

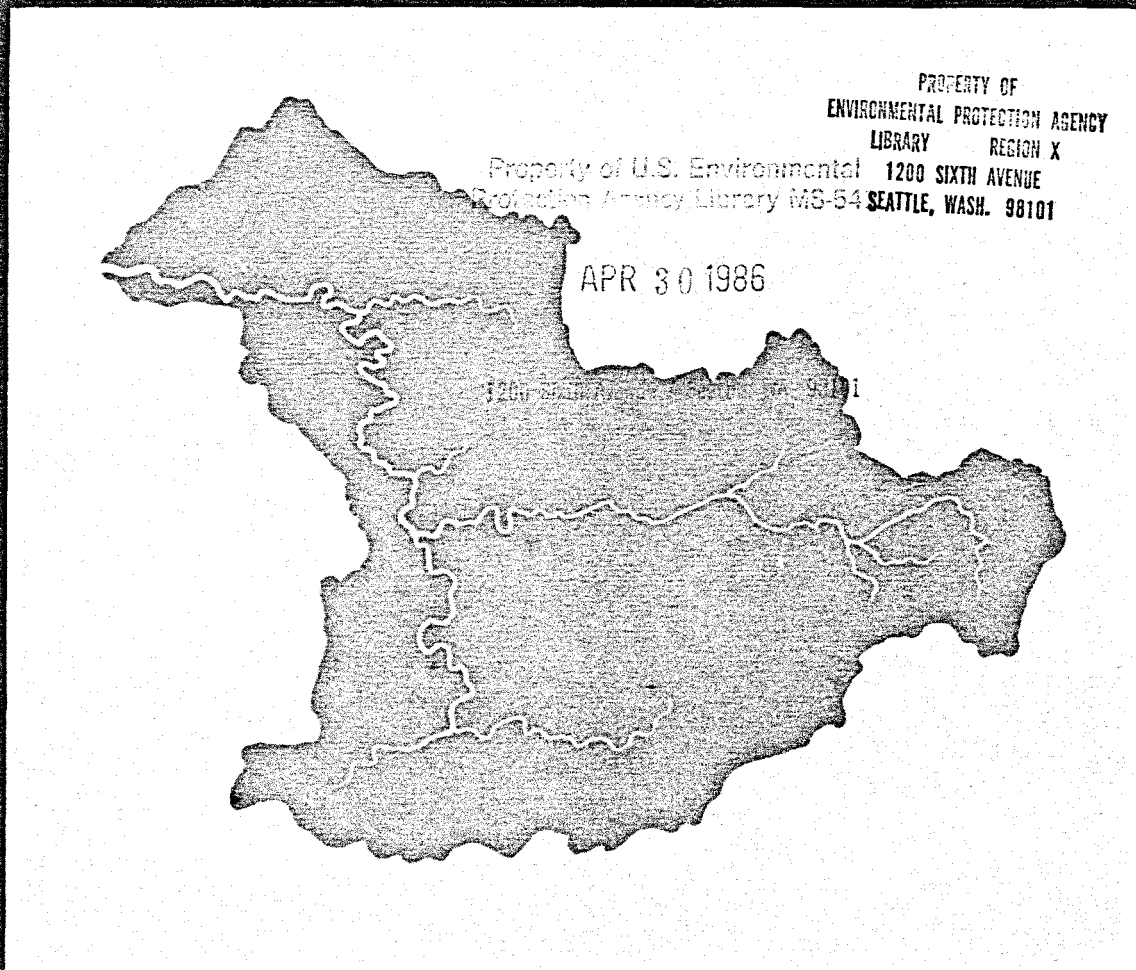
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SEDIMENT TRANSPORT IN STREAMS IN THE UMPQUA RIVER BASIN, OREGON



GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

IN COOPERATION WITH
DOUGLAS COUNTY

OPEN-FILE REPORT · 1969

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Water Resources Division

SEDIMENT TRANSPORT IN STREAMS IN THE UMPQUA RIVER BASIN, OREGON

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By C. A. Onions

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Prepared in cooperation with Douglas County

OPEN-FILE REPORT

Portland, Oregon

February 1969



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ABSTRACT

This report presents tables of suspended-sediment data collected from 1956 to 1967 at 10 sites in the Umpqua River basin. Computations based on these data indicate that average annual suspended-sediment yields at these sites range from 137 to 822 tons per square mile. Because available data for the Umpqua River basin are generally inadequate for accurate determinations of sediment yield and for the definition of characteristics of fluvial sediments, recommendations are made for the collection and analysis of additional sediment data.

INTRODUCTION

The Umpqua River basin is noted for its beautiful, rugged scenery and streams of fresh, clear water. In the past, there has been little concern for the occasional turbidity of the normally clear streams of the basin. In recent years, however, because of the increased use of the basin for recreational and industrial purposes, the following questions have arisen: Does the turbidity represent a significant quantity of sediment and is this quantity increasing? Have the effects of logging, agriculture, forest fires, and recent floods increased erosion in the basin and thus increased the turbidity and sediment discharge of the streams? Are spawning areas of anadromous fish being endangered by sediment deposition? Will expected increase in population and industry introduce new sedimentation problems? Could sedimentation adversely affect existing and proposed engineering structures? It is with these questions in mind that the data and results of computations in this report are presented.

Sediment data are vital in water- and land-use planning and in the design of related engineering structures. For example, knowledge of the sediment characteristics of streams, principally the quantity and particle size of sediment in transport, is necessary to estimate the space needed for deposition of sediment in proposed reservoirs. Concentration of suspended sediment is a major factor in the design and operation of water-supply treatment plants.

Recognizing the need for fluvial-sediment data, the Douglas County Water Resources Survey, under the direction of Ben B. Irving, succeeded by Charles S. Collins, conducted a sediment investigation in the Umpqua River basin from 1956 to 1967. The investigation included the collection of suspended-sediment samples one to four times per month at 10 gaging stations in the basin. The samples were collected with a U.S. D-43 suspended-sediment sampler by personnel of Douglas County. Analysis of samples for sediment concentration was performed for the county at Oregon State University. Discharges at the gaging stations at the time of sampling were computed and furnished by the Douglas County Water Resources Survey.

The purpose of this report is to present the results of sediment-discharge measurements obtained by the county during the investigation and to summarize the results of computed sediment yields. This report was prepared by the Geological Survey at the request of Douglas County Water Resources Survey, using data available as stated above.

DATA AVAILABLE

Published data on sediment transport of Umpqua River basin streams are almost nonexistent. The data obtained by the Douglas County Water Resources Survey consist of periodic suspended-sediment discharge measurements at 10 gaging stations from 1956 to 1967 (fig. 1). Sediment discharges were computed from suspended-sediment concentrations and water discharge for the time of sampling. All these data are tabulated in table 1. The maximum and minimum observed suspended-sediment concentrations and discharges for each station listed in table 1 are given in table 2.

COMPUTATIONS

Suspended-Sediment Discharge and Yield

Data presented in table 1 provide a basis from which to estimate the quantity of suspended sediment transported by the streams and the relative sediment yield from the subbasins within the Umpqua River basin. Results of computations of average annual suspended-sediment discharge and yield for each sampling site are given in table 2.

The procedure used to compute annual suspended-sediment discharge consisted of: (1) relating observed suspended-sediment discharge to water discharge by correlation methods suggested by Colby (1956), and (2) relating sediment discharge to streamflow duration as suggested by Miller (1951).

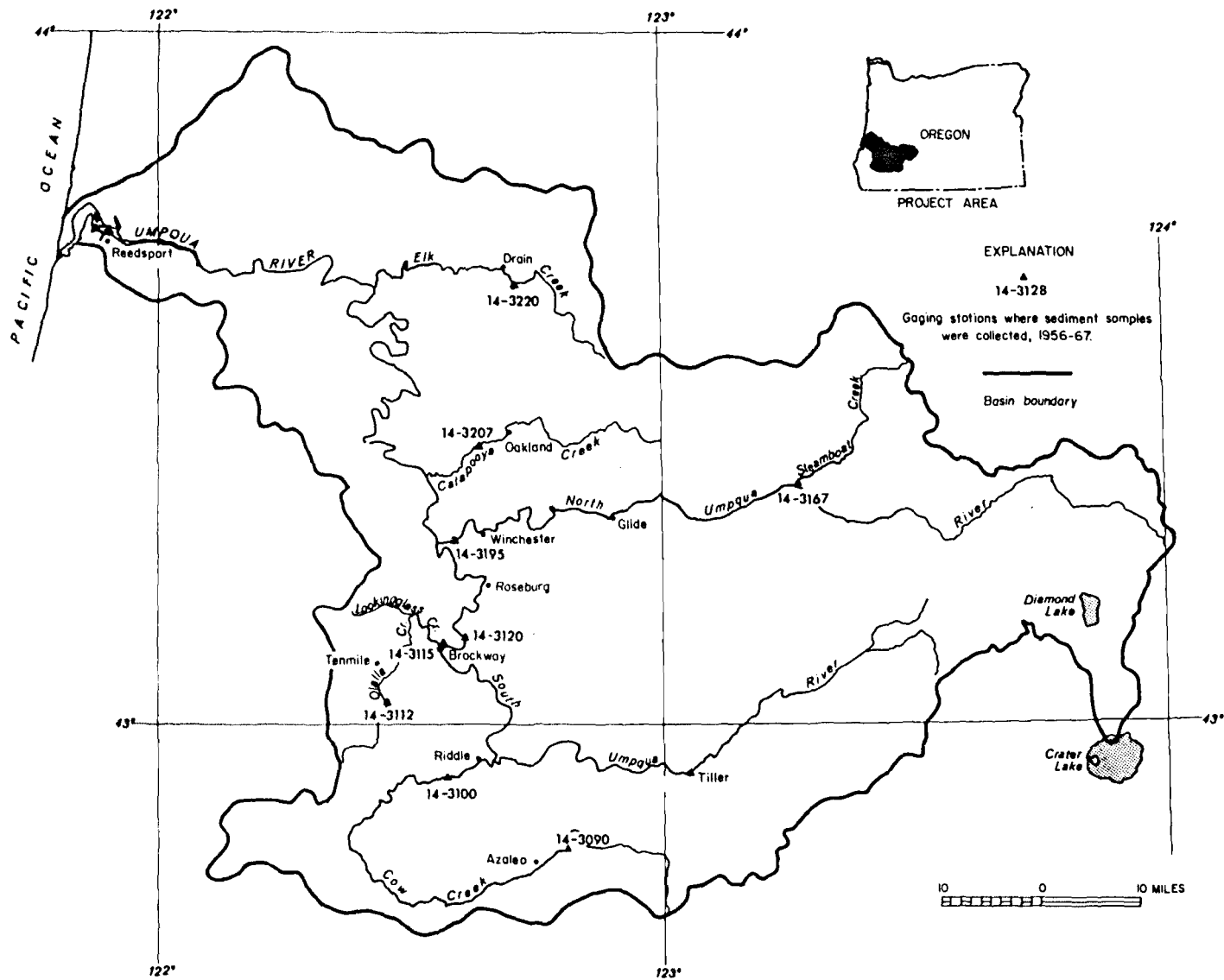


Figure 1.--Suspended-sediment sampling sites in the Umpqua River basin.

The reliability of the computed mean annual suspended-sediment discharge depends on how well the relationship of sediment discharge to water discharge is defined for the full range of flow. Definition for high flows is of particular importance, as demonstrated by sediment records for Flynn Creek, a small stream in the nearby Alsea River basin. For this stream, 85 percent of the annual sediment discharge occurred in a 5-day high-flow period during the winter of 1965. Because of the large sediment yield during this 5-day period, the annual sediment discharge for Flynn Creek in 1965 was greater than that for the 6 previous years combined.

As no special effort was made to obtain sediment-discharge measurements in the Umpqua River basin during periods of high flow, the high-flow end of many of the water-sediment discharge relationship curves is poorly defined. Accuracy of the annual suspended-sediment discharge for South Umpqua River at Tiller and Olalla Creek near Tenmile is considered to be fair because relationship curves for these two stations are well defined at low and medium flows and fairly well defined at high flows. The relationships for the other stations are well defined for low and medium flows but are poorly defined for high flows.

Weighted-Mean Concentration

As a means of comparing the suspended-sediment concentration at the 10 sites, the annual weighted-mean suspended-sediment concentration was computed and is shown in table 2. The weighted-mean concentration values shown were computed by dividing the mean annual suspended-sediment discharge by the mean annual water discharge and multiplying the result by a conversion factor to convert the units to milligrams per liter. The computed values ranged from 44 mg/l (milligrams per liter) for Steamboat Creek near Glide to 397 mg/l for Cow Creek near Riddle. The weighted-mean concentrations are, of course, no more reliable than are the computed average annual suspended-sediment discharge and annual water discharge from which they were derived. However, they do indicate the streams that on the average carry the highest and lowest concentrations of suspended sediment.

