

Entiat Subbasin Hydrograph Separation Analysis
Chelan County Conservation District/Entiat WRIA Planning Unit
May 2003, *draft*

INTRODUCTION

Hydrograph separation is the process of separating a plot of stage or discharge vs. time, known as a stream hydrograph, into baseflow and surface runoff components. Baseflow comprises the groundwater contribution to total stream flow, and a key starting assumption in performing a hydrograph separation is that baseflow is a significant contributor to total streamflow in the selected stream. Clearly, it would be inappropriate to apply such a technique to an ephemeral stream fed only seasonally by meltwater, or a stream that was only actively flowing after major precipitation events.

The hydrograph separation analyses in this study were conducted using the computer program HYSEP (Sloto and Crouse, 1996), which is distributed to the public through the U.S. Geological Survey (USGS). HYSEP is based upon algorithms that duplicate manual hydrograph separation techniques, improving the consistency of the results and the speed at which they can be produced.

Hydrograph separation is an established technique for quantifying groundwater contribution to annual streams. However, streams that are significantly affected by regulation or snowmelt conditions require special treatment. The Entiat River is profoundly affected by snowmelt from late winter to late summer. This will be discussed further in the results section of this report.

Purpose and Scope

This study was conducted in support of the Entiat (WRIA 46) Water Quantity Sub-Committee Draft Plan of Work. Specifically, task II.C.2 of the water quantity plan of work is to estimate groundwater present in the Entiat basin and a subtask of that is the evaluation of groundwater-surface water interaction through hydrograph separation techniques. Under the draft plan of work, the study is limited to the Entiat River basin. Analyses were performed for three stream gaging sites (discussed below) within the basin: 1) the Entiat River near Ardenvoir (USGS gage number 12452800), 2) the Entiat River near Entiat (USGS gage number 12452990), and 3) the Entiat River below Entiat Falls (US Forest Service).

METHODS

Theoretical Basis

HYSEP allows the user to select one of three methods to separate baseflow and surface runoff components of a stream hydrograph. The three methods are: 1) fixed interval, 2) sliding interval, and 3) local minimum. The local minimum consistently yields the most

conservative estimates of baseflow (Sinclair and Pitts, 1999) and was the method chosen for this study.

Surface runoff duration following a precipitation event is calculated from the empirical formula:

$$N=A^{0.2}$$

Where N is the number of days after which runoff ceases, and A is the drainage area in square miles (Linsley et al., 1982). The interval $2N^*$ is the odd integer between 3 and 11 nearest to $2N$ (Pettyjohn and Henning, 1979). As an example, the stream gage on the Entiat River near Ardenvoir, Washington (USGS gage number 12452800) has a drainage area of 203 square miles, yielding a $2N^*$ value of 5, where N is 2.89 and thus $2N$ is 5.78.

The local minimum method checks each day in the daily mean streamflow data for a station, and if it is the lowest discharge in the preceding and following $[0.5(2N^*-1)]$ day periods, it is considered a local minimum and connected by straight lines to adjacent local minimums. The resultant baseflow hydrograph may be visualized by connecting, through linear interpolation, the low points of a stream hydrograph.

Since HYSEP is unable to distinguish the effects of stream regulation or snowmelt from precipitation events, the program will tend to over-estimate the baseflow component of total streamflow for those periods during which those factors are active. Therefore, HYSEP results for streams such as the Entiat that are profoundly affected by spring and early summer snowmelt require special treatment. This will be discussed further in the results section of this report.

Streamflow Data

The U.S. Geological Survey maintains three continuous recording stream gages within the Entiat basin, two of which reside on the mainstem Entiat River. Historical daily mean streamflow data are available to the public via the USGS NWIS (National Water Information System) website. The USGS gage number 12452800 (Entiat River near Ardenvoir) is located at river mile 18, is known locally as the Ardenvoir gage, and has been in operation since 1957. Near the mouth of the Entiat at river mile 1.5 is gage number 12452990 (Entiat River near Entiat), known locally as the Keystone gage. The Keystone gage has been in operation since 1996. An earlier gage, 12453000- Entiat River at Entiat, was located at river mile 0.5 and ceased operation in 1958.

In addition to the USGS gages, the U.S. Forest Service (USFS) maintained two continuous recording gages on the mainstem Entiat from 1966 to 1978 as part of the USFS Entiat Barometer Watershed program. These were known as the Entiat Falls and North Fork gages, and were located at river miles 33.5 and 34, respectively.

Daily mean discharge values for all records had to be converted from text format into a binary Watershed Data Management (WDM) format for entry into HYSEP. This was done using another USGS public domain program known as IOWDM (Flynn et al. 1997).

Data synthesis

Long periods of record are less affected by short-term variations in climate and lend themselves to more representative estimates of average conditions. The 44 years (water years 1958-2001, inclusive) of continuous high-quality data from the Ardenvoir gage, in conjunction with temporally overlapping records from other, shorter-term gage records, presented a method to extend those shorter-term records through correlation with and extrapolation from the Ardenvoir gage record. As a component of task II.B.1.d, Entiat (WRIA 46) Water Quantity Sub-Committee Draft Plan of Work, extended daily mean flow data for both the Keystone and Entiat Falls gages have been synthesized (Rhodus, 2002). For analytic purposes, these synthetic records have been combined with measured records to form “composite” records.

At the Keystone and Entiat Falls gages, composite 45-year records were created using a 5- and 12-year overlap, respectively, with data from the Ardenvoir gage (see Appendix A). The synthesis for Keystone also involved a 1-year overlap (WY 58) with the decommissioned USGS gage number 12453000.

Summary of analyses performed

Using both the historical and extrapolated records available for the Keystone, Ardenvoir and Entiat Falls gage sites, a total of five separate HYSEP analyses were performed. For the Keystone gage, HYSEP was performed using both the water year (WY) 1997-2001 NWIS record and the composite WY 1958-2001 record. Only the NWIS record was used for the Ardenvoir gage, and both the measured and composite records were used for the Entiat Falls gage. The stations, periods of record and source of data for each analysis is summarized in Table 1.

Table 1. Summary of daily mean streamflow records used for HYSEP analysis.

Site name	Agency/Site number	Period of record	Source
Entiat R. near Entiat	USGS/12452990	WY 1997-2001	USGS-NWIS
Entiat R. near Entiat	USGS/12452990	WY 1997-2001 WY 1958-1996	USGS-NWIS G. Rhodus (syn) ¹
Entiat R. near Ardenvoir	USGS/12452800	WY 1958-2001	USGS-NWIS
Entiat R. below Entiat Falls	USFS	WY 1967-1978	USFS
Entiat R. below Entiat Falls	USFS	WY 1958-1966 WY 1967-1978 WY 1979-2001	G. Rhodus (syn) USFS G. Rhodus (syn)

¹ - synthesized data (see text)

RESULTS AND DISCUSSION

The HYSEP output files located in Appendices B-E contain monthly summaries of total streamflow, baseflow and surface runoff for each water year analyzed for each station/record. They also contain annual baseflow summaries, annual baseflow summaries ordered by frequency, seasonal distribution tables for baseflow and surface runoff, and flow duration tables for total flow, baseflow and surface runoff. Figures 1-5 on the following pages summarize the mean monthly values for total streamflow, baseflow and surface runoff for all water years analyzed for each station and record.

Due to the seasonal snowmelt effects mentioned earlier, the summary information for the months March through July may be assumed to greatly overestimate the baseflow component of total streamflow. The months of March through July have been omitted from the baseflow and surface runoff plots on Figures 1-5.

The use of both historically measured and composite records for hydrograph separation presents an opportunity for comparison of results. While the use of the composite records at the Keystone and Entiat Falls gages does seem to reduce some of the short-term climatic variability (compared to the shorter measured records), thus producing a “smoothing” effect on the graphs in Figures 1-5, the range of values for monthly mean streamflow, baseflow and surface runoff are not greatly affected.

This report is chiefly concerned with producing estimates of baseflow contributions to total streamflow for the Entiat River, so that these data are available to the Water Quantity Technical Sub-Committee of the Entiat Watershed Planning Unit (and other concerned entities). However, it also addresses, in part, the utility of using synthetic streamflow records created through correlation analysis and extrapolation from overlapping gage records.

Figure 1.
 Comparison of monthly mean streamflow,
 mean baseflow and mean surface runoff
 for USGS gaging station 12452990,
 Entiat River near Entiat, Washington

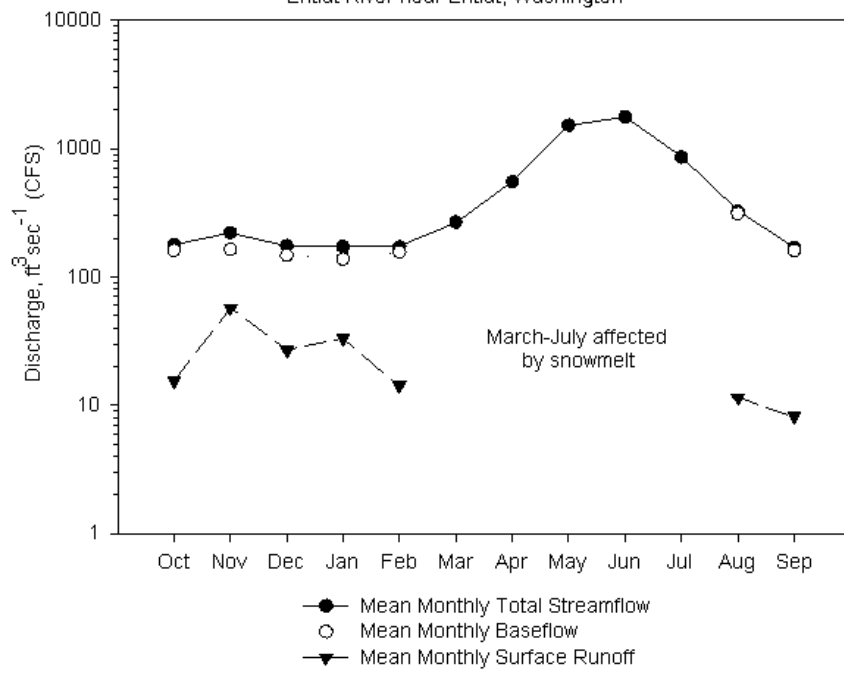


Figure 2.
Monthly mean streamflow, baseflow
and surface runoff (synthesized record)
for USGS gaging station 12452990,
Entiat River near Entiat, Washington

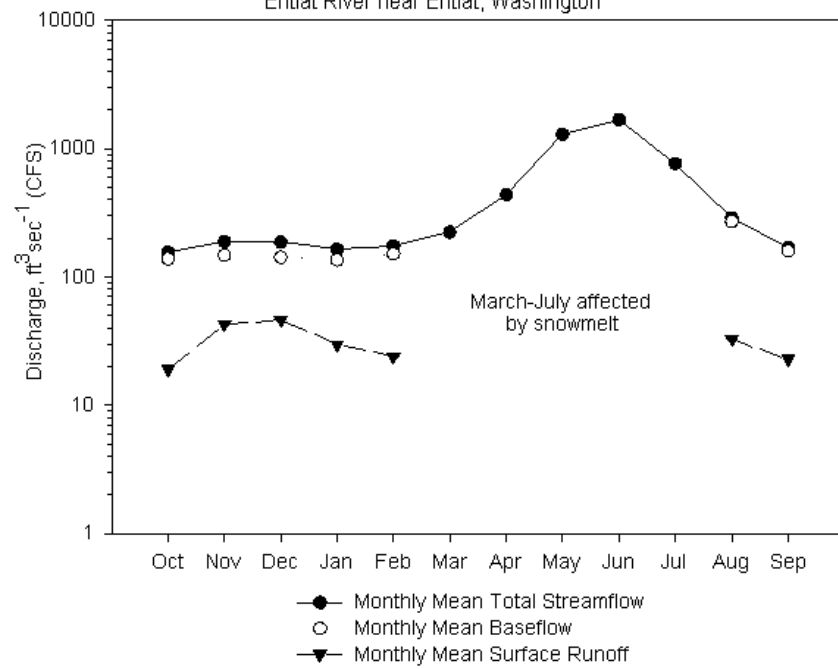


Figure 3.
 Comparison of monthly mean streamflow,
 mean baseflow and mean surface runoff
 for USGS gaging station 12452800,
 Entiat River near Ardenvoir, Washington

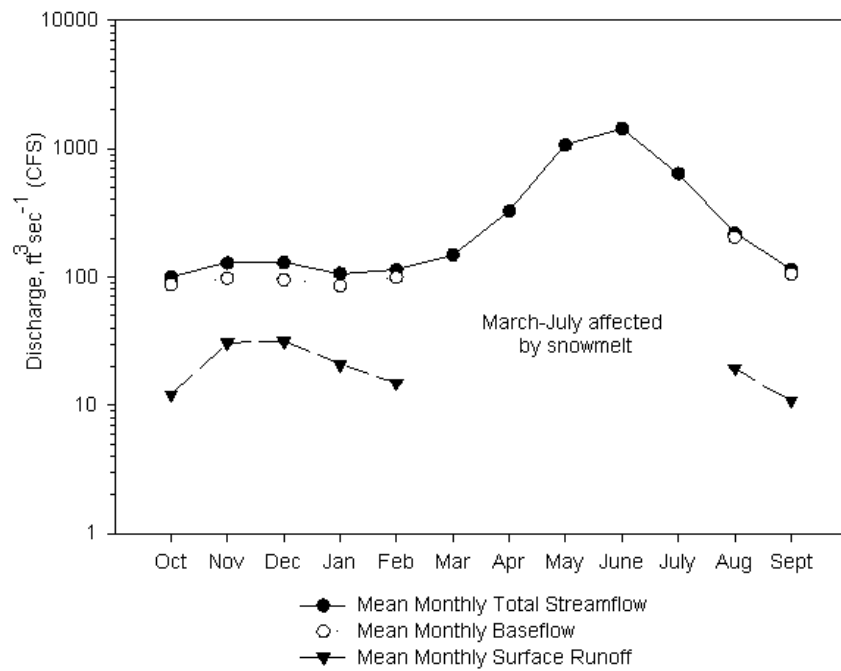


Figure 4.
 Monthly mean streamflow, baseflow
 and surface runoff for USFS Barometer Watershed
 gaging station, Entiat River below Entiat Falls

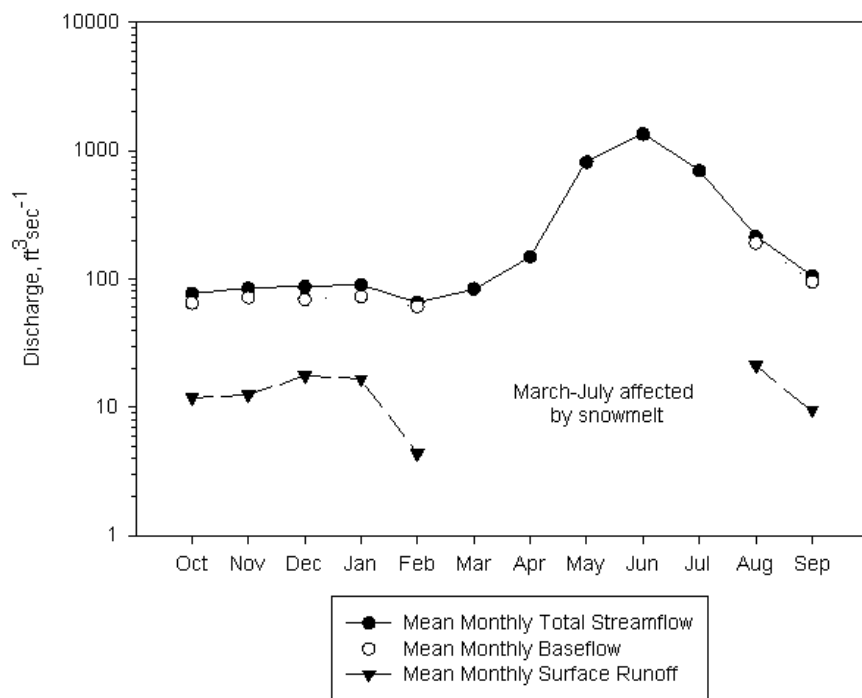
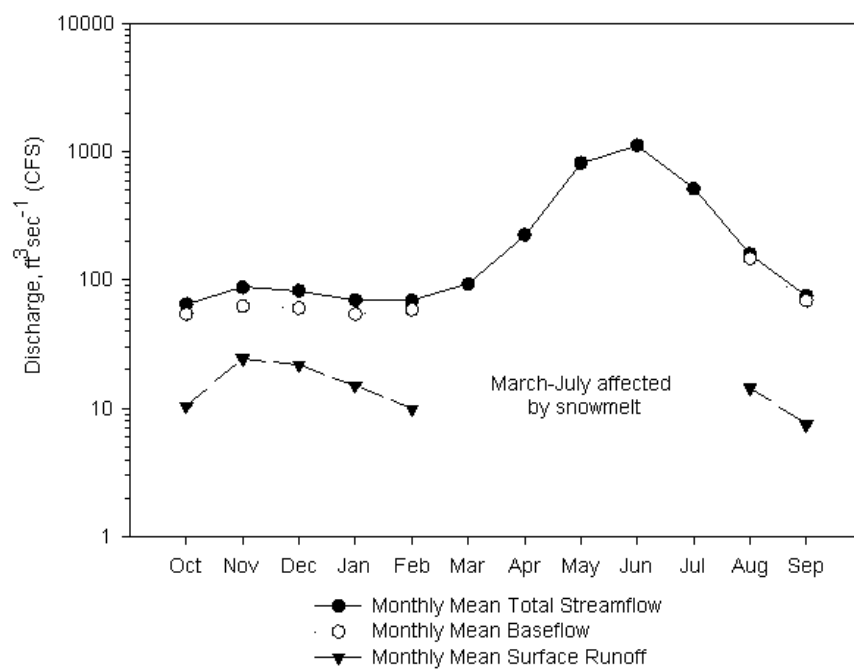


Figure 5.
 Monthly mean streamflow, baseflow
 and surface runoff (synthesized record)
 for USFS Barometer Watershed gaging station,
 Entiat River below Entiat Falls



References

- Flynn, K.M., Hummel, P.R., Lumb, A.M., and Kittle, J.L., Jr. 1995. User's manual for ANNIE, version 2, a computer program for interactive hydrologic data management. US Geological Survey, Water-Resources Investigations Report 95-4085. 211pp.
- Linsley, R.K., Kohler, M.A., and Paulhaous, J.L. 1982. Hydrology for engineers (3rd ed.). New York: Mcrow-Hill. 508pp.
- Pettyjohn, W.A. and Hemming, R. 1979. Preliminary estimate of groundwater recharge rates, related stream flow and water quality in Ohio. Ohio State University Water Resources Center Project Completion Report No. 552. 323pp.
- Rhodus, G. 2002. Entiat water resources version 1.0. Professional hydroclimatic and surface-water data and analysis submitted to Chelan County Conservation District.
- Sinclair, K.A. and Pitz, C.F. 1999. Estimated baseflow characteristics of selected Washington Rivers and streams. Washington State Department of Ecology Environmental Assessment Program water supply bulletin No. 60. Olympia, WA. 25pp.
- Sloto, R.A. and Crouse, M.Y. 1996. HYSEP: A computer program for stream flow hydrograph separation and analysis. US Geological Survey Water Resources Investigation Report 96-4040. 46pp.

V1.0

**DATA SUMMARY SHEET
ENTIAT WATER RESOURCES**

**PARAMETER: SYNTHESIZED MEAN DAILY FLOWS FOR THE ENTIAT RIVER NR ENTIAT, WA.
(USGS STATION No. 12452990; a.k.a. "KEYSTONE" Gage)**

Time Period: Synthesized data for Station #12452990 from 10/1/57 to 3/14/96
[This synthesized record is based on SIX YEARS of gage overlap data—see below]

PRIMARY DATA FILE NAME: SYN_MEAN_DAILY_FLOWS_12452990_10-01-58TO3-14-96_10-21-02

Rhodus File Name: Same as primary file name above

DATA FILE LOCATION: ENTIATWR1_0

ORIGINAL DATA SOURCE(S): These data were electronically synthesized (estimated) using a regression equation. This equation was developed from overlapping actual mean daily flows for the 12452800 and 12453000 gages for WY 1958 and for the 12452800 and 12452990 gages for WYs 1997-2001. The resulting equation used had an intercept of 41.64199 and a slope of 1.151026 (see data spreadsheet).

This data synthesis using 6 years of overlap data is considered superior to the estimation based only on the one year relationship between 12453000 and 12452800. The "six year" overlap data set was used to develop a composite flow record for the Keystone gage (see companion data set).

DESCRIPTION OF ANY MODIFICATION/SUPPLEMENTATION OF ORIGINAL DATA: No modifications were made to the original (measured) data sets for 12453000, 12452990 and 12452800 other than elimination of leap year days.

INTENDED USE OF DATA: The Keystone station is a very significant location for water resource management in the Entiat. These synthesized data have a variety of water use management applications—flow regime characterization, instream flow analysis and plan development, etc.

LIMITATIONS REGARDING USE OF DATA SET(S): The user must keep in mind that this data set has been synthesized using a regression equation based on six years of overlap data for 12453000 and 12452990. No adjustments were made in the synthesized data to "smooth" the transition between measured and synthesized data at the end of WY1958 and between 3/14/96 and 3/15/96.

DESCRIPTION OF ANY ASSOCIATED GRAPHICS: Standard hydrograph plots

COMMENTS: Continuous gaging at the Keystone site (Entiat River near Entiat; 124452990) began on 3/15/96. This "Keystone" gage replaces the "Entiat River at Entiat, WA" (USGS #12453000), which went out of service at the end of WY 1958.

The lower confidence interval regression equation was selected for this synthesis in order to provide a conservative estimate. The mid range (51.3449;1.166293) and upper range (61.04781;1.18156) equations were considered but not employed here.

PREPARED BY: Gran Rhodus

LAST UPDATED: 10/29/02

V1.0

DATA SUMMARY SHEET ENTIAT WATER RESOURCES

PARAMETER: SYNTHESIZED MEAN DAILY FLOWS FOR ENTIAT RIVER AT ENTIAT FALLS
(USFS Barometer Watershed gage)

Time Period: **WY1958-1966---Synthesized data**
 WY1967-1978---Gaged data (see companion data sets)

WY1979-2001---Synthesized data

PRIMARY DATA FILE NAME: SYN_MEAN_DAILY_FLOWS_ENTIATFALLS_10-01-57TO9-30-01_10-17-02

Rhodus File Name: AA_AA_ENTIATFALLS_POR_GAGED_AND_SYNTHESIZED_5-18-02

DATA FILE LOCATION: ENTIATWR1_0

ORIGINAL DATA SOURCE(S): Data for water years 1958-1966 and 1979-2000 were electronically synthesized (constructed) using a regression equation. This equation was developed from overlapping actual mean daily flows between 12452800 and the Entiat Falls gages for WYs 1967-1978. The resulting equation had an intercept of -17.4619 and a slope of 0.797544 (see data spreadsheet).

The original gaged data (1967-1978) used in this synthesis were converted from hard copy to electronic format (Hydrometeorological Records, ENTIAT BAROMETER WATERSHED, 1966-1978, Entiat Ranger District, Wenatchee National Forest).

DESCRIPTION OF ANY MODIFICATION/SUPPLEMENTATION OF ORIGINAL DATA: The original twelve water years of gaged record between 10/1/1966 and 9/30/1978 were used to estimate flows from 1958-1966 and 1979 to 2000 by correlation with Entiat River near Ardenvoir (USGS Gage #12452800). The correlation between the Entiat at Entiat Falls and Entiat River nr Ardenvoir, WA was excellent.

INTENDED USE OF DATA: Determine flow volumes originating from the headwaters and flow contribution of the North Fork Entiat River. These data have a variety of water use management applications—flow regime characterization, instream flow analysis and plan development/implementation, etc.

LIMITATIONS REGARDING USE OF DATA SET(S): Synthesized data are subject to the error introduced by correlation equations with varying accuracy. The gaged data (1966-1978) are considered to be of high quality as verified by the high correlation with the USGS gaging station #12452800 (Entiat River nr. Ardenvoir, WA).

DESCRIPTION OF ANY ASSOCIATED GRAPHICS: Standard hydrograph plots

COMMENTS: This continuous recording gage was part of the U. S. Forest Service's Entiat Barometer Watershed program established in 1966. The program was part of a national watershed scheme to characterize water resources and evaluate the impact of resource management on water quantity and quality. The gage was operated from 10/1/66 thru 9/30/1978 and then deactivated with the termination of the Barometer Watershed program.

The Entiat Falls gaging station has been reactivated via the expanded gaging program initially funded with a BPA grant passed through the DOE and CCCD. The gage house is being used to shelter the DOE instrument panel. The stage control at this station remained very stable during the previous years of operation and appears to be quite stable now.

PREPARED BY: Gran Rhodus

LAST UPDATED: 10/29/02

Appendix B

Hydrograph separation by the local minimum method

Entiat River near Entiat WA (USGS-NWIS record)

Station ID = 12452990

Drainage area = 419.00 square miles

Period ending in 1996

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Nov.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Dec.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Jan.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Apr.	1090.37	773.74	316.62	2.903	2.060	0.843	70.96	1.847
May	1235.52	1047.61	187.91	3.400	2.883	0.517	84.79	2.500
June	1946.33	1646.29	300.04	5.183	4.384	0.799	84.58	3.929
July	1166.03	993.45	172.58	3.208	2.734	0.475	85.20	2.371
Aug.	315.06	296.24	18.83	0.867	0.815	0.052	94.02	0.707
Sept.	177.07	163.64	13.42	0.471	0.436	0.036	92.42	0.391
	964.77	795.86	168.91	16.870	13.916	2.954	82.49	1.899

Above summary information based on 197 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat River near Entiat WA (Keystone)

Station ID = 12452990

Drainage area = 419.00 square miles

Period ending in 1997

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	152.29	143.97	8.32	0.419	0.396	0.023	94.53	0.344
Nov.	157.90	139.32	18.58	0.420	0.371	0.049	88.23	0.332
Dec.	140.61	110.08	30.53	0.387	0.303	0.084	78.29	0.263
Jan.	181.90	116.89	65.02	0.501	0.322	0.179	64.26	0.279
Feb.	201.61	180.86	20.75	0.501	0.449	0.052	89.71	0.432
Mar.	385.32	323.81	61.52	1.060	0.891	0.169	84.03	0.773

Apr.	698.20	575.70	122.50	1.859	1.533	0.326	82.45	1.374
May	2204.84	1397.98	806.86	6.067	3.847	2.220	63.40	3.336
June	2559.33	1972.19	587.14	6.815	5.251	1.563	77.06	4.707
July	1093.42	990.93	102.49	3.009	2.727	0.282	90.63	2.365
Aug.	366.03	360.01	6.02	1.007	0.991	0.017	98.36	0.859
Sept.	231.63	210.64	20.99	0.617	0.561	0.056	90.94	0.503
	699.49	544.53	154.96	22.661	17.641	5.020	77.85	1.300

Hydrograph separation by the local minimum method

Entiat River near Entiat WA (Keystone)

Station ID = 12452990

Drainage area = 419.00 square miles

Period ending in 1998

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	300.90	254.27	46.63	0.828	0.700	0.128	84.50	0.607
Nov.	265.00	240.80	24.20	0.706	0.641	0.064	90.87	0.575
Dec.	171.77	156.69	15.09	0.473	0.431	0.042	91.22	0.374
Jan.	153.03	142.34	10.69	0.421	0.392	0.029	93.01	0.340
Feb.	197.46	181.62	15.84	0.491	0.451	0.039	91.98	0.433
Mar.	302.84	262.14	40.70	0.833	0.721	0.112	86.56	0.626
Apr.	557.93	511.50	46.43	1.486	1.362	0.124	91.68	1.221
May	2276.77	1711.64	565.13	6.265	4.710	1.555	75.18	4.085
June	1585.17	1404.55	180.61	4.221	3.740	0.481	88.61	3.352
July	591.29	522.13	69.16	1.627	1.437	0.190	88.30	1.246
Aug.	220.06	214.01	6.06	0.606	0.589	0.017	97.25	0.511
Sept.	133.73	130.32	3.41	0.356	0.347	0.009	97.45	0.311
	565.21	479.07	86.14	18.311	15.520	2.791	84.76	1.143

Hydrograph separation by the local minimum method

Entiat River near Entiat WA (Keystone)

Station ID = 12452990

Drainage area = 419.00 square miles

Period ending in 1999

interval = 7 days

Mean stream-	Mean base	Mean surface	Total stream-	Total base	Total surface	BF/ stream-	Base flow
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	flow (ft3/s)	flow (ft3/s)	runoff (ft3/s)	flow (in)	flow (in)	runoff (in)	flow (%)	(ft3/s/ mi2)
Oct.	112.32	110.84	1.49	0.309	0.305	0.004	98.68	0.265
Nov.	132.77	112.38	20.39	0.354	0.299	0.054	84.64	0.268
Dec.	129.58	105.69	23.89	0.357	0.291	0.066	81.56	0.252
Jan.	184.45	153.94	30.51	0.508	0.424	0.084	83.46	0.367
Feb.	170.71	160.03	10.69	0.424	0.398	0.027	93.74	0.382
Mar.	278.71	227.31	51.40	0.767	0.625	0.141	81.56	0.543
Apr.	564.13	501.92	62.21	1.502	1.337	0.166	88.97	1.198
May	1250.61	1019.39	231.22	3.441	2.805	0.636	81.51	2.433
June	2674.00	1884.34	789.66	7.120	5.018	2.103	70.47	4.497
July	1681.61	1422.65	258.96	4.627	3.914	0.713	84.60	3.395
Aug.	655.19	627.62	27.57	1.803	1.727	0.076	95.79	1.498
Sept.	231.30	227.21	4.09	0.616	0.605	0.011	98.23	0.542
	673.73	547.80	125.93	21.827	17.747	4.080	81.31	1.307

Hydrograph separation by the local minimum method

Entiat River near Entiat WA (Keystone)

Station ID = 12452990

Drainage area = 419.00 square miles

Period ending in 2000

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	173.97	163.04	10.93	0.479	0.449	0.030	93.72	0.389
Nov.	412.13	200.07	212.06	1.097	0.533	0.565	48.55	0.477
Dec.	316.06	274.55	41.52	0.870	0.755	0.114	86.86	0.655
Jan.	234.87	191.91	42.96	0.646	0.528	0.118	81.71	0.458
Feb.	198.93	182.99	15.94	0.512	0.471	0.041	91.99	0.437
Mar.	250.23	246.32	3.90	0.689	0.678	0.011	98.44	0.588
Apr.	787.43	692.39	95.04	2.097	1.844	0.253	87.93	1.652
May	1220.55	906.73	313.82	3.358	2.495	0.863	74.29	2.164
June	1541.00	1349.98	191.02	4.103	3.595	0.509	87.60	3.222
July	715.55	663.41	52.14	1.969	1.825	0.143	92.71	1.583
Aug.	259.32	248.11	11.21	0.714	0.683	0.031	95.68	0.592
Sept.	162.53	152.72	9.82	0.433	0.407	0.026	93.96	0.364
	522.27	439.01	83.26	16.966	14.262	2.705	84.06	1.048

