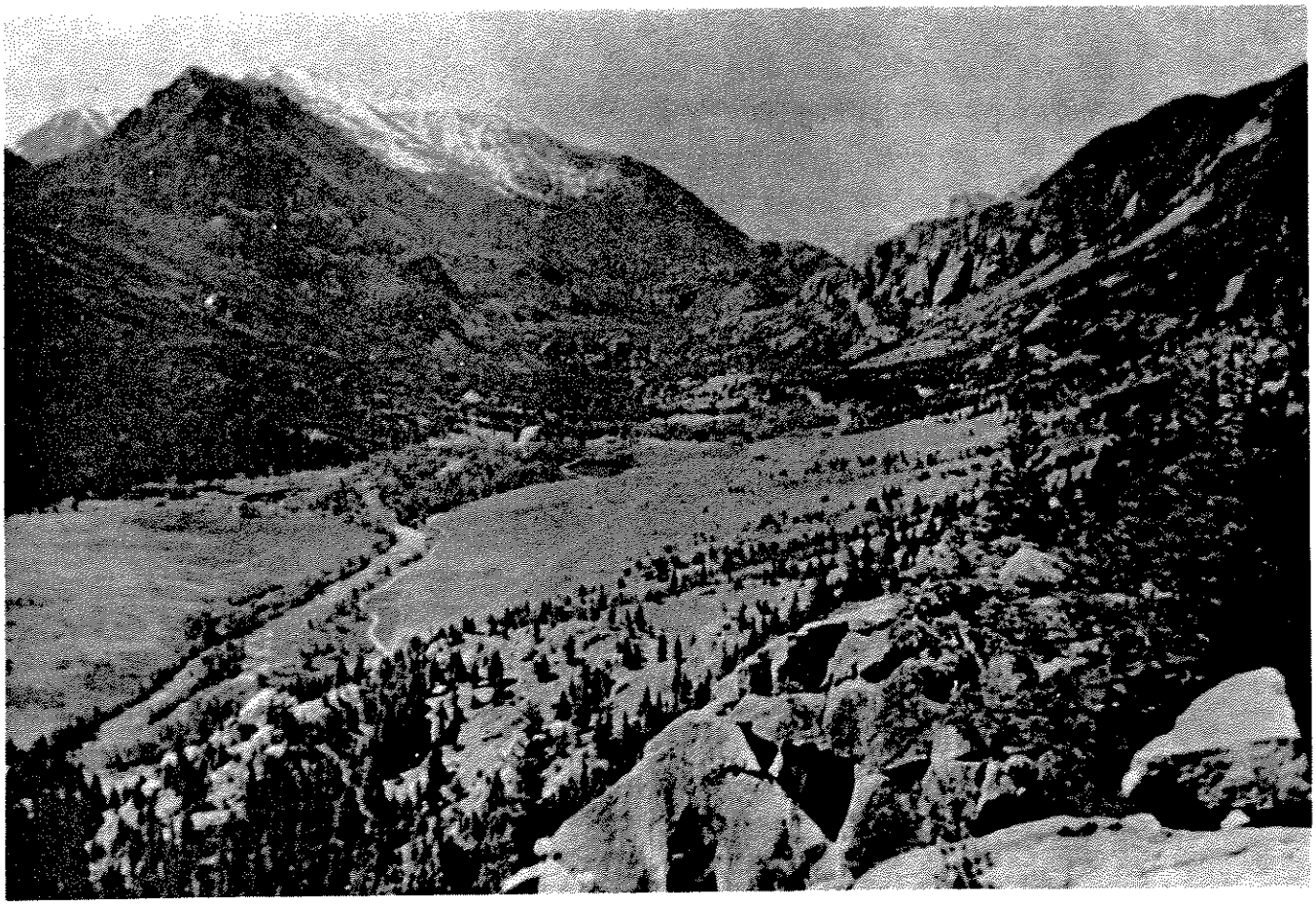
BEARTOOTH-ABSAROKA WILDLIFE-MINING RESEARCH

FEDERAL AID TO FISH AND WILDLIFE RESTORATION PROJECT FW-2-R-5

MONTANA DEPARTMENT OF FISH AND GAME,

ENVIRONMENT AND INFORMATION DIVISION

FINAL REPORT - JUNE 1977



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ABSTRACT

Chemical and biological investigations were undertaken in streams draining an area of southcentral Montana where mining development is expected. More intensive work was done in the West Fork Stillwater River drainage where development seems imminent.

Water quality was generally good. Waters, with some exceptions, are soft and low in dissolved materials. Dissolved and suspended metals were found only in low concentrations. Turbidity and suspended solids remained low except for the snowmelt period when values reached moderate levels. Stream temperature measurements with maximum-minimum thermometers showed a summer maximum temperature of 60 F for stations in the West Fork Stillwater River drainage.

Standing crops of streambottom macroinvertebrates were variable, both in time and location. At most stations organisms considered sensitive to pollution were dominant. Species identification data are shown for stations on two streams.

Fish population estimates were made for 27 sections in 16 streams. Standing crops were moderately low in larger streams, but moderately high in some brushy, meandering tributaries. Young-of-the-year fish were present in most stream sections. Population estimates were mostly similar from one year to the next. Fish tended to remain in the same stream section from one year to the next, and grew somewhat more slowly than state averages.

Survey electrofishing was done on stream sections where fish population estimates were not made. Fish populations were lacking, except near the mouth, in most small streams and in the upper reaches of almost all streams.

A limited investigation was made in the West Fork Stillwater River of trout redd physical characteristics, spawning dates and egg hatching dates.

Limited data on fish stomach contents suggest fish cropped a wide variety of aquatic organisms. Survival to hatching of trout eggs placed in artificial redds was variable, largely in response to water temperature.

Data are shown for metals concentrations in fish muscle tissue.

Requests for minimum streamflow reservations, under the state law, "Montana Water Use Act," were submitted for streams with significant fish populations.