SUMMARY AND RECOMMENDATIONS

The results of computations indicate that mean annual sediment yields of 10 subbasins in Douglas County ranged from 137 to 822 tons per square mile. However, the observed suspended-sediment data were insufficient to define accurately the water-sediment-discharge relationships needed for reliable computation of sediment yields. For this reason, the yields indicated in table 2 should not be considered as accurate measures of the relative sediment yield of each subbasin.

In the future, at some sites it may be desirable to collect data at more frequent intervals and of greater variety. Refinement of suspended-sediment yields will require additional sediment-discharge measurements, particularly during high flows. At some sites, bedload discharge, which was not considered in the computations, could be a sizable portion of the total sediment discharge. Data should be obtained from which computations can be made to determine the significance of bedload at the sampling sites. Because of its importance in sediment transport and deposition, data on particle-size distribution of suspended and bed material should be obtained.

REFERENCES

- Colby, B. R., 1956, Relationship of sediment discharge to streamflow: U.S. Geol. Survey open-file rept.
- Miller, C. R., 1951, Analysis of flow-duration, sediment rating curve method of computing sediment yield: U.S. Bur. Reclamation, Denver, Colo., 55 p.

GLOSSARY OF TERMS

The sediment terms used in this report are defined as follows:

Bedload is the sediment (1) that moves by sliding, rolling, or skipping on or very near the streambed, or (2) that is moved by tractive or gravitational forces, or both, but at velocities less than those of the adjacent flow.

Discharge-weighted mean concentration is the theoretical sediment concentration if all the water and sediment passing a section during a time interval were mixed. Concentrations are expressed in milligrams per liter.

Particle size is the diameter, in millimeters, of suspended sediment or bed sediment. A classification recommended by the Subcommittee on Sediment Terminology of the American Geophysical Union defines a particle having a diameter of less than 0.004 mm (millimeter) as clay, between 0.004 and 0.062 mm as silt, and between 0.062 and 2.0 mm as sand.

Sediment discharge is the quantity of sediment that is carried past any cross section of a stream in a unit of time. Basically, sediment discharge is made up of two components, suspended-sediment discharge and bedload discharge.

Sediment yield is the sediment discharge from a unit of drainage area, generally expressed in tons per square mile.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Table 1.--Water and suspended-sediment discharge data for streams in the Umpqua River basin

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)

14-3080. South Umpqua River near Tiller, Oreg.

<u>1956</u>				<u>1957</u>					
Feb.	14	886	2	4.8	Dec.	2	241	2	1.3
Mar.	20	12,590	16	544	Dec.	23	2,740	18	.133
Apr.	18	1,790	8	39	<u>1958</u>				
Apr.	30	1,020	6	17	Jan.	8	1,200	<1	T
May	15	1,380	8	30	Jan.	23	1,280	4	14
May	28	690	2	3.7	Feb.	10	2,430	8	52
June	15	620	20	33	Mar.	5	1,410	10	38
June	28	350	14	13	Mar.	19	800	4	8.6
Sept.	27	55	14	2.1	Apr.	7	1,260	2	6.8
Oct.	13	60	4	.6	Apr.	22	2,800	22	166
Nov.	13	378	6	6.1	May	6	1,020	18	50
Nov.	30	193	4	2.1	May	19	1,020	109	300
Dec.	13	12,620	198	6,750	June	4	2,070	120	671
Dec.	27	655	8	14	June	24	436	49	58
<u>1957</u>					July	10	246	64	43
Jan.	15	936	14	35	July	22	193	15	7.8
Jan.	29	370	8	8.0	Aug.	11	146	48	19
Feb.	13	1,030	18	50	Aug.	26	120	41	13
Feb.	25	8,020	146	3,160	Sept.	8	115	32	9.9
Mar.	13	3,880	30	314	Sept.	22	128	59	20
Mar.	27	2,180	16	94	Oct.	7	105	30	8.5
Apr.	15	996	12	32	Oct.	28	51	36	5.0
Apr.	29	635	8	14	Nov.	4	360	52	51
May	14	1,070	12	35	Nov.	18	690	17	32
June	4	358	16	15	Dec.	13	1,190	20	64
June	24	190	4	2.1	Dec.	29	1,720	24	111
July	8	150	<1	T	<u>1959</u>				
July	23	110	6	1.8	Jan.	14	2,400	2	13
Aug.	5	90	<1	T	Jan.	27	5,060	74	1,010
Aug.	19	73	<1	T	Feb.	9	872	18	42
Sept.	4	66	2	.4	Feb.	24	1,620	20	87
Sept.	16	66	<1	T	Mar.	11	800	2	4.3
Oct.	2	315	72	61	Mar.	24	1,710	27	125
Oct.	16	257	4	2.8	Apr.	8	1,370	6	22
Oct.	30	108	<1	T					
Nov.	18	2,400	114	739					

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1959</u>				<u>1961</u>			
May 14	1,020	39	107	Jan. 11	414	21	23
May 27	688	25	46	Jan. 25	390	18	19
June 9	472	22	28	Feb. 8	1,500	17	69
June 24	262	16	11	Feb. 22	2,930	27	214
July 8	211	19	11	Mar. 8	2,400	29	188
July 24	89	18	4.3	Mar. 22	2,670	8	58
Aug. 11	61	18	3.0	Apr. 5	1,850	14	70
Sept. 8	56	19	2.9	Apr. 19	978	13	34
Sept. 22	94	23	5.8	May 3	930	29	73
Oct. 12	310	2	1.7	May 17	1,090	11	32
Oct. 27	175	35	17	May 31	665	12	22
Nov. 12	100	5	1.4	June 14	462	13	16
Nov. 24	398	21	23	June 28	218	3	1.8
Dec. 8	103	12	3.3	July 13	130	2	.7
Dec. 22	186	15	7.5	July 26	97	16	4.2
				Aug. 9	71	3	.6
				Aug. 30	53	2	.3
<u>1960</u>				Sept. 13	53	6	.9
Jan. 7	488	51	67	Sept. 27	53	4	.6
Jan. 18	990	45	120	Oct. 11	378	23	23
Feb. 2	2,230	39	235	Oct. 25	200	4	2.2
Feb. 17	1,680	15	68	Nov. 8	322	4	3.5
Mar. 2	446	17	20	Nov. 22	19,130	1,260	65,100
Mar. 15	2,150	26	151	Dec. 6	1,240	2	6.7
Apr. 7	2,030	19	104	Dec. 20	6,870	124	2,300
Apr. 27	906	21	51				
May 11	1,240	16	54	<u>1962</u>			
May 24	2,120	25	143	Jan. 3	1,670	9	41
June 8	665	24	43	Jan. 17	605	65	106
June 21	382	31	32	Jan. 31	1,320	7	25
July 11	149	25	10	Feb. 14	1,510	5	20
July 27	103	24	6.7	Feb. 28	479	2	2.6
Aug. 9	71	11	2.1	Mar. 7	1,560	72	303
Sept. 21	49	15	2.0	Mar. 14	1,010	35	95
Oct. 7	124	25	8.4	Mar. 28	2,730	16	118
Oct. 19	57	5	.8	Apr. 11	1,390	53	199
Nov. 9	103	25	7.0	Apr. 25	650	9	16
Nov. 29	960	15	39	May 9	954	6	15
Dec. 14	570	16	25	May 23	826	11	25
Dec. 28	635	27	46				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1962</u>				<u>1964</u>			
June 6	446	3	3.6	Jan. 8	2,750	22	163
June 20	262	1	.7	Jan. 22	2,590	39	273
July 3	130	2	.7	Feb. 10	1,490	17	68
July 18	69	2	.4	Feb. 19	1,350	8	29
Aug. 1	43	3	.3	Mar. 3	940	13	33
Aug. 22	42	1	.1	Mar. 18	2,790	22	166
Sept. 5	55	4	.6	Apr. 1	2,770	30	224
Sept. 19	55	1	.2	Apr. 15	1,870	5	25
Oct. 3	155	11	4.6	Apr. 29	1,380	18	67
Oct. 9	975	111	292	May 13	1,350	5	18
Oct. 23	270	2	1.5	May 27	964	1	2.6
Nov. 20	869	7	16	June 10	1,170	39	123
Dec. 19	840	10	23	July 8	254	2	1.4
Dec. 24	548	57	84	July 22	152	<1	T
				Aug. 5	120	<1	T
				Aug. 19	81	3	.7
				Sept. 2	94	<1	T
				Sept. 16	55	4	.6
				Sept. 30	52	5	.7
				Oct. 14	48	1	.1
				Oct. 28	55	1	.1
				Nov. 10	161	46	20
				Nov. 24	1,020	3	8.3
				Dec. 2	7,640	102	2,100
				Dec. 16	2,210	10	60
				Dec. 30	2,660	69	496
<u>1963</u>				<u>1965</u>			
Jan. 2	306	15	12	Jan. 14	3,450	58	540
Jan. 18	240	2	1.3	Jan. 27	3,570	61	588
Jan. 30	250	65	44	Feb. 9	1,270	9	31
Feb. 13	810	6	13	Feb. 24	862	4	9.3
Feb. 27	720	7	14	Mar. 9	718	5	9.7
Mar. 13	480	5	6.5	Mar. 24	340	5	4.6
Mar. 27	670	3	5.4	Apr. 7	573	12	19
Apr. 10	2,000	8	43	Apr. 20	2,370	28	179
Apr. 24	1,850	9	45	May 5	523	3	4.2
May 6	7,100	179	3,430	May 19	405	1	1.1
May 22	1,100	13	39	June 2	255	4	2.8
June 5	450	3	3.6	June 15	303	14	11
June 19	217	2	1.2	June 30	79	7	1.5
July 10	205	3	1.7				
July 24	140	1	.4				
Aug. 7	102	4	1.1				
Aug. 21	73	7	1.4				
Sept. 4	62	1	.2				
Sept. 18	108	3	.9				
Oct. 2	68	6	1.1				
Oct. 16	79	8	1.7				
Oct. 30	130	9	3.2				
Nov. 13	709	4	7.7				
Nov. 27	1,400	8	30				
Dec. 11	601	7	11				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1965</u>				<u>1966</u>			
July 14	40	1	0.1	Apr. 5	2,200	9	53
Aug. 3	52	2	.3	Apr. 20	920	7	17
Aug. 25	54	3	.4	May 4	890	8	19
Sept. 9	43	5	.6	May 18	385	5	5.2
Sept. 24	39	3	.3	June 1	250	2	1.4
Oct. 6	62	8	1.3	June 15	168	4	1.8
Oct. 19	123	6	2.0	June 29	111	1	.3
Nov. 3	47	2	.3	July 12	71	4	.8
Nov. 17	160	3	1.3	July 27	52	7	1.0
Nov. 30	300	1	.8	Aug. 24	43	7	.8
Dec. 15	165	2	.9	Sept. 8	38	2	.2
Dec. 30	888	13	31	Sept. 21	59	2	.3
				Oct. 6	66	4	.7
				Oct. 21	265	13	9.3
				Nov. 17	2,260	31	189
				Dec. 21	994	1	2.7
<u>1966</u>				<u>1967</u>			
Jan. 12	1,320	18	64	Jan. 5	482	7	9.1
Jan. 25	1,250	16	54	Jan. 19	1,070	8	23
Feb. 9	1,230	12	40				
Feb. 23	1,660	17	76				
Mar. 9	2,910	48	377				
Mar. 22	1,520	6	25				

14-3090. Cow Creek near Azalea, Oreg.