Hydrograph separation by the local minimum method

Entiat River near Entiat WA (Keystone)

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 2001 interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	151.13	139.67	11.46	0.416	0.384	0.032	92.42	0.333
Nov.	141.43	131.72	9.71	0.377	0.351	0.026	93.13	0.314
Dec.	118.39	92.36	26.02	0.326	0.254	0.072	78.02	0.220
Jan.	108.29	89.33	18.96	0.298	0.246	0.052	82.49	0.213
Feb.	92.07	82.60	9.47	0.229	0.205	0.024	89.72	0.197
Mar.	125.19	115.52	9.68	0.344	0.318	0.027	92.27	0.276
Apr.	165.13	143.65	21.49	0.440	0.382	0.057	86.99	0.343
May	672.65	430.63	242.01	1.851	1.185	0.666	64.02	1.028
June	497.03	405.59	91.44	1.323	1.080	0.243	81.60	0.968
July	218.16	204.53	13.64	0.600	0.563	0.038	93.75	0.488
Aug.	122.94	115.39	7.54	0.338	0.318	0.021	93.87	0.275
Sept.	87.67	83.42	4.25	0.233	0.222	0.011	95.16	0.199
	209.14	170.01	39.12	6.775	5.508	1.268	81.29	0.406

 Annual base-flow summary

Entiat River near Entiat WA (Keystone)
 Station ID = 12452990
 Drainage area = 419.00 square miles

Local minimum method

 Year starts in October
 Year ends in September

Period ending	in	ft3/s	ft3/s/ mi2	% of stream- flow
1996	-1.000	-1.00	-1.000	-1.00
1997	17.641	544.53	1.300	77.85
1998	15.520	479.07	1.143	84.76
1999	17.747	547.80	1.307	81.31
2000	14.262	439.01	1.048	84.06
2001	5.508	170.01	0.406	81.29
median	15.520	479.07	1.143	81.31

Annual base-flow summary ordered by frequency

Entiat River near Entiat WA (Keystone)
Station ID = 12452990
Drainage area = 419.00 square miles

Local minimum method

Year starts in October
Year ends in September

Cum dist	in	ft3/s/ mi2	year
----	-----	-----	----
-1.0	-1.000	-1.000	1996
16.7	5.508	0.406	2001
33.3	14.262	1.048	2000
50.0	15.520	1.143	1998
66.7	17.641	1.300	1997
83.3	17.747	1.307	1999

Seasonal-distribution table

Entiat River near Entiat WA (Keystone)
Station ID = 12452990
Drainage area = 419.00 square miles

Local minimum method

Year starts in October
Year ends in September

Month	Base flow (in)	Runoff (in)
-----	-----	-----
October	0.447	0.043
November	0.439	0.152
December	0.407	0.075
January	0.382	0.093
February	0.395	0.036
March	0.647	0.092
April	1.420	0.295
May	2.987	1.076
June	3.845	0.950
July	2.200	0.307
August	0.854	0.035
September	0.430	0.025

Flow duration table for total flow, local minimum method
at Entiat River near Entiat WA (Keystone) (1996-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	0	0.00	2023	100.00
49.00	0	0.00	2023	100.00
57.00	2	0.10	2023	100.00
66.00	2	0.10	2021	99.90
75.00	26	1.29	2019	99.80
87.00	36	1.78	1993	98.52
100.00	114	5.64	1957	96.74
120.00	79	3.91	1843	91.10
130.00	161	7.96	1764	87.20
150.00	268	13.25	1603	79.24
180.00	111	5.49	1335	65.99
200.00	172	8.50	1224	60.50
230.00	116	5.73	1052	52.00
270.00	91	4.50	936	46.27
310.00	71	3.51	845	41.77
360.00	73	3.61	774	38.26
410.00	46	2.27	701	34.65
470.00	52	2.57	655	32.38
540.00	52	2.57	603	29.81
630.00	42	2.08	551	27.24
720.00	60	2.97	509	25.16
830.00	56	2.77	449	22.19
950.00	53	2.62	393	19.43
1100.00	49	2.42	340	16.81
1300.00	76	3.76	291	14.38
1500.00	51	2.52	215	10.63
1700.00	34	1.68	164	8.11
1900.00	47	2.32	130	6.43
2200.00	21	1.04	83	4.10
2600.00	23	1.14	62	3.06
2900.00	19	0.94	39	1.93
3400.00	13	0.64	20	0.99
3900.00	6	0.30	7	0.35
4500.00	1	0.05	1	0.05
5200.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for surface runoff, local minimum method
at Entiat River near Entiat WA (Keystone) (1996-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	418	20.66	2023	100.00
0.10	0	0.00	1605	79.34

0.13	0	0.00	1605	79.34
0.15	5	0.25	1605	79.34
0.18	1	0.05	1600	79.09
0.20	0	0.00	1599	79.04
0.23	1	0.05	1599	79.04
0.27	2	0.10	1598	78.99
0.31	4	0.20	1596	78.89
0.36	0	0.00	1592	78.70
0.41	3	0.15	1592	78.70
0.47	2	0.10	1589	78.55
0.54	2	0.10	1587	78.45
0.63	2	0.10	1585	78.35
0.72	6	0.30	1583	78.25
0.83	3	0.15	1577	77.95
0.95	11	0.54	1574	77.81
1.10	12	0.59	1563	77.26
1.30	8	0.40	1551	76.67
1.50	7	0.35	1543	76.27
1.70	9	0.44	1536	75.93
1.90	18	0.89	1527	75.48
2.20	16	0.79	1509	74.59
2.60	17	0.84	1493	73.80
2.90	26	1.29	1476	72.96
3.40	25	1.24	1450	71.68
3.90	37	1.83	1425	70.44
4.50	26	1.29	1388	68.61
5.20	35	1.73	1362	67.33
6.00	40	1.98	1327	65.60
6.90	42	2.08	1287	63.62
7.90	28	1.38	1245	61.54
9.10	29	1.43	1217	60.16
10.00	66	3.26	1188	58.72
12.00	60	2.97	1122	55.46
14.00	59	2.92	1062	52.50
16.00	54	2.67	1003	49.58
18.00	60	2.97	949	46.91
21.00	35	1.73	889	43.94
24.00	63	3.11	854	42.21
28.00	61	3.02	791	39.10
32.00	46	2.27	730	36.09
37.00	53	2.62	684	33.81
43.00	46	2.27	631	31.19
49.00	48	2.37	585	28.92
57.00	33	1.63	537	26.54
66.00	23	1.14	504	24.91
75.00	35	1.73	481	23.78
87.00	31	1.53	446	22.05
100.00	47	2.32	415	20.51
120.00	20	0.99	368	18.19
130.00	32	1.58	348	17.20
150.00	44	2.17	316	15.62
180.00	18	0.89	272	13.45
200.00	17	0.84	254	12.56
230.00	33	1.63	237	11.72
270.00	26	1.29	204	10.08
310.00	35	1.73	178	8.80
360.00	14	0.69	143	7.07

410.00	15	0.74	129	6.38
470.00	18	0.89	114	5.64
540.00	14	0.69	96	4.75
630.00	8	0.40	82	4.05
720.00	11	0.54	74	3.66
830.00	19	0.94	63	3.11
950.00	11	0.54	44	2.17
1100.00	8	0.40	33	1.63
1300.00	4	0.20	25	1.24
1500.00	8	0.40	21	1.04
1700.00	3	0.15	13	0.64
1900.00	2	0.10	10	0.49
2200.00	4	0.20	8	0.40
2600.00	0	0.00	4	0.20
3400.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for base flow, local minimum method
at Entiat River near Entiat WA (Keystone) (1996-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	0	0.00	2023	100.00
49.00	0	0.00	2023	100.00
57.00	8	0.40	2023	100.00
66.00	8	0.40	2015	99.60
75.00	52	2.57	2007	99.21
87.00	64	3.16	1955	96.64
100.00	160	7.91	1891	93.48
120.00	113	5.59	1731	85.57
130.00	179	8.85	1618	79.98
150.00	221	10.92	1439	71.13
180.00	98	4.84	1218	60.21
200.00	149	7.37	1120	55.36
230.00	118	5.83	971	48.00
270.00	80	3.95	853	42.17
310.00	62	3.06	773	38.21
360.00	56	2.77	711	35.15
410.00	34	1.68	655	32.38
470.00	85	4.20	621	30.70
540.00	48	2.37	536	26.50
630.00	38	1.88	488	24.12
720.00	63	3.11	450	22.24
830.00	64	3.16	387	19.13
950.00	43	2.13	323	15.97
1100.00	47	2.32	280	13.84
1300.00	104	5.14	233	11.52
1500.00	32	1.58	129	6.38
1700.00	48	2.37	97	4.79
1900.00	33	1.63	49	2.42
2200.00	15	0.74	16	0.79

2600.00	1	0.05	1	0.05
2900.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Appendix C

Hydrograph separation by the local minimum method

Entiat River near Entiat WA (NWIS data 1997-2001; synthesized data 1958-1996)
 Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1958 interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Nov.	143.57	123.40	20.17	0.382	0.329	0.054	85.95	0.295
Dec.	126.23	116.87	9.36	0.347	0.322	0.026	92.59	0.279
Jan.	111.94	105.13	6.80	0.308	0.289	0.019	93.92	0.251
Feb.	169.00	127.05	41.95	0.420	0.316	0.104	75.18	0.303
Mar.	184.61	153.34	31.27	0.508	0.422	0.086	83.06	0.366
Apr.	312.17	289.99	22.18	0.831	0.772	0.059	92.89	0.692
May	2267.65	1249.02	1018.62	6.239	3.437	2.803	55.08	2.981
June	1493.37	1320.76	172.61	3.976	3.517	0.460	88.44	3.152
July	407.81	394.05	13.76	1.122	1.084	0.038	96.63	0.940
Aug.	167.71	164.70	3.01	0.461	0.453	0.008	98.20	0.393
Sept.	121.07	111.19	9.88	0.322	0.296	0.026	91.84	0.265
	475.35	359.63	115.71	15.273	11.555	3.718	75.66	0.858

Above summary information based on 362 days of good base-flow values.

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1959 interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	167.00	151.45	15.55	0.460	0.417	0.043	90.69	0.361
Nov.	180.43	154.69	25.74	0.480	0.412	0.069	85.73	0.369
Dec.	243.55	204.78	38.77	0.670	0.563	0.107	84.08	0.489
Jan.	193.16	161.81	31.35	0.531	0.445	0.086	83.77	0.386
Feb.	152.04	139.48	12.56	0.378	0.347	0.031	91.74	0.333
Mar.	172.00	166.92	5.08	0.473	0.459	0.014	97.05	0.398

Apr.	493.60	438.96	54.64	1.314	1.169	0.145	88.93	1.048
May	1253.13	1036.11	217.02	3.448	2.851	0.597	82.68	2.473
June	2083.57	1572.72	510.85	5.548	4.188	1.360	75.48	3.754
July	1150.48	1035.47	115.02	3.166	2.849	0.316	90.00	2.471
Aug.	314.00	311.98	2.02	0.864	0.858	0.006	99.36	0.745
Sept.	242.10	213.47	28.63	0.645	0.568	0.076	88.18	0.509
	554.91	466.92	87.99	17.977	15.127	2.851	84.14	1.114

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1960

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	378.10	266.76	111.34	1.040	0.734	0.306	70.55	0.637
Nov.	372.77	221.98	150.79	0.993	0.591	0.402	59.55	0.530
Dec.	459.97	270.63	189.34	1.266	0.745	0.521	58.84	0.646
Jan.	205.39	197.98	7.41	0.565	0.545	0.020	96.39	0.473
Feb.	165.38	159.71	5.67	0.426	0.411	0.015	96.57	0.381
Mar.	221.06	183.97	37.09	0.608	0.506	0.102	83.22	0.439
Apr.	614.60	393.95	220.65	1.637	1.049	0.588	64.10	0.940
May	1078.03	626.84	451.19	2.966	1.725	1.241	58.15	1.496
June	1775.03	1393.41	381.63	4.727	3.710	1.016	78.50	3.326
July	820.52	730.90	89.62	2.258	2.011	0.247	89.08	1.744
Aug.	264.03	253.98	10.05	0.726	0.699	0.028	96.19	0.606
Sept.	162.03	157.58	4.45	0.431	0.420	0.012	97.25	0.376
	543.08	404.65	138.43	17.643	13.145	4.497	74.51	0.966

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1961

interval = 7 days

Mean stream-	Mean base	Mean surface	Total stream-	Total base	Total surface	BF/ stream-	Base flow
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	flow (ft3/s)	flow (ft3/s)	runoff (ft3/s)	flow (in)	flow (in)	runoff (in)	flow (%)	(ft3/s/ mi2)
Oct.	135.19	129.35	5.85	0.372	0.356	0.016	95.68	0.309
Nov.	135.40	125.57	9.83	0.361	0.334	0.026	92.74	0.300
Dec.	115.19	102.37	12.82	0.317	0.282	0.035	88.87	0.244
Jan.	121.74	109.85	11.89	0.335	0.302	0.033	90.23	0.262
Feb.	159.54	139.88	19.66	0.396	0.348	0.049	87.68	0.334
Mar.	187.45	178.32	9.13	0.516	0.491	0.025	95.13	0.426
Apr.	389.80	337.13	52.67	1.038	0.898	0.140	86.49	0.805
May	1522.84	1269.12	253.72	4.190	3.492	0.698	83.34	3.029
June	2402.13	1664.39	737.75	6.396	4.432	1.964	69.29	3.972
July	584.90	531.73	53.17	1.609	1.463	0.146	90.91	1.269
Aug.	232.19	219.27	12.92	0.639	0.603	0.036	94.43	0.523
Sept.	151.40	142.13	9.27	0.403	0.378	0.025	93.88	0.339
	511.55	412.97	98.58	16.573	13.379	3.194	80.73	0.986

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1962

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	132.19	123.71	8.48	0.364	0.340	0.023	93.58	0.295
Nov.	115.10	100.13	14.97	0.306	0.267	0.040	87.00	0.239
Dec.	112.00	100.31	11.69	0.308	0.276	0.032	89.57	0.239
Jan.	147.52	108.32	39.20	0.406	0.298	0.108	73.43	0.259
Feb.	176.39	130.74	45.66	0.438	0.325	0.113	74.12	0.312
Mar.	138.42	128.99	9.42	0.381	0.355	0.026	93.19	0.308
Apr.	431.93	273.12	158.81	1.150	0.727	0.423	63.23	0.652
May	709.77	486.29	223.48	1.953	1.338	0.615	68.51	1.161
June	1332.87	1142.60	190.27	3.549	3.042	0.507	85.72	2.727
July	560.45	497.42	63.04	1.542	1.369	0.173	88.75	1.187
Aug.	233.68	226.04	7.64	0.643	0.622	0.021	96.73	0.539
Sept.	139.33	134.94	4.39	0.371	0.359	0.012	96.85	0.322
	352.25	287.64	64.61	11.412	9.319	2.093	81.66	0.686

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1963 interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	154.97	134.44	20.53	0.426	0.370	0.056	86.75	0.321
Nov.	225.00	164.76	60.24	0.599	0.439	0.160	73.23	0.393
Dec.	217.00	184.08	32.92	0.597	0.507	0.091	84.83	0.439
Jan.	152.29	119.55	32.74	0.419	0.329	0.090	78.50	0.285
Feb.	221.21	166.48	54.74	0.550	0.414	0.136	75.26	0.397
Mar.	202.32	196.88	5.44	0.557	0.542	0.015	97.31	0.470
Apr.	241.43	234.15	7.28	0.643	0.623	0.019	96.98	0.559
May	1105.71	844.27	261.44	3.042	2.323	0.719	76.36	2.015
June	1334.53	1098.78	235.75	3.554	2.926	0.628	82.33	2.622
July	483.55	429.52	54.03	1.330	1.182	0.149	88.83	1.025
Aug.	245.39	230.28	15.11	0.675	0.634	0.042	93.84	0.550
Sept.	150.80	141.48	9.32	0.402	0.377	0.025	93.82	0.338
	394.92	329.17	65.75	12.794	10.664	2.130	83.35	0.786

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1964 interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	134.81	113.56	21.25	0.371	0.312	0.058	84.24	0.271
Nov.	145.83	131.06	14.78	0.388	0.349	0.039	89.87	0.313
Dec.	150.19	127.47	22.72	0.413	0.351	0.063	84.87	0.304
Jan.	142.42	121.71	20.70	0.392	0.335	0.057	85.46	0.290
Feb.	120.45	117.15	3.30	0.310	0.302	0.008	97.26	0.280
Mar.	127.13	124.89	2.24	0.350	0.344	0.006	98.24	0.298
Apr.	220.73	211.19	9.54	0.588	0.562	0.025	95.68	0.504
May	726.00	608.40	117.60	1.998	1.674	0.324	83.80	1.452
June	2136.23	1664.00	472.23	5.688	4.431	1.257	77.89	3.971
July	937.16	875.82	61.34	2.579	2.410	0.169	93.46	2.090
Aug.	283.52	278.80	4.71	0.780	0.767	0.013	98.34	0.665
Sept.	150.13	146.25	3.88	0.400	0.389	0.010	97.42	0.349

 438.85 376.35 62.50 14.256 12.226 2.030 85.76 0.898

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1965

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	156.06	137.81	18.26	0.429	0.379	0.050	88.30	0.329
Nov.	124.60	118.16	6.44	0.332	0.315	0.017	94.83	0.282
Dec.	117.35	91.36	25.99	0.323	0.251	0.072	77.85	0.218
Jan.	113.87	104.80	9.07	0.313	0.288	0.025	92.03	0.250
Feb.	143.68	136.60	7.08	0.357	0.339	0.018	95.07	0.326
Mar.	183.19	153.53	29.67	0.504	0.422	0.082	83.81	0.366
Apr.	377.33	286.31	91.02	1.005	0.762	0.242	75.88	0.683
May	1124.68	846.27	278.41	3.095	2.329	0.766	75.25	2.020
June	1837.57	1387.30	450.27	4.893	3.694	1.199	75.50	3.311
July	708.87	578.84	130.03	1.950	1.593	0.358	81.66	1.381
Aug.	302.97	273.90	29.07	0.834	0.754	0.080	90.40	0.654
Sept.	159.77	155.69	4.08	0.425	0.415	0.011	97.45	0.372
	446.35	356.25	90.10	14.460	11.541	2.919	79.81	0.850

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1966

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	128.94	123.81	5.12	0.355	0.341	0.014	96.03	0.295
Nov.	137.00	127.31	9.69	0.365	0.339	0.026	92.92	0.304
Dec.	116.48	100.62	15.87	0.321	0.277	0.044	86.38	0.240

Jan.	112.10	105.16	6.93	0.308	0.289	0.019	93.81	0.251
Feb.	104.11	101.46	2.65	0.259	0.252	0.007	97.45	0.242
Mar.	122.61	116.01	6.60	0.337	0.319	0.018	94.61	0.277
Apr.	333.33	305.44	27.89	0.888	0.813	0.074	91.63	0.729
May	1209.81	685.33	524.48	3.329	1.886	1.443	56.65	1.636
June	1218.23	918.25	299.99	3.244	2.445	0.799	75.38	2.192
July	600.10	573.25	26.85	1.651	1.577	0.074	95.53	1.368
Aug.	233.03	231.06	1.97	0.641	0.636	0.005	99.16	0.551
Sept.	142.90	138.52	4.38	0.381	0.369	0.012	96.93	0.331
	372.81	294.57	78.23	12.078	9.543	2.535	79.01	0.703

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1967

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	126.19	111.90	14.29	0.347	0.308	0.039	88.67	0.267
Nov.	121.90	116.33	5.57	0.325	0.310	0.015	95.43	0.278
Dec.	135.19	117.44	17.75	0.372	0.323	0.049	86.87	0.280
Jan.	125.35	115.61	9.74	0.345	0.318	0.027	92.23	0.276
Feb.	129.43	122.91	6.52	0.322	0.305	0.016	94.96	0.293
Mar.	122.90	116.94	5.97	0.338	0.322	0.016	95.14	0.279
Apr.	148.93	145.43	3.51	0.397	0.387	0.009	97.65	0.347
May	940.48	682.69	257.79	2.588	1.878	0.709	72.59	1.629
June	2663.67	1714.26	949.41	7.093	4.565	2.528	64.36	4.091
July	810.29	757.80	52.49	2.230	2.085	0.144	93.52	1.809
Aug.	267.35	263.16	4.20	0.736	0.724	0.012	98.43	0.628
Sept.	160.67	152.27	8.39	0.428	0.405	0.022	94.77	0.363
	479.01	368.28	110.73	15.519	11.931	3.587	76.88	0.879

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1968

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	191.32	160.97	30.36	0.526	0.443	0.084	84.13	0.384
Nov.	267.13	227.59	39.55	0.711	0.606	0.105	85.20	0.543
Dec.	198.39	147.72	50.66	0.546	0.406	0.139	74.46	0.353
Jan.	323.42	205.96	117.46	0.890	0.567	0.323	63.68	0.492
Feb.	322.90	280.09	42.81	0.831	0.721	0.110	86.74	0.668
Mar.	407.16	328.50	78.67	1.120	0.904	0.216	80.68	0.784
Apr.	309.00	293.51	15.49	0.823	0.782	0.041	94.99	0.700
May	1207.52	796.81	410.70	3.323	2.192	1.130	65.99	1.902
June	1808.47	1350.91	457.56	4.816	3.597	1.218	74.70	3.224
July	788.42	613.53	174.89	2.169	1.688	0.481	77.82	1.464
Aug.	282.81	251.20	31.61	0.778	0.691	0.087	88.82	0.600
Sept.	198.27	179.79	18.48	0.528	0.479	0.049	90.68	0.429
	525.19	402.52	122.67	17.061	13.076	3.985	76.64	0.961

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1969

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	152.19	147.81	4.38	0.419	0.407	0.012	97.12	0.353
Nov.	154.20	141.77	12.43	0.411	0.377	0.033	91.94	0.338
Dec.	135.94	120.40	15.53	0.374	0.331	0.043	88.57	0.287
Jan.	178.13	113.62	64.51	0.490	0.313	0.178	63.78	0.271
Feb.	128.18	125.37	2.81	0.319	0.312	0.007	97.81	0.299
Mar.	148.03	142.80	5.23	0.407	0.393	0.014	96.46	0.341
Apr.	409.37	356.07	53.30	1.090	0.948	0.142	86.98	0.850
May	1924.97	1333.48	591.49	5.297	3.669	1.627	69.27	3.183
June	2109.20	1503.27	605.93	5.616	4.003	1.613	71.27	3.588
July	468.06	449.23	18.83	1.288	1.236	0.052	95.98	1.072
Aug.	210.13	208.97	1.16	0.578	0.575	0.003	99.45	0.499
Sept.	169.27	153.59	15.68	0.451	0.409	0.042	90.74	0.367
	516.69	400.43	116.26	16.739	12.973	3.766	77.50	0.956

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1970

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	167.06	157.04	10.03	0.460	0.432	0.028	94.00	0.375
Nov.	138.33	129.68	8.65	0.368	0.345	0.023	93.75	0.310
Dec.	124.32	117.48	6.84	0.342	0.323	0.019	94.50	0.280
Jan.	104.06	100.31	3.75	0.286	0.276	0.010	96.40	0.239
Feb.	113.04	110.40	2.64	0.281	0.274	0.007	97.67	0.263
Mar.	129.61	126.61	3.00	0.357	0.348	0.008	97.68	0.302
Apr.	168.67	158.88	9.79	0.449	0.423	0.026	94.20	0.379
May	814.48	505.44	309.05	2.241	1.391	0.850	62.06	1.206
June	1613.20	966.09	647.11	4.296	2.572	1.723	59.89	2.306
July	399.77	362.99	36.79	1.100	0.999	0.101	90.80	0.866
Aug.	175.71	170.18	5.53	0.483	0.468	0.015	96.85	0.406
Sept.	133.37	123.86	9.51	0.355	0.330	0.025	92.87	0.296
	340.10	252.57	87.53	11.018	8.183	2.836	74.26	0.603

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1971

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	113.32	109.38	3.94	0.312	0.301	0.011	96.52	0.261
Nov.	108.63	100.19	8.44	0.289	0.267	0.022	92.23	0.239
Dec.	104.26	98.53	5.72	0.287	0.271	0.016	94.51	0.235
Jan.	132.32	114.83	17.49	0.364	0.316	0.048	86.78	0.274
Feb.	308.07	222.60	85.47	0.766	0.553	0.212	72.26	0.531
Mar.	173.42	169.30	4.12	0.477	0.466	0.011	97.62	0.404
Apr.	274.17	240.31	33.86	0.730	0.640	0.090	87.65	0.574
May	1716.48	957.73	758.75	4.723	2.635	2.088	55.80	2.286
June	2112.70	1762.64	350.06	5.626	4.694	0.932	83.43	4.207

Oct.	180.71	170.83	9.88	0.497	0.470	0.027	94.53	0.408
Nov.	148.90	140.68	8.22	0.396	0.375	0.022	94.48	0.336
Dec.	140.71	123.13	17.58	0.387	0.339	0.048	87.51	0.294
Jan.	145.48	116.24	29.25	0.400	0.320	0.080	79.90	0.277
Feb.	127.14	122.21	4.93	0.316	0.304	0.012	96.12	0.292
Mar.	151.13	146.79	4.34	0.416	0.404	0.012	97.13	0.350
Apr.	296.53	267.73	28.80	0.790	0.713	0.077	90.29	0.639
May	1008.42	734.28	274.14	2.775	2.020	0.754	72.81	1.752
June	964.73	755.36	209.37	2.569	2.011	0.558	78.30	1.803
July	390.39	363.36	27.03	1.074	1.000	0.074	93.08	0.867
Aug.	198.52	190.80	7.72	0.546	0.525	0.021	96.11	0.455
Sept.	150.57	139.72	10.85	0.401	0.372	0.029	92.79	0.333

	326.19	273.25	52.94	10.567	8.852	1.715	83.77	0.652

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1974

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	141.35	132.42	8.93	0.389	0.364	0.025	93.68	0.316
Nov.	155.67	134.87	20.80	0.415	0.359	0.055	86.64	0.322
Dec.	141.39	130.54	10.84	0.389	0.359	0.030	92.33	0.312
Jan.	227.77	143.01	84.77	0.627	0.393	0.233	62.78	0.341
Feb.	225.93	225.45	0.48	0.561	0.560	0.001	99.79	0.538
Mar.	238.26	230.64	7.62	0.656	0.635	0.021	96.80	0.550
Apr.	501.67	470.24	31.42	1.336	1.252	0.084	93.74	1.122
May	1277.26	999.14	278.12	3.514	2.749	0.765	78.23	2.385
June	3256.77	1917.39	1339.37	8.672	5.106	3.566	58.87	4.576
July	1744.45	1559.71	184.74	4.800	4.292	0.508	89.41	3.722
Aug.	602.58	579.67	22.91	1.658	1.595	0.063	96.20	1.383
Sept.	246.30	246.30	0.00	0.656	0.656	0.000	100.00	0.588

	730.69	565.49	165.20	23.672	18.320	5.352	77.39	1.350

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

 Period ending in 1975

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	150.23	134.82	15.41	0.413	0.371	0.042	89.74	0.322
Nov.	139.30	130.97	8.33	0.371	0.349	0.022	94.02	0.313
Dec.	136.13	128.08	8.05	0.375	0.352	0.022	94.09	0.306
Jan.	141.52	130.86	10.65	0.389	0.360	0.029	92.47	0.312
Feb.	122.29	117.95	4.33	0.304	0.293	0.011	96.46	0.282
Mar.	139.94	135.11	4.83	0.385	0.372	0.013	96.55	0.322
Apr.	246.93	238.36	8.58	0.658	0.635	0.023	96.53	0.569
May	1147.42	833.70	313.72	3.157	2.294	0.863	72.66	1.990
June	2218.27	1682.09	536.17	5.907	4.479	1.428	75.83	4.015
July	1191.10	739.39	451.71	3.277	2.034	1.243	62.08	1.765
Aug.	341.35	323.35	18.00	0.939	0.890	0.050	94.73	0.772
Sept.	213.67	206.66	7.01	0.569	0.550	0.019	96.72	0.493
	516.84	400.63	116.21	16.744	12.979	3.765	77.51	0.956

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1976

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	194.39	180.30	14.09	0.535	0.496	0.039	92.75	0.430
Nov.	310.33	268.46	41.87	0.826	0.715	0.111	86.51	0.641
Dec.	623.84	293.35	330.49	1.717	0.807	0.909	47.02	0.700
Jan.	279.19	270.19	9.00	0.768	0.743	0.025	96.78	0.645
Feb.	270.66	259.70	10.95	0.697	0.668	0.028	95.95	0.620
Mar.	227.87	225.14	2.73	0.627	0.619	0.008	98.80	0.537
Apr.	425.57	385.78	39.78	1.133	1.027	0.106	90.65	0.921
May	1636.42	1423.08	213.34	4.503	3.916	0.587	86.96	3.396
June	1680.33	1346.48	333.85	4.474	3.585	0.889	80.13	3.214
July	1477.68	1275.76	201.92	4.066	3.510	0.556	86.34	3.045
Aug.	633.35	589.12	44.24	1.743	1.621	0.122	93.02	1.406
Sept.	275.43	257.36	18.07	0.733	0.685	0.048	93.44	0.614
	671.73	566.23	105.51	21.822	18.394	3.427	84.29	1.351

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1977

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	185.65	145.98	39.66	0.511	0.402	0.109	78.64	0.348
Nov.	142.77	128.98	13.79	0.380	0.343	0.037	90.34	0.308
Dec.	123.77	112.46	11.32	0.341	0.309	0.031	90.86	0.268
Jan.	128.74	109.08	19.67	0.354	0.300	0.054	84.73	0.260
Feb.	138.93	125.76	13.17	0.345	0.313	0.033	90.52	0.300
Mar.	130.00	125.73	4.27	0.358	0.346	0.012	96.72	0.300
Apr.	338.57	251.89	86.68	0.902	0.671	0.231	74.40	0.601
May	479.45	419.92	59.53	1.319	1.155	0.164	87.58	1.002
June	642.57	502.31	140.26	1.711	1.338	0.373	78.17	1.199
July	247.26	236.91	10.35	0.680	0.652	0.028	95.82	0.565
Aug.	198.77	183.59	15.19	0.547	0.505	0.042	92.36	0.438
Sept.	154.43	135.82	18.61	0.411	0.362	0.050	87.95	0.324
	242.58	206.67	35.91	7.859	6.696	1.163	85.20	0.493