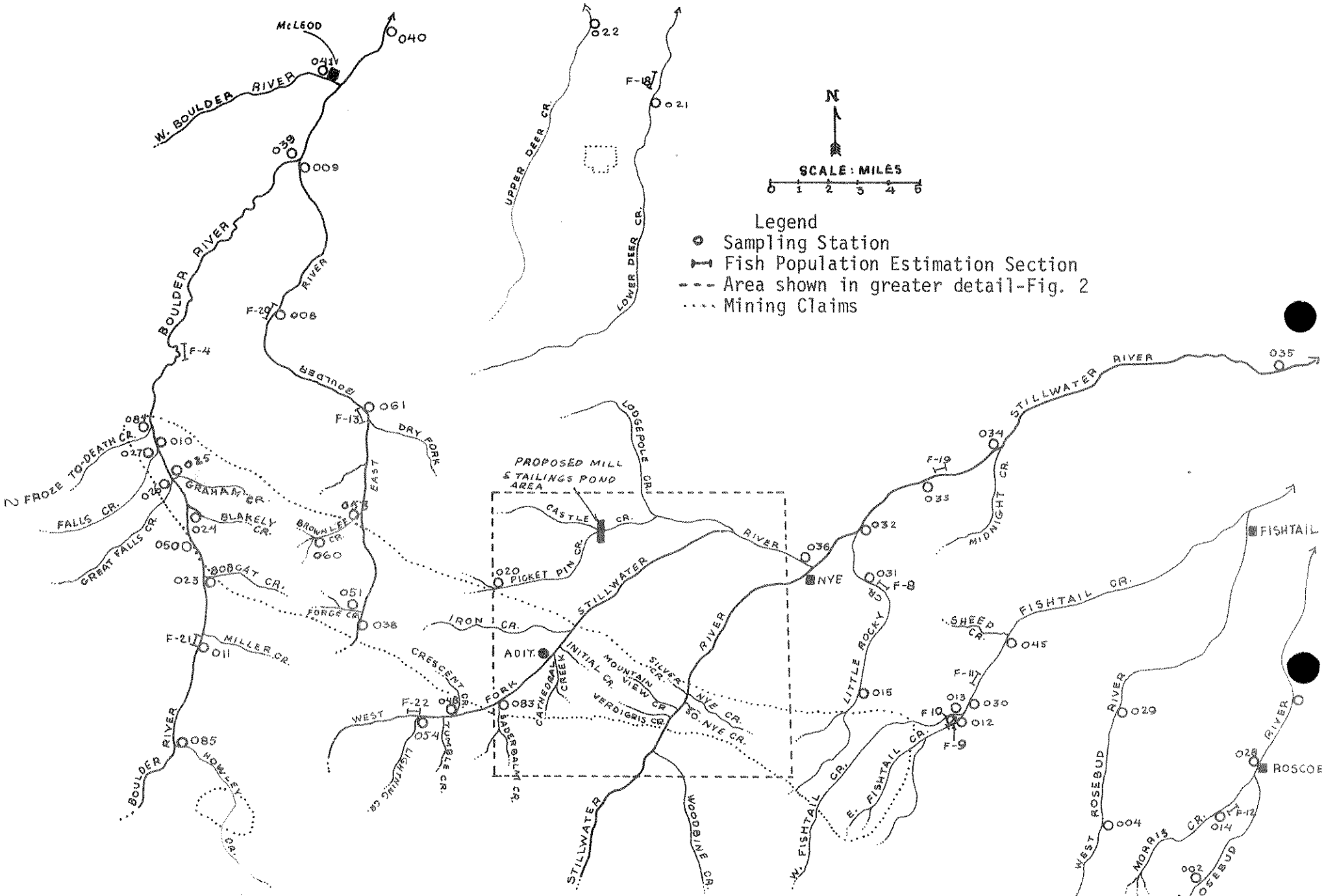

Figure 1. Study area streams showing location of sampling stations and fish population estimation sections.

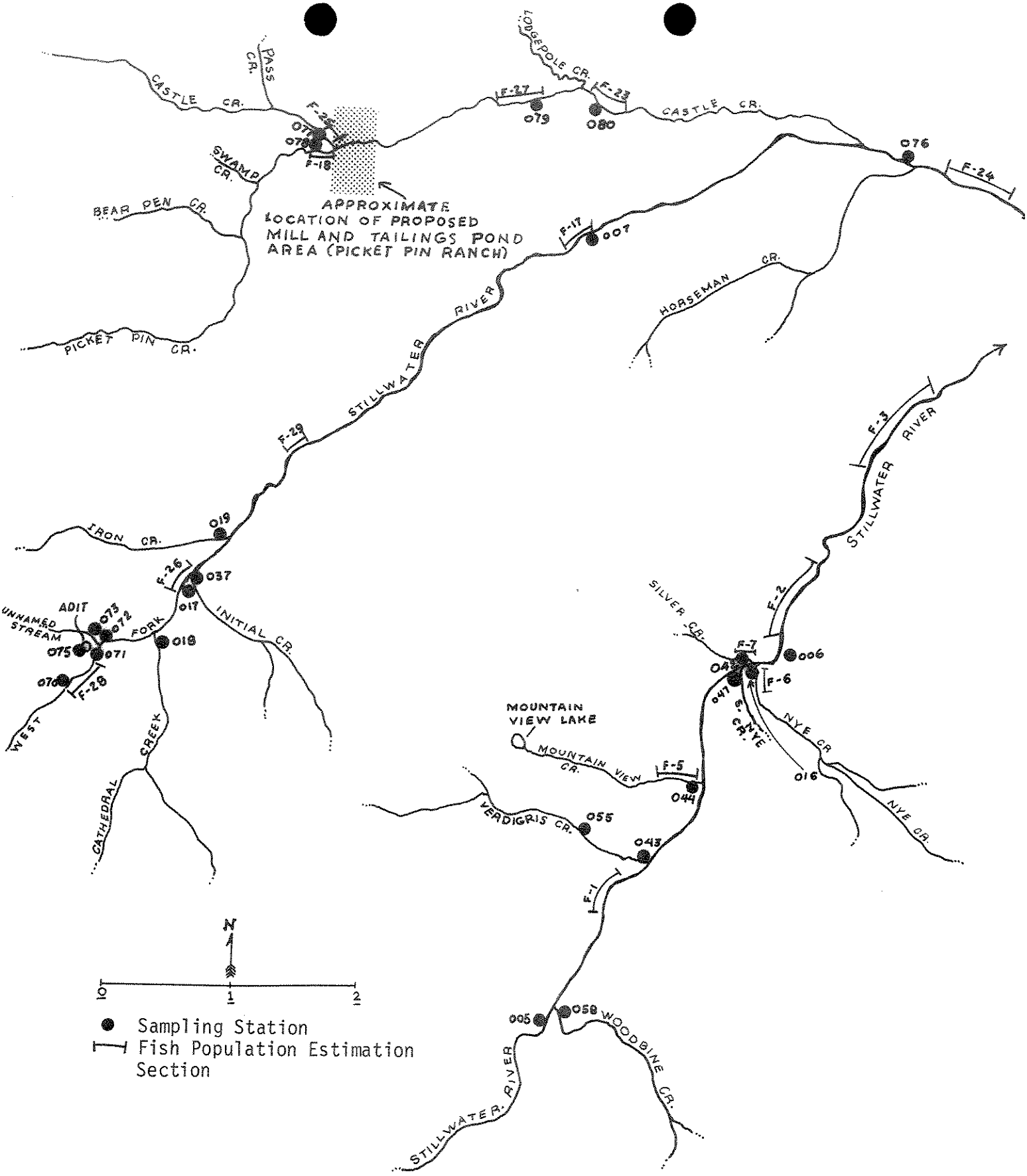

Figure 2. Enlarged portion of Figure 1 showing sampling stations and fish population estimation sections in a portion of the Stillwater River drainage.

BACKGROUND

Several thousand acres of hard-rock mining claims are located along or near the north edge of the Beartooth-Absaroka mountain range in south-central Montana (Figures 1 and 2). Most of the claims were established in the late 1960's, but some claims have been added in the period 1970-1976. Extensive mining in this area seems likely in the near future. Claims in the Deer Creeks area and in the Rosebud River drainage are of lesser concern because these claims have been dropped by the companies involved.