<u>1956</u>				<u>1956</u>			
Feb. 14	125	30	10	Nov. 13	19	<1	T
Apr. 18	270	108	.79	Nov. 30	23	10	.6
Apr. 30	330	118	105	Dec. 27	24	12	.8
May 15	224	32	19				
June 15	68	6	1.1	<u>1957</u>			
June 28	46	16	2.0	Jan. 15	146	16	6.3
July 13	47	20	2.5	Jan. 29	54	4	.6
July 25	12	18	.6	Feb. 14	152	44	18
Sept. 11	14	4	.2	Feb. 25	1,030	146	406
Sept. 27	16	24	1.0	Mar. 13	543	44	65
Oct. 13	18	2	.1	Mar. 27	217	16	9.4
Oct. 30	336	158	143				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1957</u>				<u>1958</u>			
Apr. 15	98	8	2.1	Oct. 20	53	69	9.9
Apr. 29	79	10	2.1	Nov. 6	26	34	2.4
May 14	75	10	2.0	Nov. 18	34	22	2.0
June 4	57	20	3.1	Dec. 13	28	21	1.6
June 24	15	6	.2	Dec. 29	107	39	11
July 8	21	<1	T				
July 23	16	4	.2	<u>1959</u>			
Aug. 5	14	2	.1	Jan. 15	203	8	4.4
Aug. 19	13	<1	T	Jan. 27	325	62	54
Sept. 4	11	8	.2	Feb. 9	26	26	1.8
Sept. 16	11	18	.5	Feb. 24	245	56	37
Oct. 3	41	44	4.9	Mar. 11	118	23	7.3
Oct. 16	23	2	.1	Mar. 24	146	30	12
Oct. 30	20	<1	T	Apr. 8	122	14	4.6
Nov. 18	69	14	2.3	May 14	60	50	8.1
Dec. 5	25	<1	T	May 27	44	17	2.0
Dec. 23	265	18	13	June 9	35	29	2.7
				June 24	23	22	1.4
				July 8	19	10	.5
<u>1958</u>				July 24	14	23	.9
Jan. 8	106	<1	T	Aug. 11	12	25	.8
Jan. 21	144	12	4.7	Sept. 10	12	27	.9
Feb. 10	430	62	72	Sept. 22	18	27	1.3
Mar. 6	201	18	9.8	Oct. 12	19	8	.4
Mar. 19	99	24	6.4	Oct. 27	17	33	1.5
Apr. 7	221	6	3.6	Nov. 12	15	8	.3
Apr. 22	178	20	9.6	Nov. 24	19	25	1.3
May 6	74	32	6.4	Dec. 8	15	17	.7
May 19	49	79	10	Dec. 22	18	28	1.4
June 5	95	93	24				
June 24	32	77	6.7	<u>1960</u>			
July 10	26	50	3.5	Jan. 7	28	28	2.1
July 22	20	35	1.9	Jan. 18	80	66	14
Aug. 11	16	67	2.9	Feb. 2	277	71	53
Aug. 26	16	43	1.9	Feb. 17	141	22	8.4
Sept. 8	17	32	1.5	Mar. 2	55	27	4.0
Sept. 22	16	70	3.0				
Oct. 7	13	21	.7				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1960</u>				<u>1961</u>			
Mar. 15	230	41	25	Nov. 8	33	4	0.4
Apr. 7	143	27	10	Nov. 22	224	314	190
Apr. 27	73	20	3.9	Dec. 6	116	3	.9
May 11	57	21	3.2	Dec. 20	518	47	66
May 24	113	29	8.8	<u>1962</u>			
June 8	50	26	3.5	Jan. 3	113	8	2.4
June 21	29	32	2.5	Jan. 17	77	11	2.3
July 11	15	26	1.1	Jan. 31	135	11	4.0
July 27	12	16	.5	Feb. 14	320	23	20
Aug. 9	10	24	.6	Feb. 28	100	5	1.4
Aug. 31	11	29	.9	Mar. 14	167	9	4.1
Sept. 21	9.0	29	.7	Mar. 28	320	18	16
Oct. 7	26	21	1.5	Apr. 11	103	6	1.7
Oct. 19	25	9	.6	Apr. 25	67	3	.5
Nov. 9	50	23	3.1	May 9	56	4	.6
Nov. 29	85	20	4.6	May 23	181	68	33
Dec. 14	59	23	3.7	June 6	64	5	.9
Dec. 28	73	21	4.1	June 20	44	3	.4
<u>1961</u>				July 3	32	2	.2
Jan. 11	54	27	3.9	July 18	28	2	.2
Jan. 25	46	19	2.4	Aug. 1	22	3	.2
Feb. 8	106	20	5.7	Aug. 22	11	1	T
Feb. 22	255	11	7.6	Sept. 5	8.2	3	.1
Mar. 8	340	21	19	Sept. 19	18	2	.1
Mar. 22	424	25	29	Oct. 3	34	3	.3
Apr. 5	171	20	9.2	Oct. 9	124	87	29
Apr. 19	83	20	4.5	Oct. 23	25	23	1.6
May 3	79	29	6.2	Nov. 7	18	1	T
May 17	94	12	3.0	Nov. 20	60	4	.6
May 31	61	16	2.6	Dec. 19	115	5	1.6
June 14	42	14	1.6	<u>1963</u>			
June 28	30	10	.8	Jan. 2	51	13	1.8
July 12	26	24	1.7	Jan. 18	34	2	.2
July 26	22	11	.6	Jan. 30	39	3	.3
Aug. 9	16	27	1.2	Feb. 27	506	23	31
Aug. 30	18	3	.1	Mar. 13	62	3	.5
Sept. 13	19	6	.3	Mar. 27	92	2	.5
Sept. 27	22	2	.1	Apr. 10	235	8	5.1
Oct. 11	63	161	27				
Oct. 25	29	5	.4				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1963</u>				<u>1965</u>			
Apr. 24	260	4	2.8	Jan. 27	497	105	141
May 6	1,680	798	3,620	Feb. 9	177	10	4.8
May 22	122	7	2.3	Feb. 24	109	3	.9
June 5	83	6	1.3	Mar. 9	97	4	1.0
June 13	153	8	3.3	Mar. 24	51	2	.3
June 19	43	4	.5	Apr. 7	44	13	1.6
July 10	40	3	.3	Apr. 20	1,300	68	239
July 24	30	2	.2	May 5	52	2	.3
Aug. 7	30	7	.6	May 19	32	3	.3
Aug. 21	23	5	.3	June 2	19	1	.1
Sept. 4	12	3	.1	June 15	44	6	.7
Oct. 2	13	2	.1	June 30	22	8	.5
Oct. 30	18	2	.1	July 14	13	3	.1
Nov. 13	35	4	.4	Aug. 3	9.2	4	.1
Nov. 27	95	10	2.6	Aug. 25	15	13	.5
Dec. 11	36	8	.8	Sept. 9	6.0	18	.3
Dec. 24	33	7	.6	Sept. 24	9.3	4	.1
<u>1964</u>				Oct. 6	18	12	.6
Jan. 7	140	48	18	Oct. 19	31	6	.5
Jan. 22	394	30	32	Nov. 3	47	2	.3
Feb. 4	268	10	7.2	Nov. 17	26	2	.1
Feb. 19	139	12	4.5	Nov. 30	37	2	.2
Mar. 4	179	16	7.7	Dec. 15	18	3	.1
Mar. 18	275	17	13	Dec. 28	1,130	433	1,320
Apr. 1	335	27	24	<u>1966</u>			
Apr. 15	163	7	3.1	Jan. 12	167	6	2.7
Apr. 29	108	2	.6	Jan. 25	90	20	4.9
May 12	117	7	2.2	Feb. 9	127	5	1.7
May 27	50	1	.1	Feb. 23	168	22	10
June 10	45	4	.5	Mar. 9	640	104	180
July 8	27	7	.5	Mar. 22	194	22	12
July 22	19	1	.1	Apr. 6	310	300	251
Aug. 19	14	2	.1	Apr. 20	125	22	7.4
Sept. 16	18	4	.2	May 4	76	22	4.5
Sept. 30	11	6	.2	May 18	48	6	.8
Oct. 14	13	5	.2	June 1	29	9	.7
Oct. 28	13	2	.1	June 15	23	4	.2
Nov. 10	36	1	.1	June 29	20	1	.5
Nov. 24	44	2	.2	July 11	20	7	.4
Dec. 2	241	27	18	July 27	9.2	9	.2
Dec. 16	120	9	2.9	Aug. 24	11	4	.1
Dec. 30	325	39	34	Sept. 8	12	2	.1

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1966</u>				<u>1966</u>			
Sept. 21	25	2	0.1	Dec. 21	142	1	0.4
Oct. 4	26	9	.6	<u>1967</u>			
Oct. 21	66	18	3.2	Jan. 5	111	6	1.8
Nov. 17	188	36	18	Jan. 19	104	4	1.1
Dec. 7	308	48	40				

14-3100. Cow Creek near Riddle, Oreg.

<u>1956</u>				<u>1957</u>			
Feb. 15	778	28	59	July 8	88	<1	T
Mar. 20	3,610	36	351	July 23	61	4	.7
May 15	741	22	44	Aug. 5	37	4	.4
June 15	260	24	17	Aug. 19	32	<1	T
June 28	170	22	10	Sept. 4	30	14	1.1
July 13	103	52	14	Sept. 16	27	6	.4
July 25	59	32	5.1	Oct. 3	86	4	.9
Sept. 27	47	52	6.6	Oct. 16	229	2	1.2
Oct. 13	75	30	6.1	Oct. 31	150	<1	T
Nov. 13	175	20	9.4	Nov. 18	188	12	6.1
Nov. 30	128	16	5.5	Dec. 5	141	20	7.6
Dec. 14	2,270	56	343	Dec. 23	3,720	72	723
Dec. 27	365	<1	T	<u>1958</u>			
<u>1957</u>				Jan. 8	760	2	4.1
Jan. 15	2,340	94	594	Jan. 23	1,150	20	62
Jan. 28	508	10	14	Feb. 10	5,480	128	1,890
Feb. 14	1,140	10	31	Mar. 6	1,380	14	52
Feb. 25	940	200	508	Mar. 19	680	52	95
Mar. 13	6,110	130	2,140	Apr. 7	2,040	8	44
Mar. 27	1,510	26	106	Apr. 22	860	12	28
Apr. 11	672	12	22	May 6	415	146	164
Apr. 29	396	12	13	May 19	290	101	79
May 14	980	8	21	June 4	695	156	293
June 4	270	16	12	June 24	167	62	28
June 24	11	8	.2	July 10	112	38	11

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1958</u>				<u>1960</u>			
July 22	74	30	6.0	Jan. 18	743	37	74
Aug. 11	45	53	6.4	Feb. 4	3,310	75	670
Aug. 26	34	40	3.7	Feb. 17	990	37	99
Sept. 9	39	28	2.9	Mar. 2	330	25	67
Sept. 22	50	51	6.9	Mar. 15	1,720	36	167
Oct. 7	33	13	1.2	Apr. 7	910	31	76
Oct. 20	189	52	27	Apr. 27	508	19	26
Nov. 6	225	32	19	May 11	290	12	9.4
Nov. 18	1,100	15	45	May 24	653	29	51
Dec. 13	176	14	6.7	June 8	50	26	3.5
Dec. 29	1,830	48	237	June 21	153	26	11
<u>1959</u>				July 11	68	26	4.8
Jan. 15	2,160	11	64	July 27	49	15	2.0
Jan. 27	1,580	32	137	Aug. 9	34	16	1.5
Feb. 9	680	11	20	Aug. 31	34	25	2.3
Feb. 24	2,120	22	126	Sept. 21	30	23	1.9
Mar. 11	715	19	37	Oct. 7	61	27	4.4
Mar. 24	1,700	52	239	Oct. 19	47	7	.9
Apr. 8	700	8	15	Nov. 9	49	28	3.7
Apr. 28	300	21	17	Nov. 29	725	21	41
May 14	216	44	26	Dec. 15	271	47	34
May 27	178	17	8.2	Dec. 28	370	29	29
June 9	142	31	12	<u>1961</u>			
June 24	79	17	3.6	Jan. 11	385	78	81
July 8	63	18	3.1	Jan. 25	241	41	27
July 24	33	25	2.2	Feb. 8	667	36	65
Aug. 11	22	22	1.3	Feb. 22	1,480	57	228
Sept. 10	22	28	1.7	Mar. 8	3,140	69	585
Sept. 22	77	21	4.4	Mar. 22	3,500	55	520
Oct. 12	84	12	2.7	Apr. 5	850	25	57
Oct. 27	68	29	5.3	Apr. 19	83	20	4.5
Nov. 12	52	12	1.7	May 3	412	39	43
Nov. 24	124	21	7.0	May 17	524	7	9.9
Dec. 8	59	20	3.2	May 31	275	27	20
Dec. 22	94	16	4.1	June 14	169	15	6.8
<u>1960</u>				June 28	91	10	2.5
Jan. 7	121	22	7.2	July 12	61	9	1.5
				July 26	42	1	.1
				Aug. 9	34	1	.1

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1961</u>				<u>1963</u>			
Aug. 30	27	2	0.1	Jan. 2	260	8	5.6
Sept. 13	28	4	.3	Jan. 18	175	2	.9
Sept. 27	37	2	.2	Jan. 30	175	3	1.4
Oct. 11	249	21	14	Feb. 13	1,020	10	28
Oct. 25	102	32	8.8	Feb. 27	506	23	31
Nov. 8	131	5	1.8	Mar. 13	281	2	1.5
Nov. 22	241	32	21	Mar. 27	434	5	5.9
Dec. 6	1,020	6	17	Apr. 10	2,600	45	316
Dec. 20	4,140	179	2,000	Apr. 24	1,920	11	57
<u>1962</u>				May 6	16,600	1,210	54,200
Jan. 3	548	4	5.9	May 22	620	4	6.7
Jan. 17	412	8	8.9	June 5	348	2	1.9
Jan. 31	918	10	25	June 19	168	3	1.4
Feb. 14	3,060	78	644	July 10	40	3	.3
Feb. 19	1,790	196	947	July 24	84	1	.2
Feb. 28	667	6	11	Aug. 7	57	3	.5
Mar. 7	3,410	40	368	Aug. 21	47	2	.3
Mar. 14	1,560	13	55	Sept. 4	38	<1	T
Mar. 28	2,660	18	129	Sept. 18	60	<1	T
Apr. 11	500	5	6.8	Oct. 2	50	1	.1
Apr. 25	283	3	2.3	Oct. 16	68	3	.6
May 9	302	4	3.3	Oct. 30	84	2	.5
May 23	241	4	2.6	Nov. 13	290	8	6.3
June 6	192	7	3.6	Nov. 27	710	8	15
June 20	108	3	.9	Dec. 11	380	6	6.2
July 3	66	5	.9	Dec. 24	250	3	2.0
July 18	44	3	.4	<u>1964</u>			
Aug. 1	30	1	.1	Jan. 8	2,160	608	3,550
Aug. 22	33	1	.1	Feb. 10	740	24	48
Sept. 5	24	3	.2	Feb. 19	802	9	19
Sept. 20	25	<1	T	Mar. 4	1,210	22	72
Oct. 4	54	1	.1	Mar. 13	3,080	46	383
Oct. 9	786	177	376	Mar. 18	1,980	23	123
Oct. 23	189	5	2.6	Apr. 1	858	10	23
Nov. 20	536	4	5.8	Apr. 15	410	4	4.4
Dec. 19	677	8	15	Apr. 29	272	<1	T
Dec. 24	465	130	163	May 12	471	6	7.6

