# TECHNIQUES TO ESTIMATE GENERALIZED SKEW COEFFICIENTS OF ANNUAL PEAK STREAMFLOW FOR NATURAL BASINS IN TEXAS

U.S. GEOLOGICAL SURVEY
Water-Resources Investigations Report 96–4117

*Prepared in cooperation with the*
TEXAS DEPARTMENT OF TRANSPORTATION

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**By Linda J. Judd, William H. Asquith and Raymond M. Slade, Jr.**

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**BRUCE BABBITT, Secretary**

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# CONTENTS



## FIGURES



## TABLES

# Techniques to Estimate Generalized Skew Coefficients of Annual Peak Streamflow for Natural Basins in Texas

*By* Linda J. Judd, William H. Asquith, *and* Raymond M. Slade, Jr.

## Abstract

This report presents two techniques to estimate generalized skew coefficients used for log-Pearson Type III peak-streamflow frequency analysis of natural basins in Texas. A natural basin has less than 10 percent impervious cover, and less than 10 percent of its drainage area is controlled by reservoirs. The estimation of generalized skew coefficients is based on annual peak and historical peak streamflow for all U.S. Geological Survey streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas. Station skew coefficients calculated for each of 255 Texas stations were used to estimate generalized skew coefficients for Texas.

One technique to estimate generalized skew coefficients involved the use of regression equations developed for each of eight regions in Texas, and the other involved development of a statewide map of generalized skew coefficients. The weighted mean of the weighted mean standard errors of the regression equations for the eight regions is 0.36 $\log_{10}$ skew units, and the weighted mean standard error of the map is 0.35 $\log_{10}$ skew units. The technique based on the map is preferred for estimating generalized skew coefficients because of its smooth transition from one region of the State to another.

## INTRODUCTION

Reliable peak-streamflow frequency information is needed for floodplain management, objective assessment of flood risk, and cost-effective design of dams, levees, other flood-control structures, and roads, bridges, and culverts. In 1991, the U.S. Geological Survey (USGS), in cooperation with the Texas Department of Transportation, began a 5-year investigation of floods in Texas. This report presents the results of an investigation of generalized skew coefficients, which are a vital element of peak-streamflow frequency analysis.

The climate and physiography of Texas vary considerably across the State. Accordingly, climatic and physiographic factors typically cause peak streamflows at a site to be nonuniformly distributed and range by as much as five orders of magnitude. The nonuniformity and extreme range cause difficulty in determining reliable computations of peak-streamflow frequency. Estimates of peak streamflow computed from peak-streamflow frequency analyses are very sensitive to generalized skew coefficients. Therefore, reliable estimation of generalized skew coefficients is an important factor for computations of peak-streamflow frequency.

The climatic variability in Texas contributes substantially to the nonuniformity and extreme range in peak streamflow at sites. Many near world-record precipitation events have occurred in Texas. For example, in east-central Texas during September 9–10, 1921, an unofficial total of 38.2 inches of rain fell in 24 hours; and a 1935 storm in south-central Texas produced 22 inches of rain in 2 hours, 45 minutes. Destructive floods occur somewhere in the State nearly every year. Recently, catastrophic flooding occurred in October 1994 in southeastern Texas and in December 1991 in north-central Texas. Long-term droughts that frequently cause periods of no flow or extreme low flow also can occur throughout the State. At least one drought has occurred in some part of Texas in every decade of the 20th century.

The physiography of Texas also contributes to the extreme range in peak streamflow at sites. Much of the western one-half of the State contains alluvial basins where large evapotranspiration rates can cause substantial reduction of the smaller (more frequent) peak streamflows; thus, the range in peak streamflow at many stations can be large. In contrast, many streams in the eastern one-half of the State gain flow from shallow water tables. Additionally, the range in peak streamflow at stations on streams in central Texas can be large because of substantial peak-streamflow losses into fractured limestones during droughts; and because of extraordinarily large streamflows resulting from periods of abundant precipitation in conjunction with runoff from thin soils and steep slopes of the surrounding terrain.

The Interagency Advisory Committee on Water Data (1982) provides a standard procedure for peak-streamflow frequency analysis and a standard frequency distribution—the log-Pearson Type III (LPIII) distribution. The skew coefficient of peak streamflow determines the shape of the LPIII distribution for a station. A skew coefficient of zero results in a normal distribution or linear plot on log-probability paper. Peak streamflow from a frequency analysis associated with small exceedance probabilities (less than 0.10) will be larger for positively skewed distributions and smaller for negatively skewed distributions when compared to a normal distribution (Oberg and Mades, 1987).

Station skew coefficients (station skews) computed for stations having short periods of record generally tend to be less reliable than coefficients for stations having longer periods of record. Therefore, the Interagency Advisory Committee on Water Data (IACWD) recommends using a weighted skew coefficient (weighted skew) in peak-streamflow analyses. This weighted skew is calculated by weighting the station skew for a particular station with a generalized skew representative of the surrounding area or the site. The weighted skew is based on the inverse of the respective square of the mean standard errors for the two coefficients. More discussion of the weighted skew used by the IACWD and its effects on peak-streamflow frequency computations is documented in Interagency Advisory Committee on Water Data (1982) and Slade and Asquith (1996).

This investigation was done in cooperation with the Texas Department of Transportation to develop techniques to estimate generalized skew coefficients (generalized skews) used for LPIII peak-streamflow frequency analysis of natural basins in Texas. A "natural" basin has less than 10-percent impervious cover and less than 10-percent drainage area controlled by reservoirs. The estimation of generalized skews is based on annual peak and historical peak streamflow for all USGS stations in Texas with at least 20 years of annual peak-streamflow record from natural basins.

## Purpose and Scope

The purpose of this report is to present two techniques for estimating generalized skew coefficients of annual peak streamflow for streamflow-gaging stations in Texas. The two techniques are based on analysis of skew coefficients from long-term USGS streamflow-gaging stations with natural basins in Texas. Long-term stations are defined as those having at least 20 years of annual peak-streamflow data; data through 1993 was used if available. Two-hundred sixty-two stations in Texas meet the above criteria. Seven stations, those located on the Rio Grande, were eliminated from the investigation because most of the drainage area for the Rio Grande originates from outside the State. Therefore, 255 stations were used in the investigation. A site number (unique to this report), USGS station number, USGS station name, and other pertinent information for each station are listed in table 1 (at end of report).

## Previous Investigations

In 1976, the U.S. Water Resources Council (WRC) published guidelines for analysis of peak-streamflow frequency in which they recommended using generalized skews for peak-streamflow frequency analyses. The map of generalized skews developed for Texas by the WRC is shown on figure 1. Generalized skews for each of the 255 stations, from the WRC guidelines (fig. 1), are listed in table 2 (at end of report). The mean standard error of estimation (mean standard error) for the generalized skews is 0.55 $\log_{10}$ skew units. The guidelines were later revised by the Interagency Advisory Committee on Water Data (1982). However, generalized skews and the mean standard error developed by the WRC were not changed in the 1982 report.

In 1978, an investigation was done to develop generalized skews for the area within the Southwestern Division of the U.S. Army Corps of Engineers (Beard and Chang, 1978). That area includes the tributary areas of all rivers that drain into the Gulf of Mexico, from the Arkansas-Red-White River system to the Rio Grande. The mean standard error for the generalized skews from the Beard and Chang investigation is 0.41 $\log_{10}$ skew units.

## Station Skew Coefficients

The USGS computer program PEAKFQ (Slade and Asquith, 1996) was used to calculate a station skew

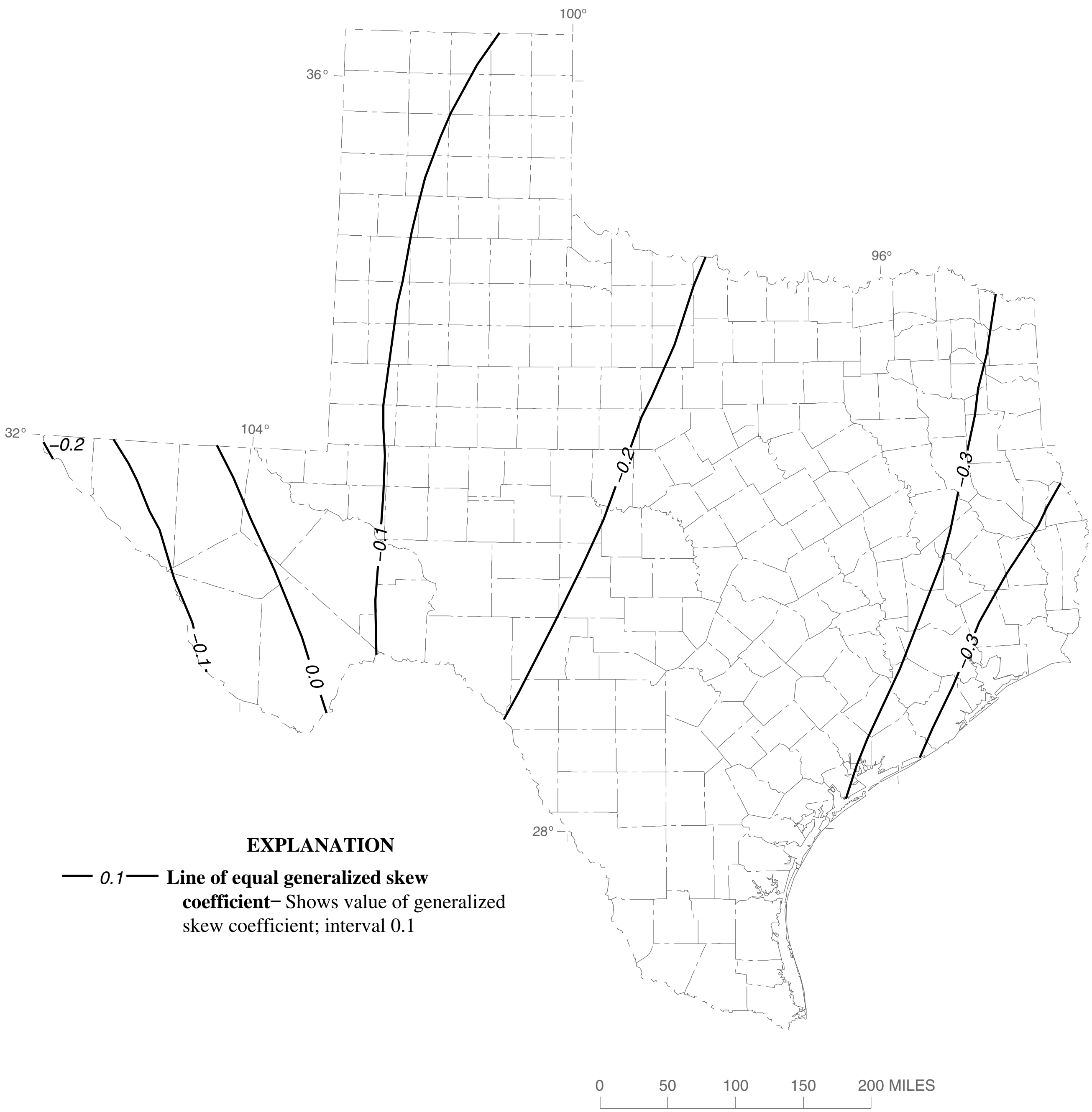


**Figure 1.** Generalized skew coefficients developed for Texas by the U.S. Water Resources Council (modified from U.S. Water Resources Council, 1976).

for each of the 255 stations included in this investigation (table 2). This computer program, which utilizes the LPIII distribution, follows the guidelines established by the Interagency Advisory Committee on Water Data (1982). To compute station skews, the annual and historical peak-streamflow records for each station were used, along with an appropriate value for the low-outlier threshold (Asquith and others, 1995). Generalized and weighted skews were not used for computing station skews. The basins for some stations became regulated during their period of record—the data for the regulated period were excluded from this investigation. A historical peak streamflow is the highest peak streamflow since a known date preceding the installation of the station. Historical peak streamflow can occur before or after installation of the station.

A bias-correction factor was not used to determine station skews in this investigation. Tasker and Stedinger (1986) discuss the use of a bias-correction factor for station skews. This bias exists because station skews are estimated from a limited number of annual peak streamflows; however, the effect of the bias-correction factor on skew coefficients decreases with increasing years of record for a station. Because of the relatively long period of record for the current investigation (at least 20 years), inclusion of historical record, and careful selection of low-outlier thresholds for the stations included in the analysis, no bias-correction factor was used.

Although correction for bias was not used, weighting for record length was applied to the analysis because the number of years of data (systematic and historical record) varied greatly between stations. The systematic record ranges from 20 to 77 years for the stations; additionally, historical record is available for many stations and ranges from 21 to 150 years. Because of the potential error in calculating station skews for short record stations, a weight factor was calculated for each station (Gary Tasker, U.S. Geological Survey, written commun., 1994) based on Monte Carlo simulations (Tasker and Thomas, 1978; Stedinger and Cohn, 1986). This weight factor is based on the lengths of systematic and historical record and the number of historical peak streamflows (table 1). These weight factors were used in analysis of techniques to estimate generalized skew coefficients. The station skew coefficients range from -1.121 to 1.265 (table 2). The weighted mean of the skew coefficients is 0 $\log_{10}$ skew units with a weighted standard deviation of 0.39 $\log_{10}$ skew units.

## TECHNIQUES TO ESTIMATE GENERALIZED SKEW COEFFICIENTS

Two techniques were investigated to estimate generalized skew coefficients. One involved the use of regression equations developed for sites within each of eight hydrologic regions in Texas and the other involved development of a statewide map of generalized skews. The station skews (table 2) computed for the 255 stations were used as the basis for each technique.

### Regression Equations

An equation to estimate generalized skews (regression equation) from station skews and selected basin characteristics was developed for each of eight regions in Texas. These regions were determined on the basis of 11 hydrologically distinct regions (fig. 2) identified by Asquith and Slade (1995a). To provide an adequate number of stations needed in the calculation of the regression equations, six regions (1 and 2; 5 and 8; 6 and 9) were merged to form three regions. These regions were determined with consideration of the regions presented by Carr (1967), Kier and others (1977), and Schroeder and Massey (1977). The regional boundaries also are based on the following: areal density of the station locations, drainage-basin boundaries for the larger basins, and climatic patterns (precipitation and evaporation).