In late 1974 or early 1975 Johns-Manville Corporation purchased the Picket Pin Ranch (Figure 2) as a potential mill and tailings pond site and for other functions that would be related to any mine developed as a result of their exploration adit near the West Fork Stillwater River (Figure 2).

Work began on this exploration adit in December 1974 and continued until early 1976 when the adit operation was halted by the Montana Department of Health and Environmental Sciences because of an illegal discharge of groundwater released into the adit by drilling and blasting. This discharge was contaminated with ammonia and nitrate from blasting materials and entered the West Fork Stillwater River by an underground route. As of this writing, the adit operation is suspended until the Johns-Manville Corporation formulates a chemical and biological monitoring program for the adit drainage and obtains approval of this program by the DHES. Facilities to allow an emergency watertight seal of the adit will also be required.

The overall goal of protecting aquatic resources was undertaken initially by chemical and biological surveys at stations upstream and downstream from mining claims. This work was begun in 1970 and was largely completed by late 1974. Work in 1975 and 1976 consisted of developing more intensive physical, chemical and biological data related to the exploration adit and ranch purchased for future mill and tailings ponds.

Data files from this project are stored in the Billings Department of Fish and Game office.

OBJECTIVES

Job objectives were to obtain the following information at stations upstream and downstream from the complex of mining claims:

1. Basic water quality data
2. Metals concentrations in stream sediments
3. Numbers per square foot and species present in streambottom fauna samples
4. Fish population estimates and species distributions in streams
5. Metals concentrations in fish tissues
6. Information on organisms present in fish stomachs
7. Survival to hatching of hatchery trout eggs placed in artificial redds.

Additional objectives were to obtain the above plus the following information at stations related to the Johns-Manville adit and mill-tailings pond sites in the West Fork Stillwater River drainage:

1. Weekly maximum-minimum stream temperatures
2. Trout redd characteristics and early life history
3. Stream discharge data where lacking.

A final job objective consisted of determining minimum streamflows required to maintain fish and other aquatic life in study streams with significant fish populations and to request these flows under section 89-890 of the state law entitled "Montana Water Use Act."

PROCEDURES

Sampling Stations

Sampling stations were established at points upstream and downstream from the mining claims complex. Other stations were located upstream and downstream from the Johns-Manville adit and the Picket Pin Ranch. Station locations are shown in Figures 1 and 2. Appendix A is a listing of township, range, section and location description for sampling stations.

Water and Stream Sediment Quality Sampling

Values for temperature, turbidity, pH and dissolved oxygen were obtained in the field. Spot temperature measurements were made with a Taylor pocket thermometer. Maximum-minimum thermometers were made by the same company. Turbidity and pH were measured colorimetrically (Hach Chemical Company field unit model DR-EL). Dissolved oxygen was measured by the Winkler method.

Other parameters were analyzed at the Montana Bureau of Mines and Geology laboratory in Butte under contract agreement with the Montana Department of Fish and Game. Field procedures used were suggested by laboratory personnel.

Water samples were collected in plastic bottles after three rinsings with stream water. Bottles for nonmetals analysis were filled to capacity to prevent air contact. One percent (by volume) of concentrated nitric acid was added in the field to bottles of water for metals analysis. Prior to 1973 water for dissolved metals analysis was not filtered. For samples in 1973 and later, these samples were filtered. Filter pads of 0.45 micron pore size obtained from the Gelman Instrument Company were used for filtration.

Stream sediment samples for metals analysis were collected from the upper inch of sandy or silty deposits at each station. Sediments were transported to the laboratory in cloth bags. Prior to analysis in the laboratory, samples were screened through material of 100 meshes per inch (0.0059 inch opening size). Only materials passing through the screening were retained for analysis. The analyst for sediment samples was the same as for water samples.

Streambottom Macroinvertebrates

Bottom macroinvertebrates were sampled with a "Water's Round" square foot sampler slightly modified from that described by Waters and Knapp (1961). One riffle sample per station was collected in August or October 1970 and in April 1971. Three samples per station were collected at later sampling dates. Riffles were chosen for sampling as these locations are known to have the greatest abundance and diversity of macroinvertebrates.

Various nonriffle habitat types were also sampled once or twice at most stations. This was done with a Needham hand screen. These organisms have not been sorted and remain in storage.

Samples were preserved in the field in 10 percent formalin and were sorted to order (insects) or other taxonomic groups for noninsect organisms. The number, and in most cases, volume, of organisms were obtained for each taxonomic group in each sample. All organisms were preserved for possible future work.

Indentification to species (or lowest possible taxonomic group) was done by Mr. Robert L. Newell for samples from the West Fork Stillwater River. At that time Mr. Newell was employed by the Montana Department of Fish and Game. Mr. Dana Schmidt (Ecological Consulting Service, Inc., Helena, Montana) identified organisms from samples on the East Boulder River. Mr. Schmidt's work was verified by an outside expert for each insect order. Although very few changes were made by these experts, their changes are used in this report.

Fish Studies

Population estimates were made using methods similar to those described by Vincent (1971). A computer program was used to make the required calculations. The basic technique involves capturing fish by electrofishing in a stream section and marking them in a manner recognizable at a future date (fin clip was used in this study). Several days later fish were again captured in the stream section, noting whether or not each fish was marked. Fish in each stream section were given a distinctive mark each year. They were aged from scale impressions. Fish were weighed to the nearest 0.01 pound and total lengths were taken to the nearest 0.1 inch.

On the larger streams electrofishing gear was floated downstream while fish were captured. On smaller streams electrofishing was done while wading. A backpack shocker unit was used on remote stream sections.

The formula used by the computer program is:

$$N = \frac{(M+1)(C+1)}{R+1} - 1, \text{ where:}$$

N = population estimate
M = number of fish marked
C = number of fish in recapture sample
R = number of marked fish in recapture sample (C)

Scales were collected by 0.1 inch length intervals (three per 0.1 group if sufficient numbers of fish were captured). For purposes of the estimate, the population was usually divided into several length groups, with efficiency of fish capture similar within each group. Each group contained at least seven recaptured fish. The fish in each group were apportioned to the various age groups, according to the aging from scales.

In a few instances, when numbers of recaptured fish were low, only a single length group was used to estimate the population.

Fish stomachs and fish for metals analysis were collected during the last recapture run, or at a later date if convenient. Fish stomachs were preserved in 10 percent formalin and stomach contents were identified to order. Fish collected for metals analysis were frozen the day of collection and later shipped on dry ice by air freight to the Environmental Protection Agency in Denver, Colorado where the analysis was performed.

Trout redds were located by observing adult fish excavating redds or by excavating in gravels. Measurements on redds were made only while the redd was being excavated by adult fish or shortly after eggs were laid. Velocities over redds were measured with a Price Model AA or pygmy current meter.

Egg Bioassays

Eggs were buried in artificial redds to determine survival rates during the incubation period. Redds were built by excavating the streambottom in riffle areas to a depth of 12 to 14 inches, leaving a semi-spherical depression 2.5 feet in diameter. This was filled with clean gravel averaging 0.84 inches in diameter.[1/] Redds were allowed to settle and stabilize at least 2 weeks before egg placement.