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1978

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	125.87	121.79	4.08	0.346	0.335	0.011	96.76	0.291
Nov.	172.30	132.00	40.30	0.459	0.351	0.107	76.61	0.315
Dec.	287.94	219.97	67.96	0.792	0.605	0.187	76.40	0.525
Jan.	163.35	159.87	3.49	0.449	0.440	0.010	97.87	0.382
Feb.	148.82	143.41	5.41	0.370	0.356	0.013	96.36	0.342
Mar.	277.71	206.25	71.46	0.764	0.567	0.197	74.27	0.492

Apr.	632.47	504.92	127.55	1.684	1.344	0.340	79.83	1.205
May	1363.23	1111.77	251.45	3.751	3.059	0.692	81.55	2.653
June	2253.13	1482.76	770.37	6.000	3.948	2.051	65.81	3.539
July	1024.77	917.88	106.89	2.820	2.526	0.294	89.57	2.191
Aug.	305.84	290.06	15.77	0.842	0.798	0.043	94.84	0.692
Sept.	283.70	240.14	43.56	0.755	0.639	0.116	84.64	0.573
	587.47	462.10	125.37	19.032	14.971	4.062	78.66	1.103

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1979 interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	190.77	151.00	39.77	0.525	0.415	0.109	79.15	0.360
Nov.	209.27	175.30	33.97	0.557	0.467	0.090	83.77	0.418
Dec.	135.10	117.19	17.91	0.372	0.322	0.049	86.74	0.280
Jan.	105.87	102.76	3.11	0.291	0.283	0.009	97.07	0.245
Feb.	110.75	108.35	2.40	0.275	0.269	0.006	97.83	0.259
Mar.	164.84	152.44	12.40	0.454	0.419	0.034	92.48	0.364
Apr.	238.20	209.47	28.73	0.634	0.558	0.076	87.94	0.500
May	1092.19	713.55	378.64	3.005	1.963	1.042	65.33	1.703
June	776.13	649.93	126.21	2.067	1.731	0.336	83.74	1.551
July	332.61	284.94	47.67	0.915	0.784	0.131	85.67	0.680
Aug.	198.10	186.89	11.21	0.545	0.514	0.031	94.34	0.446
Sept.	151.43	137.83	13.61	0.403	0.367	0.036	91.02	0.329
	310.02	249.81	60.20	10.044	8.093	1.950	80.58	0.596

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1980 interval = 7 days

Mean stream-	Mean base	Mean surface	Total stream-	Total base	Total surface	BF/ stream-	Base flow
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	flow (ft3/s)	flow (ft3/s)	runoff (ft3/s)	flow (in)	flow (in)	runoff (in)	flow (%)	(ft3/s/ mi2)
Oct.	123.77	111.72	12.05	0.341	0.307	0.033	90.26	0.267
Nov.	117.43	110.25	7.19	0.313	0.294	0.019	93.88	0.263
Dec.	214.45	129.48	84.97	0.590	0.356	0.234	60.38	0.309
Jan.	153.81	129.69	24.12	0.423	0.357	0.066	84.32	0.310
Feb.	144.93	127.11	17.82	0.373	0.327	0.046	87.70	0.303
Mar.	201.26	196.27	4.99	0.554	0.540	0.014	97.52	0.468
Apr.	604.33	545.30	59.03	1.609	1.452	0.157	90.23	1.301
May	1603.97	1404.42	199.54	4.413	3.864	0.549	87.56	3.352
June	1191.77	862.12	329.65	3.173	2.296	0.878	72.34	2.058
July	565.90	513.86	52.05	1.557	1.414	0.143	90.80	1.226
Aug.	226.13	213.15	12.98	0.622	0.586	0.036	94.26	0.509
Sept.	157.17	148.22	8.94	0.418	0.395	0.024	94.31	0.354
	442.87	375.19	67.69	14.387	12.188	2.199	84.72	0.895

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1981

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	130.61	128.97	1.64	0.359	0.355	0.005	98.74	0.308
Nov.	166.33	138.24	28.09	0.443	0.368	0.075	83.11	0.330
Dec.	351.29	155.65	195.64	0.967	0.428	0.538	44.31	0.371
Jan.	395.74	261.57	134.18	1.089	0.720	0.369	66.09	0.624
Feb.	288.57	220.46	68.11	0.717	0.548	0.169	76.40	0.526
Mar.	298.19	279.27	18.92	0.820	0.768	0.052	93.65	0.667
Apr.	387.07	322.94	64.13	1.031	0.860	0.171	83.43	0.771
May	1248.97	976.64	272.32	3.437	2.687	0.749	78.20	2.331
June	1100.87	990.46	110.41	2.931	2.637	0.294	89.97	2.364
July	619.87	527.92	91.95	1.706	1.453	0.253	85.17	1.260
Aug.	268.48	251.83	16.65	0.739	0.693	0.046	93.80	0.601
Sept.	156.00	148.60	7.40	0.415	0.396	0.020	95.26	0.355
	452.32	367.72	84.60	14.654	11.913	2.741	81.30	0.878

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1982 interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	176.06	153.73	22.33	0.484	0.423	0.061	87.31	0.367
Nov.	209.77	169.67	40.09	0.559	0.452	0.107	80.89	0.405
Dec.	156.61	151.21	5.41	0.431	0.416	0.015	96.55	0.361
Jan.	151.32	125.33	25.99	0.416	0.345	0.072	82.82	0.299
Feb.	214.11	192.56	21.54	0.532	0.479	0.054	89.94	0.460
Mar.	231.90	216.13	15.77	0.638	0.595	0.043	93.20	0.516
Apr.	285.00	268.74	16.26	0.759	0.716	0.043	94.29	0.641
May	1214.42	1049.30	165.12	3.342	2.887	0.454	86.40	2.504
June	2576.50	1421.18	1155.32	6.861	3.784	3.076	55.16	3.392
July	1008.84	875.96	132.88	2.776	2.410	0.366	86.83	2.091
Aug.	343.68	319.16	24.51	0.946	0.878	0.067	92.87	0.762
Sept.	197.80	185.49	12.31	0.527	0.494	0.033	93.78	0.443
	563.93	428.38	135.55	18.270	13.878	4.391	75.96	1.022

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1983 interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	162.84	154.66	8.17	0.448	0.426	0.022	94.98	0.369
Nov.	142.90	126.96	15.94	0.381	0.338	0.042	88.85	0.303
Dec.	154.74	127.26	27.48	0.426	0.350	0.076	82.24	0.304
Jan.	192.84	150.89	41.95	0.531	0.415	0.115	78.25	0.360
Feb.	170.96	164.03	6.93	0.425	0.408	0.017	95.94	0.391
Mar.	297.71	269.68	28.03	0.819	0.742	0.077	90.58	0.644
Apr.	518.60	436.81	81.79	1.381	1.163	0.218	84.23	1.043
May	1794.74	1154.03	640.71	4.938	3.175	1.763	64.30	2.754
June	1922.93	1522.98	399.95	5.120	4.055	1.065	79.20	3.635
July	819.26	725.96	93.30	2.254	1.997	0.257	88.61	1.733
Aug.	386.87	354.30	32.57	1.064	0.975	0.090	91.58	0.846
Sept.	227.53	217.37	10.17	0.606	0.579	0.027	95.53	0.519

567.74 451.39 116.35 18.393 14.624 3.769 79.51 1.077

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1984

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	150.74	141.69	9.05	0.415	0.390	0.025	93.99	0.338
Nov.	210.83	173.48	37.35	0.561	0.462	0.099	82.28	0.414
Dec.	141.74	116.59	25.15	0.390	0.321	0.069	82.26	0.278
Jan.	342.32	205.95	136.37	0.942	0.567	0.375	60.16	0.492
Feb.	254.72	213.79	40.93	0.656	0.550	0.105	83.93	0.510
Mar.	275.81	247.10	28.71	0.759	0.680	0.079	89.59	0.590
Apr.	367.60	333.43	34.17	0.979	0.888	0.091	90.70	0.796
May	677.87	556.83	121.04	1.865	1.532	0.333	82.14	1.329
June	2000.27	1557.35	442.91	5.326	4.147	1.179	77.86	3.717
July	1066.26	948.48	117.78	2.934	2.610	0.324	88.95	2.264
Aug.	363.06	332.08	30.99	0.999	0.914	0.085	91.47	0.793
Sept.	183.23	175.25	7.99	0.488	0.467	0.021	95.64	0.418
	502.18	416.38	85.80	16.314	13.526	2.787	82.92	0.994

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1985

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	168.35	150.04	18.31	0.463	0.413	0.050	89.12	0.358
Nov.	154.67	144.71	9.95	0.412	0.385	0.027	93.56	0.345
Dec.	129.77	120.52	9.26	0.357	0.332	0.025	92.87	0.288

Jan.	116.00	110.84	5.16	0.319	0.305	0.014	95.55	0.265
Feb.	111.36	109.26	2.09	0.277	0.272	0.005	98.12	0.261
Mar.	131.52	124.56	6.95	0.362	0.343	0.019	94.71	0.297
Apr.	369.70	237.48	132.22	0.984	0.632	0.352	64.24	0.567
May	1058.32	625.95	432.38	2.912	1.722	1.190	59.15	1.494
June	1093.07	967.66	125.40	2.911	2.577	0.334	88.53	2.309
July	354.03	340.62	13.41	0.974	0.937	0.037	96.21	0.813
Aug.	176.87	171.35	5.52	0.487	0.471	0.015	96.88	0.409
Sept.	141.80	125.21	16.59	0.378	0.333	0.044	88.30	0.299
	334.45	269.24	65.22	10.835	8.722	2.113	80.50	0.643

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1986

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	143.52	131.19	12.33	0.395	0.361	0.034	91.41	0.313
Nov.	159.77	130.14	29.63	0.425	0.347	0.079	81.46	0.311
Dec.	122.61	116.18	6.43	0.337	0.320	0.018	94.75	0.277
Jan.	124.42	117.46	6.96	0.342	0.323	0.019	94.40	0.280
Feb.	161.79	126.95	34.84	0.402	0.315	0.087	78.47	0.303
Mar.	347.16	314.90	32.27	0.955	0.866	0.089	90.71	0.752
Apr.	514.40	411.06	103.34	1.370	1.095	0.275	79.91	0.981
May	1144.29	659.87	484.42	3.149	1.816	1.333	57.67	1.575
June	1438.13	774.66	663.47	3.829	2.063	1.767	53.87	1.849
July	377.74	352.40	25.35	1.039	0.970	0.070	93.29	0.841
Aug.	202.90	195.07	7.84	0.558	0.537	0.022	96.14	0.466
Sept.	144.03	134.23	9.80	0.384	0.357	0.026	93.19	0.320
	407.02	289.19	117.82	13.186	9.369	3.817	71.05	0.690

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1987

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	125.16	109.73	15.43	0.344	0.302	0.042	87.67	0.262
Nov.	165.67	115.13	50.54	0.441	0.307	0.135	69.50	0.275
Dec.	138.19	121.55	16.65	0.380	0.334	0.046	87.95	0.290
Jan.	115.84	107.14	8.70	0.319	0.295	0.024	92.49	0.256
Feb.	116.82	114.17	2.65	0.290	0.284	0.007	97.73	0.272
Mar.	220.16	193.68	26.48	0.606	0.533	0.073	87.97	0.462
Apr.	520.50	410.09	110.41	1.386	1.092	0.294	78.79	0.979
May	1714.29	1006.27	708.02	4.717	2.769	1.948	58.70	2.402
June	996.07	865.78	130.29	2.652	2.305	0.347	86.92	2.066
July	363.26	333.42	29.84	1.000	0.917	0.082	91.79	0.796
Aug.	175.03	170.95	4.08	0.482	0.470	0.011	97.67	0.408
Sept.	127.03	124.30	2.73	0.338	0.331	0.007	97.85	0.297
	399.89	306.80	93.09	12.955	9.939	3.016	76.72	0.732

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1988

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	101.26	99.50	1.76	0.279	0.274	0.005	98.26	0.237
Nov.	100.47	98.03	2.44	0.268	0.261	0.006	97.58	0.234
Dec.	106.81	99.12	7.68	0.294	0.273	0.021	92.81	0.237
Jan.	96.61	94.72	1.89	0.266	0.261	0.005	98.04	0.226
Feb.	103.93	101.57	2.36	0.268	0.261	0.006	97.73	0.242
Mar.	138.77	131.32	7.46	0.382	0.361	0.021	94.63	0.313
Apr.	491.90	411.20	80.70	1.310	1.095	0.215	83.59	0.981
May	1074.52	781.09	293.43	2.957	2.149	0.807	72.69	1.864
June	1296.07	912.44	383.62	3.451	2.430	1.021	70.40	2.178
July	597.32	551.17	46.15	1.644	1.517	0.127	92.27	1.315
Aug.	220.65	217.77	2.88	0.607	0.599	0.008	98.69	0.520
Sept.	140.23	133.35	6.88	0.373	0.355	0.018	95.09	0.318
	372.37	302.76	69.61	12.097	9.836	2.261	81.31	0.723

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1989

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	157.61	130.52	27.09	0.434	0.359	0.075	82.81	0.312
Nov.	174.20	149.07	25.13	0.464	0.397	0.067	85.58	0.356
Dec.	168.19	143.89	24.31	0.463	0.396	0.067	85.55	0.343
Jan.	149.87	127.12	22.75	0.412	0.350	0.063	84.82	0.303
Feb.	136.96	106.28	30.68	0.340	0.264	0.076	77.60	0.254
Mar.	141.42	135.43	5.99	0.389	0.373	0.016	95.77	0.323
Apr.	523.30	391.83	131.47	1.393	1.043	0.350	74.88	0.935
May	1252.52	935.92	316.59	3.446	2.575	0.871	74.72	2.234
June	1512.47	788.98	723.49	4.027	2.101	1.926	52.16	1.883
July	459.35	428.36	30.99	1.264	1.179	0.085	93.25	1.022
Aug.	197.55	184.77	12.77	0.544	0.508	0.035	93.53	0.441
Sept.	125.43	124.99	0.45	0.334	0.333	0.001	99.64	0.298
	417.04	304.90	112.14	13.511	9.878	3.633	73.11	0.728

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1990

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	122.55	109.52	13.03	0.337	0.301	0.036	89.37	0.261
Nov.	177.33	149.43	27.90	0.472	0.398	0.074	84.26	0.357
Dec.	229.81	183.74	46.07	0.632	0.506	0.127	79.95	0.439
Jan.	157.77	142.16	15.62	0.434	0.391	0.043	90.10	0.339
Feb.	141.64	131.17	10.47	0.352	0.326	0.026	92.61	0.313
Mar.	176.29	171.86	4.43	0.485	0.473	0.012	97.48	0.410
Apr.	763.57	676.31	87.26	2.033	1.801	0.232	88.57	1.614
May	900.94	755.61	145.32	2.479	2.079	0.400	83.87	1.803
June	1343.37	1063.57	279.79	3.577	2.832	0.745	79.17	2.538

Oct.	134.77	130.15	4.62	0.371	0.358	0.013	96.57	0.311
Nov.	148.07	132.99	15.07	0.394	0.354	0.040	89.82	0.317
Dec.	135.90	106.01	29.90	0.374	0.292	0.082	78.00	0.253
Jan.	127.94	110.05	17.88	0.352	0.303	0.049	86.02	0.263
Feb.	159.34	151.31	8.04	0.410	0.389	0.021	94.96	0.361
Mar.	283.35	269.56	13.79	0.780	0.742	0.038	95.13	0.643
Apr.	563.97	437.68	126.29	1.502	1.165	0.336	77.61	1.045
May	1226.00	894.39	331.61	3.373	2.461	0.912	72.95	2.135
June	847.20	691.24	155.96	2.256	1.841	0.415	81.59	1.650
July	342.23	325.90	16.32	0.942	0.897	0.045	95.23	0.778
Aug.	179.97	174.01	5.96	0.495	0.479	0.016	96.69	0.415
Sept.	128.53	121.96	6.58	0.342	0.325	0.018	94.88	0.291

	356.80	295.67	61.13	11.591	9.605	1.986	82.87	0.706

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1993

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	116.97	112.42	4.54	0.322	0.309	0.013	96.12	0.268
Nov.	117.53	102.51	15.02	0.313	0.273	0.040	87.22	0.245
Dec.	102.84	81.86	20.98	0.283	0.225	0.058	79.60	0.195
Jan.	101.87	92.84	9.03	0.280	0.255	0.025	91.14	0.222
Feb.	100.61	86.62	13.99	0.250	0.215	0.035	86.10	0.207
Mar.	119.74	112.31	7.43	0.329	0.309	0.020	93.79	0.268
Apr.	172.60	169.88	2.72	0.460	0.452	0.007	98.42	0.405
May	1254.23	1083.03	171.20	3.451	2.980	0.471	86.35	2.585
June	772.90	658.34	114.56	2.058	1.753	0.305	85.18	1.571
July	291.90	269.77	22.14	0.803	0.742	0.061	92.42	0.644
Aug.	183.03	174.18	8.85	0.504	0.479	0.024	95.16	0.416
Sept.	120.37	120.24	0.13	0.321	0.320	0.000	99.89	0.287

	289.33	256.64	32.70	9.374	8.314	1.059	88.70	0.613

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1994

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	104.03	99.97	4.06	0.286	0.275	0.011	96.09	0.239
Nov.	93.73	87.14	6.59	0.250	0.232	0.018	92.97	0.208
Dec.	98.35	90.60	7.75	0.271	0.249	0.021	92.12	0.216
Jan.	99.81	93.19	6.62	0.275	0.256	0.018	93.37	0.222
Feb.	101.21	95.41	5.80	0.252	0.237	0.014	94.27	0.228
Mar.	149.42	133.78	15.64	0.411	0.368	0.043	89.53	0.319
Apr.	521.00	321.99	199.01	1.387	0.857	0.530	61.80	0.768
May	1124.10	797.63	326.46	3.093	2.195	0.898	70.96	1.904
June	681.53	587.56	93.98	1.815	1.565	0.250	86.21	1.402
July	343.58	326.82	16.76	0.945	0.899	0.046	95.12	0.780
Aug.	155.94	151.46	4.48	0.429	0.417	0.012	97.13	0.361
Sept.	108.90	106.15	2.75	0.290	0.283	0.007	97.48	0.253
	299.51	241.79	57.72	9.703	7.833	1.870	80.73	0.577

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 1995

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	102.61	93.96	8.65	0.282	0.259	0.024	91.57	0.224
Nov.	103.57	92.34	11.23	0.276	0.246	0.030	89.16	0.220
Dec.	108.48	94.07	14.42	0.298	0.259	0.040	86.71	0.225
Jan.	107.32	100.00	7.33	0.295	0.275	0.020	93.17	0.239
Feb.	240.32	141.28	99.04	0.597	0.351	0.246	58.79	0.337
Mar.	279.71	249.78	29.93	0.770	0.687	0.082	89.30	0.596
Apr.	425.13	355.59	69.54	1.132	0.947	0.185	83.64	0.849
May	1771.55	1415.40	356.15	4.874	3.895	0.980	79.90	3.378
June	2086.27	1699.41	386.86	5.555	4.525	1.030	81.46	4.056
July	1027.90	944.59	83.31	2.828	2.599	0.229	91.90	2.254
Aug.	282.77	282.25	0.52	0.778	0.777	0.001	99.82	0.674
Sept.	157.90	148.71	9.19	0.420	0.396	0.024	94.18	0.355
	558.92	469.64	89.28	18.107	15.215	2.892	84.03	1.121

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1996

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	170.19	137.48	32.71	0.468	0.378	0.090	80.78	0.328
Nov.	580.40	312.64	267.76	1.545	0.832	0.713	53.87	0.746
Dec.	619.45	340.67	278.78	1.704	0.937	0.767	55.00	0.813
Jan.	267.84	243.58	24.26	0.737	0.670	0.067	90.94	0.581
Feb.	410.62	334.79	75.83	1.057	0.862	0.195	81.53	0.799
Mar.	545.74	388.58	157.16	1.502	1.069	0.432	71.20	0.927
Apr.	1090.37	772.48	317.89	2.903	2.057	0.846	70.85	1.844
May	1235.52	1047.61	187.91	3.400	2.883	0.517	84.79	2.500
June	1946.33	1646.29	300.04	5.183	4.384	0.799	84.58	3.929
July	1166.03	993.45	172.58	3.208	2.734	0.475	85.20	2.371
Aug.	315.06	296.24	18.83	0.867	0.815	0.052	94.02	0.707
Sept.	177.07	163.64	13.42	0.471	0.436	0.036	92.42	0.391
	709.42	555.84	153.58	23.046	18.057	4.989	78.35	1.327

 Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 1997

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	152.29	143.97	8.32	0.419	0.396	0.023	94.53	0.344
Nov.	157.90	139.32	18.58	0.420	0.371	0.049	88.23	0.332
Dec.	140.61	110.08	30.53	0.387	0.303	0.084	78.29	0.263
Jan.	181.90	116.89	65.02	0.501	0.322	0.179	64.26	0.279
Feb.	201.61	180.86	20.75	0.501	0.449	0.052	89.71	0.432
Mar.	385.32	323.81	61.52	1.060	0.891	0.169	84.03	0.773

Apr.	698.20	575.70	122.50	1.859	1.533	0.326	82.45	1.374
May	2204.84	1397.98	806.86	6.067	3.847	2.220	63.40	3.336
June	2559.33	1972.19	587.14	6.815	5.251	1.563	77.06	4.707
July	1093.42	990.93	102.49	3.009	2.727	0.282	90.63	2.365
Aug.	366.03	360.01	6.02	1.007	0.991	0.017	98.36	0.859
Sept.	231.63	210.64	20.99	0.617	0.561	0.056	90.94	0.503
	699.49	544.53	154.96	22.661	17.641	5.020	77.85	1.300

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1998

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	300.90	254.27	46.63	0.828	0.700	0.128	84.50	0.607
Nov.	265.00	240.80	24.20	0.706	0.641	0.064	90.87	0.575
Dec.	171.77	156.69	15.09	0.473	0.431	0.042	91.22	0.374
Jan.	153.03	142.34	10.69	0.421	0.392	0.029	93.01	0.340
Feb.	197.46	181.62	15.84	0.491	0.451	0.039	91.98	0.433
Mar.	302.84	262.14	40.70	0.833	0.721	0.112	86.56	0.626
Apr.	557.93	511.50	46.43	1.486	1.362	0.124	91.68	1.221
May	2276.77	1711.64	565.13	6.265	4.710	1.555	75.18	4.085
June	1585.17	1404.55	180.61	4.221	3.740	0.481	88.61	3.352
July	591.29	522.13	69.16	1.627	1.437	0.190	88.30	1.246
Aug.	220.06	214.01	6.06	0.606	0.589	0.017	97.25	0.511
Sept.	133.73	130.32	3.41	0.356	0.347	0.009	97.45	0.311
	565.21	479.07	86.14	18.311	15.520	2.791	84.76	1.143

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

Period ending in 1999

interval = 7 days

Mean stream-	Mean base	Mean surface	Total stream-	Total base	Total surface	BF/ stream-	Base flow
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	flow (ft3/s)	flow (ft3/s)	runoff (ft3/s)	flow (in)	flow (in)	runoff (in)	flow (%)	(ft3/s/ mi2)
Oct.	112.32	110.84	1.49	0.309	0.305	0.004	98.68	0.265
Nov.	132.77	112.38	20.39	0.354	0.299	0.054	84.64	0.268
Dec.	129.58	105.69	23.89	0.357	0.291	0.066	81.56	0.252
Jan.	184.45	153.94	30.51	0.508	0.424	0.084	83.46	0.367
Feb.	170.71	160.03	10.69	0.424	0.398	0.027	93.74	0.382
Mar.	278.71	227.31	51.40	0.767	0.625	0.141	81.56	0.543
Apr.	564.13	501.92	62.21	1.502	1.337	0.166	88.97	1.198
May	1250.61	1019.39	231.22	3.441	2.805	0.636	81.51	2.433
June	2674.00	1884.34	789.66	7.120	5.018	2.103	70.47	4.497
July	1681.61	1422.65	258.96	4.627	3.914	0.713	84.60	3.395
Aug.	655.19	627.62	27.57	1.803	1.727	0.076	95.79	1.498
Sept.	231.30	227.21	4.09	0.616	0.605	0.011	98.23	0.542
	673.73	547.80	125.93	21.827	17.747	4.080	81.31	1.307

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
Drainage area = 419.00 square miles

Period ending in 2000

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	173.97	163.04	10.93	0.479	0.449	0.030	93.72	0.389
Nov.	412.13	200.07	212.06	1.097	0.533	0.565	48.55	0.477
Dec.	316.06	274.55	41.52	0.870	0.755	0.114	86.86	0.655
Jan.	234.87	191.91	42.96	0.646	0.528	0.118	81.71	0.458
Feb.	198.93	182.99	15.94	0.512	0.471	0.041	91.99	0.437
Mar.	250.23	246.32	3.90	0.689	0.678	0.011	98.44	0.588
Apr.	787.43	692.39	95.04	2.097	1.844	0.253	87.93	1.652
May	1220.55	906.73	313.82	3.358	2.495	0.863	74.29	2.164
June	1541.00	1349.98	191.02	4.103	3.595	0.509	87.60	3.222
July	715.55	663.41	52.14	1.969	1.825	0.143	92.71	1.583
Aug.	259.32	248.11	11.21	0.714	0.683	0.031	95.68	0.592
Sept.	162.53	152.72	9.82	0.433	0.407	0.026	93.96	0.364
	522.27	439.01	83.26	16.966	14.262	2.705	84.06	1.048

Hydrograph separation by the local minimum method

keystone

Station ID = 12452990
 Drainage area = 419.00 square miles

 Period ending in 2001

interval = 7 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	151.13	139.67	11.46	0.416	0.384	0.032	92.42	0.333
Nov.	141.43	131.72	9.71	0.377	0.351	0.026	93.13	0.314
Dec.	118.39	92.36	26.02	0.326	0.254	0.072	78.02	0.220
Jan.	108.29	89.33	18.96	0.298	0.246	0.052	82.49	0.213
Feb.	92.07	82.60	9.47	0.229	0.205	0.024	89.72	0.197
Mar.	125.19	115.52	9.68	0.344	0.318	0.027	92.27	0.276
Apr.	165.13	143.65	21.49	0.440	0.382	0.057	86.99	0.343
May	672.65	430.63	242.01	1.851	1.185	0.666	64.02	1.028
June	497.03	405.59	91.44	1.323	1.080	0.243	81.60	0.968
July	218.16	204.53	13.64	0.600	0.563	0.038	93.75	0.488
Aug.	122.94	115.39	7.54	0.338	0.318	0.021	93.87	0.275
Sept.	87.67	83.42	4.25	0.233	0.222	0.011	95.16	0.199
	209.14	170.01	39.12	6.775	5.508	1.268	81.29	0.406

 Annual base-flow summary

keystone
 Station ID = 12452990
 Drainage area = 419.00 square miles

Local minimum method

 Year starts in October
 Year ends in September

Period ending	in	ft3/s	ft3/s/ mi2	% of stream- flow
1958	-1.000	-1.00	-1.000	-1.00
1959	15.127	466.92	1.114	84.14
1960	13.145	404.65	0.966	74.51
1961	13.379	412.97	0.986	80.73
1962	9.319	287.64	0.686	81.66
1963	10.664	329.17	0.786	83.35
1964	12.226	376.35	0.898	85.76
1965	11.541	356.25	0.850	79.81
1966	9.543	294.57	0.703	79.01
1967	11.931	368.28	0.879	76.88
1968	13.076	402.52	0.961	76.64

1969	12.973	400.43	0.956	77.50
1970	8.183	252.57	0.603	74.26
1971	14.094	435.03	1.038	73.68
1972	19.421	597.83	1.427	78.98
1973	8.852	273.25	0.652	83.77
1974	18.320	565.49	1.350	77.39
1975	12.979	400.63	0.956	77.51
1976	18.394	566.23	1.351	84.29
1977	6.696	206.67	0.493	85.20
1978	14.971	462.10	1.103	78.66
1979	8.093	249.81	0.596	80.58
1980	12.188	375.19	0.895	84.72
1981	11.913	367.72	0.878	81.30
1982	13.878	428.38	1.022	75.96
1983	14.624	451.39	1.077	79.51
1984	13.526	416.38	0.994	82.92
1985	8.722	269.24	0.643	80.50
1986	9.369	289.19	0.690	71.05
1987	9.939	306.80	0.732	76.72
1988	9.836	302.76	0.723	81.31
1989	9.878	304.90	0.728	73.11
1990	11.778	363.54	0.868	86.38
1991	15.496	478.31	1.142	78.13
1992	9.605	295.67	0.706	82.87
1993	8.314	256.64	0.613	88.70
1994	7.833	241.79	0.577	80.73
1995	15.215	469.64	1.121	84.03
1996	18.057	555.84	1.327	78.35
1997	17.641	544.53	1.300	77.85
1998	15.520	479.07	1.143	84.76
1999	17.747	547.80	1.307	81.31
2000	14.262	439.01	1.048	84.06
2001	5.508	170.01	0.406	81.29
median	12.226	376.35	0.898	80.58

Annual base-flow summary ordered by frequency

keystone
Station ID = 12452990
Drainage area = 419.00 square miles

Local minimum method

Year starts in October
Year ends in September

Cum dist	in	ft3/s/ mi2	year
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-1.0	-1.000	-1.000	1958
2.3	5.508	0.406	2001
4.5	6.696	0.493	1977
6.8	7.833	0.577	1994