The regression equations are based on weighted multiple linear-regression techniques considering the following various combinations of several selected basin characteristics as independent variables: contributing drainage area for the basins, slope of the main channel, length of the main channel, and basin shape factor (ratio of the square of the main channel length to the contributing drainage area). Values for contributing drainage areas provided the largest correlation coefficient to the dependent variable (station skew coefficients in table 2) for most of the eight regions. Additionally, logarithmic transformations of the dependent and independent variables were attempted in the development of the equations. For most regions, the equations providing the smallest weighted mean standard error involved using the non-transformed values for

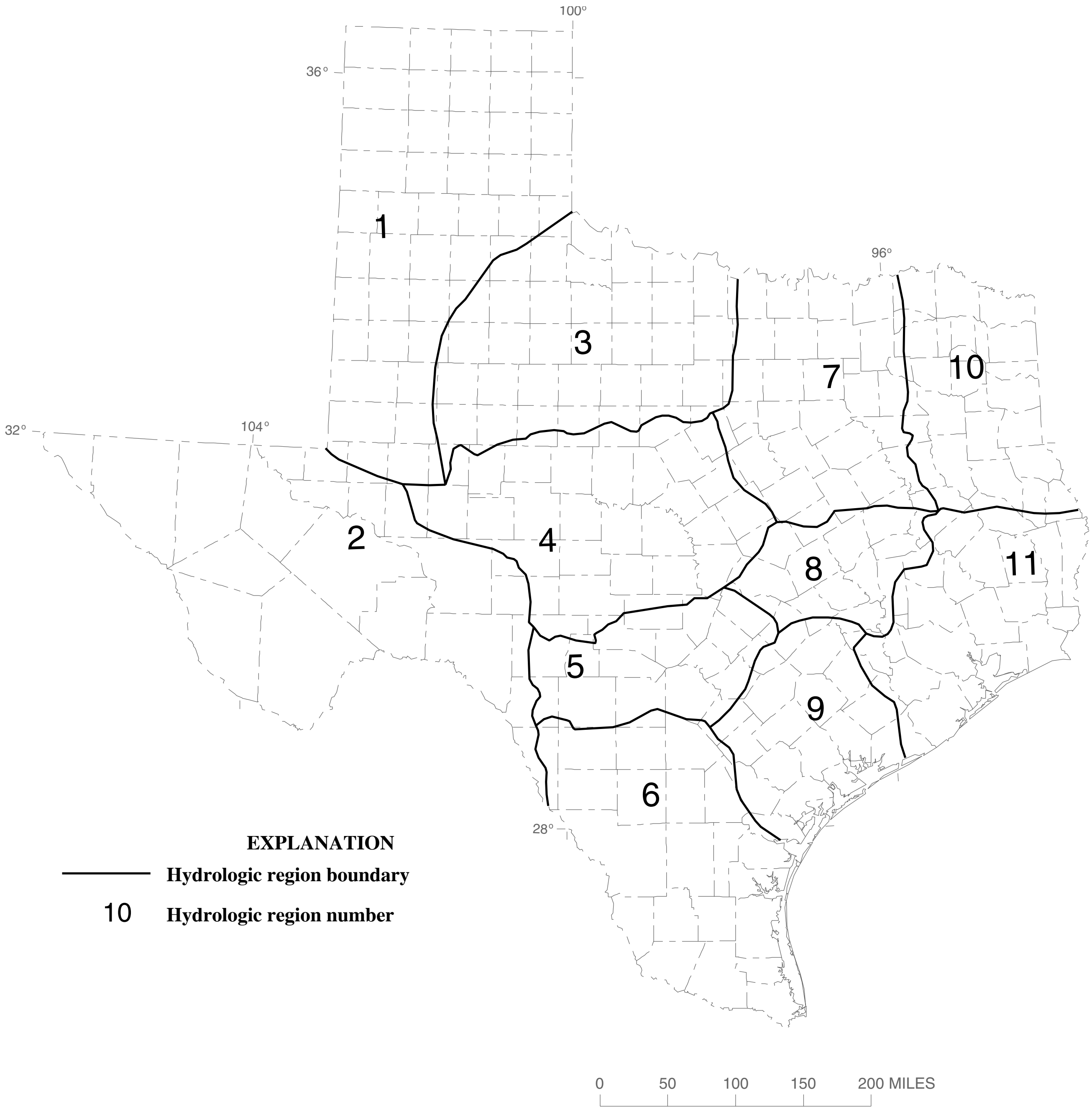


**Figure 2.** Hydrologic regions for Texas (from Asquith and Slade, 1995a).

**Table 3.** Characteristics of regression equations to estimate generalized skew coefficients

| Hydrologic region no. (fig. 2) | Regression equation | | Weighted mean standard error ($\log_{10}$ skew units) | Coefficient of determination ($r^2$) |
|---|---|---|---|---|
| | Multiplication factor for contributing drainage area | y intercept | | |
| 1 and 2 | +0.00000644 | -0.0540 | 0.40 | 0.026 |
| 3 | -.0000133 | +.164 | .38 | .019 |
| 4 | +.0000409 | -.166 | .27 | .268 |
| 5 and 8 | +.0000404 | -.287 | .31 | .314 |
| 6 and 9 | +.0000150 | -.0171 | .32 | .049 |
| 7 | +.0000183 | -.0260 | .40 | .045 |
| 10 | -.0000217 | +.0588 | .34 | .065 |
| 11 | -.0000133 | +.190 | .38 | .050 |

each variable. The generalized skew equation for estimation is:

$$\text{GEN SKEW} = m(\text{CDA}) + b, \quad (1)$$

where

GEN SKEW = estimated generalized skew coefficient,
m = multiplication factor for contributing drainage area, per square mile (table 3),
CDA = contributing drainage area for the site, in square miles, and
b = y intercept, dimensionless (table 3).

The characteristics of the regression equation for each of the eight regions are listed in table 3—the equations presented represent those for non-transformed values of the variables. The contributing drainage area represents the only independent variable in the equation. The weighted mean (weighting on record length) coefficient of determination ($r^2$) for the equations is 0.10, meaning that about 10 percent of the variance in the values for the dependent variable is explained by the independent variable. The weighted mean (weighting on record length) of the weighted mean standard errors of the eight regression equations is 0.36 $\log_{10}$ skew units. This weighted mean is not equal to the mean of the error for each equation ([0.4 + 0.38 + 0.27 + 0.31 + 0.32 + 0.40 + 0.34 + 0.38]/8) because the weighted mean (0.36) is weighted on the basis of the weight factor for each station (table 1).

## Generalized Skew Coefficient Map

The station skew coefficients computed for this investigation were plotted on a map of the State; the spatial distribution of these skews indicates a degree of areal continuity. The values for the station skews were then contoured as explained below, and the results are shown on figure 3. The contours represent generalized skews for Texas. A generalized skew then was determined for each station from the contoured values (table 2). Figure 4 shows the locations and site numbers of the 255 stations used in development of the generalized skew map.

To facilitate contouring of the station skews, a uniform grid of generalized skews was created from the station skews using the geostatistical method of kriging (Davis, 1986) provided by the STATPAC computer software compiled by Grundy and Miesch (1987). A thorough discussion of the kriging method is in Davis (1986) and Deutsch and Journel (1992).

Weighted-ordinary kriging procedures were used to compile the map to estimate generalized skews for Texas (generalized skew map) shown on figure 3. A weighted-ordinary kriging method gives more weight to the coefficients for stations having longer periods of record. Kriging-error factors (table 1) were developed by standardizing values for the weight factors from equations from G.D. Tasker (U.S. Geological Survey, written commun., 1994). Kriging-error factors were used in the kriging subroutines of the STATPAC software.

To determine the best fitting form of the semivariogram, several varieties of semivariogram functions

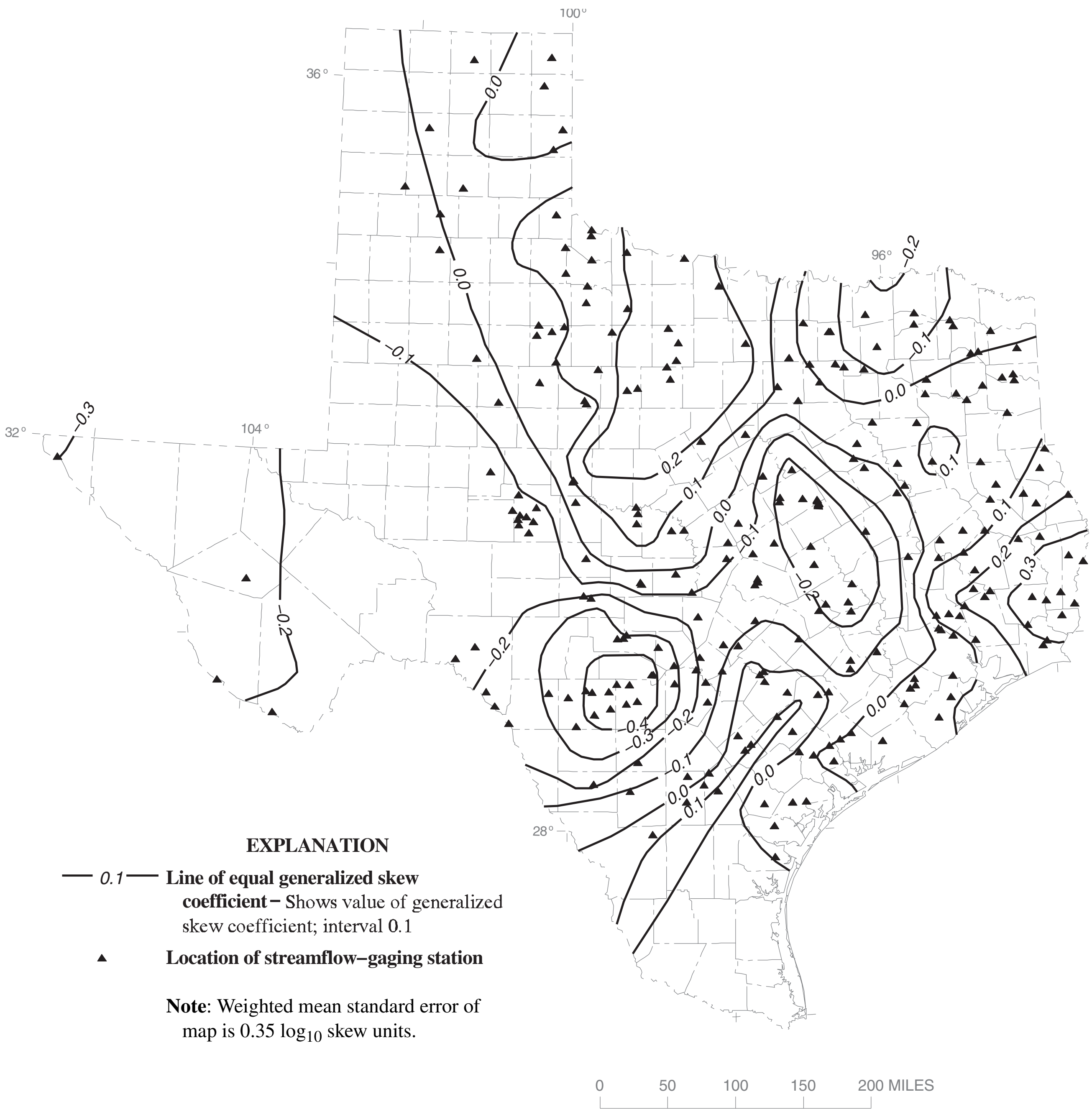


**Figure 3.** Generalized skew coefficients developed for Texas during this investigation.

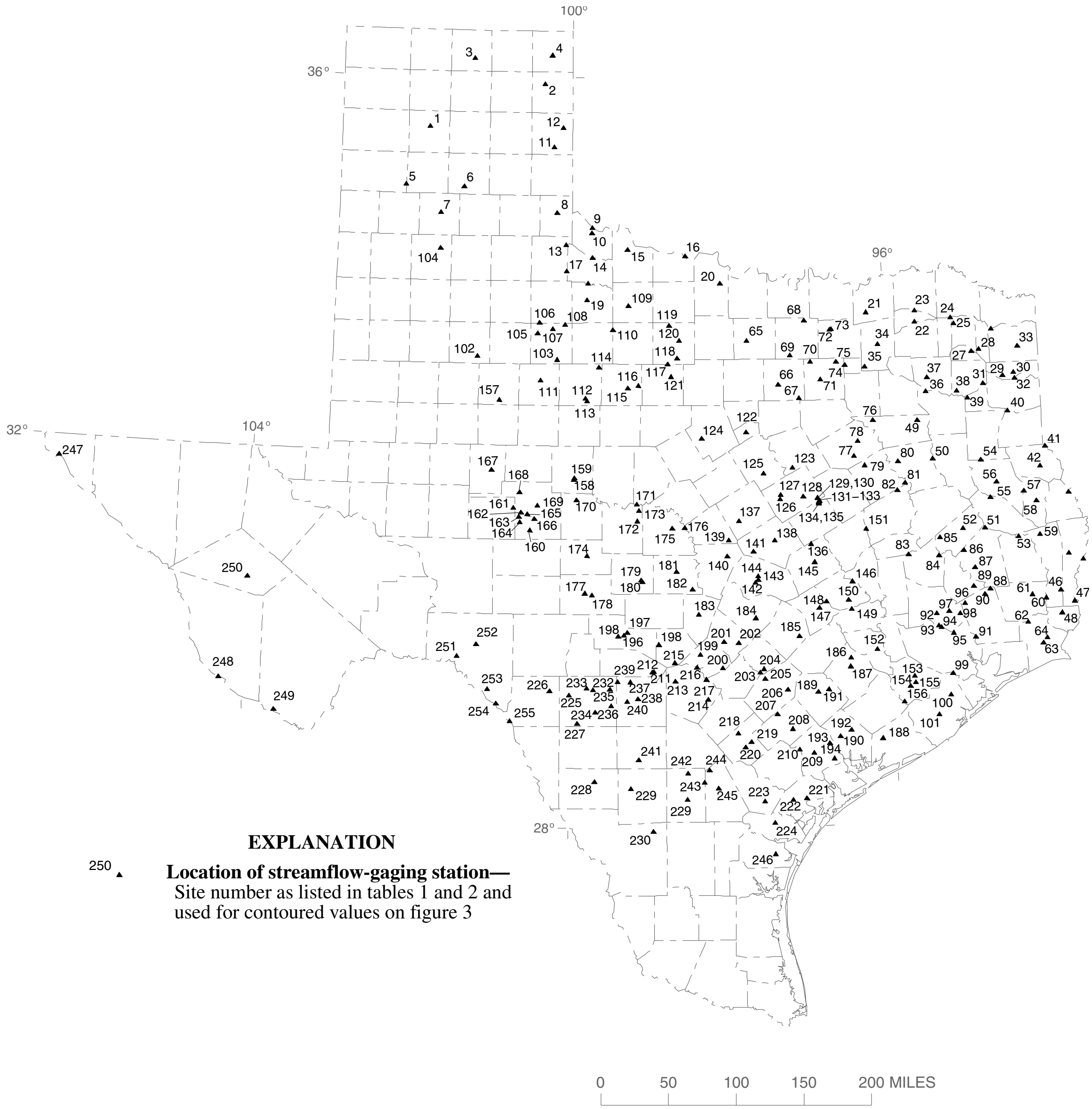


**Figure 4.** Locations and site numbers of streamflow-gaging stations used in developing generalized skew coefficient map for this investigation.

(circular, spherical, gaussian or normal, and exponential) were applied through the kriging procedure. The exponential form of the semivariogram provides the best fit, the lowest error, and the best visual smoothing of the station skews. In standard geostatistical terminology, the exponential semivariogram parameters were: nugget of 0.096, C-constant of 0.080, sill value of 0.146, and range of about 107 miles.

