitrate, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	0.22	ID	2	--	--	--
21	7-15-2002	--	--	--	0.055	58.3	23
	9-4-2002	--	--	--	0.087	87.5	23
22	7-15-2002	--	--	--	0.040	43.3	29
	9-4-2002	--	--	--	0.030	30.0	29
23	7-15-2002	--	--	--	0.078	[1]61.8–64.7	33
	9-4-2002	--	--	--	0.039	29.4	33
24	7-15-2002	--	--	--	0.312	97.1	33
	9-4-2002	--	--	--	0.108	76.5	33
25	7-15-2002	--	--	--	<0.013	ID	15
	9-4-2002	--	--	--	<0.013	ID	15
26	7-17-2002	0.42	ID	9	0.147	ID	10
	9-6-2002	0.35	ID	9	0.165	ID	10
27	8-1-2002	0.42	ID	8	<0.05	ID	8
28	8-8-2002	--	--	--	0.126	ID	5
	9-11-2002	--	--	--	0.046	ID	5
29	8-8-2002	--	--	--	<0.013	ID	2
	9-11-2002	--	--	--	<0.013	ID	2
30	7-29-2002	0.69	91.5	46	<0.013	[2]2.6–86.8	37
	9-10-2002	0.43	63.8	46	<0.013	[2]2.6–86.8	37
31	7-29-2002	0.40	76.0	24	0.206	54.2	23
	9-10-2002	0.49	84.0	24	0.081	25.0	23
32	8-8-2002	--	--	--	0.150	ID	2
	9-11-2002	--	--	--	0.059	ID	2
33	7-30-2002	0.22	[1]50.0–58.3	23	0.107	62.5	23
34	7-30-2002	0.06	ID	9	0.012	ID	9
35	7-30-2002	0.42	95.7	22	0.771	91.3	22
	9-3-2002	0.27	91.3	22	1.12	95.7	22
36	7-30-2002	0.17	ID	15	0.288	ID	18
	9-3-2002	0.15	ID	15	0.342	ID	18
37	7-31-2002	0.37	74.2	30	0.276	57.1	34
	9-4-2002	0.26	[1]61.3–64.5	30	0.236	42.9	34

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nitrogen, organic plus ammonia, total recoverable, in mg/L as N			Nitrogen, nitrite plus nitrate, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	0.016	ID	14
	9-5-2002	--	--	--	<0.013	ID	14
39	8-1-2002	--	--	--	0.026	ID	11
	9-6-2002	--	--	--	0.030	ID	11
40	7-29-2002	0.06	ID	12	0.012	ID	12
	9-3-2002	0.05	ID	12	0.010	ID	12
41	7-29-2002	0.17	ID	11	0.103	ID	11
	9-4-2002	0.13	ID	11	0.091	ID	11
42	7-30-2002	0.05	ID	12	0.031	ID	12
	9-4-2002	0.06	ID	12	0.026	ID	12
43	7-30-2002	0.11	ID	6	0.245	ID	6
	9-4-2002	0.13	ID	6	0.200	ID	6
44	7-30-2002	0.18	ID	13	0.042	ID	13
	9-5-2002	0.16	ID	13	0.047	ID	13
45	7-31-2002	--	--	--	0.031	ID	2
	9-6-2002	--	--	--	<0.013	ID	2
46	8-2-2002	0.65	ID	16	<0.05	ID	16
47	8-1-2002	--	--	--	<0.05	[2]3.8–50	25
	9-3-2002	--	--	--	<0.05	[2]3.8–50	25
48	8-1-2002	--	--	--	<0.05	ID	6
	9-5-2002	--	--	--	<0.05	ID	6
49	7-31-2002	--	--	--	0.023	ID	1
50	7-31-2002	--	--	--	0.204	ID	1
51	8-1-2002	--	--	--	0.974	ID	1
52	8-1-2002	--	--	--	0.870	50.9	54
	9-17-2002	--	--	--	1.31	92.7	54
53	7-31-2002	--	--	--	0.301	ID	1
54	8-1-2002	--	--	--	0.752	ID	1
55	7-30-2002	0.08	ID	8	0.037	ID	8
56	7-31-2002	--	--	--	<0.05	ID	2
	9-5-2002	--	--	--	<0.05	ID	2
57	7-31-2002	0.40	ID	8	0.894	ID	8
	9-4-2002	0.34	ID	8	1.11	ID	8
58	7-16-2002	--	--	--	0.009	ID	6
	9-5-2002	--	--	--	<0.013	ID	6

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nitrogen, nitrite, dissolved, in mg/L as N			Phosphorus, dissolved, in mg/L as P		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--
21	7-15-2002	<0.002	[2]4.2–83.3	23	0.003	[1]4.0–96.0	24
	9-4-2002	<0.002	[2]4.2–83.3	23	<0.004	[1]4.0–96.0	24
22	7-15-2002	<0.002	[2]3.3–83.3	29	0.004	[1]61.9–81.0	20
	9-4-2002	<0.002	[2]3.3–83.3	29	0.003	[2]4.8–57.1	20
23	7-15-2002	0.002	[1]45.5–69.7	32	0.031	96.0	24
	9-4-2002	<0.002	[2]3–42.4	32	0.022	92.0	24
24	7-15-2002	0.021	97.1	33	0.113	92.0	24
	9-4-2002	0.006	[1]44.1–50	33	0.123	96.0	24
25	7-15-2002	<0.002	ID	15	0.022	ID	15
	9-4-2002	<0.002	ID	15	0.021	ID	15
26	7-17-2002	0.005	ID	10	0.082	ID	10
	9-6-2002	0.004	ID	10	0.08	ID	10
27	8-1-2002	<0.008	ID	8	0.03	ID	8
28	8-8-2002	<0.002	ID	2	0.016	ID	5
	9-11-2002	0.003	ID	2	0.01	ID	5
29	8-8-2002	<0.002	ID	2	0.099	ID	2
	9-11-2002	<0.002	ID	2	0.099	ID	2
30	7-29-2002	<0.002	[2]2.6–94.9	38	0.008	[2]2.6–97.4	38
	9-10-2002	<0.002	[2]2.6–94.9	38	0.006	[2]2.6–97.4	38
31	7-29-2002	0.004	[2]4.2–87.5	23	0.004	[1]29.2–79.2	23
	9-10-2002	0.004	[2]4.2–87.5	23	0.009	[1]29.2–79.2	23
32	8-8-2002	0.003	ID	2	0.004	ID	2
	9-11-2002	0.003	ID	2	0.004	ID	2
33	7-30-2002	0.002	[2]4.2–87.5	23	0.007	4.3	22
34	7-30-2002	<0.002	ID	9	0.003	ID	9
35	7-30-2002	0.016	95.7	22	0.174	91.3	22
	9-3-2002	0.014	91.3	22	0.25	95.7	22
36	7-30-2002	0.005	ID	18	0.038	ID	18
	9-3-2002	0.004	ID	18	0.047	ID	18
37	7-31-2002	0.009	[2]4.8–71.4	20	0.028	48.5	32
	9-4-2002	0.008	[2]4.8–71.4	20	0.01	[1]15.2–24.2	32

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nitrogen, nitrite, dissolved, in mg/L as N			Phosphorus, dissolved, in mg/L as P		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	<0.002	ID	12	0.007	ID	13
	9-5-2002	<0.002	ID	12	0.004	ID	13
39	8-1-2002	0.002	ID	2	0.009	ID	2
	9-6-2002	<0.002	ID	2	0.004	ID	2
40	7-29-2002	<0.002	ID	12	<0.004	ID	12
	9-3-2002	<0.002	ID	12	<0.004	ID	12
41	7-29-2002	0.002	ID	11	0.017	ID	11
	9-4-2002	0.002	ID	11	0.01	ID	11
42	7-30-2002	<0.002	ID	12	<0.004	ID	12
	9-4-2002	<0.002	ID	12	<0.004	ID	12
43	7-30-2002	0.003	ID	6	0.004	ID	6
	9-4-2002	0.004	ID	6	0.002	ID	6
44	7-30-2002	0.002	ID	13	0.008	ID	13
	9-5-2002	0.002	ID	13	0.003	ID	13
45	7-31-2002	0.002	ID	2	0.009	ID	2
	9-6-2002	<0.002	ID	2	0.005	ID	2
46	8-2-2002	<0.008	ID	16	--	--	--
47	8-1-2002	<0.008	ID	17	<0.06	ID	19
	9-3-2002	<0.008	ID	17	<0.06	ID	19
48	8-1-2002	<0.008	ID	3	<0.06	ID	3
	9-5-2002	<0.008	ID	3	<0.06	ID	3
49	7-31-2002	0.004	ID	1	0.02	ID	1
50	7-31-2002	0.007	ID	1	0.009	ID	1
51	8-1-2002	0.022	ID	1	0.034	ID	1
52	8-1-2002	0.012	51.4	36	<0.06	[2]2.1–89.6	47
	9-17-2002	0.014	62.2	36	<0.06	[2]2.1–89.6	47
53	7-31-2002	0.005	ID	1	0.025	ID	1
54	8-1-2002	0.008	ID	1	0.007	ID	1
55	7-30-2002	<0.002	ID	8	0.003	ID	8
56	7-31-2002	<0.008	ID	2	<0.06	ID	2
	9-5-2002	<0.008	ID	2	<0.06	ID	2
57	7-31-2002	**0.081**	ID	8	0.115	ID	8
	9-4-2002	**0.117**	ID	8	0.15	ID	8
58	7-16-2002	<0.002	ID	6	0.035	ID	6
	9-5-2002	<0.002	ID	6	0.029	ID	6

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Phosphorus, total recoverable, in mg/L as P			Phosphorus, orthophosphate, dissolved, in mg/L as P		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	0.013	ID	2	<0.007	ID	2
21	7-15-2002	0.005	ID	12	<0.007	[2]4.0–96.0	24
	9-4-2002	0.004	ID	12	<0.007	[2]4.0–96.0	24
22	7-15-2002	0.011	ID	11	<0.007	[2]4.3–91.3	22
	9-4-2002	0.01	ID	11	<0.007	[2]4.3–91.3	22
23	7-15-2002	0.046	ID	12	0.024	96.0	24
	9-4-2002	0.042	ID	12	0.015	88.0	24
24	7-15-2002	0.175	ID	12	0.094	92.0	24
	9-4-2002	0.159	ID	12	0.101	96.0	24
25	7-15-2002	0.036	ID	9	0.014	ID	15
	9-4-2002	0.032	ID	9	0.012	ID	15
26	7-17-2002	0.118	ID	10	0.06	ID	10
	9-6-2002	0.114	ID	10	0.063	ID	10
27	8-1-2002	0.05	ID	8	0.03	ID	8
28	8-8-2002	0.024	ID	6	0.011	ID	5
	9-11-2002	0.021	ID	6	0.005	ID	5
29	8-8-2002	0.114	ID	2	0.079	ID	2
	9-11-2002	0.113	ID	2	0.083	ID	2
30	7-29-2002	0.026	76.2	41	<0.007	[2]2.6–76.9	38
	9-10-2002	0.018	59.5	41	<0.007	[2]2.6–76.9	38
31	7-29-2002	0.015	[2]4.0–88.0	24	<0.007	[2]4.2–45.8	23
	9-10-2002	0.03	[2]4.0–88.0	24	0.004	[2]4.2–45.8	23
32	8-8-2002	0.013	ID	2	<0.007	ID	2
	9-11-2002	0.008	ID	2	<0.007	ID	2
33	7-30-2002	0.021	62.5	23	<0.007	4.2	23
34	7-30-2002	0.006	ID	9	<0.007	ID	9
35	7-30-2002	0.18	91.3	22	0.148	91.3	22
	9-3-2002	0.25	95.7	22	0.218	95.7	22
36	7-30-2002	0.046	ID	15	0.029	ID	18
	9-3-2002	0.055	ID	15	0.038	ID	18
37	7-31-2002	0.068	83.9	30	0.017	27.3	21
	9-4-2002	0.022	19.4	30	<0.007	4.5	21

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Phosphorus, total recoverable, in mg/L as P			Phosphorus, orthophosphate, dissolved, in mg/L as P		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	0.029	ID	12	<0.007	ID	13
	9-5-2002	0.018	ID	12	<0.007	ID	13
39	8-1-2002	0.048	ID	2	<0.007	ID	2
	9-6-2002	0.029	ID	2	<0.007	ID	2
40	7-29-2002	0.003	ID	12	<0.007	ID	12
	9-3-2002	<0.004	ID	12	<0.007	ID	12
41	7-29-2002	0.023	ID	11	0.012	ID	11
	9-4-2002	0.021	ID	11	0.006	ID	11
42	7-30-2002	0.004	ID	12	<0.007	ID	12
	9-4-2002	0.002	ID	12	<0.007	ID	12
43	7-30-2002	0.008	ID	6	<0.007	ID	6
	9-4-2002	0.005	ID	6	<0.007	ID	6
44	7-30-2002	0.014	ID	13	<0.007	ID	13
	9-5-2002	0.012	ID	13	<0.007	ID	13
45	7-31-2002	0.043	ID	2	<0.007	ID	2
	9-6-2002	0.021	ID	2	<0.007	ID	2
46	8-2-2002	0.023	ID	16	<0.02	ID	16
47	8-1-2002	0.06	ID	13	<0.02	ID	19
	9-3-2002	0.04	ID	13	<0.02	ID	19
48	8-1-2002	<0.06	ID	2	<0.02	ID	4
	9-5-2002	<0.06	ID	2	<0.02	ID	4
49	7-31-2002	0.083	ID	1	0.012	ID	1
50	7-31-2002	0.042	ID	1	<0.007	ID	1
51	8-1-2002	0.094	ID	1	0.023	ID	1
52	8-1-2002	0.11	[1]32.6–39.1	45	0.01	[2]2.3–58.1	42
	9-17-2002	1.95	97.8	45	<0.02	[2]2.3–58.1	42
53	7-31-2002	0.07	ID	1	0.015	ID	1
54	8-1-2002	0.051	ID	1	<0.007	ID	1
55	7-30-2002	0.006	ID	8	<0.007	ID	8
56	7-31-2002	0.03	ID	2	<0.02	ID	2
	9-5-2002	<0.06	ID	2	<0.02	ID	2
57	7-31-2002	0.147	ID	8	0.094	ID	8
	9-4-2002	0.164	ID	8	0.124	ID	8
58	7-16-2002	0.058	ID	6	0.024	ID	6
	9-5-2002	0.045	ID	6	0.016	ID	6

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Carbon, organic, dissolved, in mg/L			Bacteria, *E. coli*, in colonies per 100 mL	Bacteria, fecal coliform, in colonies per 100 mL	Aluminum, dissolved, in µg/L
		Conc	Q%	N			
20	8-1-2002	2.6	ID	2	--	--	--
21	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
25	7-15-2002	--	--	--	12	--	--
	9-4-2002	--	--	--	1	--	--
26	7-17-2002	4.2	ID	9	30	--	--
	9-6-2002	4.3	ID	9	15	--	--
27	8-1-2002	--	--	--	--	--	--
28	8-8-2002	2.6	ID	3	2	--	<20
	9-11-2002	2.6	ID	3	1	--	<20
29	8-8-2002	--	--	--	4	--	--
	9-11-2002	--	--	--	33	--	--
30	7-29-2002	8.9	[1]90.9–95.5	21	20	--	--
	9-10-2002	--	--	--	3	--	--
31	7-29-2002	6.7	ID	16	1	--	--
	9-10-2002	--	--	--	1	--	--
32	8-8-2002	2	ID	2	1	--	<20
	9-11-2002	2.1	ID	2	4	--	<20
33	7-30-2002	--	--	--	19	--	--
34	7-30-2002	1.5	ID	3	2	2	--
35	7-30-2002	1.7	ID	17	<1	3	--
	9-3-2002	--	--	--	2	--	--
36	7-30-2002	1.7	ID	4	9	12	--
	9-3-2002	--	--	--	14	--	--
37	7-31-2002	1.8	ID	5	10	11	--
	9-4-2002	2.3	ID	5	9	--	<20

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Carbon, organic, dissolved, in mg/L			Bacteria, *E. coli*, in colonies per 100 mL	Bacteria, fecal coliform, in colonies per 100 mL	Aluminum, dissolved, in µg/L
		Conc	Q%	N			
38	8-1-2002	--	--	--	11	--	--
	9-5-2002	--	--	--	2	--	--
39	8-1-2002	2.3	ID	2	4	--	--
	9-6-2002	3.6	ID	2	4	--	--
40	7-29-2002	1.1	ID	1	2	2	--
	9-3-2002	--	--	--	3	3	--
41	7-29-2002	1.8	ID	2	42	34	--
	9-4-2002	--	--	--	34	40	--
42	7-30-2002	0.6	ID	1	31	18	--
	9-4-2002	--	--	--	6	12	--
43	7-30-2002	1.2	ID	1	23	19	--
	9-4-2002	--	--	--	20	24	--
44	7-30-2002	1.6	ID	3	18	16	--
	9-5-2002	1.8	ID	3	52	55	<20
45	7-31-2002	1.8	ID	2	40	23	<20
	9-6-2002	2.9	ID	2	10	--	<20
46	8-2-2002	--	--	--	100	--	--
47	8-1-2002	--	--	--	11	--	--
	9-3-2002	--	--	--	24	--	--
48	8-1-2002	--	--	--	100	--	--
	9-5-2002	--	--	--	56	--	--
49	7-31-2002	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--
52	8-1-2002	3.7	79.2	23	--	--	<20
	9-17-2002	4.3	87.5	23	--	--	<20
53	7-31-2002	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--
55	7-30-2002	1.8	ID	2	17	10	--
56	7-31-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	20	--	--
57	7-31-2002	2	ID	3	11	7	--
	9-4-2002	--	--	--	6	--	--
58	7-16-2002	--	--	--	7	--	--
	9-5-2002	--	--	--	13	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Aluminum, total recoverable, in µg/L	Arsenic, dissolved, in µg/L			Arsenic, total recoverable, in µg/L		
			Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
27	8-1-2002	--	<2	ID	8	<2	ID	8
28	8-8-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--
29	8-8-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--
30	7-29-2002	78	1	ID	14	1	ID	13
	9-10-2002	--	--	--	--	--	--	--
31	7-29-2002	29	<2	ID	14	1	ID	12
	9-10-2002	--	--	--	--	--	--	--
32	8-8-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--
33	7-30-2002	--	--	--	--	--	--	--
34	7-30-2002	--	--	--	--	--	--	--
35	7-30-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
36	7-30-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
37	7-31-2002	--	<2	[2]4.5–95.5	21	<2	[2]4.8–90.5	20
	9-4-2002	--	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Aluminum, total recoverable, in µg/L	Arsenic, dissolved, in µg/L			Arsenic, total recoverable, in µg/L		
			Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
40	7-29-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
41	7-29-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
42	7-30-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
43	7-30-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
44	7-30-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
45	7-31-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
46	8-2-2002	--	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--	--
52	8-1-2002	--	--	--	--	--	--	--
	9-17-2002	--	--	--	--	--	--	--
53	7-31-2002	--	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--	--
55	7-30-2002	--	--	--	--	--	--	--
56	7-31-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
57	7-31-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Boron, dissolved, in µg/L	Cadmium, dissolved, in µg/L			Cadmium, total recoverable, in µg/L		
			Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
27	8-1-2002	--	<0.1	ID	8	<0.1	ID	8
28	8-8-2002	--	0.05	ID	2	--	--	--
	9-11-2002	--	0.02	ID	2	--	--	--
29	8-8-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--
30	7-29-2002	80	<0.1	ID	14	<0.1	ID	14
	9-10-2002	--	--	--	--	--	--	--
31	7-29-2002	60	<0.1	ID	14	<0.1	ID	14
	9-10-2002	--	--	--	--	--	--	--
32	8-8-2002	--	0.12	ID	2	--	--	--
	9-11-2002	--	0.11	ID	2	--	--	--
33	7-30-2002	--	<0.1	[2]4.5–86.4	21	--	--	--
34	7-30-2002	--	<0.1	ID	6	--	--	--
35	7-30-2002	--	0.1	ID	5	--	--	--
	9-3-2002	--	--	--	--	--	--	--
36	7-30-2002	--	0.2	ID	9	--	--	--
	9-3-2002	--	--	--	--	--	--	--
37	7-31-2002	--	0.1	[2]4.3–82.6	22	0.1	[2]4.5–86.4	21
	9-4-2002	--	0.04	[2]4.3–82.6	22	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Boron, dissolved, in µg/L	Cadmium, dissolved, in µg/L			Cadmium, total recoverable, in µg/L		
			Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
40	7-29-2002	--	<0.1	ID	6	--	--	--
	9-3-2002	--	--	--	--	--	--	--
41	7-29-2002	--	0.1	ID	5	--	--	--
	9-4-2002	--	--	--	--	--	--	--
42	7-30-2002	--	0.2	ID	6	--	--	--
	9-4-2002	--	--	--	--	--	--	--
43	7-30-2002	--	0.1	ID	3	--	--	--
	9-4-2002	--	--	--	--	--	--	--
44	7-30-2002	--	<0.1	ID	10	--	--	--
	9-5-2002	--	0.02	ID	10	--	--	--
45	7-31-2002	--	0.04	ID	2	--	--	--
	9-6-2002	--	<0.04	ID	2	--	--	--
46	8-2-2002	--	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--	--
52	8-1-2002	--	0.03	ID	19	--	--	--
	9-17-2002	--	0.03	ID	19	--	--	--
53	7-31-2002	--	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--	--
55	7-30-2002	--	<0.1	ID	5	--	--	--
56	7-31-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
57	7-31-2002	--	0.2	ID	3	--	--	--
	9-4-2002	--	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Chromium, dissolved, in µg/L			Chromium, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
27	8-1-2002	<0.8	ID	8	<0.8	ID	8
28	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
29	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
30	7-29-2002	<0.8	ID	14	<0.8	ID	14
	9-10-2002	--	--	--	--	--	--
31	7-29-2002	<0.8	ID	14	<0.8	ID	14
	9-10-2002	--	--	--	--	--	--
32	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
33	7-30-2002	<0.8	[2]4.5–95.5	21	--	--	--
34	7-30-2002	--	--	--	--	--	--
35	7-30-2002	<0.8	ID	5	--	--	--
	9-3-2002	--	--	--	--	--	--
36	7-30-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
37	7-31-2002	<0.8	[2]4.5–95.5	21	<0.8	[2]4.5–63.6	21
	9-4-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Chromium, dissolved, in µg/L			Chromium, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
40	7-29-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
41	7-29-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
42	7-30-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
43	7-30-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
44	7-30-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
45	7-31-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
46	8-2-2002	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--
52	8-1-2002	--	--	--	--	--	--
	9-17-2002	--	--	--	--	--	--
53	7-31-2002	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--
55	7-30-2002	--	--	--	--	--	--
56	7-31-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
57	7-31-2002	<0.8	ID	3	--	--	--
	9-4-2002	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Copper, dissolved, in µg/L			Copper, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
27	8-1-2002	0.8	ID	8	1	ID	8
28	8-8-2002	0.9	ID	2	--	--	--
	9-11-2002	0.7	ID	2	--	--	--
29	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
30	7-29-2002	<1	ID	14	22	ID	14
	9-10-2002	--	--	--	--	--	--
31	7-29-2002	0.8	ID	14	2.7	ID	14
	9-10-2002	--	--	--	--	--	--
32	8-8-2002	1	ID	2	--	--	--
	9-11-2002	1.1	ID	2	--	--	--
33	7-30-2002	0.9	[2]4.2–87.5	23	--	--	--
34	7-30-2002	<1	ID	6	--	--	--
35	7-30-2002	1.6	ID	5	--	--	--
	9-3-2002	--	--	--	--	--	--
36	7-30-2002	0.9	ID	9	--	--	--
	9-3-2002	--	--	--	--	--	--
37	7-31-2002	0.9	[2]4.3–39.1	22	1.6	[1]40.9–45.5	21
	9-4-2002	2.6	87.0	22	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Copper, dissolved, in µg/L			Copper, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
40	7-29-2002	0.8	ID	6	--	--	--
	9-3-2002	--	--	--	--	--	--
41	7-29-2002	<1	ID	5	--	--	--
	9-4-2002	--	--	--	--	--	--
42	7-30-2002	<1	ID	6	--	--	--
	9-4-2002	--	--	--	--	--	--
43	7-30-2002	<1	ID	3	--	--	--
	9-4-2002	--	--	--	--	--	--
44	7-30-2002	0.8	ID	10	--	--	--
	9-5-2002	1.1	ID	10	--	--	--
45	7-31-2002	1.2	ID	2	--	--	--
	9-6-2002	1.3	ID	2	--	--	--
46	8-2-2002	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--
52	8-1-2002	2.5	ID	19	--	--	--
	9-17-2002	2.8	ID	19	--	--	--
53	7-31-2002	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--
55	7-30-2002	0.7	ID	5	--	--	--
56	7-31-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
57	7-31-2002	1.9	ID	3	--	--	--
	9-4-2002	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Iron, dissolved, in µg/L			Iron, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
26	7-17-2002	**339c**	ID	9	--	--	--
	9-6-2002	**383c**	ID	9	--	--	--
27	8-1-2002	231	ID	7	--	--	--
28	8-8-2002	<10	ID	2	--	--	--
	9-11-2002	9	ID	2	--	--	--
29	8-8-2002	45	ID	2	--	--	--
	9-11-2002	66	ID	2	--	--	--
30	7-29-2002	42	70.8	47	330	[1]39.3–50.0	27
	9-10-2002	32	[1]58.3–60.4	47	330	[1]39.3–50.0	27
31	7-29-2002	<10	[2]4.0–48.0	24	50	[1]4.5–13.6	21
	9-10-2002	55	88.0	24	260	95.5	21
32	8-8-2002	7	ID	2	--	--	--
	9-11-2002	28	ID	2	--	--	--
33	7-30-2002	33	[1]45.8–50	23	--	--	--
34	7-30-2002	--	--	--	90	ID	6
35	7-30-2002	<10	ID	17	10	ID	5
	9-3-2002	--	--	--	--	--	--
36	7-30-2002	--	--	--	180	ID	9
	9-3-2002	--	--	--	--	--	--
37	7-31-2002	7	13.3	29	--	--	--
	9-4-2002	13	[1]26.7–33.3	29	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Iron, dissolved, in µg/L			Iron, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	23	ID	14	--	--	--
	9-5-2002	15	ID	14	--	--	--
39	8-1-2002	<10	ID	5	--	--	--
	9-6-2002	17	ID	5	--	--	--
40	7-29-2002	--	--	--	40	ID	6
	9-3-2002	--	--	--	--	--	--
41	7-29-2002	--	--	--	50	ID	5
	9-4-2002	--	--	--	--	--	--
42	7-30-2002	--	--	--	50	ID	6
	9-4-2002	--	--	--	--	--	--
43	7-30-2002	--	--	--	20	ID	3
	9-4-2002	--	--	--	--	--	--
44	7-30-2002	--	--	--	40	ID	9
	9-5-2002	5	ID	2	--	--	--
45	7-31-2002	12	ID	2	--	--	--
	9-6-2002	7	ID	2	--	--	--
46	8-2-2002	--	--	--	--	--	--
47	8-1-2002	7	ID	19	--	--	--
	9-3-2002	8	ID	19	--	--	--
48	8-1-2002	<10	ID	5	--	--	--
	9-5-2002	30	ID	5	--	--	--
49	7-31-2002	<10	ID	2	--	--	--
50	7-31-2002	6	ID	1	--	--	--
51	8-1-2002	<10	ID	1	--	--	--
52	8-1-2002	<10	[2]2.2–63.0	45	--	--	--
	9-17-2002	<10	[2]2.2–63.0	45	--	--	--
53	7-31-2002	10	ID	1	--	--	--
54	8-1-2002	<10	ID	1	--	--	--
55	7-30-2002	--	--	--	510	ID	5
56	7-31-2002	11	ID	2	--	--	--
	9-5-2002	11	ID	2	--	--	--
57	7-31-2002	25	ID	3	280	ID	3
	9-4-2002	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Lead, dissolved, in µg/L			Manganese, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
26	7-17-2002	--	--	--	20	ID	9
	9-6-2002	--	--	--	19.1	ID	9
27	8-1-2002	0.09	ID	8	19.3	ID	7
28	8-8-2002	<0.08	ID	2	6	ID	2
	9-11-2002	<0.08	ID	2	1.6	ID	2
29	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
30	7-29-2002	<1	ID	14	**60c**	86.2	28
	9-10-2002	--	--	--	**115c**	96.6	28
31	7-29-2002	<1	ID	14	10.3	59.1	21
	9-10-2002	--	--	--	**250c**	90.9	21
32	8-8-2002	<0.08	ID	2	13.7	ID	2
	9-11-2002	0.13	ID	2	21	ID	2
33	7-30-2002	<0.08	[2]4.5–86.4	21	21	37.5	23
34	7-30-2002	<1	ID	6	9.3	ID	6
35	7-30-2002	0.05	ID	5	2	ID	17
	9-3-2002	--	--	--	--	--	--
36	7-30-2002	<1	ID	9	15.5	ID	10
	9-3-2002	--	--	--	--	--	--
37	7-31-2002	<1	[2]4.3–95.7	22	21	26.7	29
	9-4-2002	0.07	[2]4.3–95.7	22	29	46.7	29