9.1	8.093	0.596	1979
11.4	8.183	0.603	1970
13.6	8.314	0.613	1993
15.9	8.722	0.643	1985
18.2	8.852	0.652	1973
20.5	9.319	0.686	1962
22.7	9.369	0.690	1986
25.0	9.543	0.703	1966
27.3	9.605	0.706	1992
29.5	9.836	0.723	1988
31.8	9.878	0.728	1989
34.1	9.939	0.732	1987
36.4	10.664	0.786	1963
38.6	11.541	0.850	1965
40.9	11.778	0.868	1990
43.2	11.913	0.878	1981
45.5	11.931	0.879	1967
47.7	12.188	0.895	1980
50.0	12.226	0.898	1964
52.3	12.973	0.956	1969
54.5	12.979	0.956	1975
56.8	13.076	0.961	1968
59.1	13.145	0.966	1960
61.4	13.379	0.986	1961
63.6	13.526	0.994	1984
65.9	13.878	1.022	1982
68.2	14.094	1.038	1971
70.5	14.262	1.048	2000
72.7	14.624	1.077	1983
75.0	14.971	1.103	1978
77.3	15.127	1.114	1959
79.5	15.215	1.121	1995
81.8	15.496	1.142	1991
84.1	15.520	1.143	1998
86.4	17.641	1.300	1997
88.6	17.747	1.307	1999
90.9	18.057	1.327	1996
93.2	18.320	1.350	1974
95.5	18.394	1.351	1976
97.7	19.421	1.427	1972

Seasonal-distribution table

keystone
Station ID = 12452990
Drainage area = 419.00 square miles

Local minimum method

Year starts in October
Year ends in September

Month	Base flow (in)	Runoff (in)
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October	0.384	0.045
November	0.395	0.108
December	0.393	0.123
January	0.376	0.077
February	0.385	0.056
March	0.546	0.070
April	0.974	0.194
May	2.575	0.981
June	3.367	1.120
July	1.828	0.277
August	0.747	0.045
September	0.426	0.026

Flow duration table for total flow, local minimum method
at keystone (1958-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	0	0.00	16068	100.00
49.00	0	0.00	16068	100.00
57.00	2	0.01	16068	100.00
66.00	10	0.06	16066	99.99
75.00	64	0.40	16056	99.93
87.00	333	2.07	15992	99.53
100.00	1473	9.17	15659	97.45
120.00	979	6.09	14186	88.29
130.00	1936	12.05	13207	82.19
150.00	2042	12.71	11271	70.15
180.00	784	4.88	9229	57.44
200.00	1089	6.78	8445	52.56
230.00	858	5.34	7356	45.78
270.00	722	4.49	6498	40.44
310.00	672	4.18	5776	35.95
360.00	490	3.05	5104	31.76
410.00	444	2.76	4614	28.72
470.00	379	2.36	4170	25.95
540.00	400	2.49	3791	23.59
630.00	319	1.99	3391	21.10
720.00	384	2.39	3072	19.12
830.00	304	1.89	2688	16.73
950.00	356	2.22	2384	14.84
1100.00	383	2.38	2028	12.62
1300.00	354	2.20	1645	10.24
1500.00	310	1.93	1291	8.03
1700.00	246	1.53	981	6.11
1900.00	267	1.66	735	4.57
2200.00	209	1.30	468	2.91
2600.00	91	0.57	259	1.61
2900.00	70	0.44	168	1.05

3400.00	56	0.35	98	0.61
3900.00	27	0.17	42	0.26
4500.00	10	0.06	15	0.09
5200.00	5	0.03	5	0.03
6000.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for surface runoff, local minimum method
at keystone (1958-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	3393	21.12	16068	100.00
0.10	7	0.04	12675	78.88
0.12	0	0.00	12668	78.84
0.13	5	0.03	12668	78.84
0.15	15	0.09	12663	78.81
0.18	7	0.04	12648	78.72
0.20	7	0.04	12641	78.67
0.23	25	0.16	12634	78.63
0.27	10	0.06	12609	78.47
0.31	18	0.11	12599	78.41
0.36	22	0.14	12581	78.30
0.41	21	0.13	12559	78.16
0.47	42	0.26	12538	78.03
0.54	42	0.26	12496	77.77
0.63	24	0.15	12454	77.51
0.72	48	0.30	12430	77.36
0.83	48	0.30	12382	77.06
0.95	92	0.57	12334	76.76
1.10	88	0.55	12242	76.19
1.30	72	0.45	12154	75.64
1.50	110	0.68	12082	75.19
1.70	93	0.58	11972	74.51
1.90	170	1.06	11879	73.93
2.20	203	1.26	11709	72.87
2.60	145	0.90	11506	71.61
2.90	243	1.51	11361	70.71
3.40	214	1.33	11118	69.19
3.90	273	1.70	10904	67.86
4.50	339	2.11	10631	66.16
5.20	349	2.17	10292	64.05
6.00	344	2.14	9943	61.88
6.90	376	2.34	9599	59.74
7.90	351	2.18	9223	57.40
9.10	255	1.59	8872	55.22
10.00	490	3.05	8617	53.63
12.00	456	2.84	8127	50.58
14.00	406	2.53	7671	47.74
16.00	358	2.23	7265	45.21
18.00	453	2.82	6907	42.99

21.00	381	2.37	6454	40.17
24.00	491	3.06	6073	37.80
28.00	381	2.37	5582	34.74
32.00	335	2.08	5201	32.37
37.00	347	2.16	4866	30.28
43.00	270	1.68	4519	28.12
49.00	345	2.15	4249	26.44
57.00	277	1.72	3904	24.30
66.00	216	1.34	3627	22.57
75.00	251	1.56	3411	21.23
87.00	245	1.52	3160	19.67
100.00	294	1.83	2915	18.14
120.00	131	0.82	2621	16.31
130.00	241	1.50	2490	15.50
150.00	277	1.72	2249	14.00
180.00	138	0.86	1972	12.27
200.00	172	1.07	1834	11.41
230.00	190	1.18	1662	10.34
270.00	156	0.97	1472	9.16
310.00	179	1.11	1316	8.19
360.00	137	0.85	1137	7.08
410.00	130	0.81	1000	6.22
470.00	130	0.81	870	5.41
540.00	116	0.72	740	4.61
630.00	96	0.60	624	3.88
720.00	91	0.57	528	3.29
830.00	95	0.59	437	2.72
950.00	77	0.48	342	2.13
1100.00	90	0.56	265	1.65
1300.00	35	0.22	175	1.09
1500.00	37	0.23	140	0.87
1700.00	31	0.19	103	0.64
1900.00	25	0.16	72	0.45
2200.00	23	0.14	47	0.29
2600.00	9	0.06	24	0.15
2900.00	13	0.08	15	0.09
3400.00	0	0.00	2	0.01
4500.00	0	0.00	0	0.00
10000.00	0	0.00	0	0.00

Flow duration table for base flow, local minimum method
at keystone (1958-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	0	0.00	16068	100.00
49.00	0	0.00	16068	100.00
57.00	8	0.05	16068	100.00
66.00	29	0.18	16060	99.95
75.00	178	1.11	16031	99.77
87.00	578	3.60	15853	98.66

100.00	2096	13.04	15275	95.06
120.00	1200	7.47	13179	82.02
130.00	2070	12.88	11979	74.55
150.00	1558	9.70	9909	61.67
180.00	671	4.18	8351	51.97
200.00	1016	6.32	7680	47.80
230.00	861	5.36	6664	41.47
270.00	699	4.35	5803	36.12
310.00	555	3.45	5104	31.76
360.00	489	3.04	4549	28.31
410.00	427	2.66	4060	25.27
470.00	374	2.33	3633	22.61
540.00	353	2.20	3259	20.28
630.00	303	1.89	2906	18.09
720.00	443	2.76	2603	16.20
830.00	411	2.56	2160	13.44
950.00	328	2.04	1749	10.88
1100.00	367	2.28	1421	8.84
1300.00	387	2.41	1054	6.56
1500.00	268	1.67	667	4.15
1700.00	218	1.36	399	2.48
1900.00	138	0.86	181	1.13
2200.00	33	0.21	43	0.27
2600.00	6	0.04	10	0.06
2900.00	4	0.02	4	0.02
3400.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Appendix D

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA (USGS-NWIS record)

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1957

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Nov.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Dec.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Jan.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Apr.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
May	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
June	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
July	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Aug.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Sept.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
	103.85	96.78	7.07	0.514	0.479	0.035	93.19	0.477

Above summary information based on 27 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1958

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	92.61	82.41	10.20	0.526	0.468	0.058	88.99	0.406
Nov.	94.97	79.85	15.11	0.522	0.439	0.083	84.08	0.393
Dec.	78.94	73.67	5.27	0.448	0.418	0.030	93.33	0.363
Jan.	70.84	66.57	4.27	0.402	0.378	0.024	93.97	0.328
Feb.	91.54	76.88	14.66	0.470	0.394	0.075	83.98	0.379
Mar.	104.23	93.62	10.61	0.592	0.532	0.060	89.82	0.461

Apr.	183.30	172.47	10.83	1.007	0.948	0.060	94.09	0.850
May	1861.58	964.61	896.97	10.572	5.478	5.094	51.82	4.752
June	1266.43	1081.65	184.79	6.960	5.945	1.016	85.41	5.328
July	324.52	303.52	21.00	1.843	1.724	0.119	93.53	1.495
Aug.	142.39	138.58	3.81	0.809	0.787	0.022	97.33	0.683
Sept.	90.97	85.35	5.62	0.500	0.469	0.031	93.82	0.420
	368.66	268.89	99.77	24.652	17.980	6.672	72.94	1.325

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1959

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	108.87	97.25	11.62	0.618	0.552	0.066	89.33	0.479
Nov.	120.57	98.20	22.37	0.663	0.540	0.123	81.45	0.484
Dec.	175.45	141.53	33.92	0.996	0.804	0.193	80.67	0.697
Jan.	131.65	104.68	26.97	0.748	0.594	0.153	79.52	0.516
Feb.	95.96	85.12	10.85	0.492	0.437	0.056	88.70	0.419
Mar.	113.29	110.50	2.79	0.643	0.628	0.016	97.54	0.544
Apr.	392.57	340.32	52.24	2.158	1.870	0.287	86.69	1.676
May	1052.58	863.62	188.96	5.978	4.905	1.073	82.05	4.254
June	1774.00	1329.98	444.02	9.750	7.310	2.440	74.97	6.552
July	963.48	838.96	124.53	5.472	4.765	0.707	87.08	4.133
Aug.	236.65	228.16	8.49	1.344	1.296	0.048	96.41	1.124
Sept.	174.10	149.21	24.89	0.957	0.820	0.137	85.70	0.735
	445.93	366.69	79.25	29.819	24.520	5.299	82.23	1.806

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1960

interval = 5 days

Mean stream- flow	Mean base flow	Mean surface runoff	Total stream- flow	Total base flow	Total surface runoff	BF/ stream- flow	Base flow
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	flow (ft3/s)	flow (ft3/s)	runoff (ft3/s)	flow (in)	flow (in)	runoff (in)	flow (%)	(ft3/s/ mi2)
Oct.	292.29	193.10	99.19	1.660	1.097	0.563	66.06	0.951
Nov.	287.67	162.15	125.52	1.581	0.891	0.690	56.37	0.799
Dec.	363.52	212.62	150.90	2.065	1.208	0.857	58.49	1.047
Jan.	142.32	136.93	5.39	0.808	0.778	0.031	96.21	0.675
Feb.	107.52	104.89	2.63	0.571	0.557	0.014	97.56	0.517
Mar.	155.81	122.11	33.70	0.885	0.693	0.191	78.37	0.602
Apr.	497.73	307.20	190.53	2.736	1.688	1.047	61.72	1.513
May	900.39	687.11	213.28	5.114	3.902	1.211	76.31	3.385
June	1505.93	1173.04	332.90	8.277	6.447	1.830	77.89	5.779
July	676.65	620.20	56.45	3.843	3.522	0.321	91.66	3.055
Aug.	193.26	179.07	14.18	1.098	1.017	0.081	92.66	0.882
Sept.	104.60	101.50	3.10	0.575	0.558	0.017	97.04	0.500
	435.65	333.45	102.19	29.211	22.359	6.852	76.54	1.643

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1961

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	81.26	77.17	4.09	0.461	0.438	0.023	94.97	0.380
Nov.	81.50	73.39	8.11	0.448	0.403	0.045	90.05	0.362
Dec.	63.81	56.31	7.49	0.362	0.320	0.043	88.26	0.277
Jan.	69.52	59.80	9.71	0.395	0.340	0.055	86.03	0.295
Feb.	102.50	89.62	12.88	0.526	0.460	0.066	87.43	0.441
Mar.	126.68	119.84	6.84	0.719	0.681	0.039	94.60	0.590
Apr.	302.47	255.99	46.48	1.662	1.407	0.255	84.63	1.261
May	1286.81	1064.54	222.27	7.308	6.046	1.262	82.73	5.244
June	2050.77	1407.97	642.80	11.271	7.738	3.533	68.66	6.936
July	471.97	430.15	41.82	2.680	2.443	0.237	91.14	2.119
Aug.	165.61	158.89	6.73	0.941	0.902	0.038	95.94	0.783
Sept.	95.37	87.27	8.09	0.524	0.480	0.044	91.51	0.430
	408.24	323.88	84.36	27.299	21.657	5.641	79.34	1.595

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800
 Drainage area = 203.00 square miles

 Period ending in 1962 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	78.65	71.63	7.02	0.447	0.407	0.040	91.08	0.353
Nov.	63.83	54.29	9.54	0.351	0.298	0.052	85.05	0.267
Dec.	61.16	53.84	7.32	0.347	0.306	0.042	88.03	0.265
Jan.	91.97	64.65	27.32	0.522	0.367	0.155	70.30	0.318
Feb.	117.14	77.39	39.75	0.601	0.397	0.204	66.07	0.381
Mar.	83.97	80.32	3.65	0.477	0.456	0.021	95.66	0.396
Apr.	339.10	200.02	139.08	1.864	1.099	0.764	58.98	0.985
May	580.45	384.37	196.08	3.297	2.183	1.114	66.22	1.893
June	1121.87	955.35	166.52	6.166	5.251	0.915	85.16	4.706
July	450.77	401.76	49.01	2.560	2.282	0.278	89.13	1.979
Aug.	166.87	165.69	1.18	0.948	0.941	0.007	99.30	0.816
Sept.	84.83	81.97	2.87	0.466	0.450	0.016	96.62	0.404
	269.86	215.91	53.95	18.045	14.437	3.608	80.01	1.064

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA
 Station ID = 12452800
 Drainage area = 203.00 square miles

 Period ending in 1963 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	98.45	83.67	14.78	0.559	0.475	0.084	84.99	0.412
Nov.	159.33	125.77	33.56	0.876	0.691	0.184	78.93	0.620
Dec.	152.32	133.62	18.70	0.865	0.759	0.106	87.72	0.658
Jan.	96.13	67.39	28.74	0.546	0.383	0.163	70.10	0.332
Feb.	156.00	108.32	47.68	0.800	0.556	0.245	69.44	0.534
Mar.	139.61	137.02	2.60	0.793	0.778	0.015	98.14	0.675
Apr.	173.50	167.46	6.04	0.954	0.920	0.033	96.52	0.825
May	924.48	690.82	233.66	5.250	3.923	1.327	74.73	3.403
June	1123.23	1052.59	70.64	6.173	5.785	0.388	93.71	5.185
July	383.94	348.74	35.20	2.180	1.981	0.200	90.83	1.718
Aug.	176.94	163.16	13.78	1.005	0.927	0.078	92.21	0.804
Sept.	94.83	89.72	5.12	0.521	0.493	0.028	94.60	0.442

 306.91 264.26 42.65 20.523 17.671 2.852 86.10 1.302

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1964

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	80.87	62.51	18.36	0.459	0.355	0.104	77.30	0.308
Nov.	90.53	80.17	10.37	0.498	0.441	0.057	88.55	0.395
Dec.	94.23	76.01	18.21	0.535	0.432	0.103	80.67	0.374
Jan.	87.52	72.22	15.29	0.497	0.410	0.087	82.53	0.356
Feb.	68.31	66.51	1.80	0.363	0.353	0.010	97.37	0.328
Mar.	74.23	72.12	2.11	0.422	0.410	0.012	97.16	0.355
Apr.	155.60	146.57	9.03	0.855	0.806	0.050	94.20	0.722
May	594.58	491.45	103.13	3.377	2.791	0.586	82.66	2.421
June	1819.67	1625.84	193.82	10.001	8.936	1.065	89.35	8.009
July	778.03	715.17	62.87	4.419	4.062	0.357	91.92	3.523
Aug.	210.13	200.69	9.44	1.193	1.140	0.054	95.51	0.989
Sept.	94.27	90.49	3.78	0.518	0.497	0.021	95.99	0.446
	345.05	307.70	37.36	23.137	20.632	2.505	89.17	1.516

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1965

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	99.35	90.17	9.19	0.564	0.512	0.052	90.75	0.444
Nov.	72.07	66.21	5.86	0.396	0.364	0.032	91.87	0.326
Dec.	65.77	44.56	21.21	0.374	0.253	0.120	67.75	0.220

Jan.	62.84	56.60	6.23	0.357	0.321	0.035	90.08	0.279
Feb.	88.68	82.87	5.81	0.455	0.425	0.030	93.45	0.408
Mar.	123.03	97.19	25.84	0.699	0.552	0.147	79.00	0.479
Apr.	291.57	199.23	92.34	1.602	1.095	0.508	68.33	0.981
May	940.90	696.15	244.75	5.344	3.954	1.390	73.99	3.429
June	1560.27	1304.50	255.77	8.575	7.170	1.406	83.61	6.426
July	579.68	466.30	113.37	3.292	2.648	0.644	80.44	2.297
Aug.	227.06	212.56	14.50	1.290	1.207	0.082	93.61	1.047
Sept.	102.63	100.05	2.59	0.564	0.550	0.014	97.48	0.493
	351.61	284.90	66.71	23.512	19.051	4.460	81.03	1.403

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1966

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	75.84	71.46	4.38	0.431	0.406	0.025	94.22	0.352
Nov.	82.90	75.48	7.42	0.456	0.415	0.041	91.05	0.372
Dec.	65.06	52.33	12.73	0.370	0.297	0.072	80.43	0.258
Jan.	61.23	55.09	6.13	0.348	0.313	0.035	89.98	0.271
Feb.	54.25	53.09	1.16	0.278	0.272	0.006	97.85	0.262
Mar.	70.39	64.62	5.77	0.400	0.367	0.033	91.80	0.318
Apr.	253.47	230.23	23.24	1.393	1.265	0.128	90.83	1.134
May	1014.87	590.21	424.66	5.764	3.352	2.412	58.16	2.907
June	1022.20	764.22	257.98	5.618	4.200	1.418	74.76	3.765
July	485.16	464.10	21.06	2.755	2.636	0.120	95.66	2.286
Aug.	166.29	163.68	2.61	0.944	0.930	0.015	98.43	0.806
Sept.	87.97	84.60	3.36	0.483	0.465	0.018	96.18	0.417
	287.72	223.09	64.63	19.240	14.918	4.322	77.54	1.099

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1967

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	73.45	65.80	7.65	0.417	0.374	0.043	89.58	0.324
Nov.	69.70	64.88	4.82	0.383	0.357	0.027	93.08	0.320
Dec.	81.32	66.52	14.81	0.462	0.378	0.084	81.79	0.328
Jan.	72.71	66.08	6.63	0.413	0.375	0.038	90.89	0.326
Feb.	76.36	71.59	4.77	0.392	0.367	0.024	93.76	0.353
Mar.	70.55	66.04	4.50	0.401	0.375	0.026	93.62	0.325
Apr.	93.17	91.09	2.07	0.512	0.501	0.011	97.77	0.449
May	780.94	552.35	228.59	4.435	3.137	1.298	70.73	2.721
June	2278.00	1966.94	311.06	12.520	10.810	1.710	86.35	9.689
July	667.81	622.05	45.76	3.793	3.533	0.260	93.15	3.064
Aug.	196.06	193.60	2.46	1.114	1.100	0.014	98.74	0.954
Sept.	103.43	96.12	7.31	0.568	0.528	0.040	92.93	0.474
	379.99	326.52	53.46	25.409	21.834	3.575	85.93	1.608

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1968

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	130.10	109.95	20.15	0.739	0.624	0.114	84.51	0.542
Nov.	195.83	167.92	27.91	1.076	0.923	0.153	85.75	0.827
Dec.	136.23	94.57	41.65	0.774	0.537	0.237	69.42	0.466
Jan.	244.87	199.09	45.78	1.391	1.131	0.260	81.30	0.981
Feb.	244.31	232.63	11.68	1.298	1.236	0.062	95.22	1.146
Mar.	317.61	258.26	59.35	1.804	1.467	0.337	81.31	1.272
Apr.	232.23	224.86	7.38	1.276	1.236	0.041	96.82	1.108
May	1012.90	814.79	198.12	5.753	4.627	1.125	80.44	4.014
June	1535.07	1231.47	303.59	8.437	6.768	1.669	80.22	6.066
July	648.81	494.30	154.51	3.685	2.807	0.877	76.19	2.435
Aug.	209.61	177.69	31.92	1.190	1.009	0.181	84.77	0.875
Sept.	136.07	119.74	16.33	0.748	0.658	0.090	88.00	0.590
	420.12	343.37	76.75	28.170	23.024	5.146	81.73	1.691

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1969

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	96.10	92.31	3.78	0.546	0.524	0.021	96.06	0.455
Nov.	97.73	89.47	8.26	0.537	0.492	0.045	91.54	0.441
Dec.	81.97	70.03	11.94	0.466	0.398	0.068	85.43	0.345
Jan.	118.58	62.02	56.56	0.673	0.352	0.321	52.30	0.305
Feb.	75.14	72.79	2.35	0.385	0.373	0.012	96.87	0.359
Mar.	92.42	86.43	5.99	0.525	0.491	0.034	93.52	0.426
Apr.	319.47	299.90	19.56	1.756	1.648	0.108	93.88	1.477
May	1636.23	1122.71	513.52	9.293	6.376	2.916	68.62	5.531
June	1796.30	1267.99	528.31	9.873	6.969	2.904	70.59	6.246
July	370.39	353.24	17.15	2.104	2.006	0.097	95.37	1.740
Aug.	146.39	144.59	1.80	0.831	0.821	0.010	98.77	0.712
Sept.	110.90	97.26	13.64	0.610	0.535	0.075	87.70	0.479
	412.71	313.83	98.88	27.598	20.985	6.612	76.04	1.546

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1970

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	109.03	100.26	8.77	0.619	0.569	0.050	91.96	0.494
Nov.	83.97	76.26	7.71	0.461	0.419	0.042	90.82	0.376
Dec.	71.81	64.82	6.99	0.408	0.368	0.040	90.27	0.319
Jan.	54.26	51.15	3.11	0.308	0.290	0.018	94.26	0.252
Feb.	62.00	60.34	1.66	0.318	0.310	0.009	97.32	0.297
Mar.	76.39	74.37	2.02	0.434	0.422	0.011	97.36	0.366
Apr.	110.30	105.04	5.26	0.606	0.577	0.029	95.23	0.517
May	671.58	399.39	272.19	3.814	2.268	1.546	59.47	1.967
June	1365.40	802.17	563.23	7.504	4.409	3.096	58.75	3.952

Oct.	93.84	88.06	5.78	0.533	0.500	0.033	93.84	0.434
Nov.	96.43	84.65	11.78	0.530	0.465	0.065	87.78	0.417
Dec.	70.29	63.33	6.96	0.399	0.360	0.040	90.10	0.312
Jan.	68.29	59.28	9.01	0.388	0.337	0.051	86.80	0.292
Feb.	109.59	81.29	28.29	0.582	0.432	0.150	74.18	0.400
Mar.	436.87	291.74	145.13	2.481	1.657	0.824	66.78	1.437
Apr.	436.33	392.70	43.63	2.398	2.158	0.240	90.00	1.934
May	1690.16	1254.79	435.37	9.599	7.126	2.473	74.24	6.181
June	2568.67	2020.85	547.82	14.118	11.107	3.011	78.67	9.955
July	1269.16	1053.75	215.41	7.208	5.985	1.223	83.03	5.191
Aug.	432.94	401.36	31.58	2.459	2.279	0.179	92.71	1.977
Sept.	177.23	163.88	13.36	0.974	0.901	0.073	92.46	0.807

	621.44	496.72	124.71	41.669	33.306	8.362	79.93	2.447

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1973

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	120.84	112.18	8.66	0.686	0.637	0.049	92.83	0.553
Nov.	93.10	88.98	4.12	0.512	0.489	0.023	95.58	0.438
Dec.	86.03	70.04	16.00	0.489	0.398	0.091	81.41	0.345
Jan.	90.26	64.34	25.92	0.513	0.365	0.147	71.28	0.317
Feb.	74.29	70.41	3.87	0.381	0.361	0.020	94.78	0.347
Mar.	95.10	91.56	3.53	0.540	0.520	0.020	96.29	0.451
Apr.	221.43	190.71	30.73	1.217	1.048	0.169	86.12	0.939
May	839.90	600.73	239.18	4.770	3.412	1.358	71.52	2.959
June	801.97	623.86	178.10	4.408	3.429	0.979	77.79	3.073
July	302.97	283.26	19.70	1.721	1.609	0.112	93.50	1.395
Aug.	136.29	128.78	7.51	0.774	0.731	0.043	94.49	0.634
Sept.	94.70	86.08	8.62	0.520	0.473	0.047	90.90	0.424

	247.20	201.47	45.73	16.530	13.472	3.058	81.50	0.992

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1974

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	86.74	79.17	7.57	0.493	0.450	0.043	91.27	0.390
Nov.	99.03	83.52	15.51	0.544	0.459	0.085	84.34	0.411
Dec.	86.74	79.69	7.05	0.493	0.453	0.040	91.87	0.393
Jan.	161.71	84.03	77.68	0.918	0.477	0.441	51.96	0.414
Feb.	160.04	159.52	0.51	0.821	0.818	0.003	99.68	0.786
Mar.	170.81	164.26	6.55	0.970	0.933	0.037	96.17	0.809
Apr.	399.67	372.01	27.65	2.197	2.045	0.152	93.08	1.833
May	1073.52	834.23	239.29	6.097	4.738	1.359	77.71	4.110
June	2793.33	1629.45	1163.88	15.352	8.956	6.397	58.33	8.027
July	1479.35	1318.55	160.80	8.402	7.488	0.913	89.13	6.495
Aug.	487.32	463.46	23.87	2.768	2.632	0.136	95.10	2.283
Sept.	177.83	172.56	5.27	0.977	0.948	0.029	97.04	0.850
	598.65	454.57	144.08	40.031	30.397	9.635	75.93	2.239

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1975

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	94.35	82.83	11.52	0.536	0.470	0.065	87.79	0.408
Nov.	84.87	77.95	6.92	0.466	0.428	0.038	91.85	0.384
Dec.	82.03	75.07	6.96	0.466	0.426	0.040	91.52	0.370
Jan.	86.77	77.19	9.59	0.493	0.438	0.054	88.95	0.380
Feb.	70.00	66.20	3.80	0.359	0.340	0.020	94.57	0.326
Mar.	85.35	81.29	4.06	0.485	0.462	0.023	95.24	0.400
Apr.	178.40	157.96	20.44	0.980	0.868	0.112	88.54	0.778
May	960.65	685.15	275.50	5.456	3.891	1.565	71.32	3.375
June	1890.93	1424.28	466.66	10.393	7.828	2.565	75.32	7.016
July	998.61	605.94	392.67	5.671	3.441	2.230	60.68	2.985
Aug.	260.39	247.57	12.81	1.479	1.406	0.073	95.08	1.220
Sept.	149.50	146.46	3.04	0.822	0.805	0.017	97.97	0.721
	412.83	311.12	101.71	27.606	20.804	6.801	75.36	1.533

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1976

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	132.74	120.34	12.40	0.754	0.683	0.070	90.66	0.593
Nov.	233.47	197.10	36.37	1.283	1.083	0.200	84.42	0.971
Dec.	505.84	238.49	267.35	2.873	1.354	1.518	47.15	1.175
Jan.	206.42	199.39	7.02	1.172	1.132	0.040	96.60	0.982
Feb.	198.93	189.27	9.66	1.057	1.006	0.051	95.15	0.932
Mar.	161.61	158.86	2.76	0.918	0.902	0.016	98.29	0.783
Apr.	333.60	292.92	40.68	1.833	1.610	0.224	87.80	1.443
May	1385.45	1196.47	188.98	7.868	6.795	1.073	86.36	5.894
June	1423.70	1133.30	290.40	7.825	6.229	1.596	79.60	5.583
July	1247.58	1073.37	174.21	7.085	6.096	0.989	86.04	5.288
Aug.	514.13	477.15	36.97	2.920	2.710	0.210	92.81	2.351
Sept.	203.13	186.37	16.77	1.116	1.024	0.092	91.75	0.918
	547.41	456.74	90.68	36.705	30.625	6.080	83.44	2.250

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1977

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	125.16	118.97	6.19	0.711	0.676	0.035	95.05	0.586
Nov.	87.80	75.81	11.99	0.483	0.417	0.066	86.34	0.373
Dec.	71.39	61.53	9.86	0.405	0.349	0.056	86.19	0.303
Jan.	75.68	58.43	17.25	0.430	0.332	0.098	77.21	0.288
Feb.	84.50	78.29	6.21	0.433	0.402	0.032	92.65	0.386
Mar.	76.71	74.09	2.62	0.436	0.421	0.015	96.59	0.365

Apr.	257.97	181.12	76.85	1.418	0.995	0.422	70.21	0.892
May	380.35	328.68	51.67	2.160	1.867	0.293	86.41	1.619
June	522.07	450.26	71.80	2.869	2.475	0.395	86.25	2.218
July	178.65	169.59	9.05	1.015	0.963	0.051	94.93	0.835
Aug.	136.61	123.21	13.40	0.776	0.700	0.076	90.19	0.607
Sept.	97.97	81.60	16.37	0.538	0.448	0.090	83.29	0.402
	174.58	150.21	24.37	11.674	10.044	1.630	86.04	0.740

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1978

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	73.23	70.17	3.06	0.416	0.398	0.017	95.82	0.346
Nov.	113.47	90.87	22.59	0.624	0.499	0.124	80.09	0.448
Dec.	214.00	169.23	44.77	1.215	0.961	0.254	79.08	0.834
Jan.	105.71	103.19	2.52	0.600	0.586	0.014	97.62	0.508
Feb.	93.11	89.07	4.03	0.478	0.457	0.021	95.67	0.439
Mar.	205.03	135.30	69.73	1.164	0.768	0.396	65.99	0.666
Apr.	513.27	399.87	113.40	2.821	2.198	0.623	77.91	1.970
May	1148.26	929.66	218.60	6.521	5.280	1.241	80.96	4.580
June	1921.33	1252.07	669.26	10.560	6.881	3.678	65.17	6.168
July	854.10	769.27	84.83	4.851	4.369	0.482	90.07	3.789
Aug.	229.61	216.20	13.41	1.304	1.228	0.076	94.16	1.065
Sept.	210.30	172.30	38.00	1.156	0.947	0.209	81.93	0.849
	474.21	367.48	106.73	31.710	24.573	7.137	77.49	1.810