After the best fitting theoretical semivariogram form was determined, a variety of search radii and sample sizes were investigated. Finally, figure 3 was developed with an exponential semivariogram, a maximum search radius of about 342 miles, and a maximum sample size of 20 stations. However, in the eastern part of the State, where many streamflow-gaging stations exist, the maximum sample size actually limits the search radius to a value much less than the maximum. Additionally, because the range of the semivariogram is much smaller than the maximum search radius, stations beyond about 107 miles are given minimal weight. The weighted mean standard error is 0.35 $\log_{10}$ skew units. The weighted standard deviation of the station skews is 0.39. The difference between the weighted mean standard error and the weighted standard deviation is 0.040 $\log_{10}$ skew units, which corresponds to a reduction of about 10 percent. The weighted mean standard error is smaller than the weighted standard deviation; therefore, the kriging explains an appreciable amount of variance in the station skew coefficients.

The larger number of streamflow-gaging stations and more years of record used in the two techniques (regression equations and generalized skew coefficient map) presented in this report would be expected to provide more reliable estimates of generalized skew coefficients for some hydrologic regions of Texas than techniques documented in two earlier reports (U.S. Water Resources Council, 1976; Beard and Chang, 1978). In addition, the mean standard errors from the current investigation and those documented in the two earlier reports are not directly comparable because of differences in geographic areas used in each investigation. The generalized skew map shown on figure 3 for estimating generalized skews is preferable to the regression-equation technique because of its smooth transition from one region of the State to another.

## SUMMARY

Skew coefficients are useful to estimate peak-streamflow frequency. Station skew coefficients for stations having short periods of record generally are more difficult to reliably estimate than coefficients for stations having longer periods of record. Therefore, the Interagency Advisory Committee on Water Data recommends using a weighted skew coefficient in peak-streamflow frequency analyses. This weighted skew coefficient is calculated by weighting the station skew coefficients for a particular station with a generalized skew coefficient representative of the surrounding area or the site. The weighted skew coefficient is based on the inverse of the respective square of the mean standard errors for the two coefficients.

Station skew coefficients for 255 long-term streamflow-gaging stations in Texas—those having at least 20 years of annual peak-streamflow record from natural basins—have been computed in the USGS computer program, PEAKFQ. The computation of station skew coefficients was based on the annual and historical peak-streamflow record along with an appropriate value for the low-outlier threshold. These station skew coefficients then were used to investigate techniques for estimating generalized skew coefficients.

Two techniques were investigated to estimate generalized skew coefficients. One involved the use of regression equations developed for each of eight hydrologic regions in Texas, and the other involved development of a statewide map of generalized skew coefficients. The regression equations are based on weighted multiple linear-regression techniques that considered various combinations of several selected basin characteristics as independent variables. Values for contributing drainage area provided the largest correlation to the dependent variable (the station skew coefficient) for most of the eight regions. The weighted mean (weighting on record length) coefficient of determination ($r^2$) for the equations is 0.10, and the weighted mean (weighting on record length) of the weighted mean standard errors of the eight regression equations is 0.36 $\log_{10}$ skew units.

The second technique to estimate generalized skew coefficients involved the use of a generalized skew map that was developed using the geostatistical method of kriging. In standard geostatistical terminology, the following exponential semivariogram parameters were used: nugget of 0.096, C-constant of 0.080, sill value of 0.146, and a range of about 107 miles. The weighted mean standard error of the map is 0.35 $\log_{10}$ skew units.

The larger number of streamflow-gaging stations and more years of record used in the two techniques (regression equations and generalized skew coefficient

map) presented in this report would be expected to provide more reliable estimates of generalized skew coefficients for some regions of Texas than techniques documented by earlier investigations. In addition, the mean standard errors from the current investigation and those documented in the earlier investigations are not directly comparable because of differences in geographic areas used in each investigation. The generalized skew coefficient map for estimating generalized skew coefficients is preferable to the regression-equation technique because of its smooth transition from one region of the State to another.

## SELECTED REFERENCES


Asquith, W.H., and Slade, R.M., Jr., 1995a, Documented and potential extreme peak discharges and relation between potential extreme peak discharges and probable maximum flood peak discharges in Texas: U.S. Geological Survey Water-Resources Investigations 95–4249, 58 p.

______1995b, Flood frequency in Texas—Calculation of peak-streamflow frequency at gaging stations: U.S. Geological Survey Fact Sheet 181–95, 2 p.

Asquith, W.H., Slade, R.M., Jr., and Judd, L.J., 1995, Analysis of low-outlier thresholds for log Pearson Type III peak-streamflow frequency analysis in Texas, *in* Texas Water '95, A Component Conference of the First International Conference on Water Resources Engineering, Water Resources Engineering Division, American Society of Civil Engineers, August 16–17, 1995, San Antonio, Tex., Proceedings: San Antonio, American Society of Civil Engineers, p. 379–384.

Beard, L.R., and Chang, Shin, 1978, Generalized skew coefficients of annual maximum streamflow logarithms in southwestern division: Austin, U.S. Army Corps of Engineers, Center for Research in Water Resources, University of Texas, 21 p.

Carr, J.T., 1967, The climate and physiography of Texas: Austin, Texas Water Development Board Report 53, 27 p.

Chow, V.T., Maidment, D.R., and Mays, L.W., 1988, Applied hydrology: New York, McGraw-Hill, 572 p.

Davis, J.C., 1986, Statistics and data analysis in geology: New York, Wiley, 646 p.

Deutsch, C.V., and Journel, A.G., 1992, Geostatistical software library and user's guide: New York, Oxford University Press, 340 p.

Grundy, W.D., and Miesch, A.T., 1987, Brief descriptions of STATPAC and related statistical programs for the IBM personal computer: U.S. Geological Survey Open-File Report 87–411–A, 34 p.

Interagency Advisory Committee on Water Data, 1982, Guidelines for determining flood flow frequency: Reston, Va., U.S. Geological Survey, Office of Water Data Coordination, Hydrology Subcommittee Bulletin 17B [variously paged].

Kier, R.S., Garner, L.E., and Brown, L.F., 1977, Land resources of Texas: Austin, University of Texas, Bureau of Economic Geology, 41 p.

Lichty, R.W., and Karlinger, M.R., 1995, Spatial trends in Pearson Type III statistical parameters: Journal of Hydraulic Engineering, American Society of Civil Engineers, v. 121, no. 9, p. 672–678.

Oberg, K.A., and Mades, D.M., 1987, Estimating generalized skew of the log-Pearson Type III distribution for annual peak floods in Illinois: U.S. Geological Survey Water-Resources Investigations Report 86–4008, 42 p.

Schroeder, E.E., and Massey, B.C., 1977, Technique for estimating the magnitude and frequency of floods in Texas: U.S. Geological Survey Water-Resources Investigations/Open-File Report 77–110, 22 p.

Slade, R.M., Jr., and Asquith, W.H., 1996, Peak data for U.S. Geological Survey gaging stations, Texas network; and computer program to estimate peak-streamflow frequency: U.S. Geological Survey Open-File Report 96–148, 57 p.

Stedinger, J.R., and Cohn, T.A., 1986, Flood frequency analysis with historical and paleoflood information: Water Resources Research, v. 22, no. 5, p. 785–793.

Tasker, G.D., 1978, Flood frequency analysis with a generalized skew coefficient: Water Resources Research, v. 14, no. 2, p. 373–376.

Tasker, G.D., and Stedinger, J.R., 1986, Regional skew with weighted regression: Journal of Water Resources Planning and Management, v. 112, no. 2, p. 225–237.

Tasker, G.D., and Thomas, W.O., 1978, Flood frequency analysis with pre-record information: Journal of the Hydraulics Division, American Society of Civil Engineers, v. 104, no. 2, p. 249–259.

Thomas, B.E., Hjalmarson, H.W., and Waltemeyer, S.D., 1994, Methods of estimating magnitude and frequency of floods in the southwestern United States: U.S. Geological Survey Open-File Report 93–419, 211 p.

U.S. Geological Survey, 1979, National Water Data Storage and Retrieval System (WATSTORE) user's guide: U.S. Geological Survey Open-File Report 79–1336–I, v. 4 [variously paged].

______1986, National water summary 1985—Hydrologic events and surface-water resources: U.S. Geological Survey Water-Supply Paper 2300, 506 p.

U.S. Water Resources Council, 1976, Guidelines for determining flood flow frequency: Washington, D.C., Bulletin 17, 26 p.

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas

[yrs, years; ft$^3$/s, cubic feet per second; mi$^2$, square miles; mi, miles; ft/mi, feet per mile; NA, historical peak-streamflow information not sufficient or unavailable for peak-streamflow frequency analysis—historical record therefore equal to systematic record; --, not necessary for proper fitting of the log-Pearson Type III distribution; SH, State Highway; SWS, subwatershed]