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1964</u>				<u>1965</u>			
May 27	216	3	1.7	Oct. 6	40	2	0.2
June 10	199	2	1.1	Oct. 19	90	4	1.0
June 24	123	<1	T	Nov. 3	43	2	.2
July 8	95	1	.3	Nov. 17	172	5	2.3
July 22	59	1	.2	Nov. 30	270	11	8.0
Aug. 5	48	<1	T	Dec. 15	149	3	1.2
Aug. 19	33	1	.1	Dec. 29	2,320	103	645
Sept. 2	33	1	.1	<u>1966</u>			
Sept. 16	27	3	.2	Jan. 12	1,690	658	3,000
Sept. 30	32	2	.2	Jan. 25	774	20	42
Oct. 14	41	5	.6	Feb. 9	1,200	16	52
Oct. 28	55	2	.3	Feb. 23	1,190	31	100
Nov. 10	108	10	2.9	Mar. 9	9,680	1,120	29,300
Nov. 24	453	1	1.2	Mar. 22	1,230	57	189
Dec. 2	2,980	156	1,260	Apr. 6	982	31	82
Dec. 16	958	20	52	Apr. 20	445	13	16
<u>1965</u>				May 4	255	28	19
Jan. 21	4,220	80	912	May 18	162	15	6.6
Jan. 27	4,050	146	1,600	June 1	115	5	1.6
Feb. 9	1,120	17	51	June 15	89	4	1.2
Feb. 24	557	3	4.5	June 29	61	1	.2
Mar. 9	504	4	5.4	July 12	69	3	.6
Mar. 24	278	12	9.0	July 27	42	9	1.0
Apr. 7	241	13	8.5	Aug. 24	27	4	.3
Apr. 20	1,810	63	308	Sept. 8	30	4	.3
May 5	289	2	1.6	Sept. 21	66	2	.4
May 19	177	3	1.4	Oct. 6	35	3	.3
June 2	127	3	1.0	Oct. 21	88	14	3.3
June 15	119	6	1.9	Nov. 17	1,810	301	1,470
June 30	78	9	1.9	Dec. 7	3,890	184	1,930
July 14	46	1	.1	Dec. 21	820	4	8.9
Aug. 3	32	2	.2	<u>1967</u>			
Aug. 25	34	10	.9	Jan. 5	680	20	37
Sept. 9	32	4	.3	Jan. 19	570	65	100
Sept. 24	29	3	.2				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
14-3112. Olalla Creek near Tennile, Oreg.							
<u>1956</u>				<u>1958</u>			
Oct. 17	1.2	6	T	June 24	5.5	124	1.8
Oct. 31	375	100	101	July 10	2.7	40	.3
Nov. 14	14	10	.4	July 22	.9	40	.1
Nov. 30	14	6	.2	Aug. 11	.2	58	T
Dec. 12	1,030	118	328	Aug. 26	.2	56	T
<u>1957</u>				Sept. 9	.9	44	.1
Jan. 14	318	20	17	Sept. 23	.6	67	.1
Jan. 29	81	6	1.3	Oct. 8	48	130	17
Feb. 15	168	4	1.8	Oct. 20	7.6	36	.7
Feb. 25	2,120	330	1,890	Nov. 5	11	39	1.2
Mar. 14	540	26	38	Nov. 20	84	25	5.7
Mar. 27	146	14	5.5	Dec. 13	10	17	.5
Apr. 11	92	12	3.0	Dec. 29	152	56	23
Apr. 29	23	2	.1	<u>1959</u>			
May 16	18	8	.4	Jan. 16	100	25	6.8
June 5	18	16	.8	Jan. 27	410	282	312
June 24	5.0	6	.1	Feb. 9	50	33	4.4
July 23	2.7	20	.1	Feb. 25	69	13	2.4
Aug. 5	1.0	2	T	Mar. 11	10	23	.6
Aug. 19	1.0	4	T	Mar. 24	93	28	7.0
Sept. 5	.5	6	T	Apr. 8	39	12	1.3
Oct. 2	4.3	10	.1	Apr. 28	7.4	10	.2
Oct. 16	15	6	.2	May 14	3.7	41	.4
Nov. 18	110	12	3.6	May 27	2.6	16	.1
Dec. 5	16	8	.4	June 10	.7	26	T
Dec. 20	1,550	160	670	June 25	2.0	12	T
<u>1958</u>				July 9	1.3	15	T
Jan. 7	145	4	1.6	July 27	.8	18	T
Jan. 23	210	22	12	Aug. 12	.1	23	T
Feb. 10	575	42	65	Sept. 10	1.5	32	.1
Mar. 6	108	14	4.1	Sept. 23	2.4	26	.2
Mar. 19	190	8	4.1	Oct. 14	2.1	21	.1
Apr. 7	137	12	4.4	Oct. 27	2.8	26	.2
Apr. 22	90	10	2.4	Nov. 13	1.8	7	T
May 7	14	28	1.1	Nov. 23	14	28	1.1
May 19	8.0	90	1.9	Dec. 8	3.2	16	.1
June 9	16	68	2.9	Dec. 22	2.9	16	.1

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1960</u>				<u>1961</u>			
Jan. 7	21	26	1.5	Sept. 14	0.6	4	T
Jan. 20	65	29	5.1	Sept. 28	.8	11	T
Feb. 2	298	53	43	Oct. 12	5.3	11	.2
Feb. 19	75	19	3.8	Oct. 26	6.5	4	.1
Mar. 4	53	71	10	Nov. 9	6.3	4	.1
Mar. 17	185	25	12	Nov. 26	282	26	20
Apr. 7	69	50	9.4	Dec. 7	109	9	2.6
Apr. 27	43	418	49	Dec. 22	451	54	66
May 11	20	27	1.5	<u>1962</u>			
May 26	540	369	538	Jan. 4	84	9	2.0
June 23	6.0	32	.5	Jan. 18	58	31	4.9
July 13	1.8	16	.1	Feb. 2	87	11	2.6
July 25	1.2	9	T	Feb. 16	183	14	6.9
Aug. 10	1.0	26	.1	Mar. 3	148	9	3.6
Aug. 30	1.0	23	.1	Mar. 15	241	7	4.6
Sept. 21	.7	16	T	Mar. 29	191	16	8.3
Oct. 10	2.3	22	.1	Apr. 12	31	6	.5
Oct. 21	1.5	13	.1	Apr. 27	31	17	1.4
Nov. 10	1.9	27	.1	May 10	26	4	.3
Nov. 30	57	20	3.1	May 24	16	4	.2
Dec. 15	19	22	1.2	June 7	11	4	.1
Dec. 29	27	45	3.3	June 20	4.9	2	T
<u>1961</u>				July 5	2.4	3	T
Jan. 12	32	53	4.6	July 20	.9	1	T
Jan. 26	21	27	1.6	Aug. 2	.3	4	T
Feb. 9	78	44	9.2	Aug. 23	.3	1	T
Feb. 23	129	11	3.8	Sept. 6	.7	3	T
Mar. 9	326	65	57	Sept. 20	.2	2	T
Mar. 23	264	31	22	Oct. 10	107	124	36
Apr. 6	39	18	1.9	Oct. 24	12	5	.2
Apr. 20	18	17	.8	Nov. 21	86	10	2.3
May 4	12	34	1.1	Dec. 20	92	9	2.2
May 18	20	9	.5	Dec. 25	46	19	2.4
June 1	12	41	1.3	<u>1963</u>			
June 13	7.0	12	.2	Jan. 3	30	8	.6
June 28	3.3	4	T	Jan. 23	16	3	.1
July 13	1.7	5	T	Jan. 31	66	36	6.4
July 26	.8	1	T	Feb. 14	59	7	1.1
Aug. 10	.5	3	T				
Aug. 31	.6	2	T				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1963</u>				<u>1964</u>			
Feb. 28	62	5	0.8	Sept. 18	112	8	2.4
Mar. 14	34	5	.5	Oct. 2	.9	2	T
Mar. 28	163	45	20	Oct. 16	3.0	4	T
Apr. 11	165	17	7.6	Oct. 29	8.4	1	T
Apr. 25	159	6	2.6	Nov. 12	17	20	.9
May 8	674	160	291	Nov. 24	79	9	2.0
May 24	37	5	.5	Dec. 4	185	10	5.0
June 6	22	4	.2	Dec. 18	98	10	2.6
June 20	15	7	.3	<u>1965</u>			
July 11	13	3	.1	Jan. 21	450	24	29
July 24	8.7	2	T	Jan. 29	680	40	73
Aug. 9	5.9	5	.1	Feb. 11	68	5	.9
Aug. 22	4.3	5	.1	Feb. 26	64	1	.2
Sept. 6	3.9	8	.1	Mar. 10	55	5	.7
Sept. 19	6.7	1	T	Mar. 26	58	4	.6
Oct. 3	4.4	3	T	Apr. 12	69	147	27
Oct. 18	6.0	2	T	Apr. 22	92	8	2.0
Nov. 1	3.5	2	T	May 7	28	12	.9
Nov. 15	321	103	89	May 21	17	1	T
Nov. 29	41	6	.7	June 4	15	4	.2
Dec. 12	45	14	1.7	June 15	4.8	10	.1
Dec. 27	87	20	4.7	June 30	3.5	10	.1
<u>1964</u>				July 16	1.0	4	T
Jan. 8	290	28	22	Aug. 4	.3	12	T
Jan. 24	334	59	53	Aug. 27	.6	4	T
Feb. 6	98	13	3.4	Sept. 11	.2	3	T
Feb. 21	96	16	4.1	Sept. 27	.7	3	T
Mar. 6	539	56	81	Oct. 8	1.2	6	T
Mar. 20	120	15	4.9	Oct. 20	7.2	6	T
Apr. 3	50	3	.4	Nov. 5	4.1	2	T
Apr. 17	33	5	.4	Nov. 19	5.1	1	T
May 1	27	1	.1	Dec. 1	11	2	.1
May 18	26	7	.5	Dec. 17	5.4	1	T
June 2	18	<1	T	<u>1966</u>			
June 12	18	4	.2	Jan. 7	1,200	696	2,260
July 10	14	<1	T	Jan. 21	41	5	.6
July 23	.9	1	T	Jan. 27	26	7	.5
Aug. 7	.7	3	T	Feb. 11	158	9	3.8
Aug. 21	.5	2	T				
Sept. 4	.6	1	T				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1966</u>				<u>1966</u>			
Feb. 25	39	4	0.4	July 13	1.7	1	T
Mar. 10	728	321	631	July 29	1.0	9	T
Mar. 24	239	6	3.9	Oct. 27	2.7	6	T
Apr. 7	2.5	6	T	Nov. 22	434	34	40
Apr. 22	.6	4	T	Dec. 12	2.7	18	.1
May 6	14	5	.2	Dec. 23	67	4	.7
May 20	5.0	2	T	<u>1967</u>			
June 3	5.7	2	T	Jan. 6	38	12	1.2
June 17	1.5	4	T	Jan. 20	298	186	150
July 1	1.9	2	T				

14-3115. Lookingglass Creek near Brockway, Oreg.