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1979

interval = 5 days

Mean stream- flow	Mean base flow	Mean surface runoff	Total stream- flow	Total base flow	Total surface runoff	BF/ stream- flow	Base flow
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	flow (ft3/s)	flow (ft3/s)	runoff (ft3/s)	flow (in)	flow (in)	runoff (in)	flow (%)	(ft3/s/ mi2)
Oct.	129.52	104.38	25.14	0.736	0.593	0.143	80.59	0.514
Nov.	145.67	124.07	21.60	0.801	0.682	0.119	85.17	0.611
Dec.	81.23	67.50	13.73	0.461	0.383	0.078	83.10	0.332
Jan.	55.87	53.72	2.15	0.317	0.305	0.012	96.15	0.265
Feb.	60.07	58.26	1.81	0.308	0.299	0.009	96.98	0.287
Mar.	107.03	96.21	10.83	0.608	0.546	0.061	89.88	0.474
Apr.	170.80	148.79	22.01	0.939	0.818	0.121	87.11	0.733
May	912.71	581.14	331.57	5.184	3.300	1.883	63.67	2.863
June	638.13	524.95	113.18	3.507	2.885	0.622	82.26	2.586
July	252.90	224.59	28.32	1.436	1.275	0.161	88.80	1.106
Aug.	136.00	126.45	9.55	0.772	0.718	0.054	92.98	0.623
Sept.	95.40	84.81	10.59	0.524	0.466	0.058	88.90	0.418
	233.19	183.52	49.68	15.593	12.271	3.322	78.70	0.904

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1980

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	71.42	61.24	10.17	0.406	0.348	0.058	85.75	0.302
Nov.	65.83	59.72	6.11	0.362	0.328	0.034	90.72	0.294
Dec.	150.16	99.11	51.05	0.853	0.563	0.290	66.00	0.488
Jan.	97.55	77.77	19.78	0.554	0.442	0.112	79.73	0.383
Feb.	89.72	74.67	15.05	0.477	0.397	0.080	83.22	0.368
Mar.	138.68	135.41	3.27	0.788	0.769	0.019	97.64	0.667
Apr.	488.87	428.66	60.20	2.687	2.356	0.331	87.68	2.112
May	1357.32	1184.07	173.25	7.709	6.725	0.984	87.24	5.833
June	999.27	753.36	245.91	5.492	4.140	1.352	75.39	3.711
July	455.52	420.22	35.30	2.587	2.387	0.200	92.25	2.070
Aug.	160.29	154.99	5.30	0.910	0.880	0.030	96.69	0.763
Sept.	100.30	92.60	7.70	0.551	0.509	0.042	92.32	0.456
	348.60	295.94	52.67	23.375	19.843	3.531	84.89	1.458

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800
 Drainage area = 203.00 square miles

 Period ending in 1981 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	77.35	75.94	1.41	0.439	0.431	0.008	98.17	0.374
Nov.	108.37	83.91	24.46	0.596	0.461	0.134	77.43	0.413
Dec.	269.00	110.44	158.56	1.528	0.627	0.901	41.06	0.544
Jan.	307.68	201.28	106.39	1.747	1.143	0.604	65.42	0.992
Feb.	214.54	177.59	36.95	1.100	0.911	0.190	82.78	0.875
Mar.	222.87	212.96	9.91	1.266	1.209	0.056	95.55	1.049
Apr.	300.13	267.96	32.17	1.650	1.473	0.177	89.28	1.320
May	1048.87	825.10	223.77	5.957	4.686	1.271	78.67	4.065
June	920.27	830.57	89.70	5.058	4.565	0.493	90.25	4.091
July	502.39	449.83	52.56	2.853	2.555	0.299	89.54	2.216
Aug.	197.06	181.38	15.69	1.119	1.030	0.089	92.04	0.893
Sept.	99.37	93.21	6.15	0.546	0.512	0.034	93.81	0.459
	356.80	293.17	63.63	23.859	19.604	4.255	82.17	1.444

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA
 Station ID = 12452800
 Drainage area = 203.00 square miles

 Period ending in 1982 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	116.87	102.48	14.39	0.664	0.582	0.082	87.69	0.505
Nov.	145.97	117.10	28.87	0.802	0.644	0.159	80.22	0.577
Dec.	99.90	95.77	4.13	0.567	0.544	0.023	95.87	0.472
Jan.	95.19	72.62	22.57	0.541	0.412	0.128	76.29	0.358
Feb.	149.71	130.39	19.33	0.768	0.669	0.099	87.09	0.642
Mar.	165.23	151.58	13.64	0.938	0.861	0.077	91.74	0.747
Apr.	211.37	194.86	16.51	1.162	1.071	0.091	92.19	0.960
May	1018.90	870.44	148.46	5.787	4.943	0.843	85.43	4.288
June	2202.33	1198.38	1003.95	12.104	6.586	5.518	54.41	5.903
July	840.16	724.67	115.49	4.771	4.116	0.656	86.25	3.570
Aug.	262.45	240.91	21.54	1.491	1.368	0.122	91.79	1.187
Sept.	135.63	125.61	10.02	0.745	0.690	0.055	92.61	0.619

 453.73 336.28 117.45 30.340 22.487 7.854 74.11 1.657

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA
 Station ID = 12452800
 Drainage area = 203.00 square miles

Period ending in 1983 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	105.32	98.59	6.73	0.598	0.560	0.038	93.61	0.486
Nov.	88.07	74.92	13.14	0.484	0.412	0.072	85.07	0.369
Dec.	98.35	77.82	20.53	0.559	0.442	0.117	79.13	0.383
Jan.	131.32	94.44	36.88	0.746	0.536	0.209	71.92	0.465
Feb.	112.43	105.42	7.01	0.577	0.541	0.036	93.77	0.519
Mar.	222.42	195.36	27.06	1.263	1.110	0.154	87.84	0.962
Apr.	414.40	342.14	72.26	2.278	1.880	0.397	82.56	1.685
May	1523.06	939.31	583.75	8.650	5.335	3.315	61.67	4.627
June	1634.50	1283.02	351.48	8.983	7.052	1.932	78.50	6.320
July	675.58	602.89	72.69	3.837	3.424	0.413	89.24	2.970
Aug.	299.87	267.47	32.40	1.703	1.519	0.184	89.20	1.318
Sept.	161.50	151.07	10.43	0.888	0.830	0.057	93.54	0.744
	457.08	353.53	103.55	30.565	23.640	6.924	77.34	1.742

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA
 Station ID = 12452800
 Drainage area = 203.00 square miles

Period ending in 1984 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	94.74	87.38	7.36	0.538	0.496	0.042	92.23	0.430
Nov.	146.93	113.75	33.18	0.808	0.625	0.182	77.42	0.560
Dec.	86.87	79.45	7.42	0.493	0.451	0.042	91.46	0.391

Jan.	261.23	142.92	118.31	1.484	0.812	0.672	54.71	0.704
Feb.	185.10	161.35	23.75	0.983	0.857	0.126	87.17	0.795
Mar.	203.45	186.29	17.16	1.155	1.058	0.097	91.57	0.918
Apr.	283.10	253.56	29.54	1.556	1.394	0.162	89.56	1.249
May	552.71	446.62	106.09	3.139	2.536	0.603	80.80	2.200
June	1701.67	1444.58	257.09	9.352	7.939	1.413	84.89	7.116
July	890.19	829.59	60.60	5.056	4.711	0.344	93.19	4.087
Aug.	279.23	270.82	8.40	1.586	1.538	0.048	96.99	1.334
Sept.	123.07	117.14	5.93	0.676	0.644	0.033	95.19	0.577
	400.09	343.95	56.14	26.827	23.062	3.764	85.97	1.694

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1985

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	110.03	93.94	16.10	0.625	0.533	0.091	85.37	0.463
Nov.	98.27	89.56	8.70	0.540	0.492	0.048	91.14	0.441
Dec.	76.58	68.48	8.10	0.435	0.389	0.046	89.42	0.337
Jan.	64.61	61.67	2.94	0.367	0.350	0.017	95.45	0.304
Feb.	60.57	58.74	1.83	0.311	0.301	0.009	96.97	0.289
Mar.	78.10	71.36	6.74	0.444	0.405	0.038	91.37	0.352
Apr.	285.07	183.01	102.06	1.567	1.006	0.561	64.20	0.902
May	883.32	506.20	377.13	5.017	2.875	2.142	57.31	2.494
June	913.37	820.50	92.87	5.020	4.510	0.510	89.83	4.042
July	271.39	259.53	11.86	1.541	1.474	0.067	95.63	1.278
Aug.	117.55	112.86	4.69	0.668	0.641	0.027	96.01	0.556
Sept.	87.07	82.18	4.88	0.479	0.452	0.027	94.39	0.405
	254.41	200.81	53.59	17.012	13.428	3.584	78.93	0.989

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1986

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	88.52	77.81	10.71	0.503	0.442	0.061	87.91	0.383
Nov.	102.53	77.24	25.30	0.564	0.424	0.139	75.33	0.380
Dec.	70.32	65.78	4.55	0.399	0.374	0.026	93.54	0.324
Jan.	71.87	66.05	5.82	0.408	0.375	0.033	91.90	0.325
Feb.	104.36	74.67	29.69	0.535	0.383	0.152	71.55	0.368
Mar.	265.48	236.91	28.58	1.508	1.345	0.162	89.24	1.167
Apr.	410.73	321.12	89.61	2.257	1.765	0.492	78.18	1.582
May	958.00	564.01	393.99	5.441	3.203	2.238	58.87	2.778
June	1213.23	853.28	359.96	6.668	4.690	1.978	70.33	4.203
July	292.06	263.71	28.35	1.659	1.498	0.161	90.29	1.299
Aug.	140.13	133.28	6.85	0.796	0.757	0.039	95.11	0.657
Sept.	89.00	80.60	8.40	0.489	0.443	0.046	90.56	0.397
	317.44	234.77	82.67	21.227	15.699	5.528	73.96	1.157

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1987

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	72.45	64.39	8.06	0.411	0.366	0.046	88.87	0.317
Nov.	107.67	72.96	34.71	0.592	0.401	0.191	67.76	0.359
Dec.	83.77	72.11	11.66	0.476	0.410	0.066	86.08	0.355
Jan.	64.42	56.92	7.50	0.366	0.323	0.043	88.35	0.280
Feb.	65.21	62.81	2.41	0.335	0.322	0.012	96.31	0.309
Mar.	155.03	130.33	24.71	0.880	0.740	0.140	84.06	0.642
Apr.	416.03	318.89	97.14	2.287	1.753	0.534	76.65	1.571
May	1453.10	837.20	615.90	8.253	4.755	3.498	57.61	4.124
June	829.20	715.19	114.01	4.557	3.931	0.627	86.25	3.523
July	279.42	248.80	30.62	1.587	1.413	0.174	89.04	1.226
Aug.	115.97	112.34	3.62	0.659	0.638	0.021	96.87	0.553
Sept.	74.20	71.43	2.77	0.408	0.393	0.015	96.26	0.352
	311.20	230.95	80.25	20.810	15.443	5.366	74.21	1.138

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1988

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	51.94	51.70	0.23	0.295	0.294	0.001	99.55	0.255
Nov.	51.17	49.11	2.05	0.281	0.270	0.011	95.99	0.242
Dec.	56.71	52.89	3.82	0.322	0.300	0.022	93.26	0.261
Jan.	47.71	46.25	1.46	0.271	0.263	0.008	96.94	0.228
Feb.	54.10	52.43	1.67	0.287	0.279	0.009	96.92	0.258
Mar.	84.39	80.29	4.10	0.479	0.456	0.023	95.15	0.396
Apr.	391.10	320.23	70.87	2.150	1.760	0.390	81.88	1.577
May	897.42	641.43	255.99	5.097	3.643	1.454	71.48	3.160
June	1089.80	967.58	122.22	5.990	5.318	0.672	88.79	4.766
July	482.81	440.78	42.03	2.742	2.503	0.239	91.30	2.171
Aug.	155.52	153.03	2.49	0.883	0.869	0.014	98.40	0.754
Sept.	85.67	79.76	5.91	0.471	0.438	0.032	93.10	0.393
	287.36	244.48	42.88	19.268	16.393	2.875	85.08	1.204

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1989

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	100.74	77.11	23.63	0.572	0.438	0.134	76.54	0.380
Nov.	115.20	103.52	11.68	0.633	0.569	0.064	89.86	0.510
Dec.	109.97	95.81	14.16	0.625	0.544	0.080	87.12	0.472
Jan.	94.03	78.67	15.36	0.534	0.447	0.087	83.66	0.388
Feb.	82.82	68.47	14.35	0.425	0.351	0.074	82.67	0.337
Mar.	86.74	82.54	4.20	0.493	0.469	0.024	95.15	0.407
Apr.	418.50	370.83	47.67	2.300	2.038	0.262	88.61	1.827
May	1051.97	789.79	262.18	5.974	4.485	1.489	75.08	3.891
June	1277.80	951.34	326.46	7.023	5.229	1.794	74.45	4.686

Oct.	105.65	89.69	15.96	0.600	0.509	0.091	84.89	0.442
Nov.	462.97	177.56	285.40	2.544	0.976	1.569	38.35	0.875
Dec.	246.39	203.43	42.96	1.399	1.155	0.244	82.57	1.002
Jan.	133.29	113.29	20.00	0.757	0.643	0.114	84.99	0.558
Feb.	203.07	176.01	27.07	1.042	0.903	0.139	86.67	0.867
Mar.	207.26	204.67	2.59	1.177	1.162	0.015	98.75	1.008
Apr.	361.57	313.41	48.16	1.987	1.723	0.265	86.68	1.544
May	1142.13	813.57	328.56	6.486	4.620	1.866	71.23	4.008
June	1500.20	1287.42	212.78	8.245	7.076	1.169	85.82	6.342
July	1110.29	1014.80	95.49	6.306	5.763	0.542	91.40	4.999
Aug.	329.94	296.42	33.52	1.874	1.683	0.190	89.84	1.460
Sept.	132.03	127.78	4.26	0.726	0.702	0.023	96.78	0.629

	495.65	402.53	93.11	33.143	26.917	6.226	81.21	1.983

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA
 Station ID = 12452800
 Drainage area = 203.00 square miles

Period ending in 1992							interval = 5 days	
	Mean stream-flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream-flow (in)	Total base flow (in)	Total surface runoff (in)	BF/stream-flow (%)	Base flow (ft3/s/mi2)

Oct.	80.94	76.90	4.04	0.460	0.437	0.023	95.01	0.379
Nov.	92.43	79.41	13.02	0.508	0.436	0.072	85.91	0.391
Dec.	81.90	70.85	11.05	0.465	0.402	0.063	86.50	0.349
Jan.	75.06	62.74	12.32	0.426	0.356	0.070	83.59	0.309
Feb.	102.24	94.99	7.25	0.543	0.505	0.039	92.91	0.468
Mar.	210.00	191.79	18.21	1.193	1.089	0.103	91.33	0.945
Apr.	453.83	343.45	110.38	2.494	1.888	0.607	75.68	1.692
May	1028.94	773.48	255.46	5.844	4.393	1.451	75.17	3.810
June	699.83	617.28	82.55	3.846	3.393	0.454	88.20	3.041
July	261.23	248.36	12.86	1.484	1.411	0.073	95.08	1.223
Aug.	120.23	113.87	6.35	0.683	0.647	0.036	94.72	0.561
Sept.	75.43	70.22	5.21	0.415	0.386	0.029	93.09	0.346

	273.82	228.81	45.01	18.360	15.342	3.018	83.56	1.127

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA
 Station ID = 12452800
 Drainage area = 203.00 square miles

 Period ending in 1993

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	65.39	61.95	3.44	0.371	0.352	0.020	94.74	0.305
Nov.	65.93	53.12	12.81	0.362	0.292	0.070	80.56	0.262
Dec.	53.13	43.53	9.60	0.302	0.247	0.055	81.93	0.214
Jan.	52.32	45.71	6.61	0.297	0.260	0.038	87.36	0.225
Feb.	51.32	42.95	8.37	0.263	0.220	0.043	83.68	0.212
Mar.	67.90	61.69	6.21	0.386	0.350	0.035	90.85	0.304
Apr.	113.80	111.54	2.26	0.625	0.613	0.012	98.02	0.549
May	1053.48	856.85	196.63	5.983	4.866	1.117	81.34	4.221
June	635.37	579.72	55.64	3.492	3.186	0.306	91.24	2.856
July	217.45	207.46	9.99	1.235	1.178	0.057	95.40	1.022
Aug.	122.84	120.05	2.79	0.698	0.682	0.016	97.73	0.591
Sept.	68.33	67.06	1.28	0.376	0.369	0.007	98.13	0.330
	215.20	188.66	26.54	14.390	12.615	1.775	87.67	0.929

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1994

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	54.23	51.38	2.85	0.308	0.292	0.016	94.75	0.253
Nov.	45.30	39.55	5.75	0.249	0.217	0.032	87.30	0.195
Dec.	49.29	44.12	5.17	0.280	0.251	0.029	89.50	0.217
Jan.	50.61	45.47	5.15	0.287	0.258	0.029	89.83	0.224
Feb.	51.71	46.72	4.99	0.265	0.240	0.026	90.34	0.230
Mar.	93.68	79.71	13.97	0.532	0.453	0.079	85.08	0.393
Apr.	416.53	287.29	129.25	2.289	1.579	0.710	68.97	1.415
May	940.39	660.77	279.62	5.341	3.753	1.588	70.27	3.255
June	555.90	474.12	81.78	3.055	2.606	0.449	85.29	2.336
July	262.26	245.53	16.73	1.489	1.394	0.095	93.62	1.210
Aug.	99.29	95.40	3.89	0.564	0.542	0.022	96.08	0.470
Sept.	58.47	55.77	2.69	0.321	0.307	0.015	95.40	0.275
	224.04	177.82	46.23	14.982	11.890	3.091	79.37	0.876

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1995

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	52.97	45.62	7.35	0.301	0.259	0.042	86.12	0.225
Nov.	53.83	47.33	6.50	0.296	0.260	0.036	87.92	0.233
Dec.	58.06	48.74	9.33	0.330	0.277	0.053	83.93	0.240
Jan.	57.16	50.63	6.54	0.325	0.288	0.037	88.57	0.249
Feb.	172.68	124.19	48.49	0.886	0.637	0.249	71.92	0.612
Mar.	206.81	198.06	8.75	1.175	1.125	0.050	95.77	0.976
Apr.	333.20	271.33	61.87	1.831	1.491	0.340	81.43	1.337
May	1502.94	1192.43	310.51	8.536	6.772	1.763	79.34	5.874
June	1776.33	1440.25	336.09	9.763	7.916	1.847	81.08	7.095
July	856.87	779.50	77.37	4.866	4.427	0.439	90.97	3.840
Aug.	209.42	206.15	3.27	1.189	1.171	0.019	98.44	1.015
Sept.	101.00	94.43	6.57	0.555	0.519	0.036	93.50	0.465
	449.42	375.98	73.44	30.052	25.141	4.911	83.66	1.852

 Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

 Period ending in 1996

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	111.68	92.61	19.07	0.634	0.526	0.108	82.93	0.456
Nov.	468.07	279.22	188.85	2.573	1.535	1.038	59.65	1.375
Dec.	502.00	325.16	176.84	2.851	1.847	1.004	64.77	1.602
Jan.	196.52	176.69	19.83	1.116	1.003	0.113	89.91	0.870
Feb.	320.52	253.57	66.94	1.703	1.347	0.356	79.11	1.249
Mar.	361.19	280.63	80.56	2.051	1.594	0.458	77.70	1.382

Apr.	752.60	613.44	139.16	4.136	3.371	0.765	81.51	3.022
May	935.23	775.56	159.67	5.311	4.405	0.907	82.93	3.820
June	1695.67	1576.50	119.17	9.319	8.665	0.655	92.97	7.766
July	1114.26	976.28	137.98	6.328	5.545	0.784	87.62	4.809
Aug.	283.58	264.84	18.74	1.611	1.504	0.106	93.39	1.305
Sept.	132.63	122.67	9.96	0.729	0.674	0.055	92.49	0.604
	572.14	477.47	94.67	38.363	32.015	6.348	83.45	2.352

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1997

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	98.45	92.66	5.80	0.559	0.526	0.033	94.11	0.456
Nov.	105.33	95.24	10.10	0.579	0.523	0.055	90.41	0.469
Dec.	80.90	58.14	22.77	0.459	0.330	0.129	71.86	0.286
Jan.	100.29	76.78	23.51	0.570	0.436	0.134	76.55	0.378
Feb.	116.79	105.70	11.08	0.599	0.542	0.057	90.51	0.521
Mar.	214.61	178.36	36.25	1.219	1.013	0.206	83.11	0.879
Apr.	412.63	337.98	74.65	2.268	1.858	0.410	81.91	1.665
May	1641.74	1048.81	592.93	9.324	5.956	3.367	63.88	5.167
June	2142.33	1709.27	433.06	11.774	9.394	2.380	79.79	8.420
July	1006.90	928.31	78.60	5.718	5.272	0.446	92.19	4.573
Aug.	305.58	290.27	15.32	1.735	1.648	0.087	94.99	1.430
Sept.	172.77	150.83	21.94	0.950	0.829	0.121	87.30	0.743
	534.70	423.65	111.05	35.755	28.329	7.426	79.23	2.087

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1998

interval = 5 days

	Mean stream- flow	Mean base flow	Mean surface runoff	Total stream- flow	Total base flow	Total surface runoff	BF/ stream- flow	Base flow
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	flow (ft3/s)	flow (ft3/s)	runoff (ft3/s)	flow (in)	flow (in)	runoff (in)	flow (%)	(ft3/s/ mi2)
Oct.	241.32	192.93	48.39	1.371	1.096	0.275	79.95	0.950
Nov.	203.90	189.88	14.02	1.121	1.044	0.077	93.12	0.935
Dec.	118.87	109.22	9.65	0.675	0.620	0.055	91.88	0.538
Jan.	107.77	101.05	6.72	0.612	0.574	0.038	93.76	0.498
Feb.	116.96	110.96	6.00	0.600	0.569	0.031	94.87	0.547
Mar.	156.48	136.99	19.50	0.889	0.778	0.111	87.54	0.675
Apr.	326.27	305.34	20.93	1.793	1.678	0.115	93.58	1.504
May	1796.39	1298.96	497.43	10.202	7.377	2.825	72.31	6.399
June	1272.47	1176.23	96.24	6.994	6.465	0.529	92.44	5.794
July	488.16	412.50	75.66	2.772	2.343	0.430	84.50	2.032
Aug.	164.26	159.40	4.86	0.933	0.905	0.028	97.04	0.785
Sept.	89.50	87.89	1.61	0.492	0.483	0.009	98.20	0.433
	425.51	357.89	67.62	28.453	23.932	4.522	84.11	1.763

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Period ending in 1999

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	66.84	65.79	1.04	0.380	0.374	0.006	98.44	0.324
Nov.	86.27	71.55	14.72	0.474	0.393	0.081	82.94	0.352
Dec.	87.03	72.60	14.43	0.494	0.412	0.082	83.41	0.358
Jan.	124.32	100.87	23.45	0.706	0.573	0.133	81.13	0.497
Feb.	98.82	94.85	3.97	0.507	0.487	0.020	95.99	0.467
Mar.	133.39	114.14	19.25	0.758	0.648	0.109	85.57	0.562
Apr.	306.17	278.96	27.21	1.683	1.533	0.150	91.11	1.374
May	874.19	736.10	138.09	4.965	4.181	0.784	84.20	3.626
June	2283.00	1749.72	533.28	12.548	9.617	2.931	76.64	8.619
July	1589.35	1309.01	280.35	9.026	7.434	1.592	82.36	6.448
Aug.	577.29	520.71	56.58	3.279	2.957	0.321	90.20	2.565
Sept.	169.70	167.68	2.02	0.933	0.922	0.011	98.81	0.826
	534.65	441.61	93.03	35.751	29.530	6.221	82.60	2.175

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA

Station ID = 12452800
 Drainage area = 203.00 square miles

Period ending in 2000

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	110.74	106.10	4.65	0.629	0.603	0.026	95.81	0.523
Nov.	339.60	184.90	154.70	1.866	1.016	0.850	54.45	0.911
Dec.	210.77	185.78	25.00	1.197	1.055	0.142	88.14	0.915
Jan.	137.48	119.16	18.32	0.781	0.677	0.104	86.67	0.587
Feb.	98.10	87.13	10.97	0.521	0.463	0.058	88.82	0.429
Mar.	110.13	108.36	1.77	0.625	0.615	0.010	98.40	0.534
Apr.	469.87	397.42	72.45	2.582	2.184	0.398	84.58	1.958
May	918.16	612.58	305.58	5.214	3.479	1.735	66.72	3.018
June	1466.00	1303.39	162.61	8.057	7.163	0.894	88.91	6.421
July	669.48	618.66	50.83	3.802	3.514	0.289	92.41	3.048
Aug.	228.03	218.73	9.30	1.295	1.242	0.053	95.92	1.077
Sept.	118.83	109.45	9.39	0.653	0.602	0.052	92.10	0.539
	406.02	337.24	68.77	27.224	22.613	4.611	83.06	1.661

Hydrograph separation by the local minimum method

Entiat River near Ardenvoir WA
 Station ID = 12452800
 Drainage area = 203.00 square miles

Period ending in 2001

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	97.23	87.16	10.07	0.552	0.495	0.057	89.65	0.429
Nov.	78.83	73.36	5.48	0.433	0.403	0.030	93.05	0.361
Dec.	64.32	54.43	9.89	0.365	0.309	0.056	84.63	0.268
Jan.	60.00	52.82	7.18	0.341	0.300	0.041	88.04	0.260
Feb.	53.11	48.72	4.39	0.272	0.250	0.023	91.73	0.240
Mar.	71.77	68.39	3.39	0.408	0.388	0.019	95.28	0.337
Apr.	109.60	93.35	16.25	0.602	0.513	0.089	85.18	0.460
May	551.29	369.52	181.77	3.131	2.099	1.032	67.03	1.820
June	449.97	419.30	30.66	2.473	2.305	0.169	93.19	2.066
July	208.94	181.13	27.81	1.187	1.029	0.158	86.69	0.892
Aug.	105.94	97.51	8.43	0.602	0.554	0.048	92.04	0.480
Sept.	67.50	63.89	3.61	0.371	0.351	0.020	94.66	0.315

160.57	134.52	26.05	10.737	8.995	1.742	83.78	0.663
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Annual base-flow summary

Entiat River near Ardenvoir WA
 Station ID = 12452800
 Drainage area = 203.00 square miles

Local minimum method

Year starts in October
 Year ends in September

Period ending	in	ft3/s	ft3/s/ mi2	% of stream- flow
	-----	-----	-----	-----
1957	-1.000	-1.00	-1.000	-1.00
1958	17.980	268.89	1.325	72.94
1959	24.520	366.69	1.806	82.23
1960	22.359	333.45	1.643	76.54
1961	21.657	323.88	1.595	79.34
1962	14.437	215.91	1.064	80.01
1963	17.671	264.26	1.302	86.10
1964	20.632	307.70	1.516	89.17
1965	19.051	284.90	1.403	81.03
1966	14.918	223.09	1.099	77.54
1967	21.834	326.52	1.608	85.93
1968	23.024	343.37	1.691	81.73
1969	20.985	313.83	1.546	76.04
1970	12.234	182.95	0.901	70.55
1971	24.970	373.41	1.839	78.32
1972	33.306	496.72	2.447	79.93
1973	13.472	201.47	0.992	81.50
1974	30.397	454.57	2.239	75.93
1975	20.804	311.12	1.533	75.36
1976	30.625	456.74	2.250	83.44
1977	10.044	150.21	0.740	86.04
1978	24.573	367.48	1.810	77.49
1979	12.271	183.52	0.904	78.70
1980	19.843	295.94	1.458	84.89
1981	19.604	293.17	1.444	82.17
1982	22.487	336.28	1.657	74.11
1983	23.640	353.53	1.742	77.34
1984	23.062	343.95	1.694	85.97
1985	13.428	200.81	0.989	78.93
1986	15.699	234.77	1.157	73.96
1987	15.443	230.95	1.138	74.21
1988	16.393	244.48	1.204	85.08
1989	17.560	262.60	1.294	80.52
1990	18.958	283.52	1.397	86.05
1991	26.917	402.53	1.983	81.21

1992	15.342	228.81	1.127	83.56
1993	12.615	188.66	0.929	87.67
1994	11.890	177.82	0.876	79.37
1995	25.141	375.98	1.852	83.66
1996	32.015	477.47	2.352	83.45
1997	28.329	423.65	2.087	79.23
1998	23.932	357.89	1.763	84.11
1999	29.530	441.61	2.175	82.60
2000	22.613	337.24	1.661	83.06
2001	8.995	134.52	0.663	83.78
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median	20.718	309.41	1.524	81.12

Annual base-flow summary ordered by frequency

Entiat River near Ardenvoir WA

Station ID = 12452800

Drainage area = 203.00 square miles

Local minimum method

Year starts in October

Year ends in September

Cum		ft3/s/	
dist	in	mi2	year
-----	-----	-----	-----
-1.0	-1.000	-1.000	1957
2.2	8.995	0.663	2001
4.4	10.044	0.740	1977
6.7	11.890	0.876	1994
8.9	12.234	0.901	1970
11.1	12.271	0.904	1979
13.3	12.615	0.929	1993
15.6	13.428	0.989	1985
17.8	13.472	0.992	1973
20.0	14.437	1.064	1962
22.2	14.918	1.099	1966
24.4	15.342	1.127	1992
26.7	15.443	1.138	1987
28.9	15.699	1.157	1986
31.1	16.393	1.204	1988
33.3	17.560	1.294	1989
35.6	17.671	1.302	1963
37.8	17.980	1.325	1958
40.0	18.958	1.397	1990
42.2	19.051	1.403	1965
44.4	19.604	1.444	1981
46.7	19.843	1.458	1980
48.9	20.632	1.516	1964
51.1	20.804	1.533	1975
53.3	20.985	1.546	1969
55.6	21.657	1.595	1961
57.8	21.834	1.608	1967

60.0	22.359	1.643	1960
62.2	22.487	1.657	1982
64.4	22.613	1.661	2000
66.7	23.024	1.691	1968
68.9	23.062	1.694	1984
71.1	23.640	1.742	1983
73.3	23.932	1.763	1998
75.6	24.520	1.806	1959
77.8	24.573	1.810	1978
80.0	24.970	1.839	1971
82.2	25.141	1.852	1995
84.4	26.917	1.983	1991
86.7	28.329	2.087	1997
88.9	29.530	2.175	1999
91.1	30.397	2.239	1974
93.3	30.625	2.250	1976
95.6	32.015	2.352	1996
97.8	33.306	2.447	1972