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold (ft$^3$/s) | Historical peak threshold (ft$^3$/s) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area (mi$^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 07227500 | Canadian River near Amarillo | 35°28'13" | 101°52'45" | 57 | 57 | 6,280 | NA | 0 | 57 | 1.24 | 15,376 | 404.71 | 10.65 | 19.50 |
| 2 | 07228000 | Canadian River near Canadian | 35°56'06" | 100°22'13" | 26 | 26 | 4,830 | NA | 0 | 26 | .57 | 18,178 | 515.93 | 14.64 | 16.65 |
| 3 | 07233500 | Palo Duro Creek near Spearman | 36°12'08" | 101°18'20" | 35 | 43 | 233 | 26,100 | 2 | 38 | .84 | 440 | 78.43 | 13.98 | 10.17 |
| 4 | 07235000 | Wolf Creek at Lipscomb | 36°14'19" | 100°16'31" | 36 | 36 | 53 | NA | 0 | 36 | .79 | 475 | 55.36 | 6.45 | 10.31 |
| 5 | 07295500 | Tierra Blanca Creek above Buffalo Lake near Umbarger | 34°50'55" | 102°10'32" | 21 | 36 | 83 | 11,300 | 1 | 27 | .59 | 538 | 122.41 | 27.85 | 7.05 |
| 6 | 07297910 | Prairie Dog Town Fork Red River near Wayside | 34°50'15" | 101°24'49" | 25 | 25 | 1,310 | NA | 0 | 25 | .55 | 930 | 211.12 | 47.93 | 11.24 |
| 7 | 07298000 | North Tule Draw at Reservoir near Tulia | 34°33'34" | 101°42'33" | 31 | 31 | 80 | NA | 0 | 31 | .68 | 65.0 | 35.73 | 19.65 | 11.29 |
| 8 | 07299540 | Prairie Dog Town Fork Red River near Childress | 34°34'09" | 100°11'37" | 28 | 28 | 3,830 | NA | 0 | 28 | .61 | 2,956 | 308.17 | 32.13 | 10.40 |
| 9 | 07299570 | Red River near Quanah | 34°24'47" | 99°44'03" | 23 | 23 | -- | NA | 0 | 23 | .50 | 3,552 | 346.44 | 33.79 | 9.87 |
| 10 | 07299670 | Groesbeck Creek at SH 6 near Quanah | 34°21'16" | 99°44'24" | 23 | 23 | 17 | -- | 0 | 23 | .50 | 303 | 42.06 | 5.84 | 10.14 |
| 11 | 07301300 | North Fork Red River near Shamrock | 35°15'51" | 100°14'29" | 29 | 29 | -- | -- | 0 | 29 | .63 | 703 | 114.04 | 18.50 | 9.61 |
| 12 | 07301410 | Sweetwater Creek near Kelton | 35°28'23" | 100°07'14" | 31 | 31 | -- | -- | 0 | 31 | .68 | 267 | 45.23 | 7.66 | 15.89 |
| 13 | 07307800 | Pease River near Childress | 34°13'39" | 100°04'24" | 28 | 28 | 2,240 | -- | 0 | 28 | .61 | 2,195 | 108.60 | 5.37 | 16.19 |
| 14 | 07308000 | Pease River near Crowell | 34°05'45" | 99°43'47" | 23 | 23 | 7,900 | -- | 0 | 23 | .50 | 2,478 | 140.98 | 8.02 | 13.66 |
| 15 | 07308200 | Pease River near Vernon | 34°10'44" | 99°16'40" | 30 | 30 | 1,370 | -- | 0 | 30 | .65 | 2,929 | 179.28 | 10.97 | 11.60 |
| 16 | 07308500 | Red River near Burkburnett | 34°06'36" | 98°31'53" | 33 | 101 | 7,480 | 103,000 | 2 | 59 | 1.28 | 14,634 | 465.19 | 14.79 | 8.36 |
| 17 | 07311600 | North Wichita River near Paducah | 33°57'02" | 100°03'52" | 21 | 21 | 885 | -- | 0 | 21 | .46 | 540 | 61.14 | 6.92 | 14.38 |
| 18 | 07311700 | North Wichita River near Truscott | 33°49'14" | 99°47'10" | 32 | 32 | 725 | -- | 0 | 32 | .70 | 937 | 95.92 | 9.82 | 11.05 |
| 19 | 07311800 | South Wichita River near Benjamin | 33°38'39" | 99°48'02" | 32 | 32 | 1,100 | -- | 0 | 32 | .70 | 584 | 103.20 | 18.24 | 9.76 |
| 20 | 07315200 | East Fork Little Wichita River near Henrietta | 33°48'46" | 98°05'05" | 29 | 72 | 204 | 15,500 | 3 | 47 | 1.02 | 178 | 31.29 | 5.50 | 9.44 |
| 21 | 07332600 | Bois d'Arc Creek near Randolph | 33°28'32" | 96°12'52" | 23 | 63 | 4,830 | 19,200 | 1 | 38 | .82 | 72.0 | 17.66 | 4.33 | 13.01 |
| 22 | 07342500 | South Sulphur River near Cooper | 33°21'20" | 95°35'39" | 50 | 50 | 4,610 | -- | 0 | 50 | 1.09 | 527 | 64.94 | 8.00 | 4.75 |
| 23 | 07343000 | North Sulphur River near Cooper | 33°28'29" | 95°35'15" | 43 | 97 | 7,070 | 90,600 | 1 | 62 | 1.35 | 276 | 41.32 | 6.18 | 7.15 |
| 24 | 07343200 | Sulphur River near Talco | 33°23'10" | 95°07'56" | 36 | 84 | -- | 58,600 | 2 | 55 | 1.19 | 1,365 | 109.28 | 8.75 | 3.54 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold ($ft^3/s$) | Historical peak threshold ($ft^3/s$) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area ($mi^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 07343500 | White Oak Creek near Talco | 33°19'20" | 95°05'33" | 43 | 43 | 1,660 | -- | 0 | 43 | 0.94 | 494 | 69.05 | 9.65 | 3.94 |
| 26 | 07344000 | Sulphur River near Darden | 33°15'00" | 94°37'00" | 47 | 48 | 5,900 | 157,000 | 1 | 47 | 1.03 | 2,774 | 175.60 | 11.12 | 2.63 |
| 27 | 07344500 | Big Cypress Creek near Pittsburg | 33°01'15" | 94°52'55" | 27 | 74 | 2,550 | 58,500 | 1 | 44 | .96 | 366 | 36.85 | 3.71 | 6.86 |
| 28 | 07345000 | Boggy Creek near Daingerfield | 33°02'10" | 94°47'15" | 34 | 77 | 1,400 | 28,900 | 1 | 50 | 1.08 | 72.0 | 17.48 | 4.25 | 6.94 |
| 29 | 07346000 | Big Cypress Creek near Jefferson | 32°44'58" | 94°29'55" | 45 | 104 | 1,320 | 37,900 | 2 | 67 | 1.47 | 850 | 76.45 | 6.88 | 4.08 |
| 30 | 07346045 | Black Cypress Bayou at Jefferson | 32°46'40" | 94°21'26" | 24 | 24 | 836 | -- | 0 | 24 | .52 | 365 | 53.37 | 7.80 | 3.75 |
| 31 | 07346050 | Little Cypress Creek near Ore City | 32°40'21" | 94°45'03" | 30 | 90 | 1,100 | 23,500 | 1 | 51 | 1.12 | 383 | 47.76 | 5.96 | 6.32 |
| 32 | 07346070 | Little Cypress Creek near Jefferson | 32°42'50" | 94°20'44" | 47 | 48 | 1,490 | 35,500 | 1 | 47 | 1.03 | 675 | 85.52 | 10.84 | 4.26 |
| 33 | 07346140 | Frazier Creek near Linden | 33°03'14" | 94°17'24" | 27 | 27 | 74 | -- | 0 | 27 | .59 | 48.0 | 11.22 | 2.62 | 10.53 |
| 34 | 08017200 | Cowleech Fork Sabine River at Greenville | 33°07'58" | 96°04'36" | 34 | 34 | 2,600 | -- | 0 | 34 | .74 | 77.7 | 19.03 | 4.66 | 9.65 |
| 35 | 08017300 | South Fork Sabine River near Quinlan | 32°53'52" | 96°15'11" | 34 | 34 | 1,700 | -- | 0 | 34 | .74 | 78.7 | 18.48 | 4.34 | 8.88 |
| 36 | 08018500 | Sabine River near Mineola | 32°36'49" | 95°29'08" | 22 | 69 | 488 | 76,000 | 1 | 39 | .86 | 1,357 | 103.03 | 7.82 | 3.41 |
| 37 | 08019000 | Lake Fork Creek near Quitman | 32°45'47" | 95°27'46" | 43 | 90 | 2,540 | 51,600 | 2 | 61 | 1.33 | 585 | 50.05 | 4.28 | 4.92 |
| 38 | 08019500 | Big Sandy Creek near Big Sandy | 32°36'14" | 95°05'29" | 24 | 87 | 695 | 24,000 | 1 | 46 | 1.01 | 231 | 45.74 | 9.06 | 4.52 |
| 39 | 08020000 | Sabine River near Gladewater | 32°31'37" | 94°57'36" | 29 | 68 | 3,730 | 69,300 | 3 | 45 | .99 | 2,791 | 161.87 | 9.39 | 2.57 |
| 40 | 08022000 | Sabine River near Tatum | 32°22'11" | 94°27'28" | 22 | 78 | 5,240 | 123,000 | 1 | 42 | .92 | 3,493 | 219.01 | 13.73 | 2.11 |
| 41 | 08022500 | Sabine River at Logansport, La | 31°58'20" | 94°00'22" | 56 | 76 | 5,100 | 61,300 | 2 | 64 | 1.39 | 4,842 | 286.05 | 16.90 | 1.77 |
| 42 | 08023200 | Tenaha Creek near Shelbyville | 31°45'56" | 94°05'02" | 30 | 30 | 253 | -- | 0 | 30 | .65 | 97.8 | 19.69 | 3.96 | 9.00 |
| 43 | 08024400 | Sabine River near Milam | 31°28'01" | 93°44'41" | 30 | 82 | 7,420 | 69,100 | 3 | 51 | 1.12 | 6,508 | 329.49 | 16.68 | 1.66 |
| 44 | 08028500 | Sabine River near Bon Weir | 30°44'49" | 93°36'30" | 42 | 42 | 18,600 | -- | 0 | 42 | .92 | 8,229 | 403.79 | 19.81 | 1.54 |
| 45 | 08029500 | Big Cow Creek near Newton | 30°49'08" | 93°47'07" | 41 | 41 | 845 | -- | 0 | 41 | .89 | 128 | 25.91 | 5.24 | 13.55 |
| 46 | 08030000 | Cypress Creek near Buna | 30°25'52" | 93°54'28" | 32 | 32 | 1,290 | -- | 0 | 32 | .70 | 69.2 | 18.24 | 4.81 | 3.96 |
| 47 | 08030500 | Sabine River near Ruliff | 30°18'13" | 93°44'37" | 54 | 83 | -- | 110,000 | 2 | 65 | 1.42 | 9,329 | 460.62 | 22.74 | 1.42 |
| 48 | 08031000 | Cow Bayou near Mauriceville | 30°11'10" | 93°54'30" | 34 | 46 | 238 | 4,420 | 2 | 39 | .85 | 83.3 | 25.20 | 7.62 | 2.73 |
| 49 | 08031200 | Kickapoo Creek near Brownsboro | 32°18'34" | 95°36'19" | 28 | 28 | 1,660 | -- | 0 | 28 | .61 | 232 | 35.52 | 5.44 | 5.08 |
| 50 | 08032000 | Neches River near Neches | 31°53'32" | 95°25'50" | 23 | 23 | 2,200 | -- | 0 | 23 | .50 | 1,145 | 83.33 | 6.06 | 3.15 |
| 51 | 08033000 | Neches River near Diboll | 31°07'58" | 94°48'35" | 24 | 87 | 1,100 | 80,000 | 2 | 48 | 1.06 | 2,724 | 207.57 | 15.82 | 1.94 |
| 52 | 08033300 | Piney Creek near Groveton | 31°08'25" | 95°05'11" | 28 | 28 | -- | -- | 0 | 28 | .61 | 79.0 | 21.15 | 5.66 | 7.76 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold ($ft^3/s$) | Historical peak threshold ($ft^3/s$) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area ($mi^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 53 | 08033500 | Neches River near Rockland | 31°01'29" | 94°23'55" | 56 | 77 | 5,340 | 62,000 | 1 | 64 | 1.39 | 3,636 | 253.11 | 17.62 | 1.80 |
| 54 | 08033900 | East Fork Angelina River near Cushing | 31°51'36" | 94°49'23" | 26 | 26 | 981 | -- | 0 | 26 | .57 | 158 | 27.23 | 4.69 | 7.47 |
| 55 | 08037000 | Angelina River near Lufkin | 31°27'26" | 94°43'34" | 51 | 51 | 2,200 | -- | 0 | 51 | 1.11 | 1,600 | 120.33 | 9.05 | 2.67 |
| 56 | 08037050 | Bayou Lanana at Nacogdoches | 31°36'58" | 94°38'28" | 26 | 36 | 472 | 13,500 | 1 | 30 | .65 | 31.3 | 13.16 | 5.54 | 13.46 |
| 57 | 08038000 | Attoyac Bayou near Chireno | 31°30'15" | 94°18'15" | 54 | 124 | 92 | 28,000 | 4 | 82 | 1.79 | 503 | 76.14 | 11.52 | 4.35 |
| 58 | 08039100 | Ayish Bayou near San Augustine | 31°23'46" | 94°09'03" | 35 | 35 | 225 | -- | 0 | 35 | .76 | 89.0 | 22.05 | 5.46 | 9.38 |
| 59 | 08039500 | Angelina River at Horger | 31°02'08" | 94°07'48" | 23 | 65 | 6,940 | 82,000 | 1 | 39 | .84 | 3,486 | 176.87 | 8.97 | 2.04 |
| 60 | 08041000 | Neches River at Evadale | 30°21'20" | 94°05'35" | 32 | 66 | 17,900 | 102,000 | 2 | 46 | .99 | 7,951 | 350.02 | 15.41 | 1.50 |
| 61 | 08041500 | Village Creek near Kountze | 30°23'52" | 94°15'48" | 57 | 57 | 3,600 | -- | 0 | 57 | 1.24 | 860 | 78.56 | 7.18 | 4.47 |
| 62 | 08041700 | Pine Island Bayou near Sour Lake | 30°06'21" | 94°20'04" | 25 | 75 | -- | 25,000 | 1 | 43 | .94 | 336 | 54.83 | 8.95 | 2.18 |
| 63 | 08042000 | Taylor Bayou near LaBelle | 29°52'30" | 94°09'34" | 33 | 43 | 4,130 | 9,590 | 2 | 37 | .81 | 262 | 25.54 | 2.49 | 1.22 |
| 64 | 08042500 | Hillebrandt Bayou near Lovell Lake | 29°55'44" | 94°06'35" | 30 | 43 | 2,930 | 15,000 | 1 | 35 | .76 | 128 | 16.97 | 2.25 | 1.55 |
| 65 | 08043500 | West Fork Trinity River at Bridgeport | 33°12'05" | 97°45'21" | 25 | 25 | -- | -- | 0 | 25 | .55 | 1,147 | 105.47 | 9.70 | 4.54 |
| 66 | 08047500 | Clear Fork Trinity River at Fort Worth | 32°43'56" | 97°21'31" | 29 | 52 | 2,300 | 74,300 | 2 | 38 | .84 | 518 | 60.06 | 6.96 | 11.20 |
| 67 | 08049700 | Walnut Creek near Mansfield | 32°34'51" | 97°06'06" | 32 | 32 | 551 | -- | 0 | 32 | .70 | 62.8 | 18.94 | 5.71 | 15.07 |
| 68 | 08051000 | Isle Du Bois Creek near Pilot Point | 33°24'23" | 97°00'45" | 37 | 37 | 754 | -- | 0 | 37 | .81 | 266 | 31.80 | 3.80 | 6.19 |
| 69 | 08054000 | Denton Creek near Roanoke | 33°02'24" | 97°12'17" | 21 | 21 | 4,980 | -- | 0 | 21 | .46 | 621 | 77.35 | 9.63 | 7.72 |
| 70 | 08055500 | Elm Fork Trinity River near Carrollton | 32°57'57" | 96°56'39" | 28 | 86 | 8,980 | 145,000 | 1 | 49 | 1.06 | 2,459 | 101.90 | 4.22 | 2.25 |
| 71 | 08057000 | Trinity River at Dallas | 32°46'29" | 96°49'18" | 30 | 68 | -- | 184,000 | 1 | 44 | .96 | 6,106 | 226.01 | 8.37 | 3.66 |
| 72 | 08057500 | Honey Creek SWS No. 11 (inflow) near McKinney | 33°18'12" | 96°41'22" | 21 | 21 | 64 | -- | 0 | 21 | .46 | 2.14 | 1.74 | 1.42 | 71.55 |
| 73 | 08058000 | Honey Creek SWS No. 12 (inflow) near McKinney | 33°18'20" | 96°40'12" | 25 | 25 | 40 | -- | 0 | 25 | .55 | 1.26 | 1.50 | 1.79 | 50.31 |
| 74 | 08061500 | East Fork Trinity River near Rockwall | 32°55'25" | 96°30'20" | 37 | 37 | 3,590 | -- | 0 | 37 | .81 | 840 | 52.95 | 3.34 | 7.56 |
| 75 | 08061540 | Rowlett Creek near Sachse | 32°57'35" | 96°36'51" | 24 | 24 | -- | -- | 0 | 24 | .52 | 120 | 23.57 | 4.63 | 18.93 |
| 76 | 08063000 | Cedar Creek near Mabank | 32°19'45" | 96°10'05" | 27 | 76 | -- | 35,400 | 2 | 46 | 1.01 | 733 | 52.94 | 3.82 | 4.90 |
| 77 | 08063500 | Richland Creek near Richland | 31°57'02" | 96°25'16" | 24 | 24 | 4,600 | -- | 0 | 24 | .52 | 734 | 59.77 | 4.87 | 8.12 |
| 78 | 08064500 | Chambers Creek near Corsicana | 32°06'29" | 96°22'14" | 22 | 74 | 6,060 | 48,000 | 2 | 43 | .93 | 963 | 57.04 | 3.38 | 9.15 |
| 79 | 08064700 | Tehuacana Creek near Streetman | 31°50'54" | 96°17'23" | 25 | 61 | -- | 85,700 | 1 | 38 | .84 | 142 | 24.06 | 4.08 | 10.50 |
| 80 | 08064800 | Catfish Creek near Tennesse Colony | 31°52'51" | 95°52'07" | 28 | 28 | 344 | -- | 0 | 28 | .61 | 207 | 31.23 | 4.71 | 5.88 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold (ft³/s) | Historical peak threshold (ft³/s) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area (mi²) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81 | 08065000 | Trinity River near Oakwood | 31°38'54" | 95°47'21" | 29 | 62 | -- | 164,000 | 2 | 42 | 0.92 | 12,833 | 407.34 | 12.93 | 2.55 |
| 82 | 08065200 | Upper Keechi Creek near Oakwood | 31°34'11" | 95°53'17" | 31 | 31 | 415 | -- | 0 | 31 | .68 | 150 | 28.42 | 5.39 | 8.31 |
| 83 | 08065800 | Bedias Creek near Madisonville | 30°53'03" | 95°46'39" | 25 | 25 | 1,990 | -- | 0 | 25 | .55 | 321 | 37.65 | 4.42 | 7.41 |
| 84 | 08066000 | Trinity River at Riverside | 30°51'33" | 95°23'55" | 51 | 87 | -- | 116,000 | 2 | 65 | 1.42 | 15,589 | 531.34 | 18.11 | 2.11 |
| 85 | 08066100 | White Rock Creek near Trinity | 31°03'06" | 95°22'40" | 20 | 20 | -- | -- | 0 | 20 | .44 | 222 | 30.39 | 4.16 | 9.18 |
| 86 | 08066170 | Kickapoo Creek near Onalaska | 30°54'25" | 95°05'18" | 27 | 27 | 2,170 | -- | 0 | 27 | .59 | 57.0 | 12.82 | 2.88 | 12.80 |
| 87 | 08066200 | Long King Creek at Livingston | 30°42'58" | 94°57'31" | 30 | 30 | 2,440 | -- | 0 | 30 | .65 | 141 | 22.07 | 3.46 | 13.67 |
| 88 | 08066300 | Menard Creek near Rye | 30°28'52" | 94°46'46" | 27 | 27 | 632 | -- | 0 | 27 | .59 | 152 | 39.18 | 10.10 | 7.12 |
| 89 | 08066400 | Big Creek near Shepherd | 30°30'59" | 94°59'06" | 24 | 40 | 207 | 22,000 | 1 | 30 | .66 | 38.8 | 14.45 | 5.38 | .45 |
| 90 | 08066500 | Trinity River at Romayor | 30°25'30" | 94°51'02" | 30 | 45 | 17,400 | 111,000 | 1 | 36 | .78 | 17,186 | 599.50 | 20.91 | 1.96 |
| 91 | 08067500 | Cedar Bayou near Crosby | 29°58'20" | 94°59'10" | 21 | 21 | -- | -- | 0 | 21 | .46 | 64.9 | 16.34 | 4.11 | 2.81 |
| 92 | 08068000 | West Fork San Jacinto River near Conroe | 30°14'40" | 95°27'25" | 37 | 59 | 1,650 | 101,000 | 2 | 46 | 1.00 | 828 | 56.73 | 3.89 | 5.09 |
| 93 | 08068500 | Spring Creek near Spring | 30°06'37" | 95°26'10" | 37 | 96 | 838 | 48,300 | 1 | 58 | 1.26 | 409 | 51.18 | 6.40 | 6.15 |
| 94 | 08068520 | Spring Creek at Spring | 30°05'31" | 95°24'21" | 55 | 113 | 408 | 48,300 | 1 | 75 | 1.64 | 419 | 54.75 | 7.15 | 5.93 |
| 95 | 08069500 | West Fork San Jacinto River near Humble | 30°01'37" | 95°15'28" | 26 | 89 | -- | 187,000 | 2 | 50 | 1.10 | 1,741 | 82.24 | 3.88 | 4.23 |
| 96 | 08070000 | East Fork San Jacinto River near Cleveland | 30°20'11" | 95°06'14" | 53 | 92 | 835 | 53,500 | 2 | 68 | 1.48 | 325 | 45.22 | 6.29 | 5.51 |
| 97 | 08070500 | Caney Creek near Splendora | 30°15'34" | 95°18'08" | 49 | 53 | -- | 35,000 | 1 | 51 | 1.10 | 105 | 30.24 | 8.71 | 8.79 |
| 98 | 08071000 | Peach Creek at Splendora | 30°13'57" | 95°10'05" | 34 | 82 | -- | 24,700 | 3 | 54 | 1.17 | 117 | 30.45 | 7.93 | 10.13 |
| 99 | 08077000 | Clear Creek near Pearland | 29°35'50" | 95°17'11" | 44 | 44 | -- | -- | 0 | 44 | .96 | 38.8 | 13.26 | 4.53 | 3.59 |
| 100 | 08078000 | Chocolate Bayou near Alvin | 29°22'09" | 95°19'14" | 46 | 46 | 333 | -- | 0 | 46 | 1.00 | 87.7 | 17.36 | 3.44 | 2.74 |
| 101 | 08079000 | Oyster Creek near Angleton | 29°09'30" | 95°28'32" | 29 | 61 | 753 | 10,600 | 1 | 41 | .89 | 171 | 90.04 | 47.41 | 0.58 |
| 102 | 08079600 | Double Mountain Fork Brazos River at Justiceburg | 33°02'18" | 101°11'50" | 31 | 31 | 2,460 | -- | 0 | 31 | .68 | 244 | 36.99 | 5.61 | 17.21 |
| 103 | 08080500 | Double Mountain Fork Brazos River near Aspermont | 33°00'29" | 100°10'49" | 64 | 93 | 1,010 | 91,400 | 1 | 74 | 1.62 | 1,864 | 326.26 | 57.11 | 3.81 |
| 104 | 08080700 | Running Water Draw at Plainview | 34°10'44" | 101°42'08" | 37 | 98 | 13 | 12,000 | 1 | 58 | 1.27 | 382 | 134.24 | 47.17 | 8.70 |
| 105 | 08081200 | Croton Creek near Jayton | 33°17'18" | 100°25'52" | 27 | 27 | -- | -- | 0 | 27 | .59 | 290 | 62.55 | 13.49 | 15.89 |
| 106 | 08081500 | Salt Croton Creek near Aspermont | 33°24'03" | 100°24'29" | 21 | 21 | 996 | -- | 0 | 21 | .46 | 64.3 | 14.78 | 3.40 | 14.65 |
| 107 | 08082000 | Salt Fork Brazos River near Aspermont | 33°20'02" | 100°14'16" | 27 | 63 | -- | 52,200 | 1 | 40 | .88 | 2,496 | 342.79 | 47.08 | 8.51 |
| 108 | 08082180 | North Croton Creek near Knox City | 33°22'59" | 100°04'51" | 21 | 65 | -- | 32,100 | 1 | 37 | .81 | 251 | 56.71 | 12.81 | 12.44 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold ($ft^3/s$) | Historical peak threshold ($ft^3/s$) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area ($mi^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 109 | 08082500 | Brazos River at Seymour | 33°34'51" | 99°16'02" | 50 | 68 | -- | 95,400 | 1 | 57 | 1.23 | 5,972 | 281.00 | 13.22 | 11.61 |
| 110 | 08082700 | Millers Creek near Munday | 33°19'45" | 99°27'53" | 29 | 31 | -- | 34,600 | 1 | 30 | .65 | 104 | 29.54 | 8.39 | 7.00 |
| 111 | 08083100 | Clear Fork Brazos River near Roby | 32°47'15" | 100°23'18" | 31 | 31 | 72 | -- | 0 | 31 | .68 | 228 | 38.86 | 6.62 | 13.09 |
| 112 | 08083240 | Clear Fork Brazos River at Hawley | 32°35'53" | 99°48'53" | 22 | 22 | -- | -- | 0 | 22 | .48 | 1,416 | 107.32 | 8.13 | 7.37 |
| 113 | 08083245 | Mulberry Creek near Hawley | 32°34'04" | 99°47'32" | 22 | 58 | 222 | 2,750 | 2 | 37 | .80 | 205 | 49.71 | 12.06 | 17.69 |
| 114 | 08084800 | California Creek near Stamford | 32°55'51" | 99°38'32" | 30 | 95 | 412 | 40,000 | 1 | 53 | 1.15 | 478 | 64.88 | 8.81 | 7.58 |
| 115 | 08086150 | North Fork Hubbard Creek near Albany | 32°42'27" | 99°16'29" | 28 | 51 | -- | 103,000 | 1 | 37 | .81 | 39.3 | 13.39 | 4.57 | 40.17 |
| 116 | 08086212 | Hubbard Creek below Albany | 32°43'58" | 99°08'25" | 26 | 26 | -- | -- | 0 | 26 | .57 | 613 | 56.36 | 5.18 | 12.75 |
| 117 | 08087300 | Clear Fork Brazos River at Eliasville | 32°57'36" | 98°45'59" | 31 | 74 | 5,100 | 68,000 | 1 | 47 | 1.02 | 5,697 | 284.58 | 14.22 | 4.81 |
| 118 | 08088000 | Brazos River near South Bend | 33°01'27" | 98°38'37" | 23 | 23 | 8,890 | -- | 0 | 23 | .50 | 13,107 | 541.97 | 22.41 | 6.45 |
| 119 | 08088100 | Salt Creek at Olney | 33°22'13" | 98°44'40" | 20 | 20 | -- | -- | 0 | 20 | .44 | 11.8 | 4.50 | 1.71 | 13.13 |
| 120 | 08088300 | Briar Creek near Graham | 33°12'43" | 98°37'06" | 31 | 31 | 99 | -- | 0 | 31 | .68 | 24.2 | 12.14 | 6.09 | 15.41 |
| 121 | 08088450 | Big Cedar Creek near Ivan | 32°49'39" | 98°43'25" | 25 | 25 | -- | -- | 0 | 25 | .55 | 97.0 | 26.06 | 7.00 | 10.07 |
| 122 | 08091500 | Paluxy River at Glen Rose | 32°13'53" | 97°46'37" | 35 | 105 | 728 | 53,000 | 3 | 63 | 1.37 | 410 | 57.73 | 8.13 | 13.64 |
| 123 | 08093500 | Aquilla Creek near Aquilla | 31°50'40" | 97°12'04" | 41 | 92 | -- | 74,200 | 1 | 59 | 1.29 | 308 | 38.85 | 4.90 | 4.05 |
| 124 | 08094000 | Green Creek SWS No. 1 (inflow) near Dublin | 32°09'57" | 98°20'28" | 23 | 23 | -- | -- | 0 | 23 | .50 | 4.19 | 2.70 | 1.74 | 42.53 |