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Lead, dissolved, in µg/L			Manganese, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
40	7-29-2002	<1	ID	6	1.4	ID	6
	9-3-2002	--	--	--	--	--	--
41	7-29-2002	<1	ID	5	5.6	ID	6
	9-4-2002	--	--	--	--	--	--
42	7-30-2002	<1	ID	6	7.7	ID	6
	9-4-2002	--	--	--	--	--	--
43	7-30-2002	<1	ID	3	4.1	ID	3
	9-4-2002	--	--	--	--	--	--
44	7-30-2002	<1	ID	10	5	ID	11
	9-5-2002	0.14	ID	10	4.1	ID	11
45	7-31-2002	0.07	ID	2	6.7	ID	2
	9-6-2002	0.09	ID	2	5.9	ID	2
46	8-2-2002	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--
52	8-1-2002	0.05	ID	19	5.4	93.5	45
	9-17-2002	<0.08	ID	19	37	97.8	45
53	7-31-2002	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--
55	7-30-2002	<1	ID	5	13.8	ID	5
56	7-31-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
57	7-31-2002	0.12	ID	3	17.8	ID	3
	9-4-2002	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Manganese, total recoverable, in µg/L			Mercury, dissolved, in µg/L	Mercury, total recoverable, in µg/L		
		Conc	Q%	N		Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
27	8-1-2002	--	--	--	<0.01	<0.01	ID	8
28	8-8-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--
29	8-8-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--
30	7-29-2002	88	93.1	28	<0.01	<0.01	ID	14
	9-10-2002	141	96.6	28	--	--	--	14
31	7-29-2002	102	81.8	21	<0.01	<0.01	ID	14
	9-10-2002	296	90.9	21	--	--	--	--
32	8-8-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--
33	7-30-2002	--	--	--	--	--	--	--
34	7-30-2002	12.4	ID	6	<0.01	--	--	--
35	7-30-2002	1.9	ID	5	<0.01	--	--	--
	9-3-2002	--	--	--	--	--	--	--
36	7-30-2002	33	ID	9	<0.01	--	--	--
	9-3-2002	--	--	--	--	--	--	--
37	7-31-2002	--	--	--	<0.01	<0.01	[2]4.8–90.5	20
	9-4-2002	--	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees *Celsius; E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Manganese, total recoverable, in µg/L			Mercury, dissolved, in µg/L	Mercury, total recoverable, in µg/L		
		Conc	Q%	N		Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
40	7-29-2002	2.7	ID	6	<0.01	--	--	--
	9-3-2002	--	--	--	--	--	--	--
41	7-29-2002	10.6	ID	5	<0.01	--	--	--
	9-4-2002	--	--	--	--	--	--	--
42	7-30-2002	7.8	ID	6	<0.01	--	--	--
	9-4-2002	--	--	--	--	--	--	--
43	7-30-2002	3.5	ID	3	<0.01	--	--	--
	9-4-2002	--	--	--	--	--	--	--
44	7-30-2002	8.9	ID	9	<0.01	--	--	--
	9-5-2002	--	--	--	--	--	--	--
45	7-31-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
46	8-2-2002	--	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--	--
52	8-1-2002	--	--	--	--	--	--	--
	9-17-2002	--	--	--	--	--	--	--
53	7-31-2002	--	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--	--
55	7-30-2002	20	ID	5	<0.01	--	--	--
56	7-31-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
57	7-31-2002	39	ID	3	<0.01	--	--	--
	9-4-2002	--	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Molybdenum, dissolved, in µg/L			Nickel, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
27	8-1-2002	--	--	--	0.23	ID	8
28	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
29	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
30	7-29-2002	3.6	ID	14	3.6	ID	14
	9-10-2002	--	--	--	--	--	--
31	7-29-2002	3.0	ID	14	2.8	ID	14
	9-10-2002	--	--	--	--	--	--
32	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
33	7-30-2002	24	63.6	21	0.25	[2]4.5–90.9	21
34	7-30-2002	--	--	--	--	--	--
35	7-30-2002	--	--	--	<0.06	ID	5
	9-3-2002	--	--	--	--	--	--
36	7-30-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
37	7-31-2002	--	--	--	<2	ID	18
	9-4-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli;* mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Molybdenum, dissolved, in µg/L			Nickel, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
40	7-29-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
41	7-29-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
42	7-30-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
43	7-30-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
44	7-30-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
45	7-31-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
46	8-2-2002	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--
52	8-1-2002	--	--	--	--	--	--
	9-17-2002	--	--	--	--	--	--
53	7-31-2002	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--
55	7-30-2002	--	--	--	--	--	--
56	7-31-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
57	7-31-2002	--	--	--	0.33	ID	3
	9-4-2002	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nickel, total recoverable, in µg/L			Selenium, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
27	8-1-2002	<1	ID	8	<0.3	ID	8
28	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
29	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
30	7-29-2002	6	ID	14	<2	ID	14
	9-10-2002	--	--	--	--	--	--
31	7-29-2002	5	ID	14	2	ID	14
	9-10-2002	--	--	--	--	--	--
32	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
33	7-30-2002	--	--	--	--	--	--
34	7-30-2002	--	--	--	<2	ID	6
35	7-30-2002	--	--	--	<0.3	ID	5
	9-3-2002	--	--	--	--	--	--
36	7-30-2002	--	--	--	<2	ID	9
	9-3-2002	--	--	--	--	--	--
37	7-31-2002	1.1	ID	18	<2	[2]4.5–95.5	21
	9-4-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Nickel, total recoverable, in µg/L			Selenium, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
40	7-29-2002	--	--	--	2	ID	6
	9-3-2002	--	--	--	--	--	--
41	7-29-2002	--	--	--	<2	ID	5
	9-4-2002	--	--	--	--	--	--
42	7-30-2002	--	--	--	<2	ID	6
	9-4-2002	--	--	--	--	--	--
43	7-30-2002	--	--	--	<2	ID	3
	9-4-2002	--	--	--	--	--	--
44	7-30-2002	--	--	--	<2	ID	9
	9-5-2002	--	--	--	--	--	--
45	7-31-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
46	8-2-2002	--	--	--	--	--	--
47	8-1-2002	--	--	--	0.4	ID	19
	9-3-2002	--	--	--	0.8	ID	19
48	8-1-2002	--	--	--	0.6	ID	7
	9-5-2002	--	--	--	--	--	--
49	7-31-2002	--	--	--	0.6	ID	9
50	7-31-2002	--	--	--	3.8	ID	7
51	8-1-2002	--	--	--	**6.3c**	ID	7
52	8-1-2002	--	--	--	**8.8c**	83.3	47
	9-17-2002	--	--	--	**11c**	95.8	47
53	7-31-2002	--	--	--	2.6	ID	4
54	8-1-2002	--	--	--	**5.8c**	ID	7
55	7-30-2002	--	--	--	<2	ID	5
56	7-31-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
57	7-31-2002	--	--	--	0.4	ID	3
	9-4-2002	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Selenium, total recoverable, in µg/L			Silver, dissolved, in µg/L			Silver, total recoverable, in µg/L
		Conc	Q%	N	Conc	Q%	N	
20	8-1-2002	--	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
27	8-1-2002	<0.4	ID	8	<1	ID	8	<0.05
28	8-8-2002	--	--	--	<1	ID	2	--
	9-11-2002	--	--	--	<1	ID	2	--
29	8-8-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--
30	7-29-2002	0.7	ID	13	<0.1	ID	14	<0.05
	9-10-2002	--	--	--	--	--	--	--
31	7-29-2002	2.7	ID	12	<0.1	ID	14	<0.05
	9-10-2002	--	--	--	--	--	--	--
32	8-8-2002	--	--	--	<1	ID	2	--
	9-11-2002	--	--	--	<1	ID	2	--
33	7-30-2002	--	--	--	<1	[2]4.5–90.9	21	--
34	7-30-2002	--	--	--	<0.1	ID	6	--
35	7-30-2002	--	--	--	<1	ID	5	--
	9-3-2002	--	--	--	--	--	--	--
36	7-30-2002	--	--	--	<0.1	ID	9	--
	9-3-2002	--	--	--	--	--	--	--
37	7-31-2002	1.0	[2]4.5–95.5	21	<0.1	ID	19	<0.3
	9-4-2002	--	--	--	<1	ID	19	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Selenium, total recoverable, in µg/L			Silver, dissolved, in µg/L			Silver, total recoverable, in µg/L
		Conc	Q%	N	Conc	Q%	N	
38	8-1-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--	--
40	7-29-2002	--	--	--	<0.1	ID	6	--
	9-3-2002	--	--	--	--	--	--	--
41	7-29-2002	--	--	--	<0.1	ID	5	--
	9-4-2002	--	--	--	--	--	--	--
42	7-30-2002	--	--	--	<0.1	ID	6	--
	9-4-2002	--	--	--	--	--	--	--
43	7-30-2002	--	--	--	<0.1	ID	3	--
	9-4-2002	--	--	--	--	--	--	--
44	7-30-2002	--	--	--	<0.1	ID	10	--
	9-5-2002	--	--	--	<1	ID	10	--
45	7-31-2002	--	--	--	<1	ID	2	--
	9-6-2002	--	--	--	<1	ID	2	--
46	8-2-2002	--	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--	--
52	8-1-2002	--	--	--	<1	[2]4.3–87.0	22	--
	9-17-2002	--	--	--	<1	[2]4.3–87.0	22	--
53	7-31-2002	--	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--	--
55	7-30-2002	--	--	--	<0.1	ID	5	--
56	7-31-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--
57	7-31-2002	--	--	--	<1	ID	3	--
	9-4-2002	--	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Zinc, dissolved, in µg/L			Zinc, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N
20	8-1-2002	--	--	--	--	--	--
21	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
22	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
23	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
24	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
25	7-15-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
26	7-17-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
27	8-1-2002	2	ID	8	4	ID	8
28	8-8-2002	5	ID	2	--	--	--
	9-11-2002	2	ID	2	--	--	--
29	8-8-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--
30	7-29-2002	<24	ID	14	10	ID	14
	9-10-2002	--	--	--	--	--	--
31	7-29-2002	<24	ID	14	2	ID	14
	9-10-2002	--	--	--	--	--	--
32	8-8-2002	3	ID	2	--	--	--
	9-11-2002	2	ID	2	--	--	--
33	7-30-2002	2	[2]4.3–26.1	22	--	--	--
34	7-30-2002	<24	ID	6	--	--	--
35	7-30-2002	<24	ID	5	--	--	--
	9-3-2002	--	--	--	--	--	--
36	7-30-2002	16	ID	9	--	--	--
	9-3-2002	--	--	--	--	--	--
37	7-31-2002	<24	[2]4.3–87.0	22	<20	4.8	20
	9-4-2002	5	[2]4.3–87.0	22	--	--	--

Table 12. Water-quality data for the Upper Colorado River Basin, showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 4	Sampling date	Zinc, dissolved, in µg/L			Zinc, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N
38	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
39	8-1-2002	--	--	--	--	--	--
	9-6-2002	--	--	--	--	--	--
40	7-29-2002	<24	ID	6	--	--	--
	9-3-2002	--	--	--	--	--	--
41	7-29-2002	<24	ID	5	--	--	--
	9-4-2002	--	--	--	--	--	--
42	7-30-2002	<24	ID	6	--	--	--
	9-4-2002	--	--	--	--	--	--
43	7-30-2002	<24	ID	3	--	--	--
	9-4-2002	--	--	--	--	--	--
44	7-30-2002	<24	ID	10	--	--	--
	9-5-2002	2	ID	10	--	--	--
45	7-31-2002	1	ID	2	--	--	--
	9-6-2002	2	ID	2	--	--	--
46	8-2-2002	--	--	--	--	--	--
47	8-1-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
48	8-1-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
49	7-31-2002	--	--	--	--	--	--
50	7-31-2002	--	--	--	--	--	--
51	8-1-2002	--	--	--	--	--	--
52	8-1-2002	1	ID	19	--	--	--
	9-17-2002	2	ID	19	--	--	--
53	7-31-2002	--	--	--	--	--	--
54	8-1-2002	--	--	--	--	--	--
55	7-30-2002	<24	ID	5	--	--	--
56	7-31-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
57	7-31-2002	<24	ID	3	--	--	--
	9-4-2002	--	--	--	--	--	--
58	7-16-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--

[1] Possible percentile range because of uncensored ties in data.

[2] Possible percentile range because of censored or recensored ties in data.

Table 13. Water-quality data for the Rio Grande Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L			pH, in standard units		
				Conc	Q%	N	Value	Q%	N
59	9-18-2002	1015	158	8.3	ID	2	7.9	ID	1
60	9-18-2002	1315	33	8.4	ID	1	8.3	ID	1
61	7-11-2002	1130	12	9.5	[1]88.2–91.2	33	8.6	[1]51.4–62.2	36
	8-15-2002	1030	7	7.6	[1]35.3–41.2	33	9.0	[1]91.9–97.3	36
62	9-18-2002	0745	100	8.2	ID	1	7.6	ID	1

Site number in table 1 and fig. 5	Sampling date	Specific conductance, in µS/cm			Temperature, water, in °C			Hardness, total, in mg/L as $CaCO_3$
		Value	Q%	N	Value	Q%	N	
59	9-18-2002	111	ID	2	11.5	[1]17.4–21.7	45	36
60	9-18-2002	90	ID	1	11.5	24.4	44	37
61	7-11-2002	461	68.6	34	21.5	[1]83.9–87.5	55	84
	8-15-2002	450	62.9	34	18.5	[1]33.9–37.5	55	58
62	9-18-2002	89	ID	1	9.5	ID	1	34

Site number in table 1 and fig. 5	Sampling date	Calcium, dissolved, in mg/L	Magnesium, dissolved, in mg/L	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Chloride, dissolved, in mg/L		
						Conc	Q%	N
59	9-18-2002	11.7	1.71	1.93	4.3	1.37	ID	2
60	9-18-2002	11.7	1.89	1.75	2.7	0.50	ID	1
61	7-11-2002	21	7.8	7.8	64	15.4	85.7	34
	8-15-2002	12.1	6.7	8.3	70	17.6	97.1	34
62	9-18-2002	10.7	1.71	1.94	3.8	0.89	ID	1

Site number in table 1 and fig. 5	Sampling date	Fluoride, dissolved, in mg/L			Silica, dissolved, in mg/L as SiO_2		
		Conc	Q%	N	Conc	Q%	N
59	9-18-2002	0.1	ID	2	19.0	ID	2
60	9-18-2002	0.1	ID	1	20	ID	1
61	7-11-2002	0.86	91.4	34	17.8	11.4	34
	8-15-2002	1.1	97.1	34	8.79	2.9	34
62	9-18-2002	0.1	ID	1	21	ID	1

Table 13. Water-quality data for the Rio Grande Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Sulfate dissolved, in mg/L as SO_4			Solids, dissolved, residue on evaporation at 180 °C, in mg/L	Nitrogen, ammonia, dissolved, in mg/L as N		
		Conc	Q%	N		Conc	Q%	N
59	9-18-2002	9.6	ID	2	82	<0.015	ID	2
60	9-18-2002	2.4	ID	1	74	<0.015	ID	1
61	7-11-2002	51	65.7	34	284	<0.04	[2]3.2–77.4	30
	8-15-2002	53	68.6	34	263	<0.04	[2]3.2–77.4	30
62	9-18-2002	6.3	ID	1	69	<0.015	ID	1

Site number in table 1 and fig. 5	Sampling date	Nitrogen, organic plus ammonia, dissolved, in mg/L as N			Nitrogen, organic plus ammonia, total recoverable, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N
59	9-18-2002	0.12	ID	2	0.18	ID	2
60	9-18-2002	0.12	ID	1	0.12	ID	1
61	7-11-2002	0.38	57.7	25	0.64	54.1	36
	8-15-2002	0.43	65.4	25	0.68	56.8	36
62	9-18-2002	0.10	ID	1	0.15	ID	1

