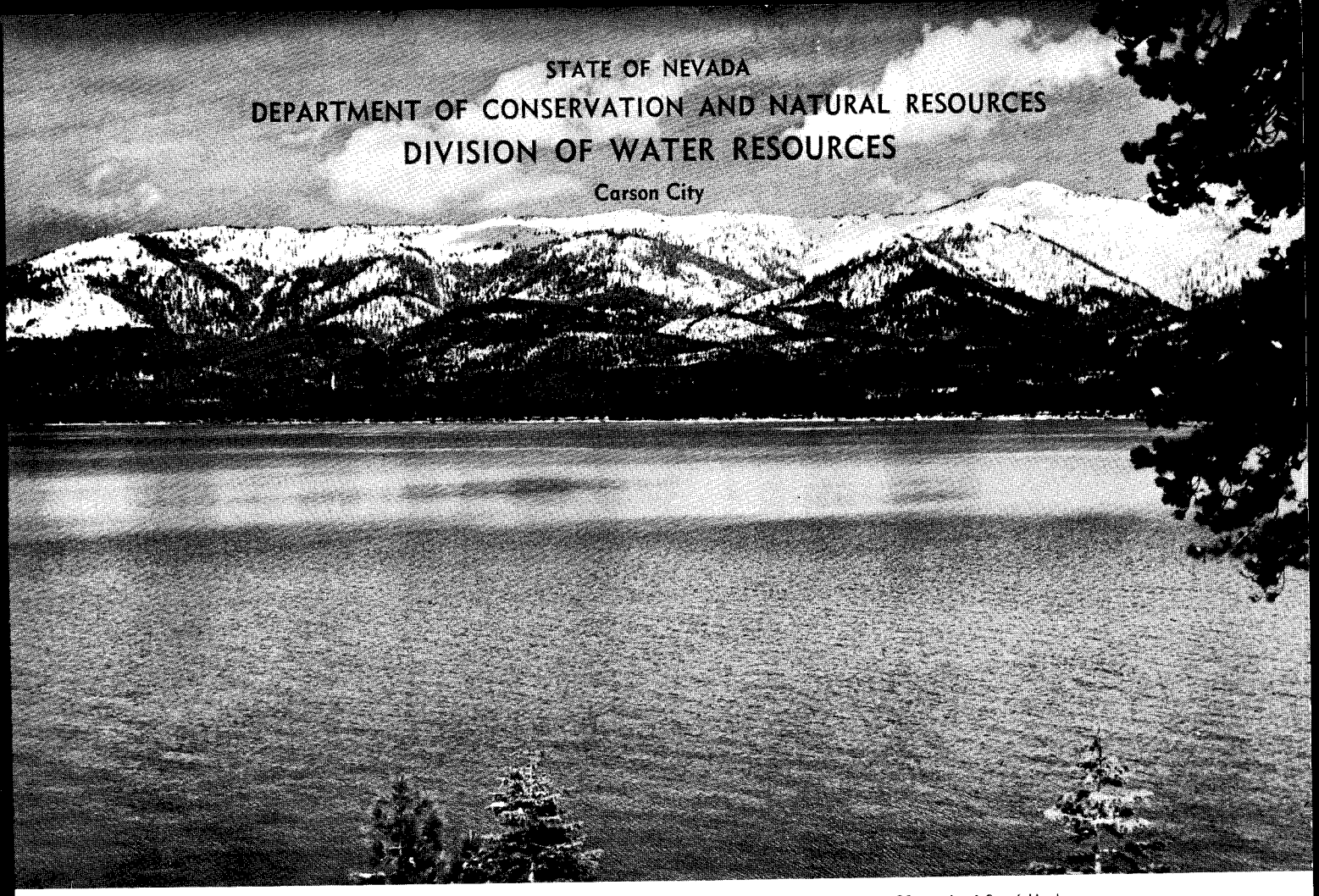

Incline Village area and Crystal Bay, Lake Tahoe, viewed from Nevada State Highway 28 north of Sand Harbor.

WATER RESOURCES-INFORMATION SERIES

REPORT 8

A RECONNAISSANCE OF STREAMFLOW AND FLUVIAL SEDIMENT TRANSPORT, INCLINE VILLAGE AREA, LAKE TAHOE, NEVADA

First Progress Report, 1970

By
Patrick A. Glancy

Prepared cooperatively by the Geological Survey,
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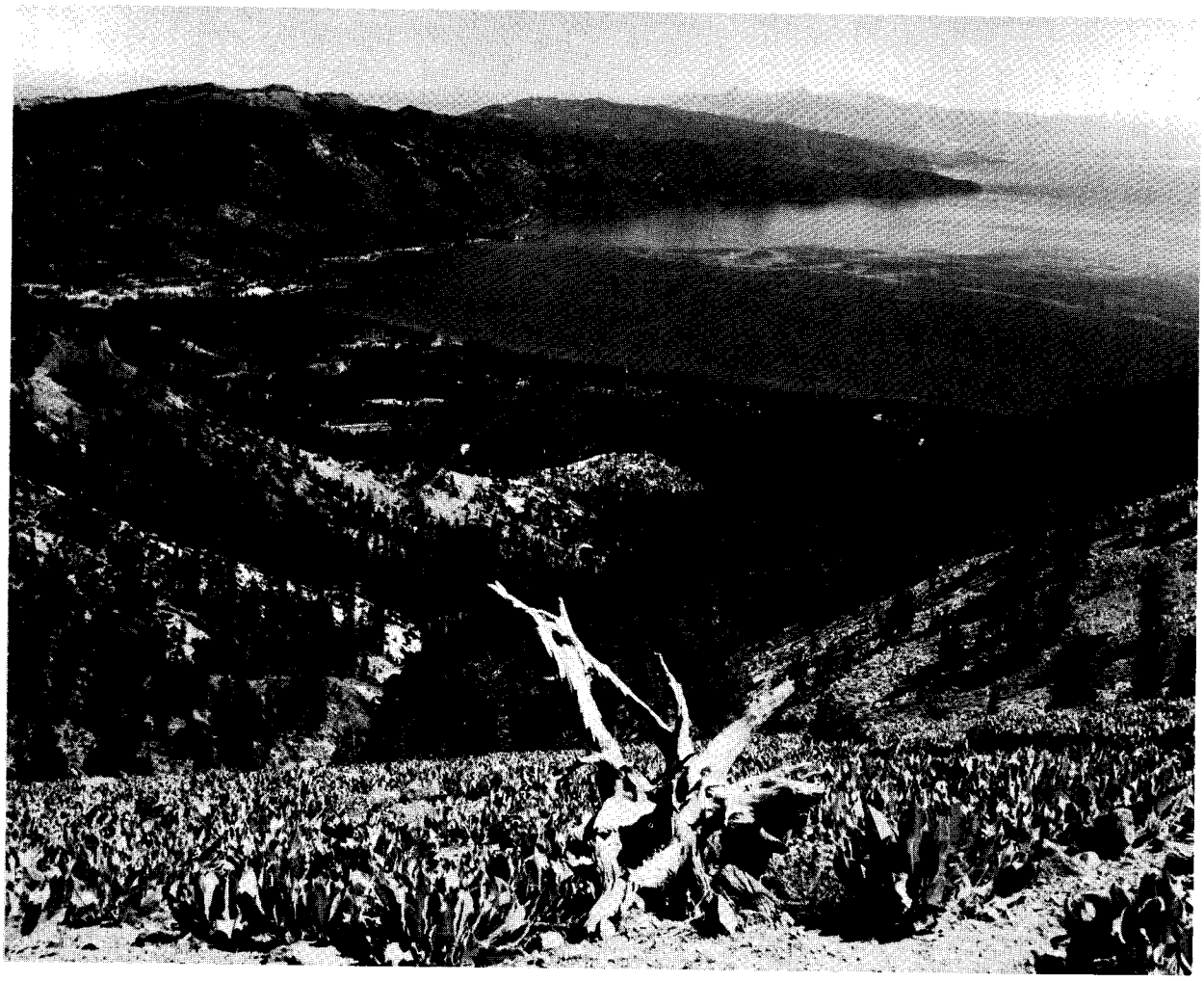

Incline Village area and Crystal Bay, Lake Tahoe viewed from the head of Wood Creek drainage.

STATE OF NEVADA

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WATER RESOURCES

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A RECONNAISSANCE OF STREAMFLOW AND FLUVIAL SEDIMENT TRANSPORT, INCLINE VILLAGE AREA, LAKE TAHOE, NEVADA

By Patrick A. Glancy

ABSTRACT

Runoff during the 1970 water year from the five major streams in the Incline Village area was about 17,600 acre-feet. About three-fourths of the runoff was from Incline and Third Creeks. Sediment transported to Lake Tahoe by the major streams was estimated to be about 10,000 tons, of which about three-fourths was from Incline and Third Creeks. About 85 percent of the sediment was delivered to the lake during the snowmelt runoff period. The annual sediment load was estimated to be about 68 percent sand, 20 percent silt, and 12 percent clay. Sediment transported by streams during periods of runoff from rainfall generally contained greater percentages of silt and clay than that transported in runoff from snowmelt. Estimated annual sediment yields ranged from 50 to 650 tons per square mile from undeveloped areas, and 1,600 to 3,200 tons per square mile from developed areas. Estimates suggest that about three-fourths of the 10,000 tons of sediment transported to Lake Tahoe during the year came from the developed areas and about one-fourth came from the undeveloped area. The resultant yield estimates suggest that the estimated annual yield from the developed area was about 12 times that from the undeveloped area. The highest measured concentrations of nitrogen transported by streams to the lake during periods of heavy sediment transport were of organic nitrogen, and the highest phosphorous concentrations at those times were attached to or part of the sediment particles.

INTRODUCTION

Purpose and Scope

The U.S. Geological Survey, in cooperation with the Nevada Department of Conservation, initiated a 5-year reconnaissance of streamflow and sediment transport in the Incline Village area, Lake Tahoe, Nev., during the 1970 water year. Five years is believed to be the shortest period that might represent the natural variability in annual runoff and sediment movement. It is likewise believed to be the minimum time during which the hydrologic changes caused by urbanization within the area can be viewed in a reasonable perspective. This report is the first in a planned series of annual progress reports designed to show results of the study. It includes summaries and preliminary analyses of the data collected during the first year (1970 water year). A water year extends from October 1 to September 30. This first report is intentionally brief, because in-depth interpretations require data obtained during several consecutive years, as described above. A detailed interpretive report is scheduled for preparation after conclusion of the planned 5-year study period.

