

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Correlative discharge estimates for Three Sites in the Upper Lewis
River Basin, Washington for the periods October to December 1928
and October 1931 to September 1955, or parts thereof

By G. L. Bodhaine

57-12

Open-file report

Tacoma, Washington
February 1957

OPEN FILE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Sheet 1 of 2 Sheets

Estimated monthly

~~XXXXXXXXXXXX~~ discharge, in cfs

of Rush Creek above Falls River, Cougar, Wash.

(Drainage area 26.0 square miles)

YEAR ending Sept. 30	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	ANNUAL
1928	243	379	158	*155	*128	*191	*172	*296	*217	*145	*150	*108	195
*1929	116	121	107	91.6	87.9	100	107	206	296	156	127	111	136
*1930	95.1	87.6	108	84.6	212	113	193	180	154	102	96.7	88.7	125
*1931	86.2	86.6	83.5	99.9	105	132	204	220	130	106	97.6	93.4	120
1932	126	167	126	136	110	220	212	305	355	227	146	127	188
1933	113	342	160	152	74	134	158	300	536	336	185	198	224
1934	264	208	480	305	137	177	135	120	110	108	105	107	188
1935	222	390	207	155	147	115	133	280	304	174	126	121	198
1936	87	74	91	203	85	124	155	300	299	170	130	123	153
1937	80	50	124	61	60	126	210	275	395	203	134	122	153
1938	99	332	237	183	94	120	198	268	245	145	118	108	179
1939	100	117	142	151	102	113	151	206	186	132	115	115	136
1940	90	65	215	128	200	194	144	176	119	103	102	105	137
1941	98	127	149	132	99	88	90	147	126	106	105	173	120
1942	177	168	252	86	112	86	120	156	215	140	116	107	145
1943	84	305	190	113	117	135	246	236	296	198	138	123	182
1944	131	124	114	100	107	85	119	175	157	102	96	100	118
1945	77	129	97	163	170	120	125	301	218	133	108	127	147
1946	92	196	209	159	111	137	159	308	368	290	154	131	193
1947	143	267	325	124	178	135	153	160	158	127	118	144	169
1948	380	267	155	175	127	112	147	300	340	177	143	144	206
1949	147	193	137	58	117	145	185	369	313	205	142	139	179
1950	127	264	156	138	177	211	194	300	460	301	177	150	221

Estimated Monthly

~~Monthly peak~~ discharge, in cfs of Rush Creek above Falls River ^{1.47} Cougar, Wash.
[Drainage area: _____ square miles]

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UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Correlative Estimates of Discharge for
Three Sites in the Upper Lewis River Basin, Washington

by G. L. Bodhaine

In response to increased interest in the power possibilities of tributary streams in the headwater of Lewis River stream-gaging stations were reestablished in 1955 at three sites in the upper Lewis River basin, Washington. The one year of recent record now available and the four years of record obtained during water years 1928-31 provide a reasonable basis for estimates of monthly discharge during the intervening years. In view of the current interest in the discharge of these streams estimates of monthly discharge have been made in the Tacoma district office of the Surface Water Branch of the U. S. Geological Survey. These estimates and a description of the method of correlation are attached. The three stations and the period covered by the correlative estimates are as follows:

Big Creek below Skookum Meadow near Trout Lake, Washington	Oct. 1931 to Sept. 1955
Meadow Creek below Lone Butte Meadow near Trout Lake, Washington	Oct. to Dec. 1928; Oct. 1931 to Sept. 1955
Rush Creek above falls, near Cougar, Wash.	Oct. to Dec. 1928; Dec. 1931 to Sept. 1955

Published records for water years 1928-31 and 1956 are included in the tabulation to provide discharge for the full period Oct. 1927 to Sept. 1956.

February 21, 1957

Correlative estimates of monthly discharge for Big Creek
below Skookum Meadow, near Trout Lake, Washington.

The site is in the NE $\frac{1}{4}$ sec. 13, T. 7 N., R. 7 E., just downstream from Skookum Meadow, 3 miles upstream from confluence with Lewis River, and 17 miles northwest of Trout Lake. The drainage area is 13.2 square miles.

Estimates for the period October 1931 to September 1955 are based on a correlation of monthly discharge recorded at this site for 5 years (1928-31 and 1956), with that for Lewis River near Cougar. The gaging station near Cougar (drainage area, 481 sq mi) has been in operation since 1925. Estimates were adjusted graphically for seasonal effect. The standard error of estimate of the monthly discharge is about 21%.

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DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Estimated monthly
~~monthly~~ discharge, in cfs, of Big Creek below ~~xxxxxx~~ Skookum Meadow near Trout Lake, Wash.
[Drainage area, 13.2 square miles]