| 125 | 08095000 | North Bosque River near Clifton | 31°47'09" | 97°34'04" | 44 | 139 | 7,270 | 82,400 | 3 | 81 | 1.76 | 968 | 94.77 | 9.28 | 9.69 |
| 126 | 08095300 | Middle Bosque River near McGregor | 31°30'33" | 97°21'56" | 32 | 32 | 1,150 | -- | 0 | 32 | .70 | 182 | 31.47 | 5.44 | 19.39 |
| 127 | 08095400 | Hog Creek near Crawford | 31°33'20" | 97°21'22" | 20 | 20 | 163 | -- | 0 | 20 | .44 | 78.2 | 34.53 | 15.25 | 17.20 |
| 128 | 08096500 | Brazos River at Waco | 31°32'06" | 97°04'22" | 42 | 93 | 13,500 | 246,000 | 1 | 60 | 1.31 | 20,007 | 893.32 | 39.89 | 4.65 |
| 129 | 08098203 | Brushy Creek Watershed C (inflow) near Riessel | 31°31'11" | 96°53'34" | 32 | 32 | 18 | -- | 0 | 32 | .67 | .90 | 1.20 | 1.60 | 32.83 |
| 130 | 08098206 | Brushy Creek Watershed D (inflow) near Riessel | 31°30'38" | 96°53'32" | 33 | 33 | 11 | -- | 0 | 33 | .72 | 1.73 | 1.85 | 1.97 | 28.44 |
| 131 | 08098227 | Brushy Creek Watershed Y2 (inflow) near Riessel | 31°28'30" | 96°52'46" | 37 | 37 | -- | -- | 0 | 37 | .81 | .21 | .38 | .69 | 60.44 |
| 132 | 08098239 | Brushy Creek Watershed Y (inflow) near Riessel | 31°28'36" | 96°52'36" | 36 | 36 | 9 | -- | 0 | 36 | .79 | .48 | .65 | .88 | 50.47 |
| 133 | 08098242 | Brushy Creek Watershed G (inflow) near Riessel | 31°28'59" | 96°52'06" | 24 | 24 | 177 | -- | 0 | 24 | .52 | 6.84 | 5.29 | 4.10 | 17.97 |
| 134 | 08098263 | Brushy Creek Watershed W1 (inflow) near Riessel | 31°27'27" | 96°52'48" | 38 | 38 | -- | -- | 0 | 38 | .83 | .28 | .55 | 1.10 | 65.04 |
| 135 | 08098281 | Brushy Creek Watershed W2 (inflow) near Riessel | 31°27'19" | 96°52'55" | 38 | 38 | 1 | -- | 0 | 38 | .83 | .20 | .83 | 3.44 | 56.63 |
| 136 | 08098300 | Little Pond Creek near Burlington | 31°01'35" | 96°59'17" | 20 | 20 | 800 | -- | 0 | 20 | .44 | 23.0 | 13.87 | 8.36 | 12.06 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold ($ft^3/s$) | Historical peak threshold ($ft^3/s$) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area ($mi^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 137 | 08101000 | Cowhouse Creek at Pidcoke | 31°17'05" | 97°53'05" | 42 | 100 | 194 | 47,000 | 0 | 42 | 0.92 | 455 | 71.88 | 11.36 | 13.24 |
| 138 | 08102500 | Leon River near Belton | 31°04'12" | 97°26'28" | 31 | 42 | 4,220 | 56,500 | 2 | 36 | .78 | 3,542 | 296.12 | 24.76 | 5.09 |
| 139 | 08103800 | Lampasas River near Kempner | 31°04'54" | 98°00'59" | 26 | 26 | 232 | -- | 0 | 26 | .57 | 818 | 65.33 | 5.22 | 13.46 |
| 140 | 08103900 | South Fork Rocky Creek near Briggs | 30°54'41" | 98°02'12" | 30 | 88 | 343 | 31,200 | 1 | 51 | 1.11 | 33.3 | 11.44 | 3.93 | 36.15 |
| 141 | 08104000 | Lampasas River at Youngsport | 30°57'26" | 97°42'30" | 49 | 49 | 3,430 | -- | 0 | 49 | 1.07 | 1,240 | 101.61 | 8.33 | 10.49 |
| 142 | 08104900 | South Fork San Gabriel River at Georgetown | 30°37'32" | 97°41'27" | 25 | 25 | 1,020 | -- | 0 | 25 | .55 | 133 | 38.03 | 10.88 | 19.84 |
| 143 | 08105000 | San Gabriel River at Georgetown | 30°39'14" | 97°39'18" | 39 | 121 | 903 | 155,000 | 2 | 70 | 1.52 | 405 | 52.23 | 6.73 | 16.02 |
| 144 | 08105100 | Berry Creek near Georgetown | 30°41'28" | 97°39'21" | 25 | 25 | 1,360 | -- | 0 | 25 | .55 | 83.1 | 28.01 | 9.44 | 16.04 |
| 145 | 08106500 | Little River at Cameron | 30°49'53" | 96°57'01" | 36 | 102 | 13,900 | 647,000 | 1 | 59 | 1.29 | 7,065 | 377.85 | 20.21 | 4.46 |
| 146 | 08109000 | Brazos River near Bryan | 30°36'52" | 96°29'10" | 74 | 74 | -- | -- | 0 | 74 | 1.61 | 29,949 | 1,016.45 | 34.50 | 4.22 |
| 147 | 08109700 | Middle Yegua Creek near Dime Box | 30°20'21" | 96°54'16" | 30 | 80 | 764 | 12,500 | 1 | 48 | 1.05 | 236 | 41.08 | 7.15 | 6.63 |
| 148 | 08109800 | East Yegua Creek near Dime Box | 30°24'26" | 96°49'02" | 30 | 30 | 80 | -- | 0 | 30 | .65 | 244 | 34.84 | 4.97 | 7.82 |
| 149 | 08110000 | Yegua Creek near Somerville | 30°19'18" | 96°30'26" | 67 | 67 | 30 | -- | 0 | 67 | 1.46 | 1,009 | 61.83 | 3.79 | 4.14 |
| 150 | 08110100 | Davidson Creek near Lyons | 30°25'10" | 96°32'24" | 30 | 90 | 216 | 23,200 | 1 | 51 | 1.12 | 195 | 39.52 | 8.01 | 4.48 |
| 151 | 08110500 | Navasota River near Easterly | 31°10'12" | 96°17'51" | 37 | 116 | 710 | 90,000 | 1 | 64 | 1.40 | 968 | 85.66 | 7.58 | 4.02 |
| 152 | 08111700 | Mill Creek near Bellville | 29°52'51" | 96°12'18" | 29 | 29 | 1,320 | -- | 0 | 29 | .63 | 376 | 44.62 | 5.30 | 8.38 |
| 153 | 08114000 | Brazos River at Richmond | 29°34'56" | 95°45'27" | 21 | 87 | 24,200 | 123,000 | 1 | 45 | .97 | 35,441 | 1,207.03 | 41.11 | 3.69 |
| 154 | 08115000 | Big Creek near Needville | 29°28'35" | 95°48'45" | 45 | 45 | 664 | -- | 0 | 45 | .98 | 42.8 | 14.47 | 4.89 | 2.83 |
| 155 | 08116400 | Dry Creek near Rosenberg | 29°30'42" | 95°44'48" | 21 | 47 | -- | 2,410 | 1 | 31 | .68 | 8.65 | 4.21 | 2.04 | 3.90 |
| 156 | 08117500 | San Bernard River near Boling | 29°18'48" | 95°53'37" | 38 | 38 | 2,120 | -- | 0 | 38 | .83 | 727 | 83.45 | 9.58 | 4.36 |
| 157 | 08120500 | Deep Creek near Dunn | 32°34'25" | 100°54'27" | 34 | 105 | 132 | 36,400 | 2 | 61 | 1.33 | 188 | 45.17 | 10.85 | 14.02 |
| 158 | 08126500 | Colorado River at Ballinger | 31°43'58" | 99°57'13" | 61 | 61 | 3,920 | -- | 0 | 61 | 1.33 | 6,160 | 340.08 | 18.78 | 6.04 |
| 159 | 08127000 | Elm Creek at Ballinger | 31°44'57" | 99°56'51" | 57 | 84 | 469 | 50,000 | 1 | 67 | 1.45 | 450 | 43.96 | 4.29 | 16.49 |
| 160 | 08128000 | South Concho River at Christoval | 31°11'15" | 100°30'06" | 62 | 107 | 97 | 115,000 | 1 | 78 | 1.69 | 354 | 33.85 | 3.24 | 13.37 |
| 161 | 08128400 | Middle Concho River above Tankersley | 31°25'38" | 100°42'39" | 32 | 32 | 17 | -- | 0 | 32 | .70 | 1,611 | 102.12 | 6.47 | 7.61 |
| 162 | 08128500 | Middle Concho River near Tankersley | 31°22'35" | 100°36'50" | 31 | 31 | 1,450 | -- | 0 | 31 | .68 | 1,685 | 111.58 | 7.39 | 7.56 |
| 163 | 08129300 | Spring Creek above Tankersley | 31°19'48" | 100°38'24" | 31 | 111 | 45 | 82,100 | 1 | 59 | 1.28 | 405 | 54.50 | 7.33 | 13.36 |
| 164 | 08130500 | Dove Creek at Knickerbocker | 31°16'24" | 100°37'45" | 31 | 31 | 19 | -- | 0 | 31 | .68 | 198 | 33.72 | 5.74 | 15.66 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold ($ft^3/s$) | Historical peak threshold ($ft^3/s$) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area ($mi^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 165 | 08131000 | Spring Creek near Tankersley | 31°21'30" | 100°32'05" | 30 | 30 | 1,280 | -- | 0 | 30 | 0.65 | 671 | 62.01 | 5.73 | 13.17 |
| 166 | 08131400 | Pecan Creek near San Angelo | 31°18'32" | 100°26'44" | 25 | 78 | 27 | 30,500 | 1 | 44 | .96 | 81.1 | 19.76 | 4.82 | 23.24 |
| 167 | 08133500 | North Concho River at Sterling City | 31°49'48" | 100°59'36" | 53 | 53 | 25 | -- | 0 | 53 | 1.16 | 568 | 48.27 | 4.10 | 10.60 |
| 168 | 08134000 | North Concho River near Carlsbad | 31°35'33" | 100°38'12" | 68 | 139 | 304 | 94,600 | 1 | 92 | 2.00 | 1,191 | 83.80 | 5.90 | 9.44 |
| 169 | 08136000 | Concho River at San Angelo | 31°27'16" | 100°24'37" | 36 | 98 | 286 | 230,000 | 2 | 60 | 1.30 | 4,411 | 130.70 | 3.87 | 7.53 |
| 170 | 08136500 | Concho River at Paint Rock | 31°30'57" | 99°55'09" | 36 | 98 | -- | 176,000 | 3 | 61 | 1.33 | 5,443 | 172.40 | 5.46 | 6.87 |
| 171 | 08138000 | Colorado River at Winchell | 31°28'04" | 99°09'43" | 24 | 24 | 10,000 | -- | 0 | 24 | .52 | 13,788 | 441.53 | 14.14 | 5.39 |
| 172 | 08139000 | Deep Creek SWS No. 3 (inflow) near Placid | 31°17'25" | 99°09'22" | 24 | 24 | -- | -- | 0 | 24 | .52 | 3.42 | 1.61 | .76 | 126.20 |
| 173 | 08140000 | Deep Creek SWS No. 6 (inflow) near Mercury | 31°23'58" | 99°08'14" | 20 | 20 | -- | -- | 0 | 20 | .44 | 5.41 | 5.94 | 6.52 | 45.29 |
| 174 | 08144500 | San Saba River at Menard | 30°55'08" | 99°47'07" | 77 | 77 | 68 | -- | 0 | 77 | 1.68 | 1,128 | 58.72 | 3.06 | 9.55 |
| 175 | 08146000 | San Saba River at San Saba | 31°12'47" | 98°43'09" | 63 | 80 | 745 | 203,000 | 1 | 69 | 1.51 | 3,039 | 156.24 | 8.03 | 8.02 |
| 176 | 08147000 | Colorado River near San Saba | 31°13'04" | 98°33'51" | 35 | 73 | -- | 184,000 | 2 | 50 | 1.09 | 19,819 | 529.29 | 14.14 | 4.82 |
| 177 | 08148500 | North Llano River near Junction | 30°31'06" | 99°48'39" | 62 | 102 | 700 | 84,000 | 2 | 77 | 1.68 | 914 | 54.71 | 3.27 | 11.87 |
| 178 | 08150000 | Llano River near Junction | 30°29'51" | 99°43'19" | 77 | 117 | 658 | 319,000 | 1 | 91 | 1.98 | 1,851 | 74.29 | 2.98 | 9.98 |
| 179 | 08150700 | Llano River near Mason | 30°39'38" | 99°06'32" | 25 | 117 | 5,040 | 218,000 | 4 | 62 | 1.36 | 3,242 | 128.04 | 5.06 | 8.79 |
| 180 | 08150800 | Beaver Creek near Mason | 30°38'36" | 99°05'44" | 29 | 29 | 275 | -- | 0 | 29 | .63 | 215 | 33.70 | 5.28 | 28.04 |
| 181 | 08151500 | Llano River at Llano | 30°45'04" | 98°40'10" | 53 | 113 | 1,850 | 380,000 | 1 | 74 | 1.61 | 4,192 | 159.74 | 6.09 | 8.24 |
| 182 | 08152000 | Sandy Creek near Kingsland | 30°33'30" | 98°28'19" | 26 | 111 | 258 | 163,000 | 1 | 55 | 1.21 | 346 | 48.34 | 6.75 | 24.84 |
| 183 | 08153500 | Pedernales River near Johnson City | 30°17'30" | 98°23'57" | 53 | 133 | 1,270 | 441,000 | 1 | 80 | 1.74 | 901 | 79.69 | 7.05 | 14.57 |
| 184 | 08158000 | Colorado River at Austin | 30°14'40" | 97°41'39" | 39 | 95 | 11,110 | 481,000 | 2 | 60 | 1.32 | 27,606 | 700.39 | 17.77 | 4.62 |
| 185 | 08160000 | Dry Creek at Buescher Lake near Smithville | 30°02'32" | 97°09'34" | 26 | 31 | 28 | 1,870 | 1 | 28 | .61 | 1.48 | 1.78 | 2.15 | 69.96 |
| 186 | 08160800 | Redgate Creek near Columbus | 29°47'56" | 96°31'55" | 31 | 31 | -- | -- | 0 | 31 | .68 | 17.3 | 7.61 | 3.35 | 20.26 |
| 187 | 08161000 | Colorado River at Columbus | 29°42'22" | 96°32'12" | 21 | 21 | 21,100 | -- | 0 | 21 | .46 | 30,237 | 858.97 | 24.40 | 4.06 |
| 188 | 08162600 | Tres Palacios River near Midfield | 28°55'40" | 96°10'15" | 22 | 22 | 1,530 | -- | 0 | 22 | .48 | 145 | 30.55 | 6.44 | 3.33 |
| 189 | 08163500 | Lavaca River at Hallettsville | 29°26'35" | 96°56'39" | 53 | 150 | 326 | 93,100 | 2 | 88 | 1.92 | 108 | 25.23 | 5.89 | 12.74 |
| 190 | 08164000 | Lavaca River near Edna | 28°57'35" | 96°41'10" | 54 | 112 | 690 | 73,000 | 2 | 76 | 1.65 | 817 | 85.59 | 8.97 | 5.81 |
| 191 | 08164300 | Navidad River near Hallettsville | 29°28'00" | 96°48'45" | 31 | 31 | -- | -- | 0 | 31 | .68 | 332 | 37.31 | 4.19 | 7.65 |
| 192 | 08164500 | Navidad River near Ganado | 29°01'32" | 96°33'08" | 42 | 104 | -- | 88,000 | 2 | 66 | 1.43 | 826 | 90.74 | 9.97 | 4.84 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold ($ft^3/s$) | Historical peak threshold ($ft^3/s$) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area ($mi^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 193 | 08164600 | Garcitas Creek near Inez | 28°53'28" | 96°49'08" | 22 | 89 | 1,100 | 19,100 | 1 | 46 | 1.00 | 91.7 | 24.98 | 6.81 | 6.83 |
| 194 | 08164800 | Placedo Creek near Placedo | 28°43'30" | 96°46'07" | 22 | 62 | 1,320 | 18,300 | 1 | 37 | .80 | 68.3 | 21.57 | 6.81 | 4.72 |
| 195 | 08165300 | North Fork Guadalupe River near Hunt | 30°03'36" | 99°23'40" | 25 | 92 | 143 | 140,000 | 1 | 49 | 1.06 | 168 | 27.57 | 4.53 | 20.35 |
| 196 | 08165500 | Guadalupe River at Hunt | 30°04'08" | 99°19'23" | 27 | 92 | 1,770 | 206,000 | 1 | 50 | 1.09 | 288 | 33.85 | 3.98 | 19.10 |
| 197 | 08166000 | Johnson Creek near Ingram | 30°06'00" | 99°16'58" | 49 | 140 | 749 | 138,000 | 1 | 80 | 1.73 | 114 | 19.80 | 3.44 | 25.03 |
| 198 | 08167000 | Guadalupe River at Comfort | 29°58'10" | 98°53'33" | 63 | 145 | 1,880 | 240,000 | 1 | 90 | 1.97 | 839 | 68.87 | 5.65 | 15.01 |
| 199 | 08167500 | Guadalupe River near Spring Branch | 29°51'38" | 98°22'58" | 70 | 70 | 810 | -- | 0 | 70 | 1.53 | 1,315 | 131.27 | 13.10 | 10.85 |
| 200 | 08168500 | Guadalupe River above Comal River at New Braunfels | 29°42'53" | 98°06'35" | 35 | 35 | 394 | -- | 0 | 35 | .76 | 1,518 | 177.73 | 20.81 | 9.86 |
| 201 | 08171000 | Blanco River at Wimberley | 29°59'39" | 98°05'19" | 66 | 124 | 646 | 95,000 | 3 | 89 | 1.93 | 355 | 60.39 | 10.27 | 19.02 |
| 202 | 08171300 | Blanco River near Kyle | 29°58'45" | 97°54'35" | 36 | 124 | 760 | 115,000 | 2 | 69 | 1.50 | 412 | 77.08 | 14.42 | 17.11 |
| 203 | 08172000 | San Marcos River at Luling | 29°39'54" | 97°38'59" | 53 | 53 | 2,020 | -- | 0 | 53 | 1.16 | 838 | 124.26 | 18.43 | 13.07 |
| 204 | 08173000 | Plum Creek near Luling | 29°41'58" | 97°36'12" | 34 | 95 | 707 | 78,500 | 1 | 56 | 1.21 | 309 | 42.30 | 5.79 | 12.57 |
| 205 | 08173500 | San Marcos River at Ottine | 29°35'36" | 97°35'22" | 28 | 28 | 5,840 | -- | 0 | 28 | .61 | 1,249 | 137.12 | 15.05 | 12.11 |
| 206 | 08174600 | Peach Creek below Dilworth | 29°28'26" | 97°18'59" | 20 | 40 | 1,000 | 76,800 | 1 | 28 | .61 | 460 | 50.28 | 5.50 | 7.83 |
| 207 | 08175000 | Sandies Creek near Westhoff | 29°12'54" | 97°26'57" | 37 | 125 | 454 | 92,700 | 1 | 65 | 1.42 | 549 | 54.54 | 5.42 | 8.54 |
| 208 | 08176000 | Guadalupe River below Cuero | 29°03'05" | 97°15'52" | 23 | 23 | 6,930 | -- | 0 | 23 | .50 | 4,923 | 352.33 | 25.22 | 6.37 |
| 209 | 08176500 | Guadalupe River at Victoria | 28°47'34" | 97°00'46" | 27 | 128 | 1,730 | 179,000 | 1 | 61 | 1.34 | 5,198 | 395.85 | 30.15 | 5.76 |
| 210 | 08177000 | Coleto Creek near Schroeder | 28°49'53" | 97°11'10" | 31 | 107 | 905 | 46,700 | 4 | 62 | 1.35 | 369 | 50.98 | 7.04 | 8.56 |
| 211 | 08179000 | Medina River near Pipe Creek | 29°40'31" | 98°58'33" | 42 | 102 | 435 | 281,000 | 1 | 63 | 1.37 | 474 | 64.33 | 8.73 | 19.74 |
| 212 | 08179100 | Red Bluff Creek near Pipe Creek | 29°40'51" | 98°57'19" | 25 | 76 | 162 | 46,900 | 1 | 44 | .95 | 56.3 | 12.52 | 2.79 | 64.44 |
| 213 | 08181400 | Helotes Creek at Helotes | 29°34'42" | 98°41'29" | 24 | 24 | -- | -- | 0 | 24 | .52 | 15.0 | 8.74 | 5.09 | 56.70 |
| 214 | 08182400 | Calaveras Creek SWS No. 6 (inflow) near Elmendorf | 29°22'49" | 98°17'33" | 21 | 21 | 13 | -- | 0 | 21 | .46 | 7.01 | 3.71 | 1.97 | 34.45 |
| 215 | 08183900 | Cibolo Creek near Boerne | 29°46'26" | 98°41'50" | 30 | 100 | 428 | 18,200 | 3 | 58 | 1.26 | 68.4 | 17.71 | 4.59 | 35.56 |
| 216 | 08184000 | Cibolo Creek near Bulverde | 29°43'33" | 98°25'37" | 20 | 20 | 100 | -- | 0 | 20 | .44 | 198 | 42.81 | 9.25 | 22.23 |
| 217 | 08185000 | Cibolo Creek at Selma | 29°35'38" | 98°18'39" | 35 | 123 | 69 | 65,000 | 1 | 65 | 1.42 | 274 | 67.14 | 16.45 | 18.47 |
| 218 | 08186000 | Cibolo Creek near Falls City | 29°00'50" | 97°55'48" | 62 | 102 | 915 | 35,000 | 1 | 76 | 1.66 | 827 | 142.80 | 24.66 | 11.90 |
| 219 | 08186500 | Ecleto Creek near Runge | 28°55'12" | 97°46'19" | 29 | 87 | -- | 58,400 | 3 | 52 | 1.14 | 239 | 56.07 | 13.15 | 7.61 |
| 220 | 08187900 | Escondido Creek SWS No. 11 (inflow) near Kenedy | 28°51'39" | 97°50'39" | 20 | 20 | 122 | -- | 0 | 20 | .44 | 8.43 | 4.21 | 2.10 | 21.81 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold ($ft^3/s$) | Historical peak threshold ($ft^3/s$) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area ($mi^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 221 | 08189200 | Copano Creek near Refugio | 28°18'12" | 97°06'44" | 22 | 22 | 57 | -- | 0 | 22 | 0.48 | 87.8 | 27.61 | 8.68 | 4.40 |
| 222 | 08189500 | Mission River at Refugio | 28°17'30" | 97°16'44" | 55 | 94 | 1,350 | 60,200 | 2 | 70 | 1.53 | 690 | 80.15 | 9.31 | 5.98 |
| 223 | 08189700 | Aransas River near Skidmore | 28°16'56" | 97°37'14" | 30 | 78 | 80 | 82,800 | 1 | 47 | 1.02 | 247 | 31.82 | 4.10 | 10.31 |
| 224 | 08189800 | Chiltipin Creek at Sinton | 28°02'48" | 97°30'13" | 21 | 21 | 694 | -- | 0 | 21 | .46 | 128 | 14.64 | 1.67 | 5.83 |
| 225 | 08190000 | Nueces River at Laguna | 29°25'42" | 99°59'49" | 70 | 127 | 406 | 210,000 | 4 | 93 | 2.03 | 737 | 64.86 | 5.71 | 18.72 |
| 226 | 08190500 | West Nueces River near Brackettville | 29°28'21" | 100°14'10" | 47 | 113 | 72 | 550,000 | 1 | 70 | 1.52 | 694 | 64.77 | 6.04 | 15.15 |
| 227 | 08192000 | Nueces River below Uvalde | 29°07'25" | 99°53'40" | 65 | 156 | 1,000 | 616,000 | 1 | 95 | 2.07 | 1,861 | 96.84 | 5.04 | 15.62 |
| 228 | 08193000 | Nueces River near Asherton | 28°30'00" | 99°40'54" | 53 | 53 | 707 | -- | 0 | 53 | 1.16 | 4,082 | 167.10 | 6.84 | 10.98 |
| 229 | 08194000 | Nueces River at Cotulla | 28°25'34" | 99°14'23" | 69 | 113 | 410 | 82,600 | 1 | 84 | 1.84 | 5,171 | 206.02 | 8.21 | 9.38 |
| 230 | 08194200 | San Casimiro Creek near Freer | 27°57'53" | 98°58'00" | 31 | 38 | -- | 65,200 | 2 | 34 | .74 | 469 | 41.92 | 3.75 | 9.23 |
| 231 | 08194500 | Nueces River near Tilden | 28°18'31" | 98°33'25" | 51 | 90 | -- | 47,900 | 4 | 67 | 1.47 | 8,093 | 279.10 | 9.63 | 7.61 |
| 232 | 08195000 | Frio River at Concan | 29°29'18" | 99°42'16" | 67 | 123 | 388 | 162,000 | 1 | 86 | 1.88 | 389 | 49.65 | 6.34 | 22.73 |
| 233 | 08196000 | Dry Frio River near Reagan Wells | 29°30'16" | 99°46'52" | 40 | 113 | 55 | 64,700 | 2 | 67 | 1.47 | 126 | 35.51 | 10.00 | 26.70 |
| 234 | 08197500 | Frio River below Dry Frio River near Uvalde | 29°14'44" | 99°40'27" | 41 | 41 | 2,850 | -- | 0 | 41 | .89 | 631 | 67.03 | 7.12 | 22.12 |
| 235 | 08198000 | Sabinal River near Sabinal | 29°29'35" | 99°29'49" | 50 | 50 | -- | -- | 0 | 50 | 1.09 | 206 | 34.92 | 5.92 | 32.04 |
| 236 | 08198500 | Sabinal River at Sabinal | 29°18'47" | 99°28'46" | 40 | 74 | 568 | 60,000 | 1 | 52 | 1.14 | 241 | 53.45 | 11.85 | 25.53 |
| 237 | 08200000 | Hondo Creek near Tarpley | 29°34'10" | 99°14'47" | 40 | 85 | 208 | 58,500 | 2 | 58 | 1.25 | 95.6 | 15.90 | 2.64 | 44.98 |
| 238 | 08200700 | Hondo Creek at King Waterhole near Hondo | 29°23'26" | 99°09'04" | 32 | 117 | 516 | 51,800 | 1 | 61 | 1.33 | 149 | 35.95 | 8.67 | 27.47 |
| 239 | 08201500 | Seco Creek at Miller Ranch near Utopia | 29°34'23" | 99°24'10" | 31 | 91 | 87 | 52,600 | 1 | 52 | 1.14 | 45.0 | 14.82 | 4.88 | 51.59 |
| 240 | 08202700 | Seco Creek at Rowe Ranch near D'Hanis | 29°21'43" | 99°17'05" | 32 | 34 | 1,000 | 35,800 | 1 | 33 | .72 | 168 | 38.74 | 8.93 | 29.47 |
| 241 | 08205500 | Frio River near Derby | 28°44'11" | 99°08'40" | 77 | 132 | 566 | 230,000 | 1 | 96 | 2.08 | 3,429 | 139.93 | 5.71 | 13.74 |
| 242 | 08206700 | San Miguel Creek near Tilden | 28°35'14" | 98°32'44" | 29 | 29 | 1,250 | -- | 0 | 29 | .63 | 783 | 84.52 | 9.12 | 8.85 |
| 243 | 08207000 | Frio River at Calliham | 28°29'31" | 98°20'47" | 52 | 111 | 1,200 | 80,200 | 1 | 72 | 1.58 | 5,491 | 221.33 | 8.92 | 9.95 |
| 244 | 08208000 | Atascosa River at Whitsett | 28°37'18" | 98°17'02" | 62 | 111 | -- | 106,000 | 2 | 80 | 1.75 | 1,171 | 91.48 | 7.15 | 6.42 |
| 245 | 08210000 | Nueces River near Three Rivers | 28°25'38" | 98°10'40" | 71 | 111 | -- | 141,000 | 1 | 85 | 1.85 | 15,427 | 313.27 | 6.36 | 7.04 |
| 246 | 08211520 | Oso Creek at Corpus Christi | 27°42'40" | 97°30'06" | 20 | 73 | 116 | 12,100 | 2 | 41 | .89 | 90.3 | 11.77 | 1.53 | 4.74 |
| 247 | 08365800 | Government Ditch at El Paso | 31°47'02" | 106°26'41" | 20 | 20 | 100 | -- | 0 | 20 | .44 | 6.4 | 3.69 | 2.13 | 125.91 |
| 248 | 08374000 | Alamito Creek near Presidio | 29°31'15" | 104°17'40" | 52 | 52 | 2,940 | -- | 0 | 52 | 1.13 | 1,504 | 101.60 | 6.86 | 40.69 |