Procedures for the adit drainage egg bioassay and the control bioassay in the adjacent West Fork Stillwater River were somewhat different. A small plastic wading pool was placed below the adit drainage pipe to collect a pool of water. The wading pool was partially filled with 1-4 inch diameter gravel from the West Fork Stillwater River. The control redd was filled with similar gravel.

Eyed cutthroat trout eggs were obtained from the Montana Department of Fish and Game Yellowstone River Trout Hatchery at Big Timber for egg bioassays in 1972. For the years 1973 through 1975, eyed rainbow trout eggs were obtained from the Ennis National Fish Hatchery near Ennis. In 1976 eyed cutthroat trout eggs from the Montana Department of Fish and Game Jocko River Trout Hatchery near Arlee were used for bioassays.

On all occasions, eggs were placed in trays at the hatchery, covered with crushed ice, and placed in artificial redds the same day they were

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[1/] Diameters were measured on gravel used in 1973. Gravel used in other years was of similar size.

taken from the hatchery. One or two hundred eggs were returned to the Big Timber hatchery following egg placement in redds. This was done to measure the effect of transportation and handling, if any.

Two different types of egg containers, both constructed to retain fry after hatching, were used to contain eggs in redds. A few eggs were placed in small perforated vials which were removed periodically to determine when hatching had occurred. Three (two in 1976) containers made of plastic screening were filled with 100 eggs each and buried 4-6 inches deep in each redd. Gravel chips were placed in the screen containers in 1973-1976, but not in 1972.

The redd at station 007, 1973, was not stable. Most of the gravel washed away between the time the redd was constructed and the day of egg placement. As an emergency measure, the screen containers were placed on what little remained of the gravel from which the redd had been built and large (2-4 inch diameter) gravel was collected from the streambank and placed over the containers.

After hatching, the screen containers were removed and the fry were counted.

Fish Bioassays

Cutthroat trout fry (approximately 2 inches total length) from the Yellowstone River trout Hatchery were used for a bioassay of the adit drainage and for a control in the adjacent West Fork Stillwater River. Fish were transported from the hatchery in an aerated tank and placed in locked metal live cars. The control live car was submerged in a stream pool. The test live car was placed in a plastic wading pool under the adit drainage outfall.

Streamflow Measurements

Stream discharge measurements were made using methods described by Buchanan and Somers (1969). The Price Model AA or pygmy current meters were used depending on water depths. The 0.6 method was used for all measurements.

Minimum Streamflow Reservations

All sources of information from other agencies were utilized in developing minimum streamflow reservations (MSR's). These sources included U. S. Geological Survey (USGS) published streamflow records for the Stillwater River near Nye, near Absarokee and near Woodbine campground; for the Boulder River near Big Timber and near Contact; and miscellaneous measurements for Little Rocky Creek, Castle Creek and the West Fork Stillwater River. Miscellaneous streamflow measurements by other agencies were also utilized.

Data developed during this project and used in formulating MSR's included once per month stream gaging during low flow periods and twice per month gaging during the runoff period at seven stations in the West Fork

Stillwater River drainage; stream gaging at previously ungaged sites at times when flow was known to be near the annual minimum; fish population and life history information; photography of fish habitat at various streamflows; Bureau of Reclamation Water Surface Profile (WSP) computer program data.

The WSP program generates information on stream widths, depths and velocities at any desired discharge from cross sectional physical measurements made at a single flow. This program allows the investigator to gain knowledge of stream widths, depths and velocities at any flow, including flows lower than those that actually occur.

FINDINGS

General Chemical Water Quality

Location of sampling stations is shown in Figures 1 and 2. Appendix A contains station descriptions. Maximum and minimum values for the various chemical parameters and station where the value was recorded are in Table 1. Appendices B through K give more detailed results of chemical analyses.

Waters are of the calcium bicarbonate type (typical of fresh water), very soft to moderately hard, and generally low in dissolved material. A few streams have moderate levels of dissolved materials - these are: Silver Creek (spring source), Upper and Lower Deer Creeks, Castle Creek, Picket Pin Creek, the lower reaches of the East Boulder River, and the West Fork Stillwater River downstream from the confluence of Castle Creek. In general, human activities have probably modified water quality only slightly (with one exception to be discussed later).

Some chemical concentrations were strongly negatively correlated with discharge. Higher levels of the major ions (Ca, Mg, Na, HCO_3, SO_4) were found at low streamflows. This was also true of dissolved solids, alkalinity and hardness.

Dissolved oxygen values were always near saturation values. This would be expected in unpolluted, turbulent, shallow streams.

Values for the various metals were low and often below laboratory detection limits. Values for aluminum at some stations on Castle Creek (Appendix G) were somehwat higher (up to 5.02 mg/liter). This aluminum was largely in the suspended rather than dissolved fraction and these higher values were found only at elevated streamflows with concomitant elevated suspended loads.

Lower Verdigris Creek contained definitely elevated concentrations of some metals (Table 1 and Appendix D). At station 043, near the mouth, nickel and copper were as high as 0.59 and 0.14 mg/liter), respectively. However, at station 055, which is approximately 1 mile upstream, these metals were below detection limits for all samples (Appendix D). Between these two stations the stream passes through a gossan (area of decomposed rock of rusty color due to oxidized metal pyrites). One water sample was

Table 1. Maximum and minimum values recorded for various chemical parameters and station where recorded.[a, b, c]

		Maximum	Minimum
	Ca^{d}	55.0 (East Boulder R.-009)	1.3 (Forge Cr.-051)
	Mg	20.7 (Castle Cr.-077)	0.0 (Great Falls Cr.-026)
	Na	12.7 (East Boulder R.-009)	0.5 (several stations)
	K	2.5 (East Boulder R.-009)	0.10(Brownlee Cr.-053 & 060)
	SiO_2	18.5 (South Nye Cr.-047)	0.0 (West Rosebud R.-003)
	HCO_3	208 (Castle Cr.-079, 080)	7.0 (Saderbalm Cr.-083)
	CO_3	5.0 (East Boulder R.-009)	0 (most stations)
	OH	0 (all stations)	0 (all stations)
	Cl	3.30(Verdigris Cr.-043 & E. Boulder R.-009)	0.0 (several stations)
	SO_4	74.0 (Silver Cr.-042)	0.20(Forge Cr.-051)
	NO_3-N	0.54(Verdigris Cr.-055)	0.00(several stations)
	F	0.8 (Castle Cr.-077)	0.00(most stations)
	pH(lab)	8.53(East Boulder R.-038)	5.80(West Fork Stillwater R.-037)
	pH(field)	8.7 (several stations)	6.7 (Saderbalm Cr.-083)
	Dis.sol.	392.2 (Castle Cr.-080)	16.1 (Saderbalm Cr.-083)
	Hard.	211 (Castle Cr.-077)	4.0 (Saderbalm Cr.-083)
	DO	16.0 (Stillwater R.-005)	5.0 (Iron Cr.-019)
	Alk.	204.0 (Castle Cr.-079)	6.0 (Saderbalm Cr.-083)
Dissolved	Zn	0.03(Crescent Cr.-048)	<0.01(several stations)
Dissolved	Cd	<0.01(all stations)	<0.01(all stations)
Dissolved	Cu	0.14(Verdigris Cr.-043)	<0.01(most stations)
Dissolved	Ni	0.59(Verdigris Cr.-043)	<0.02(most stations)
Dissolved	Fe	1.10(Morris Cr.-014)	0.00(most stations)
Dissolved	Mn	0.36(Morris Cr.-014)	0.00(most stations)
Dissolved	Al	0.19(W. Fk. Stillwater R.-037)	<0.05(most stations)
Total	Zn	0.02(Castle Cr.-080)	<0.01(most stations)
Total	Cd	<0.01(all stations)	<0.01(all stations)
Total	Cu	0.01(several stations)	<0.01(most stations)
Total	Ni	0.03(W. Fk. Stillwater R.-076, Picket Pin Cr.-078)	<0.02(most stations)
Total	Al	5.02(Castle Cr.-080)	<0.05(most stations)
	JTU	250 (South Nye Cr.-047)	0 (most stations)
	T. susp. sol.	192.16(Boulder R.-010)	0.10(several stations)
	V. susp. sol.	11.36(Boulder R.-010, Stillwater R.-005)	0.10(several stations)