Seasonal-distribution table

Entiat River near Ardenvoir WA
Station ID = 12452800
Drainage area = 203.00 square miles

Local minimum method

Year starts in October
Year ends in September

Month	Base flow (in)	Runoff (in)
October	0.496	0.069
November	0.539	0.168
December	0.539	0.179
January	0.485	0.117
February	0.514	0.077
March	0.749	0.099
April	1.496	0.298
May	4.412	1.652
June	6.197	1.669
July	3.175	0.466
August	1.163	0.081
September	0.580	0.045

Flow duration table for total flow, local minimum method
at Entiat River near Ardenvoir WA (1957-2001)

Cases equal or exceeding lower limit and less	Cases equal or exceeding lower
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Lower class limit	than upper limit		class limit	
	Cases	Percent	Cases	Percent
0.00	0	0.00	16098	100.00
18.00	0	0.00	16098	100.00
21.00	2	0.01	16098	100.00
24.00	3	0.02	16096	99.99
28.00	9	0.06	16093	99.97
32.00	22	0.14	16084	99.91
37.00	46	0.29	16062	99.78
43.00	162	1.01	16016	99.49
49.00	486	3.02	15854	98.48
57.00	823	5.11	15368	95.47
66.00	1009	6.27	14545	90.35
75.00	1365	8.48	13536	84.08
87.00	1499	9.31	12171	75.61
100.00	1527	9.49	10672	66.29
120.00	454	2.82	9145	56.81
130.00	841	5.22	8691	53.99
150.00	953	5.92	7850	48.76
180.00	474	2.94	6897	42.84
200.00	630	3.91	6423	39.90
230.00	635	3.94	5793	35.99
270.00	476	2.96	5158	32.04
310.00	454	2.82	4682	29.08
360.00	336	2.09	4228	26.26
410.00	343	2.13	3892	24.18
470.00	318	1.98	3549	22.05
540.00	383	2.38	3231	20.07
630.00	314	1.95	2848	17.69
720.00	302	1.88	2534	15.74
830.00	266	1.65	2232	13.87
950.00	330	2.05	1966	12.21
1100.00	402	2.50	1636	10.16
1300.00	322	2.00	1234	7.67
1500.00	284	1.76	912	5.67
1700.00	179	1.11	628	3.90
1900.00	182	1.13	449	2.79
2200.00	122	0.76	267	1.66
2600.00	55	0.34	145	0.90
2900.00	52	0.32	90	0.56
3400.00	21	0.13	38	0.24
3900.00	12	0.07	17	0.11
4500.00	5	0.03	5	0.03
5200.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for surface runoff, local minimum method
at Entiat River near Ardenvoir WA (1957-2001)

Lower class	Cases equal or exceeding lower limit and less than upper limit	Cases equal or exceeding lower class limit
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limit	Cases	Percent	Cases	Percent
0.00	3811	23.67	16098	100.00
0.10	7	0.04	12287	76.33
0.12	2	0.01	12280	76.28
0.13	9	0.06	12278	76.27
0.15	8	0.05	12269	76.21
0.18	8	0.05	12261	76.16
0.20	18	0.11	12253	76.12
0.23	23	0.14	12235	76.00
0.27	25	0.16	12212	75.86
0.31	45	0.28	12187	75.71
0.36	28	0.17	12142	75.43
0.41	21	0.13	12114	75.25
0.47	55	0.34	12093	75.12
0.54	42	0.26	12038	74.78
0.63	97	0.60	11996	74.52
0.72	73	0.45	11899	73.92
0.83	57	0.35	11826	73.46
0.95	132	0.82	11769	73.11
1.10	130	0.81	11637	72.29
1.30	155	0.96	11507	71.48
1.50	156	0.97	11352	70.52
1.70	122	0.76	11196	69.55
1.90	219	1.36	11074	68.79
2.20	263	1.63	10855	67.43
2.60	183	1.14	10592	65.80
2.90	271	1.68	10409	64.66
3.40	287	1.78	10138	62.98
3.90	303	1.88	9851	61.19
4.50	345	2.14	9548	59.31
5.20	354	2.20	9203	57.17
6.00	413	2.57	8849	54.97
6.90	369	2.29	8436	52.40
7.90	386	2.40	8067	50.11
9.10	230	1.43	7681	47.71
10.00	523	3.25	7451	46.29
12.00	414	2.57	6928	43.04
14.00	379	2.35	6514	40.46
16.00	309	1.92	6135	38.11
18.00	405	2.52	5826	36.19
21.00	338	2.10	5421	33.67
24.00	362	2.25	5083	31.58
28.00	301	1.87	4721	29.33
32.00	303	1.88	4420	27.46
37.00	311	1.93	4117	25.57
43.00	267	1.66	3806	23.64
49.00	284	1.76	3539	21.98
57.00	244	1.52	3255	20.22
66.00	198	1.23	3011	18.70
75.00	238	1.48	2813	17.47
87.00	208	1.29	2575	16.00
100.00	272	1.69	2367	14.70
120.00	114	0.71	2095	13.01
130.00	181	1.12	1981	12.31
150.00	223	1.39	1800	11.18
180.00	126	0.78	1577	9.80

200.00	148	0.92	1451	9.01
230.00	159	0.99	1303	8.09
270.00	135	0.84	1144	7.11
310.00	146	0.91	1009	6.27
360.00	118	0.73	863	5.36
410.00	127	0.79	745	4.63
470.00	93	0.58	618	3.84
540.00	85	0.53	525	3.26
630.00	73	0.45	440	2.73
720.00	75	0.47	367	2.28
830.00	62	0.39	292	1.81
950.00	65	0.40	230	1.43
1100.00	49	0.30	165	1.02
1300.00	31	0.19	116	0.72
1500.00	25	0.16	85	0.53
1700.00	18	0.11	60	0.37
1900.00	17	0.11	42	0.26
2200.00	17	0.11	25	0.16
2600.00	6	0.04	8	0.05
2900.00	1	0.01	2	0.01
3400.00	1	0.01	1	0.01
3900.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for base flow, local minimum method
at Entiat River near Ardenvoir WA (1957-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	0	0.00	16098	100.00
18.00	0	0.00	16098	100.00
21.00	2	0.01	16098	100.00
24.00	11	0.07	16096	99.99
28.00	26	0.16	16085	99.92
32.00	48	0.30	16059	99.76
37.00	108	0.67	16011	99.46
43.00	293	1.82	15903	98.79
49.00	645	4.01	15610	96.97
57.00	1131	7.03	14965	92.96
66.00	1234	7.67	13834	85.94
75.00	1576	9.79	12600	78.27
87.00	1397	8.68	11024	68.48
100.00	1282	7.96	9627	59.80
120.00	306	1.90	8345	51.84
130.00	794	4.93	8039	49.94
150.00	932	5.79	7245	45.01
180.00	493	3.06	6313	39.22
200.00	609	3.78	5820	36.15
230.00	588	3.65	5211	32.37
270.00	459	2.85	4623	28.72
310.00	403	2.50	4164	25.87

360.00	309	1.92	3761	23.36
410.00	301	1.87	3452	21.44
470.00	340	2.11	3151	19.57
540.00	389	2.42	2811	17.46
630.00	344	2.14	2422	15.05
720.00	345	2.14	2078	12.91
830.00	303	1.88	1733	10.77
950.00	337	2.09	1430	8.88
1100.00	430	2.67	1093	6.79
1300.00	275	1.71	663	4.12
1500.00	210	1.30	388	2.41
1700.00	89	0.55	178	1.11
1900.00	59	0.37	89	0.55
2200.00	25	0.16	30	0.19
2600.00	4	0.02	5	0.03
2900.00	1	0.01	1	0.01
3400.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Appendix E

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
 Drainage area = 103.00 square miles

Period ending in 1967

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Nov.	41.33	37.33	4.00	0.448	0.404	0.043	90.31	0.362
Dec.	50.74	43.05	7.70	0.568	0.482	0.086	84.83	0.418
Jan.	43.77	36.48	7.29	0.490	0.408	0.082	83.34	0.354
Feb.	36.89	33.42	3.48	0.373	0.338	0.035	90.58	0.324
Mar.	34.58	32.56	2.02	0.387	0.364	0.023	94.15	0.316
Apr.	50.37	49.11	1.26	0.546	0.532	0.014	97.50	0.477
May	619.16	451.83	167.34	6.930	5.057	1.873	72.97	4.387
June	1573.53	1203.32	370.21	17.045	13.034	4.010	76.47	11.683
July	583.74	527.78	55.97	6.534	5.907	0.626	90.41	5.124
Aug.	176.87	171.07	5.80	1.980	1.915	0.065	96.72	1.661
Sept.	94.03	85.28	8.76	1.019	0.924	0.095	90.69	0.828
	281.68	228.03	53.65	36.818	29.805	7.013	80.95	2.214

Above summary information based on 362 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
 Drainage area = 103.00 square miles

Period ending in 1968

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	147.65	105.57	42.08	1.653	1.182	0.471	71.50	1.025
Nov.	172.70	150.36	22.34	1.871	1.629	0.242	87.07	1.460
Dec.	128.23	111.31	16.92	1.435	1.246	0.189	86.81	1.081
Jan.	221.00	182.82	38.18	2.474	2.046	0.427	82.72	1.775
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	212.61	163.44	49.18	2.380	1.829	0.550	76.87	1.587
Apr.	174.70	164.10	10.60	1.892	1.778	0.115	93.93	1.593

May	813.39	659.15	154.24	9.104	7.378	1.726	81.04	6.399
June	1134.33	938.24	196.09	12.287	10.163	2.124	82.71	9.109
July	537.58	392.03	145.55	6.017	4.388	1.629	72.92	3.806
Aug.	157.45	125.35	32.10	1.762	1.403	0.359	79.61	1.217
Sept.	90.93	84.15	6.78	0.985	0.912	0.073	92.54	0.817
	330.01	269.71	60.30	43.492	35.546	7.947	81.73	2.619

Above summary information based on 365 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1969 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	55.77	53.24	2.53	0.624	0.596	0.028	95.45	0.517
Nov.	54.80	51.09	3.71	0.594	0.553	0.040	93.23	0.496
Dec.	55.55	50.40	5.15	0.622	0.564	0.058	90.73	0.489
Jan.	55.52	53.43	2.08	0.621	0.598	0.023	96.25	0.519
Feb.	31.39	30.26	1.13	0.317	0.306	0.011	96.40	0.294
Mar.	34.42	30.94	3.48	0.385	0.346	0.039	89.89	0.300
Apr.	183.07	161.07	21.99	1.983	1.745	0.238	87.99	1.564
May	1211.39	805.41	405.98	13.559	9.015	4.544	66.49	7.819
June	1483.37	939.86	543.50	16.068	10.181	5.887	63.36	9.125
July	289.10	262.49	26.61	3.236	2.938	0.298	90.80	2.548
Aug.	100.39	97.94	2.45	1.124	1.096	0.027	97.56	0.951
Sept.	77.50	56.47	21.03	0.839	0.612	0.228	72.86	0.548
	303.31	216.63	86.67	39.973	28.550	11.423	71.42	2.103

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1970 interval = 5 days

Mean stream-	Mean base	Mean surface	Total stream-	Total base	Total surface	BF/ stream-	Base flow
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	flow (ft3/s)	flow (ft3/s)	runoff (ft3/s)	flow (in)	flow (in)	runoff (in)	flow (%)	(ft3/s/ mi2)
Oct.	66.68	44.16	22.51	0.746	0.494	0.252	66.24	0.429
Nov.	53.27	48.25	5.01	0.577	0.523	0.054	90.59	0.468
Dec.	39.32	36.93	2.39	0.440	0.413	0.027	93.91	0.359
Jan.	31.52	29.32	2.20	0.353	0.328	0.025	93.03	0.285
Feb.	24.25	23.59	0.66	0.245	0.239	0.007	97.28	0.229
Mar.	30.61	29.11	1.50	0.343	0.326	0.017	95.11	0.283
Apr.	55.33	53.12	2.21	0.599	0.575	0.024	96.01	0.516
May	545.68	236.21	309.47	6.108	2.644	3.464	43.29	2.293
June	1076.37	561.26	515.11	11.659	6.080	5.580	52.14	5.449
July	262.26	230.47	31.79	2.935	2.580	0.356	87.88	2.238
Aug.	85.42	72.98	12.44	0.956	0.817	0.139	85.43	0.709
Sept.	53.03	45.64	7.39	0.574	0.494	0.080	86.07	0.443
	193.77	117.71	76.06	25.537	15.513	10.024	60.75	1.143

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1971 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	33.97	32.13	1.83	0.380	0.360	0.021	94.60	0.312
Nov.	28.20	26.17	2.03	0.305	0.284	0.022	92.81	0.254
Dec.	26.61	24.72	1.89	0.298	0.277	0.021	92.90	0.240
Jan.	61.39	32.04	29.35	0.687	0.359	0.329	52.19	0.311
Feb.	144.71	115.73	28.99	1.463	1.170	0.293	79.97	1.124
Mar.	62.06	58.86	3.21	0.695	0.659	0.036	94.84	0.571
Apr.	88.07	49.27	38.80	0.954	0.534	0.420	55.95	0.478
May	1005.52	512.56	492.96	11.255	5.737	5.518	50.97	4.976
June	1369.37	1100.57	268.80	14.833	11.921	2.912	80.37	10.685
July	946.58	662.82	283.76	10.595	7.419	3.176	70.02	6.435
Aug.	275.58	225.80	49.78	3.085	2.527	0.557	81.94	2.192
Sept.	82.63	77.60	5.04	0.895	0.841	0.055	93.90	0.753
	344.83	243.47	101.36	45.445	32.087	13.359	70.61	2.364

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
 Drainage area = 103.00 square miles

 Period ending in 1972 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	55.48	47.60	7.89	0.621	0.533	0.088	85.78	0.462
Nov.	55.20	49.73	5.47	0.598	0.539	0.059	90.09	0.483
Dec.	43.65	42.31	1.33	0.489	0.474	0.015	96.95	0.411
Jan.	34.55	31.99	2.56	0.387	0.358	0.029	92.60	0.311
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	132.26	94.83	37.43	1.480	1.061	0.419	71.70	0.921
Apr.	170.03	144.83	25.21	1.842	1.569	0.273	85.17	1.406
May	1126.71	711.56	415.15	12.611	7.965	4.647	63.15	6.908
June	1668.23	1340.94	327.29	18.070	14.525	3.545	80.38	13.019
July	994.94	819.90	175.03	11.136	9.177	1.959	82.41	7.960
Aug.	320.03	289.76	30.27	3.582	3.243	0.339	90.54	2.813
Sept.	113.93	103.92	10.01	1.234	1.126	0.108	91.21	1.009
	397.62	310.13	87.48	52.402	40.873	11.529	78.00	3.011

Above summary information based on 365 days of good base-flow values.

 Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
 Drainage area = 103.00 square miles

 Period ending in 1973 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	80.48	78.12	2.36	0.901	0.874	0.026	97.06	0.758
Nov.	59.20	55.74	3.46	0.641	0.604	0.037	94.15	0.541
Dec.	55.55	54.64	0.91	0.622	0.612	0.010	98.37	0.531
Jan.	59.55	58.35	1.20	0.667	0.653	0.013	97.99	0.567
Feb.	58.46	58.19	0.27	0.591	0.588	0.003	99.53	0.565
Mar.	52.03	51.63	0.41	0.582	0.578	0.005	99.22	0.501
Apr.	125.43	110.17	15.27	1.359	1.193	0.165	87.83	1.070
May	647.74	457.82	189.92	7.250	5.124	2.126	70.68	4.445
June	617.77	445.38	172.39	6.692	4.824	1.867	72.09	4.324
July	224.68	214.57	10.11	2.515	2.402	0.113	95.50	2.083
Aug.	103.48	100.11	3.38	1.158	1.120	0.038	96.74	0.972

Sept.	67.20	61.66	5.54	0.728	0.668	0.060	91.76	0.599
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	179.87	146.00	33.87	23.706	19.241	4.464	81.17	1.417

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1974

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
	-----	-----	-----	-----	-----	-----	-----	-----
Oct.	60.42	55.80	4.61	0.676	0.625	0.052	92.36	0.542
Nov.	67.03	59.47	7.56	0.726	0.644	0.082	88.72	0.577
Dec.	57.65	53.61	4.03	0.645	0.600	0.045	93.00	0.521
Jan.	128.39	54.74	73.64	1.437	0.613	0.824	42.64	0.531
Feb.	59.50	57.60	1.90	0.602	0.582	0.019	96.81	0.559
Mar.	57.90	56.43	1.48	0.648	0.632	0.017	97.45	0.548
Apr.	144.70	113.66	31.04	1.567	1.231	0.336	78.55	1.103
May	598.03	455.94	142.10	6.694	5.103	1.590	76.24	4.427
June	2277.40	1320.43	956.97	24.669	14.303	10.366	57.98	12.820
July	1422.45	1254.78	167.67	15.922	14.045	1.877	88.21	12.182
Aug.	420.58	382.33	38.25	4.708	4.279	0.428	90.91	3.712
Sept.	137.77	133.26	4.51	1.492	1.443	0.049	96.73	1.294
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	453.65	334.63	119.02	59.786	44.101	15.685	73.76	3.249

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1975

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
	-----	-----	-----	-----	-----	-----	-----	-----
Oct.	84.23	81.41	2.82	0.943	0.911	0.032	96.65	0.790
Nov.	75.97	72.72	3.24	0.823	0.788	0.035	95.73	0.706

Dec.	71.74	70.89	0.86	0.803	0.793	0.010	98.81	0.688
Jan.	72.29	69.90	2.39	0.809	0.782	0.027	96.69	0.679
Feb.	66.89	66.17	0.72	0.676	0.669	0.007	98.93	0.642
Mar.	67.55	66.78	0.77	0.756	0.747	0.009	98.86	0.648
Apr.	97.10	96.45	0.65	1.052	1.045	0.007	99.33	0.936
May	773.23	469.10	304.13	8.655	5.251	3.404	60.67	4.554
June	1583.27	1184.07	399.20	17.150	12.826	4.324	74.79	11.496
July	879.06	424.60	454.46	9.839	4.753	5.087	48.30	4.122
Aug.	177.16	163.98	13.18	1.983	1.835	0.147	92.56	1.592
Sept.	113.73	112.47	1.26	1.232	1.218	0.014	98.89	1.092
	339.34	239.92	99.42	44.721	31.619	13.102	70.70	2.329

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1976

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	106.77	97.54	9.24	1.195	1.092	0.103	91.35	0.947
Nov.	161.60	130.11	31.49	1.750	1.409	0.341	80.52	1.263
Dec.	267.52	138.86	128.66	2.994	1.554	1.440	51.91	1.348
Jan.	138.81	130.12	8.69	1.554	1.456	0.097	93.74	1.263
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	98.39	96.19	2.20	1.101	1.077	0.025	97.77	0.934
Apr.	147.50	142.75	4.75	1.598	1.546	0.051	96.78	1.386
May	1071.87	923.51	148.36	11.998	10.337	1.661	86.16	8.966
June	1235.43	927.25	308.18	13.382	10.044	3.338	75.05	9.002
July	1187.77	1002.71	185.07	13.295	11.223	2.071	84.42	9.735
Aug.	379.77	343.67	36.10	4.251	3.847	0.404	90.49	3.337
Sept.	150.20	145.36	4.84	1.627	1.575	0.052	96.78	1.411
	425.76	352.52	73.24	56.110	46.459	9.652	82.80	3.423

Above summary information based on 365 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1977

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	85.10	48.33	36.76	0.952	0.541	0.412	56.80	0.469
Nov.	78.00	56.12	21.88	0.845	0.608	0.237	71.95	0.545
Dec.	73.13	63.09	10.04	0.819	0.706	0.112	86.28	0.613
Jan.	97.13	77.08	20.05	1.087	0.863	0.224	79.36	0.748
Feb.	68.07	65.98	2.09	0.688	0.667	0.021	96.92	0.641
Mar.	67.29	65.40	1.89	0.753	0.732	0.021	97.20	0.635
Apr.	199.50	143.43	56.07	2.161	1.554	0.607	71.89	1.393
May	272.39	224.85	47.54	3.049	2.517	0.532	82.55	2.183
June	418.83	309.48	109.35	4.537	3.352	1.184	73.89	3.005
July	147.94	142.37	5.57	1.656	1.594	0.062	96.24	1.382
Aug.	127.06	119.96	7.11	1.422	1.343	0.080	94.41	1.165
Sept.	97.43	89.73	7.70	1.055	0.972	0.083	92.10	0.871
	144.36	117.22	27.14	19.025	15.448	3.577	81.20	1.138

Hydrograph separation by the local minimum method

Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1978

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	77.84	74.79	3.05	0.871	0.837	0.034	96.08	0.726
Nov.	128.47	93.09	35.37	1.392	1.008	0.383	72.47	0.904
Dec.	147.03	121.45	25.58	1.646	1.359	0.286	82.60	1.179
Jan.	92.06	87.24	4.83	1.030	0.976	0.054	94.76	0.847
Feb.	77.04	75.13	1.90	0.779	0.760	0.019	97.53	0.729
Mar.	110.26	102.57	7.68	1.234	1.148	0.086	93.03	0.996
Apr.	260.30	237.59	22.71	2.820	2.574	0.246	91.28	2.307
May	887.94	647.22	240.72	9.939	7.244	2.694	72.89	6.284
June	1948.17	1200.84	747.33	21.103	13.008	8.095	61.64	11.659
July	795.58	714.52	81.06	8.905	7.998	0.907	89.81	6.937
Aug.	195.42	183.13	12.29	2.187	2.050	0.138	93.71	1.778
Sept.	176.37	141.78	34.58	1.910	1.536	0.375	80.39	1.377
	408.35	307.29	101.05	53.816	40.498	13.318	75.25	2.983

Annual base-flow summary

Entiat Falls
Station ID = No ID
Drainage area = 103.00 square miles

Local minimum method

Year starts in October
Year ends in September

Period ending	in	ft3/s	ft3/s/ mi2	% of stream- flow
	-----	-----	-----	-----
1967	-1.000	-1.00	-1.000	-1.00
1968	-1.000	-1.00	-1.000	-1.00
1969	28.550	216.63	2.103	71.42
1970	15.513	117.71	1.143	60.75
1971	32.087	243.47	2.364	70.61
1972	-1.000	-1.00	-1.000	-1.00
1973	19.241	146.00	1.417	81.17
1974	44.101	334.63	3.249	73.76
1975	31.619	239.92	2.329	70.70
1976	-1.000	-1.00	-1.000	-1.00
1977	15.448	117.22	1.138	81.20
1978	40.498	307.29	2.983	75.25
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median	30.085	228.28	2.216	72.59

Annual base-flow summary ordered by frequency

Entiat Falls
Station ID = No ID
Drainage area = 103.00 square miles

Local minimum method

Year starts in October
Year ends in September

Cum dist	in	ft3/s/ mi2	year
-----	-----	-----	-----
-1.0	-1.000	-1.000	1967
-1.0	-1.000	-1.000	1968
-1.0	-1.000	-1.000	1972
-1.0	-1.000	-1.000	1976
11.1	15.448	1.138	1977
22.2	15.513	1.143	1970
33.3	19.241	1.417	1973

44.4	28.550	2.103	1969
55.6	31.619	2.329	1975
66.7	32.087	2.364	1971
77.8	40.498	2.983	1978
88.9	44.101	3.249	1974

Seasonal-distribution table

Entiat Falls
Station ID = No ID
Drainage area = 103.00 square miles

Local minimum method

Year starts in October
Year ends in September

Month	Base flow (in)	Runoff (in)
October	0.731	0.138
November	0.749	0.131
December	0.757	0.192
January	0.787	0.180
February	0.591	0.046
March	0.792	0.104
April	1.323	0.208
May	6.114	2.815
June	10.355	4.436
July	6.202	1.514
August	2.123	0.227
September	1.027	0.106

Flow duration table for total flow, local minimum method
at Entiat Falls (1967-1978)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	0	0.00	4377	100.00
16.00	0	0.00	4377	100.00
18.00	1	0.02	4377	100.00
21.00	18	0.41	4376	99.98
24.00	99	2.26	4358	99.57
28.00	103	2.35	4259	97.30
32.00	133	3.04	4156	94.95
37.00	127	2.90	4023	91.91
43.00	136	3.11	3896	89.01
49.00	318	7.27	3760	85.90

57.00	339	7.75	3442	78.64
66.00	364	8.32	3103	70.89
75.00	259	5.92	2739	62.58
87.00	218	4.98	2480	56.66
100.00	220	5.03	2262	51.68
120.00	103	2.35	2042	46.65
130.00	231	5.28	1939	44.30
150.00	264	6.03	1708	39.02
180.00	117	2.67	1444	32.99
200.00	107	2.44	1327	30.32
230.00	135	3.08	1220	27.87
270.00	70	1.60	1085	24.79
310.00	76	1.74	1015	23.19
360.00	80	1.83	939	21.45
410.00	45	1.03	859	19.63
470.00	58	1.33	814	18.60
540.00	43	0.98	756	17.27
630.00	71	1.62	713	16.29
720.00	69	1.58	642	14.67
830.00	76	1.74	573	13.09
950.00	86	1.96	497	11.35
1100.00	121	2.76	411	9.39
1300.00	107	2.44	290	6.63
1500.00	63	1.44	183	4.18
1700.00	45	1.03	120	2.74
1900.00	37	0.85	75	1.71
2200.00	15	0.34	38	0.87
2600.00	4	0.09	23	0.53
2900.00	10	0.23	19	0.43
3400.00	4	0.09	9	0.21
3900.00	4	0.09	5	0.11
4500.00	1	0.02	1	0.02
5200.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for surface runoff, local minimum method
at Entiat Falls (1967-1978)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	1256	28.70	4377	100.00
0.10	0	0.00	3121	71.30
0.12	0	0.00	3121	71.30
0.13	1	0.02	3121	71.30
0.15	5	0.11	3120	71.28
0.18	3	0.07	3115	71.17
0.20	8	0.18	3112	71.10
0.23	5	0.11	3104	70.92
0.27	5	0.11	3099	70.80
0.31	23	0.53	3094	70.69
0.36	5	0.11	3071	70.16

0.41	14	0.32	3066	70.05
0.47	35	0.80	3052	69.73
0.54	15	0.34	3017	68.93
0.63	35	0.80	3002	68.59
0.72	25	0.57	2967	67.79
0.83	20	0.46	2942	67.21
0.95	76	1.74	2922	66.76
1.10	44	1.01	2846	65.02
1.30	43	0.98	2802	64.02
1.50	46	1.05	2759	63.03
1.70	36	0.82	2713	61.98
1.90	78	1.78	2677	61.16
2.20	83	1.90	2599	59.38
2.60	67	1.53	2516	57.48
2.90	122	2.79	2449	55.95
3.40	79	1.80	2327	53.16
3.90	88	2.01	2248	51.36
4.50	112	2.56	2160	49.35
5.20	79	1.80	2048	46.79
6.00	103	2.35	1969	44.99
6.90	83	1.90	1866	42.63
7.90	87	1.99	1783	40.74
9.10	42	0.96	1696	38.75
10.00	91	2.08	1654	37.79
12.00	81	1.85	1563	35.71
14.00	58	1.33	1482	33.86
16.00	46	1.05	1424	32.53
18.00	72	1.64	1378	31.48
21.00	64	1.46	1306	29.84
24.00	68	1.55	1242	28.38
28.00	55	1.26	1174	26.82
32.00	63	1.44	1119	25.57
37.00	65	1.49	1056	24.13
43.00	69	1.58	991	22.64
49.00	67	1.53	922	21.06
57.00	59	1.35	855	19.53
66.00	41	0.94	796	18.19
75.00	69	1.58	755	17.25
87.00	54	1.23	686	15.67
100.00	48	1.10	632	14.44
120.00	23	0.53	584	13.34
130.00	37	0.85	561	12.82
150.00	56	1.28	524	11.97
180.00	33	0.75	468	10.69
200.00	41	0.94	435	9.94
230.00	32	0.73	394	9.00
270.00	40	0.91	362	8.27
310.00	56	1.28	322	7.36
360.00	36	0.82	266	6.08
410.00	30	0.69	230	5.25
470.00	24	0.55	200	4.57
540.00	43	0.98	176	4.02
630.00	29	0.66	133	3.04
720.00	23	0.53	104	2.38
830.00	15	0.34	81	1.85
950.00	16	0.37	66	1.51
1100.00	13	0.30	50	1.14

1300.00	13	0.30	37	0.85
1500.00	5	0.11	24	0.55
1700.00	4	0.09	19	0.43
1900.00	7	0.16	15	0.34
2200.00	2	0.05	8	0.18
2600.00	4	0.09	6	0.14
2900.00	2	0.05	2	0.05
3400.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for base flow, local minimum method
at Entiat Falls (1967-1978)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	0	0.00	4377	100.00
16.00	0	0.00	4377	100.00
18.00	3	0.07	4377	100.00
21.00	38	0.87	4374	99.93
24.00	127	2.90	4336	99.06
28.00	119	2.72	4209	96.16
32.00	171	3.91	4090	93.44
37.00	133	3.04	3919	89.54
43.00	196	4.48	3786	86.50
49.00	396	9.05	3590	82.02
57.00	331	7.56	3194	72.97
66.00	331	7.56	2863	65.41
75.00	190	4.34	2532	57.85
87.00	251	5.73	2342	53.51
100.00	236	5.39	2091	47.77
120.00	86	1.96	1855	42.38
130.00	313	7.15	1769	40.42
150.00	208	4.75	1456	33.26
180.00	70	1.60	1248	28.51
200.00	103	2.35	1178	26.91
230.00	99	2.26	1075	24.56
270.00	62	1.42	976	22.30
310.00	105	2.40	914	20.88
360.00	64	1.46	809	18.48
410.00	54	1.23	745	17.02
470.00	70	1.60	691	15.79
540.00	72	1.64	621	14.19
630.00	83	1.90	549	12.54
720.00	67	1.53	466	10.65
830.00	71	1.62	399	9.12
950.00	89	2.03	328	7.49
1100.00	146	3.34	239	5.46
1300.00	74	1.69	93	2.12
1500.00	19	0.43	19	0.43
1700.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Appendix F

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls (USFS data 1966-1978; synthesized record 1958-1965;1979-2001)

Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1958

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Nov.	58.33	45.89	12.45	0.632	0.497	0.135	78.66	0.446
Dec.	45.52	41.41	4.11	0.509	0.463	0.046	90.98	0.402
Jan.	39.13	36.22	2.91	0.438	0.405	0.033	92.56	0.352
Feb.	55.61	44.07	11.54	0.562	0.446	0.117	79.25	0.428
Mar.	65.61	57.07	8.55	0.734	0.639	0.096	86.98	0.554
Apr.	128.67	119.81	8.85	1.394	1.298	0.096	93.12	1.163
May	1467.13	749.52	717.61	16.422	8.389	8.032	51.09	7.277
June	992.63	844.41	148.22	10.752	9.147	1.606	85.07	8.198
July	241.32	224.20	17.12	2.701	2.510	0.192	92.91	2.177
Aug.	96.06	93.00	3.06	1.075	1.041	0.034	96.81	0.903
Sept.	55.17	50.51	4.65	0.598	0.547	0.050	91.56	0.490
	278.39	197.78	80.61	36.388	25.852	10.536	71.04	1.920

Above summary information based on 362 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1959

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	69.39	60.15	9.23	0.777	0.673	0.103	86.69	0.584
Nov.	78.57	60.52	18.05	0.851	0.656	0.195	77.03	0.588
Dec.	122.52	95.09	27.42	1.371	1.064	0.307	77.62	0.923
Jan.	87.45	65.65	21.80	0.979	0.735	0.244	75.07	0.637
Feb.	59.04	50.17	8.87	0.597	0.507	0.090	84.98	0.487

Mar.	72.74	70.56	2.18	0.814	0.790	0.024	97.00	0.685
Apr.	295.80	253.80	42.00	3.204	2.749	0.455	85.80	2.464
May	822.10	671.47	150.63	9.202	7.516	1.686	81.68	6.519
June	1397.37	1043.11	354.26	15.136	11.299	3.837	74.65	10.127
July	751.03	651.35	99.68	8.406	7.291	1.116	86.73	6.324
Aug.	171.29	164.26	7.03	1.917	1.839	0.079	95.89	1.595
Sept.	121.40	101.44	19.96	1.315	1.099	0.216	83.56	0.985
	338.19	274.81	63.38	44.570	36.217	8.353	81.26	2.668

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1960

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	215.65	136.46	79.18	2.414	1.527	0.886	63.28	1.325
Nov.	211.97	110.96	101.00	2.296	1.202	1.094	52.35	1.077
Dec.	272.52	151.93	120.58	3.050	1.701	1.350	55.75	1.475
Jan.	95.90	91.44	4.47	1.073	1.023	0.050	95.34	0.888
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	106.74	78.48	28.26	1.195	0.878	0.316	73.52	0.762
Apr.	379.50	227.59	151.91	4.111	2.465	1.645	59.97	2.210
May	700.71	530.24	170.47	7.843	5.935	1.908	75.67	5.148
June	1183.67	917.65	266.02	12.822	9.940	2.882	77.53	8.909
July	522.26	477.14	45.12	5.846	5.341	0.505	91.36	4.632
Aug.	136.77	124.99	11.78	1.531	1.399	0.132	91.39	1.214
Sept.	65.93	63.35	2.58	0.714	0.686	0.028	96.09	0.615
	330.76	248.72	82.04	43.591	32.778	10.812	75.20	2.415

Above summary information based on 365 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1961

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	47.39	44.14	3.24	0.530	0.494	0.036	93.15	0.429
Nov.	47.53	40.98	6.55	0.515	0.444	0.071	86.22	0.398
Dec.	33.23	27.07	6.15	0.372	0.303	0.069	81.48	0.263
Jan.	37.84	29.89	7.95	0.424	0.335	0.089	78.99	0.290
Feb.	64.25	54.27	9.98	0.650	0.549	0.101	84.47	0.527
Mar.	83.58	78.10	5.48	0.936	0.874	0.061	93.44	0.758
Apr.	223.83	186.62	37.21	2.425	2.022	0.403	83.38	1.812
May	1008.90	830.74	178.17	11.293	9.299	1.994	82.34	8.065
June	1618.10	1104.10	514.00	17.527	11.960	5.568	68.23	10.719
July	358.90	325.37	33.53	4.017	3.642	0.375	90.66	3.159
Aug.	114.55	109.05	5.50	1.282	1.221	0.062	95.20	1.059
Sept.	58.67	51.97	6.70	0.635	0.563	0.073	88.58	0.505
	308.11	240.56	67.55	40.605	31.704	8.902	78.08	2.336

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1962

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	45.32	39.61	5.71	0.507	0.443	0.064	87.41	0.385
Nov.	33.47	25.64	7.83	0.363	0.278	0.085	76.61	0.249
Dec.	31.26	25.17	6.09	0.350	0.282	0.068	80.51	0.244
Jan.	55.77	33.09	22.68	0.624	0.370	0.254	59.33	0.321
Feb.	75.86	43.90	31.95	0.767	0.444	0.323	57.88	0.426
Mar.	49.52	47.14	2.38	0.554	0.528	0.027	95.19	0.458
Apr.	252.93	141.07	111.86	2.740	1.528	1.212	55.77	1.370
May	445.48	288.07	157.42	4.986	3.224	1.762	64.66	2.797
June	877.27	744.03	133.24	9.503	8.059	1.443	84.81	7.224
July	342.06	302.68	39.38	3.829	3.388	0.441	88.49	2.939
Aug.	115.61	114.66	0.96	1.294	1.283	0.011	99.17	1.113
Sept.	50.20	47.92	2.28	0.544	0.519	0.025	95.45	0.465
	197.74	154.39	43.35	26.060	20.347	5.714	78.08	1.499

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
 Station ID = No ID
 Drainage area = 103.00 square miles

 Period ending in 1963 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	61.13	49.27	11.86	0.684	0.552	0.133	80.60	0.478
Nov.	109.63	82.58	27.05	1.188	0.895	0.293	75.32	0.802
Dec.	104.03	88.85	15.18	1.164	0.995	0.170	85.41	0.863
Jan.	59.06	35.48	23.58	0.661	0.397	0.264	60.08	0.345
Feb.	106.96	91.90	15.07	1.081	0.929	0.152	85.91	0.892
Mar.	93.90	91.81	2.09	1.051	1.028	0.023	97.77	0.891
Apr.	120.97	116.09	4.88	1.310	1.257	0.053	95.96	1.127
May	719.90	531.51	188.40	8.058	5.949	2.109	73.83	5.160
June	878.47	821.64	56.82	9.516	8.900	0.616	93.53	7.977
July	288.71	260.22	28.49	3.232	2.913	0.319	90.13	2.526
Aug.	123.71	112.02	11.69	1.385	1.254	0.131	90.55	1.088
Sept.	58.17	54.01	4.16	0.630	0.585	0.045	92.85	0.524
	227.33	194.65	32.68	29.960	25.653	4.307	85.62	1.890

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
 Station ID = No ID
 Drainage area = 103.00 square miles

 Period ending in 1964 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	47.00	32.49	14.51	0.526	0.364	0.162	69.12	0.315
Nov.	54.83	46.55	8.29	0.594	0.504	0.090	84.89	0.452
Dec.	57.74	43.13	14.61	0.646	0.483	0.164	74.69	0.419
Jan.	52.32	40.22	12.11	0.586	0.450	0.136	76.86	0.390
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	41.87	40.02	1.85	0.469	0.448	0.021	95.59	0.389
Apr.	106.60	98.41	8.19	1.155	1.066	0.089	92.32	0.955
May	456.71	373.77	82.94	5.112	4.184	0.928	81.84	3.629
June	1433.83	1278.86	154.97	15.531	13.853	1.679	89.19	12.416
July	603.06	552.77	50.29	6.750	6.187	0.563	91.66	5.367

Oct.	43.06	39.83	3.24	0.482	0.446	0.036	92.48	0.387
Nov.	48.73	42.84	5.89	0.528	0.464	0.064	87.91	0.416
Dec.	34.45	23.91	10.55	0.386	0.268	0.118	69.39	0.232
Jan.	31.32	26.46	4.86	0.351	0.296	0.054	84.49	0.257
Feb.	25.68	24.77	0.91	0.260	0.250	0.009	96.45	0.240
Mar.	38.61	33.60	5.01	0.432	0.376	0.056	87.02	0.326
Apr.	184.70	165.93	18.77	2.001	1.797	0.203	89.84	1.611
May	792.00	452.52	339.48	8.865	5.065	3.800	57.14	4.393
June	797.87	591.80	206.07	8.643	6.410	2.232	74.17	5.746
July	369.52	349.89	19.63	4.136	3.916	0.220	94.69	3.397
Aug.	115.19	107.81	7.39	1.289	1.207	0.083	93.59	1.047
Sept.	52.87	50.15	2.71	0.573	0.543	0.029	94.86	0.487
	212.04	159.64	52.39	27.944	21.039	6.905	75.29	1.550

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1967

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	49.48	43.35	6.13	0.554	0.485	0.069	87.61	0.421
Nov.	41.33	37.33	4.00	0.448	0.404	0.043	90.31	0.362
Dec.	50.74	43.05	7.70	0.568	0.482	0.086	84.83	0.418
Jan.	43.77	36.48	7.29	0.490	0.408	0.082	83.34	0.354
Feb.	36.89	33.42	3.48	0.373	0.338	0.035	90.58	0.324
Mar.	34.58	32.56	2.02	0.387	0.364	0.023	94.15	0.316
Apr.	50.37	49.11	1.26	0.546	0.532	0.014	97.50	0.477
May	619.16	451.83	167.34	6.930	5.057	1.873	72.97	4.387
June	1573.53	1203.32	370.21	17.045	13.034	4.010	76.47	11.683
July	583.74	527.78	55.97	6.534	5.907	0.626	90.41	5.124
Aug.	176.87	171.07	5.80	1.980	1.915	0.065	96.72	1.661
Sept.	94.03	85.28	8.76	1.019	0.924	0.095	90.69	0.828
	279.78	226.51	53.27	36.872	29.852	7.021	80.96	2.199

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1968

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	147.65	105.57	42.08	1.653	1.182	0.471	71.50	1.025
Nov.	172.70	150.36	22.34	1.871	1.629	0.242	87.07	1.460
Dec.	128.23	111.31	16.92	1.435	1.246	0.189	86.81	1.081
Jan.	221.00	182.82	38.18	2.474	2.046	0.427	82.72	1.775
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	212.61	163.44	49.18	2.380	1.829	0.550	76.87	1.587
Apr.	174.70	164.10	10.60	1.892	1.778	0.115	93.93	1.593
May	813.39	659.15	154.24	9.104	7.378	1.726	81.04	6.399
June	1134.33	938.24	196.09	12.287	10.163	2.124	82.71	9.109
July	537.58	392.03	145.55	6.017	4.388	1.629	72.92	3.806
Aug.	157.45	125.35	32.10	1.762	1.403	0.359	79.61	1.217
Sept.	90.93	84.15	6.78	0.985	0.912	0.073	92.54	0.817
	330.01	269.71	60.30	43.492	35.546	7.947	81.73	2.619

Above summary information based on 365 days of good base-flow values.

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1969

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	55.77	53.24	2.53	0.624	0.596	0.028	95.45	0.517
Nov.	54.80	51.09	3.71	0.594	0.553	0.040	93.23	0.496
Dec.	55.55	50.40	5.15	0.622	0.564	0.058	90.73	0.489
Jan.	55.52	53.43	2.08	0.621	0.598	0.023	96.25	0.519
Feb.	31.39	30.26	1.13	0.317	0.306	0.011	96.40	0.294
Mar.	34.42	30.94	3.48	0.385	0.346	0.039	89.89	0.300
Apr.	183.07	161.07	21.99	1.983	1.745	0.238	87.99	1.564
May	1211.39	805.41	405.98	13.559	9.015	4.544	66.49	7.819
June	1483.37	939.86	543.50	16.068	10.181	5.887	63.36	9.125
July	289.10	262.49	26.61	3.236	2.938	0.298	90.80	2.548
Aug.	100.39	97.94	2.45	1.124	1.096	0.027	97.56	0.951
Sept.	77.50	56.47	21.03	0.839	0.612	0.228	72.86	0.548
	303.31	216.63	86.67	39.973	28.550	11.423	71.42	2.103

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1970

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	66.68	44.16	22.51	0.746	0.494	0.252	66.24	0.429
Nov.	53.27	48.25	5.01	0.577	0.523	0.054	90.59	0.468
Dec.	39.32	36.93	2.39	0.440	0.413	0.027	93.91	0.359
Jan.	31.52	29.32	2.20	0.353	0.328	0.025	93.03	0.285
Feb.	24.25	23.59	0.66	0.245	0.239	0.007	97.28	0.229
Mar.	30.61	29.11	1.50	0.343	0.326	0.017	95.11	0.283
Apr.	55.33	53.12	2.21	0.599	0.575	0.024	96.01	0.516
May	545.68	236.21	309.47	6.108	2.644	3.464	43.29	2.293
June	1076.37	561.26	515.11	11.659	6.080	5.580	52.14	5.449
July	262.26	230.47	31.79	2.935	2.580	0.356	87.88	2.238
Aug.	85.42	72.98	12.44	0.956	0.817	0.139	85.43	0.709
Sept.	53.03	45.64	7.39	0.574	0.494	0.080	86.07	0.443
	193.77	117.71	76.06	25.537	15.513	10.024	60.75	1.143

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1971

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	33.97	32.13	1.83	0.380	0.360	0.021	94.60	0.312
Nov.	28.20	26.17	2.03	0.305	0.284	0.022	92.81	0.254
Dec.	26.61	24.72	1.89	0.298	0.277	0.021	92.90	0.240
Jan.	61.39	32.04	29.35	0.687	0.359	0.329	52.19	0.311
Feb.	144.71	115.73	28.99	1.463	1.170	0.293	79.97	1.124

Mar.	62.06	58.86	3.21	0.695	0.659	0.036	94.84	0.571
Apr.	88.07	49.27	38.80	0.954	0.534	0.420	55.95	0.478
May	1005.52	512.56	492.96	11.255	5.737	5.518	50.97	4.976
June	1369.37	1100.57	268.80	14.833	11.921	2.912	80.37	10.685
July	946.58	662.82	283.76	10.595	7.419	3.176	70.02	6.435
Aug.	275.58	225.80	49.78	3.085	2.527	0.557	81.94	2.192
Sept.	82.63	77.60	5.04	0.895	0.841	0.055	93.90	0.753
	344.83	243.47	101.36	45.445	32.087	13.359	70.61	2.364

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1972

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	55.48	47.60	7.89	0.621	0.533	0.088	85.78	0.462
Nov.	55.20	49.73	5.47	0.598	0.539	0.059	90.09	0.483
Dec.	43.65	42.31	1.33	0.489	0.474	0.015	96.95	0.411
Jan.	34.55	31.99	2.56	0.387	0.358	0.029	92.60	0.311
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	132.26	94.83	37.43	1.480	1.061	0.419	71.70	0.921
Apr.	170.03	144.83	25.21	1.842	1.569	0.273	85.17	1.406
May	1126.71	711.56	415.15	12.611	7.965	4.647	63.15	6.908
June	1668.23	1340.94	327.29	18.070	14.525	3.545	80.38	13.019
July	994.94	819.90	175.03	11.136	9.177	1.959	82.41	7.960
Aug.	320.03	289.76	30.27	3.582	3.243	0.339	90.54	2.813
Sept.	113.93	103.92	10.01	1.234	1.126	0.108	91.21	1.009
	397.62	310.13	87.48	52.402	40.873	11.529	78.00	3.011

Above summary information based on 365 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1973

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	80.48	78.12	2.36	0.901	0.874	0.026	97.06	0.758
Nov.	59.20	55.74	3.46	0.641	0.604	0.037	94.15	0.541
Dec.	55.55	54.64	0.91	0.622	0.612	0.010	98.37	0.531
Jan.	59.55	58.35	1.20	0.667	0.653	0.013	97.99	0.567
Feb.	58.46	58.19	0.27	0.591	0.588	0.003	99.53	0.565
Mar.	52.03	51.63	0.41	0.582	0.578	0.005	99.22	0.501
Apr.	125.43	110.17	15.27	1.359	1.193	0.165	87.83	1.070
May	647.74	457.82	189.92	7.250	5.124	2.126	70.68	4.445
June	617.77	445.38	172.39	6.692	4.824	1.867	72.09	4.324
July	224.68	214.57	10.11	2.515	2.402	0.113	95.50	2.083
Aug.	103.48	100.11	3.38	1.158	1.120	0.038	96.74	0.972
Sept.	67.20	61.66	5.54	0.728	0.668	0.060	91.76	0.599
	179.87	146.00	33.87	23.706	19.241	4.464	81.17	1.417

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1974

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	60.42	55.80	4.61	0.676	0.625	0.052	92.36	0.542
Nov.	67.03	59.47	7.56	0.726	0.644	0.082	88.72	0.577
Dec.	57.65	53.61	4.03	0.645	0.600	0.045	93.00	0.521
Jan.	128.39	54.74	73.64	1.437	0.613	0.824	42.64	0.531
Feb.	59.50	57.60	1.90	0.602	0.582	0.019	96.81	0.559
Mar.	57.90	56.43	1.48	0.648	0.632	0.017	97.45	0.548
Apr.	144.70	113.66	31.04	1.567	1.231	0.336	78.55	1.103
May	598.03	455.94	142.10	6.694	5.103	1.590	76.24	4.427
June	2277.40	1320.43	956.97	24.669	14.303	10.366	57.98	12.820
July	1422.45	1254.78	167.67	15.922	14.045	1.877	88.21	12.182
Aug.	420.58	382.33	38.25	4.708	4.279	0.428	90.91	3.712
Sept.	137.77	133.26	4.51	1.492	1.443	0.049	96.73	1.294
	453.65	334.63	119.02	59.786	44.101	15.685	73.76	3.249

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
 Station ID = No ID
 Drainage area = 103.00 square miles

 Period ending in 1975 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	84.23	81.41	2.82	0.943	0.911	0.032	96.65	0.790
Nov.	75.97	72.72	3.24	0.823	0.788	0.035	95.73	0.706
Dec.	71.74	70.89	0.86	0.803	0.793	0.010	98.81	0.688
Jan.	72.29	69.90	2.39	0.809	0.782	0.027	96.69	0.679
Feb.	66.89	66.17	0.72	0.676	0.669	0.007	98.93	0.642
Mar.	67.55	66.78	0.77	0.756	0.747	0.009	98.86	0.648
Apr.	97.10	96.45	0.65	1.052	1.045	0.007	99.33	0.936
May	773.23	469.10	304.13	8.655	5.251	3.404	60.67	4.554
June	1583.27	1184.07	399.20	17.150	12.826	4.324	74.79	11.496
July	879.06	424.60	454.46	9.839	4.753	5.087	48.30	4.122
Aug.	177.16	163.98	13.18	1.983	1.835	0.147	92.56	1.592
Sept.	113.73	112.47	1.26	1.232	1.218	0.014	98.89	1.092
	339.34	239.92	99.42	44.721	31.619	13.102	70.70	2.329

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
 Station ID = No ID
 Drainage area = 103.00 square miles

 Period ending in 1976 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	106.77	97.54	9.24	1.195	1.092	0.103	91.35	0.947
Nov.	161.60	130.11	31.49	1.750	1.409	0.341	80.52	1.263
Dec.	267.52	138.86	128.66	2.994	1.554	1.440	51.91	1.348
Jan.	138.81	130.12	8.69	1.554	1.456	0.097	93.74	1.263
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	98.39	96.19	2.20	1.101	1.077	0.025	97.77	0.934
Apr.	147.50	142.75	4.75	1.598	1.546	0.051	96.78	1.386
May	1071.87	923.51	148.36	11.998	10.337	1.661	86.16	8.966
June	1235.43	927.25	308.18	13.382	10.044	3.338	75.05	9.002
July	1187.77	1002.71	185.07	13.295	11.223	2.071	84.42	9.735

Oct.	77.84	74.79	3.05	0.871	0.837	0.034	96.08	0.726
Nov.	128.47	93.09	35.37	1.392	1.008	0.383	72.47	0.904
Dec.	147.03	121.45	25.58	1.646	1.359	0.286	82.60	1.179
Jan.	92.06	87.24	4.83	1.030	0.976	0.054	94.76	0.847
Feb.	77.04	75.13	1.90	0.779	0.760	0.019	97.53	0.729
Mar.	110.26	102.57	7.68	1.234	1.148	0.086	93.03	0.996
Apr.	260.30	237.59	22.71	2.820	2.574	0.246	91.28	2.307
May	887.94	647.22	240.72	9.939	7.244	2.694	72.89	6.284
June	1948.17	1200.84	747.33	21.103	13.008	8.095	61.64	11.659
July	795.58	714.52	81.06	8.905	7.998	0.907	89.81	6.937
Aug.	195.42	183.13	12.29	2.187	2.050	0.138	93.71	1.778
Sept.	176.37	141.78	34.58	1.910	1.536	0.375	80.39	1.377
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	408.35	307.29	101.05	53.816	40.498	13.318	75.25	2.983

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1979

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	85.84	80.20	5.64	0.961	0.898	0.063	93.43	0.779
Nov.	98.70	81.44	17.26	1.069	0.882	0.187	82.51	0.791
Dec.	47.23	35.92	11.30	0.529	0.402	0.127	76.07	0.349
Jan.	27.13	25.28	1.85	0.304	0.283	0.021	93.18	0.245
Feb.	30.50	28.99	1.51	0.308	0.293	0.015	95.03	0.281
Mar.	67.90	59.20	8.71	0.760	0.663	0.097	87.18	0.575
Apr.	118.83	100.62	18.21	1.287	1.090	0.197	84.68	0.977
May	710.48	444.61	265.88	7.953	4.977	2.976	62.58	4.317
June	491.50	400.99	90.51	5.324	4.344	0.980	81.58	3.893
July	184.32	161.56	22.77	2.063	1.808	0.255	87.65	1.569
Aug.	90.87	83.25	7.62	1.017	0.932	0.085	91.62	0.808
Sept.	58.63	50.03	8.61	0.635	0.542	0.093	85.32	0.486
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	168.52	129.85	38.68	22.210	17.113	5.097	77.05	1.261

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1980

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	39.52	31.17	8.34	0.442	0.349	0.093	78.89	0.303
Nov.	35.00	30.06	4.94	0.379	0.326	0.054	85.88	0.292
Dec.	102.26	60.93	41.33	1.145	0.682	0.463	59.58	0.592
Jan.	60.19	43.81	16.39	0.674	0.490	0.183	72.78	0.425
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	93.10	89.77	3.33	1.042	1.005	0.037	96.42	0.872
Apr.	372.43	318.78	53.65	4.034	3.453	0.581	85.59	3.095
May	1065.06	926.90	138.17	11.921	10.375	1.547	87.03	8.999
June	779.50	583.61	195.89	8.444	6.322	2.122	74.87	5.666
July	345.74	316.97	28.77	3.870	3.548	0.322	91.68	3.077
Aug.	110.39	106.21	4.17	1.236	1.189	0.047	96.22	1.031
Sept.	62.47	56.67	5.80	0.677	0.614	0.063	90.72	0.550
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	260.95	218.00	42.95	34.391	28.731	5.660	83.54	2.117

Above summary information based on 365 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1981

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	44.32	43.26	1.07	0.496	0.484	0.012	97.60	0.420
Nov.	69.00	49.28	19.72	0.747	0.534	0.214	71.42	0.478
Dec.	197.06	69.99	127.08	2.206	0.783	1.422	35.51	0.679
Jan.	227.90	142.91	84.99	2.551	1.600	0.951	62.71	1.388
Feb.	153.61	124.06	29.55	1.553	1.254	0.299	80.76	1.204
Mar.	160.39	152.62	7.77	1.795	1.708	0.087	95.16	1.482
Apr.	221.93	196.11	25.82	2.404	2.124	0.280	88.37	1.904
May	819.03	640.04	178.99	9.168	7.164	2.003	78.15	6.214
June	716.43	644.53	71.90	7.760	6.982	0.779	89.96	6.258
July	383.16	341.00	42.16	4.289	3.817	0.472	89.00	3.311
Aug.	139.65	126.47	13.18	1.563	1.416	0.147	90.57	1.228
Sept.	61.83	57.13	4.71	0.670	0.619	0.051	92.39	0.555
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	267.11	216.14	50.97	35.202	28.485	6.717	80.92	2.098

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1982

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	75.61	63.95	11.66	0.846	0.716	0.131	84.58	0.621
Nov.	98.93	75.63	23.30	1.072	0.819	0.252	76.45	0.734
Dec.	62.10	58.63	3.46	0.695	0.656	0.039	94.42	0.569
Jan.	58.45	40.40	18.05	0.654	0.452	0.202	69.12	0.392
Feb.	101.86	85.94	15.92	1.030	0.869	0.161	84.37	0.834
Mar.	114.32	103.51	10.81	1.280	1.159	0.121	90.54	1.005
Apr.	151.17	138.29	12.88	1.637	1.498	0.140	91.48	1.343
May	795.13	671.64	123.49	8.900	7.518	1.382	84.47	6.521
June	1739.07	937.97	801.10	18.838	10.160	8.678	53.94	9.106
July	652.61	560.27	92.34	7.305	6.271	1.034	85.85	5.440
Aug.	191.84	174.17	17.67	2.147	1.949	0.198	90.79	1.691
Sept.	90.73	82.59	8.15	0.983	0.895	0.088	91.02	0.802
	344.39	250.11	94.28	45.387	32.962	12.425	72.63	2.428

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1983

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	66.52	61.17	5.35	0.745	0.685	0.060	91.96	0.594
Nov.	52.73	42.52	10.22	0.571	0.461	0.111	80.62	0.413
Dec.	61.00	44.45	16.55	0.683	0.497	0.185	72.86	0.432
Jan.	87.23	57.00	30.23	0.976	0.638	0.338	65.35	0.553
Feb.	72.11	66.49	5.62	0.729	0.672	0.057	92.21	0.646

Mar.	160.10	138.39	21.71	1.792	1.549	0.243	86.44	1.344
Apr.	313.07	254.82	58.25	3.391	2.760	0.631	81.39	2.474
May	1197.32	731.13	466.19	13.402	8.184	5.218	61.06	7.098
June	1286.13	1005.49	280.64	13.931	10.892	3.040	78.18	9.762
July	521.29	463.20	58.09	5.835	5.185	0.650	88.86	4.497
Aug.	221.71	195.91	25.80	2.482	2.193	0.289	88.36	1.902
Sept.	111.37	103.02	8.35	1.206	1.116	0.090	92.51	1.000
	347.09	264.29	82.80	45.743	34.831	10.912	76.14	2.566

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1984

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	58.10	52.31	5.79	0.650	0.586	0.065	90.04	0.508
Nov.	99.67	72.74	26.92	1.080	0.788	0.292	72.99	0.706
Dec.	51.77	45.39	6.38	0.580	0.508	0.071	87.67	0.441
Jan.	190.87	113.77	77.10	2.136	1.273	0.863	59.60	1.105
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	144.77	130.90	13.87	1.620	1.465	0.155	90.42	1.271
Apr.	208.50	184.66	23.84	2.258	2.000	0.258	88.57	1.793
May	423.35	338.06	85.30	4.739	3.784	0.955	79.85	3.282
June	1339.77	1134.26	205.51	14.512	12.286	2.226	84.66	11.012
July	692.55	644.03	48.52	7.752	7.209	0.543	92.99	6.253
Aug.	205.26	197.99	7.27	2.297	2.216	0.081	96.46	1.922
Sept.	80.63	75.71	4.92	0.873	0.820	0.053	93.90	0.735
	302.19	259.69	42.51	39.826	34.224	5.602	85.93	2.521

Above summary information based on 365 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1985

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	70.26	57.59	12.67	0.786	0.645	0.142	81.97	0.559
Nov.	60.97	54.00	6.97	0.660	0.585	0.075	88.57	0.524
Dec.	43.68	37.18	6.50	0.489	0.416	0.073	85.12	0.361
Jan.	34.10	31.58	2.51	0.382	0.354	0.028	92.63	0.307
Feb.	30.79	29.27	1.52	0.311	0.296	0.015	95.07	0.284
Mar.	44.84	39.32	5.52	0.502	0.440	0.062	87.69	0.382
Apr.	209.83	126.67	83.17	2.273	1.372	0.901	60.37	1.230
May	687.03	385.18	301.86	7.690	4.311	3.379	56.06	3.740
June	710.97	636.68	74.29	7.701	6.897	0.805	89.55	6.181
July	199.00	189.39	9.61	2.227	2.120	0.108	95.17	1.839
Aug.	76.29	72.38	3.91	0.854	0.810	0.044	94.88	0.703
Sept.	52.10	48.07	4.03	0.564	0.521	0.044	92.27	0.467
	185.45	142.39	43.06	24.440	18.766	5.674	76.78	1.382

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1986

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	53.19	44.78	8.42	0.595	0.501	0.094	84.17	0.435
Nov.	64.37	44.12	20.25	0.697	0.478	0.219	68.54	0.428
Dec.	38.61	34.92	3.69	0.432	0.391	0.041	90.44	0.339
Jan.	39.87	35.21	4.66	0.446	0.394	0.052	88.32	0.342
Feb.	65.75	40.92	24.83	0.665	0.414	0.251	62.23	0.397
Mar.	194.23	171.00	23.22	2.174	1.914	0.260	88.04	1.660
Apr.	310.17	238.45	71.72	3.360	2.583	0.777	76.88	2.315
May	746.65	431.95	314.69	8.357	4.835	3.522	57.85	4.194
June	950.20	662.16	288.04	10.293	7.173	3.120	69.69	6.429
July	215.45	192.53	22.92	2.412	2.155	0.257	89.36	1.869
Aug.	94.29	88.38	5.91	1.055	0.989	0.066	93.73	0.858
Sept.	53.53	46.74	6.80	0.580	0.506	0.074	87.30	0.454
	235.73	169.46	66.27	31.066	22.333	8.734	71.89	1.645

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1987 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	40.42	33.95	6.47	0.452	0.380	0.072	83.99	0.330
Nov.	68.43	40.38	28.05	0.741	0.437	0.304	59.01	0.392
Dec.	49.35	40.49	8.86	0.552	0.453	0.099	82.05	0.393
Jan.	33.84	27.76	6.08	0.379	0.311	0.068	82.03	0.269
Feb.	34.57	32.50	2.07	0.350	0.329	0.021	94.02	0.316
Mar.	106.26	85.97	20.29	1.189	0.962	0.227	80.91	0.835
Apr.	314.23	235.97	78.26	3.404	2.556	0.848	75.09	2.291
May	1141.45	649.80	491.65	12.776	7.273	5.503	56.93	6.309
June	643.90	552.88	91.02	6.975	5.989	0.986	85.86	5.368
July	205.32	180.38	24.95	2.298	2.019	0.279	87.85	1.751
Aug.	75.00	71.84	3.16	0.839	0.804	0.035	95.78	0.697
Sept.	41.77	39.49	2.28	0.452	0.428	0.025	94.54	0.383
	230.74	166.49	64.25	30.409	21.941	8.468	72.15	1.616

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
Station ID = No ID
Drainage area = 103.00 square miles

Period ending in 1988 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	23.74	23.55	0.20	0.266	0.264	0.002	99.17	0.229
Nov.	23.20	21.46	1.74	0.251	0.232	0.019	92.51	0.208
Dec.	27.84	24.72	3.11	0.312	0.277	0.035	88.81	0.240
Jan.	20.55	19.25	1.30	0.230	0.215	0.015	93.66	0.187
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	49.90	47.46	2.44	0.559	0.531	0.027	95.11	0.461
Apr.	294.57	236.54	58.03	3.191	2.562	0.629	80.30	2.296
May	698.32	493.34	204.99	7.816	5.522	2.294	70.65	4.790
June	851.67	753.82	97.84	9.225	8.165	1.060	88.51	7.319
July	367.52	332.79	34.73	4.114	3.725	0.389	90.55	3.231

Aug.	106.58	103.99	2.59	1.193	1.164	0.029	97.57	1.010
Sept.	50.90	45.89	5.01	0.551	0.497	0.054	90.16	0.446
	212.18	177.51	34.66	27.963	23.394	4.568	83.66	1.723

Above summary information based on 365 days of good base-flow values.