Site number in table 1 and fig. 5	Sampling date	Nitrogen, nitrite plus nitrate, dissolved, in mg/L as N			Nitrogen, nitrite, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N
59	9-18-2002	<0.013	ID	2	<0.002	ID	2
60	9-18-2002	<0.013	ID	1	<0.002	ID	1
61	7-11-2002	<0.05	[2]3.0–87.9	32	<0.008	[2]4.8–95.2	20
	8-15-2002	<0.05	[2]3.0–87.9	32	<0.008	[2]4.8–95.2	20
62	9-18-2002	<0.013	ID	1	<0.002	ID	1

Site number in table 1 and fig. 5	Sampling date	Phosphorus, dissolved, in mg/L as P			Phosphorus, total recoverable, in mg/L as P		
		Conc	Q%	N	Conc	Q%	N
59	9-18-2002	0.036	ID	2	0.051	ID	2
60	9-18-2002	0.015	ID	1	0.025	ID	1
61	7-11-2002	0.011	[1]5.4–8.1	36	0.069	8.1	36
	8-15-2002	0.013	10.8	36	0.061	[1]2.7–5.4	36
62	9-18-2002	0.031	ID	1	0.043	ID	1

Table 13. Water-quality data for the Rio Grande Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Phosphorus, orthophosphate, dissolved, in mg/L as P			Carbon, organic, dissolved, in mg/L	Carbon, organic, total recoverable, in mg/L	Bacteria, *E. coli*, in colonies per 100 mL
		Conc	Q%	N			
59	9-18-2002	0.028	ID	2	1.7	2.2	13
60	9-18-2002	0.012	ID	1	1.2	1.8	3
61	7-11-2002	<0.02	[2]4.0–16.0	24	--	--	20
	8-15-2002	<0.03	[2]4.0–16.0	24	--	--	14
62	9-18-2002	0.025	ID	1	1.6	2.1	11

Site number in table 1 and fig. 5	Sampling date	Bacteria, fecal coliform, in colonies per 100 mL			Aluminum, dissolved, in µg/L	Arsenic, dissolved, in µg/L	Arsenic, total recoverable, in µg/L
		Conc	Q%	N			
59	9-18-2002	14	ID	1	5	1	--
60	9-18-2002	5	ID	1	2	1	--
61	7-11-2002	--	--	--	6	5	--
	8-15-2002	11	40.9	21	--	--	--
62	9-18-2002	7	ID	1	4	1	--

Site number in table 1 and fig. 5	Sampling date	Barium, dissolved, in mg/L			Beryllium, dissolved, in µg/L	Cadmium, dissolved, in µg/L	Cobalt, dissolved, in µg/L	Chromium, dissolved, in µg/L
		Conc	Q%	N				
59	9-18-2002	22	ID	1	<0.06	0.18	0.07	<0.8
60	9-18-2002	17	ID	1	<0.06	<0.04	0.06	<0.8
61	7-11-2002	34	57.1	20	<0.06	0.03	<3	<0.8
	8-15-2002	--	--	--	--	--	--	--
62	9-18-2002	18	ID	1	<0.06	<0.04	0.07	<0.8

Table 13. Water-quality data for the Rio Grande Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Copper, dissolved, in µg/L	Iron, dissolved, in µg/L			Lead, dissolved, in µg/L	Manganese, dissolved, in µg/L		
			Conc	Q%	N		Conc	Q%	N
59	9-18-2002	1	--	--	--	0.34	11.3	ID	2
60	9-18-2002	0.3	--	--	--	<0.08	4	ID	1
61	7-11-2002	--	7	[2]3.7–22.2	26	0.13	20.3	[1]84.0–88.0	24
	8-15-2002	--	14	29.6	26	--	20.3	[1]84.0–88.0	24
62	9-18-2002	0.6	--	--	--	<0.08	10.1	ID	1

Site number in table 1 and fig. 5	Sampling date	Molybdenum, dissolved, in µg/L	Nickel, dissolved, in µg/L	Selenium, dissolved, in µg/L			Silver, dissolved, in µg/L		
				Conc	Q%	N	Conc	Q%	N
59	9-18-2002	0.5	0.66	<2	ID	2	<1	ID	1
60	9-18-2002	0.2	0.47	<2	ID	1	<1	ID	1
61	7-11-2002	8.1	0.81	<2	[2]4.8–95.2	20	<1	[2]4.8–95.2	20
	8-15-2002	--	--	--	--	--	--	--	--
62	9-18-2002	0.4	0.47	<2	ID	1	<1	ID	1

Site number in table 1 and fig. 5	Sampling date	Zinc, dissolved, in µg/L	Uranium, dissolved, in µg/L
59	9-18-2002	**54ac**	0.21
60	9-18-2002	<1	0.05
61	7-11-2002	1	1.96
	8-15-2002	--	--
62	9-18-2002	<1	0.12

[1] Possible percentile range because of uncensored ties in data.

[2] Possible percentile range because of censored or recensored ties in data.

Table 14. Water-quality data for the Gunnison River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L			pH, in standard units			Specific conductance, in µS/cm		
				Conc	Q%	N	Value	Q%	N	Value	Q%	N
63	8-6-2002	0905	79	7.6	[1]14.8–18.5	26	8.2	[1]22.2–33.3	26	323	86.8	37
	9-3-2002	1740	43	7.3	11.1	26	8.4	[1]59.3–92.6	26	335	94.7	37
64	8-6-2002	0900	119	8.1	[1]40.9–50.0	21	8.2	[1]18.2–31.8	21	343	92.6	67
	9-4-2002	1040	36	8.3	[1]63.6–68.2	21	8.4	[1]54.5–72.7	21	351	95.6	67
65	8-6-2002	1330	9.4	7.4	ID	8	8.5	ID	8	382	ID	9
	9-4-2002	1210	5.2	8.3	ID	8	8.6	ID	8	397	ID	9
66	8-7-2002	0905	357	8.4	ID	14	8.2	ID	14	232	87.0	76
67	8-7-2002	0910	39	7.7	ID	19	8.2	ID	19	377	94.2	68
	9-4-2002	1350	18	9.9	ID	19	8.6	ID	19	330	[1]71.0–72.5	68
68	8-7-2002	1239	482	8.4	[1]12.5–16.7	23	8.4	95.8	23	212	77.1	69
	9-5-2002	1440	444	8.6	[1]25.0–33.3	23	8.3	91.7	23	218	84.3	69
69	8-8-2002	0930	48	7.5	ID	2	8.2	ID	2	1,590	ID	16
	9-10-2002	1320	44	7.2	ID	2	8.2	ID	2	1,500	ID	16
70	8-8-2002	1415	607	10.6	ID	6	8.6	ID	14	794	39.1	68
	9-11-2002	0910	497	6.9	ID	6	8.1	ID	14	1,010	68.8	68
71	8-7-2002	0850	45	8	ID	3	8.0	ID	3	538	ID	3
72	8-7-2002	1025	69	8.1	ID	14	8.3	ID	16	700	81.7	59
73	8-13-2002	1000	109	8.6	ID	9	8.2	[1]21.4–75.0	27	1,760	90.4	72
	9-23-2002	0900	246	8.2	ID	9	8.2	[1]21.4–75.0	27	1,640	72.6	72
74	8-13-2002	1300	818	8.5	[1]76.8–78.6	55	8.4	[1]62.7–86.4	58	1,130	69.9	72
	9-24-2002	1000	1,010	7.6	[1]33.9–37.5	55	8.4	[1]62.7–86.4	58	1,250	82.2	72
75	8-7-2002	1035	354	8.4	ID	17	8.3	ID	17	255	ID	17
	9-5-2002	0830	116	8.1	ID	17	8.2	ID	17	288	ID	17
76	8-6-2002	1500	28	9.4	ID	3	8.8	ID	4	290	ID	4
77	8-6-2002	1140	8.3	7.6	ID	3	8.4	ID	3	198	ID	3
78	8-8-2002	1230	500	8.5	ID	15	8.2	ID	16	432	ID	15
79	8-6-2002	1010	43	7.9	ID	2	8.4	ID	2	331	ID	2
80	8-5-2002	1600	2.6	7.1	ID	2	8.2	ID	2	328	ID	2
81	8-5-2002	1410	9.2	6.1	ID	16	7.5	ID	16	136	ID	16
82	8-5-2002	1240	1.8	6.1	ID	2	8.3	ID	2	280	ID	2
83	8-5-2002	1630	14	6.6	ID	12	8.3	ID	12	385	ID	12

Table 14. Water-quality data for the Gunnison River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Temperature, water, in °C			Hardness, total, in mg/L as $CaCO_3$	Calcium, dissolved, in mg/L	Magnesium, dissolved, in mg/L	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Acid-neutralizing capacity, in mg/L as $CaCO_3$	Chloride, dissolved, in mg/L		
		Value	Q%	N							Conc	Q%	N
63	8-6-2002	12.0	[1]55.3–57.9	37	150	49	7.8	1.02	3.8	135	2.0	96.2	25
	9-3-2002	14.0	[1]78.9–81.6	37	160	51	9.0	1.18	4.8	135	1.98	92.3	25
64	8-6-2002	12.7	48.5	67	170	54	8.5	1.04	3.8	150	1.34	ID	8
	9-4-2002	12.0	[1]32.4–42.6	67	180	56	9.3	1.24	4.2	158	1.44	ID	8
65	8-6-2002	21.5	ID	9	190	54	13.7	1.91	6.4	199	1.69	ID	2
	9-4-2002	15.5	ID	9	210	58	15.3	2.0	6.8	198	2.3	ID	2
66	8-7-2002	13.0	[1]34.2–42.1	75	110	33	6.7	0.91	3.0	104	1.34	ID	6
67	8-7-2002	14.5	[1]25.0–26.5	67	190	53	13.3	2.7	8.5	181	4.0	ID	8
	9-4-2002	20.0	[1]69.1–75.0	67	170	47	12.6	2.3	5.7	158	3.8	ID	8
68	8-7-2002	12.5	[1]65.7–72.9	69	93	28	5.7	1.53	4.6	90	1.22	ID	17
	9-5-2002	14.0	[1]92.9–98.6	69	100	31	6.2	1.49	4.8	91	1.65	ID	17
69	8-8-2002	17.0	ID	16	830	210	74	4.6	73	272	7.2	ID	2
	9-10-2002	22.0	ID	16	760	194	67	5.3	75	271	9.2	ID	2
70	8-8-2002	22.0	[1]93.0–95.8	70	330	90	26	3.4	46	143	7.2	ID	11
	9-11-2002	18.0	[1]53.5–62.0	70	--	--	--	--	--	--	--	--	--
71	8-7-2002	13.5	ID	3	250	92	4.3	1.37	11.2	32	4.2	ID	3
72	8-7-2002	13.0	[1]29.5–34.4	60	330	111	13.7	2.6	25	138	5.7	ID	13
73	8-13-2002	16.0	[1]23.3–30.1	72	800	224	58	3.5	111	269	10.8	82.8	28
	9-23-2002	12.0	4.1	72	750	208	55	3.9	106	155	10.0	62.1	28
74	8-13-2002	20.0	[1]72.7–75.3	76	490	135	37	3.8	64	169	8.9	72.4	57
	9-24-2002	15.0	[1]9.1–10.4	76	550	155	41	3.8	74	127	10	82.8	57
75	8-7-2002	14.7	ID	17	120	36	7.7	1.14	3.9	114	1.51	ID	11
	9-5-2002	11.0	ID	17	150	44	9.1	1.3	4.2	131	1.9	ID	11
76	8-6-2002	21.4	ID	3	140	39	9.6	2.4	8.6	149	2.2	ID	2
77	8-6-2002	14.8	ID	3	96	28	6.2	0.84	2.0	94	0.34	ID	1
78	8-8-2002	17.0	ID	4	180	47	14.7	2.5	19.2	114	6	ID	7
79	8-6-2002	14.0	ID	15	160	53	7.7	0.88	2.1	137	0.41	ID	0
80	8-5-2002	16.3	ID	2	130	44	4.8	--	--	--	--	--	--
81	8-5-2002	14.9	ID	16	58	19.6	2.2	--	--	--	--	--	--
82	8-5-2002	18.0	ID	2	--	--	--	--	--	--	--	--	--
83	8-5-2002	18.5	ID	12	160	51.1	7.2	0.73	2.2	129	0.55	ID	4

Table 14. Water-quality data for the Gunnison River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Fluoride, dissolved, in mg/L			Silica, dissolved, in mg/L as SiO_2			Sulfate dissolved, in mg/L as SO_4			Nitrogen, ammonia, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
63	8-6-2002	--	--	--	7.1	65.4	25	32	80.8	25	<0.015	[2]3.7–66.7	26
	9-3-2002	--	--	--	8.2	96.2	25	34	96.2	25	<0.015	[2]3.7–66.7	26
64	8-6-2002	--	--	--	8.0	ID	8	28	ID	8	<0.015	ID	18
	9-4-2002	--	--	--	9.2	ID	8	27	ID	8	<0.015	ID	18
65	8-6-2002	--	--	--	19.1	ID	2	14.5	ID	2	<0.015	ID	8
	9-4-2002	--	--	--	19.3	ID	2	18.2	ID	2	<0.015	ID	8
66	8-7-2002	--	--	--	8.6	ID	6	14.6	ID	6	<0.015	ID	14
67	8-7-2002	--	--	--	20.4	ID	8	17.5	ID	8	0.009	ID	16
	9-4-2002	--	--	--	14.4	ID	8	16.1	ID	8	<0.015	ID	16
68	8-7-2002	--	--	--	10.4	ID	16	17.3	ID	17	<0.015	[2]4.3–69.6	22
	9-5-2002	--	--	--	10.5	ID	16	18.0	ID	17	<0.015	[2]4.3–69.6	22
69	8-8-2002	--	--	--	17.7	ID	2	646	ID	2	<0.04	ID	2
	9-10-2002	--	--	--	20.4	ID	2	608	ID	2	0.028	ID	2
70	8-8-2002	0.3	ID	10	11.8	ID	10	261	ID	11	--	--	--
	9-11-2002	--	--	--	--	--	--	--	--	--	--	--	--
71	8-7-2002	0.6	ID	3	9.7	ID	3	223	ID	3	<0.015	ID	3
72	8-7-2002	0.5	ID	13	11.2	ID	13	225	ID	13	<0.015	ID	13
73	8-13-2002	--	--	--	17.5	[1]64.3–67.9	27	743	89.7	28	<0.04	ID	3
	9-23-2002	0.8	[1]70.4–85.2	26	17.5	[1]64.3–67.9	27	702	75.9	28	--	--	--
74	8-13-2002	--	--	--	11.0	[1]6.9–10.3	57	433	72.4	57	<0.04	[2]2.3–68.2	43
	9-24-2002	--	--	--	14.7	65.5	57	**503**	81.0	57	<0.04	[2]2.3–68.2	43
75	8-7-2002	--	--	--	10.1	ID	11	15.6	ID	11	<0.015	ID	17
	9-5-2002	--	--	--	11.2	ID	11	16.4	ID	11	<0.015	ID	17
76	8-6-2002	--	--	--	17.4	ID	2	8.0	ID	2	<0.015	ID	4
77	8-6-2002	--	--	--	9.6	ID	1	8.0	ID	1	<0.015	ID	3
78	8-8-2002	0.3	ID	6	10.6	ID	7	94	ID	7	--	--	--
79	8-6-2002	--	--	--	6.4	ID	0	37	ID	0	<0.015	ID	2
80	8-5-2002	--	--	--	--	--	--	--	--	--	<0.015	ID	2
81	8-5-2002	--	--	--	--	--	--	--	--	--	<0.015	ID	16
82	8-5-2002	--	--	--	--	--	--	--	--	--	<0.015	ID	2
83	8-5-2002	--	--	--	5.8	ID	4	34	ID	4	<0.015	ID	12

Table 14. Water-quality data for the Gunnison River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Nitrogen, organic plus ammonia, dissolved, in mg/L as N			Nitrogen, organic plus ammonia, total recoverable, in mg/L as N			Nitrogen, nitrite plus nitrate, dissolved, in mg/L as N			Nitrogen, nitrite, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
63	8-6-2002	0.07	[2]3.7–96.3	26	0.1	[2]3.8–96.2	25	0.049	[2]3.7–40.7	26	0.002	[2]3.7–88.9	26
	9-3-2002	0.06	[2]3.7–96.3	26	0.08	[2]3.8–96.2	25	0.027	[2]3.7–40.7	26	<0.002	[2]3.7–88.9	26
64	8-6-2002	ID	ID	18	0.11	ID	17	0.016	ID	18	<0.002	ID	18
	9-4-2002	ID	ID	18	0.08	ID	17	0.011	ID	18	<0.002	ID	18
65	8-6-2002	ID	ID	8	0.23	ID	8	<0.013	ID	8	<0.002	ID	8
	9-4-2002	ID	ID	8	0.17	ID	8	<0.013	ID	8	<0.002	ID	8
66	8-7-2002	ID	ID	14	0.13	ID	14	0.012	ID	14	<0.002	ID	14
67	8-7-2002	ID	ID	16	0.41	ID	16	0.020	ID	16	0.002	ID	16
	9-4-2002	ID	ID	16	0.22	ID	16	<0.013	ID	16	<0.002	ID	16
68	8-7-2002	0.11	[2]4.8–95.2	20	--	--	--	<0.013	[2]4.3–65.2	22	<0.002	[2]4.3–95.7	22
	9-5-2002	0.12	[2]4.8–95.2	20	--	--	--	<0.013	[2]4.3–65.2	22	<0.002	[2]4.3–95.7	22
69	8-8-2002	ID	ID	2	--	--	--	<0.05	ID	2	<0.008	ID	2
	9-10-2002	ID	ID	2	--	--	--	0.083	ID	2	0.017	ID	2
70	8-8-2002	--	--	--	--	--	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--	--	--	--	--	--
71	8-7-2002	ID	ID	3	0.08	ID	3	0.265	ID	3	<0.002	ID	3
72	8-7-2002	ID	ID	13	0.29	ID	13	0.219	ID	13	0.004	ID	13
73	8-13-2002	ID	ID	2	--	--	--	4.0	ID	10	0.013	ID	3
	9-23-2002	--	--	--	--	--	--	--	--	--	--	--	--
74	8-13-2002	0.28	50.0	23	--	--	--	1.46	68.2	43	0.006	[2]2.9–55.9	33
	9-24-2002	0.27	45.8	23	--	--	--	1.58	75.0	43	0.005	[2]2.9–55.9	33
75	8-7-2002	ID	ID	17	0.17	ID	17	0.037	ID	17	<0.002	ID	17
	9-5-2002	ID	ID	17	0.12	ID	17	0.078	ID	17	0.002	ID	17
76	8-6-2002	ID	ID	4	0.27	ID	4	<0.013	ID	4	<0.002	ID	4
77	8-6-2002	ID	ID	3	0.1	ID	3	0.021	ID	3	<0.002	ID	3
78	8-8-2002	--	--	--	--	--	--	--	--	--	--	--	--
79	8-6-2002	ID	ID	2	0.11	ID	2	0.023	ID	2	<0.002	ID	15
80	8-5-2002	ID	ID	2	0.08	ID	2	0.026	ID	2	<0.002	ID	2
81	8-5-2002	ID	ID	16	<0.1	ID	16	0.045	ID	16	<0.002	ID	16
82	8-5-2002	ID	ID	2	0.48	ID	2	2.7	ID	2	0.021	ID	2
83	8-5-2002	ID	ID	12	0.11	ID	12	<0.013	ID	12	<0.002	ID	12

Table 14. Water-quality data for the Gunnison River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Phosphorus, dissolved, in mg/L as P			Phosphorus, total recoverable, in mg/L as P			Phosphorus, orthophosphate, dissolved, in mg/L as P			Carbon, organic, dissolved, in mg/L	Bacteria, *E. coli*, in colonies per 100 mL	Bacteria, fecal coliform, in colonies per 100 mL	Aluminum, dissolved, in µg/L
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N				
63	8-6-2002	0.003	[2]3.7–92.6	26	0.008	[2]3.8–80.8	25	<0.007	[2]3.7–92.6	26	--	73	--	--
	9-3-2002	0.004	[2]3.7–92.6	26	0.008	[2]3.8–80.8	25	<0.007	[2]3.7–92.6	26	--	4	--	--
64	8-6-2002	<0.004	ID	18	0.011	ID	17	<0.007	ID	18	--	65	--	--
	9-4-2002	<0.004	ID	18	0.005	ID	17	<0.007	ID	18	--	13	--	--
65	8-6-2002	0.039	ID	8	0.06	ID	8	0.029	ID	8	2.7	75	--	<20
	9-4-2002	0.03	ID	8	0.041	ID	8	0.022	ID	8	2.4	41	--	<20
66	8-7-2002	0.004	ID	13	0.016	ID	14	<0.007	ID	14	--	38	--	--
67	8-7-2002	0.027	ID	16	0.043	ID	16	0.014	ID	16	4.7	120	--	<20
	9-4-2002	0.011	ID	16	0.022	ID	16	0.005	ID	16	2.8	51	--	<20
68	8-7-2002	0.01	[1]54.5–59.1	21	0.017	[1]40.9–45.5	21	0.007	[2]4.3–47.8	22	2.1	<1	--	<20
	9-5-2002	0.01	[1]54.5–59.1	21	0.023	[1]59.1–63.6	21	0.008	[2]4.3–47.8	22	2.7	<1	--	<20
69	8-8-2002	<0.06	ID	2	0.080	ID	2	<0.02	ID	2	4.8	**580**	--	<20
	9-10-2002	0.056	ID	2	0.23	ID	2	0.044	ID	2	5.3	**210**	--	<20
70	8-8-2002	--	--	--	--	--	--	--	--	--	--	52	--	--
	9-11-2002	--	--	--	--	--	--	--	--	--	--	--	--	--
71	8-7-2002	<0.004	ID	3	0.16	ID	3	<0.007	ID	3	0.5	6	25	--
72	8-7-2002	0.009	ID	13	0.18	ID	13	0.004	ID	13	1.8	**210**	126	--
73	8-13-2002	<0.06	ID	3	0.15	ID	3	<0.02	ID	3	4.9	**280**	--	<20
	9-23-2002	--	--	--	--	--	--	--	--	--	--	**210**	--	--
74	8-13-2002	<0.06	[2]2.1–87.5	47	0.060	[1]31.9–38.3	46	<0.02	[2]2.5–70.0	39	3.8	8	--	<20
	9-24-2002	<0.06	[2]2.1–87.5	47	0.20	89.4	46	<0.02	[2]2.5–70.0	39	4.2	47	--	<20
75	8-7-2002	0.01	ID	17	0.021	ID	17	0.006	ID	17	2	65	--	<20
	9-5-2002	0.021	ID	17	0.030	ID	17	0.016	ID	17	2.1	37	--	<20
76	8-6-2002	0.05	ID	4	0.068	ID	4	0.039	ID	4	3.1	73	--	<20
77	8-6-2002	0.003	ID	3	0.009	ID	3	<0.007	ID	3	1.7	3	--	<20
78	8-8-2002	--	--	--	--	--	--	--	--	--	--	10	--	--
79	8-6-2002	0.003	ID	2	0.010	ID	2	<0.007	ID	2	--	72	--	--
80	8-5-2002	<0.004	ID	2	0.005	ID	2	<0.007	ID	2	1.3	12	--	20
81	8-5-2002	<0.004	ID	16	0.002	ID	16	<0.007	ID	16	0.6	21	--	<20
82	8-5-2002	0.6	ID	2	0.67	ID	2	0.556	ID	2	--	**800**	--	--
83	8-5-2002	<0.004	ID	12	0.006	ID	12	<0.007	ID	12	--	6	--	--