<u>1956</u>				<u>1957</u>			
Feb. 15	164	20	8.9	June 4	26	18	1.3
Mar. 16	445	28	34	June 24	15	18	.8
Apr. 19	92	12	3.0	July 8	5.0	8	.1
May 15	70	18	3.4	Oct. 16	33	20	1.8
June 15	24	6	.4	Nov. 19	266	22	16
June 28	9.8	42	1.1	Dec. 20	4,460	602	7,250
July 13	10	2	.1	<u>1958</u>			
Oct. 31	1,010	130	355	Jan. 7	205	34	19
Nov. 30	11	12	.3	Jan. 23	420	24	27
Dec. 12	2,510	370	2,510	Feb. 11	830	56	126
Dec. 27	176	2	1.0	Mar. 6	276	54	40
<u>1957</u>				Mar. 19	174	6	2.8
Jan. 14	748	40	81	Apr. 7	334	24	22
Jan. 28	250	16	11	Apr. 22	244	26	17
Feb. 15	397	20	21	May 7	60	22	3.6
Feb. 28	1,490	372	1,500	May 19	37	12	1.2
Mar. 14	1,420	88	337	June 9	105	122	35
Mar. 27	293	12	9.5	June 24	23	68	4.2
Apr. 11	178	8	3.8	July 10	12	44	1.4
Apr. 29	75	16	3.2	July 22	4.1	40	.4
May 16	50	8	1.1	Oct. 8	1.0	70	.2

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1958</u>				<u>1960</u>			
Oct. 20	22	39	2.3	July 13	2.5	20	0.1
Nov. 5	60	48	7.9	Oct. 21	6.0	5	.1
Nov. 20	425	74	85	Nov. 10	7.8	30	.6
Dec. 13	71	28	5.4	Nov. 30	176	31	15
Dec. 29	611	113	186	Dec. 15	64	29	5.0
				Dec. 29	97	29	7.6
<u>1959</u>				<u>1961</u>			
Jan. 16	438	61	72	Jan. 12	97	42	11
Jan. 27	2,530	465	3,180	Jan. 26	79	31	6.6
Feb. 9	282	45	34	Feb. 9	230	26	16
Feb. 25	302	21	17	Feb. 23	372	31	31
Mar. 11	85	22	5.0	Mar. 9	713	72	139
Mar. 24	153	30	12	Mar. 23	611	55	91
Apr. 10	125	14	4.7	Apr. 6	141	19	7.2
Apr. 28	45	12	1.5	Apr. 20	73	21	4.1
May 14	29	34	2.7	May 4	46	28	3.5
May 27	23	17	1.1	May 18	65	13	2.3
June 10	138	25	9.3	June 1	27	16	1.2
June 25	4.7	21	.3	June 15	13	24	.8
Oct. 14	8.0	27	.6	June 28	2.9	9	.1
Oct. 27	13	32	1.1	Oct 26	13	5	.2
Nov. 13	7.0	13	.3	Nov. 9	16	3	.2
Nov. 23	59	53	8.4	Nov. 25	1,240	516	1,730
Dec. 8	10	21	.6	Dec. 7	320	28	24
Dec. 22	19	12	.6	Dec. 22	1,580	360	1,540
<u>1960</u>				<u>1962</u>			
Jan. 8	418	205	231	Jan. 4	315	24	20
Jan. 20	192	40	21	Jan. 18	144	17	6.6
Feb. 4	511	101	139	Jan. 30	294	20	16
Feb. 19	271	40	29	Feb. 16	470	43	55
Mar. 4	510	101	139	Mar. 3	570	41	63
Mar. 17	482	35	46	Mar. 15	490	13	17
Apr. 7	211	47	27	Mar. 29	525	29	41
Apr. 27	141	55	21	Apr. 12	100	6	1.6
May 11	60	21	3.4	Apr. 17	71	7	1.3
May 26	1,220	903	2,970	May 11	75	6	1.2
June 8	59	29	4.6	May 24	43	5	.6
June 23	17	29	1.3				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1962</u>				<u>1964</u>			
June 6	27	3	0.2	Apr. 17	60	8	1.3
June 21	10	3	.1	May 1	48	3	.4
Oct. 10	112	25	7.6	May 18	42	10	1.1
Oct. 24	36	9	.9	June 2	19	5	.3
Nov. 21	308	22	18	June 12	17	6	.3
Dec. 20	254	11	7.5	Nov. 12	31	186	16
Dec. 25	578	54	84	Nov. 25	211	11	6.3
				Dec. 4	590	28	45
				Dec. 17	315	15	13
<u>1963</u>				<u>1965</u>			
Jan. 3	55	9	1.3	Jan. 21	879	55	131
Jan. 23	29	7	.5	Jan. 29	2,090	135	762
Jan. 31	78	47	9.9	Feb. 11	150	9	3.6
Feb. 14	150	12	4.9	Feb. 24	74	5	1.0
Feb. 28	172	9	4.2	Mar. 10	103	7	1.9
Mar. 14	94	18	4.6	Mar. 26	61	6	1.0
Mar. 28	410	65	72	Apr. 8	54	4	.6
Apr. 11	480	32	41	Apr. 22	159	19	8.2
Apr. 25	415	21	24	May 7	82	11	2.4
May 7	4,960	488	6,540	May 21	34	2	.2
May 23	92	8	2.0	June 4	11	3	.1
June 6	32	3	.3	June 15	8.6	14	.3
June 20	10	4	.1	June 30	2.0	12	.1
July 11	6.6	4	.1	Nov. 5	20	28	1.5
July 24	27	3	.2	Nov. 19	73	13	2.6
Oct. 18	8.5	8	.2	Dec. 1	32	20	1.7
Nov. 1	6.6	3	.1	Dec. 16	20	22	1.2
Nov. 15	750	103	209				
Nov. 29	122	11	3.6				
Dec. 12	137	19	7.0				
Dec. 27	220	33	20				
<u>1964</u>				<u>1966</u>			
Jan. 8	870	327	768	Jan. 7	3,720	997	10,000
Jan. 24	992	158	423	Jan. 12	550	113	168
Feb. 5	341	27	25	Jan. 27	140	330	125
Feb. 21	265	19	14	Feb. 11	520	114	160
Mar. 6	1,570	593	2,510	Feb. 25	124	11	3.7
Mar. 20	309	38	32	Mar. 10	2,230	565	3,400
Apr. 3	118	8	2.5	Mar. 22	1,250	166	560
				Apr. 7	61	8	1.3
				Apr. 22	54	6	.9

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1966</u>				<u>1966</u>			
May 6	25	4	0.3	Dec. 23	153	5	2.1
May 20	13	4	.1				
Oct. 27	5.0	88	1.2	<u>1967</u>			
Nov. 22	945	311	794	Jan. 6	330	27	24
Dec. 12	766	110	228	Jan. 18	565	238	363

14-3120. South Umpqua River near Brockway, Oreg.

<u>1956</u>				<u>1957</u>			
Feb. 15	2,640	15	107	Apr. 29	1,430	10	39
Mar. 20	9,150	46	1,140	May 16	1,380	9	34
Apr. 18	3,720	34	341	June 6	685	25	46
Apr. 30	2,210	23	137	June 26	335	8	7.2
May 29	1,410	19	110	July 10	230	6	3.7
June 15	1,280	9	31	July 23	185	3	1.5
June 28	710	8	15	Aug. 19	114	7	2.2
July 13	390	10	11	Sept. 7	83	5	1.2
July 26	210	8	4.5	Sept. 18	87	5	1.2
Sept. 12	142	3	1.2	Oct. 2	332	19	17
Sept. 28	146	16	6.3	Oct. 16	680	13	24
Oct. 19	241	7	4.6	Nov. 19	728	50	98
Oct. 31	8,350	80	1,800	Dec. 5	1,230	5	17
Nov. 15	740	4	80	Dec. 20	26,160	420	29,700
Nov. 28	630	11	19	<u>1958</u>			
Dec. 13	25,300	337	23,000	Jan. 7	3,070	18	149
Dec. 28	1,560	3	13	Jan. 22	4,120	16	178
<u>1957</u>				Feb. 11	8,350	47	1,060
Jan. 14	4,620	38	474	Mar. 6	4,150	17	190
Jan. 28	1,880	9	46	Mar. 19	2,250	4	24
Feb. 15	5,700	52	800	Apr. 8	4,320	15	175
Feb. 28	13,770	172	6,390	Apr. 23	4,800	18	233
Mar. 14	12,570	97	3,290	May 7	1,710	24	111
Mar. 27	5,820	33	519	May 19	1,540	52	216
Apr. 11	2,950	15	119	June 9	4,000	120	1,300

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1958</u>				<u>1960</u>			
June 23	700	94	178	Jan. 8	2,180	52	306
July 10	381	50	51	Jan. 18	3,980	284	3,050
July 22	234	46	29	Feb. 2	9,380	185	4,690
Aug. 11	178	54	26	Feb. 17	4,180	34	384
Aug. 26	140	37	14	Mar. 4	1,850	38	190
Sept. 10	120	26	8.4	Mar. 17	6,000	35	567
Sept. 23	146	58	23	Apr. 8	3,810	26	267
Oct. 8	113	22	6.7	Apr. 27	2,100	13	74
Oct. 20	518	37	52	May 12	1,980	20	107
Nov. 5	813	32	70	May 26	6,240	88	1,480
Nov. 19	4,730	80	1,020	June 9	1,170	16	51
Dec. 13	1,800	27	131	June 23	509	25	34
Dec. 29	5,220	60	846	July 13	202	20	11
<u>1959</u>				July 27	134	16	5.8
Jan. 16	5,030	7	95	Aug. 10	79	12	2.6
Jan. 27	10,000	288	7,780	Aug. 30	112	34	10
Feb. 10	3,710	38	380	Sept. 21	83	18	4.0
Feb. 24	5,490	30	445	Oct. 6	89	20	4.8
Feb. 12	1,880	29	147	Oct. 21	136	13	4.8
Mar. 25	4,050	27	295	Nov. 10	156	24	10
Apr. 10	2,340	8	51	Nov. 30	2,540	28	192
Apr. 28	1,480	32	128	Dec. 16	1,210	28	91
May 13	1,250	38	128	Dec. 29	1,430	18	69
May 29	918	15	37	<u>1961</u>			
June 11	630	20	34	Jan. 12	1,100	43	128
June 25	309	17	14	Jan. 27	834	31	70
July 9	210	24	14	Feb. 9	3,540	18	172
July 27	112	18	5.4	Feb. 23	5,960	35	563
Aug. 12	70	23	4.3	Mar. 10	9,100	66	1,620
Sept. 11	79	24	5.1	Mar. 23	9,550	64	1,650
Sept. 23	240	26	17	Apr. 6	3,420	20	185
Oct. 14	373	27	27	Apr. 21	1,780	17	82
Oct. 28	286	29	22	May 5	1,690	30	137
Nov. 13	190	26	13	May 19	2,060	12	67
Nov. 23	491	28	37	June 5	1,190	12	39
Dec. 9	202	14	7.6	June 16	660	10	18
Dec. 23	345	11	10	June 28	325	6	5.3

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1961</u>				<u>1963</u>			
July 14	178	4	1.9	Jan. 3	990	4	11
July 26	120	3	1.0	Jan. 18	679	4	7.3
Aug. 10	89	4	1.0	Jan. 31	1,020	9	25
Aug. 31	73	4	.8	Feb. 15	2,150	10	58
Sept. 14	80	5	1.1	Mar. 1	2,710	7	51
Sept. 28	108	3	.9	Mar. 15	1,470	4	16
Oct. 13	469	20	25	Mar. 27	1,830	6	30
Oct. 26	394	6	6.4	Mar. 29	17,330	1,030	48,200
Nov. 10	505	4	5.5	Apr. 11	6,210	23	386
Nov. 27	11,000	149	4,430	Apr. 24	6,020	4	65
Dec. 8	3,260	10	88	May 7	38,540	226	23,500
Dec. 21	23,300	327	20,600	May 23	2,350	6	38
<u>1962</u>				June 7	1,090	5	15
Jan. 5	2,720	10	73	June 21	550	3	4.5
Jan. 19	1,930	132	688	July 12	416	12	13
Jan. 30	4,110	30	333	July 26	242	2	1.3
Feb. 8	13,200	480	17,100	Aug. 9	169	6	2.7
Feb. 15	6,220	34	571	Aug. 22	131	2	.7
Mar. 3	3,000	20	162	Sept. 5	107	1	.3
Mar. 8	7,400	49	979	Sept. 20	212	1	.6
Mar. 16	4,980	21	282	Oct. 3	137	4	1.5
Mar. 26	14,600	242	954	Oct. 17	167	2	.9
Apr. 10	3,400	10	92	Nov. 1	285	6	4.6
Apr. 27	1,360	4	15	Nov. 15	7,870	83	1,760
May 11	1,880	8	41	Nov. 29	2,070	5	28
May 22	1,060	8	23	Dec. 13	1,200	6	19
June 8	818	6	13	Dec. 27	2,120	16	92
June 22	432	3	3.5	<u>1964</u>			
July 5	248	2	1.3	Jan. 10	7,450	45	905
July 20	149	1	.4	Jan. 24	8,020	80	1,730
Aug. 2	97	4	1.0	Feb. 5	5,890	22	350
Aug. 23	106	4	1.1	Feb. 19	3,530	18	172
Sept. 6	75	4	.8	Mar. 5	12,700	183	6,280
Sept. 20	89	2	.5	Mar. 13	11,300	90	2,750
Oct. 4	195	4	2.1	Mar. 19	6,420	51	884
Oct. 9	1,020	44	121	Apr. 2	5,150	24	334
Oct. 23	758	4	8.2	Apr. 16	2,970	10	80
Nov. 20	2,740	12	89	Apr. 30	2,090	14	79
Dec. 4	15,100	636	25,900	May 14	2,170	8	47
Dec. 19	2,950	11	88	May 28	1,330	6	22