**Table 1.** Selected data and basin characteristics for streamflow-gaging stations having at least 20 years of data from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Station name | Latitude | Longitude | Systematic record (yrs) | Historical record (yrs) | Low outlier threshold ($ft^3/s$) | Historical peak threshold ($ft^3/s$) | Number of historical peaks | Weight factor (yrs) | Kriging-error factor | Contributing drainage area ($mi^2$) | Main channel length (mi) | Basin shape factor | Main channel slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 249 | 08374500 | Terlingua Creek near Terlingua | 29°12'00" | 103°36'15" | 52 | 52 | 2,560 | -- | 0 | 52 | 1.13 | 1,070 | 98.53 | 9.07 | 28.70 |
| 250 | 08431700 | Limpia Creek above Fort Davis | 30°36'48" | 104°00'04" | 20 | 20 | 35 | -- | 0 | 20 | .44 | 52.4 | 11.39 | 2.48 | 128.44 |
| 251 | 08447400 | Pecos River near Shumla | 29°50'00" | 101°23'00" | 67 | 67 | 1,110 | -- | 0 | 67 | 1.46 | 35,162 | 893.10 | 22.68 | 4.09 |
| 252 | 08449000 | Devils River near Juno | 29°57'48" | 101°08'42" | 35 | 91 | 937 | 393,000 | 1 | 55 | 1.20 | 2,730 | 113.22 | 4.70 | 10.49 |
| 253 | 08449500 | Devils River near Del Rio | 29°29'00" | 101°00'00" | 46 | 46 | 3,420 | -- | 0 | 46 | 1.00 | 4,185 | 167.60 | 6.71 | 10.02 |
| 254 | 08453000 | San Felipe Creek near Del Rio | 29°19'55" | 100°53'20" | 29 | 29 | 554 | -- | 0 | 29 | .63 | 46.0 | 15.82 | 5.44 | 22.81 |
| 255 | 08455000 | Pinto Creek near Del Rio | 29°08'45" | 100°43'05" | 53 | 53 | 9 | -- | 0 | 53 | 1.16 | 249 | 44.23 | 7.85 | 17.43 |