Table 14. Water-quality data for the Gunnison River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Cadmium, dissolved, in mg/L			Copper, dissolved, in µg/L			Iron, dissolved, in µg/L			Iron, total recoverable, in µg/L	Lead, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N		Conc	Q%	N
63	8-6-2002	--	--	--	--	--	--	6	[2]4.0–40.0	24	--	--	--	--
	9-3-2002	--	--	--	--	--	--	6	[2]4.0–40.0	24	--	--	--	--
64	8-6-2002	--	--	--	--	--	--	8	ID	9	--	--	--	--
	9-4-2002	--	--	--	--	--	--	10	ID	9	--	--	--	--
65	8-6-2002	<0.04	ID	3	0.5	ID	3	33	ID	3	--	<0.08	ID	3
	9-4-2002	<0.04	ID	3	0.6	ID	3	15	ID	3	--	<0.08	ID	3
66	8-7-2002	--	--	--	--	--	--	9	ID	5	--	--	--	--
67	8-7-2002	<0.1	ID	12	0.8	ID	12	48	ID	8	--	<1	ID	12
	9-4-2002	<0.04	ID	12	0.6	ID	12	26	ID	8	--	0.09	ID	12
68	8-7-2002	<0.04	ID	6	0.7	ID	6	<10	ID	15	--	0.04	ID	6
	9-5-2002	<0.04	ID	6	0.7	ID	6	<10	ID	15	--	0.11	ID	6
69	8-8-2002	0.02	ID	2	2.7	ID	2	7	ID	2	--	<0.08	ID	2
	9-10-2002	<0.04	ID	2	2.8	ID	2	<10	ID	2	--	<0.08	ID	2
70	8-8-2002	--	--	--	--	--	--	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--	--	--	--	--	--	--
71	8-7-2002	0.3	ID	3	2.9	ID	3	--	--	--	**4,050c**	<1	ID	3
72	8-7-2002	0.1	ID	13	2.3	ID	13	--	--	--	**2,640c**	<1	ID	13
73	8-13-2002	0.03	ID	7	4.2	ID	7	<10	ID	3	--	0.06	ID	7
	9-23-2002	--	--	--	--	--	--	--	--	--	--	--	--	--
74	8-13-2002	<0.04	[2]3.8–92.3	25	2.7	61.5	25	<10	[2]2.3–65.1	42	--	<0.08	[2]3.8–88.5	25
	9-24-2002	0.02	[2]3.8–92.3	25	4	[1]73.1–80.8	25	<10	[2]2.3–65.1	42	--	<0.08	[2]3.8–88.5	25
75	8-7-2002	<0.2	ID	9	<3	ID	9	13	ID	15	--	3	ID	9
	9-5-2002	<0.04	ID	9	0.5	ID	9	19	ID	15	--	<0.08	ID	9
76	8-6-2002	<0.1	ID	2	0.7	ID	2	45	ID	3	--	<1	ID	2
77	8-6-2002	<0.1	ID	2	1	ID	2	76	ID	2	--	1	ID	2
78	8-8-2002	--	--	--	--	--	--	--	--	--	--	--	--	--
79	8-6-2002	--	--	--	--	--	--	8	ID	2	--	--	--	--
80	8-5-2002	0.3	ID	2	<1	ID	2	7	ID	2	--	<1	ID	2
81	8-5-2002	0.1	ID	8	0.6	ID	8	17	ID	9	--	1	ID	8
82	8-5-2002	--	--	--	--	--	--	--	--	--	--	--	--	--
83	8-5-2002	--	--	--	--	--	--	38	ID	2	--	--	--	--

Table 14. Water-quality data for the Gunnison River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Manganese, dissolved, in µg/L			Manganese, total recoverable, in µg/L	Mercury, dissolved, in µg/L	Selenium, dissolved, in µg/L			Silver, dissolved, in µg/L			Zinc, dissolved, in µg/L		
		Conc	Q%	N			Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
63	8-6-2002	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--	--	--	--	--	--	--	--
64	8-6-2002	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--	--	--	--	--	--	--	--
65	8-6-2002	27	ID	3	--	--	--	--	--	<1	ID	3	<1	ID	3
	9-4-2002	26	ID	3	--	--	--	--	--	<1	ID	3	<1	ID	3
66	8-7-2002	--	--	--	--	--	--	--	--	--	--	--	--	--	--
67	8-7-2002	**57c**	ID	11	--	--	--	--	--	<0.1	ID	7	<24	ID	12
	9-4-2002	10.6	ID	11	--	--	--	--	--	<1	ID	7	<1	ID	12
68	8-7-2002	1.5	ID	16	--	--	<0.3	ID	9	<1	ID	4	<1	ID	6
	9-5-2002	<2	ID	16	--	--	<0.3	ID	9	<1	ID	4	1	ID	6
69	8-8-2002	88	ID	2	--	--	4	ID	2	<1	ID	2	3	ID	2
	9-10-2002	94	ID	2	--	--	3	ID	2	<1	ID	2	2	ID	2
70	8-8-2002	--	--	--	--	--	**5c**	ID	14	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	**7c**	ID	14	--	--	--	--	--	--
71	8-7-2002	350	ID	3	422	<0.01	<2	ID	3	<0.1	ID	3	65	ID	3
72	8-7-2002	36	ID	13	198	<0.01	<2	ID	12	<0.1	ID	13	<24	ID	13
73	8-13-2002	48	ID	6	--	--	10	[1]21.4–28.6	27	<1	ID	4	4	ID	7
	9-23-2002	--	--	--	--	--	12	[1]50.0–71.4	27	--	--	--	--	--	--
74	8-13-2002	16.9	79.1	42	--	--	6	[1]40.4–46.2	51	<1	[2]3.3–93.3	29	2	[2]3.8–80.8	25
	9-24-2002	8.4	[2]2.3–48.8	42	--	--	**8c**	[1]71.2–80.8	51	<1	[2]3.3–93.3	29	2	[2]3.8–80.8	25
75	8-7-2002	14.4	ID	15	--	--	<0.3	ID	4	<0.2	ID	7	<24	ID	9
	9-5-2002	25	ID	15	--	--	--	--	--	<1	ID	7	5	ID	9
76	8-6-2002	29	ID	3	--	--	--	--	--	<0.1	ID	2	<24	ID	2
77	8-6-2002	1.8	ID	2	--	--	--	--	--	<0.1	ID	2	<24	ID	2
78	8-8-2002	--	--	--	--	--	0.5	ID	5	--	--	--	--	--	--
79	8-6-2002	--	--	--	--	--	--	--	--	--	--	--	--	--	--
80	8-5-2002	13.8	ID	2	--	--	--	--	--	<0.1	ID	2	45	ID	2
81	8-5-2002	7.3	ID	9	--	--	--	--	--	<0.1	ID	5	<24	ID	8
82	8-5-2002	--	--	--	--	--	--	--	--	--	--	--	--	--	--
83	8-5-2002	--	--	--	--	--	--	--	--	--	--	--	--	--	--

[1] Possible percentile range because of uncensored ties in data.

[2] Possible percentile range because of censored or recensored ties in data.

Table 15. Water-quality data for the Dolores River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September 1978–2002.

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances]

Site number in table 1 and fig. 5	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L	pH, in standard units		
					Value	Q%	N
84	8-8-2002	1000	58	7.5	8.3	ID	1
85	8-5-2002	1215	2.5	7.4	8.5	[1]80.9–95.7	46
	9-26-2002	1130	9.5	8.7	8.5	[1]80.9–95.7	46
86	8-5-2002	1415	2.1	8.6	8.6	[1]95.7–97.9	46
	9-26-2002	1445	9.8	7.8	8.5	[1]85.1–93.6	46
87	8-6-2002	850	47	7.9	8.3	ID	2
	9-25-2002	1230	88	9.2	8.3	ID	2
88	8-6-2002	1130	9.4	7.8	8.3	ID	7
	9-25-2002	1645	49	8.1	8.6	ID	7

Site number in table 1 and fig. 5	Sampling date	Specific conductance, in µS/cm			Temperature, water, in °C		
		Value	Q%	N	Value	Q%	N
84	8-8-2002	385	93.6	46	17.6	[1]75.5–77.6	48
85	8-5-2002	545	28.6	76	24.0	[1]76.6–81.8	76
	9-26-2002	1,790	90.9	76	18.5	15.6	76
86	8-5-2002	9,960	87.5	71	24.5	[1]79.2–80.6	71
	9-26-2002	3,990	81.9	71	23.0	[1]61.1–68.1	71
87	8-6-2002	398	93.0	56	13.0	[1]43.9–52.6	56
	9-25-2002	367	80.7	56	10.0	[1]14.0–19.3	56
88	8-6-2002	1,700	[1]92.9–94.6	55	22.0	[1]53.6–71.4	55
	9-25-2002	1,130	[1]80.4–82.1	55	17.5	10.7	55

Site number in table 1 and fig. 5	Sampling date	Hardness, total, in mg/L as $CaCO_3$	Calcium, dissolved, in mg/L	Magnesium, dissolved, in mg/L	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Acid-neutralizing capacity, in mg/L as $CaCO_3$
84	8-8-2002	160	49	8.7	3.1	15.8	113
85	8-5-2002	180	38	22	4.6	43	108
	9-26-2002	330	94	22	9.7	217	158
86	8-5-2002	430	65	64	100	1,890	100
	9-26-2002	440	117	35	31.6	641	159
87	8-6-2002	200	67	6.9	1.1	4.9	115
	9-25-2002	180	61	6.4	0.88	4.7	134
88	8-6-2002	900	214	89	5.0	54	110
	9-25-2002	600	155	51	3.2	31	156

Table 15. Water-quality data for the Dolores River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances]

Site number in table 1 and fig. 5	Sampling date	Chloride, dissolved, in mg/L			Fluoride, dissolved, in mg/L		
		Conc	Q%	N	Conc	Q%	N
84	8-8-2002	19.9	ID	1	--	--	--
85	8-5-2002	56	24.0	49	0.20	[1]48.0–82.0	49
	9-26-2002	371	98.0	49	0.24	84.0	49
86	8-5-2002	3,130	98.0	49	0.23	78.0	49
	9-26-2002	1,050	92.0	49	0.26	80.0	49
87	8-6-2002	3.5	ID	2	--	--	--
	9-25-2002	2.8	ID	2	--	--	--
88	8-6-2002	9.1	ID	3	--	--	--
	9-25-2002	6.9	ID	3	--	--	--

Site number in table 1 and fig. 5	Sampling date	Silica, dissolved, in mg/L as SiO_2			Sulfate dissolved, in mg/L as SO_4		
		Conc	Q%	N	Conc	Q%	N
84	8-8-2002	7.6	ID	1	41	ID	1
85	8-5-2002	4.8	74.0	49	21	2.0	49
	9-26-2002	7.2	94.0	49	180	82.0	49
86	8-5-2002	1.05	2.0	49	187	80.0	49
	9-26-2002	7.0	96.0	49	264	92.0	49
87	8-6-2002	8.5	ID	2	108	ID	2
	9-25-2002	7.7	ID	2	100	ID	2
88	8-6-2002	5.8	ID	3	823	ID	3
	9-25-2002	7.9	ID	3	480	ID	3

Site number in table 1 and fig. 5	Sampling date	Nitrogen, ammonia, dissolved, in mg/L as N	Nitrogen, nitrite plus nitrate, dissolved, in mg/L as N	Nitrogen, nitrite, dissolved, in mg/L as N	Bacteria, *E. coli*, in colonies per 100 mL	Cadmium, dissolved, in µg/L	Copper, dissolved, in µg/L
84	8-8-2002	0.008	<0.013	<0.002	67	<0.04	0.7
85	8-5-2002	<0.04	<0.05	<0.008	60	--	--
	9-26-2002	--	--	--	32	--	--
86	8-5-2002	0.11	0.05	0.011	17	<0.1	2
	9-26-2002	<0.04	0.23	0.009	43	<0.07	3.9
87	8-6-2002	<0.04	0.43	<0.008	**210**	--	--
	9-25-2002	0.009	0.25	0.002	5	--	--
88	8-6-2002	<0.04	<0.05	<0.008	30	0.03	3.4
	9-25-2002	0.014	<0.013	<0.002	13	<0.04	4.3

Table 15. Water-quality data for the Dolores River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances]

Site number in table 1 and fig. 5	Sampling date	Iron, dissolved, in µg/L	Lead, dissolved, in µg/L	Manganese, dissolved, in µg/L	Silver, dissolved, in µg/L	Zinc, dissolved, in µg/L
84	8-8-2002	18	<0.08	8.9	<1	<1
85	8-5-2002	<10	--	--	--	--
	9-26-2002	--	--	--	--	--
86	8-5-2002	<100	<0.3	21	<4	6
	9-26-2002	<30	<0.2	26	<2	<2
87	8-6-2002	<10	--	--	--	--
	9-25-2002	7	--	--	--	--
88	8-6-2002	12	0.08	56	<1	7
	9-25-2002	5	0.05	42	<1	2

[1] Possible percentile range because of uncensored ties in data.

Table 16. Water-quality data for the San Juan River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September,1978–2002.

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L	pH, in standard units			Specific conductance, in µS/cm		
					Value	Q%	N	Value	Q%	N
89	8-5-2002	1400	24	7.2	8.4	ID	2	585	96.0	49
	9-6-2002	1230	6.8	8.8	8.4	ID	2	626	98.0	49
90	7-30-2002	1000	27	8.5	7.6	[1]69.7–78.8	32	74	90.0	39
91	8-2-2002	1000	11	8.9	8.4	ID	6	337	97.6	41
	9-19-2002	1430	48	8.2	8.7	ID	6	304	95.2	41
92	7-31-2002	1030	74	8.1	6.3	ID	2	496	ID	9
93	8-1-2002	0945	132	7.8	8.1	ID	2	881	ID	8
	9-3-2002	1015	119	8.6	8.2	ID	2	898	ID	8
94	8-2-2002	1230	4.8	7.3	8.6	ID	11	568	ID	11
	9-4-2002	1600	1.9	6.7	8.6	ID	11	478	ID	11
95	8-8-2002	1430	1.8	7.8	8.5	ID	14	911	ID	14
	9-4-2002	1030	0.93	8.8	8.4	ID	14	889	ID	14
96	8-8-2002	1215	7.9	7.0	8.3	ID	2	239	ID	2
	9-4-2002	1320	1.1	7.4	8.3	ID	2	302	ID	2
97	8-7-2002	0945	5.4	6.9	8.3	[1]69.6–91.3	22	2,360	79.4	33
	9-18-2002	1045	0.81	8.6	8.2	[1]17.4–65.2	22	4,870	97.1	33
98	8-7-2002	1130	16	10.0	8.4	[1]77.1–94.3	34	1,890	94.7	37
	9-10-2002	1115	9.5	7.2	8.2	[1]5.7–22.9	34	2,680	97.4	37
99	8-7-2002	1400	4.5	8.1	8.3	[1]60.3–77.8	62	2,660	92.5	79
	9-10-2002	1430	13	6.7	8.2	[1]31.7–58.7	62	2,760	93.8	79
100	8-1-2002	1445	106	8.0	8.3	ID	3	797	ID	3
	9-3-2002	1545	86	10.3	8.6	ID	3	783	ID	3
101	8-1-2002	1215	128	7.8	8.6	ID	2	834	ID	2
	9-3-2002	1245	118	10.9	8.5	ID	2	858	ID	2
102	8-5-2002	1115	16	7.2	8.5	ID	2	943	ID	2
	9-6-2002	0945	6.6	10.7	8.5	ID	2	1,480	ID	2

Table 16. Water-quality data for the San Juan River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September,1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Temperature, water, in °C			Hardness, total, in mg/L as $CaCO_3$	Calcium, dissolved, in mg/L	Magnesium, dissolved, in mg/L	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Alkalinity, laboratory, in mg/L as $CaCO_3$	Alkalinity, onsite, in mg/L as $CaCO_3$
		Value	Q%	N							
89	8-5-2002	26.2	96.1	50	220	71	10.5	3.6	33	129	--
	9-6-2002	20.2	62.7	50	250	81	12.3	3.7	36	126	--
90	7-30-2002	12.0	[1]81.1–90.6	52	30	8.8	2.0	0.60	0.97	--	22
91	8-2-2002	20.2	67.4	42	140	42	7.8	3.2	19.1	164	--
	9-19-2002	18.1	48.8	42	130	42	6.1	2.6	13.3	143	--
92	7-31-2002	11.5	ID	9	240	88	5.3	0.88	3.3	--	6
93	8-1-2002	17.2	ID	8	350	113	17.4	6.4	46	197	--
	9-3-2002	16.0	ID	8	360	115	17.6	6.5	47	188	--
94	8-2-2002	23.2	ID	11	230	70	12.8	5.7	37	274	--
	9-4-2002	23.4	ID	11	170	46	13.1	2.7	40	199	--
95	8-8-2002	27.7	97.1	22	400	77	49	1.55	44	180	--
	9-4-2002	17.7	47.1	22	390	81	46	1.31	45	177	--
96	8-8-2002	18.4	ID	2	110	34	5.7	0.91	4.2	68	--
	9-4-2002	20.7	ID	2	140	41	8.6	1.15	6.9	78	--
97	8-7-2002	18.5	[1]22.9–28.6	34	1,200	293	125	5.1	119	242	--
	9-18-2002	12.7	8.6	34	2,100	376	292	8.6	486	215	--
98	8-7-2002	22.0	86.8	37	950	210	102	5.0	94	203	--
	9-10-2002	19.0	34.2	37	1,400	305	144	7.1	169	207	--
99	8-7-2002	27.0	98.8	80	1,300	269	163	7.2	174	298	--
	9-10-2002	22.3	[1]88.9–90.1	80	1,300	297	142	7.8	184	235	--
100	8-1-2002	22.0	ID	3	--	--	--	--	--	--	--
	9-3-2002	19.8	ID	3	--	--	--	--	--	--	--
101	8-1-2002	19.0	ID	2	--	--	--	--	--	--	--
	9-3-2002	17.3	ID	2	--	--	--	--	--	--	--
102	8-5-2002	24.6	ID	2	200	60	12.3	12.7	113	197	--
	9-6-2002	17.3	ID	2	280	86	14.9	21	206	265	--

Table 16. Water-quality data for the San Juan River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September,1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Chloride, dissolved, in mg/L			Fluoride, dissolved, in mg/L			Silica, dissolved, in mg/L as SiO_2			Sulfate, dissolved, in mg/L as SO_4		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
89	8-5-2002	8.2	ID	2	--	--	--	16.8	ID	2	155	33.3	2
	9-6-2002	9.0	ID	2	--	--	--	16.5	ID	2	167	66.7	2
90	7-30-2002	0.25	64.4	44	--	--	--	3.7	88.9	44	10.7	91.1	44
91	8-2-2002	3.3	ID	6	--	--	--	4.6	ID	5	14.6	71.4	6
	9-19-2002	3.2	ID	6	--	--	--	7.3	ID	5	16.1	85.7	6
92	7-31-2002	0.69	ID	2	--	--	--	15.2	ID	2	235	ID	2
93	8-1-2002	51	ID	2	--	--	--	9.5	ID	2	167	60.0	2
	9-3-2002	52	ID	2	--	--	--	11.4	ID	2	171	ID	2
94	8-2-2002	11	ID	1	--	--	--	10.8	ID	1	28	ID	1
	9-4-2002	12.4	ID	1	--	--	--	6.1	ID	1	25	ID	1
95	8-8-2002	22	ID	14	--	--	--	14.7	ID	14	276	ID	14
	9-4-2002	21	ID	14	--	--	--	13.8	ID	14	263	ID	14
96	8-8-2002	0.5	ID	2	--	--	--	8.7	ID	2	50	ID	2
	9-4-2002	0.9	ID	2	--	--	--	9.2	ID	2	71	ID	2
97	8-7-2002	27	92.0	24	0.31	60.0	24	10.3	[1]29.2–33.3	23	1,190	88.0	24
	9-18-2002	71	96.0	24	0.43	92.0	24	7.1	4.2	23	2,800	96.0	24
98	8-7-2002	25	92.1	37	0.33	68.4	37	7.8	5.3	37	901	94.7	37
	9-10-2002	34	97.4	37	0.45	97.4	37	10.7	21.1	37	1,410	97.4	37
99	8-7-2002	35	84.8	65	0.36	30.8	64	12.5	59.1	65	1,370	90.9	65
	9-10-2002	35	86.4	65	0.45	89.2	64	12.1	53.0	65	1,440	92.4	65
100	8-1-2002	--	--	--	--	--	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--	--	--	--	--	--
101	8-1-2002	--	--	--	--	--	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--	--	--	--	--	--
102	8-5-2002	25	ID	2	--	--	--	18.6	ID	2	236	ID	2
	9-6-2002	45	ID	2	--	--	--	20	ID	2	**419**	ID	2