A generalized sketch of the study area is shown in figure 1. Table 1 gives a preliminary breakdown of principal Incline Village drainages by area and altitude increments.

Major objectives of the study are to: (1) quantify runoff from the major drainage basins by determining streamflow quantities, (2) characterize the timing of runoff with respect to seasons and climate, (3) accumulate data for peak-flow and low-flow conditions, (4) quantify as accurately as possible, using reconnaissance techniques, fluvial-sediment transport with emphasis on (a) determining the annual sediment transport from the study area to Lake Tahoe, (b) evaluating the relative amounts of sediment derived from "urban" developed versus nondeveloped areas, and (c) characterizing sediment loads transported to Lake Tahoe with respect to particle-size distribution (proportionate amounts of gravel, sand, silt, and clay), and (5) provide preliminary data on the nutrients (nitrogen and phosphorous compounds) transported to the lake by the water-sediment mixture of streams, particularly during times of moderate to high rates of sediment transport.

Data Collection and Analysis

Streamflows of Incline and Third Creeks were monitored near their mouths by continuous recorders (fig. 1). Streamflow data for these creeks are presented in "Water Resources Data for Nevada - 1970," (U.S. Geol. Survey, in press). Streamflows of Wood, Second, and First Creeks near their mouths were synthesized using instantaneous flow data collected on these streams, and correlating those data to the hydrographs of Incline and Third Creeks.

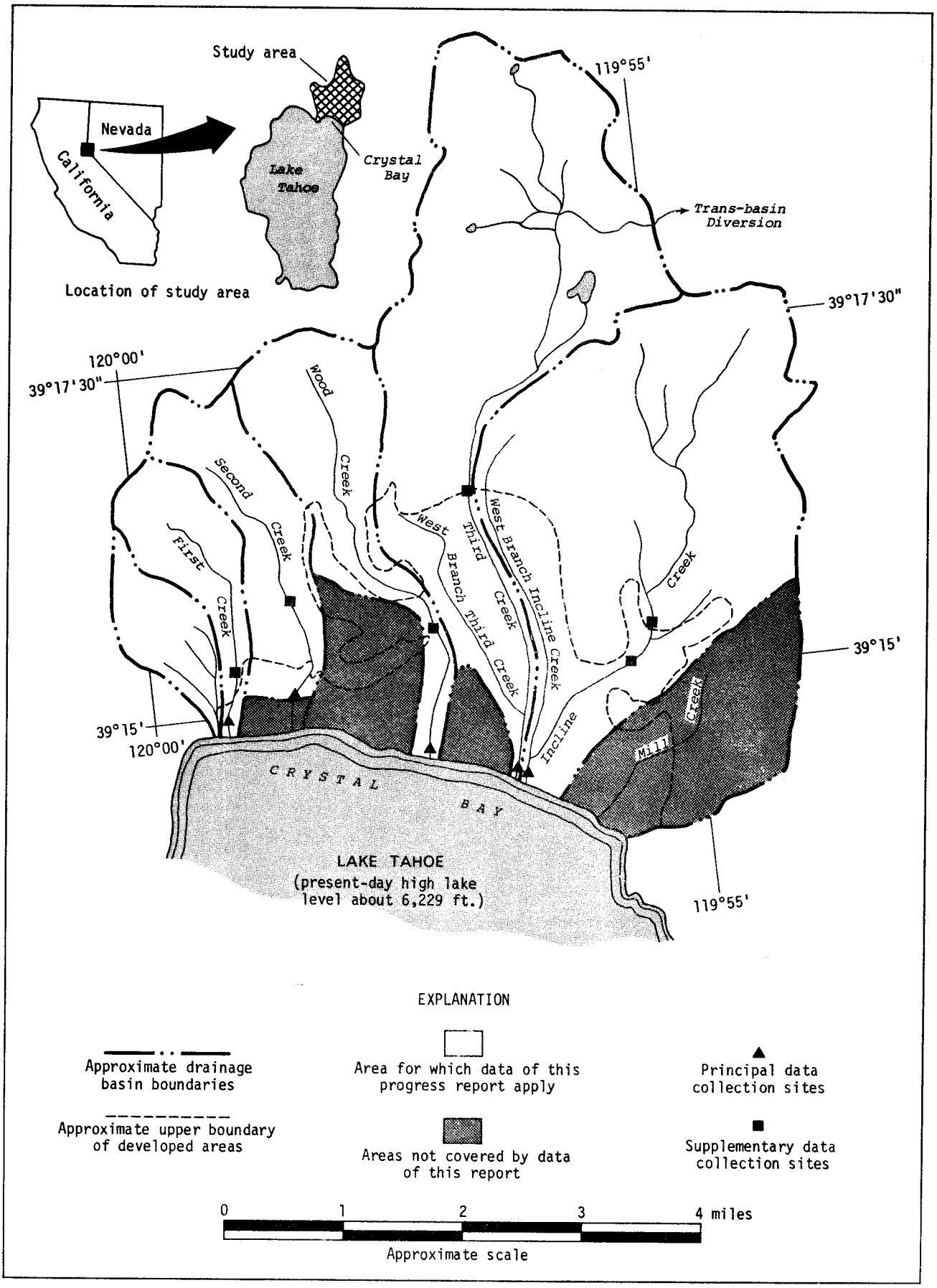

Figure 1.- Sketch map of Incline Village area, Lake Tahoe, Nevada

Table 1.--Approximate drainage areas and areal altitude distribution[1/]

Drainage	Area (sq mi)	Approximate percentage of drainage area within various altitude zones				
		Below 7,000 feet	7,000-8,000 feet	8,000-9,000 feet	9,000-10,000 feet	Above 10,000 feet
Unnamed tributary west of First Creek[2/]	0.67	26	63	11	--	--
First Creek	1.09	17	35	40	8	--
Second Creek	a 1.81	32	30	23	15	--
Unnamed ephemeral tributaries[2/]	1.00	84	16	--	--	--
Wood Creek	2.03	19	33	34	14	--
Unnamed tributaries[2/]	0.28	100	--	--	--	--
Third Creek	6.03	17	13	35	34	1
Incline Creek	6.98	21	43	35	1	--
Mill Creek[2/]	2.02	42	42	16	--	--
Total (rounded)	21.9					

1. Hydrologic data in this report involve about 17.77 square miles, or approximately 81 percent of the total area.

2. These drainages are not represented in the data summary of this progress report; data collected and interpretations for the 1970 water year in these areas require further analysis and probably will be included in a later publication.

a. Drainage area above hydrologic measuring site is about 1.64 square miles.

More than 550 sediment samples were collected and analyzed according to standard U.S. Geological Survey methods. About 320 of the sediment samples were collected at the principal hydrologic data sites described above; the instantaneous sediment-transport data derived from these samples, as well as data for about 50 other samples collected at miscellaneous sites upstream on Wood and Third Creeks, are included in the appendix of this report. About 200 additional sediment samples were collected at numerous other sites in the study area and are on file with the U.S. Geological Survey, Water Resources Division, in Carson City, Nev.

The principal hydrologic data collection sites are shown in figure 1. Some, but not all, of the supplementary data collection sites upon which the data summaries of this report are based, are also shown in figure 1.

Sediment data were collected to obtain as broad a range of transport conditions as possible. A relatively small number of samples were collected to define generally the sediment-transport characteristics during periods of low streamflow, but the most frequent and intensive sampling was done during periods of high streamflow when the greatest fluvial sediment transport was occurring.

Sediment discharges of Incline and Third Creeks near their mouths were computed on a daily, and even on an hourly basis when necessary, according to standard U.S. Geological Survey methods. Daily sediment discharges for periods when no sediment data were collected were estimated by interpolating between days on which data were collected, with attention being paid to streamflow and weather conditions as a means of improving interpolation accuracy. Sediment loads of Wood, Second, and First Creeks were estimated using several sediment-transport rating curves which were developed from available sample data, daily water discharges of the synthesized hydrographs, and personal observation of erosion and streamflow conditions. This method of estimating sediment loads is patterned after techniques described by Colby (1956).

A total of 12 samples from several streams were collected during the year for nutrient (nitrogen and phosphorous compounds) analysis. After collection, the unfiltered samples were immediately chilled to temperatures lower than 4°C and held at the low temperature until analyzed. These samples were collected during periods of snowmelt or rainfall runoff. Nutrient data collection sites generally were located where and when prevailing erosion conditions were severe, and it might therefore be suspected that nutrient transport would be higher than average. In other words, sampling was intentionally biased, hopefully to disclose some of the highest suspected nutrient concentrations of the stream's water-sediment mixture.

Qualifications Regarding the Use of these Preliminary Data

Users of data summarized in this progress report are cautioned to bear in mind that these data only represent reconnaissance estimates of hydrogeologic conditions in the Incline Village area during the 1970 water year.

The data of this report may not be representative of past or future hydrogeologic conditions, because of their short-term nature and because of the dynamic development changes currently taking place in the area. Also, these data should not be extrapolated to other parts of the Tahoe basin, because hydrogeologic conditions throughout the basin probably varied greatly from place to place during the 1970 water year. Hydrogeologic variability is to be expected, because of differences in natural hydrogeologic parameters as well as differences in man's activities throughout the Tahoe basin.

RUNOFF

Runoff from the study area during the 1970 water year is summarized in table 2. About three-fourths of the total estimated runoff summarized in this report to Lake Tahoe was contributed by Incline and Third Creeks.