**Table 2.** Generalized skew coefficients developed by the U.S. Water Resources Council, station skew coefficients, and generalized skew coefficients (this investigation) for streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas

| Site no. (fig. 4) | USGS station no. | Hydrologic region no. | Generalized skew coefficient (U.S. Water Resources Council, 1976; fig. 1) | Station skew coefficient | Generalized skew coefficient (fig. 3) |
|---|---|---|---|---|---|
| 1 | 07227500 | 1 | -0.096 | 0.355 | 0.000 |
| 2 | 07228000 | 1 | -.124 | -.064 | .000 |
| 3 | 07233500 | 1 | -.102 | .382 | .000 |
| 4 | 07235000 | 1 | -.121 | -.473 | .000 |
| 5 | 07295500 | 1 | -.092 | -.233 | -.014 |
| 6 | 07297910 | 1 | -.114 | .382 | .002 |
| 7 | 07298000 | 1 | -.108 | -.341 | .001 |
| 8 | 07299540 | 1 | -.147 | .456 | .108 |
| 9 | 07299570 | 3 | -.160 | .074 | .159 |
| 10 | 07299670 | 3 | -.161 | .447 | .159 |
| 11 | 07301300 | 1 | -.138 | -.385 | .002 |
| 12 | 07301410 | 1 | -.138 | -.402 | .000 |
| 13 | 07307800 | 3 | -.153 | .141 | .127 |
| 14 | 07308000 | 3 | -.163 | .039 | .161 |
| 15 | 07308200 | 3 | -.174 | -.113 | .200 |
| 16 | 07308500 | 3 | -.193 | .089 | .200 |
| 17 | 07311600 | 3 | -.156 | -.267 | .126 |
| 18 | 07311700 | 3 | -.164 | .597 | .144 |
| 19 | 07311800 | 3 | -.166 | .746 | .134 |
| 20 | 07315200 | 3 | -.208 | .666 | .199 |
| 21 | 07332600 | 7 | -.257 | -.207 | -.155 |
| 22 | 07342500 | 10 | -.274 | .078 | -.131 |
| 23 | 07343000 | 10 | -.273 | -.505 | -.144 |
| 24 | 07343200 | 10 | -.286 | -.443 | -.083 |
| 25 | 07343500 | 10 | -.287 | -.488 | -.071 |
| 26 | 07344000 | 10 | -.300 | -.122 | -.031 |
| 27 | 07344500 | 10 | -.295 | .313 | -.007 |
| 28 | 07345000 | 10 | -.297 | .604 | -.005 |
| 29 | 07346000 | 10 | -.300 | .002 | .034 |
| 30 | 07346045 | 10 | -.300 | -.123 | .034 |
| 31 | 07346050 | 10 | -.300 | .257 | .041 |
| 32 | 07346070 | 10 | -.300 | .367 | .040 |

**Table 2.** Generalized skew coefficients developed by the U.S. Water Resources Council, station skew coefficients, and generalized skew coefficients (this investigation) for streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Hydrologic region no. | Generalized skew coefficient (U.S. Water Resources Council, 1976; fig. 1) | Station skew coefficient | Generalized skew coefficient (fig. 3) |
|---|---|---|---|---|---|
| 33 | 07346140 | 10 | -0.300 | -0.227 | 0.005 |
| 34 | 08017200 | 7 | -.264 | .547 | -.120 |
| 35 | 08017300 | 7 | -.262 | -.517 | -.091 |
| 36 | 08018500 | 10 | -.283 | -.507 | .029 |
| 37 | 08019000 | 10 | -.283 | .015 | .003 |
| 38 | 08019500 | 10 | -.293 | .374 | .045 |
| 39 | 08020000 | 10 | -.297 | -.097 | .056 |
| 40 | 08022000 | 10 | -.300 | -.036 | .078 |
| 41 | 08022500 | 10 | -.300 | .127 | .112 |
| 42 | 08023200 | 10 | -.300 | .290 | .122 |
| 43 | 08024400 | 10 | -.289 | .415 | .200 |
| 44 | 08028500 | 11 | -.248 | .578 | .300 |
| 45 | 08029500 | 11 | -.262 | .767 | .300 |
| 46 | 08030000 | 11 | -.252 | .656 | .300 |
| 47 | 08030500 | 11 | -.237 | .037 | .300 |
| 48 | 08031000 | 11 | -.241 | .447 | .300 |
| 49 | 08031200 | 10 | -.282 | .227 | .073 |
| 50 | 08032000 | 10 | -.290 | .060 | .100 |
| 51 | 08033000 | 11 | -.300 | .054 | .102 |
| 52 | 08033300 | 11 | -.300 | -.165 | .077 |
| 53 | 08033500 | 11 | -.300 | -.009 | .217 |
| 54 | 08033900 | 10 | -.300 | .036 | .100 |
| 55 | 08037000 | 10 | -.300 | .160 | .100 |
| 56 | 08037050 | 10 | -.300 | .068 | .100 |
| 57 | 08038000 | 10 | -.300 | -.292 | .128 |
| 58 | 08039100 | 10 | -.300 | -.287 | .170 |
| 59 | 08039500 | 11 | -.294 | .267 | .263 |
| 60 | 08041000 | 11 | -.259 | .104 | .300 |
| 61 | 08041500 | 11 | -.271 | .225 | .300 |
| 62 | 08041700 | 11 | -.264 | .374 | .299 |
| 63 | 08042000 | 11 | -.245 | .536 | .286 |
| 64 | 08042500 | 11 | -.243 | .072 | .297 |