Table 16. Water-quality data for the San Juan River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September,1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Nitrogen, ammonia, dissolved, in mg/L as N			Nitrogen, organic plus ammonia, dissolved, in mg/L as N	Nitrogen, organic plus ammonia, total recoverable, in mg/L as N			Nitrogen, nitrite plus nitrate, dissolved, in mg/L as N			Nitrogen, nitrite, in mg/L as N
		Conc	Q%	N		Conc	Q%	N	Conc	Q%	N	
89	8-5-2002	<0.015	ID	2	0.12	--	--	--	<0.013	ID	2	<0.002
	9-6-2002	<0.04	ID	2	0.17	--	--	--	<0.05	ID	2	<0.008
90	7-30-2002	<0.015	[2]2.8–58.3	35	0.06	<0.1	[2]4.3–47.8	22	0.143	94.7	37	<0.002
91	8-2-2002	<0.04	ID	2	0.39	--	--	--	0.040	ID	5	<0.008
	9-19-2002	<0.015	ID	2	0.30	--	--	--	<0.013	ID	5	0.002
92	7-31-2002	0.043	ID	1	--	0.13	ID	1	0.058	ID	1	0.003
93	8-1-2002	0.036	ID	2	0.07	--	--	--	0.086	ID	2	0.005
	9-3-2002	0.028	ID	2	0.08	--	--	--	0.172	ID	2	0.013
94	8-2-2002	<0.04	ID	1	0.44	--	--	--	0.070	ID	1	0.009
	9-4-2002	<0.04	ID	1	0.24	--	--	--	<0.05	ID	1	<0.008
95	8-8-2002	<0.04	ID	2	0.33	--	--	--	0.060	ID	2	<0.008
	9-4-2002	<0.04	ID	2	0.18	--	--	--	0.140	ID	2	<0.008
96	8-8-2002	<0.015	ID	2	0.09	--	--	--	<0.013	ID	2	<0.002
	9-4-2002	<0.015	ID	2	0.08	--	--	--	<0.013	ID	2	<0.002
97	8-7-2002	<0.04	ID	1	0.53	--	--	--	2.9	ID	2	0.010
	9-18-2002	--	--	--	--	--	--	--	--	--	--	--
98	8-7-2002	<0.04	ID	1	0.44	--	--	--	0.36	ID	2	0.004
	9-10-2002	--	--	--	--	--	--	--	--	--	--	--
99	8-7-2002	<0.04	ID	2	0.45	--	--	--	0.020	ID	14	<0.008
	9-10-2002	0.16	ID	2	0.65	--	--	--	1.49	ID	14	0.045
100	8-1-2002	<0.04	ID	3	--	0.10	ID	3	<0.05	ID	3	<0.008
	9-3-2002	<0.04	ID	3	--	0.20	ID	3	<0.05	ID	3	<0.008
101	8-1-2002	<0.04	ID	2	--	0.14	ID	2	0.060	ID	2	0.010
	9-3-2002	<0.04	ID	2	--	0.19	ID	2	0.200	ID	2	0.011
102	8-5-2002	0.094	ID	2	0.37	--	--	--	0.064	ID	2	0.024
	9-6-2002	<0.015	ID	2	0.32	--	--	--	0.258	ID	2	0.007

Table 16. Water-quality data for the San Juan River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September,1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Phosphorus, dissolved, in mg/L as P			Phosphorus, total recoverable, in mg/L as P			Phosphorus, orthophosphate, dissolved, in mg/L as P	Carbon, organic, dissolved, in mg/L	Bacteria, *E. Coli*, in colonies per 100 mL	Aluminum, dissolved, in µg/L	Aluminum, total recoverable, in µg/L	Cadmium, dissolved, in µg/L
		Conc	Q%	N	Conc	Q%	N						
89	8-5-2002	0.003	ID	2	0.024	ID	2	<0.007	--	16	--	--	--
	9-6-2002	<0.06	ID	2	<0.06	ID	2	<0.02	--	5	--	--	--
90	7-30-2002	<0.004	[2]4.3–65.2	22	<0.004	[2]3.2–51.6	30	<0.007	0.5	--	--	--	--
91	8-2-2002	0.030	ID	2	0.060	ID	5	0.030	5.3	17	<20	--	<0.04
	9-19-2002	0.059	ID	2	0.171	ID	5	0.046	4.5	83	<20	--	<0.04
92	7-31-2002	--	--	--	0.021	ID	1	<0.007	0.4	8	50	2,060	1.4
93	8-1-2002	0.003	ID	2	0.015	ID	2	<0.007	0.7	38	20	--	0.05
	9-3-2002	0.006	ID	2	0.023	ID	2	<0.007	1.2	36	<20	--	0.05
94	8-2-2002	0.070	ID	1	0.27	ID	1	0.070	5.8	**140**	30	--	<0.04
	9-4-2002	<0.06	ID	1	0.100	ID	1	0.010	3.3	90	20	--	<0.04
95	8-8-2002	<0.06	ID	14	<0.06	ID	14	<0.02	3.1	21	<20	--	--
	9-4-2002	<0.06	ID	14	<0.06	ID	14	<0.02	2.7	**380**	<20	--	--
96	8-8-2002	0.002	ID	2	0.006	ID	2	<0.007	--	71	--	--	--
	9-4-2002	0.003	ID	2	0.006	ID	2	<0.007	--	27	--	--	--
97	8-7-2002	0.050	ID	1	0.22	ID	1	0.050	--	**220**	--	--	--
	9-18-2002	--	--	--	--	--	--	--	--	**260**	--	--	--
98	8-7-2002	<0.06	ID	1	0.030	ID	1	<0.02	--	61	--	--	--
	9-10-2002	--	--	--	--	--	--	--	--	**540**	--	--	--
99	8-7-2002	<0.06	ID	12	0.060	ID	12	<0.02	7.5	**220**	<20	--	<0.07
	9-10-2002	0.030	ID	12	1.66	ID	12	0.020	10	**1,100**	<20	--	<0.07
100	8-1-2002	--	--	--	0.008	ID	3	<0.02	--	3	--	--	--
	9-3-2002	--	--	--	0.017	ID	3	0.010	1.5	4	--	--	--
101	8-1-2002	--	--	--	0.039	ID	2	0.010	--	9	--	--	--
	9-3-2002	--	--	--	0.061	ID	2	0.040	1.5	25	--	--	--
102	8-5-2002	0.107	ID	2	0.149	ID	2	0.086	--	28	--	--	--
	9-6-2002	0.141	ID	2	0.191	ID	2	0.121	--	100	--	--	--

Table 16. Water-quality data for the San Juan River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September,1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance]

Site number in table 1 and fig. 5	Sampling date	Copper, dissolved, in µg/L	Copper, total recoverable, in µg/L	Iron, dissolved, in µg/L	Iron, total recoverable, in µg/L	Lead, dissolved, in µg/L	Manganese, total recoverable, in µg/L	Mercury, dissolved, in µg/L	Selenium, dissolved, in µg/L	Silver, dissolved, in µg/L	Zinc, dissolved, in µg/L
89	8-5-2002	--	--	7	--	--	--	--	--	--	--
	9-6-2002	--	--	<10	--	--	--	--	--	--	--
90	7-30-2002	--	--	<10	--	--	--	--	--	--	--
91	8-2-2002	1.1	--	28	--	<0.08	--	--	--	<1	<1
	9-19-2002	0.8	--	8	--	<0.08	--	--	--	<1	1
92	7-31-2002	5.1	10	**1,900c**	3,170	<1	953	<0.01	<2	<0.1	406
93	8-1-2002	1.6	--	30	--	0.09	--	--	--	<1	7
	9-3-2002	1.5	--	17	--	0.07	--	--	--	<1	7
94	8-2-2002	1.2	--	<10	--	0.07	--	--	--	<1	<1
	9-4-2002	0.9	--	<10	--	0.06	--	--	--	<1	<1
95	8-8-2002	2.0	--	<10	--	<0.08	--	--	--	<1	1
	9-4-2002	1.8	--	<10	--	<0.08	--	--	--	<1	2
96	8-8-2002	--	--	23	--	--	--	--	--	--	--
	9-4-2002	--	--	37	--	--	--	--	--	--	--
97	8-7-2002	--	--	30	--	--	--	--	--	--	--
	9-18-2002	--	--	--	--	--	--	--	--	--	--
98	8-7-2002	--	--	<10	--	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--	--	--	--	--
99	8-7-2002	5.0	--	19	--	<0.2	--	--	--	<2	4
	9-10-2002	5.9	--	<10	--	<0.2	--	--	--	<2	4
100	8-1-2002	--	--	--	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--	--	--	--
101	8-1-2002	--	--	--	--	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--	--	--	--	--
102	8-5-2002	--	--	56	--	--	--	--	--	--	--
	9-6-2002	--	--	43	--	--	--	--	--	--	--

[1] Possible percentile range because of uncensored ties in data.

[2] Possible percentile range because of censored or recensored ties in data.

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L			pH, in standard units		
				Conc	Q%	N	Value	Q%	N
103	8-5-2002	1400	12	8.5	61.9	20	8.6	[1]81.0–85.7	20
	9-5-2002	0940	9.0	10.4	90.5	20	8.5	[1]71.4–76.2	20
104	8-13-2002	1200	32	16.8	97.6	41	8.4	[1]87.8–92.7	40
	9-10-2002	0940	211	6.9	[1]7.1–9.5	41	7.9	[1]7.3–19.5	40
105	8-15-2002	1020	58	8.4	ID	19	8.3	ID	19
	9-12-2002	1430	72	8	ID	19	8.1	ID	19
106	8-13-2002	0900	86	6.8	[1]44.0–48.0	24	7.9	[1]72.0–76.0	24
	9-10-2002	1340	458	6.4	[1]28.0–40.0	24	7.0	4.0	24
107	8-5-2002	1005	47	7.6	ID	8	7.8	ID	8
	9-9-2002	0850	22	7.9	ID	8	7.6	ID	8
108	8-5-2002	1245	553	6.9	10.0	49	7.9	[1]87.8–89.8	48
	9-9-2002	1220	256	7	[1]12.0–14.0	49	**9.1**	98.0	48
109	8-5-2002	1202	71	7.4	ID	8	8.0	ID	8
	9-9-2002	1102	49	7.5	ID	8	**9.1**	ID	8
110	8-6-2002	1317	16	7.2	ID	8	7.9	ID	8
	9-10-2002	1322	11	7.9	ID	8	8.0	ID	8
111	8-8-2002	1000	86	7.5	5.3	74	8.0	[1]13.5–20.3	73
	9-11-2002	1325	38	9.5	65.3	74	8.5	[1]77.0–87.8	73
112	8-8-2002	1150	30	7.1	29.2	23	8.4	[1]69.6–73.9	22
	9-12-2002	0900	3.4	6.4	12.5	23	8.1	[1]26.1–47.8	22
113	8-23-2002	1545	36	7.6	[1]8.6–15.7	69	8.2	[1]51.4–65.3	71
	9-12-2002	1525	9.5	8.2	[1]22.9–25.7	69	8.1	[1]36.1–50.0	71
114	8-23-2002	1440	7.4	12.1	[1]91.3–92.8	68	8.8	[1]88.6–90.0	69
	9-12-2002	1250	3.8	7.6	[1]21.7–23.2	68	7.9	[1]7.1–11.4	69
115	8-6-2002	0940	0.11	13.2	ID	18	8.4	ID	17
116	8-8-2002	1030	113	7.6	36.0	36	7.9	[1]7.5–12.5	39
	9-3-2002	1050	73	10.8	36.0	36	8.1	[1]50.0–65.0	39
117	8-2-2002	1145	86	11	90.2	50	8.4	[1]61.5–82.7	51
	9-17-2002	1125	192	8.9	58.8	50	8.3	[1]36.5–59.6	51
118	9-19-2002	1325	18	11	[1]78.1–81.3	31	8.4	[1]63.3–80.0	29
119	8-6-2002	0932	551	7	[1]9.7–11.3	61	8.4	[1]85.2–91.8	60
	9-10-2002	0852	249	7.3	[1]16.1–22.6	61	**9.3**	98.4	60
120	8-22-2002	1200	1.1	9.1	ID	2	8.1	ID	2
	9-16-2002	1100	1.5	9.1	ID	2	8.0	ID	2
121	8-7-2002	1040	29	9.5	ID	15	7.2	ID	16
	9-4-2002	1030	10	8.7	ID	15	7.4	ID	16
122	8-7-2002	1255	132	7.3	ID	8	8.1	ID	8
	9-11-2002	1150	82	8.6	ID	8	8.5	ID	8
123	9-30-2002	1030	0.74	10.1	ID	1	8.3	ID	1
124	8-6-2002	1147	82	7.4	ID	8	8.1	ID	8
	9-10-2002	1152	49	8.1	ID	8	8.3	ID	8
125	8-14-2002	1040	<0.01	7.1	ID	2	8.1	ID	2
	9-11-2002	1120	0.09	8	ID	2	7.8	ID	2

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Specific conductance, in µS/cm			Temperature, water, in °C			Hardness, total, in mg/L as $CaCO_3$	Calcium, dissolved, in mg/L
		Value	Q%	N	Value	Q%	N		
103	8-5-2002	1,040	75.7	69	27.5	98.6	68	330	104
	9-5-2002	1,030	71.4	69	18.0	[1]15.9–20.3	68	340	106
104	8-13-2002	992	95.2	41	21.5	[1]67.4–68.5	91	270	81
	9-10-2002	704	66.7	41	18.0	[1]21.7–23.9	91	180	54
105	8-15-2002	250	95.7	45	15.0	[1]65.7–77.6	66	79	23
	9-12-2002	277	97.8	45	17.0	[1]89.6–92.5	66	91	25
106	8-13-2002	944	88.0	24	18.5	[1]17.1–18.6	69	220	64
	9-10-2002	881	56.0	24	20.5	[1]45.7–52.9	69	210	62
107	8-5-2002	23	ID	8	16.0	[1]90.3–93.5	30	8	2.3
	9-9-2002	36	ID	8	14.0	[1]80.6–87.1	30	12	3.2
108	8-5-2002	47	94.0	49	18.5	96.0	49	19	5.7
	9-9-2002	57	98.0	49	17.0	[1]86.0–90.0	49	23	6.9
109	8-5-2002	48	ID	8	18.5	[1]93.8–96.9	31	19	5.9
	9-9-2002	57	ID	8	17.0	[1]71.9–78.1	31	23	7.0
110	8-6-2002	30	ID	8	20.0	ID	8	10	2.9
	9-10-2002	36	ID	8	15.5	ID	8	12	3.3
111	8-8-2002	281	15.4	77	19.5	[1]64.6–69.6	78	120	34
	9-11-2002	424	38.5	77	18.5	[1]54.4–59.5	78	170	45
112	8-8-2002	376	4.3	22	22.0	83.3	23	150	42
	9-12-2002	774	52.2	22	17.0	[1]25.0–29.2	23	310	73
113	8-23-2002	191	54.2	71	20.5	[1]92.0–93.3	74	82	24
	9-12-2002	394	90.3	71	20.5	[1]92.0–93.3	74	180	51
114	8-23-2002	650	37.9	65	25.0	[1]91.4–92.9	69	280	75
	9-12-2002	853	40.9	65	21.0	[1]55.7–60.0	69	400	106
115	8-6-2002	1,830	ID	18	22.0	ID	18	770	204
116	8-8-2002	1,510	70.7	40	22.3	75.0	47	540	126
	9-3-2002	1,660	95.1	40	19.0	[1]31.3–37.5	47	590	143
117	8-2-2002	1,710	84.6	51	20.5	[1]35.7–38.6	69	600	143
	9-17-2002	1,570	55.8	51	18.5	[1]21.4–25.7	69	520	127
118	9-19-2002	2,080	63.3	29	21.0	[1]57.1–62.9	34	720	195
119	8-6-2002	52	91.9	61	18.5	95.2	62	22	6.6
	9-10-2002	60	98.4	61	16.0	[1]60.3–68.3	62	23	7.2
120	8-22-2002	897	ID	2	19.0	ID	2	340	102
	9-16-2002	783	ID	2	16.0	ID	2	290	84
121	8-7-2002	17	ID	16	15.3	ID	16	5	1.48
	9-4-2002	19	ID	16	13.0	ID	16	6	1.71
122	8-7-2002	51	ID	8	20.5	ID	8	20	6.0
	9-11-2002	61	ID	8	17.5	ID	8	21	6.5
123	9-30-2002	595	ID	1	13.0	ID	1	280	80
124	8-6-2002	57	ID	8	19.0	ID	8	21	6.1
	9-10-2002	67	ID	8	15.5	ID	8	24	7.2
125	8-14-2002	1,450	ID	2	17.5	ID	2	620	135
	9-11-2002	2,150	ID	2	17.0	ID	2	940	192

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Magnesium, dissolved, in mg/L	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Acid-neutralizing capacity, in mg/L as $CaCO_3$	Alkalinity, onsite, in mg/L as $CaCO_3$
103	8-5-2002	17.3	--	85	--	208
	9-5-2002	17.8	--	85	--	214
104	8-13-2002	16.2	10.3	97	--	176
	9-10-2002	11.6	6.9	69	--	128
105	8-15-2002	5.6	2.6	16.1	--	40
	9-12-2002	6.6	2.8	16.8	--	44
106	8-13-2002	13.5	12.2	98	--	165
	9-10-2002	13.8	9.4	90	--	152
107	8-5-2002	0.63	0.30	1.45	--	10
	9-9-2002	0.92	0.46	2.0	--	14
108	8-5-2002	1.12	0.49	2.1	--	21
	9-9-2002	1.29	0.57	2.2	--	27
109	8-5-2002	1.11	0.51	2.1	--	21
	9-9-2002	1.3	0.58	2.2	--	27
110	8-6-2002	0.69	0.51	2.2	--	13
	9-10-2002	0.81	0.63	2.3	--	15
111	8-8-2002	8.6	1.13	9.2	--	63
	9-11-2002	15.1	1.39	15.9	--	69
112	8-8-2002	12.3	1.73	15.7	--	72
	9-12-2002	31	3.3	40	--	110
113	8-23-2002	5.6	--	--	75	--
	9-12-2002	12.6	--	10.6	137	--
114	8-23-2002	22	--	--	139	--
	9-12-2002	33	--	39	165	167
115	8-6-2002	62	--	125	--	280
116	8-8-2002	55	--	116	--	210
	9-3-2002	57	--	138	--	241
117	8-2-2002	60	9.5	170	224	--
	9-17-2002	50	8.4	132	244	--
118	9-19-2002	57	--	196	--	--
119	8-6-2002	1.2	0.47	2.1	--	25
	9-10-2002	1.33	0.59	2.1	--	28
120	8-22-2002	22	2.8	56	--	247
	9-16-2002	19.3	3.0	51	--	192
121	8-7-2002	0.36	--	0.82	--	6
	9-4-2002	0.45	--	1.04	--	7
122	8-7-2002	1.16	0.65	2.4	--	22
	9-11-2002	1.26	0.84	3.1	--	25
123	9-30-2002	21	--	21	--	--
124	8-6-2002	1.26	0.88	3.4	--	23
	9-10-2002	1.4	0.89	3.6	--	27
125	8-14-2002	69	2.3	87	--	314
	9-11-2002	112	3.4	157	--	282

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Chloride, dissolved, in mg/L			Silica, dissolved, in mg/L as SiO_2		
		Conc	Q%	N	Conc	Q%	N
103	8-5-2002	83	ID	19	21	ID	19
	9-5-2002	83	ID	19	20	ID	19
104	8-13-2002	92	96.2	25	10.8	80.8	25
	9-10-2002	58	80.8	25	8.8	34.6	25
105	8-15-2002	11.0	ID	17	7.1	ID	17
	9-12-2002	16.6	ID	17	7.2	ID	17
106	8-13-2002	93	95.7	22	11.1	69.6	22
	9-10-2002	82	87.0	22	9.1	13.0	22
107	8-5-2002	0.69	ID	8	--	--	--
	9-9-2002	1.40	ID	8	--	--	--
108	8-5-2002	0.63	83.3	47	--	--	--
	9-9-2002	0.58	64.6	47	--	--	--
109	8-5-2002	0.60	ID	8	--	--	--
	9-9-2002	0.56	ID	8	--	--	--
110	8-6-2002	0.77	ID	8	--	--	--
	9-10-2002	1.41	ID	8	--	--	--
111	8-8-2002	3.9	53.1	31	--	--	--
	9-11-2002	4.6	65.6	31	--	--	--
112	8-8-2002	5.4	ID	11	--	--	--
	9-12-2002	13.8	ID	11	--	--	--
113	8-23-2002	--	--	31	--	--	--
	9-12-2002	7.2	84.4	31	9.7	97.6	41
114	8-23-2002	--	--	26	--	--	--
	9-12-2002	15.8	59.3	26	9.6	83.3	35
115	8-6-2002	46	ID	16	26	ID	16
116	8-8-2002	80	95.0	39	14.2	95.0	39
	9-3-2002	86	97.5	39	14.0	[1]87.5–92.5	39
117	8-2-2002	98	98.0	49	13.9	76.0	49
	9-17-2002	84	92.0	49	13.4	74.0	49
118	9-19-2002	--	--	25	25	74.1	26
119	8-6-2002	0.38	[2]1.7–84.7	58	--	--	--
	9-10-2002	0.38	[2]1.7–84.7	58	--	--	--
120	8-22-2002	67	ID	2	18.1	ID	2
	9-16-2002	58	ID	2	11.6	ID	2
121	8-7-2002	<0.3	ID	10	3.1	ID	10
	9-4-2002	0.33	ID	10	3.8	ID	10
122	8-7-2002	1.00	ID	8	--	--	--
	9-11-2002	1.57	ID	8	--	--	--
123	9-30-2002	--	--	--	15	ID	1
124	8-6-2002	1.89	ID	8	--	--	--
	9-10-2002	2.1	ID	8	--	--	--
125	8-14-2002	23	ID	2	12.4	ID	2
	9-11-2002	24	ID	2	10.2	ID	2

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Sulfate, dissolved, in mg/L as SO_4			Solids, dissolved, residue on evaporation at 180°C, in mg/L	Nitrogen, ammonia, dissolved, in mg/L as N		
		Conc	Q%	N		Conc	Q%	N
103	8-5-2002	185	ID	19	--	0.020	[2]4.8–57.1	20
	9-5-2002	176	ID	19	--	<0.04	[2]4.8–57.1	20
104	8-13-2002	166	96.2	25	--	**0.89c**	90.3	30
	9-10-2002	115	57.7	25	--	**0.51c**	77.4	30
105	8-15-2002	56	ID	17	--	<0.04	ID	10
	9-12-2002	62	ID	17	--	<0.04	ID	10
106	8-13-2002	145	56.5	22	--	**4.65c**	80.0	24
	9-10-2002	139	34.8	22	--	**2.71c**	60.0	24
107	8-5-2002	1.6	ID	8	28	<0.015	ID	8
	9-9-2002	1.9	ID	8	<10	<0.015	ID	8
108	8-5-2002	2.3	85.4	47	38	**0.047c**	ID	18
	9-9-2002	2.4	85.4	47	39	0.012	ID	18
109	8-5-2002	2.4	ID	8	42	**0.030c**	ID	8
	9-9-2002	2.4	ID	8	43	0.009	ID	8
110	8-6-2002	1.6	ID	8	34	<0.015	ID	8
	9-10-2002	1.4	ID	8	29	<0.015	ID	8
111	8-8-2002	69	18.8	31	186	0.010	[2]1.5–29.4	67
	9-11-2002	136	53.1	31	283	<0.015	[2]1.5–29.4	67
112	8-8-2002	99	ID	11	241	0.035	[1]68.2–72.7	21
	9-12-2002	255	ID	11	553	0.022	54.5	21
113	8-23-2002	--	--	--	--	<0.04	[2]1.4–75.0	71
	9-12-2002	55	93.8	31	242	<0.04	[2]1.4–75.0	71
114	8-23-2002	--	--	--	--	<0.04	[2]1.5–27.9	67
	9-12-2002	299	44.4	26	659	<0.04	[2]1.5–27.9	67
115	8-6-2002	642	ID	16	--	0.020	ID	17
116	8-8-2002	440	52.5	39	--	**1.81c**	96.6	28
	9-3-2002	496	72.5	39	--	**0.90c**	89.7	28
117	8-2-2002	562	62.0	49	1290	0.011	ID	17
	9-17-2002	475	44.0	49	1130	<0.015	11.1	17
118	9-19-2002	--	--	--	--	0.070	60.9	22
119	8-6-2002	2.5	48.2	55	47	<0.015	[2]3.3–53.3	29
	9-10-2002	2.5	48.2	55	46	<0.015	[2]3.3–53.3	29
120	8-22-2002	137	ID	2	--	<0.04	ID	2
	9-16-2002	126	ID	2	--	<0.04	ID	2
121	8-7-2002	1.4	ID	10	--	<0.015	ID	16
	9-4-2002	1.9	ID	10	--	<0.015	ID	16
122	8-7-2002	2.5	ID	8	39	**0.024c**	ID	8
	9-11-2002	2.7	ID	8	18	**0.022c**	ID	8
123	9-30-2002	--	--	--	--	<0.04	ID	1
124	8-6-2002	3.1	ID	8	41	0.016	ID	8
	9-10-2002	3.0	ID	8	48	<0.015	ID	8
125	8-14-2002	491	ID	2	--	<0.04	ID	2
	9-11-2002	964	ID	2	--	<0.04	ID	2