Runoff events of the 1970 water year may be chronologically categorized as follows: (a) low flows during early October 1969, (b) low flows interspersed with several pulses of rainfall runoff during late October, (c) continued low flows during November and the first half of December, (d) 3 days of heavy rainfall runoff December 19-21, (e) mostly snowfall; cold temperatures with some intermittent low-altitude snowmelt during late December and the first half of January 1970, (f) increased runoff caused by heavy rain on January 16, (g) high streamflows caused by heavy rain on low- and medium-altitude snowpack January 20-23, (h) generally static streamflow conditions during late January to mid-March with gentle pulses of low-altitude snowmelt intermittently fed by several snowfalls, (i) increased streamflow during late March caused by persistent low-altitude snowmelt, (j) generally increasing streamflow during April caused by medium-altitude snowmelt, (k) heaviest cumulative and instantaneous streamflow of the year during May and early June in most streams resulting from medium- and high-altitude snowmelt, (l) runoff from rains on June 19, and (m) return to and continuation of seasonal low flows during late June through September 1970.

Table 2.--Summary of runoff estimates for 1970 water year

(Runoff in acre-feet)

	First Creek	Second Creek	Wood Creek	Third Creek[1]	Incline Creek	Total (rounded)
October	21	35	74	202	341	670
November	25	39	86	238	312	700
December	32	69	130	339	330	900
January	87	100	170	535	709	1,600
February	72	50	120	345	483	1,100
March	140	96	160	491	679	1,600
April	120	160	210	530	710	1,700
May	190	350	440	1,360	1,170	3,500
June	130	240	320	1,850	980	3,500
July	48	71	140	403	499	1,160
August	23	49	65	150	346	630
September	24	50	56	131	280	540
Annual total (rounded)	900	1,300	2,000	6,570	6,840	17,600

	Annual runoff yield (acre-feet per square mile)	Maximum instantaneous discharge	Minimum instantaneous discharge
First Creek	830	11 cfs, May 26	About 0.2 cfs, several days in Oct., Nov., and Dec.
Second Creek	720	About 16 cfs, May 18	About 0.4 cfs, several days in Oct., Nov., and Dec.
Wood Creek	990	About 15 cfs, about May 18	About 0.8 cfs, several days in Oct.
Third Creek	1,090	65 cfs, June 2,3	0.8 cfs, Aug. 24
Incline Creek	980	87 cfs, Jan. 21	1.7 cfs, Dec. 15

1. Transbasin diversion shown in figure 1 was indirectly estimated by Rush (1967, p. 18) to average about 2,000 acre-feet per year. However, no known records of diversion are available to substantiate the estimate.

SEDIMENT TRANSPORT

A summary of estimated sediment transport to Lake Tahoe is shown in table 3. Sediment-load estimates represent the total sediment discharge (suspended load plus bedload) because of the physical conditions at the sites and the sampling techniques used. Table 3 shows that about three-fourths of the estimated total annual sediment load of about 10,000 tons reaching Lake Tahoe from all five drainages came from the combined loads of Third and Incline Creeks. The table also shows that the bulk of the annual sediment loads from each individual drainage reached the lake during the snowmelt runoff period. Yields are a means of expressing sediment-movement rates with regard to the size of drainage area from which they were derived. They allow annual erosion- or transport-rate comparisons of the individual drainages with each other, or with the composite rate of the total study area, irrespective of the sizes of the areas being compared.

Table 4 shows the load estimates prorated among areas of "urbanizing" development and undeveloped areas. Developed areas are those that contain homes, businesses, highways, recreational facilities, subdivision roads and construction, cleared utility rights of way, and recently constructed roadways; therefore, they include the areas mainly encompassing man's works and urbanizing efforts of last several decades. These urbanizing efforts have been greatly accelerated during this last decade. The undeveloped areas make up the balance of the study area; however, these areas are not preserved in a naturally virgin state, because most of the so-called undeveloped areas were man-affected to some degree by the logging operations associated with the Comstock Lode mining operations during the last half of the 19th century, and by intermittent livestock grazing throughout the last century.

It should be noted that the developed-area loads include loads derived as a result of the effects of development as well as those derived within the developed area because of natural erosion. No acceptable techniques are available to separate natural erosion from man-caused erosion within a given development area, except in situations where adequate data were collected prior to the start of development. No known predevelopment hydrologic data are available for the Incline Village area. However, the differences in yields between developed and undeveloped areas, as shown in table 4, are believed to provide a reasonable perspective regarding effects of development on sediment transport during the 1970 water year. The estimated sediment loads in table 4 suggest that about three-fourths of the 10,000 tons of sediment reaching Lake Tahoe during the year came from the developed area and about one-fourth came from the undeveloped area. The data also suggest that average sediment yield (prorating the annual load on an areal basis) from the developed areas to the lake during the 1970 water year was about 12 times greater than that of the undeveloped areas.

Table 3.--Estimates of fluvial-sediment transport (total load) into Lake Tahoe during 1970 water year

	First Creek	Second Creek	Wood Creek	Third Creek	Incline Creek	Total (rounded)
	Total-sediment loads (tons)					
October	--	--	--	6.0	30	--
November	--	--	--	2.0	10	--
December	--	--	--	120	320	--
January	--	--	--	390	1,300	--
February	--	--	--	22	26	--
March	--	--	--	120	170	--
April	--	--	--	210	180	--
May	--	--	--	2,400	540	--
June	--	--	--	1,600	190	--
July	--	--	--	18	86	--
August	--	--	--	6.0	19	--
September	--	--	--	2.0	11	--
Annual total (rounded)	200	1,400	960	4,900	2,900	10,000
Annual (1970) sediment yield (total drainage area--includes sum of developed and undeveloped areas)						
(Tons per square mile)	180	850	470	820	420	580
Approximate distribution of annual loads according to main types of runoff (percent) 1/						
Snowmelt period	85	95	75	90	80	85
Rainfall and low-flow period	15	5	25	10	20	15

1. Rounded to nearest 5 percent.

Table 4.--Estimates of total sediment loads and yields to Lake Tahoe from developed and undeveloped areas during 1970 water year

(All load estimates rounded to not more than two significant figures)

	First Creek	Second Creek	Wood Creek	Third Creek	Incline Creek	Total (rounded)
Approximate total area (square miles)	1.09	a 1.64	2.03	6.03	6.98	17.8
Approximate developed area						
Approximate percentage of total area	5	8	23	19	23	19
Square miles	.06	.14	.47	1.14	1.59	3.4
Estimated sediment loads (tons)						
Developed area 1/	150	400	840	3,700	2,500	7,600
Undeveloped area	50	1,000	120	1,200	370	2,700
Approximate 1970 yields (tons per square mile)						
Developed area 1/	2,500	2,900	1,800	3,200	1,600	b 2,200
Undeveloped area	50	650	80	250	70	b 190

1. Developed area loads and yield rates include naturally (unaffected by man's activities) eroded sediment from within the developed areas.

a. Total drainage area is about 1.81 square miles, but area above hydrologic data site is about 1.64 square miles.

b. Areally weighted average.

The sediment-yield estimate from the undeveloped part of the Third Creek drainage probably is low, because an unknown amount of sediment was diverted from the upper part of the basin via the transbasin diversion route shown in figure 1.

The data in table 4 suggest less variation from stream to stream between developed-area yields (vary by a factor of about 2) than between undeveloped-area yields (vary by a factor of about 13). With regard to the undeveloped-area yields, those of Second and Third Creeks are much greater than those of First, Wood, and Incline Creeks. This probably is the result of continuing instability and nonequilibrium landscape conditions in the Third and Second Creek drainages, which were caused by intense thundershower flooding during the summers of 1965 and 1967, respectively (Glancy, 1969, p. C195-C200).

Maximum and minimum measured sediment concentrations and loads at the principal lake-inflow hydrologic sites of each stream are shown in table 5. Great fluctuations occurred in the concentrations and loads, and these fluctuations for any given stream generally were closely related to the magnitude of streamflow. In other words, the highest measured sediment concentrations and loads were generally associated with high streamflows; conversely, minimum sediment concentrations and loads were generally measured during low-flow periods.

The approximate particle-size distributions of estimated sediment loads reaching Lake Tahoe are shown in table 6. These data were developed as a part of this study, because the effects of fluvial-sediment transport on the stream's environments and on the lake environment are dependent on not only the quantity but also the character of the sediments. For example, the concentration of suspended silt- and clay-size particles strongly affects the turbidity of the water, whereas sand-size particles, aside from forming good beaches, commonly clog streambed gravels and therefore, generally affect the stream biota adversely. The particle-size characteristics of the sediment loads also influence the chemistry of the water-sediment mixtures. Table 6 indicates that sediment loads derived during rainfall-runoff conditions generally contain much greater percentages of fine-grained material than those associated with the snowmelt runoff. However, the total annual five-stream composite load reaching the lake during 1970 was dominantly composed (68 percent) of coarse-grained sediment (sand).

The limited sediment-transport data summarized in this report provide the bulk of all directly measured fluvial-sediment data thus far obtained for the Lake Tahoe basin. As previously discussed, they allow a brief look at one page of the Incline Village area erosion history. However, the Incline Village erosion story represents only a single chapter of the much larger Lake Tahoe basin saga. Therefore, this progress report should be viewed and considered with this limited perspective clearly in mind.