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1964</u>				<u>1965</u>			
June 11	1,580	6	26	Oct. 20	290	10	7.8
June 26	729	6	12	Nov. 5	432	91	106
July 9	372	2	2.0	Nov. 17	420	8	9.1
July 23	215	1	.6	Nov. 30	735	5	9.9
Aug. 7	161	2	.7	Dec. 16	460	6	7.4
Aug. 21	115	2	.6	Dec. 30	9,620	308	8,000
Sept. 3	133	1	.4	<u>1966</u>			
Sept. 18	108	5	1.5	Jan. 11	7,190	112	2,170
Oct. 2	112	3	.9	Jan. 25	2,630	21	149
Oct. 16	121	14	.8	Feb. 9	3,250	20	176
Oct. 29	153	2	.8	Feb. 23	3,550	33	316
Nov. 12	580	325	509	Mar. 10	25,800	1,400	97,500
Nov. 25	6,590	20	356	Mar. 22	8,080	94	2,050
Dec. 4	6,470	43	751	Apr. 6	4,490	49	594
Dec. 17	4,130	16	178	Apr. 20	1,970	6	32
<u>1965</u>				May 4	1,270	7	24
Jan. 15	14,100	195	7,420	May 18	718	6	12
Jan. 28	18,920	504	25,700	June 3	550	50	74
Feb. 9	3,820	24	248	June 17	346	5	4.7
Feb. 24	2,146	22	127	July 1	182	8	3.9
Mar. 10	1,860	8	40	July 13	200	8	4.3
Mar. 25	948	12	31	July 29	120	12	3.9
Apr. 8	1,210	16	52	Aug. 26	68	8	1.5
Apr. 20	7,090	177	3,390	Sept. 7	51	5	.7
May 6	1,360	18	66	Sept. 23	175	8	3.8
May 20	860	4	9.3	Oct. 10	103	4	1.1
June 3	540	6	8.7	Oct. 27	325	204	179
June 17	400	7	7.6	Nov. 22	12,300	108	3,590
July 6	173	8	3.7	Dec. 7	12,800	249	8,610
July 16	137	4	1.5	Dec. 21	3,040	6	49
Aug. 4	94	5	1.3	<u>1967</u>			
Aug. 27	133	4	1.4	Jan. 5	2,950	44	350
Sept. 11	80	15	3.2	Jan. 19	2,740	11	81
Sept. 27	85	4	.9				
Oct. 8	128	4	1.4				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1956</u>				<u>1958</u>			
Mar. 21	2,000	22	119	Apr. 8	620	4	6.7
May 14	1,040	14	39	Apr 23	1,990	26	140
May 28	312	12	10	May 8	364	12	12
June 14	312	4	3.4	May 20	230	48	30
July 12	86	4	.9	June 9	737	92	183
July 25	65	20	3.5	June 25	175	66	31
Oct. 17	54	4	.6	July 8	86	46	11
Dec. 12	6,000	58	940	July 23	53	31	4.4
Dec. 26	546	10	15	Aug. 12	35	26	2.5
				Aug. 27	30	36	2.9
				Sept. 11	30	23	1.8
				Sept. 24	29	41	3.2
				Oct. 9	26	28	2.0
				Oct. 21	61	22	3.6
				Nov. 5	685	30	55
				Nov. 20	2,360	9	57
				Dec. 12	1,800	12	58
				Dec. 30	1,830	23	114
<u>1957</u>				<u>1959</u>			
Jan. 16	1,110	12	36	Jan. 15	890	7	17
Jan. 30	284	2	1.5	Jan. 28	4,530	15	183
Feb. 15	1,740	1	4.7	Feb. 11	379	9	9.2
Mar. 1	1,520	6	25	Feb. 25	790	8	17
Mar. 15	2,110	8	46	Mar. 12	404	19	21
Mar. 28	1,350	4	15	Mar. 25	835	18	41
Apr. 15	537	4	5.8	Apr. 9	507	8	11
May 13	325	6	5.3	Apr. 27	430	44	51
June 3	196	16	8.5	May 15	349	42	40
June 25	145	4	1.6	May 28	182	10	4.9
July 9	90	4	.9	June 11	136	19	7.0
July 22	82	12	2.7	June 23	112	14	4.2
Aug. 20	56	2	.3	July 7	82	13	2.9
Sept. 17	51	2	.3	July 23	65	7	1.2
Oct. 1	140	14	5.3	Aug. 10	48	13	1.7
Oct. 17	81	6	1.3	Sept. 9	47	19	2.4
Nov. 20	625	2	3.4	Sept. 21	130	16	5.6
Dec. 4	190	4	2.1				
Dec. 24	2,280	10	62				
<u>1958</u>							
Jan. 6	885	14	33				
Jan. 23	665	10	18				
Feb. 11	1,840	6	30				
Mar. 4	737	2	4.0				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1959</u>				<u>1961</u>			
Oct. 13	204	7	3.9	Apr. 4	1,370	9	33
Oct. 28	120	22	7.1	Apr. 20	496	13	17
Nov. 10	80	10	2.2	May 2	627	25	42
Nov. 23	1,170	14	44	May 19	694	4	7.5
Dec. 9	84	11	2.5	June 1	303	11	9.0
Dec. 21	158	6	2.6	June 16	204	16	8.8
				June 28	108	1	.3
				July 14	71	3	.6
				July 28	52	6	.8
				Aug. 10	46	2	.3
				Sept. 1	49	7	.9
				Sept. 15	36	9	.9
				Sept. 29	34	2	.2
				Oct. 13	248	6	4.0
				Oct. 26	140	14	5.3
				Nov. 9	152	3	1.2
				Nov. 24	2,750	24	178
				Dec. 5	1,420	17	65
				Dec. 22	2,830	17	130
				<u>1962</u>			
				Jan. 5	932	2	5.0
				Jan. 18	446	6	7.2
				Feb. 2	794	3	6.4
				Feb. 16	818	4	8.8
				Mar. 16	788	3	6.4
				Mar. 30	1,560	6	25
				Apr. 10	1,240	4	13
				Apr. 26	351	2	1.9
				May 10	848	5	11
				May 24	509	7	9.6
				June 7	307	2	1.7
				June 21	171	1	.5
				July 5	95	1	.3
				July 19	67	1	.2
				Aug. 2	47	7	.9
				Aug. 23	44	2	.2
				Sept. 6	31	3	.3
				Oct. 4	69	1	.2
				Oct. 10	1,660	19	85
<u>1961</u>							
Jan. 13	406	33	36				
Jan. 24	264	14	10				
Feb. 10	10,300	301	8,370				
Feb. 24	1,250	15	51				
Mar. 9	1,620	15	66				
Mar. 24	2,150	22	128				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1962</u>				<u>1964</u>			
Oct. 24	135	2	0.7	Apr. 2	1,710	5	23
Nov. 21	2,170	15	88	Apr. 16	1,180	2	6.4
Dec. 5	1,970	6	32	Apr. 30	826	4	8.9
Dec. 20	441	3	3.6	May 13	971	2	5.2
<u>1963</u>				July 23	104	1	.3
Jan. 3	408	6	6.6	Oct. 2	60	2	.3
Jan. 17	164	14	6.2	Nov. 12	339	27	25
Jan. 31	540	13	19	Nov. 25	2,440	22	145
Feb. 14	392	2	2.1	Dec. 3	2,840	18	138
Feb. 28	800	6	13	Dec. 17	1,120	10	30
Mar. 14	325	2	1.8	<u>1965</u>			
Mar. 28	669	1	1.8	Jan. 28	10,190	3,870	106,000
Apr. 11	1,180	2	6.4	Feb. 10	921	9	22
Apr. 25	1,250	1	3.4	Feb. 25	572	11	17
May 9	1,740	8	38	Mar. 9	490	9	12
May 23	492	5	6.6	Mar. 25	213	7	4.0
June 6	320	4	3.5	Apr. 8	358	2	1.9
June 20	132	2	.7	Apr. 21	1,350	17	62
July 12	116	3	.9	May 6	1,020	2	5.5
Aug. 7	61	3	.5	May 20	1,080	3	8.7
Aug. 23	54	5	.7	June 3	769	1	2.1
Sept. 6	42	1	.1	June 17	625	1	1.7
Sept. 20	64	3	.5	July 1	545	8	12
Oct. 4	42	2	.2	July 15	83	2	.4
Oct. 17	44	6	.7	Aug. 4	53	2	.3
Nov. 1	76	1	.2	Aug. 26	67	3	.5
Nov. 15	1,870	9	45	Sept. 10	46	2	.2
Nov. 26	923	2	5.0	Sept. 22	44	4	.5
Dec. 12	470	3	3.8	Oct. 7	53	2	.3
Dec. 26	824	17	38	Oct. 21	81	5	1.1
<u>1964</u>				Nov. 2	66	3	.5
Jan. 9	1,400	9	34	Nov. 18	245	26	17
Jan. 23	1,040	7	20	Dec. 1	490	38	50
Feb. 12	923	5	12	Dec. 16	107	3	.9
Feb. 21	989	10	27	Dec. 27	670	4	7.2
Mar. 5	2,750	16	119	<u>1966</u>			
Mar. 19	1,470	6	24	Jan. 11	992	19	51

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1966</u>				<u>1966</u>			
Jan. 26	500	5	6.8	July 28	60	6	1.0
Feb. 10	490	6	7.9	Aug. 25	40	4	.4
Feb. 24	970	4	10	Sept. 7	46	2	.2
Mar. 10	4,480	172	2,080	Oct. 5	34	6	.6
Mar. 23	800	2	4.3	Oct. 19	51	2	.3
Apr. 4	1,370	9	33	Nov. 14	5,560	607	9,110
Apr. 21	360	5	4.9	Dec. 9	845	5	11
May 5	540	7	10	Dec. 23	505	1	1.4
May 19	265	4	2.9	<u>1967</u>			
June 2	100	1	.3	Jan. 4	901	9	22
June 16	165	3	1.3	Jan. 18	696	9	17
June 30	74	1	.2				
July 14	88	25	5.9				

14-3195. North Umpqua River at Winchester, Oreg.

<u>1956</u>				<u>1957</u>			
Feb. 16	3,270	24	212	Jan. 14	3,670	14	139
Mar. 21	7,100	6	115	Jan. 28	2,390	4	26
Apr. 16	6,740	20	364	Feb. 14	7,340	64	1,270
Apr. 27	5,470	17	251	Feb. 28	15,310	67	2,770
May 28	4,450	13	156	Mar. 14	10,400	24	674
June 14	3,370	20	182	Mar. 28	6,110	7	115
June 29	2,720	3	22	Apr. 12	4,420	10	119
July 14	1,840	3	15	Apr. 29	3,130	4	34
July 26	1,550	10	42	May 16	3,240	8	70
Sept. 12	1,170	2	6.3	June 6	2,450	10	66
Sept. 28	1,050	4	11	June 26	1,590	2	8.6
Oct. 19	1,560	6	25	July 10	1,380	6	22
Oct. 29	2,540	12	82	July 24	1,160	7	22
Nov. 14	2,040	7	39	Aug. 20	824	10	22
Nov. 28	1,610	9	39	Sept. 7	1,000	14	38
Dec. 17	7,500	33	668	Sept. 18	1,000	2	5.4
Dec. 28	2,970	4	32	Oct. 1	1,270	4	14

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1957</u>				<u>1959</u>			
Oct. 18	1,300	6	21	May 13	2,680	30	217
Oct. 31	944	10	25	May 29	1,990	12	64
Nov. 19	5,760	15	233	June 11	2,030	22	121
Dec. 6	1,460	14	55	June 25	1,290	18	63
Dec. 20	39,200	220	23,300	July 9	1,240	28	94
<u>1958</u>				July 23	627	13	22
Jan. 8	3,960	11	118	Aug. 12	920	18	45
Jan. 22	5,210	9	127	Sept. 10	810	14	31
Feb. 11	7,550	10	204	Sept. 25	864	17	40
Mar. 7	3,940	4	43	Oct. 14	1,410	14	53
Apr. 8	3,710	5	50	Oct. 28	1,310	23	81
Apr. 23	9,440	15	382	Nov. 13	828	8	18
May 7	3,220	36	313	Nov. 23	4,100	40	443
May 20	3,820	49	505	Dec. 9	990	18	48
June 9	6,550	103	1,820	Dec. 23	1,280	23	79
June 23	2,020	88	480	<u>1960</u>			
July 11	1,520	26	106	Jan. 8	3,900	44	463
July 23	1,270	42	144	Jan. 20	3,840	37	384
Aug. 12	1,120	33	98	Feb. 4	6,360	38	653
Aug. 26	1,210	32	105	Feb. 19	4,520	22	268
Sept. 10	971	22	58	Mar. 4	5,480	52	769
Sept. 23	998	49	132	Mar. 16	8,280	12	268
Oct. 6	1,200	26	84	Apr. 7	7,000	23	435
Oct. 21	1,280	16	55	Apr. 26	4,640	6	75
Nov. 5	2,480	38	254	May 13	5,390	20	291
Nov. 19	19,100	244	12,600	May 25	6,780	18	330
Dec. 12	8,940	46	1,110	June 9	3,110	31	260
Dec. 30	7,110	30	576	June 23	1,940	22	115
<u>1959</u>				July 14	1,170	25	79
Jan. 16	5,080	7	96	July 25	825	26	58
Jan. 28	25,400	124	8,500	Aug. 10	1,010	16	44
Feb. 10	4,400	30	356	Aug. 29	780	28	59
Feb. 25	4,120	14	156	Sept. 21	780	18	38
Mar. 12	2,710	12	88	Oct. 10	1,050	16	45
Mar. 25	4,750	31	398	Oct. 21	880	13	31
Apr. 9	3,670	8	79	Nov. 10	2,270	28	172
Apr. 29	2,830	18	138	Nov. 28	4,640	23	288
				Dec. 16	2,180	22	129
				Dec. 29	2,500	15	101