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Nitrogen, organic plus ammonia, dissolved, in mg/L as N			Nitrogen, organic plus ammonia, total recoverable, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N
103	8-5-2002	--	--	--	0.51	54.5	21
	9-5-2002	--	--	--	0.29	4.5	21
104	8-13-2002	1.9	92.9	27	--	--	--
	9-10-2002	1.5	[1]82.1--85.7	27	--	--	--
105	8-15-2002	0.10	ID	17	--	--	--
	9-12-2002	0.10	ID	17	--	--	--
106	8-13-2002	6.0	ID	14	--	--	--
	9-10-2002	3.9	ID	14	--	--	--
107	8-5-2002	--	--	--	0.13	ID	8
	9-9-2002	--	--	--	0.14	ID	8
108	8-5-2002	--	--	--	0.29	ID	19
	9-9-2002	--	--	--	0.34	ID	19
109	8-5-2002	--	--	--	0.29	ID	8
	9-9-2002	--	--	--	0.32	ID	8
110	8-6-2002	--	--	--	0.21	ID	8
	9-10-2002	--	--	--	0.17	ID	8
111	8-8-2002	--	--	--	0.44	39.4	32
	9-11-2002	--	--	--	0.29	9.1	32
112	8-8-2002	--	--	--	1.2	ID	6
	9-12-2002	--	--	--	0.57	ID	6
113	8-23-2002	--	--	--	--	--	--
	9-12-2002	--	--	--	--	--	--
114	8-23-2002	--	--	--	--	--	--
	9-12-2002	--	--	--	--	--	--
115	8-6-2002	--	--	--	0.77	ID	17
116	8-8-2002	--	--	--	3.3	96.4	27
	9-3-2002	--	--	--	2.7	89.3	27
117	8-2-2002	--	--	--	0.88	ID	18
	9-17-2002	--	--	--	0.73	42.1	18
118	9-19-2002	--	--	--	0.47	10.3	28
119	8-6-2002	--	--	--	0.21	24.2	61
	9-10-2002	--	--	--	0.38	[1]54.8–56.5	61
120	8-22-2002	0.21	ID	2	--	--	--
	9-16-2002	0.26	ID	2	--	--	--
121	8-7-2002	0.10	ID	16	0.10	ID	16
	9-4-2002	0.06	ID	16	0.10	ID	16
122	8-7-2002	--	--	--	0.26	ID	8
	9-11-2002	--	--	--	0.32	ID	8
123	9-30-2002	--	--	--	0.18	ID	1
124	8-6-2002	--	--	--	0.31	ID	8
	9-10-2002	--	--	--	0.35	ID	8
125	8-14-2002	0.15	ID	2	--	--	--
	9-11-2002	0.30	ID	2	--	--	--

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Nitrogen, nitrite plus nitrate, dissolved, in mg/L as N			Nitrogen, nitrite, dissolved, in mg/L as N		
		Conc	Q%	N	Conc	Q%	N
103	8-5-2002	3.0	71.4	20	0.046	71.4	20
	9-5-2002	3.7	95.2	20	0.018	14.3	20
104	8-13-2002	9.7	96.8	30	0.344	85.7	27
	9-10-2002	5.4	90.3	30	0.219	82.1	27
105	8-15-2002	0.150	ID	17	<0.008	ID	10
	9-12-2002	0.140	ID	17	<0.008	ID	10
106	8-13-2002	5.3	76.0	24	**1.21**	96.0	24
	9-10-2002	4.8	64.0	24	0.638	72.0	24
107	8-5-2002	0.127	ID	8	--	--	--
	9-9-2002	0.098	ID	8	--	--	--
108	8-5-2002	0.034	[2]2.0–90.0	49	--	--	--
	9-9-2002	0.014	[2]2.0–90.0	49	--	--	--
109	8-5-2002	0.029	ID	8	--	--	--
	9-9-2002	0.014	ID	8	--	--	--
110	8-6-2002	0.094	ID	8	--	--	--
	9-10-2002	0.072	ID	8	--	--	--
111	8-8-2002	0.085	35.6	58	--	--	--
	9-11-2002	0.128	55.9	58	--	--	--
112	8-8-2002	1.11	52.4	20	--	--	--
	9-12-2002	3.7	95.2	20	--	--	--
113	8-23-2002	0.016	3.2	61	<0.008	[2]1.5–95.5	65
	9-12-2002	0.107	32.3	61	0.007	[2]1.5–95.5	65
114	8-23-2002	0.392	29.3	57	0.010	[1]11.9–19.4	66
	9-12-2002	0.636	48.3	57	0.032	52.2	66
115	8-6-2002	12.4	ID	17	0.146	ID	17
116	8-8-2002	6.0	82.9	40	0.212	93.1	28
	9-3-2002	7.4	95.1	40	0.288	96.6	28
117	8-2-2002	3.4	51.0	50	0.046	ID	17
	9-17-2002	3.8	56.9	50	0.024	55.6	17
118	9-19-2002	3.6	91.7	23	0.043	ID	12
119	8-6-2002	<0.013	[2]1.7–93.2	58	--	--	--
	9-10-2002	<0.013	[2]1.7–93.2	58	--	--	--
120	8-22-2002	1.03	ID	2	0.015	ID	2
	9-16-2002	0.650	ID	2	0.005	ID	2
121	8-7-2002	0.190	ID	16	<0.002	ID	16
	9-4-2002	0.133	ID	16	<0.002	ID	16
122	8-7-2002	0.091	ID	8	--	--	--
	9-11-2002	0.149	ID	8	--	--	--
123	9-30-2002	0.060	ID	1	<0.008	ID	1
124	8-6-2002	0.363	ID	8	--	--	--
	9-10-2002	0.546	ID	8	--	--	--
125	8-14-2002	0.880	ID	2	0.004	ID	2
	9-11-2002	0.990	ID	2	0.020	ID	2

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Phosphorus, dissolved, in mg/L as P			Phosphorus, total recoverable, in mg/L as P		
		Conc	Q%	N	Conc	Q%	N
103	8-5-2002	--	--	--	0.28	[1]57.1–71.4	20
	9-5-2002	--	--	--	0.22	[1]14.3–19.0	20
104	8-13-2002	1.56	96.4	27	1.6	90.3	30
	9-10-2002	0.86	85.7	27	1.12	87.1	30
105	8-15-2002	<0.06	ID	17	<0.06	ID	17
	9-12-2002	<0.06	ID	17	<0.06	ID	17
106	8-13-2002	2.2	76.0	24	2.2	73.9	22
	9-10-2002	1.11	36.0	24	1.47	34.8	22
107	8-5-2002	0.005	ID	8	0.008	ID	8
	9-9-2002	0.004	ID	8	0.011	ID	8
108	8-5-2002	0.007	[2]2.1–42.6	46	0.023	56.0	49
	9-9-2002	0.005	[2]2.1–42.6	46	0.024	58.0	49
109	8-5-2002	0.009	ID	8	0.021	ID	8
	9-9-2002	0.004	ID	8	0.020	ID	8
110	8-6-2002	0.009	ID	8	0.023	ID	8
	9-10-2002	0.008	ID	8	0.021	ID	8
111	8-8-2002	0.009	[2]1.6–46.0	62	0.077	ID	8
	9-11-2002	0.017	[2]1.6–46.0	62	0.037	ID	8
112	8-8-2002	0.184	ID	13	0.48	ID	6
	9-12-2002	0.46	ID	13	0.47	ID	6
113	8-23-2002	<0.06	[2]1.7–95.0	59	--	--	--
	9-12-2002	<0.06	[2]1.7–95.0	59	--	--	--
114	8-23-2002	0.11	[1]80.7–82.5	56	--	--	--
	9-12-2002	0.10	[1]77.2–78.9	56	--	--	--
115	8-6-2002	--	--	--	0.071	ID	17
116	8-8-2002	--	--	--	0.79	85.7	27
	9-3-2002	--	--	--	0.81	89.3	27
117	8-2-2002	0.049	6.7	44	0.130	ID	18
	9-17-2002	0.19	[1]42.2–46.7	44	0.28	ID	18
118	9-19-2002	--	--	--	0.024	17.9	27
119	8-6-2002	0.004	[2]1.9–57.4	53	0.015	[1]50.8–52.5	58
	9-10-2002	0.003	[2]1.9–57.4	53	0.015	[1]50.8–52.5	58
120	8-22-2002	0.04	ID	2	0.040	ID	2
	9-16-2002	<0.06	ID	2	0.040	ID	2
121	8-7-2002	<0.004	ID	16	0.007	ID	16
	9-4-2002	0.002	ID	16	0.006	ID	16
122	8-7-2002	0.03	ID	8	0.047	ID	8
	9-11-2002	0.061	ID	8	0.084	ID	8
123	9-30-2002	--	--	--	0.012	ID	1
124	8-6-2002	0.138	ID	8	0.167	ID	8
	9-10-2002	0.098	ID	8	0.130	ID	8
125	8-14-2002	<0.06	ID	2	<0.06	ID	2
	9-11-2002	<0.06	ID	2	0.030	ID	2

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Phosphorus, orthophosphate, dissolved, in mg/L as P			Carbon, organic, dissolved, in mg/L		
		Conc	Q%	N	Conc	Q%	N
103	8-5-2002	0.220	[1]57.1–61.9	20	4.6	ID	17
	9-5-2002	0.190	28.6	20	2.9	ID	17
104	8-13-2002	1.5	96.8	30	--	--	--
	9-10-2002	0.800	83.9	30	25	92.6	26
105	8-15-2002	<0.02	ID	10	--	--	--
	9-12-2002	<0.02	ID	10	1.4	ID	9
106	8-13-2002	2.0	80.0	24	--	--	--
	9-10-2002	1.0	[1]28.0–32.0	24	11.7	ID	10
107	8-5-2002	<0.007	ID	8	--	--	--
	9-9-2002	<0.007	ID	8	--	--	--
108	8-5-2002	<0.007	[2]4.8–81.0	20	--	--	--
	9-9-2002	<0.007	[2]4.8–81.0	20	--	--	--
109	8-5-2002	<0.007	ID	8	--	--	--
	9-9-2002	<0.007	ID	8	--	--	--
110	8-6-2002	<0.007	ID	8	--	--	--
	9-10-2002	<0.007	ID	8	--	--	--
111	8-8-2002	<0.007	[2]2.4–63.4	40	--	--	--
	9-11-2002	0.007	[2]2.4–63.4	40	--	--	--
112	8-8-2002	0.162	ID	11	--	--	--
	9-12-2002	0.414	ID	11	--	--	--
113	8-23-2002	<0.02	[2]2.6–87.2	38	--	--	--
	9-12-2002	<0.02	[2]2.6–87.2	38	--	--	--
114	8-23-2002	0.100	[1]88.9–91.7	35	--	--	--
	9-12-2002	0.080	83.3	35	--	--	--
115	8-6-2002	0.040	ID	17	5.3	ID	16
116	8-8-2002	0.540	88.6	34	6.9	96.4	27
	9-3-2002	0.550	91.4	34	4.3	[1]32.1–35.7	27
117	8-2-2002	0.037	8.3	23	--	--	--
	9-17-2002	0.189	58.3	23	4.3	ID	1
118	9-19-2002	<0.02	ID	16	3.9	ID	6
119	8-6-2002	<0.007	[2]3.1–81.3	31	--	--	--
	9-10-2002	<0.007	[2]3.1–81.3	31	--	--	--
120	8-22-2002	0.020	ID	2	2.7	ID	2
	9-16-2002	<0.02	ID	2	3.3	ID	2
121	8-7-2002	<0.007	ID	16	1.5	ID	10
	9-4-2002	<0.007	ID	16	1.5	ID	10
122	8-7-2002	0.020	ID	8	--	--	--
	9-11-2002	0.048	ID	8	--	--	--
123	9-30-2002	0.010	ID	1	2.7	ID	1
124	8-6-2002	0.125	ID	8	--	--	--
	9-10-2002	0.085	ID	8	--	--	--
125	8-14-2002	<0.02	ID	2	--	--	--
	9-11-2002	<0.02	ID	2	--	--	--

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Carbon, organic, total recoverable, in mg/L			Aluminum, dissolved, in µg/L	Arsenic, dissolved, in µg/L	Cadmium, dissolved, in µg/L
		Conc	Q%	N			
103	8-5-2002	1.2	ID	16	--	--	--
	9-5-2002	0.3	ID	16	--	--	--
104	8-13-2002	--	--	--	--	--	--
	9-10-2002	--	--	--	10	--	0.08
105	8-15-2002	--	--	--	20	--	0.21
	9-12-2002	--	--	--	20	--	0.28
106	8-13-2002	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--
107	8-5-2002	--	--	--	--	<0.2	--
	9-9-2002	--	--	--	--	0.1	--
108	8-5-2002	--	--	--	--	0.2	--
	9-9-2002	--	--	--	--	0.3	--
109	8-5-2002	--	--	--	--	0.3	--
	9-9-2002	--	--	--	--	0.3	--
110	8-6-2002	--	--	--	--	0.1	--
	9-10-2002	--	--	--	--	0.1	--
111	8-8-2002	--	--	--	--	0.6	--
	9-11-2002	--	--	--	--	0.6	--
112	8-8-2002	--	--	--	--	0.7	--
	9-12-2002	--	--	--	--	1.0	--
113	8-23-2002	--	--	--	--	--	--
	9-12-2002	--	--	--	3	1.0	<0.1
114	8-23-2002	--	--	--	--	--	--
	9-12-2002	--	--	--	1	<2	0.10
115	8-6-2002	0.4	ID	16	--	--	--
116	8-8-2002	4.0	88.9	26	--	--	--
	9-3-2002	1.2	25.9	26	--	--	--
117	8-2-2002	--	--	--	--	--	0.10
	9-17-2002	--	--	--	--	--	<0.1
118	9-19-2002	--	--	--	<20	--	0.03
119	8-6-2002	--	--	--	--	0.3	--
	9-10-2002	--	--	--	--	0.4	--
120	8-22-2002	--	--	--	<20	--	<0.04
	9-16-2002	--	--	--	<20	--	<0.04
121	8-7-2002	0.3	ID	9	--	--	--
	9-4-2002	0.2	ID	9	--	--	--
122	8-7-2002	--	--	--	--	0.2	--
	9-11-2002	--	--	--	--	0.3	--
123	9-30-2002	--	--	--	<20	--	<0.04
124	8-6-2002	--	--	--	--	0.2	--
	9-10-2002	--	--	--	--	0.3	--
125	8-14-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Copper, dissolved, in µg/L			Iron, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N
103	8-5-2002	--	--	--	<10	ID	19
	9-5-2002	--	--	--	8	ID	19
104	8-13-2002	--	--	--	35	70.4	26
	9-10-2002	4.4	ID	8	44	81.5	26
105	8-15-2002	4.3	ID	8	19	ID	18
	9-12-2002	4.1	ID	8	25	ID	18
106	8-13-2002	--	--	--	65	ID	18
	9-10-2002	--	--	--	41	ID	18
107	8-5-2002	0.6	ID	8	129	ID	8
	9-9-2002	0.6	ID	8	140	ID	8
108	8-5-2002	0.6	ID	18	86	67.4	45
	9-9-2002	0.5	ID	18	36	6.5	45
109	8-5-2002	0.6	ID	8	65	ID	8
	9-9-2002	0.5	ID	8	45	ID	8
110	8-6-2002	**1.9ac**	ID	8	64	ID	8
	9-10-2002	0.5	ID	8	83	ID	8
111	8-8-2002	1.1	[1]35.7–40.5	41	8	[2]3.6–14.3	27
	9-11-2002	2.2	83.3	41	26	53.6	27
112	8-8-2002	1.6	[2]4.8–47.6	20	6	ID	6
	9-12-2002	2.5	71.4	20	18	ID	6
113	8-23-2002	1.3	31.8	43	18	8.6	34
	9-12-2002	1.1	27.3	43	32	25.7	34
114	8-23-2002	1.8	[1]59.6–63.8	46	24	27.6	28
	9-12-2002	2.2	80.9	46	12	13.8	28
115	8-6-2002	--	--	--	<10	ID	16
116	8-8-2002	--	--	--	<10	[2]2.5–75.0	39
	9-3-2002	--	--	--	20	[1]77.5–80.0	39
117	8-2-2002	3.3	ID	16	<10	[2]2.0–64.0	49
	9-17-2002	3.5	ID	16	5	[2]2.0–64.0	49
118	9-19-2002	3.7	ID	15	<10	ID	18
119	8-6-2002	0.6	[2]2.4–95.2	41	36	65.5	57
	9-10-2002	0.5	[2]2.4–95.2	41	13	[1]1.7–3.4	57
120	8-22-2002	1.8	ID	2	28	ID	2
	9-16-2002	1.2	ID	2	21	ID	2
121	8-7-2002	--	--	--	68	ID	13
	9-4-2002	--	--	--	111	ID	13
122	8-7-2002	1.3	ID	7	53	ID	8
	9-11-2002	1.7	ID	7	40	ID	8
123	9-30-2002	1.3	ID	1	20	ID	1
124	8-6-2002	0.8	ID	8	44	ID	8
	9-10-2002	0.7	ID	8	26	ID	8
125	8-14-2002	--	--	--	<10	ID	2
	9-11-2002	--	--	--	<10	ID	2

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Iron, total recoverable, in µg/L			Lead, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N
103	8-5-2002	--	--	--	--	--	--
	9-5-2002	--	--	--	--	--	--
104	8-13-2002	--	--	--	--	--	--
	9-10-2002	--	--	--	0.25	ID	8
105	8-15-2002	--	--	--	0.23	ID	8
	9-12-2002	--	--	--	0.23	ID	8
106	8-13-2002	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--
107	8-5-2002	--	--	--	<0.08	ID	8
	9-9-2002	--	--	--	0.10	ID	8
108	8-5-2002	--	--	--	<0.08	ID	18
	9-9-2002	--	--	--	<0.08	ID	18
109	8-5-2002	--	--	--	<0.08	ID	8
	9-9-2002	--	--	--	<0.08	ID	8
110	8-6-2002	--	--	--	0.14	ID	8
	9-10-2002	--	--	--	0.07	ID	8
111	8-8-2002	--	--	--	0.10	ID	19
	9-11-2002	--	--	--	0.11	ID	19
112	8-8-2002	--	--	--	0.06	ID	11
	9-12-2002	--	--	--	0.11	ID	11
113	8-23-2002	200	[1]52.0–56.0	49	--	--	--
	9-12-2002	210	[1]58.0–62.0	49	<1	ID	14
114	8-23-2002	240	[1]15.4–21.2	51	--	--	--
	9-12-2002	250	[1]23.1–25.0	51	<1	ID	15
115	8-6-2002	--	--	--	--	--	--
116	8-8-2002	--	--	--	--	--	--
	9-3-2002	--	--	--	--	--	--
117	8-2-2002	--	--	--	0.06	ID	16
	9-17-2002	--	--	--	0.17	ID	16
118	9-19-2002	--	--	--	<0.08	ID	15
119	8-6-2002	--	--	--	0.04	[2]2.9–94.1	33
	9-10-2002	--	--	--	0.05	[2]2.9–94.1	33
120	8-22-2002	--	--	--	0.04	ID	2
	9-16-2002	--	--	--	0.05	ID	2
121	8-7-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
122	8-7-2002	--	--	--	0.07	ID	8
	9-11-2002	--	--	--	0.08	ID	8
123	9-30-2002	--	--	--	0.04	ID	1
124	8-6-2002	--	--	--	<0.08	ID	8
	9-10-2002	--	--	--	0.05	ID	8
125	8-14-2002	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Manganese, dissolved, in µg/L			Mercury, dissolved, in µg/L	Nickel, dissolved, in µg/L		
		Conc	Q%	N		Conc	Q%	N
103	8-5-2002	18.9	ID	19	--	--	--	--
	9-5-2002	13.7	ID	19	--	--	--	--
104	8-13-2002	--	--	--	--	--	--	--
	9-10-2002	46	50.0	25	--	--	--	--
105	8-15-2002	21	ID	18	--	--	--	--
	9-12-2002	36	ID	18	--	--	--	--
106	8-13-2002	--	--	--	--	--	--	--
	9-10-2002	--	--	--	--	--	--	--
107	8-5-2002	3.4	ID	8	<0.01	0.10	ID	8
	9-9-2002	6.8	ID	8	<0.01	0.21	ID	8
108	8-5-2002	2.0	[2]2.0–88.0	49	<0.01	0.16	ID	18
	9-9-2002	0.7	[2]2.0–88.0	49	<0.01	0.32	ID	18
109	8-5-2002	1.5	ID	8	<0.01	0.15	ID	8
	9-9-2002	1.7	ID	8	<0.01	0.31	ID	8
110	8-6-2002	3.4	ID	8	<0.01	0.11	ID	8
	9-10-2002	4.7	ID	8	<0.01	0.19	ID	8
111	8-8-2002	9.1	25.0	31	<0.01	0.77	ID	19
	9-11-2002	16.5	53.1	31	<0.01	1.68	ID	19
112	8-8-2002	19.6	ID	6	<0.01	1.11	ID	11
	9-12-2002	47	ID	6	<0.01	2.7	ID	11
113	8-23-2002	--	--	--	--	--	--	--
	9-12-2002	--	--	--	<0.01	1.2	ID	14
114	8-23-2002	--	--	--	--	--	--	15
	9-12-2002	--	--	--	<0.01	1.5	ID	15
115	8-6-2002	10.2	ID	16	--	--	--	--
116	8-8-2002	177	97.5	39	--	--	--	--
	9-3-2002	167	95.0	39	--	--	--	--
117	8-2-2002	40	98.0	49	--	4.2	ID	16
	9-17-2002	23	88.0	49	--	6.3	ID	16
118	9-19-2002	7.9	ID	18	--	--	--	--
119	8-6-2002	1.5	[2]1.6–98.4	61	<0.01	0.16	[2]2.9–97.1	34
	9-10-2002	0.8	[2]1.6–98.4	61	<0.01	0.31	[2]2.9–97.1	34
120	8-22-2002	**69**	ID	2	--	--	--	--
	9-16-2002	**63**	ID	2	--	--	--	--
121	8-7-2002	2.9	ID	13	--	--	--	--
	9-4-2002	4.0	ID	13	--	--	--	--
122	8-7-2002	3.0	ID	8	<0.01	0.16	ID	8
	9-11-2002	5.1	ID	8	<0.01	0.36	ID	8
123	9-30-2002	14.3	ID	1	--	--	--	--
124	8-6-2002	2.9	ID	8	<0.01	0.22	ID	8
	9-10-2002	2.9	ID	8	0.01	0.40	ID	8
125	8-14-2002	--	--	--	--	--	--	--
	9-11-2002	--	--	--	--	--	--	--