Table 5.--Maximum and minimum sediment transport during 1970 water year as measured at sites of principal inflow to Lake Tahoe

Drainage	Date	Concentration (mg/l)	Date	Load (tons/day)
	MAXIMUM			
First Creek	Jan. 16	1,900	Jan. 21	19
Second Creek	Mar. 24	3,500	May 18	80
Wood Creek	Dec. 19	6,800	May 18	94
Third Creek	Dec. 20	3,670	Jun. 2	408
Incline Creek	Dec. 19	6,470	Dec. 21	625
	MINIMUM			
First Creek	Nov. 8	1	Nov. 8	0.001
Second Creek	Nov. 8	4	Nov. 8,Dec. 8	0.01
Wood Creek	Nov. 16	4	Sept. 22	0.01
Third Creek	Nov. 9, 20	3	Nov. 20,Dec. 2	0.04
Incline Creek	Nov. 16	4	Nov. 16	0.06

Table 6.--Estimates of the particle-size distribution of sediment loads reaching Lake Tahoe during 1970 water year

(All values rounded to not more than two significant figures)

Drainage	Sand Tons	Sand Percentage	Silt Tons	Silt Percentage	Clay Tons	Clay Percentage
	ANNUAL TOTAL					
First Creek	140	70	30	15	30	15
Second Creek	810	58	350	25	240	17
Wood Creek	550	57	220	23	190	20
Third Creek	3,800	78	730	15	350	7
Incline Creek	1,700	59	740	26	440	15
Total	7,000	68	2,100	20	1,200	12
	SNOWMELT RUNOFF PERIOD					
First Creek	140	83	20	12	8	5
Second Creek	810	62	310	24	180	14
Wood Creek	520	74	130	19	50	7
Third Creek	3,600	82	570	13	220	5
Incline Creek	1,600	69	520	22	200	9
Total	6,700	75	1,600	18	660	7
	RAINFALL AND LOW-FLOW RUNOFF PERIODS					
First Creek	3	10	9	28	20	62
Second Creek	Trace	<1	40	40	60	60
Wood Creek	30	12	90	34	140	54
Third Creek	220	43	160	31	130	26
Incline Creek	170	27	220	35	240	38
Total	420	28	520	34	590	38

The sediment-transport data summarized in this progress report may be more meaningful if considered in relation to the only other currently available erosion data for the Incline Village area--that of the 1967 mudflow in the Second Creek drainage (Glancy, 1967, p. C195-C200). That mudflow yielded an estimated 35,000 cubic yards of sediment, or more than 50,000 tons. The material moved as a result of a cloudburst on the upper drainage slopes and downward from the undeveloped area into the developed area in probably not more than 1 hour's time. The resultant sediment yield, prorated equally over the entire Second Creek drainage, amounts to about 28,000 tons per square mile per hour. That rate is impressive even if the hour was lengthened to a year. The total load amounted to about 5 times the estimated total 1970 load of the five streams shown in table 3. The effects of that mudflow and flooding probably are still influencing erosion in the Second Creek drainage, as was previously discussed. Therefore, nature must be considered as a currently active, although somewhat unpredictable, participant in the picture of Lake Tahoe basin erosion.

NUTRIENTS

The Incline Village investigation is also a preliminary effort to assess the magnitude of the nutrients (nitrogen and phosphorous compounds) that are transported into Lake Tahoe by streamflow. Nutrient transport to the lake is reportedly being accelerated because of erosion caused by man's development activities.

The interrelationships of water-sediment mixtures with regard to the derivation, transport, and ultimate deposition of nutrients are not often well understood. This complex problem was recently summarized by Lee (Univ. Wisconsin, 1970). Because of the complexity of the problem, this preliminary investigation was designed to identify the magnitude of the problem in the Incline Village area. The nutrient-evaluation phase represents only a small percentage of the total study effort of the investigation; the philosophy being that because of the current lack of scientific knowledge and techniques, an intensive study at this time might not yield results acceptable enough to justify the high costs that would be involved in a more intensive study. Hopefully, the preliminary reconnaissance will provide the necessary information to design a more intensive study.

Table 7 shows the results of reconnaissance-nutrient sampling during the 1970 water year. Sediment and water-discharge data collected concurrently with the nutrient data are also included in the tables to depict concurrent runoff and sediment-transport conditions. The samples were collected in four groups. The groups for October and December were collected during periods of rainfall runoff, and the April groups were collected during periods of low-altitude snowmelt runoff.

Table 7.--Summary of nutrient and concurrent streamflow and sediment-transport data for 1970 water year

[All nutrient concentrations reported as milligrams per liter]

Sampling site	Date	Time	Water discharge (cfs)	Water temperature (°C)	Ammonia (NH_3, as N)	Nitrite (NO_2, as N)	Nitrate (NO_3, as N)	Organic nitrogen (as N)	Total Kjeldahl nitrogen (as N)	Dissolved orthophosphate (as PO_4)	Total extractable phosphorous (as PO_4) 1/	Specific conductance (micromhos per cm at 25°C)	Sediment concentration (milligrams per liter)	Sediment load (tons per day)	Approximate particle-size distribution of sediment load (percentage)		
															Sand	Silt	Clay
Gutter at corner of Village Blvd. and Tahoe Blvd. 2/	10-15-69	1730	e1	--	--	--	--	--	3.1	--	0.11	379	13,900	58	64	26	10
First Creek near mouth	10-15-69	1630	1.1	5	--	--	--	--	.62	--	.03	79	196	.58	--	--	--
Third Creek near mouth	10-15-69	1500	5.0	5	--	--	--	--	.44	--	.08	74	70	.94	2	27	71
Gutter at corner of Village Blvd. and Tahoe Blvd. 2/	10-17-69	1145	e.5	3	--	--	--	--	1.2	--	.03	317	40,800	55	96	3	1
Third Creek near mouth	12-19-69	1730	9.0	3.5	0.03	0.00	0.25	3.5	3.5	0.25	.49	70	1,270	31	e50	e40	e10
Incline Creek near mouth	12-19-69	1715	14	3	.18	.00	.11	2.6	2.8	.19	.83	65	1,620	61	e40	e40	e20
West Branch Third Creek at Randall Ave. and Jeffrey St. 2/	4-11-70	1410	e.3	10	.00	.00	.00	.32	.32	.06	.51	105	237	.21	--	--	--
West Branch Third Creek at Mount Rose Highway 2/	4-11-70	1420	e.5	9.5	.00	.003	.00	5.0	5.0	.08	43	--	1,470	4.0	--	--	--
West Branch Third Creek at Tahoe Blvd. 2/	4-11-70	1520	e2.0	11.5	.02	.00	.00	.56	.58	.11	.72	120	1,380	7.5	--	--	--
Mill Creek above Tahoe Blvd. 2/	4-23-70	1220	e.5	9.5	.00	.00	.00	.00	.00	.12	.65	43	187	.25	--	--	--
Mill Creek below Tahoe Blvd. 2/	4-23-70	1210	e1.0	9	.00	.003	.00	3.8	3.8	.17	10	43	4,180	11	21	27	52
Unnamed tributary to Mill Creek south of Mill Creek at Tahoe Blvd. 2/	4-23-70	1250	e.5	5.5	.00	.01	.07	--	15	.16	34	78	23,200	21	13	25	62

1. Orthophosphate plus acid-persulfate hydrolyzable phorphorous compounds.

2. Sampling site not shown in figure 1.

e. Estimate.

These data show that most of the nitrogen being transported to the lake in the water-sediment mixture was of an organic nature. This includes the nitrogen contained in leaves, conifer needles, bark, wood, humic-soil particles, and other plant- and animal-related substances. The phosphorous data show that generally the greatest quantities were sorbed on, or part of, the undissolved particulate matter being transported by the streamflow. The highest phosphorous concentrations in the samples collected were associated with snowmelt runoff.

In summary, for the data collected, the highest nitrogen concentrations were of organic nitrogen, and the highest phosphorous concentrations were those associated with undissolved particulate matter. It is not presently known when or how these forms of nitrogen or phosphorous become available as usable nutrient material for algal growth, after transport to the lake.

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APPENDIX

10336688 FIRST CREEK NEAR CRYSTAL BAY, NEV. (LAT 39°15'00", LONG 119°59'18")

SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)
OCT.			APR.		
15...	1630	79	04...	1455	66
16...	1030	84	08...	1735	77
17...	1115	77	11...	1345	77
19...	1330	85	23...	1400	63
NOV.			MAY		
05...	1600	87	03...	1705	59
08...	1615	86	05...	1710	56
DEC.			18...	1530	50
08...	1015	86	18...	1815	49
12...	1400	86	19...	1350	51
19...	1545	72	23...	1530	53
20...	1310	71	23...	1900	52
20...	1615	75	26...	1705	52
21...	1135	69	JUN.		
23...	1540	82	02...	1730	56
JAN.			04...	1720	52
16...	1030	57	07...	1800	55
16...	1300	59	13...	1845	54
21...	1030	61	24...	1240	61
21...	1325	57	JUL.		
22...	0920	58	06...	1730	67
FEB.			24...	1450	76
27...	1630	72	30...	1645	77
MAR.			AUG.		
12...	1515	73	14...	1100	82
22...	1500	66	25...	1500	85
24...	1400	64	SEP.		
26...	1530	64	11...	1515	88
APR.			22...	1045	91
02...	1335	66			

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
OCT 15, 1969	1630	5.0	1.1	196	.58	--	--	--	--	--	--	--	--	--	--	--	
OCT 16.....	1030	5.5	E 1.0	18	E .05	--	--	--	--	--	--	--	--	--	--	--	
OCT 17.....	1115	3.5	E .50	50	E .07	--	--	--	--	--	--	--	--	--	--	--	
OCT 19.....	1330	5.0	E .50	5	E .01	--	--	--	--	--	--	--	--	--	--	--	
NOV 5.....	1600	4.5	.50	43	.06	--	--	--	--	--	--	--	--	--	--	--	
NOV 8.....	1615	4.5	.50	1	0	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	1015	1.0	.40	5	.01	--	--	--	--	--	--	--	--	--	--	--	
DEC 12.....	1400	4.0	.30	2	0	--	--	--	--	--	--	--	--	--	--	--	
DEC 19.....	1545	4.0	1.0	774	2.1	59	65	83	95	99	99	99	99	100	--	--	SPWC
DEC 20.....	1310	4.5	1.4	337	1.3	--	--	--	--	--	--	--	--	--	--	--	
DEC 20.....	1615	4.5	1.1	133	.40	--	--	--	--	--	--	--	--	--	--	--	
DEC 21.....	1135	4.5	1.4	260	.98	--	--	--	--	--	--	--	--	--	--	--	
DEC 23.....	1540	0.0	.60	31	.05	--	--	--	--	--	--	--	--	--	--	--	
JAN 16, 1970	1030	1.5	2.4	1900	12	4	5	7	9	12	16	23	41	74	91	98	SPWC
JAN 16.....	1300	2.0	2.1	1400	7.9	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1030	3.0	4.2	1640	19	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1325	1.0	4.4	1320	16	--	--	--	--	--	--	--	--	--	--	--	
JAN 22.....	0920	3.5	5.2	564	7.9	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	1630	4.0	2.0	134	.72	--	--	--	--	--	--	--	--	--	--	--	
MAR 12.....	1515	5.5	1.7	90	.41	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1500	6.5	3.1	356	3.0	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1400	8.0	3.4	326	3.0	--	--	--	--	--	--	--	--	--	--	--	
MAR 26.....	1530	--	2.4	1120	7.3	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1335	7.0	1.9	103	.53	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1455	6.0	2.5	180	1.2	--	--	--	--	--	--	--	--	--	--	--	

E Estimated.