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
 Station ID = No ID
 Drainage area = 103.00 square miles

Period ending in 1989 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	62.94	44.67	18.26	0.704	0.500	0.204	70.98	0.434
Nov.	74.37	65.27	9.10	0.806	0.707	0.099	87.76	0.634
Dec.	70.32	58.87	11.46	0.787	0.659	0.128	83.71	0.572
Jan.	57.48	44.96	12.52	0.643	0.503	0.140	78.21	0.437
Feb.	48.68	36.87	11.81	0.492	0.373	0.119	75.74	0.358
Mar.	51.71	48.17	3.54	0.579	0.539	0.040	93.16	0.468
Apr.	316.43	278.04	38.40	3.428	3.012	0.416	87.87	2.699
May	821.52	611.98	209.54	9.195	6.850	2.345	74.49	5.942
June	1001.63	740.48	261.15	10.850	8.021	2.829	73.93	7.189
July	271.90	246.92	24.98	3.043	2.764	0.280	90.81	2.397
Aug.	90.52	81.01	9.51	1.013	0.907	0.106	89.50	0.786
Sept.	40.63	39.98	0.65	0.440	0.433	0.007	98.39	0.388
	242.67	191.72	50.94	31.981	25.267	6.714	79.01	1.861

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
 Station ID = No ID
 Drainage area = 103.00 square miles

Period ending in 1990 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
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Oct.	38.71	29.98	8.72	0.433	0.336	0.098	77.46	0.291
Nov.	76.60	56.90	19.70	0.830	0.616	0.213	74.29	0.552
Dec.	112.90	81.56	31.35	1.264	0.913	0.351	72.23	0.792
Jan.	63.00	51.72	11.28	0.705	0.579	0.126	82.10	0.502
Feb.	51.96	45.05	6.91	0.525	0.455	0.070	86.69	0.437
Mar.	75.84	73.05	2.79	0.849	0.818	0.031	96.32	0.709
Apr.	482.67	418.75	63.92	5.228	4.536	0.692	86.76	4.066
May	578.03	477.20	100.83	6.470	5.341	1.129	82.56	4.633
June	884.63	731.97	152.66	9.582	7.929	1.654	82.74	7.106
July	391.52	359.30	32.21	4.382	4.022	0.361	91.77	3.488
Aug.	128.90	118.18	10.72	1.443	1.323	0.120	91.68	1.147
Sept.	57.50	55.30	2.20	0.623	0.599	0.024	96.18	0.537

	245.35	208.41	36.94	32.335	27.466	4.868	84.94	2.023

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1991

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	66.81	54.31	12.50	0.748	0.608	0.140	81.29	0.527
Nov.	351.70	123.41	228.29	3.810	1.337	2.473	35.09	1.198
Dec.	179.00	144.83	34.17	2.004	1.621	0.382	80.91	1.406
Jan.	88.74	72.75	15.99	0.993	0.814	0.179	81.98	0.706
Feb.	144.54	128.28	16.25	1.461	1.297	0.164	88.76	1.245
Mar.	147.74	145.82	1.92	1.654	1.632	0.021	98.70	1.416
Apr.	270.83	231.88	38.95	2.934	2.512	0.422	85.62	2.251
May	893.39	631.23	262.15	10.000	7.065	2.934	70.66	6.128
June	1179.03	1009.18	169.85	12.771	10.932	1.840	85.59	9.798
July	867.97	791.22	76.75	9.715	8.856	0.859	91.16	7.682
Aug.	245.65	218.37	27.28	2.750	2.444	0.305	88.90	2.120
Sept.	87.90	84.08	3.82	0.952	0.911	0.041	95.66	0.816

	377.81	303.73	74.07	49.791	40.029	9.762	80.39	2.949

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1992

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	47.13	43.73	3.40	0.528	0.489	0.038	92.78	0.425
Nov.	56.27	45.75	10.52	0.609	0.496	0.114	81.30	0.444
Dec.	47.94	38.78	9.15	0.537	0.434	0.102	80.91	0.377
Jan.	42.48	33.06	9.42	0.476	0.370	0.105	77.82	0.321
Feb.	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.000
Mar.	150.06	136.83	13.24	1.680	1.532	0.148	91.18	1.328
Apr.	344.63	256.50	88.14	3.733	2.778	0.955	74.43	2.490
May	803.19	599.25	203.95	8.990	6.707	2.283	74.61	5.818
June	540.73	474.55	66.19	5.857	5.140	0.717	87.76	4.607
July	190.97	179.79	11.18	2.138	2.012	0.125	94.15	1.746
Aug.	78.48	73.15	5.33	0.878	0.819	0.060	93.21	0.710
Sept.	42.77	38.72	4.05	0.463	0.419	0.044	90.53	0.376
	201.32	165.25	36.07	26.532	21.778	4.754	82.08	1.604

Above summary information based on 365 days of good base-flow values.

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1993

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	34.71	32.09	2.62	0.389	0.359	0.029	92.45	0.312
Nov.	35.07	24.02	11.05	0.380	0.260	0.120	68.49	0.233
Dec.	24.84	16.36	8.48	0.278	0.183	0.095	65.86	0.159
Jan.	24.29	18.98	5.31	0.272	0.212	0.059	78.14	0.184
Feb.	23.36	16.17	7.19	0.236	0.163	0.073	69.23	0.157
Mar.	36.61	31.47	5.15	0.410	0.352	0.058	85.95	0.306
Apr.	73.17	71.65	1.52	0.793	0.776	0.016	97.92	0.696
May	822.71	664.69	158.02	9.209	7.440	1.769	80.79	6.453
June	489.37	444.60	44.77	5.301	4.816	0.485	90.85	4.317
July	155.97	147.91	8.06	1.746	1.656	0.090	94.83	1.436
Aug.	80.48	77.95	2.53	0.901	0.873	0.028	96.86	0.757
Sept.	37.07	36.25	0.82	0.402	0.393	0.009	97.79	0.352
	154.14	132.66	21.48	20.314	17.483	2.831	86.06	1.288

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1994

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	25.77	23.44	2.34	0.288	0.262	0.026	90.93	0.228
Nov.	18.60	12.79	5.81	0.201	0.139	0.063	68.78	0.124
Dec.	21.81	16.91	4.89	0.244	0.189	0.055	77.56	0.164
Jan.	22.90	18.59	4.32	0.256	0.208	0.048	81.16	0.180
Feb.	23.79	19.72	4.07	0.240	0.199	0.041	82.89	0.191
Mar.	57.35	46.28	11.07	0.642	0.518	0.124	80.70	0.449
Apr.	314.77	211.75	103.02	3.410	2.294	1.116	67.27	2.056
May	732.55	509.34	223.21	8.199	5.701	2.498	69.53	4.945
June	425.87	360.37	65.50	4.613	3.903	0.710	84.62	3.499
July	191.71	178.11	13.60	2.146	1.994	0.152	92.91	1.729
Aug.	61.68	58.29	3.39	0.690	0.652	0.038	94.51	0.566
Sept.	29.13	27.23	1.90	0.316	0.295	0.021	93.47	0.264
	161.22	124.10	37.12	21.247	16.355	4.892	76.98	1.205

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

 Period ending in 1995

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	24.84	18.93	5.91	0.278	0.212	0.066	76.22	0.184
Nov.	25.50	20.05	5.45	0.276	0.217	0.059	78.62	0.195
Dec.	28.84	21.32	7.52	0.323	0.239	0.084	73.92	0.207
Jan.	28.06	22.71	5.35	0.314	0.254	0.060	80.92	0.220
Feb.	120.32	91.19	29.13	1.216	0.922	0.294	75.79	0.885

Mar.	147.48	140.55	6.93	1.651	1.573	0.078	95.30	1.365
Apr.	248.23	198.21	50.03	2.689	2.147	0.542	79.85	1.924
May	1181.23	933.01	248.21	13.222	10.443	2.778	78.99	9.058
June	1399.27	1131.17	268.09	15.157	12.253	2.904	80.84	10.982
July	666.00	604.10	61.90	7.455	6.762	0.693	90.71	5.865
Aug.	149.61	146.93	2.69	1.675	1.645	0.030	98.20	1.426
Sept.	63.07	57.80	5.27	0.683	0.626	0.057	91.64	0.561
	340.98	282.97	58.01	44.938	37.293	7.645	82.99	2.747

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1996

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	71.61	56.04	15.58	0.802	0.627	0.174	78.25	0.544
Nov.	355.77	204.65	151.12	3.854	2.217	1.637	57.52	1.987
Dec.	382.90	240.65	142.26	4.286	2.694	1.592	62.85	2.336
Jan.	139.29	123.11	16.18	1.559	1.378	0.181	88.38	1.195
Feb.	238.14	184.11	54.03	2.494	1.928	0.566	77.31	1.787
Mar.	270.58	206.25	64.33	3.029	2.309	0.720	76.23	2.002
Apr.	582.77	471.20	111.56	6.313	5.104	1.208	80.86	4.575
May	728.48	600.73	127.76	8.154	6.724	1.430	82.46	5.832
June	1334.83	1239.66	95.17	14.459	13.428	1.031	92.87	12.036
July	871.19	760.54	110.65	9.751	8.513	1.239	87.30	7.384
Aug.	208.68	193.37	15.31	2.336	2.164	0.171	92.66	1.877
Sept.	88.30	79.92	8.38	0.956	0.866	0.091	90.51	0.776
	438.83	362.85	75.98	57.991	47.951	10.040	82.69	3.523

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1997

interval = 5 days

Mean	Mean	Mean	Total	Total	Total	BF/	Base
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	stream- flow (ft3/s)	base flow (ft3/s)	surface runoff (ft3/s)	stream- flow (in)	base flow (in)	surface runoff (in)	stream- flow (%)	flow (ft3/s/ mi2)
Oct.	61.13	56.87	4.26	0.684	0.637	0.048	93.03	0.552
Nov.	66.47	58.66	7.80	0.720	0.635	0.085	88.26	0.570
Dec.	47.03	28.41	18.63	0.526	0.318	0.208	60.40	0.276
Jan.	62.45	43.42	19.03	0.699	0.486	0.213	69.53	0.422
Feb.	75.61	66.83	8.78	0.764	0.676	0.089	88.39	0.649
Mar.	153.68	124.53	29.15	1.720	1.394	0.326	81.03	1.209
Apr.	311.73	251.40	60.34	3.377	2.723	0.654	80.64	2.441
May	1291.87	817.91	473.96	14.460	9.155	5.305	63.31	7.941
June	1691.13	1345.60	345.54	18.318	14.576	3.743	79.57	13.064
July	785.61	722.93	62.68	8.793	8.092	0.702	92.02	7.019
Aug.	226.19	213.91	12.28	2.532	2.394	0.137	94.57	2.077
Sept.	120.33	102.79	17.54	1.303	1.113	0.190	85.42	0.998
	408.97	320.20	88.77	53.898	42.199	11.699	78.29	3.109

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 1998

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	175.03	136.35	38.68	1.959	1.526	0.433	77.90	1.324
Nov.	145.20	133.94	11.26	1.573	1.451	0.122	92.24	1.300
Dec.	77.29	69.56	7.73	0.865	0.779	0.087	89.99	0.675
Jan.	68.48	62.90	5.59	0.767	0.704	0.063	91.84	0.611
Feb.	75.79	70.87	4.91	0.766	0.717	0.050	93.52	0.688
Mar.	107.23	91.61	15.62	1.200	1.025	0.175	85.43	0.889
Apr.	242.67	225.41	17.26	2.629	2.442	0.187	92.89	2.188
May	1415.29	1017.37	397.92	15.841	11.388	4.454	71.88	9.877
June	997.37	921.67	75.70	10.804	9.984	0.820	92.41	8.948
July	371.77	314.83	56.95	4.161	3.524	0.637	84.68	3.057
Aug.	113.58	109.60	3.98	1.271	1.227	0.045	96.50	1.064
Sept.	54.03	52.43	1.61	0.585	0.568	0.017	97.03	0.509
	321.89	268.10	53.79	42.422	35.333	7.089	83.29	2.603

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
 Station ID = No ID
 Drainage area = 103.00 square miles

 Period ending in 1999 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	35.90	35.05	0.86	0.402	0.392	0.010	97.62	0.340
Nov.	51.33	39.43	11.90	0.556	0.427	0.129	76.82	0.383
Dec.	51.90	40.00	11.90	0.581	0.448	0.133	77.06	0.388
Jan.	81.65	62.59	19.05	0.914	0.701	0.213	76.66	0.608
Feb.	61.36	58.31	3.05	0.620	0.589	0.031	95.03	0.566
Mar.	88.87	73.21	15.67	0.995	0.819	0.175	82.37	0.711
Apr.	226.73	204.91	21.82	2.456	2.220	0.236	90.38	1.989
May	679.68	568.76	110.91	7.608	6.366	1.241	83.68	5.522
June	1803.30	1377.80	425.50	19.533	14.924	4.609	76.40	13.377
July	1250.13	1026.42	223.71	13.993	11.489	2.504	82.11	9.965
Aug.	442.94	397.13	45.81	4.958	4.445	0.513	89.66	3.856
Sept.	117.90	116.26	1.64	1.277	1.259	0.018	98.61	1.129
	408.93	334.47	74.46	53.893	44.080	9.813	81.79	3.247

 Hydrograph separation by the local minimum method

Entiat River below Entiat Falls
 Station ID = No ID
 Drainage area = 103.00 square miles

 Period ending in 2000 interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
Oct.	70.77	67.03	3.74	0.792	0.750	0.042	94.71	0.651
Nov.	253.37	128.64	124.73	2.744	1.393	1.351	50.77	1.249
Dec.	150.61	130.54	20.07	1.686	1.461	0.225	86.67	1.267
Jan.	92.19	77.42	14.77	1.032	0.867	0.165	83.98	0.752
Feb.	60.62	51.78	8.84	0.635	0.542	0.093	85.42	0.503
Mar.	70.39	68.84	1.55	0.788	0.771	0.017	97.80	0.668
Apr.	357.17	299.07	58.09	3.869	3.240	0.629	83.74	2.904
May	714.77	470.37	244.40	8.001	5.265	2.736	65.81	4.567
June	1151.73	1021.86	129.87	12.476	11.069	1.407	88.72	9.921
July	516.58	475.80	40.79	5.782	5.326	0.457	92.10	4.619
Aug.	164.35	156.83	7.52	1.840	1.755	0.084	95.42	1.523

Sept.	77.23	69.90	7.33	0.837	0.757	0.079	90.51	0.679
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	306.32	251.20	55.12	40.480	33.196	7.285	82.00	2.439

Hydrograph separation by the local minimum method

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Period ending in 2001

interval = 5 days

	Mean stream- flow (ft3/s)	Mean base flow (ft3/s)	Mean surface runoff (ft3/s)	Total stream- flow (in)	Total base flow (in)	Total surface runoff (in)	BF/ stream- flow (%)	Base flow (ft3/s/ mi2)
	-----	-----	-----	-----	-----	-----	-----	-----
Oct.	60.03	52.08	7.95	0.672	0.583	0.089	86.75	0.506
Nov.	45.47	40.92	4.55	0.492	0.443	0.049	89.99	0.397
Dec.	33.87	27.91	5.96	0.379	0.312	0.067	82.40	0.271
Jan.	30.42	24.47	5.95	0.340	0.274	0.067	80.43	0.238
Feb.	24.82	21.47	3.35	0.251	0.217	0.034	86.50	0.208
Mar.	39.81	36.97	2.84	0.446	0.414	0.032	92.87	0.359
Apr.	70.03	56.62	13.42	0.759	0.613	0.145	80.84	0.550
May	422.23	274.68	147.55	4.726	3.074	1.652	65.05	2.667
June	341.40	316.89	24.51	3.698	3.433	0.266	92.82	3.077
July	149.19	126.05	23.15	1.670	1.411	0.259	84.48	1.224
Aug.	67.06	60.26	6.80	0.751	0.675	0.076	89.86	0.585
Sept.	36.43	33.61	2.82	0.395	0.364	0.031	92.26	0.326
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	110.62	89.63	20.98	14.578	11.813	2.766	81.03	0.870

Annual base-flow summary

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Local minimum method

Year starts in October

Year ends in September

Period ending	in	ft3/s	ft3/s/ mi2	% of stream- flow
	-----	-----	-----	-----
1958	-1.000	-1.00	-1.000	-1.00

1959	36.217	274.81	2.668	81.26
1960	-1.000	-1.00	-1.000	-1.00
1961	31.704	240.56	2.336	78.08
1962	20.347	154.39	1.499	78.08
1963	25.653	194.65	1.890	85.62
1964	-1.000	-1.00	-1.000	-1.00
1965	27.582	209.29	2.032	79.59
1966	21.039	159.64	1.550	75.29
1967	29.852	226.51	2.199	80.96
1968	-1.000	-1.00	-1.000	-1.00
1969	28.550	216.63	2.103	71.42
1970	15.513	117.71	1.143	60.75
1971	32.087	243.47	2.364	70.61
1972	-1.000	-1.00	-1.000	-1.00
1973	19.241	146.00	1.417	81.17
1974	44.101	334.63	3.249	73.76
1975	31.619	239.92	2.329	70.70
1976	-1.000	-1.00	-1.000	-1.00
1977	15.448	117.22	1.138	81.20
1978	40.498	307.29	2.983	75.25
1979	17.113	129.85	1.261	77.05
1980	-1.000	-1.00	-1.000	-1.00
1981	28.485	216.14	2.098	80.92
1982	32.962	250.11	2.428	72.63
1983	34.831	264.29	2.566	76.14
1984	-1.000	-1.00	-1.000	-1.00
1985	18.766	142.39	1.382	76.78
1986	22.333	169.46	1.645	71.89
1987	21.941	166.49	1.616	72.15
1988	-1.000	-1.00	-1.000	-1.00
1989	25.267	191.72	1.861	79.01
1990	27.466	208.41	2.023	84.94
1991	40.029	303.73	2.949	80.39
1992	-1.000	-1.00	-1.000	-1.00
1993	17.483	132.66	1.288	86.06
1994	16.355	124.10	1.205	76.98
1995	37.293	282.97	2.747	82.99
1996	47.951	362.85	3.523	82.69
1997	42.199	320.20	3.109	78.29
1998	35.333	268.10	2.603	83.29
1999	44.080	334.47	3.247	81.79
2000	33.196	251.20	2.439	82.00
2001	11.813	89.63	0.870	81.03
median	28.517	216.39	2.101	78.65

Annual base-flow summary ordered by frequency

Entiat River below Entiat Falls

Station ID = No ID

Drainage area = 103.00 square miles

Local minimum method

Year starts in October
Year ends in September

Cum dist	in	ft3/s/ mi2	year
-1.0	-1.000	-1.000	1958
-1.0	-1.000	-1.000	1960
-1.0	-1.000	-1.000	1964
-1.0	-1.000	-1.000	1968
-1.0	-1.000	-1.000	1972
-1.0	-1.000	-1.000	1976
-1.0	-1.000	-1.000	1980
-1.0	-1.000	-1.000	1984
-1.0	-1.000	-1.000	1988
-1.0	-1.000	-1.000	1992
2.9	11.813	0.870	2001
5.7	15.448	1.138	1977
8.6	15.513	1.143	1970
11.4	16.355	1.205	1994
14.3	17.113	1.261	1979
17.1	17.483	1.288	1993
20.0	18.766	1.382	1985
22.9	19.241	1.417	1973
25.7	20.347	1.499	1962
28.6	21.039	1.550	1966
31.4	21.941	1.616	1987
34.3	22.333	1.645	1986
37.1	25.267	1.861	1989
40.0	25.653	1.890	1963
42.9	27.466	2.023	1990
45.7	27.582	2.032	1965
48.6	28.485	2.098	1981
51.4	28.550	2.103	1969
54.3	29.852	2.199	1967
57.1	31.619	2.329	1975
60.0	31.704	2.336	1961
62.9	32.087	2.364	1971
65.7	32.962	2.428	1982
68.6	33.196	2.439	2000
71.4	34.831	2.566	1983
74.3	35.333	2.603	1998
77.1	36.217	2.668	1959
80.0	37.293	2.747	1995
82.9	40.029	2.949	1991
85.7	40.498	2.983	1978
88.6	42.199	3.109	1997
91.4	44.080	3.247	1999
94.3	44.101	3.249	1974
97.1	47.951	3.523	1996

Seasonal-distribution table

Entiat River below Entiat Falls

Station ID = No ID
 Drainage area = 103.00 square miles

Local minimum method

Year starts in October
 Year ends in September

Month	Base flow (in)	Runoff (in)
October	0.615	0.121
November	0.686	0.270
December	0.685	0.247
January	0.616	0.174
February	0.604	0.106
March	0.928	0.122
April	1.999	0.453
May	6.464	2.717
June	9.421	2.775
July	4.951	0.808
August	1.659	0.141
September	0.757	0.070

Flow duration table for total flow, local minimum method
 at Entiat River below Entiat Falls (1958-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	2	0.01	16059	100.00
0.10	0	0.00	16057	99.99
1.70	0	0.00	16057	99.99
2.20	0	0.00	16055	99.98
3.40	0	0.00	16055	99.98
3.90	1	0.01	16055	99.98
4.50	3	0.02	16054	99.97
5.20	0	0.00	16051	99.95
6.00	3	0.02	16051	99.95
6.90	3	0.02	16048	99.93
7.90	6	0.04	16045	99.91
9.10	0	0.00	16039	99.88
10.00	11	0.07	16039	99.88
12.00	12	0.07	16028	99.81
14.00	21	0.13	16016	99.73
16.00	14	0.09	15995	99.60
18.00	91	0.57	15981	99.51
21.00	192	1.20	15890	98.95
24.00	389	2.42	15698	97.75
28.00	412	2.57	15309	95.33
32.00	604	3.76	14897	92.76

37.00	755	4.70	14293	89.00
43.00	692	4.31	13538	84.30
49.00	1105	6.88	12846	79.99
57.00	1207	7.52	11741	73.11
66.00	989	6.16	10534	65.60
75.00	885	5.51	9545	59.44
87.00	718	4.47	8660	53.93
100.00	834	5.19	7942	49.46
120.00	331	2.06	7108	44.26
130.00	625	3.89	6777	42.20
150.00	768	4.78	6152	38.31
180.00	388	2.42	5384	33.53
200.00	416	2.59	4996	31.11
230.00	464	2.89	4580	28.52
270.00	293	1.82	4116	25.63
310.00	324	2.02	3823	23.81
360.00	283	1.76	3499	21.79
410.00	309	1.92	3216	20.03
470.00	336	2.09	2907	18.10
540.00	295	1.84	2571	16.01
630.00	280	1.74	2276	14.17
720.00	294	1.83	1996	12.43
830.00	297	1.85	1702	10.60
950.00	336	2.09	1405	8.75
1100.00	361	2.25	1069	6.66
1300.00	258	1.61	708	4.41
1500.00	153	0.95	450	2.80
1700.00	116	0.72	297	1.85
1900.00	85	0.53	181	1.13
2200.00	51	0.32	96	0.60
2600.00	16	0.10	45	0.28
2900.00	19	0.12	29	0.18
3400.00	5	0.03	10	0.06
3900.00	4	0.02	5	0.03
4500.00	1	0.01	1	0.01
5200.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for surface runoff, local minimum method
at Entiat River below Entiat Falls (1958-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	4046	25.19	16059	100.00
0.10	7	0.04	12013	74.81
0.12	1	0.01	12006	74.76
0.13	3	0.02	12005	74.76
0.15	13	0.08	12002	74.74
0.18	14	0.09	11989	74.66
0.20	25	0.16	11975	74.57
0.23	19	0.12	11950	74.41

0.27	19	0.12	11931	74.29
0.31	65	0.40	11912	74.18
0.36	25	0.16	11847	73.77
0.41	39	0.24	11822	73.62
0.47	88	0.55	11783	73.37
0.54	57	0.35	11695	72.83
0.63	121	0.75	11638	72.47
0.72	100	0.62	11517	71.72
0.83	78	0.49	11417	71.09
0.95	217	1.35	11339	70.61
1.10	149	0.93	11122	69.26
1.30	170	1.06	10973	68.33
1.50	191	1.19	10803	67.27
1.70	140	0.87	10612	66.08
1.90	270	1.68	10472	65.21
2.20	276	1.72	10202	63.53
2.60	215	1.34	9926	61.81
2.90	372	2.32	9711	60.47
3.40	303	1.89	9339	58.15
3.90	333	2.07	9036	56.27
4.50	414	2.58	8703	54.19
5.20	333	2.07	8289	51.62
6.00	365	2.27	7956	49.54
6.90	353	2.20	7591	47.27
7.90	380	2.37	7238	45.07
9.10	235	1.46	6858	42.71
10.00	437	2.72	6623	41.24
12.00	412	2.57	6186	38.52
14.00	334	2.08	5774	35.95
16.00	278	1.73	5440	33.88
18.00	356	2.22	5162	32.14
21.00	293	1.82	4806	29.93
24.00	315	1.96	4513	28.10
28.00	269	1.68	4198	26.14
32.00	285	1.77	3929	24.47
37.00	258	1.61	3644	22.69
43.00	252	1.57	3386	21.08
49.00	248	1.54	3134	19.52
57.00	238	1.48	2886	17.97
66.00	177	1.10	2648	16.49
75.00	227	1.41	2471	15.39
87.00	203	1.26	2244	13.97
100.00	221	1.38	2041	12.71
120.00	91	0.57	1820	11.33
130.00	156	0.97	1729	10.77
150.00	213	1.33	1573	9.80
180.00	114	0.71	1360	8.47
200.00	138	0.86	1246	7.76
230.00	135	0.84	1108	6.90
270.00	131	0.82	973	6.06
310.00	154	0.96	842	5.24
360.00	99	0.62	688	4.28
410.00	87	0.54	589	3.67
470.00	76	0.47	502	3.13
540.00	91	0.57	426	2.65
630.00	73	0.45	335	2.09
720.00	54	0.34	262	1.63

830.00	51	0.32	208	1.30
950.00	43	0.27	157	0.98
1100.00	39	0.24	114	0.71
1300.00	24	0.15	75	0.47
1500.00	15	0.09	51	0.32
1700.00	14	0.09	36	0.22
1900.00	13	0.08	22	0.14
2200.00	3	0.02	9	0.06
2600.00	4	0.02	6	0.04
2900.00	2	0.01	2	0.01
3400.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00

Flow duration table for base flow, local minimum method
at Entiat River below Entiat Falls (1958-2001)

Lower class limit	Cases equal or exceeding lower limit and less than upper limit		Cases equal or exceeding lower class limit	
	Cases	Percent	Cases	Percent
0.00	5	0.03	16059	100.00
0.10	0	0.00	16054	99.97
0.23	0	0.00	16054	99.97
0.31	0	0.00	16053	99.96
0.36	0	0.00	16053	99.96
0.47	0	0.00	16052	99.96
0.72	0	0.00	16052	99.96
0.95	0	0.00	16051	99.95
1.70	0	0.00	16051	99.95
1.90	1	0.01	16051	99.95
2.20	2	0.01	16050	99.94
2.60	2	0.01	16048	99.93
2.90	2	0.01	16046	99.92
3.40	1	0.01	16044	99.91
3.90	3	0.02	16043	99.90
4.50	5	0.03	16040	99.88
5.20	11	0.07	16035	99.85
6.00	6	0.04	16024	99.78
6.90	9	0.06	16018	99.74
7.90	12	0.07	16009	99.69
9.10	7	0.04	15997	99.61
10.00	33	0.21	15990	99.57
12.00	17	0.11	15957	99.36
14.00	45	0.28	15940	99.26
16.00	53	0.33	15895	98.98
18.00	174	1.08	15842	98.65
21.00	263	1.64	15668	97.57
24.00	487	3.03	15405	95.93
28.00	540	3.36	14918	92.89
32.00	737	4.59	14378	89.53
37.00	870	5.42	13641	84.94
43.00	876	5.45	12771	79.53
49.00	1249	7.78	11895	74.07

57.00	1108	6.90	10646	66.29
66.00	874	5.44	9538	59.39
75.00	600	3.74	8664	53.95
87.00	710	4.42	8064	50.21
100.00	814	5.07	7354	45.79
120.00	292	1.82	6540	40.72
130.00	777	4.84	6248	38.91
150.00	702	4.37	5471	34.07
180.00	303	1.89	4769	29.70
200.00	422	2.63	4466	27.81
230.00	381	2.37	4044	25.18
270.00	271	1.69	3663	22.81
310.00	320	1.99	3392	21.12
360.00	291	1.81	3072	19.13
410.00	314	1.96	2781	17.32
470.00	354	2.20	2467	15.36
540.00	381	2.37	2113	13.16
630.00	292	1.82	1732	10.79
720.00	270	1.68	1440	8.97
830.00	311	1.94	1170	7.29
950.00	349	2.17	859	5.35
1100.00	301	1.87	510	3.18
1300.00	137	0.85	209	1.30
1500.00	56	0.35	72	0.45
1700.00	14	0.09	16	0.10
1900.00	2	0.01	2	0.01
2200.00	0	0.00	0	0.00
100000.00	0	0.00	0	0.00