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1961</u>				<u>1962</u>			
Jan. 12	2,140	27	156	July 6	1,470	2	7.9
Jan. 27	1,820	20	98	July 20	1,270	1	3.4
Feb. 9	6,220	16	269	Aug. 6	1,130	3	9.2
Feb. 24	6,620	15	268	Aug. 24	1,040	4	11
Mar. 10	7,140	24	463	Sept. 7	852	4	9.2
Mar. 24	9,740	20	526	Sept. 21	900	2	4.9
Apr. 6	5,100	12	165	Oct. 5	1,220	6	20
Apr. 21	3,620	16	156	Oct. 10	9,440	138	3,520
May 5	3,620	23	225	Oct. 23	1,830	4	20
May 19	3,940	14	149	Nov. 21	11,200	106	3,210
June 5	3,240	20	175	Dec. 5	9,330	32	806
June 16	2,070	15	84	Dec. 20	3,340	4	36
June 28	1,560	15	63	<u>1963</u>			
July 14	1,070	9	26	Jan. 4	2,710	6	44
July 28	1,100	6	18	Jan. 18	1,480	1	4.0
Aug. 11	860	6	14	Jan. 31	3,340	112	1,010
Sept. 1	990	4	11	Feb. 14	2,890	6	47
Sept. 15	807	32	70	Mar. 1	4,580	4	49
Sept. 29	717	2	3.9	Mar. 15	2,700	2	15
Oct. 13	2,180	16	94	Mar. 28	3,600	10	97
Oct. 26	1,150	6	19	Mar. 29	5,830	30	472
Nov. 11	1,51	1	4.1	Apr. 12	7,200	50	972
Nov. 25	11,060	95	2,840	Apr. 25	5,380	14	203
Dec. 8	4,440	6	72	May 7	28,710	844	65,400
Dec. 21	27,300	184	13,600	May 23	4,120	20	222
<u>1962</u>				June 7	2,460	4	27
Jan. 4	5,760	11	171	June 21	1,570	4	17
Jan. 18	3,010	13	106	July 12	1,580	4	17
Jan. 30	4,480	9	109	July 26	1,340	4	14
Feb. 9	4,200	76	862	Aug. 8	1,070	6	17
Feb. 15	6,180	16	267	Aug. 22	850	10	23
Mar. 3	3,140	18	153	Sept. 9	930	4	10
Mar. 16	4,160	4	45	Sept. 20	980	6	16
Mar. 26	17,300	102	4,760	Oct. 4	1,050	16	45
Apr. 12	5,260	8	114	Oct. 18	796	4	8.6
Apr. 27	3,860	10	104	Nov. 1	1,060	3	8.6
May 11	5,390	12	175	Nov. 14	4,340	40	469
May 22	2,740	4	30	Nov. 26	4,620	6	75
June 8	2,380	4	26	Dec. 12	2,920	6	47
June 22	2,040	4	22				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1964</u>				<u>1965</u>			
Jan. 9	7,340	22	436	Sept. 10	1,070	2	5.8
Feb. 12	4,440	10	120	Sept. 23	981	3	7.9
Feb. 20	4,140	12	134	Oct. 7	1,100	2	5.9
Mar. 6	8,000	54	1,170	Oct. 21	824	4	8.9
Mar. 13	6,480	29	507	Nov. 18	1,140	15	46
Mar. 19	6,190	9	150	Nov. 30	1,990	2	11
Apr. 2	7,400	8	160	Dec. 16	1,540	3	12
Apr. 16	5,350	6	87	Dec. 30	5,520	20	298
Apr. 30	4,400	8	95	<u>1966</u>			
May 14	4,950	10	134	Jan. 11	5,880	25	397
May 28	3,780	5	51	Jan. 25	3,640	9	88
June 11	4,710	4	51	Feb. 9	3,280	8	71
June 26	2,710	9	66	Feb. 23	5,060	18	246
July 10	1,840	1	5.0	Mar. 10	18,900	414	21,100
July 24	1,480	5	20	Mar. 22	6,570	20	355
Aug. 6	1,340	2	7.2	Apr. 6	7,480	19	384
Aug. 20	1,270	2	6.9	Apr. 20	3,860	6	62
Sept. 3	1,030	6	17	May 4	3,730	11	111
Sept. 18	1,100	4	12	May 18	2,280	6	37
Oct. 1	904	26	64	June 3	2,020	1	5.5
Oct. 16	922	3	7.5	June 17	1,800	3	15
Oct. 30	1,140	2	6.2	July 1	1,560	1	4.2
Nov. 13	2,060	409	2,270	July 18	1,050	4	11
Nov. 25	16,300	17	748	Aug. 4	970	13	34
Dec. 4	9,680	32	836	Aug. 25	572	4	6.2
Dec. 17	6,430	11	191	Sept. 9	769	3	6.2
<u>1965</u>				Sept. 23	796	1	2.1
Apr. 8	2,820	9	69	Oct. 10	752	8	16
Apr. 21	7,400	39	779	Oct. 20	980	3	7.9
May 6	1,360	6	22	Nov. 18	5,590	119	1,800
May 20	2,440	6	40	Dec. 9	6,670	37	666
June 3	1,750	17	80	Dec. 22	3,730	5	50
June 18	1,900	12	62	<u>1967</u>			
July 1	1,560	12	51	Jan. 4	3,960	13	139
July 15	1,400	3	11	Jan. 19	4,120	3	33
Aug. 4	1,260	2	6.8				
Aug. 27	842	4	9.1				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
14-3207. Calapooya Creek near Oakland, Oreg.							
<u>1956</u>				<u>1957</u>			
Feb. 13	600	30	49	Oct. 1	35	12	1.1
Mar. 21	870	50	117	Oct. 17	87	24	5.6
Apr. 16	498	10	13	Oct. 31	27	4	.3
Apr. 27	233	8	5.0	Nov. 19	301	24	20
May 14	730	30	59	Dec. 6	102	18	5.0
May 28	276	18	13	Dec. 20	9,610	366	9,500
June 14	181	26	13	<u>1958</u>			
June 29	176	10	4.8	Jan. 7	475	30	38
July 12	13	12	.4	Jan. 22	914	30	74
July 26	27	14	1.0	Feb. 11	1,130	36	110
Sept. 10	17	8	.4	Mar. 7	538	20	29
Sept. 25	11	22	.6	Mar. 20	385	2	2.1
Oct. 17	17	22	1.0	Apr. 8	510	8	11
Oct. 29	790	38	81	Apr. 23	1,330	64	230
Nov. 14	181	26	13	May 7	343	36	33
Nov. 28	145	2	.8	May 20	60	46	7.5
Dec. 17	1,220	72	237	June 9	870	149	350
Dec. 26	408	32	35	June 23	56	87	13
<u>1957</u>				July 11	37	35	3.5
Jan. 16	646	38	66	July 23	22	39	2.3
Jan. 28	269	8	5.8	Aug. 12	15	36	1.5
Feb. 14	674	48	87	Aug. 25	14	34	1.3
Feb. 28	1,850	150	749	Sept. 10	17	33	1.5
Mar. 14	2,160	92	537	Sept. 23	19	48	2.5
Mar. 27	610	136	224	Oct. 6	16	22	1.0
Apr. 12	398	40	43	Oct. 21	34	76	7.0
Apr. 30	138	12	4.5	Nov. 6	153	57	24
May 13	123	16	5.3	Nov. 19	3,380	590	5,380
June 3	263	40	28	Dec. 12	738	116	231
June 25	38	8	.8	Dec. 30	985	41	109
July 9	22	4	.2	<u>1959</u>			
July 22	16	6	.3	Jan. 16	1,020	49	135
Aug. 6	10	2	.1	Jan. 28	3,550	243	2,330
Aug. 20	15	14	.6	Feb. 10	1,700	63	289
Sept. 6	20	14	.8				
Sept. 17	14	8	.3				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1959</u>				<u>1960</u>			
Feb. 25	750	20	40	Nov. 7	21	33	1.9
Mar. 12	284	19	15	Nov. 28	762	67	138
Mar. 25	730	66	130	Dec. 16	172	39	18
Apr. 9	278	18	14	Dec. 29	168	27	12
Apr. 27	177	42	20				
May 13	130	36	13	<u>1961</u>			
May 28	170	14	6.4	Jan. 12	158	39	17
June 10	107	37	11	Jan. 26	117	34	11
June 23	49	30	4.0	Feb. 9	732	29	57
July 7	29	27	2.1	Feb. 23	1,320	63	225
July 23	10	24	6.7	Mar. 9	1,460	93	367
Aug. 10	4.2	18	.2	Apr. 6	175	21	9.9
Sept. 9	7.0	25	.5	Apr. 20	185	18	9.0
Sept. 21	49	23	3.0	May 4	218	24	14
Oct. 13	71	19	3.6	May 18	250	13	8.8
Oct. 26	56	30	4.5	June 1	97	17	4.4
Nov. 10	28	11	.8	June 15	70	11	2.1
Nov. 23	196	25	13	June 28	46	3	.4
Dec. 9	32	17	1.5	July 13	20	8	.4
Dec. 21	57	14	2.2	July 27	13	5	.2
				Aug. 11	10	4	.1
				Aug. 31	7.5	7	.1
				Sept. 14	9.8	6	.2
				Sept. 28	14	6	.2
<u>1960</u>				Oct. 12	64	83	14
Jan. 6	27	22	1.6	Oct. 27	193	73	38
Jan. 19	1,100	69	205	Nov. 9	74	5	1.0
Feb. 3	1,140	71	219	Nov. 24	4,110	635	7,050
Feb. 18	835	35	79	Dec. 7	602	27	44
Mar. 3	356	28	27	Dec. 21	3,910	308	3,250
Mar. 16	1,340	64	232				
Apr. 6	560	42	64	<u>1962</u>			
Apr. 26	540	25	36	Jan. 4	415	22	25
May 13	380	44	45	Jan. 30	349	40	38
May 25	1,060	37	106	Feb. 15	1,020	63	174
June 7	150	36	15	Feb. 27	285	8	6.2
June 22	57	10	1.5	Mar. 15	767	24	50
July 13	24	29	1.9	Mar. 29	1,570	130	551
July 28	12	18	.6	Apr. 13	233	12	7.5
Aug. 8	9.2	16	.4				
Sept. 1	12	33	1.1				
Sept. 19	11	25	.7				
Oct. 6	12	19	.6				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1962</u>				<u>1963</u>			
Apr. 26	114	3	0.9	Nov. 14	1,480	292	1,170
May 10	444	35	42	Nov. 29	285	11	8.5
May 25	190	9	4.6	Dec. 12	780	15	32
June 8	31	18	1.5	Dec. 26	285	14	11
June 22	49	32	4.2				
July 19	16	38	1.6	<u>1964</u>			
Aug. 3	13	12	.4	Jan. 9	1,310	84	297
Aug. 24	9.5	11	.3	Feb. 6	546	81	119
Sept. 7	6.1	9	.1	Feb. 20	492	23	31
Sept. 21	10	7	.2	Mar. 5	2,250	351	2,130
Oct. 5	25	14	.9	Mar. 19	798	34	73
Oct. 11	367	104	103	Apr. 2	450	14	17
Oct. 24	42	3	.3	Apr. 16	294	6	4.8
Nov. 23	603	19	31	Apr. 30	170	8	3.7
Dec. 6	942	64	163	May 14	174	7	3.3
Dec. 20	329	24	21	May 28	89	6	1.4
				June 11	164	17	7.5
<u>1963</u>				July 24	24	8	.5
Jan. 4	173	15	7.0	Aug. 6	22	1	.1
Jan. 17	94	16	4.1	Aug. 20	14	2	.7
Jan. 31	504	78	106	Sept. 3	16	14	.6
Feb. 14	275	17	13	Oct. 1	16	5	.2
Feb. 28	563	23	35	Oct. 15	15	13	.5
Mar. 14	201	16	8.7	Oct. 29	26	5	.3
Mar. 28	497	9,090	12,200	Nov. 13	282	516	393
Apr. 12	1,580	313	1,340	Nov. 25	1,380	53	197
Apr. 25	814	19	42	Dec. 3	2,010	140	760
May 7	5,450	548	8,060	Dec. 17	790	35	75
May 23	178	17	8.2				
June 6	117	9	2.8	<u>1965</u>			
June 20	46	14	1.7	Jan. 15	1,260	102	347
July 11	68	9	1.7	Jan. 29	3,630	430	4,210
July 25	30	6	.5	Feb. 10	348	20	19
Aug. 8	18	6	.3	Feb. 25	202	146	80
Aug. 22	12	5	.2	Mar. 11	178	7	3.4
Sept. 5	9.2	10	.3	Mar. 25	88	14	3.3
Sept. 19	37	17	1.7	Apr. 9	460	64	79
Oct. 3	15	6	.2	Apr. 21	870	78	183
Oct. 17	16	8	.3	May 5	245	13	8.6
Oct. 31	52	2	.3				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1965</u>				<u>1966</u>			
May 20	147	8	3.2	Mar. 10	3,000	586	4,750
June 3	65	6	1.1	Mar. 23	1,250	894	3,020
June 16	66	13	2.3	Apr. 7	288	8	6.2
July 1	22	11	.6	Apr. 21	150	6	2.4
July 15	10	2	.1	May 5	78	9	1.9
Aug. 4	6.5	4	.1	May 19	49	6	.8
Aug. 26	9.0	8	.2	June 2	34	2	.2
Sept. 10	4.0	2	T	June 17	16	4	.2
Sept. 23	5.6	4	.1	June 30	12	4	.1
Oct. 7	53	5	.7	July 14	14	3	.1
Oct. 21	34	8	.7	July 28	4.0	9	.1
Nov. 4	318	98	84	Aug. 25	5.0	8	.1
Nov. 18	100	11	3.0	Sept. 7	4.5	5	.1
Nov. 30	135	6	2.2	Sept. 22	9.4	5	.1
Dec. 17	50	5	.7	Oct. 8	4.7	10	.1
Dec. 29	2,220	714	4,280	Oct. 26	48	20	2.6
				Nov. 18	770	295	613
				Dec. 9	660	106	189
				Dec. 22	396	11	12
<u>1966</u>				<u>1967</u>			
Jan. 15	1,810	531	2,590	Jan. 4	431	34	40
Jan. 26	380	169	173	Jan. 18	562	10	15
Feb. 10	1,320	370	1,320				
Feb. 24	360	7	6.8				

14-3220. Elk Creek near Drain, Oreg.