10336688 FIRST CREEK NEAR CRYSTAL BAY, NEV.--Continued

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
APR 8.....	1735	5.0	2.7	86	.63	--	--	--	--	--	--	--	--	--	--	--	
APR 11.....	1345	6.5	2.9	41	.32	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1400	5.5	1.6	134	.58	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1705	8.5	2.2	202	1.2	--	--	--	--	--	--	--	--	--	--	--	
MAY 5.....	1710	8.0	2.4	709	4.6	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1530	12.0	4.8	338	4.4	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1815	8.5	4.4	480	5.7	5	6	8	11	13	15	18	31	65	80	92	SBWC
MAY 19.....	1350	9.0	3.8	144	1.5	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1530	11.5	4.0	118	1.3	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1900	8.5	4.0	108	1.2	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1705	11.0	3.6	142	1.4	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1730	11.5	3.4	51	.47	--	--	--	--	--	--	--	--	--	--	--	
JUN 4.....	1720	11.5	3.4	48	.44	--	--	--	--	--	--	--	--	--	--	--	
JUN 7.....	1800	10.5	2.6	53	.37	--	--	--	--	--	--	--	--	--	--	--	
JUN 13.....	1845	6.0	2.6	33	.23	--	--	--	--	--	--	--	--	--	--	--	
JUN 24.....	1240	11.5	1.7	288	1.3	--	--	--	--	--	--	--	--	--	--	--	
JUL 6.....	1730	16.0	1.0	8	.02	--	--	--	--	--	--	--	--	--	--	--	
JUL 24.....	1450	16.0	.50	11	.01	--	--	--	--	--	--	--	--	--	--	--	
JUL 30.....	1645	14.0	.40	8	.01	--	--	--	--	--	--	--	--	--	--	--	
AUG 14.....	1100	10.5	.40	12	.01	--	--	--	--	--	--	--	--	--	--	--	
AUG 25.....	1500	15.5	.40	7	.01	--	--	--	--	--	--	--	--	--	--	--	
SEP 11.....	1515	14.0	.40	5	.01	--	--	--	--	--	--	--	--	--	--	--	
SEP 22.....	1045	7.0	.40	3	0	--	--	--	--	--	--	--	--	--	--	--	

10336690 SECOND CREEK NEAR CRYSTAL BAY, NEV. (LAT 39°15'10", LONG 119°58'35")

SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)
OCT.			APR.		
15...	1700	70	04...	1445	60
16...	1045	75	08...	1625	74
17...	1130	72	11...	1030	77
19...	1335	84	11...	1400	74
NOV.			23...	1410	62
05...	1615	74	MAY		
08...	1630	77	03...	1700	53
DEC.			05...	1655	47
08...	1030	78	18...	1520	43
12...	1410	76	18...	1800	40
19...	1600	60	19...	1435	47
20...	1300	58	23...	1455	44
20...	1620	63	23...	1850	41
21...	1210	52	26...	1655	37
23...	1545	71	JUN.		
JAN.			02...	1725	40
16...	1045	47	04...	1715	43
16...	1305	48	07...	1755	47
21...	1050	52	13...	1855	52
21...	1320	49	24...	1320	57
22...	0910	52	24...	1350	53
FEB.			JUL.		
27...	1620	68	06...	1715	60
MAR.			24...	1430	67
12...	1505	68	30...	1600	58
22...	1515	59	AUG.		
24...	1345	54	14...	1045	73
26...	1450	58	25...	1445	75
APR.			SEP.		
02...	1350	62	11...	1510	78
04...	1040	63	22...	1315	77

10336690 SECOND CREEK NEAR CRYSTAL BAY, NEV.--Continued

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
OCT 15, 1969	1700	5.0	2.2	261	1.6	--	--	--	--	--	--	--	--	--	--	--	
OCT 16.....	1045	5.5	E 1.0	9	E .02	--	--	--	--	--	--	--	--	--	--	--	
OCT 17.....	1130	3.0	E 1.5	52	E .21	--	--	--	--	--	--	--	--	--	--	--	
OCT 19.....	1335	5.5	E .80	46	E .10	--	--	--	--	--	--	--	--	--	--	--	
NOV 5.....	1615	3.0	.60	11	.02	--	--	--	--	--	--	--	--	--	--	--	
NOV 8.....	1630	3.5	.70	4	.01	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	1030	.5	.50	6	.01	--	--	--	--	--	--	--	--	--	--	--	
DEC 12.....	1410	4.5	.60	40	.06	--	--	--	--	--	--	--	--	--	--	--	
DEC 19.....	1600	4.0	1.4	1310	5.0	53	69	85	96	97	99	99	100	--	--	--	SPWC
DEC 20.....	1300	4.0	2.1	491	2.8	--	--	--	--	--	--	--	--	--	--	--	
DEC 20.....	1620	4.5	1.6	111	.48	--	--	--	--	--	--	--	--	--	--	--	
DEC 21.....	1210	4.0	3.2	1010	8.7	--	--	--	--	--	--	--	--	--	--	--	
DEC 23.....	1545	0.0	2.9	54	.42	--	--	--	--	--	--	--	--	--	--	--	
JAN 16, 1970	1045	1.0	4.6	492	6.1	14	19	28	35	45	54	63	74	88	93	100	VPWC
JAN 16.....	1305	0.0	2.6	334	2.3	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1050	1.0	2.3	444	2.8	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1320	2.0	2.6	452	3.2	--	--	--	--	--	--	--	--	--	--	--	
JAN 22.....	0910	3.0	3.6	216	2.1	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	1620	4.5	1.0	308	.83	--	--	--	--	--	--	--	--	--	--	--	
MAR 12.....	1505	6.5	.60	170	.28	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1515	8.0	2.0	1510	8.2	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1345	9.0	2.7	3500	26	--	--	--	--	--	--	--	--	--	--	--	
MAR 26.....	1450	--	2.7	2950	22	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1350	10.0	2.7	1180	8.6	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1040	4.0	2.7	2300	17	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1445	8.5	2.7	2160	16	--	--	--	--	--	--	--	--	--	--	--	
APR 8.....	1625	5.5	3.6	1240	12	--	--	--	--	--	--	--	--	--	--	--	
APR 11.....	1030	4.5	2.9	646	5.1	--	--	--	--	--	--	--	--	--	--	--	
APR 11.....	1400	6.0	2.9	662	5.2	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1410	8.0	2.4	444	2.9	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1700	9.5	2.9	1440	11	7	9	15	23	34	49	71	88	95	98	100	VPWC
MAY 5.....	1655	8.5	2.4	2140	14	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1520	14.0	13	2280	80	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1800	8.5	10	1770	48	3	3	5	7	11	14	16	24	46	60	68	SPWC
MAY 19.....	1435	10.5	6.0	934	15	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1455	14.5	7.7	1110	23	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1850	7.0	6.0	969	16	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1655	10.5	9.5	1380	35	8	10	15	20	26	30	34	43	64	75	91	SBWC
JUN 2.....	1725	12.0	6.0	918	15	--	--	--	--	--	--	--	--	--	--	--	
JUN 4.....	1715	12.0	6.8	338	6.2	--	--	--	--	--	--	--	--	--	--	--	
JUN 7.....	1755	11.0	6.8	219	4.0	--	--	--	--	--	--	--	--	--	--	--	
JUN 13.....	1855	5.5	3.2	184	1.6	--	--	--	--	--	--	--	--	--	--	--	
JUN 24.....	1320	18.5	2.4	89	.58	--	--	--	--	--	--	--	--	--	--	--	
JUN 24.....	1350	19.0	2.1	1470	8.3	46	53	79	90	95	98	99	100	--	--	--	SPWC
JUL 6.....	1715	16.0	1.1	1120	3.3	--	--	--	--	--	--	--	--	--	--	--	
JUL 24.....	1430	21.0	1.3	114	.40	--	--	--	--	--	--	--	--	--	--	--	
JUL 30.....	1600	19.5	.70	1980	3.7	44	56	77	92	99	100	--	--	--	--	--	SPWC
AUG 14.....	1045	11.0	1.0	27	.07	--	--	--	--	--	--	--	--	--	--	--	
AUG 25.....	1445	20.5	.70	10	.02	--	--	--	--	--	--	--	--	--	--	--	
SEP 11.....	1510	19.0	.70	33	.06	--	--	--	--	--	--	--	--	--	--	--	
SEP 22.....	1315	10.5	1.1	9	.03	--	--	--	--	--	--	--	--	--	--	--	

E Estimated.