Table 17. Water-quality data for the South Platte River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 6	Sampling date	Silver, dissolved, in µg/L			Zinc, dissolved, in µg/L
		Conc	Q%	N	
103	8-5-2002	--	--	--	--
	9-5-2002	--	--	--	--
104	8-13-2002	--	--	--	--
	9-10-2002	<1	ID	5	18
105	8-15-2002	<1	ID	6	33
	9-12-2002	<1	ID	6	41
106	8-13-2002	--	--	--	--
	9-10-2002	--	--	--	--
107	8-5-2002	<1	ID	8	--
	9-9-2002	<1	ID	8	--
108	8-5-2002	<1	ID	18	--
	9-9-2002	<1	ID	18	--
109	8-5-2002	<1	ID	8	--
	9-9-2002	<1	ID	8	--
110	8-6-2002	<1	ID	8	--
	9-10-2002	<1	ID	8	--
111	8-8-2002	<1	[2]2.4–97.6	40	--
	9-11-2002	<1	[2]2.4–97.6	40	--
112	8-8-2002	<1	ID	16	--
	9-12-2002	<1	ID	16	--
113	8-23-2002	<0.1	[2]2.7–86.5	36	--
	9-12-2002	<0.1	[2]2.7–86.5	36	2
114	8-23-2002	<0.1	[2]2.5–95.0	39	--
	9-12-2002	<0.1	[2]2.5–95.0	39	3
115	8-6-2002	--	--	--	--
116	8-8-2002	--	--	--	--
	9-3-2002	--	--	--	--
117	8-2-2002	<1	ID	16	3
	9-17-2002	<1	ID	16	24
118	9-19-2002	<1	ID	18	4
119	8-6-2002	<1	[2]3.8–76.9	25	--
	9-10-2002	<1	[2]3.8–76.9	25	--
120	8-22-2002	<1	ID	2	15
	9-16-2002	<1	ID	2	4
121	8-7-2002	--	--	--	--
	9-4-2002	--	--	--	--
122	8-7-2002	<1	ID	8	--
	9-11-2002	<1	ID	8	--
123	9-30-2002	<1	ID	1	<1
124	8-6-2002	<1	ID	8	--
	9-10-2002	<1	ID	8	--
125	8-14-2002	--	--	--	--
	9-11-2002	--	--	--	--

[1] Possible percentile range because of uncensored ties in data.

[2] Possible percentile range because of censored or recensored ties in data.

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Sampling time	Discharge, in ft^3/s	Oxygen, dissolved, in mg/L		
				Conc	Q%	N
126	7-19-2002	1640	126	6.8	ID	8
	8-26-2002	1340	139	7.5	ID	8
127	7-31-2002	1215	171	8.4	ID	8
	8-26-2002	1000	175	8.3	ID	8
128	7-31-2002	1345	139	12.9	96.1	50
	8-26-2002	1115	150	9.4	70.6	50
129	7-31-2002	915	165	7.6	ID	16
	8-26-2002	1300	125	11.0	ID	16
130	7-22-2002	1505	298	10.2	93.3	29
	8-27-2002	1110	9.5	6.4	3.3	29
131	7-22-2002	1315	185	9.8	ID	15
	8-27-2002	1225	4.4	8.7	ID	15
132	8-21-2002	915	2.9	7.9	[1]29.7–47.3	73
133	8-21-2002	1100	2.8	8.0	[1]41.5–47.2	52
134	8-21-2002	1230	4.7	8.3	ID	11
135	8-20-2002	1230	6.6	7.6	[1]71.2–76.3	58
136	8-20-2002	1035	7.9	6.9	[1]23.9–26.1	87
137	8-20-2002	1630	66	7.1	[1]56.8–59.3	80
138	8-20-2002	1500	84	6.6	ID	19
139	8-19-2002	1020	73	7.1	ID	12
140	8-19-2002	1300	45	7.1	[1]61.3–64.5	30
141	7-24-2002	1130	276	7.5	75.8	32
	8-27-2002	1430	103	8.4	[1]87.9–90.9	32
142	7-23-2002	1100	23	8.4	ID	13
	8-28-2002	1415	5.7	8.9	ID	13
143	7-23-2002	1600	20	8.2	ID	2
	8-28-2002	1250	6.4	9.0	ID	2
144	7-23-2002	1245	28	8.2	ID	14
	9-4-2002	1515	12	7.3	ID	14
145	7-23-2002	1115	10	8.4	[1]72.4–75.9	28
	9-4-2002	1045	13	9.0	89.7	28
146	8-28-2002	1400	1.9	6.9	ID	3
147	9-4-2002	1225	0.21	5.8	ID	1
148	9-4-2002	0915	5.8	7.8	ID	4

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	pH, in standard units			Specific conductance, in µS/cm		
		Value	Q%	N	Value	Q%	N
126	7-19-2002	8.3	ID	9	129	65.2	45
	8-26-2002	7.4	ID	9	105	[1]39.1–41.3	45
127	7-31-2002	8.5	ID	9	244	48.0	24
	8-26-2002	8.2	ID	9	239	44.0	24
128	7-31-2002	8.7	[1]79.3–82.8	57	472	[1]81.1–82.4	73
	8-26-2002	8.5	[1]58.6–63.8	57	520	91.9	73
129	7-31-2002	8.2	ID	16	559	ID	16
	8-26-2002	8.6	ID	16	593	ID	16
130	7-22-2002	8.1	[1]36.4–51.5	32	606	95.1	40
	8-27-2002	8.1	[1]36.4–51.5	32	657	97.6	40
131	7-22-2002	8.7	ID	17	651	90.5	20
	8-27-2002	8.0	ID	17	1,780	95.2	20
132	8-21-2002	8.4	[1]84.6–-94.9	77	558	99.3	146
133	8-21-2002	8.3	[1]37.7–45.3	52	467	98.9	94
134	8-21-2002	8.6	ID	12	445	95.7	46
135	8-20-2002	8.4	[1]52.5–76.3	58	902	98.3	59
136	8-20-2002	8.2	[1]51.1–68.5	91	1,040	99.0	195
137	8-20-2002	7.9	[1]57.1–75.0	83	751	53.4	102
138	8-20-2002	8.4	[1]90.9–95.5	21	788	65.1	108
139	8-19-2002	8.2	ID	12	995	38.5	25
140	8-19-2002	8.4	[1]84.4–96.9	31	1,100	[1]56.7–57.9	170
141	7-24-2002	8.1	[1]34.3–48.6	34	912	89.1	63
	8-27-2002	8.2	[1]51.4–82.9	34	1,220	96.9	63
142	7-23-2002	8.4	ID	14	1,080	81.8	32
	8-28-2002	8.2	ID	14	1,900	97.0	32
143	7-23-2002	8.5	ID	2	2,170	ID	2
	8-28-2002	8.2	ID	2	2,360	ID	2
144	7-23-2002	8.2	ID	16	2,310	77.3	21
	9-4-2002	8.2	ID	16	2,460	86.4	21
145	7-23-2002	8.1	[1]23.3–50.0	29	3,320	[1]82.4–83.0	181
	9-4-2002	8.1	[1]23.3–50.0	29	3,300	[1]80.2–81.3	181
146	8-28-2002	8.7	ID	6	1,070	99.0	95
147	9-4-2002	8.0	ID	1	409	ID	1
148	9-4-2002	8.0	ID	5	3,680	88.9	80

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Temperature, water, in °C			Hardness, total, in mg/L as $CaCO_3$	Calcium, dissolved, in mg/L	Magnesium, dissolved, in mg/L
		Value	Q%	N			
126	7-19-2002	21.5	96.3	26	55	14.5	4.58
	8-26-2002	17.0	92.6	26	46	12.6	3.47
127	7-31-2002	22.5	ID	15	100	29.2	6.72
	8-26-2002	19.5	ID	15	95	27.6	6.33
128	7-31-2002	27.0	98.7	74	190	52.6	14.8
	8-26-2002	21.0	[1]57.3–60.0	74	200	55.7	15.5
129	7-31-2002	21.0	ID	16	--	--	--
	8-26-2002	24.0	ID	16	--	--	--
130	7-22-2002	19.0	[1]21.7–34.8	45	260	70.7	19.6
	8-27-2002	20.5	[1]63–71.7	45	--	--	--
131	7-22-2002	23.0	85.7	20	270	72.4	21.6
	8-27-2002	21.0	[1]38.1–47.6	20	--	--	--
132	8-21-2002	15.5	[1]69.7–73.5	154	200	59.1	12.7
133	8-21-2002	20.5	[1]58.8–61.9	96	110	29.4	9.47
134	8-21-2002	21.0	[1]53.1–59.2	48	150	47.8	8.23
135	8-20-2002	21.5	[1]36.1–39.3	60	330	95.1	21.4
136	8-20-2002	23.0	[1]72.2–77.1	204	370	104	27.7
137	8-20-2002	23.5	[1]86.9–90.7	106	190	45.7	18.9
138	8-20-2002	27.5	[1]90.8–95.4	108	190	48.3	17.9
139	8-19-2002	20.5	[1]34.6–38.5	25	280	72	24.6
140	8-19-2002	26.5	[1]71.7–76.1	158	330	85.3	27.5
141	7-24-2002	25.0	[1]91.3–92.8	68	330	80.5	31.9
	8-27-2002	24.5	[1]87.0–89.9	68	--	--	--
142	7-23-2002	24.5	ID	18	430	108	38.7
	8-28-2002	31.5	ID	18	--	--	--
143	7-23-2002	30.5	ID	2	810	192	79.2
	8-28-2002	26.0	ID	2	--	--	--
144	7-23-2002	29.5	89.7	77	960	250	82.8
	9-4-2002	32.0	94.9	77	--	--	--
145	7-23-2002	26.5	[1]73.4–73.9	183	1,300	325	125
	9-4-2002	22.5	[1]38.0–39.1	183	--	--	--
146	8-28-2002	23.5	[1]89.0–90.1	90	140	29.4	17.4
147	9-4-2002	22.5	27.3	32	170	51.9	9.93
148	9-4-2002	19.0	[1]16.5–20.3	78	1,400	320	156

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Potassium, dissolved, in mg/L	Sodium, dissolved, in mg/L	Acid-neutralizing capacity, in mg/L as $CaCO_3$	Chloride, dissolved, in mg/L		
					Conc	Q%	N
126	7-19-2002	0.76	3.2	42	--	--	--
	8-26-2002	0.68	2.5	34	--	--	--
127	7-31-2002	1.6	10.2	88	7.2	ID	1
	8-26-2002	1.6	9.4	84	--	--	--
128	7-31-2002	2.8	27	127	9.8	95.0	39
	8-26-2002	2.8	30	131	--	--	--
129	7-31-2002	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--
130	7-22-2002	3.0	30	--	10.2	ID	16
	8-27-2002	--	--	--	--	--	--
131	7-22-2002	3.0	35	--	11.8	ID	9
	8-27-2002	--	--	--	--	--	--
132	8-21-2002	--	--	--	--	--	--
133	8-21-2002	--	--	--	--	--	--
134	8-21-2002	--	--	--	--	--	--
135	8-20-2002	--	--	--	--	--	--
136	8-20-2002	--	--	--	--	--	--
137	8-20-2002	--	--	--	--	--	--
138	8-20-2002	--	--	--	--	--	--
139	8-19-2002	--	--	--	--	--	--
140	8-19-2002	--	--	--	--	--	--
141	7-24-2002	4.3	59	--	24	ID	10
	8-27-2002	--	--	--	--	--	--
142	7-23-2002	4.0	73	--	25	ID	7
	8-28-2002	--	--	--	--	--	--
143	7-23-2002	6.6	210	--	79	ID	1
	8-28-2002	--	--	--	--	--	--
144	7-23-2002	5.0	174	--	53	ID	2
	9-4-2002	--	--	--	--	--	--
145	7-23-2002	4.8	344	--	90	ID	7
	9-4-2002	--	--	--	--	--	--
146	8-28-2002	3.3	174	--	110	ID	4
147	9-4-2002	4.5	12.8	--	2.89	ID	1
148	9-4-2002	7.0	381	--	95	ID	2

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Fluoride, dissolved, in mg/L			Silica, dissolved, in mg/L as SiO_2	Sulfate dissolved, in mg/L as SO_4		
		Conc	Q%	N		Conc	Q%	N
126	7-19-2002	0.10	ID	4	--	19.2	ID	9
	8-26-2002	0.16	ID	4	--	15.9	ID	9
127	7-31-2002	0.45	ID	2	--	24.4	ID	2
	8-26-2002	0.43	ID	2	--	25.5	ID	2
128	7-31-2002	0.57	66.7	35	--	106	78.0	40
	8-26-2002	0.59	69.4	35	--	119	90.2	40
129	7-31-2002	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--
130	7-22-2002	0.58	ID	8	7.2	158	95.5	21
	8-27-2002	--	--	--	--	--	--	--
131	7-22-2002	0.60	ID	4	6.0	186	ID	13
	8-27-2002	--	--	--	--	--	--	--
132	8-21-2002	2.7	[1]58.8–76.5	33	--	22.2	98.2	54
133	8-21-2002	1.5	78.6	27	--	31.5	89.4	46
134	8-21-2002	0.94	ID	13	--	50	ID	10
135	8-20-2002	1.2	[1]25.0–50.0	27	--	240	98.0	50
136	8-20-2002	1.3	[1]25.0–35.0	39	--	300	96.9	64
137	8-20-2002	1.4	[1]10.5–18.4	37	--	160	[1]45.0–50.0	39
138	8-20-2002	1.3	ID	13	--	170	ID	12
139	8-19-2002	1.4	ID	8	--	270	ID	8
140	8-19-2002	1.7	ID	17	--	290	ID	17
141	7-24-2002	0.80	ID	6	8.1	293	ID	14
	8-27-2002	--	--	--	--	--	--	--
142	7-23-2002	1.0	ID	3	8.3	369	ID	11
	8-28-2002	--	--	--	--	--	--	--
143	7-23-2002	1.6	ID	1	9.5	929	ID	1
	8-28-2002	--	--	--	--	--	--	--
144	7-23-2002	1.2	ID	1	13	**1,080**	ID	6
	9-4-2002	--	--	--	--	--	--	--
145	7-23-2002	1.2	ID	3	17.9	**1,590**	ID	11
	9-4-2002	--	--	--	--	--	--	--
146	8-28-2002	0.70	ID	4	3.2	76.2	ID	4
147	9-4-2002	0.20	ID	1	8.0	105	ID	1
148	9-4-2002	1.1	ID	1	17.6	1,830	ID	2

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Solids, dissolved, residue on evaporation at 180°C, in mg/L	Nitrogen, ammonia, dissolved, in mg/L as N			Nitrogen, organic plus ammonia, dissolved, in mg/L as N
			Conc	Q%	N	
126	7-19-2002	--	<0.04	ID	2	--
	8-26-2002	--	<0.04	ID	2	--
127	7-31-2002	--	<0.04	ID	2	--
	8-26-2002	--	<0.04	ID	2	--
128	7-31-2002	--	<0.04	[2]3.7–59.3	26	--
	8-26-2002	--	<0.04	[2]3.7–59.3	26	--
129	7-31-2002	--	0.012	ID	7	0.22
	8-26-2002	--	0.011	ID	7	--
130	7-22-2002	395	0.05	ID	9	--
	8-27-2002	--	0.04	ID	9	0.21
131	7-22-2002	435	<0.04	ID	6	--
	8-27-2002	--	1.65	ID	6	--
132	8-21-2002	--	<0.015	[2]3.8–61.5	25	--
133	8-21-2002	--	0.009	[2]4.5–45.5	21	--
134	8-21-2002	--	<0.015	ID	12	--
135	8-20-2002	--	0.008	ID	19	--
136	8-20-2002	--	0.009	28.6	41	--
137	8-20-2002	--	0.039	7.7	38	--
138	8-20-2002	--	0.20	ID	17	--
139	8-19-2002	--	0.20	ID	7	--
140	8-19-2002	--	<0.015	ID	15	--
141	7-24-2002	639	<0.04	ID	6	--
	8-27-2002	--	0.07	ID	6	--
142	7-23-2002	775	<0.04	ID	6	--
	8-28-2002	--	<0.04	ID	6	--
143	7-23-2002	1,780	<0.04	ID	2	--
	8-28-2002	--	0.12	ID	2	--
144	7-23-2002	1,990	0.04	ID	6	--
	9-4-2002	--	0.04	ID	6	--
145	7-23-2002	2,970	0.05	ID	6	--
	9-4-2002	--	0.04	ID	6	--
146	8-28-2002	555	<0.015	ID	1	0.24
147	9-4-2002	261	0.17	ID	1	0.55
148	9-4-2002	3,210	0.06	ID	1	--

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Nitrogen, organic plus ammonia, total recoverable, in mg/L as N			Nitrogen, nitrite plus nitrate, in mg/L as N			Nitrogen, nitrite, dissolved, in mg/L as N
		Conc	Q%	N	Conc	Q%	N	
126	7-19-2002	0.13	ID	2	<0.05	ID	2	<0.008
	8-26-2002	0.13	ID	2	<0.05	ID	2	<0.008
127	7-31-2002	0.27	ID	2	<0.05	ID	2	<0.008
	8-26-2002	0.21	ID	2	<0.05	ID	2	<0.008
128	7-31-2002	0.49	56.3	31	0.05	[2]3.2–16.1	30	0.004
	8-26-2002	0.39	46.9	31	0.16	[1]41.9–51.6	30	0.005
129	7-31-2002	--	--	--	0.11	ID	12	0.004
	8-26-2002	--	--	--	0.30	ID	12	0.009
130	7-22-2002	0.23	ID	8	0.40	ID	10	0.007
	8-27-2002	0.28	ID	8	0.24	ID	10	0.003
131	7-22-2002	0.24	ID	2	0.49	ID	6	0.008
	8-27-2002	2.7	ID	2	1.06	ID	6	0.333
132	8-21-2002	--	--	--	0.51	[1]29.6–33.3	26	--
133	8-21-2002	--	--	--	<0.05	[2]4.8–23.8	20	--
134	8-21-2002	--	--	--	0.80	ID	13	--
135	8-20-2002	--	--	--	3.2	42.9	20	--
136	8-20-2002	--	--	--	3.2	95.3	42	--
137	8-20-2002	--	--	--	5.41	97.6	40	--
138	8-20-2002	--	--	--	3.13	ID	18	--
139	8-19-2002	--	--	--	4.16	ID	8	--
140	8-19-2002	--	--	--	2.28	ID	15	--
141	7-24-2002	0.71	ID	8	1.48	ID	6	0.024
	8-27-2002	0.79	ID	8	2.77	ID	6	0.095
142	7-23-2002	0.44	ID	2	1.20	ID	6	0.009
	8-28-2002	0.38	ID	2	2.11	ID	6	0.036
143	7-23-2002	2.0	ID	2	1.22	ID	2	0.014
	8-28-2002	1.2	ID	2	3.8	ID	2	0.041
144	7-23-2002	0.85	ID	2	2.6	ID	7	0.007
	9-4-2002	0.81	ID	2	3.1	ID	7	0.027
145	7-23-2002	0.39	ID	2	1.37	ID	6	0.017
	9-4-2002	0.39	ID	2	1.11	ID	6	0.019
146	8-28-2002	0.31	ID	2	<0.013	ID	4	<0.002
147	9-4-2002	0.95	ID	1	0.53	ID	1	0.054
148	9-4-2002	0.43	ID	1	1.24	ID	2	0.022

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Phosphorus, dissolved, in mg/L	Phosphorus, total recoverable, in mg/L as P			Phosphorus, orthophosphate, dissolved, in mg/L as P		
			Conc	Q%	N	Conc	Q%	N
126	7-19-2002	--	0.009	ID	2	<0.02	ID	2
	8-26-2002	--	0.007	ID	2	<0.02	ID	2
127	7-31-2002	--	0.033	ID	2	<0.02	ID	2
	8-26-2002	--	0.023	ID	2	<0.02	ID	2
128	7-31-2002	--	0.087	71.1	37	0.01	[1]12.5–25.0	23
	8-26-2002	--	0.142	84.2	37	0.07	95.8	23
129	7-31-2002	0.025	0.085	ID	4	0.015	ID	8
	8-26-2002	0.131	0.200	ID	4	0.12	ID	8
130	7-22-2002	--	0.022	ID	16	<0.02	ID	10
	8-27-2002	0.011	0.022	ID	16	<0.007	ID	10
131	7-22-2002	--	0.020	ID	10	<0.02	ID	6
	8-27-2002	--	0.23	ID	10	0.12	ID	6
132	8-21-2002	--	<0.06	[2]4.0–64.0	24	<0.02	[2]4.0–76.0	24
133	8-21-2002	--	2.2	ID	4	1.7	ID	19
134	8-21-2002	--	0.210	ID	11	0.16	ID	11
135	8-20-2002	--	0.070	ID	11	0.04	ID	19
136	8-20-2002	--	0.060	[1]12.1–18.2	32	0.03	[1]17.1–37.1	34
137	8-20-2002	--	1.3	58.3	23	1.2	78.8	32
138	8-20-2002	--	0.76	ID	15	0.66	ID	15
139	8-19-2002	--	0.80	ID	4	0.73	ID	4
140	8-19-2002	--	0.47	ID	10	0.22	ID	11
141	7-24-2002	--	0.33	ID	8	0.10	ID	6
	8-27-2002	--	0.31	ID	8	0.19	ID	6
142	7-23-2002	--	0.153	ID	8	0.03	ID	6
	8-28-2002	--	0.037	ID	8	<0.02	ID	6
143	7-23-2002	--	0.199	ID	2	<0.02	ID	2
	8-28-2002	--	0.076	ID	2	<0.02	ID	2
144	7-23-2002	--	0.119	ID	2	<0.02	ID	6
	9-4-2002	--	0.103	ID	2	<0.02	ID	6
145	7-23-2002	--	0.034	ID	8	<0.02	ID	6
	9-4-2002	--	0.029	ID	8	<0.02	ID	6
146	8-28-2002	0.012	0.035	ID	2	0.006	ID	4
147	9-4-2002	0.030	0.172	ID	1	0.017	ID	1
148	9-4-2002	--	0.024	ID	1	<0.02	ID	1