YEAR ending Sept. 30	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	ANNUAL
*1928	68.3	138	58.9	68.4	28.6	109	88.9	157	43.0	23.0	10.7	9.1	67.1
*1929	28.8	44.9	40.4	18.3	14.1	32.3	70.7	177	85.0	17.0	8.1	6.5	45.4
*1930	5.7	5.2	32.9	20.4	139	49.9	125	74.6	31.1	11.1	5.8	4.6	41.3
*1931	9.0	11.6	12.7	29.8	38.4	83.5	130	72.3	27.8	15.4	8.7	8.8	37.3
1932	18	46	42	46	39	127	130	186	128	40	14	10	69
1933	15	150	62	56	19	56	82	183	253	75	20	22	83
1934	61	66	378	172	53	86	62	42	19	12	8	8	80
1935	46	180	93	57	58	44	61	163	100	26	11	10	71
1936	10	12	25	89	24	49	78	182	96	25	11	10	51
1937	9	7	40	12	14	51	132	159	152	34	12	10	53
1938	12	140	115	75	28	47	115	152	70	19	10	8	66
1939	12	26	51	55	32	43	76	99	45	17	9	9	40
1940	11	10	99	42	98	103	70	76	22	11	8	8	46
1941	12	29	55	44	31	28	33	57	24	12	8	17	29
1942	32	46	128	22	38	28	52	62	57	18	9	8	42
1943	10	120	80	34	40	57	167	122	96	32	12	10	65
1944	20	28	35	28	35	26	52	75	34	11	7	7	30
1945	8	30	27	62	75	47	55	182	58	16	8	11	48
1946	11	59	94	59	37	58	83	190	131	59	15	11	67
1947	22	99	195	40	82	57	77	65	35	16	10	13	59
1948	112	99	58	71	46	42	72	180	120	27	13	13	71
1949	23	58	48	12	38	64	106	255	105	34	13	12	64
1950	18	96	59	47	80	120	114	182	194	63	19	14	84

Estimated monthly
~~flow~~ discharge, in cfs of Big Creek below ~~mouth~~ Skookum Meadow, near Trout Lake, Wash.
[Drainage area, _____ square miles]

[illegible]

Correlative estimates of monthly discharge for Meadow Creek
below Lone Butte Meadow, near Trout Lake, Washington

The site is in the NE¹ sec. 31, T. 7 N., R. 8 E., just downstream from Lone Butte Meadow, about 1.5 miles upstream from confluence with Rush Creek, and 16 miles northwest of Trout Lake. Drainage area is 11.7 square miles.

Estimates for the period October - December 1928, and October 1931 to September 1955 are based on a correlation of monthly discharge recorded at this site during water years 1928-31 and 1956, with that for Lewis River near Cougar. The gaging station near Cougar (drainage area, 481 sq mi) has been in operation since 1925. Estimates were adjusted graphically for seasonal effect. The standard error of estimate of the monthly discharge is about 10%.

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Estimated monthly

~~Monthly stream~~ discharge, in cfs of Meadow Creek below ~~Brooks~~ Lone Butte Meadow, near Trout Lake, Wash.
[Drainage area, 11.7 square miles]

YEAR ending Sept. 30	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	ANNUAL
1928	110	157	96	* 99.1	* 80.4	* 107	* 100	* 140	* 95.3	* 87.4	* 77.2	* 72.1	102
*1929	71.0	81.3	80.9	71.0	60.0	61.7	71.3	112	128	79.5	68.6	63.0	79.1
*1930	58.8	56.5	67.9	60.3	111	73.2	106	95.3	79.5	64.0	59.4	54.5	73.6
*1931	54.9	51.7	49.3	57.0	58.6	73.8	116	95.9	69.0	60.4	55.9	52.1	66.2
1932	71	92	84	84	73	112	112	137	142	106	80	72	97.1
1933	66	145	98	91	55	80	94	136	185	136	94	96	106
1934	116	106	202	144	83	96	84	75	66	65	64	64	97
1935	104	159	115	92	86	73	83	130	127	89	72	69	100
1936	56	53	67	110	60	76	92	135	126	87	74	70	84
1937	53	41	82	50	48	78	112	128	151	98	75	70	82
1938	61	143	125	102	64	75	107	126	110	78	69	64	94
1939	61	72	90	90	68	72	90	106	92	74	68	67	87
1940	57	49	118	81	106	102	88	96	69	63	62	63	80
1941	60	76	92	83	66	60	64	85	72	64	64	87	73
1942	89	92	130	62	72	60	78	88	101	78	68	64	82
1943	55	135	108	75	74	81	125	115	125	96	76	70	95
1944	74	75	78	69	70	59	77	94	82	63	60	62	72
1945	52	77	70	95	95	75	80	136	102	74	65	73	83
1946	58	101	115	94	72	81	94	139	145	125	82	73	98
1947	78	125	154	79	98	81	92	90	83	73	69	78	92
1948	148	125	95	100	77	72	89	135	137	90	78	78	102
1949	78	100	88	48	74	84	103	155	130	99	78	76	93
1950	72	122	95	85	98	108	107	136	166	128	90	80	107

Estimated monthly

Estimated monthly discharge, in cfs of Meadow Creek below ~~Riceboro~~ Lone Butte Meadow, near Trout Lake, Wash.
 [Drainage area, _____ square miles]

[illegible]

Correlative estimates of monthly discharge for Rush Creek above
falls, near Cougar, Washington

The site is in the NW $\frac{1}{4}$ sec. 34, T. 7 N., R. 7 E., 500 ft above falls, 2 miles upstream from confluence with Lewis River, and 18 miles east of Cougar. The drainage area is 26 square miles.

Estimates for the period October - December 1928, and October 1931 to September 1955 are based on a correlation of monthly discharge recorded at this site during water years 1928-31 and 1956, with that for Lewis River near Cougar. The gaging station near Cougar (drainage area, 481 sq mi) has been in operation since 1925. Estimates were adjusted graphically for seasonal effect. The standard error of estimate of the monthly discharge is about 19%.