Table 1 continued. Maximum and minimum values recorded for various chemical parameters and station where recorded.[a, b, c]

[a]Stream and station number shown in parentheses

[b]Units are milligrams per liter except as indicated

[c]Values for drainage from the Johns-Manville adit are not included

[d]Standard chemical abbreviations, and as follows:

Dis. sol. = calculated dissolved solids
Hard. = total hardness as $CaCO_3$
Alk. = total alkalinity as $CaCO_3$
DO = dissolved oxygen, field
JTU = turbidity-field, Jackson Turbidity Units
T. susp. sol. = total suspended solids
V. susp. sol. = volatile suspended solids

taken from a spring that emerges from the base of the gossan and enters Verdigris Creek. In this sample, nickel and copper values were 0.68 and 0.31 mg/liter, respectively. The gossan and probably this spring contribute the greatly elevated amounts of metals found in lower Verdigris Creek. The realtive contribution of natural and human factors to this situation are difficult to assess. The gossan surface and the lower portion of the watershed has undergone considerable disturbance from road building. At any rate, water quality in Verdigris Creek is good upstream from the gossan.

Both Nye and South Nye creeks are filled with mill tailings which have blown in from the Mouat tailings pond located a few hundred yards up the Stillwater River valley. This has had no obvious effect on water chemistry in these two streams, but the natural streambottoms and banks have been almost completely destroyed in the lower 0.5-0.75 mile.

Table 1 and Appendices B through K indicate discrepancies between field and laboratory pH measurements of 1.0-2.0 units. Laboratory values were always lower. Laboratory measurements were made 1-2 months following sample collection, while field pH was measured within a few minutes after sample collection. To find out which set of pH values was correct, a simultaneous comparison of laboratory and field pH meters was made on water that had been collected the day before (Table 2). Samples were collected January 24, 1973 and measurements made on January 25, 1973. There was good agreement between the two meters when measurements were made at the same time and soon after sample collection. Values of pH were in the range 7.9-8.5, agreeing with previous field measurements. Apparently pH value decreased considerably between time of collection and time of laboratory measurements. The conclusion is that the field measurements rather than the laboratory measurements indicate true pH values in streams.

Table 2. Comparison of pH measurements made simultaneously with laboratory and field instruments.

Stream	Station	Field Instrument	Laboratory Instrument	Difference
West Rosebud	004	7.98	7.91	+0.07
Stillwater	006	8.12	8.13	-0.01
West Fork Stillwater	007	8.45	8.24	+0.21
East Boulder	009	8.53	8.46	+0.07
Boulder	010	8.05	8.11	-0.06

Only Saderbalm Creek consistently had pH values slightly on the acid side of neutral. At most other stations pH values tended to lower somewhat during spring runoff, but even these mostly remained on the alkaline side of neutral.

The U. S. Geological Survey has published considerable water quality data for one station on the Stillwater River and one on the Boulder River. The Custer National Forest has also collected considerable water quality data on streams draining the mining claims complex. The individual mining companies involved (Johns-Manville, Anaconda and Amax) have also measured water quality at stations in the area.

Appendix G shows values for nitrate in the discharge water from the Johns-Manville adit. This discharge entered the West Fork Stillwater River by an underground route. Elevated concentrations of nitrate were first detected in the West Fork Stillwater River on January 28, 1976 in analyses by the Montana Department of Health and Environmental Sciences (Table 3). The nitrate source was blasting materials used in the adit.

Nitrate in the West Fork Stillwater River was from 2-3 times greater downstream from the entrance of the adit water as compared to upstream locations. Elevated nitrate did not persist in the West Fork Stillwater River. Later analyses by the Montana Department of Health and Environmental Sciences indicated a drop in nitrate concentrations in the adit discharge following cessation of blasting inside the adit and a concomitant decrease of nitrate in the West Fork Stillwater River downstream of the adit discharge entrance to values similar to upstream locations.

Table 3. Summary of nitrate (mg/l as N) in the West Fork Stillwater River upstream and downstream from the Johns-Manville adit.

Distance[a] upstream or downstream from adit	Date			
	1/12/76	1/28/76[b]	2/7/76[b]	2/8/76[b]
0.5 miles upstream	0.09	0.06	0.09	0.09
30 feet downstream			0.09	0.10
200 yards downstream			0.09	0.09
350 yards downstream			0.09	0.09
500 yards downstream			0.09	0.12
800 yards downstream			0.17	0.17
1 mile downstream	0.09	0.18	0.17	0.16

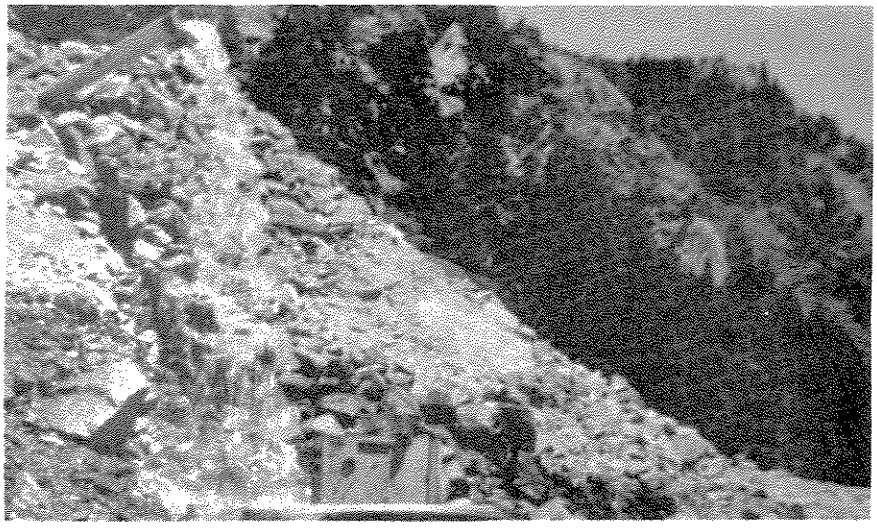
[a]distances are approximate

[b]analysis by Water Quality Bureau of the Montana Department of Health and Environmental Sciences

No effect of the adit discharge was found on streambottom fauna or fish populations.