**Table 2.** Generalized skew coefficients developed by the U.S. Water Resources Council, station skew coefficients, and generalized skew coefficients (this investigation) for streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Hydrologic region no. | Generalized skew coefficient (U.S. Water Resources Council, 1976; fig. 1) | Station skew coefficient | Generalized skew coefficient (fig. 3) |
|---|---|---|---|---|---|
| 65 | 08043500 | 7 | -0.222 | -0.084 | 0.200 |
| 66 | 08047500 | 7 | -.236 | .504 | .091 |
| 67 | 08049700 | 7 | -.244 | .261 | .008 |
| 68 | 08051000 | 7 | -.238 | .133 | -.015 |
| 69 | 08054000 | 7 | -.237 | .535 | .041 |
| 70 | 08055500 | 7 | -.245 | .194 | -.005 |
| 71 | 08057000 | 7 | -.249 | .282 | -.003 |
| 72 | 08057500 | 7 | -.247 | -.272 | -.073 |
| 73 | 08058000 | 7 | -.248 | -.596 | -.076 |
| 74 | 08061500 | 7 | -.256 | -.421 | -.068 |
| 75 | 08061540 | 7 | -.253 | -.447 | -.059 |
| 76 | 08063000 | 7 | -.268 | -.404 | .000 |
| 77 | 08063500 | 7 | -.266 | -.331 | -.008 |
| 78 | 08064500 | 7 | -.266 | -.142 | .000 |
| 79 | 08064700 | 7 | -.270 | 1.265 | -.024 |
| 80 | 08064800 | 7 | -.280 | .535 | .041 |
| 81 | 08065000 | 7 | -.283 | .299 | .020 |
| 82 | 08065200 | 7 | -.281 | -.103 | -.014 |
| 83 | 08065800 | 8 | -.290 | -.069 | -.058 |
| 84 | 08066000 | 11 | -.299 | -.428 | .068 |
| 85 | 08066100 | 11 | -.298 | -.572 | .040 |
| 86 | 08066170 | 11 | -.300 | .549 | .099 |
| 87 | 08066200 | 11 | -.300 | .396 | .173 |
| 88 | 08066300 | 11 | -.300 | .296 | .246 |
| 89 | 08066400 | 11 | -.300 | .981 | .204 |
| 90 | 08066500 | 11 | -.300 | -.266 | .232 |
| 91 | 08067500 | 11 | -.297 | .020 | .124 |
| 92 | 08068000 | 11 | -.300 | -.065 | .101 |
| 93 | 08068500 | 11 | -.300 | -.124 | .068 |
| 94 | 08068520 | 11 | -.300 | -.202 | .071 |
| 95 | 08069500 | 11 | -.300 | .366 | .084 |
| 96 | 08070000 | 11 | -.300 | .133 | .197 |

**Table 2.** Generalized skew coefficients developed by the U.S. Water Resources Council, station skew coefficients, and generalized skew coefficients (this investigation) for streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Hydrologic region no. | Generalized skew coefficient (U.S. Water Resources Council, 1976; fig. 1) | Station skew coefficient | Generalized skew coefficient (fig. 3) |
|---|---|---|---|---|---|
| 97 | 08070500 | 11 | -0.300 | 0.668 | 0.147 |
| 98 | 08071000 | 11 | -.300 | .018 | .165 |
| 99 | 08077000 | 11 | -.300 | -1.121 | .059 |
| 100 | 08078000 | 11 | -.298 | .687 | .082 |
| 101 | 08079000 | 11 | -.299 | .819 | .076 |
| 102 | 08079600 | 3 | -.133 | -.189 | -.024 |
| 103 | 08080500 | 3 | -.163 | -.192 | .097 |
| 104 | 08080700 | 1 | -.111 | -.026 | -.009 |
| 105 | 08081200 | 3 | -.152 | -.809 | .069 |
| 106 | 08081500 | 3 | -.152 | .282 | .070 |
| 107 | 08082000 | 3 | -.157 | -.330 | .088 |
| 108 | 08082180 | 3 | -.161 | .282 | .099 |
| 109 | 08082500 | 3 | -.180 | -.139 | .196 |
| 110 | 08082700 | 3 | -.177 | -.118 | .185 |
| 111 | 08083100 | 3 | -.159 | .052 | .060 |
| 112 | 08083240 | 3 | -.177 | .650 | .100 |
| 113 | 08083245 | 3 | -.178 | .031 | .100 |
| 114 | 08084800 | 3 | -.178 | .628 | .163 |
| 115 | 08086150 | 3 | -.191 | .392 | .200 |
| 116 | 08086212 | 3 | -.194 | .190 | .200 |
| 117 | 08087300 | 3 | -.201 | .129 | .200 |
| 118 | 08088000 | 3 | -.203 | .123 | .200 |
| 119 | 08088100 | 3 | -.196 | 1.155 | .200 |
| 120 | 08088300 | 3 | -.201 | .114 | .200 |
| 121 | 08088450 | 3 | -.203 | -.555 | .200 |
| 122 | 08091500 | 7 | -.231 | .094 | .052 |
| 123 | 08093500 | 7 | -.248 | .151 | -.200 |
| 124 | 08094000 | 4 | -.220 | .519 | .182 |
| 125 | 08095000 | 7 | -.241 | .253 | -.118 |
| 126 | 08095300 | 7 | -.248 | -.554 | -.200 |
| 127 | 08095400 | 7 | -.248 | -.715 | -.200 |
| 128 | 08096500 | 7 | -.254 | .228 | -.200 |

**Table 2.** Generalized skew coefficients developed by the U.S. Water Resources Council, station skew coefficients, and generalized skew coefficients (this investigation) for streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Hydrologic region no. | Generalized skew coefficient (U.S. Water Resources Council, 1976; fig. 1) | Station skew coefficient | Generalized skew coefficient (fig. 3) |
|---|---|---|---|---|---|
| 129 | 08098203 | 7 | -0.259 | -0.113 | -0.200 |
| 130 | 08098206 | 7 | -.259 | .029 | -.200 |
| 131 | 08098227 | 7 | -.259 | -.314 | -.200 |
| 132 | 08098239 | 7 | -.259 | -.374 | -.200 |
| 133 | 08098242 | 7 | -.260 | -.183 | -.200 |
| 134 | 08098263 | 7 | -.259 | -.538 | -.200 |
| 135 | 08098281 | 7 | -.259 | -.373 | -.200 |
| 136 | 08098300 | 8 | -.261 | -.432 | -.200 |
| 137 | 08101000 | 4 | -.239 | -.410 | -.060 |
| 138 | 08102500 | 8 | -.251 | .249 | -.180 |
| 139 | 08103800 | 4 | -.238 | -.332 | -.059 |
| 140 | 08103900 | 4 | -.239 | -.087 | -.083 |
| 141 | 08104000 | 4 | -.246 | .305 | -.132 |
| 142 | 08104900 | 8 | -.250 | -.009 | -.118 |
| 143 | 08105000 | 8 | -.250 | -.042 | -.125 |
| 144 | 08105100 | 8 | -.250 | -.153 | -.128 |
| 145 | 08106500 | 8 | -.264 | .194 | -.200 |
| 146 | 08109000 | 8 | -.277 | .309 | -.200 |
| 147 | 08109700 | 8 | -.271 | -.381 | -.193 |
| 148 | 08109800 | 8 | -.272 | -.626 | -.200 |
| 149 | 08110000 | 8 | -.280 | -.289 | -.200 |
| 150 | 08110100 | 8 | -.278 | -.399 | -.200 |
| 151 | 08110500 | 8 | -.275 | -.368 | -.184 |
| 152 | 08111700 | 11 | -.292 | -.364 | -.092 |
| 153 | 08114000 | 11 | -.300 | -.360 | .008 |
| 154 | 08115000 | 11 | -.300 | .151 | .018 |
| 155 | 08116400 | 11 | -.300 | .307 | .019 |
| 156 | 08117500 | 11 | -.300 | .137 | .024 |
| 157 | 08120500 | 3 | -.144 | .262 | -.030 |
| 158 | 08126500 | 4 | -.182 | -.133 | .097 |
| 159 | 08127000 | 4 | -.182 | .137 | .104 |
| 160 | 08128000 | 4 | -.170 | -.264 | -.131 |

**Table 2.** Generalized skew coefficients developed by the U.S. Water Resources Council, station skew coefficients, and generalized skew coefficients (this investigation) for streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Hydrologic region no. | Generalized skew coefficient (U.S. Water Resources Council, 1976; fig. 1) | Station skew coefficient | Generalized skew coefficient (fig. 3) |
|---|---|---|---|---|---|
| 161 | 08128400 | 4 | -0.159 | -0.633 | -0.117 |
| 162 | 08128500 | 4 | -.163 | -.361 | -.120 |
| 163 | 08129300 | 4 | -.163 | -.192 | -.123 |
| 164 | 08130500 | 4 | -.164 | -.219 | -.127 |
| 165 | 08131000 | 4 | -.166 | .024 | -.118 |
| 166 | 08131400 | 4 | -.170 | .186 | -.116 |
| 167 | 08133500 | 4 | -.146 | -.429 | -.108 |
| 168 | 08134000 | 4 | -.161 | .344 | -.104 |
| 169 | 08136000 | 4 | -.169 | -.118 | -.102 |
| 170 | 08136500 | 4 | -.186 | .140 | .046 |
| 171 | 08138000 | 4 | -.208 | .175 | .138 |
| 172 | 08139000 | 4 | -.210 | .854 | .102 |
| 173 | 08140000 | 4 | -.209 | .062 | .124 |
| 174 | 08144500 | 4 | -.200 | -.341 | -.026 |
| 175 | 08146000 | 4 | -.220 | .083 | .079 |
| 176 | 08147000 | 4 | -.224 | .920 | .056 |
| 177 | 08148500 | 4 | -.204 | -.262 | -.192 |
| 178 | 08150000 | 4 | -.207 | -.277 | -.215 |
| 179 | 08150700 | 4 | -.218 | .118 | -.052 |
| 180 | 08150800 | 4 | -.219 | -.372 | -.058 |
| 181 | 08151500 | 4 | -.227 | -.268 | -.017 |
| 182 | 08152000 | 4 | -.233 | -.114 | -.093 |
| 183 | 08153500 | 5 | -.238 | .020 | -.156 |
| 184 | 08158000 | 5 | -.254 | .840 | -.100 |
| 185 | 08160000 | 9 | -.269 | -.512 | -.097 |
| 186 | 08160800 | 9 | -.285 | -.512 | -.115 |
| 187 | 08161000 | 9 | -.287 | .629 | -.100 |
| 188 | 08162600 | 9 | -.300 | .303 | .023 |
| 189 | 08163500 | 9 | -.281 | -.051 | .024 |
| 190 | 08164000 | 9 | -.292 | -.226 | .000 |
| 191 | 08164300 | 9 | -.283 | -.508 | -.018 |
| 192 | 08164500 | 9 | -.295 | -.540 | .000 |

**Table 2.** Generalized skew coefficients developed by the U.S. Water Resources Council, station skew coefficients, and generalized skew coefficients (this investigation) for streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Hydrologic region no. | Generalized skew coefficient (U.S. Water Resources Council, 1976; fig. 1) | Station skew coefficient | Generalized skew coefficient (fig. 3) |
|---|---|---|---|---|---|
| 193 | 08164600 | 9 | -0.290 | 0.099 | 0.000 |
| 194 | 08164800 | 9 | -.293 | -.229 | .000 |
| 195 | 08165300 | 5 | -.219 | -.634 | -.331 |
| 196 | 08165500 | 5 | -.221 | -.156 | -.320 |
| 197 | 08166000 | 5 | -.221 | .121 | -.305 |
| 198 | 08167000 | 5 | -.231 | .058 | -.339 |
| 199 | 08167500 | 5 | -.244 | .315 | -.188 |
| 200 | 08168500 | 5 | -.252 | .363 | -.098 |
| 201 | 08171000 | 5 | -.249 | -.142 | -.120 |
| 202 | 08171300 | 5 | -.253 | -.353 | -.084 |
| 203 | 08172000 | 9 | -.262 | -.078 | .000 |
| 204 | 08173000 | 9 | -.263 | .242 | .001 |
| 205 | 08173500 | 9 | -.265 | .664 | .013 |
| 206 | 08174600 | 9 | -.272 | .003 | .065 |
| 207 | 08175000 | 9 | -.272 | .424 | .098 |
| 208 | 08176000 | 9 | -.278 | .254 | .060 |
| 209 | 08176500 | 9 | -.287 | -.050 | .000 |
| 210 | 08177000 | 9 | -.283 | -.325 | .001 |
| 211 | 08179000 | 5 | -.233 | .123 | -.400 |
| 212 | 08179100 | 5 | -.233 | -.251 | -.400 |
| 213 | 08181400 | 5 | -.240 | -.570 | -.320 |
| 214 | 08182400 | 5 | -.252 | -.020 | -.139 |
| 215 | 08183900 | 5 | -.238 | -.338 | -.317 |
| 216 | 08184000 | 5 | -.245 | -.724 | -.210 |
| 217 | 08185000 | 5 | -.249 | -.643 | -.162 |
| 218 | 08186000 | 9 | -.264 | -.024 | .034 |
| 219 | 08186500 | 9 | -.268 | .259 | .088 |
| 220 | 08187900 | 9 | -.267 | .159 | .083 |
| 221 | 08189200 | 9 | -.289 | -.378 | .000 |
| 222 | 08189500 | 9 | -.285 | .591 | .000 |
| 223 | 08189700 | 9 | -.278 | -.159 | .000 |
| 224 | 08189800 | 9 | -.283 | .012 | .000 |

**Table 2.** Generalized skew coefficients developed by the U.S. Water Resources Council, station skew coefficients, and generalized skew coefficients (this investigation) for streamflow-gaging stations having at least 20 years of annual peak-streamflow record from natural basins in Texas—Continued

| Site no. (fig. 4) | USGS station no. | Hydrologic region no. | Generalized skew coefficient (U.S. Water Resources Council, 1976; fig. 1) | Station skew coefficient | Generalized skew coefficient (fig. 3) |
|---|---|---|---|---|---|
| 225 | 08190000 | 5 | -0.214 | -0.243 | -0.361 |
| 226 | 08190500 | 5 | -.208 | -.723 | -.316 |
| 227 | 08192000 | 5 | -.219 | -.167 | -.360 |
| 228 | 08193000 | 6 | -.232 | .133 | -.207 |
| 229 | 08194000 | 6 | -.242 | .256 | -.095 |
| 230 | 08194200 | 6 | -.261 | .857 | .073 |
| 231 | 08194500 | 6 | -.257 | -.323 | .052 |
| 232 | 08195000 | 5 | -.219 | -.370 | -.400 |
| 233 | 08196000 | 5 | -.218 | -.699 | -.398 |
| 234 | 08197500 | 5 | -.223 | -.003 | -.400 |
| 235 | 08198000 | 5 | -.224 | -.882 | -.400 |
| 236 | 08198500 | 5 | -.226 | -.754 | -.400 |
| 237 | 08200000 | 5 | -.228 | -.311 | -.400 |
| 238 | 08200700 | 5 | -.233 | -.693 | -.400 |
| 239 | 08201500 | 5 | -.225 | -.601 | -.400 |
| 240 | 08202700 | 5 | -.230 | -.872 | -.400 |
| 241 | 08205500 | 6 | -.240 | .197 | -.193 |
| 242 | 08206700 | 6 | -.254 | -.063 | -.044 |
| 243 | 08207000 | 6 | -.260 | .341 | .035 |
| 244 | 08208000 | 6 | -.260 | -.231 | .002 |
| 245 | 08210000 | 6 | -.264 | .142 | .098 |
| 246 | 08211520 | 6 | -.286 | -.159 | .000 |
| 247 | 08365800 | 2 | -.192 | -.634 | -.300 |
| 248 | 08374000 | 2 | -.093 | .870 | -.201 |
| 249 | 08374500 | 2 | -.053 | -.495 | -.188 |
| 250 | 08431700 | 2 | -.031 | -.455 | -.214 |
| 251 | 08447400 | 2 | -.152 | .057 | -.200 |
| 252 | 08449000 | 2 | -.163 | -.326 | -.200 |
| 253 | 08449500 | 2 | -.178 | .030 | -.211 |
| 254 | 08453000 | 2 | -.189 | .409 | -.221 |
| 255 | 08455000 | 2 | -.202 | -.398 | -.237 |