10336693 WOOD CREEK NEAR CRYSTAL BAY, NEV. (LAT 39°15'40", LONG 119°57'25")

SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)
OCT.			APR.		
15...	1715	66	09...	1600	60
16...	1130	64	23...	1425	57
30...	1030	78	MAY		
DEC.			03...	1045	44
08...	1045	65	JUN.		
12...	1415	65	02...	1715	44
MAR.			24...	1515	52
12...	1550	63	SEP.		
22...	1625	56	11...	1530	66
24...	1445	53			
26...	1630	55			

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEM-PERA-TURE (°C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALY-SIS
OCT 15, 1969	1715	5.0	4.6	638	7.9	31	41	47	52	58	64	86	96	99	99	100	SBWC
OCT 16.....	1130	4.5	2.3	100	.62	--	--	--	--	--	--	--	--	--	--	--	
OCT 30.....	1030	5.0	2.0	1110	6.0	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	1045	.5	2.3	11	.07	--	--	--	--	--	--	--	--	--	--	--	
DEC 12.....	1415	1.0	2.1	9	.05	--	--	--	--	--	--	--	--	--	--	--	
MAR 12, 1970	1550	4.0	1.8	11	.05	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1625	5.0	2.6	89	.62	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1445	5.5	3.2	122	1.1	--	--	--	--	--	--	--	--	--	--	--	
MAR 26.....	1630	--	3.0	53	.43	--	--	--	--	--	--	--	--	--	--	--	
APR 9.....	1600	8.5	5.1	298	4.1	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1425	4.5	1.5	109	.44	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1045	8.5	5.1	606	8.3	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1715	10.0	6.6	54	.96	--	--	--	--	--	--	--	--	--	--	--	
JUN 24.....	1515	16.0	2.9	9	.07	--	--	--	--	--	--	--	--	--	--	--	
SEP 11.....	1530	13.5	.80	5	.01	--	--	--	--	--	--	--	--	--	--	--	

10336694 WOOD CREEK AT MOUTH, NEAR CRYSTAL BAY, NEV. (LAT 39°14'35", LONG 119°57'30")

SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	DATE	TIME (24-HR)	(MICROMHOS AT 25°C)
OCT.			APR.		
15...	1600	62	02...	1330	59
16...	1015	64	04...	1500	56
17...	1100	63	08...	1745	68
19...	1250	67	09...	1445	70
22...	0735	64	11...	1505	66
30...	0915	69	23...	1145	60
NOV.			23...	1330	62
05...	1545	64	MAY		
05...	1645	63	03...	1600	51
08...	1600	66	05...	1445	52
09...	1200	65	18...	1500	47
16...	1200	63	18...	1745	41
20...	1600	66	19...	1245	47
23...	1635	67	23...	1445	47
DEC.			23...	1750	43
08...	0945	65	26...	1645	41
12...	1345	66	JUN.		
19...	1530	58	01...	1600	45
20...	1145	46	02...	1745	43
20...	1600	48	04...	1700	43
21...	1120	44	07...	1745	46
23...	1530	60	13...	1800	48
JAN.			24...	1125	54
16...	1015	42	JUL.		
16...	1235	38	06...	1645	58
21...	1010	39	24...	1500	62
21...	1310	45	30...	1415	62
22...	0900	45	AUG.		
FEB.			14...	1030	63
27...	1615	62	25...	1435	63
MAR.			SEP.		
12...	1500	63	11...	1500	64
22...	1455	57	22...	1400	67
24...	1315	54			
26...	1400	56			

10336694 WOOD CREEK AT MOUTH, NEAR CRYSTAL BAY, NEV.--Continued

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
OCT 15, 1969	1600	5.0	2.3	374	2.3	--	--	--	--	--	--	--	--	--	--	--	
OCT 16.....	1015	4.5	E 2.0	167	E .90	--	--	--	--	--	--	--	--	--	--	--	
OCT 17.....	1100	2.0	E 1.0	80	E .22	--	--	--	--	--	--	--	--	--	--	--	
OCT 19.....	1250	5.0	E 1.5	42	E .17	--	--	--	--	--	--	--	--	--	--	--	
OCT 22.....	0735	3.5	E 1.0	20	E .05	--	--	--	--	--	--	--	--	--	--	--	
OCT 30.....	0915	5.0	E 1.5	461	E 1.9	65	81	93	97	98	100	--	--	--	--	--	SBWC
NOV 5.....	1545	3.5	1.7	71	.33	--	--	--	--	--	--	--	--	--	--	--	
NOV 5.....	1645	3.5	1.8	222	1.1	--	--	--	--	--	--	--	--	--	--	--	
NOV 8.....	1600	3.5	1.7	468	2.1	--	--	--	--	--	--	--	--	--	--	--	
NOV 9.....	1200	4.5	1.8	21	.10	--	--	--	--	--	--	--	--	--	--	--	
NOV 11.....	0850	1.0	1.5	9	.04	--	--	--	--	--	--	--	--	--	--	--	
NOV 16.....	1200	4.5	1.5	4	.02	--	--	--	--	--	--	--	--	--	--	--	
NOV 20.....	1600	4.5	1.5	6	.02	--	--	--	--	--	--	--	--	--	--	--	
NOV 23.....	1635	2.0	1.4	12	.05	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	0945	.5	1.4	11	.04	--	--	--	--	--	--	--	--	--	--	--	
DEC 12.....	1345	2.0	1.3	12	.04	--	--	--	--	--	--	--	--	--	--	--	
DEC 19.....	1530	3.5	4.7	6800	86	51	72	85	96	97	98	99	99	100	--	--	VPWC
DEC 20.....	1145	3.5	7.8	3230	68	45	51	59	77	85	89	92	96	99	100	--	VPWC
DEC 20.....	1600	4.0	4.9	807	11	--	--	--	--	--	--	--	--	--	--	--	
DEC 21.....	1120	4.0	9.6	4810	125	30	39	49	66	75	80	85	91	96	98	100	SPWC
DEC 23.....	1530	.0	.90	52	.13	--	--	--	--	--	--	--	--	--	--	--	
JAN 16, 1970	1015	.5	7.4	774	15	8	12	18	23	30	40	56	73	87	98	100	VPWC
JAN 16.....	1235	.0	8.2	1830	41	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1010	1.0	6.0	1360	22	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1310	2.0	6.9	1270	24	--	--	--	--	--	--	--	--	--	--	--	
JAN 22.....	0900	3.0	8.2	931	21	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	1615	4.5	2.0	186	1.0	--	--	--	--	--	--	--	--	--	--	--	
MAR 12.....	1500	6.5	1.5	250	1.0	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1455	8.0	3.2	743	6.4	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1315	9.5	3.4	424	3.9	--	--	--	--	--	--	--	--	--	--	--	
MAR 26.....	1400	5.5	3.4	242	2.2	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1330	9.0	2.7	213	1.6	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1500	7.0	3.4	220	2.0	--	--	--	--	--	--	--	--	--	--	--	
APR 8.....	1745	5.5	4.3	90	1.0	--	--	--	--	--	--	--	--	--	--	--	
APR 9.....	1445	8.0	4.3	304	3.5	--	--	--	--	--	--	--	--	--	--	--	
APR 11.....	1505	7.0	4.3	560	6.5	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1145	5.0	2.3	139	.86	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1330	6.5	3.2	280	2.4	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1600	11.5	5.8	2400	38	4	6	8	11	14	18	23	35	53	77	93	SBWC
MAY 5.....	1445	12.0	5.2	708	9.9	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1500	13.5	9.6	1090	28	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1745	10.5	12	2910	94	6	6	10	15	21	24	27	34	62	82	94	SPWC
MAY 19.....	1245	8.5	7.8	449	9.5	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1445	14.0	10	205	5.5	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1750	11.5	10	807	22	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1645	13.5	10	1050	28	--	--	--	--	--	--	--	--	--	--	--	
JUN 1.....	1600	14.5	7.4	237	4.7	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1745	14.5	9.1	154	3.8	--	--	--	--	--	--	--	--	--	--	--	
JUN 4.....	1700	11.5	8.0	89	1.9	--	--	--	--	--	--	--	--	--	--	--	
JUN 7.....	1745	10.5	7.4	98	2.0	--	--	--	--	--	--	--	--	--	--	--	
JUN 13.....	1800	6.0	5.4	162	2.4	--	--	--	--	--	--	--	--	--	--	--	
JUN 24.....	1125	11.5	3.8	14	.14	--	--	--	--	--	--	--	--	--	--	--	
JUL 6.....	1645	17.0	2.5	56	.38	--	--	--	--	--	--	--	--	--	--	--	
JUL 24.....	1500	20.5	1.8	12	.06	--	--	--	--	--	--	--	--	--	--	--	
JUL 30.....	1415	17.5	1.8	11	.05	--	--	--	--	--	--	--	--	--	--	--	
AUG 14.....	1030	13.5	1.1	12	.04	--	--	--	--	--	--	--	--	--	--	--	
AUG 25.....	1435	19.0	.90	13	.03	--	--	--	--	--	--	--	--	--	--	--	
SEP 11.....	1500	18.0	.90	28	.07	--	--	--	--	--	--	--	--	--	--	--	
SEP 22.....	1400	11.5	1.0	5	.01	--	--	--	--	--	--	--	--	--	--	--	

E Estimated.

10336696 THIRD CREEK AT INCLINE VILLAGE, NEV. (LAT 39°16'25", LONG 119°56'50")

SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)
OCT.			MAY		
16...	1145	51	02...	1545	44
DEC.			03...	1625	40
08...	1100	52	05...	1545	39
12...	1420	53	18...	1545	28
19...	1610	46	18...	1830	27
20...	1230	42	19...	1625	30
20...	1635	43	23...	1600	27
21...	1230	39	23...	1845	25
JAN.			26...	1715	24
16...	1115	33	JUN.		
21...	1115	40	01...	1540	26
FEB.			02...	1645	23
27...	1715	52	04...	1740	23
MAR.			07...	1815	26
12...	1605	53	13...	1845	38
22...	1635	50	24...	1420	31
24...	1500	48	JUL.		
26...	1610	51	06...	1745	42
APR.					
02...	1630	49			
04...	1430	49			
08...	1615	57			
11...	1435	55			
23...	1445	48			

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
OCT 16, 1969	1145	4.0	E 6.0	10	E .16	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	1100	1.0	3.8	0	0	--	--	--	--	--	--	--	--	--	--	--	
DEC 12.....	1420	1.0	3.8	1	.01	--	--	--	--	--	--	--	--	--	--	--	
DEC 19.....	1610	2.0	5.7	39	.60	--	--	--	--	--	--	--	--	--	--	--	
DEC 20.....	1230	3.0	8.6	80	1.9	--	--	--	--	--	--	--	--	--	--	--	
DEC 20.....	1635	3.0	8.6	42	.98	--	--	--	--	--	--	--	--	--	--	--	
DEC 21.....	1230	1.0	17	181	8.3	--	--	--	--	--	--	--	--	--	--	--	
JAN 16, 1970	1115	.5	9.7	244	6.4	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1115	1.0	8.9	187	4.5	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	1715	3.0	4.3	5	.06	--	--	--	--	--	--	--	--	--	--	--	
MAR 12.....	1605	4.5	4.3	13	.15	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1635	4.0	5.2	14	.20	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1500	5.5	5.7	38	.58	--	--	--	--	--	--	--	--	--	--	--	
MAR 26.....	1610	--	5.2	10	.14	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1630	3.5	4.8	18	.23	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1430	6.0	4.8	17	.22	--	--	--	--	--	--	--	--	--	--	--	
APR 8.....	1615	4.0	5.9	19	.30	--	--	--	--	--	--	--	--	--	--	--	
APR 11.....	1435	5.5	6.1	60	.99	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1445	4.5	4.8	18	.23	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1545	8.0	6.8	72	1.3	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1625	7.0	9.2	259	6.4	--	--	--	--	--	--	--	--	--	--	--	
MAY 5.....	1545	7.0	14	343	13	5	7	9	12	16	22	32	47	67	84	100	VBWC
MAY 18.....	1545	8.0	38	871	89	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1830	5.0	43	608	71	--	--	--	--	--	--	--	--	--	--	--	
MAY 19.....	1625	4.5	32	115	9.9	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1600	9.5	42	418	47	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1845	4.0	48	356	46	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1715	6.0	50	302	41	--	--	--	--	--	--	--	--	--	--	--	
JUN 1.....	1540	9.0	45	163	20	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1645	8.5	65	864	152	3	5	7	10	13	16	19	33	50	68	81	SBWC
JUN 4.....	1740	9.0	62	480	80	--	--	--	--	--	--	--	--	--	--	--	
JUN 7.....	1815	9.0	43	174	20	--	--	--	--	--	--	--	--	--	--	--	
JUN 13.....	1845	6.0	24	18	1.2	--	--	--	--	--	--	--	--	--	--	--	
JUN 24.....	1420	15.5	22	28	1.7	--	--	--	--	--	--	--	--	--	--	--	
JUL 6.....	1745	14.0	7.5	10	.20	--	--	--	--	--	--	--	--	--	--	--	

E Estimated.