High pH values in the adit discharge (Appendix G) were due to periods of grouting inside the adit to seal off some of the groundwater.

In June and July, short-term flow through bioassays were run with cutthroat trout eggs and fry to detect any toxicity of the water. None was found.



Fish bioassay live car in plastic wading pool below outfall of adit drainage. Light-colored rock in foreground is from adit located just out of picture near upper left. 7/2/76

Turbidity and Suspended Solids

Turbidity was measured routinely at the time of sampling for general water quality at all stations (Appendices B through K), and more intensively in 1974 at selected stations (Table 4). Suspended solids were sampled intensively at stations on larger streams in 1974 (Appendix L) and routinely at the time of collection of samples for general water quality analysis at stations in the West Fork Stillwater River drainage in 1975 and 1976 (Appendices E and G). Suspended solids were also measured at stations on two Boulder River tributaries in 1975 (Appendix K).

Both parameters varied with water flow rates. Even the higher values during runoff in May and June are moderate. High values for turbidity

Table 4. Mean turbidity[a] and number of samples (in parentheses) by months for various stations, 1974.

Station	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Larger streams										
Stillwater River										
005	3(2)	1(2)	6(4)	14(6)	1(2)	0(2)	0(3)	0(1)	0(2)	0(1)
006	3(2)	2(2)	6(4)	18(6)	1(2)	0(2)	0(2)	0(1)	0(1)	0(1)
032	3(2)	3(2)	6(4)	22(6)	0(2)	0(2)	0(2)	0(1)	0(1)	--
034	5(2)	5(2)	6(4)	29(6)	0(2)	0(2)	0(2)	0(1)	0(2)	0(1)
West Fork Stillwater River										
037	--	--	4(4)	13(6)	0(2)	0(2)	0(2)	2(1)	0(1)	2(1)
007	0(2)	1(2)	4(4)	15(6)	0(2)	0(2)	1(2)	0(1)	0(2)	0(1)
East Boulder River										
061	--	--	10(1)	12(6)	0(2)	0(2)	0(2)	0(1)	--	--
008	3(2)	3(2)	6(4)	13(6)	0(2)	0(2)	0(2)	0(1)	0(2)	0(1)
009	4(2)	9(2)	16(4)	41(6)	0(2)	2(2)	3(2)	0(1)	3(2)	--
Boulder River										
011	5(1)	3(2)	7(4)	17(6)	0(2)	0(2)	1(2)	0(1)	0(2)	0(1)
010	3(2)	3(2)	7(4)	20(6)	0(2)	0(2)	1(2)	0(1)	0(2)	0(1)
039	--	15(1)	19(4)	35(6)	1(2)	0(2)	1(2)	0(1)	3(2)	--
Tributary Streams										
Nye Creek - 016	35(1)	21(2)	5(3)	14(6)	0(2)	0(2)	0(2)	0(1)	1(2)	--
South Nye Creek - 047	250(1)	140(2)	11(3)	16(6)	1(2)	0(2)	0(2)	1(1)	9(2)	--
Silver Creek - 042	5(1)	1(2)	7(3)	8(6)	2(2)	0(2)	0(2)	0(1)	4(2)	--
Mountain View Creek - 044	2(1)	1(2)	9(3)	25(6)	3(2)	0(2)	0(2)	0(1)	4(2)	--
Verdigris Creek - 043	0(1)	1(2)	8(3)	23(6)	1(2)	0(2)	0(2)	0(1)	8(2)	--
Initial Creek - 017	--	--	8(3)	29(6)	0(2)	0(2)	0(2)	0(1)	0(1)	--
Cathedral Creek - 018	--	--	7(2)	11(6)	1(2)	0(2)	0(1)	2(1)	0(1)	--
Little Rocky Creek - 031	5(2)	9(2)	16(4)	40(6)	5(2)	5(2)	0(2)	1(1)	5(2)	--
Little Rocky Creek - 015	--	--	12(1)	21(6)	0(2)	0(2)	0(2)	0(1)	0(2)	--
Fishtail Creek - 030	2(2)	1(2)	9(4)	15(6)	1(2)	5(2)	0(2)	0(1)	1(1)	--
East Fishtail Creek - 012	1(1)	1(2)	16(3)	13(6)	1(2)	0(2)	0(2)	0(1)	0(2)	--
West Fishtail Creek - 013	2(1)	0(2)	7(3)	12(6)	1(2)	0(2)	0(2)	0(1)	0(2)	--
Picket Pin Creek - 020	--	--	1(2)	10(5)	0(2)	0(2)	0(2)	0(1)	--	0(1)
Falls Creek - 027	--	--	4(1)	9(6)	1(2)	0(2)	0(2)	0(1)	0(2)	--
Graham Creek - 025	--	0(1)	2(5)	9(6)	0(2)	0(2)	--	--	--	--
Blakely Creek - 024	5(1)	3(2)	2(4)	8(6)	0(2)	0(2)	1(2)	0(1)	0(2)	--
East Chippy Creek - 023	--	--	7(1)	11(6)	1(2)	0(2)	1(2)	0(1)	0(2)	--

a - Turbidity expressed in Jackson Turbidity Units

in South Nye Creek in March and April were caused by mill tailings freshly blown into the stream. Values for both turbidity and suspended solids tended to be greater during spring runoff at downstream points in agricultural areas. This was especially true on the West Fork Stillwater River between stations 076 (downstream of irrigated fields) and station 037 (on national forest, Appendix E).

Volatile suspended solids (Appendix L) are organic particles suspended in water. They constituted a major fraction of the total suspended solids only when total suspended solids were low. For example when total suspended solids in Appendix L were less than 1 milligram per liter, volatile suspended solids averaged 75 percent of the total. For total suspended solids values over 15 milligrams per liter, in Appendix L, volatile suspended solids averaged 11 percent of the total.

Dissolved and Suspended Metal Concentrations

Dissolved and total concentrations of metals (suspended = total minus dissolved) were measured at 11 stations on larger streams in 1973 (Appendix M), and at stations in the West Fork Stillwater River drainage in 1975 and 1976 (Appendices E and G). Even with low detection limits (varying from 0.001 to 0.05 mg/l) most samples contained metals concentrations below detection limits. For all stations and metals the proportions of dissolved and suspended were variable. For the higher values, most of the total was in the suspended fraction. With the exception of the values for the adit drainage (Appendix G), the metals concentrations are relatively low and indicative of clean, unmodified water quality.

Higher values of dissolved and especially suspended metals in the adit drainage were probably due to considerable contact of groundwater in the adit with freshly powdered and fractured rock. The discharge permit written for the adit drainage contains some stipulations concerning metals in the adit discharge.

Stream Sediment Metals

Maximum and minimum values for metals in stream sediments are shown in Table 5. More complete data are contained in Appendices N and O. These values are surprisingly similar to values for the earth's crust, which are as follows (in parts per million): copper - 45; nickel - 80, lead - 15; cadmium - 0.2; zinc - 65; iron - 50,000; aluminum - 81,300 (Wolfe and Rice 1972). This similarity suggests a relatively unmodified condition in the study streams. Spence (1975) found stream sediment values similar to those of this study, with the exception of his stations affected by mining.