<u>1956</u>				<u>1956</u>			
Feb. 14	125	22	7.4	July 26	7.9	20	0.4
Mar. 21	202	8	4.4	Sept. 10	3.5	8	.1
Apr. 16	146	2	.8	Sept. 25	5.2	28	.4
Apr. 27	60	8	1.3	Oct. 17	7.4	2	T
May 14	209	24	14	Oct. 29	122	10	4.6
May 28	52	<1	T	Nov. 14	53	18	2.6
June 14	63	22	3.7	Nov. 28	420	4	4.5
June 29	78	14	2.9	Dec. 17	484	42	55
July 12	3.4	10	.1	Dec. 26	155	<1	T

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1957</u>				<u>1958</u>			
Jan. 16	252	30	20	Sept. 10	3.0	74	0.6
Jan. 28	415	8	9.0	Sept. 23	5.0	51	.7
Feb. 14	165	34	15	Oct. 6	5.0	22	.3
Feb. 28	810	98	214	Oct. 21	15	60	2.4
Mar. 14	1,160	70	219	Nov. 6	36	25	2.4
Mar. 28	208	58	33	Nov. 19	1,600	426	1,840
Apr. 12	157	24	10	Dec. 12	377	53	54
Apr. 30	66	8	1.4	Dec. 30	315	38	32
May 13	55	6	.9	<u>1959</u>			
June 3	50	16	2.2	Jan. 16	442	8	9.5
June 25	25	8	.5	Jan. 28	1,930	136	709
July 9	10	6	.2	Feb. 10	1,040	71	199
July 22	8.0	20	.4	Feb. 25	235	26	16
Aug. 6	8.0	4	.1	Mar. 12	78	19	4.0
Aug. 20	3.9	6	.1	Mar. 25	280	68	51
Sept. 6	2.0	4	T	Apr. 9	115	14	4.3
Sept. 17	2.0	18	.1	Apr. 27	53	32	4.6
Oct. 1	26	22	1.5	May 13	50	37	5.0
Oct. 17	12	6	.2	May 28	58	9	1.4
Oct. 31	10	8	.2	June 10	35	28	2.6
Nov. 19	47	12	1.5	June 23	18	33	1.6
Dec. 6	34	20	1.8	July 7	12	26	.8
Dec. 24	767	58	120	July 23	3.2	37	.3
<u>1958</u>				Aug. 10	2.0	28	.2
Jan. 7	160	14	6.0	Sept. 9	3.0	37	.3
Jan. 22	356	18	17	Sept. 21	11	34	1.0
Feb. 11	530	30	43	Oct. 13	10	25	.7
Mar. 7	176	10	4.8	Oct. 26	12	48	1.6
Mar. 20	306	12	9.9	Nov. 10	14	22	.8
Apr. 8	225	6	3.6	Nov. 23	34	42	3.9
Apr. 23	443	32	38	Dec. 9	12	31	1.0
May 7	69	26	4.8	Dec. 21	17	21	1.0
May 20	30	30	2.4	<u>1960</u>			
June 9	135	130	47	Jan. 6	26	24	1.7
June 23	19	75	3.8	Jan. 19	301	74	60
July 11	18	45	2.2	Feb. 3	467	72	91
July 23	8.0	49	1.1	Feb. 18	336	33	30
Aug. 12	3.1	57	.5				
Aug. 26	3.0	42	.3				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1960</u>				<u>1961</u>			
Mar. 3	166	35	16	Oct. 12	18	12	0.6
Mar. 16	545	56	82	Oct. 27	52	39	5.4
Apr. 6	225	27	16	Nov. 10	21	5	.3
Apr. 26	221	31	18	Nov. 24	2,480	481	3,220
May 13	152	25	10	Dec. 7	206	18	10
May 25	359	29	28	Dec. 21	1,940	159	833
June 7	72	41	8.0	<u>1962</u>			
June 22	28	31	2.3	Jan. 4	158	16	6.8
July 13	14	40	1.5	Jan. 30	119	34	11
July 28	4.2	33	.4	Feb. 15	435	40	47
Aug. 8	2.2	30	.2	Feb. 27	137	16	5.9
Sept. 1	3.7	63	.6	Mar. 15	300	17	14
Sept. 19	4.3	39	.5	Mar. 29	686	91	169
Oct. 6	6.6	21	.4	Apr. 11	98	15	4.0
Oct. 20	8.5	23	.5	Apr. 26	48	12	1.6
Nov. 7	14	24	.9	May 11	208	29	16
Nov. 28	354	50	48	May 25	73	12	2.4
Dec. 16	84	39	8.8	June 8	47	7	.9
Dec. 29	92	30	7.5	June 22	23	5	.3
<u>1961</u>				July 6	11	3	.1
Jan. 12	92	49	12	July 19	6.2	4	.1
Jan. 26	67	22	4.0	Aug. 3	2.0	1	T
Feb. 9	416	41	46	Aug. 24	2.0	2	T
Feb. 23	480	47	61	Sept. 21	2.2	3	T
Mar. 9	602	79	128	Oct. 5	7.0	3	T
Mar. 23	550	71	105	Oct. 11	123	80	27
Apr. 6	112	18	5.4	Oct. 24	20	7	.4
Apr. 21	70	23	4.4	Nov. 23	427	21	24
May 4	70	36	6.8	Dec. 6	398	41	44
May 18	106	17	4.8	Dec. 20	183	6	3.0
June 1	38	19	2.0	<u>1963</u>			
June 15	32	10	.9	Jan. 4	100	10	2.7
June 28	17	3	.2	Jan. 17	48	17	2.2
July 13	5.0	6	.1	Feb. 4	1,020	129	355
July 27	3.3	6	.1	Feb. 15	122	15	4.9
Aug. 11	.9	5	T	Feb. 26	288	27	21
Aug. 31	.7	4	T	Mar. 14	102	9	2.5
Sept. 14	2.2	5	T				
Sept. 28	4.3	1	T				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1963</u>				<u>1964</u>			
Mar. 29	1,030	347	965	Oct. 29	17	2	0.1
Apr. 12	800	237	512	Nov. 13	177	120	57
Apr. 26	269	17	12	Nov. 27	737	72	143
May 7	2,800	258	1,950	Dec. 3	800	103	222
May 24	73	12	2.4	Dec. 15	544	274	402
June 7	36	9	.9	<u>1965</u>			
June 20	20	5	.3	Jan. 15	445	46	55
July 11	24	4	.3	Jan. 29	1,640	249	1,100
July 25	13	1	T	Feb. 10	149	10	4.0
Aug. 8	8.3	4	.1	Feb. 25	73	3	.6
Aug. 22	6.3	11	.2	Mar. 11	74	6	1.2
Sept. 5	2.0	9	T	Mar. 25	43	7	.8
Sept. 19	13	7	.2	Apr. 9	123	32	11
Oct. 7	10	8	.2	Apr. 21	513	66	91
Oct. 17	13	2	.1	May 7	69	7	1.3
Oct. 31	21	10	.6	May 20	49	4	.5
Nov. 14	581	266	417	June 4	22	5	.3
Nov. 29	123	57	19	June 16	15	15	6.1
Dec. 13	165	22	9.8	July 1	7.6	7	.1
<u>1964</u>				July 15	4.3	2	T
Jan. 9	682	72	133	Aug. 5	3.0	8	.1
Jan. 23	964	154	401	Aug. 26	4.5	3	T
Feb. 6	225	24	15	Sept. 10	.1	6	T
Feb. 20	197	18	9.6	Sept. 23	.7	6	T
Mar. 6	970	130	340	Oct. 7	3.8	4	T
Apr. 3	107	20	5.8	Oct. 21	7.5	5	.1
Apr. 17	72	8	1.6	Nov. 4	33	21	1.9
May 1	70	8	1.5	Nov. 18	35	11	1.0
May 18	51	19	2.6	Nov. 30	53	6	.9
May 28	36	4	.4	Dec. 17	30	5	.4
June 11	34	29	2.7	Dec. 29	1,230	2,930	9,730
June 25	23	15	.9	<u>1966</u>			
July 24	8.3	1	T	Jan. 15	411	58	64
Aug. 6	9.8	1	T	Jan. 26	132	13	4.6
Aug. 20	5.3	3	T	Feb. 10	401	85	92
Sept. 4	8.3	<1	T	Feb. 24	87	6	1.4
Sept. 19	13	7	.2	Mar. 12	600	1,660	2,690
Oct. 1	10	3	.1				
Oct. 15	12	2	.1				

Table 1.--Water and suspended-sediment discharge data--Continued

Date	Water discharge (cfs)	Observed suspended-sediment		Date	Water discharge (cfs)	Observed suspended-sediment	
		Concentration (mg/l)	Discharge (tons per day)			Concentration (mg/l)	Discharge (tons per day)
<u>1966</u>				<u>1966</u>			
Mar. 23	558	112	169	Oct. 8	5.0	4	0.1
Apr. 7	61	10	1.6	Oct. 21	4.5	5	.1
Apr. 21	45	8	1.0	Nov. 18	280	37	28
May 5	27	9	.7	Dec. 9	730	69	136
May 19	14	4	.2	Dec. 22	146	11	4.3
June 2	10	2	.1				
June 17	2.6	4	T	<u>1967</u>			
June 30	1.0	1	T	Jan. 4	130	14	4.9
July 14	2.5	5	T	Jan. 18	178	8	3.8
July 28	.4	6	T				

Table 2.--Summary of water and suspended-sediment discharge data for 10 sites in the Umpqua River basin, 1956-66 water years

\bar{T} , trace or less than 0.05 ton per day \bar{T}

Station	Mean annual runoff (acre-ft)	Mean annual suspended sediment			Observed suspended sediment			
		Discharge (tons per yr) ^{1/}	Discharge weighted mean concentration (mg/l) ^{1/}	Yield (tons per sq mi) ^{1/}	Concentration (mg/l)		Discharge (tons per day)	
					Max	Min	Max	Min
South Umpqua River at Tiller, Oreg. (14-3080.00)	785,800	158,000	148	352	1,260	<1	65,300	T
Cow Creek near Azalea, Oreg. (14-3090.00)	88,580	26,500	219	340	798	<1	3,620	T
Cow Creek near Riddle Oreg. (14-3100.00)	693,400	375,000	397	822	1,210	<1	54,400	T
Olalla Creek near Tenmile, Oreg. (14-3112.00)	^{2/} 76,020	13,700	133	227	696	<1	2,260	T
Lookingglass Creek near Brockway, Oreg. (14-3115.00)	228,800	120,000	386	761	997	1	10,000	0.1
South Umpqua River near Brockway, Oreg. (14-3120.00)	2,296,000	849,000	272	508	1,400	1	97,500	.3
Steamboat Creek near Glide, Oreg. (14-3167.00)	^{2/} 521,300	31,000	44	137	3,870	1	106,000	.2
North Umpqua River at Winchester, Oreg. (14-3195.00)	2,962,000	664,000	165	494	844	1	65,400	2.1
Calapooya Creek near Oakland, Oreg. (14-3207.00)	375,700	105,000	206	501	9,090	1	12,200	T
Elk Creek near Drain, Oreg. (14-3220.00)	170,100	65,400	282	629	2,930	<1	9,740	T

^{1/} Estimated.

^{2/} For 1957-66 water years.