10336698 THIRD CREEK NEAR CRYSTAL BAY, NEV. (LAT 39°14'26", LONG 119°56'44")

SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)
OCT.		
15...	1500	74
16...	0950	63
17...	1055	59
19...	1245	67
19...	1645	64
22...	0730	68
30...	1410	63
NOV.		
04...	1345	71
05...	1515	67
05...	1700	69
08...	1530	60
09...	1145	62
16...	1215	63
20...	1445	60
23...	1615	60
DEC.		
02...	1150	63
08...	0915	62
08...	1430	65
12...	1340	62
19...	1510	75
19...	1730	70
20...	1015	62
20...	1400	65
20...	1700	60
21...	1030	56
21...	1300	56
23...	1430	57
JAN.		
16...	0945	52
16...	1225	53
21...	1000	58
21...	1255	58
22...	0845	57
27...	1220	68
FEB.		
27...	1645	79
MAR.		
12...	1445	80
22...	1445	72
22...	1800	74
24...	1250	80
24...	1545	68
24...	1800	71
31...	1430	78
APR.		
02...	1300	78
04...	1030	75
04...	1515	74
08...	1505	84
11...	1500	82
15...	1420	72
23...	1130	70
23...	1315	71
23...	1535	73
23...	1715	75
MAY		
02...	1610	65
03...	1545	61
03...	1750	58
05...	1415	55
05...	1730	50
18...	1445	37
18...	1730	34
18...	1900	31
19...	1045	36
23...	1430	36
23...	1730	31
23...	1930	30
26...	1615	29
26...	1800	28
JUN.		
01...	1605	30
02...	1800	26
04...	1650	29
04...	1815	26
07...	1725	31
07...	1845	29
13...	1745	40
24...	1100	39
JUL.		
06...	1625	50
24...	1315	71
30...	1400	70
AUG.		
14...	1015	85
25...	1420	82
SEP.		
11...	1435	80
22...	1440	80

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEM-PERA-TURE (°C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALY-SIS
OCT 15, 1969	1500	5.0	5.0	70	.94	52	71	86	94	96	98	99	99	99	100	--	SBWC
OCT 16.....	0950	4.5	7.9	40	.85	--	--	--	--	--	--	--	--	--	--	--	
OCT 16.....	1200	5.0	7.9	50	1.1	--	--	--	--	--	--	--	--	--	--	--	
OCT 17.....	1055	3.0	9.0	21	.51	--	--	--	--	--	--	--	--	--	--	--	
OCT 19.....	1245	5.0	4.8	14	.18	--	--	--	--	--	--	--	--	--	--	--	
OCT 19.....	1645	5.5	5.5	19	.28	--	--	--	--	--	--	--	--	--	--	--	
OCT 22.....	0730	4.0	4.6	6	.07	--	--	--	--	--	--	--	--	--	--	--	
OCT 30.....	1410	9.0	3.9	7	.07	--	--	--	--	--	--	--	--	--	--	--	
NOV 4.....	1345	9.0	2.3	15	.09	--	--	--	--	--	--	--	--	--	--	--	
NOV 5.....	1515	4.0	4.6	28	.35	--	--	--	--	--	--	--	--	--	--	--	
NOV 5.....	1700	3.5	4.8	59	.76	--	--	--	--	--	--	--	--	--	--	--	
NOV 8.....	1530	5.0	5.0	10	.14	--	--	--	--	--	--	--	--	--	--	--	
NOV 9.....	1145	4.0	4.8	3	.04	--	--	--	--	--	--	--	--	--	--	--	
NOV 16.....	1215	4.5	4.8	4	.05	--	--	--	--	--	--	--	--	--	--	--	
NOV 20.....	1445	6.5	4.4	3	.04	--	--	--	--	--	--	--	--	--	--	--	
NOV 23.....	1615	4.5	5.0	10	.14	--	--	--	--	--	--	--	--	--	--	--	
DEC 2.....	1150	2.0	3.2	5	.04	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	0915	.5	3.4	11	.10	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	1430	2.0	3.9	251	2.6	--	--	--	--	--	--	--	--	--	--	--	
DEC 12.....	1340	3.0	3.9	33	.35	--	--	--	--	--	--	--	--	--	--	--	
DEC 19.....	1510	4.0	12	2280	74	50	57	69	87	95	97	99	100	--	--	--	VPWC
DEC 19.....	1730	3.5	9.0	1270	31	--	--	--	--	--	--	--	--	--	--	--	
DEC 20.....	1015	3.0	32	3670	317	42	51	66	80	88	92	96	98	100	--	--	VPWC
DEC 20.....	1400	3.5	13	909	32	--	--	--	--	--	--	--	--	--	--	--	
DEC 20.....	1700	4.0	12	357	12	--	--	--	--	--	--	--	--	--	--	--	

10336698 THIRD CREEK NEAR CRYSTAL BAY, NEV.--Continued

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEM - PERA- TURE (°C)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALY- SIS
DEC 21.....	1030	4.5	23	1700	106	32	39	48	61	69	74	82	87	94	100	--	VPWC
DEC 21.....	1300	1.5	33	2110	188	--	--	--	--	--	--	--	--	--	--	--	
DEC 23.....	1430	.0	6.9	40	.75	--	--	--	--	--	--	--	--	--	--	--	
JAN 16, 1970	0945	1.0	22	1470	87	14	19	26	32	40	48	59	68	79	96	100	VPWC
JAN 16.....	1225	.5	23	1380	86	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1000	1.5	18	2090	102	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1255	2.0	19	2300	118	--	--	--	--	--	--	--	--	--	--	--	
JAN 22.....	0845	3.0	25	2430	164	--	--	--	--	--	--	--	--	--	--	--	
JAN 27.....	1220	.0	10	137	3.7	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	1645	5.5	7.6	454	9.3	--	--	--	--	--	--	--	--	--	--	--	
MAR 12.....	1445	9.0	5.5	292	4.3	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1445	10.0	10	867	23	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1800	5.5	10	756	20	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1250	11.0	9.0	380	9.2	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1545	10.0	13	1610	57	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1800	6.0	12	780	25	--	--	--	--	--	--	--	--	--	--	--	
MAR 31.....	1430	7.0	7.2	138	2.7	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1300	9.5	6.2	236	4.0	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1030	3.5	6.2	243	4.1	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1515	10.0	6.9	296	5.5	--	--	--	--	--	--	--	--	--	--	--	
APR 8.....	1505	9.5	7.6	365	7.5	--	--	--	--	--	--	--	--	--	--	--	
APR 11.....	1500	10.0	7.6	231	4.7	--	--	--	--	--	--	--	--	--	--	--	
APR 15.....	1420	6.5	9.8	448	12	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1130	4.5	8.5	228	5.2	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1315	4.5	9.2	273	6.8	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1535	8.5	10	749	20	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1715	5.5	9.8	494	13	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1610	14.5	9.2	155	3.9	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1545	14.5	10	288	7.8	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1750	11.5	12	706	23	6	9	12	15	19	23	30	40	56	71	85	SBWC
MAY 5.....	1415	13.5	12	326	11	--	--	--	--	--	--	--	--	--	--	--	
MAY 5.....	1730	10.5	15	1420	58	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1445	13.0	25	1090	74	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1730	10.5	35	2720	257	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1900	8.0	41	1840	204	1	1	2	3	6	9	12	21	45	68	85	SBWC
MAY 19.....	1045	4.5	27	1140	83	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1430	12.0	26	1690	119	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1730	10.5	37	1620	162	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1930	5.5	41	1940	215	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1615	12.0	51	2030	280	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1800	8.5	53	2430	348	3	4	6	8	10	11	14	23	47	72	89	SBWC
JUN 1.....	1605	11.5	49	674	89	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1800	9.5	68	2220	408	2	3	4	7	9	11	13	20	42	65	81	SPWC
JUN 4.....	1650	12.0	59	1440	229	--	--	--	--	--	--	--	--	--	--	--	
JUN 4.....	1815	10.0	62	1660	278	--	--	--	--	--	--	--	--	--	--	--	
JUN 7.....	1725	13.0	53	1260	180	--	--	--	--	--	--	--	--	--	--	--	
JUN 7.....	1845	10.5	55	602	89	--	--	--	--	--	--	--	--	--	--	--	
JUN 13.....	1745	6.0	27	530	39	19	21	33	39	47	48	50	53	60	78	100	SPWC
JUN 24.....	1100	11.0	21	105	6.0	--	--	--	--	--	--	--	--	--	--	--	
JUL 6.....	1625	16.0	8.5	34	.78	--	--	--	--	--	--	--	--	--	--	--	
JUL 24.....	1315	20.0	3.2	24	.21	--	--	--	--	--	--	--	--	--	--	--	
JUL 30.....	1400	20.0	2.7	22	.16	--	--	--	--	--	--	--	--	--	--	--	
AUG 14.....	1015	12.0	1.9	35	.18	--	--	--	--	--	--	--	--	--	--	--	
AUG 25.....	1420	20.0	1.9	25	.13	--	--	--	--	--	--	--	--	--	--	--	
SEP 11.....	1435	18.5	2.1	11	.06	--	--	--	--	--	--	--	--	--	--	--	
SEP 22.....	1440	14.5	1.7	12	.06	--	--	--	--	--	--	--	--	--	--	--	