The nickel values at station 006 on the Stillwater River are probably elevated above natural levels. Station 006 had stream sediment nickel values which averaged several times greater than those only a few miles upstream (station 005). The probable sources are Verdigris Creek, a small tributary carrying elevated nickel concentrations, and mill tailings, both a short distance upstream from station 006.

Table 5. Maximum and minimum values recorded for various metals in stream sediments.[a, b]

Metal	Maximum	Minimum
Copper	235 (Crescent Cr.-048)	5.5 (W. Rosebud R.-004)
Nickel	705 (Graham Cr.-025)	10 (W. Rosebud R.-004)
Lead	79.5(Picket Pin Cr.-020)	9 (E. Rosebud R.-002, & Boulder R.-011)
Cadmium	3 (Stillwater R.-006)	<1 (most stations)
Zinc	254.5(W.Fk.Stillwater R.-007)	16 (Blakely Cr.-024)
Iron ($X10^3$)	103 (Forge Cr.-051)	9 (W. Rosebud R.-003)
Aluminum[c]($X10^3$)	23 (W. Fk. Stillwater R.-072)	7 (Castle Cr.-077)

[a]Stream and station number shown in parentheses
[b]Concentrations are parts per million
[c]Measured only in West Fork Stillwater River drainage

High values for nickel on some tributary streams have no obvious explanation other than mineralization in the watershed.

In general, values for all metals are somewhat lower at stations on the East and West Rosebud rivers.

Stream Temperature

Maximum-minimum temperature was measured only at stations in the West Fork Stillwater River. This was a part of more intensive work done in this drainage because of the Johns-Manville development described in the background section.

Thermometers were installed at eight stations in July 1975 and usually were read each week for 1 year. Monthly maximum and minimum temperatures are shown for each station in Table 6. Appendix P contains the individual thermometer readings.

The maximum temperature recorded was 60 F at stations 080 and 076 on Castle Creek and the lower West Fork Stillwater River. Minimum temperatures of 32 F were recorded at all stations except 080 and 077 which are strongly affected by springs.

Springs with temperatures in the 40's are located adjacent to Castle and Picket Pin Creeks on the far west side of the Picket Pin Ranch and on the Custer National Forest adjacent to the west side of the ranch (Figure 2).

Table 6. Monthly maximum and minimum water temperatures (F) recorded at stations in the West Fork Stillwater River drainage, 8/75-7/76.

Month	West Fork Stillwater River				Castle Creek			Picket Pin Creek
	076	007	037	070	080	079	077	078
8/75	57-44	55-43	53-42	53-42	58-46	56-42	51-43	52-42
9/75	56-39	54-40	51-38	50-35	58-45	56-40	52-42	53-40
10/75	54-36	50-32	48-32	48-32	54-40	53-34	46-41	48-36
11/75	44-33	43-32	40-32	39-32	50-38	47-32	44-38	44-34
12/75	43-32	40-32	37-32	36-32	47-34	43-32	44-39	42-32
1/76	41-33	37-32	36-32	34-32	47-35	43-32	43-40	41-32
2/76	42-33	37-32	36-32	34-32	47-34	43-32	43-40	41-32
3/76	47-32	40-32	39-32	37-32	52-34	49-32	45-40	44-33
4/76	54-34	47-33	43-33	44-32	59-35	57-32	47-40	48-33
5/76	55-38	51-32	48-33	48-32	56-39	56-36	50-39	48-36
6/76	53-38	52-37	51-36	50-34	56-41	53-39	51-37	50-38
7/76	60-45	58-42	55-40	55-38	60-46	58-44	54-43	54-42

These springs dampen fluctuation of stream temperatures and prevent ice cover at station 077 on Castle Creek and to a lesser extent at station 078 on Picket Pin Creek.

Station 080 is strongly affected by a large spring that empties into Lodgepole Creek about 2 miles upstream of its confluence with Castle Creek (Figure 2). The temperature of this spring is approximately 55 F. It totally prevents ice cover in the vicinity of station 080 and measurably warms the West Fork Stillwater River downstream from the mouth of Castle Creek.

Stations 070, 037 and 007 on the West Fork Stillwater River are in mountain sections of the stream and are colder than the other stations. Ice cover is nearly complete during much of the winter.

Maximum temperatures reached at all stations are at least 10 F below temperatures that begin to hamper trout growth and production.

Streambottom Macrofauna

Numbers of organisms for various taxonomic groups in each square foot sample are shown by drainage systems in Appendices Q through V. These organisms remain in storage at the Montana Department of Fish and Game Water Quality Laboratory in Helena. Unsorted qualitative Needham kick screen samples from various nonriffle habitats are in storage at the same location.

The generally pollution-sensitive insect orders Plecoptera, Trichoptera and Emphemeroptera typically constituted the bulk of organisms in samples. These three orders usually made up 60 to 90 percent of organisms in samples. In some seasons at downstream locations dipterans or annelids were numerically dominant.

Variability in numbers and volume of bottom fauna was high at most stations, but probably no more so than is characteristic of these organisms. Needham and Usinger (1956) took 100 1-square-foot samples from a single riffle. Numbers of organisms per sample ranged from 2 to 198. Data of this study are probably less variable than that reported by Needham and Usinger (1956).

Overall numbers of organisms per square foot tended to reach highest levels in winter or spring and lowest levels in summer (Appendices Q through V). Numbers were especially low in summers of 1974 and 1975. These samples were collected shortly following unusually high and late runoff periods.

Dent (1971) had also sampled bottom fauna in the same streams and at some of the same stations reported in this study. He used a Surber square-foot sampler and found consistently fewer numbers of organisms per square foot than found in this study. For comparison, the following are average numbers of organisms per square foot in October 1971 for stations on nearby portions of the Stillwater, West Fork Stillwater, East Boulder and Boulder rivers, respectively (data of Dent 1971 given first): 83 and 267, 84 and

246, 91 and 739, 106 and 402. At the same station (031) on Little Rocky Creek, the corresponding numbers are 36 and 156. Dent's (1971) data are similar to that of this study in proportions of insect orders present.

In personal correspondence with Mr. Dent, he stated he had begun using a sampler similar to that used in this study, and that the number of organisms in samples was considerably larger than the numbers taken with the Surber sampler.

Both Needham and Usinger (1956) and Waters and Knapp (1961) felt the Surber sampler had numerous shortcomings. The latter felt the Surber sampler could fail to capture all macrofauna on the portion of the stream covered by the sampler. This definitely seems to be true in comparing Dent's (1971) data with this study.

Spence (1975), using the Water's Round sampler found numbers of stream-bottom macrofauna that even averaged somewhat higher than this study. His samples were from the Blackfoot River drainage in western Montana.

Low numbers of organisms in May 1972 for some stations on the Boulder River (Appendix V) and station 035 on the Stillwater River (Appendix R) were probably caused by sampling on newly flooded streambottom. Streams were rising rapidly at the time of sample collection.

Almost complete absence of organisms in samples from station 043 on Verdigris Creek (Appendix R) is likely due to previously discussed adverse chemical conditions.