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Carbon, organic, dissolved, in mg/L	Carbon, organic, total recoverable, in mg/L	Bacteria, *E. coli*, in colonies per 100 mL	Bacteria, fecal coliform, in colonies per 100 mL		
					Conc	Q%	N
126	7-19-2002	--	--	4	<3	ID	2
	8-26-2002	--	--	2	2	ID	2
127	7-31-2002	--	--	3	2	ID	2
	8-26-2002	--	--	9	16	ID	2
128	7-31-2002	2.6	4.4	**290**	**230**	[1]51.9–55.6	26
	8-26-2002	2.5	3.3	54	100	[1]25.9–29.6	26
129	7-31-2002	2.9	--	--	--	--	--
	8-26-2002	2.7	--	--	--	--	--
130	7-22-2002	2.3	--	10	5	ID	12
	8-27-2002	2.5	--	4	11	ID	12
131	7-22-2002	--	--	**730**	**700**	ID	8
	8-27-2002	--	--	**1,800**	**5,500**	ID	8
132	8-21-2002	--	--	**930**	**600**	60.6	65
133	8-21-2002	--	--	**300**	**260**	91.3	45
134	8-21-2002	--	--	40	60	ID	12
135	8-20-2002	--	--	**200**	**420**	44.0	49
136	8-20-2002	--	--	**440**	**440**	[1]28.1–31.3	63
137	8-20-2002	--	--	**460**	**500**	38.9	53
138	8-20-2002	--	--	**3,900**	**4,200**	ID	9
139	8-19-2002	--	--	**430**	**660**	ID	4
140	8-19-2002	--	--	**520**	**940**	ID	14
141	7-24-2002	--	--	**270**	**380**	ID	14
	8-27-2002	--	--	**160**	**270**	ID	14
142	7-23-2002	--	--	**240**	**210**	ID	7
	8-28-2002	--	--	86	**280**	ID	7
143	7-23-2002	--	--	**2,500**	**3,300**	ID	2
	8-28-2002	--	--	**540**	**940**	ID	2
144	7-23-2002	--	--	**200**	120	ID	5
	9-4-2002	--	--	68	150	ID	5
145	7-23-2002	--	--	**140**	120	ID	11
	9-4-2002	--	--	**140**	**290**	ID	11
146	8-28-2002	--	3.8	75	77	ID	1
147	9-4-2002	6.4	8.6	**200**	110	ID	1
148	9-4-2002	--	--	100	110	ID	4

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Aluminum, dissolved, in µg/L	Aluminum, total recoverable, in µg/L	Arsenic, dissolved, in mg/L			Arsenic, total recoverable, in µg/L
				Conc	Q%	N	
126	7-19-2002	20	40	<2	ID	2	<2
	8-26-2002	20	50	<2	ID	2	<2
127	7-31-2002	<20	140	<2	ID	2	4
	8-26-2002	<20	70	<2	ID	2	<13
128	7-31-2002	<20	440	2	[1]89.7–93.1	28	1
	8-26-2002	<20	340	<2	[2]3.4–58.6	28	<13
129	7-31-2002	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--
130	7-22-2002	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--
131	7-22-2002	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--
132	8-21-2002	--	--	<0.6	ID	11	<0.8
133	8-21-2002	--	--	1.0	ID	5	2
134	8-21-2002	--	--	1.4	ID	13	1
135	8-20-2002	--	--	1.7	ID	5	2
136	8-20-2002	--	--	2.2	ID	17	2
137	8-20-2002	--	--	3.5	ID	9	3
138	8-20-2002	--	--	4.0	ID	13	4
139	8-19-2002	--	--	3.4	ID	8	4
140	8-19-2002	--	--	3.0	ID	9	4
141	7-24-2002	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--
142	7-23-2002	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--
143	7-23-2002	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--
144	7-23-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
145	7-23-2002	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--
146	8-28-2002	--	--	--	--	--	--
147	9-4-2002	--	--	--	--	--	--
148	9-4-2002	--	--	--	--	--	--

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Boron, dissolved, in µg/L	Boron, total recoverable, in µg/L	Cadmium, dissolved, in mg/L		
				Conc	Q%	N
126	7-19-2002	--	--	0.1	ID	9
	8-26-2002	<10	--	0.1	ID	9
127	7-31-2002	20	--	<0.1	ID	2
	8-26-2002	10	--	<0.1	ID	2
128	7-31-2002	50	--	<0.1	[2]3.1–90.6	31
	8-26-2002	50	--	<0.1	[2]3.1–90.6	31
129	7-31-2002	--	--	--	--	--
	8-26-2002	--	--	--	--	--
130	7-22-2002	--	--	--	--	--
	8-27-2002	--	--	--	--	--
131	7-22-2002	--	--	--	--	--
	8-27-2002	--	--	--	--	--
132	8-21-2002	80	70	--	--	--
133	8-21-2002	270	260	0.03	[2]3.3–93.3	29
134	8-21-2002	80	80	<0.1	ID	12
135	8-20-2002	90	80	<0.1	[2]3.3–96.7	29
136	8-20-2002	120	120	<0.1	[2]2.6–92.3	38
137	8-20-2002	230	220	--	--	--
138	8-20-2002	250	240	--	--	--
139	8-19-2002	240	240	--	--	--
140	8-19-2002	250	250	--	--	--
141	7-24-2002	--	--	--	--	--
	8-27-2002	--	--	--	--	--
142	7-23-2002	--	--	--	--	--
	8-28-2002	--	--	--	--	--
143	7-23-2002	--	--	--	--	--
	8-28-2002	--	--	--	--	--
144	7-23-2002	--	--	--	--	--
	9-4-2002	--	--	--	--	--
145	7-23-2002	--	--	--	--	--
	9-4-2002	--	--	--	--	--
146	8-28-2002	--	--	--	--	--
147	9-4-2002	--	--	--	--	--
148	9-4-2002	--	--	--	--	--

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Cadmium, total recoverable, in µg/L			Chromium, dissolved, in µg/L			Chromium, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
126	7-19-2002	0.1	ID	9	--	--	--	--	--	--
	8-26-2002	0.1	ID	9	--	--	--	--	--	--
127	7-31-2002	0.1	ID	2	--	--	--	--	--	--
	8-26-2002	<0.1	ID	2	--	--	--	--	--	--
128	7-31-2002	0.1	ID	19	--	--	--	--	--	--
	8-26-2002	0.1	ID	19	--	--	--	--	--	--
129	7-31-2002	--	--	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--	--	--
130	7-22-2002	--	--	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--	--	--
131	7-22-2002	--	--	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--	--	--
132	8-21-2002	<0.1	[2]1.8–91.1	55	--	--	--	1	[1]60.0–74.3	34
133	8-21-2002	<0.1	[2]2.1–89.6	47	<0.8	[2]2.1–95.7	46	<0.8	[2]3.4–86.2	28
134	8-21-2002	<0.1	ID	3	--	--	--	<1	ID	13
135	8-20-2002	<0.1	[2]2.0–93.9	48	--	--	--	2	[1]58.6–72.4	28
136	8-20-2002	--	--	--	--	--	--	2	[1]48.7–56.4	38
137	8-20-2002	<0.1	[2]2.6–97.4	37	--	--	--	1	[1]22.2–36.1	35
138	8-20-2002	<0.1	ID	1	--	--	--	2	ID	19
139	8-19-2002	--	--	--	--	--	--	3	ID	5
140	8-19-2002	--	--	--	--	--	--	4	ID	13
141	7-24-2002	--	--	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--	--	--
142	7-23-2002	--	--	--	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--	--	--	--
143	7-23-2002	--	--	--	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--	--	--	--
144	7-23-2002	--	--	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--	--	--
145	7-23-2002	--	--	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--	--	--
146	8-28-2002	--	--	--	--	--	--	--	--	--
147	9-4-2002	--	--	--	--	--	--	--	--	--
148	9-4-2002	--	--	--	--	--	--	--	--	--

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Copper, dissolved, in µg/L			Copper, total recoverable, in µg/L			Iron, dissolved, in µg/L		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
126	7-19-2002	1.1	ID	8	1.8	ID	8	51	ID	9
	8-26-2002	--	--	--	--	--	--	28	ID	9
127	7-31-2002	0.8	ID	1	1.7	ID	1	15	ID	2
	8-26-2002	--	--	--	--	--	--	13	ID	2
128	7-31-2002	1.1	26.1	22	2.7	ID	17	11	[1]4.9–7.3	40
	8-26-2002	--	--	--	--	--	--	9	2.4	40
129	7-31-2002	--	--	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--	--	--
130	7-22-2002	--	--	--	--	--	--	<10	ID	17
	8-27-2002	--	--	--	--	--	--	<10	ID	17
131	7-22-2002	--	--	--	--	--	--	<10	ID	13
	8-27-2002	--	--	--	--	--	--	25	ID	13
132	8-21-2002	--	--	--	--	--	--	10	[1]18.6–20.3	58
133	8-21-2002	1.4	46.4	27	2.4	62.8	42	44	23.9	45
134	8-21-2002	--	--	--	--	--	--	40	ID	13
135	8-20-2002	--	--	--	--	--	--	<10	[2]1.9–56.6	52
136	8-20-2002	--	--	--	--	--	--	<10	[2]1.5–45.5	65
137	8-20-2002	--	--	--	--	--	--	30	[1]38.1–47.6	41
138	8-20-2002	--	--	--	--	--	--	<10	ID	12
139	8-19-2002	--	--	--	--	--	--	<10	ID	8
140	8-19-2002	--	--	--	10	ID	16	<10	[2]4.8–71.4	20
141	7-24-2002	--	--	--	--	--	--	<10	ID	11
	8-27-2002	--	--	--	--	--	--	<10	ID	11
142	7-23-2002	--	--	--	--	--	--	<10	ID	11
	8-28-2002	--	--	--	--	--	--	<10	ID	11
143	7-23-2002	--	--	--	--	--	--	<30	ID	2
	8-28-2002	--	--	--	--	--	--	<30	ID	2
144	7-23-2002	--	--	--	--	--	--	<30	ID	5
	9-4-2002	--	--	--	--	--	--	<30	ID	5
145	7-23-2002	--	--	--	--	--	--	<30	ID	11
	9-4-2002	--	--	--	--	--	--	<30	ID	11
146	8-28-2002	--	--	--	--	--	--	<10	ID	4
147	9-4-2002	--	--	--	--	--	--	<10	ID	1
148	9-4-2002	--	--	--	--	--	--	<30	ID	1

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Iron, total recoverable, in µg/L			Lead, dissolved, in µg/L			Lead, total recoverable, in µg/L
		Conc	Q%	N	Conc	Q%	N	
126	7-19-2002	120	ID	9	<1	ID	9	2
	8-26-2002	110	ID	9	<1	ID	9	1
127	7-31-2002	190	ID	2	<1	ID	2	1
	8-26-2002	110	ID	2	<1	ID	2	--
128	7-31-2002	650	36.4	21	<1	[2]4.3–87	22	2
	8-26-2002	500	22.7	21	<1	[2]4.3–87	22	1
129	7-31-2002	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--
130	7-22-2002	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--
131	7-22-2002	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--
132	8-21-2002	90	1.5	64	<0.2	[2]2.9–91.2	33	--
133	8-21-2002	1,130	83.3	47	0.2	[2]3.4–82.8	28	--
134	8-21-2002	330	ID	13	<0.2	ID	8	--
135	8-20-2002	640	[1]8.8–10.5	56	<0.2	[2]3.4–93.1	28	--
136	8-20-2002	340	3.0	66	<0.2	[2]2.5–97.5	39	--
137	8-20-2002	150	2.3	42	--	--	--	--
138	8-20-2002	1,000	ID	11	--	--	--	--
139	8-19-2002	1,170	ID	5	--	--	--	--
140	8-19-2002	**3,840c**	ID	19	<0.2	ID	16	--
141	7-24-2002	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--
142	7-23-2002	--	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--	--
143	7-23-2002	--	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--	--
144	7-23-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
145	7-23-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
146	8-28-2002	--	--	--	--	--	--	--
147	9-4-2002	--	--	--	--	--	--	--
148	9-4-2002	--	--	--	--	--	--	--

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Manganese, dissolved, in µg/L			Manganese, total recoverable, in µg/L			Mercury, dissolved, in µg/L
		Conc	Q%	N	Conc	Q%	N	
126	7-19-2002	9.5	ID	9	20.4	ID	9	--
	8-26-2002	10.7	ID	9	22.6	ID	9	--
127	7-31-2002	7.7	ID	2	28.5	ID	2	--
	8-26-2002	7.7	ID	2	25.4	ID	2	--
128	7-31-2002	18.9	47.5	39	77	[1]40.9–45.5	21	--
	8-26-2002	29	80.0	39	77	[1]40.9–45.5	21	--
129	7-31-2002	33	ID	6	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--
130	7-22-2002	50	ID	16	--	--	--	--
	8-27-2002	**162c**	ID	16	--	--	--	--
131	7-22-2002	13.2	ID	14	--	--	--	--
	8-27-2002	**141c**	ID	14	--	--	--	--
132	8-21-2002	10	[1]5.3–10.5	56	10.0	1.5	64	<0.01
133	8-21-2002	**52c**	50.0	47	158	81.3	47	<0.01
134	8-21-2002	40	ID	10	60	ID	13	<0.01
135	8-20-2002	--	--	--	20.0	[1]7.0–12.3	56	<0.01
136	8-20-2002	20	[1]46.6–53.4	57	50	[1]6.0–7.5	66	<0.01
137	8-20-2002	40	19.0–31.0	41	40	[1]2.7–5.4	36	<0.01
138	8-20-2002	--	--	--	60	ID	12	<0.01
139	8-19-2002	--	--	--	60	ID	5	<0.01
140	8-19-2002	--	--	--	170	ID	19	<0.01
141	7-24-2002	7.4	ID	11	--	--	--	--
	8-27-2002	**71c**	ID	11	--	--	--	--
142	7-23-2002	12.8	ID	10	--	--	--	--
	8-28-2002	24	ID	10	--	--	--	--
143	7-23-2002	36	ID	2	--	--	--	--
	8-28-2002	**115c**	ID	2	--	--	--	--
144	7-23-2002	8.1	ID	6	--	--	--	--
	9-4-2002	15.4	ID	6	--	--	--	--
145	7-23-2002	43	ID	12	--	--	--	--
	9-4-2002	**133c**	ID	12	--	--	--	--
146	8-28-2002	8.2	ID	3	--	--	--	--
147	9-4-2002	66	ID	1	--	--	--	--
148	9-4-2002	643	ID	1	--	--	--	--

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Mercury, total recoverable, in µg/L			Nickel, dissolved, in µg/L			Nickel, total recoverable, in µg/L		
		Conc	Q%	N	Conc	Q%	N	Conc	Q%	N
126	7-19-2002	--	--	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--	--	--
127	7-31-2002	--	--	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--	--	--
128	7-31-2002	--	--	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--	--	--
129	7-31-2002	--	--	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--	--	--
130	7-22-2002	--	--	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--	--	--
131	7-22-2002	--	--	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--	--	--
132	8-21-2002	<0.01	ID	16	--	--	--	--	--	--
133	8-21-2002	0.01	ID	4	2.7	79.3	28	3.9	89.3	27
134	8-21-2002	0.01	ID	12	--	--	--	--	--	--
135	8-20-2002	<0.01	ID	10	--	--	--	--	--	--
136	8-20-2002	<0.01	[2]4.8–90.5	20	--	--	--	--	--	--
137	8-20-2002	<0.01	ID	12	--	--	--	--	--	--
138	8-20-2002	0.01	ID	9	--	--	--	--	--	--
139	8-19-2002	0.01	ID	3	--	--	--	--	--	--
140	8-19-2002	0.01	ID	9	--	--	--	--	--	--
141	7-24-2002	--	--	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--	--	--
142	7-23-2002	--	--	--	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--	--	--	--
143	7-23-2002	--	--	--	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--	--	--	--
144	7-23-2002	--	--	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--	--	--
145	7-23-2002	--	--	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--	--	--
146	8-28-2002	--	--	--	--	--	--	--	--	--
147	9-4-2002	--	--	--	--	--	--	--	--	--
148	9-4-2002	--	--	--	--	--	--	--	--	--

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Selenium, dissolved, in µg/L			Selenium, total recoverable, in µg/L	Silver, dissolved, in µg/L		
		Conc	Q%	N		Conc	Q%	N
126	7-19-2002	--	--	--	--	**0.1c**	ID	2
	8-26-2002	--	--	--	--	<0.1	ID	2
127	7-31-2002	--	--	--	--	<0.1	ID	2
	8-26-2002	--	--	--	--	<0.1	ID	2
128	7-31-2002	--	--	--	--	<0.2	[2]3.4–93.1	28
	8-26-2002	--	--	--	--	<0.1	[2]3.4–93.1	28
129	7-31-2002	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--
130	7-22-2002	4	ID	13	5	--	--	--
	8-27-2002	4	ID	13	5	--	--	--
131	7-22-2002	8	ID	13	9	--	--	--
	8-27-2002	**28ac**	ID	13	32	--	--	--
132	8-21-2002	2	ID	8	1	<0.04	ID	11
133	8-21-2002	<2	ID	4	<2	<1	ID	5
134	8-21-2002	2	ID	8	2	<0.04	ID	13
135	8-20-2002	**15c**	ID	5	13	<0.04	ID	5
136	8-20-2002	**14c**	96.3	26	13	<0.04	ID	17
137	8-20-2002	6	[1]66.7–79.2	23	5	<0.04	ID	9
138	8-20-2002	--	--	--	--	<0.04	ID	13
139	8-19-2002	6	ID	8	6	<0.04	ID	8
140	8-19-2002	7	ID	12	7	<0.04	ID	9
141	7-24-2002	11	ID	10	10	--	--	--
	8-27-2002	15	ID	10	18	--	--	--
142	7-23-2002	9	ID	12	10	--	--	--
	8-28-2002	13	ID	12	14	--	--	--
143	7-23-2002	7	ID	2	7	--	--	--
	8-28-2002	9	ID	2	9	--	--	--
144	7-23-2002	13	ID	7	13	--	--	--
	9-4-2002	9	ID	7	11	--	--	--
145	7-23-2002	12	ID	12	11	--	--	--
	9-4-2002	10	ID	12	7	--	--	--
146	8-28-2002	<2	ID	2	<2	--	--	--
147	9-4-2002	1	ID	1	<2	--	--	--
148	9-4-2002	5	ID	2	7	--	--	--

Table 18. Water-quality data for the Arkansas River Basin showing 2002 drought values, Colorado water-quality exceedances, and percentiles relative to historical data for selected properties and constituents from July through September, 1978–2002.—Continued

[ft^3/s, cubic feet per second; Conc, concentration; Q%, percentile (percentage of data less than or equal to reported value or concentration) of drought-sample constituent; N, total number of historical and drought samples; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; *E. coli, Escherichia coli*; mL, milliliter; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; SiO_2, silica; SO_4, sulfate; ID, insufficient number of samples (less than 20) to calculate percentile; <, less than; --, no drought-sample measurement; values or concentrations in bold type indicate 2002 Colorado water-quality exceedances; c, chronic water-quality exceedance; ac, acute and chronic water-quality exceedance]

Site number in table 1 and fig. 7	Sampling date	Silver, total recoverable, in µg/L	Zinc, dissolved, in µg/L			Zinc, total recoverable, in µg/L		
			Conc	Q%	N	Conc	Q%	N
126	7-19-2002	<0.3	<24	ID	9	40	ID	8
	8-26-2002	<0.3	<24	ID	9	20	ID	8
127	7-31-2002	<0.3	<24	ID	2	--	--	--
	8-26-2002	<0.3	<24	ID	2	<20	ID	1
128	7-31-2002	<0.3	<24	[2]3.1–78.1	31	--	--	--
	8-26-2002	<0.3	<24	[2]3.1–78.1	31	<20	[2]4.8–14.3	20
129	7-31-2002	--	--	--	--	--	--	--
	8-26-2002	--	--	--	--	--	--	--
130	7-22-2002	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--
131	7-22-2002	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--
132	8-21-2002	<0.04	<6	[2]2.9–55.9	33	<9	[2]1.6–22.6	61
133	8-21-2002	<0.3	12	71.4	27	20	[2]70.2–83	46
134	8-21-2002	<0.04	<6	ID	8	<9	ID	11
135	8-20-2002	<0.04	<6	[2]3.4–96.6	28	<9	[2]1.8–21.4	55
136	8-20-2002	<0.04	10	[1]81.1–86.5	36	20	[1]18.2–31.8	65
137	8-20-2002	0.04	40	82.5	39	40	[1]27.9–41.9	42
138	8-20-2002	0.09	30	ID	10	40	ID	13
139	8-19-2002	0.06	20	ID	6	30	ID	5
140	8-19-2002	0.07	--	--	--	30	ID	19
141	7-24-2002	--	--	--	--	--	--	--
	8-27-2002	--	--	--	--	--	--	--
142	7-23-2002	--	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--	--
143	7-23-2002	--	--	--	--	--	--	--
	8-28-2002	--	--	--	--	--	--	--
144	7-23-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
145	7-23-2002	--	--	--	--	--	--	--
	9-4-2002	--	--	--	--	--	--	--
146	8-28-2002	--	--	--	--	--	--	--
147	9-4-2002	--	--	--	--	--	--	--
148	9-4-2002	--	--	--	--	--	--	--

[1] Possible percentile range because of uncensored ties in data.

[2] Possible percentile range because of censored or recensored ties in data.