10336700 INCLINE CREEK NEAR CRYSTAL BAY, NEV. (LAT 39°14'25", LONG 119°56'40")

SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DATE	TIME (24-HR)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)
OCT.		
15...	1445	68
16...	0945	65
16...	1215	67
17...	1045	66
19...	1230	66
19...	1645	65
22...	0725	64
30...	1400	65
NOV.		
04...	1415	65
05...	1500	65
05...	1700	66
08...	1515	66
09...	1120	65
16...	1200	66
20...	1500	66
23...	1620	65
DEC.		
02...	1030	66
08...	0900	65
08...	1415	64
12...	1330	66
19...	1450	99
19...	1715	65
20...	0950	53
20...	1400	54
20...	1645	53
21...	1015	49
21...	1245	49
23...	1415	64
JAN.		
16...	0915	49
16...	1210	55
21...	0950	54
21...	1245	55
22...	0830	53
27...	0955	70
27...	1100	70
FEB.		
27...	1700	72
MAR.		
12...	1430	73
22...	1430	72
22...	1750	70
24...	1245	74
24...	1530	68
24...	1755	80
31...	1445	72
APR.		
02...	1245	72
04...	1015	69
04...	1505	67
08...	1450	80
11...	1445	77
15...	1430	64
23...	1115	67
23...	1300	67
23...	1525	67
23...	1715	65
MAY		
02...	1600	56
03...	1530	56
03...	1730	48
05...	1430	52
05...	1745	45
18...	1430	45
18...	1715	40
18...	1845	39
19...	0905	44
23...	1415	44
23...	1715	39
23...	1915	39
26...	1600	39
26...	1745	38
JUN.		
02...	1750	40
04...	1640	41
04...	1805	40
07...	1710	44
13...	1710	46
24...	1110	50
JUL.		
06...	1610	53
24...	1300	56
30...	1345	59
AUG.		
14...	1000	71
25...	1400	83
SEP.		
11...	1420	64
22...	1445	66

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
OCT 15, 1969	1445	5.0	9.2	328	8.1	38	47	60	68	75	79	86	95	99	100	--	SPWC
OCT 16.....	0945	5.0	8.0	143	3.1	--	--	--	--	--	--	--	--	--	--	--	
OCT 16.....	1215	5.0	7.4	842	17	--	--	--	--	--	--	--	--	--	--	--	
OCT 17.....	1045	3.5	6.5	65	1.1	--	--	--	--	--	--	--	--	--	--	--	
OCT 19.....	1230	5.0	6.1	23	.38	--	--	--	--	--	--	--	--	--	--	--	
OCT 19.....	1645	5.0	7.4	113	2.3	--	--	--	--	--	--	--	--	--	--	--	
OCT 22.....	0725	4.0	6.3	17	.29	--	--	--	--	--	--	--	--	--	--	--	
OCT 30.....	1400	8.5	4.2	50	.57	--	--	--	--	--	--	--	--	--	--	--	
NOV 4.....	1415	8.0	4.9	41	.54	--	--	--	--	--	--	--	--	--	--	--	
NOV 5.....	1500	4.0	6.6	411	7.3	--	--	--	--	--	--	--	--	--	--	--	
NOV 5.....	1700	3.5	6.6	223	4.0	--	--	--	--	--	--	--	--	--	--	--	
NOV 8.....	1515	4.5	5.9	74	1.2	--	--	--	--	--	--	--	--	--	--	--	
NOV 9.....	1120	4.0	5.9	8	.13	--	--	--	--	--	--	--	--	--	--	--	
NOV 16.....	1200	5.0	5.6	4	.06	--	--	--	--	--	--	--	--	--	--	--	
NOV 20.....	1500	5.0	5.9	165	2.6	--	--	--	--	--	--	--	--	--	--	--	
NOV 23.....	1620	3.5	4.3	17	.20	--	--	--	--	--	--	--	--	--	--	--	
DEC 2.....	1030	2.0	4.9	25	.33	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	0900	.5	3.0	29	.23	--	--	--	--	--	--	--	--	--	--	--	
DEC 8.....	1415	2.0	3.2	18	.16	--	--	--	--	--	--	--	--	--	--	--	
DEC 12.....	1330	3.0	3.0	79	.64	--	--	--	--	--	--	--	--	--	--	--	

10336700 INCLINE CREEK NEAR CRYSTAL BAY, NEV.--Continued

INSTANTANEOUS TOTAL SEDIMENT AND PARTICLE SIZE, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEM - PERA- TURE (°C)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	TOTAL SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALY- SIS
DEC 19.....	1450	4.0	18	6470	314	34	42	52	68	79	86	92	97	99	100	--	VPWC
DEC 19.....	1715	3.0	14	1620	61	--	--	--	--	--	--	--	--	--	--	--	
DEC 20.....	0950	3.0	29	6460	506	29	32	38	48	58	65	74	83	92	100	--	VPWC
DEC 20.....	1400	3.5	22	2240	133	--	--	--	--	--	--	--	--	--	--	--	
DEC 20.....	1645	4.0	18	1320	64	--	--	--	--	--	--	--	--	--	--	--	
DEC 21.....	1015	4.5	28	6130	463	14	19	26	32	40	46	53	61	70	83	98	SPWC
DEC 21.....	1245	1.5	44	5260	625	--	--	--	--	--	--	--	--	--	--	--	
DEC 23.....	1415	.0	6.8	364	6.7	--	--	--	--	--	--	--	--	--	--	--	
JAN 16, 1970	0915	1.5	41	4500	498	5	8	11	15	20	26	40	60	78	95	100	VPWC
JAN 16.....	1210	1.0	38	3920	402	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	0950	2.0	29	1740	136	--	--	--	--	--	--	--	--	--	--	--	
JAN 21.....	1245	2.0	32	3690	319	--	--	--	--	--	--	--	--	--	--	--	
JAN 22.....	0830	3.0	45	1880	228	--	--	--	--	--	--	--	--	--	--	--	
JAN 27.....	0955	.5	13	117	4.1	--	--	--	--	--	--	--	--	--	--	--	
JAN 27.....	1100	.5	12	72	2.3	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	1700	4.5	10	175	4.7	--	--	--	--	--	--	--	--	--	--	--	
MAR 12.....	1430	8.0	8.7	412	9.7	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1430	9.5	14	382	14	--	--	--	--	--	--	--	--	--	--	--	
MAR 22.....	1750	5.0	14	498	19	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1245	8.5	14	286	11	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1530	9.0	18	430	21	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1755	5.5	20	468	25	--	--	--	--	--	--	--	--	--	--	--	
MAR 31.....	1445	5.0	12	218	7.1	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1245	8.0	12	152	4.9	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1015	3.5	12	110	3.6	--	--	--	--	--	--	--	--	--	--	--	
APR 4.....	1505	9.0	14	232	8.8	--	--	--	--	--	--	--	--	--	--	--	
APR 8.....	1450	8.5	14	154	5.8	--	--	--	--	--	--	--	--	--	--	--	
APR 11.....	1445	9.0	14	193	7.3	--	--	--	--	--	--	--	--	--	--	--	
APR 15.....	1430	6.0	14	163	6.2	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1115	4.5	10	104	2.8	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1300	6.5	13	427	15	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1525	6.5	14	498	19	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1715	5.0	14	448	17	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1600	11.5	16	341	15	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1530	13.0	17	432	20	--	--	--	--	--	--	--	--	--	--	--	
MAY 3.....	1730	9.5	21	674	38	8	11	16	21	27	38	53	70	85	99	100	VBWC
MAY 5.....	1430	12.0	17	330	15	--	--	--	--	--	--	--	--	--	--	--	
MAY 5.....	1745	9.5	25	1660	112	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1430	11.5	22	295	18	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1715	10.0	30	1040	84	--	--	--	--	--	--	--	--	--	--	--	
MAY 18.....	1845	9.5	32	622	54	--	--	--	--	--	--	--	--	--	--	--	
MAY 19.....	0905	5.0	23	250	16	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1415	12.0	25	388	26	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1715	11.5	29	696	54	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1915	6.5	27	346	25	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1600	13.5	28	210	16	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1745	12.0	31	814	68	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1750	13.0	25	128	8.6	--	--	--	--	--	--	--	--	--	--	--	
JUN 4.....	1640	14.5	22	88	5.2	--	--	--	--	--	--	--	--	--	--	--	
JUN 4.....	1805	9.5	23	68	4.2	--	--	--	--	--	--	--	--	--	--	--	
JUN 7.....	1710	10.5	20	37	2.0	--	--	--	--	--	--	--	--	--	--	--	
JUN 13.....	1710	6.5	27	1050	77	45	57	73	82	85	87	87	89	91	94	96	SPWC
JUN 24.....	1110	11.5	12	100	3.2	--	--	--	--	--	--	--	--	--	--	--	
JUL 6.....	1610	16.0	8.4	46	1.0	--	--	--	--	--	--	--	--	--	--	--	
JUL 24.....	1300	17.0	7.3	529	10	34	47	76	93	96	97	98	98	100	--	--	SPWC
JUL 30.....	1345	16.0	7.6	78	1.6	--	--	--	--	--	--	--	--	--	--	--	
AUG 14.....	1000	11.5	5.2	38	.53	--	--	--	--	--	--	--	--	--	--	--	
AUG 25.....	1400	18.5	4.9	22	.29	--	--	--	--	--	--	--	--	--	--	--	
SEP 11.....	1420	15.5	4.6	53	.66	--	--	--	--	--	--	--	--	--	--	--	
SEP 22.....	1445	11.5	4.9	22	.29	--	--	--	--	--	--	--	--	--	--	--	