Identification of insects was done for samples from four stations on the West Fork Stillwater River and for one station on the East Boulder River. Table 7 is a summary of the number of species and genera found in each sample. Complete lists of organisms are shown in Appendix W. Many organisms could be identified only to genus and some only to family. For this reason the actual numbers of species and genera are probably somewhat larger than shown in Table 7. Even without this consideration, the number of species per square foot is high and diversity (not calculated) correspondingly high. Total numbers of species and genera per square foot are similar to Blackfoot River samples reported by Spence (1975).

Table 7. Minimal[a] number of insect genera and species (in parentheses) identified from 1-square-foot streambottom samples.

Station	Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Total
			West Fork Stillwater River				
054	7/24/73	2 (2)	2 (2)	5 (6)	3 (3)	1 (1)	13 (14)
037	5/30/73	3 (4)	5 (7)	7 (7)	2 (2)	0 (0)	17 (20)
037	5/30/73	4 (4)	4 (4)	5 (9)	3 (3)	0 (0)	16 (20)
007	5/ 3/73	5 (5)	4 (4)	7 (9)	3 (3)	1 (1)	20 (22)
036	2/ 8/72	4 (5)	5 (6)	7(10)	6 (6)	1 (1)	23 (28)
			East Boulder River				
009	5/ 2/73	5 (5)	6 (7)	5(10)	[b]	1 (1)	17 (23)[c]
009	5/ 2/73	4 (4)	6 (7)	6 (9)	[b]	2 (2)	18 (22)[c]
009	5/ 2/73	5 (5)	7 (8)	4 (7)	[b]	2 (2)	18 (22)[c]

[a]Number of species are minimal because some genera consisted of an unknown number of species. Also, some families consisted of an unknown number of genera.

[b]Three samples at station 009 were grouped. A total of six genera and six species were identified from the three samples.

[c]Diptera not included.

Fish Populations

Table 8 is a summary of physical characteristics, fish species captured, and fin clips made on fish in stream sections. Section locations are shown in Figures 1 and 2. These stream sections were used for estimation of fish population parameters.

Fish population data are given in Appendices X and Y. The length groups, fish ages in each length group and numbers of fish per length group are shown in Appendix Z. Estimates for some species shown in a previous report are not shown in Appendices X and Y because reexamination of the data indicated the number of recaptured fish was not sufficient for a reliable estimate. Some estimates made in 1971 and 1972 differ slightly from a previous report (Stewart 1973). These differences are due to recalculation of the estimates using a slightly refined computer program.

Hatchery fish were captured in small numbers at only two locations, despite the fact that they were stocked in all of the larger streams. A few hatchery rainbow trout were noted in section F-2, Stillwater River in 1973, but not in 1972 or 1974. Hatchery cutthroat trout are present in the upper reaches of the East Boulder River where fish were not present before these were stocked.

Number estimates in stream sections were not made for species captured infrequently, nor in some cases for young-of-the-year fish of species that were estimated. Very small fish are sampled inefficiently by electrofishing gear. Table 9 is a listing of numbers of young-of-the-year fish captured in electrofishing sections, for sections where no estimate was made for young-of-the-year. In 7 of the 28 electrofishing sections, no young-of-the-year fish were captured. They were probably present, but were not captured because of insufficient effort or extremely small size of the fish, or both.

Fish ages shown in tables and appendices are the number of annuli on scales. Except for fish captured in June, when annuli were formed, fish had experienced some portion of a growing season beyond the indicated age. Rainbow trout in the West Fork Stillwater River upstream from Castle Creek often failed to form the first annulus, probably because of late spawning and slow growth. This fact was recognized by finding two distinct size groups of fish (young-of-the-year and yearling), each lacking an annulus, and by the difference in position of the first annulus formed, between those fish forming the age I annulus and those failing to form it. Fish failing to form the first annulus were assigned the proper age by adding one to the number of annuli on scales.

Growth rates, while generally slightly slower than state averages reported by Brown (1971) are commensurate with the relatively low summer water temperatures and resultant short growing seasons.

Standing crops of trout in pounds per acre (Appendices X and Y) on larger streams are somewhat lower than those reported by Vincent (1969) for rivers in southwestern Montana. Some of the tributary streams had

Table 8. Miscellaneous data for electrofishing sections where fish population estimates were made.

Stream	Section Number	Location T	R	S	Length (Feet)	Mean Width (Feet)	Species[a] Present	Fin Clips Used
Little Rocky Creek	F-8	5S	16E	3,4	2590	13.9	Rb,LL,Ct	1972-adipose plus right pelvic 1973-right pectoral; 1974-temporary
Picket Pin Creek	F-16	4S 4S	15E 14E	30 25	2059	13.5	Ct,Eb, LL,Rb	1972-adipose; 1973-left pelvic 1975-temporary
West Fork Stillwater River	F-22	5S	14E	30	4404	29.2	Rb	1974-adipose
West Fork Stillwater River	F-28	5S	14E	14,15 22	3146	30[b]	Rb	1975-left pelvic
West Fork Stillwater River	F-26	5S	14E	11,12,14	2818	30.0	Rb,LL	1975-adipose; 1976-temporary
West Fork Stillwater River	F-29	5S	14E	12	1626	41.2	Rb,LL	1975-right pelvic
West Fork Stillwater River	F-17	4S	15E	33	2293	41.2	Rb,LL Wf	1973-adipose; 1974-left pelvic
West Fork Stillwater River	F-24	4S	15E	36,35 26	3600	43.0	Rb,LL Wf,Eb	1974-temporary
Castle Creek	F-25	4S 4S	15E 14E	30 25	1300	6.6	Ct,LL Eb	1975-(spring)-right pelvic 1975-(fall)-temporary
Castle Creek	F-27	4S	15E	29	2789	18.0	LL	1975-left pelvic
Castle Creek	F-23	4S	15E	28	2604	15.8	LL,Rb	1975-(spring)-adipose 1975-(fall)-temporary
Lower Deer Creek	F-18	2S	15E	16,17 20	6160	25.2	Rb,Ct,hybrid Eb,LL	1973-adipose

Table 8. continued ( ). Miscellaneous data for electrofishing sections where fish population estimates were made.

Stream	Section Number	Location T	R	S	Length (Feet)	Mean Width (Feet)	Species[a] Present	Fin Clips Used
Boulder River	F-4	3S	12E	26, 35	5236	81.4	Rb,Eb Lc	1972-adipose; 1973-left pelvic 1974-temporary
Boulder River	F-21	5S	12E	13, 24	3329	58.8	Rb,Eb,Ct,LNd Rb-Ct hybrid	1974-adipose
East Boulder River	F-13	4S	13E	2,11	2410	28.2	Rb,Ct,LL	1972-adipose 1973-right pelvic
East Boulder River	F-20	3S	13E	29	2823	37.8	Rb,Eb,LL	1974-left pelvic
East Rosebud River	F-14	6S	18E	19,20	6283	77.6	Rb,LL,Wf Catostomus sp.	1971-temporary
Morris Creek	F-12	6S	18E	8	1347	8.4	Eb,LL,Ct LNd	1972-left pelvic 1973-adipose
West Fishtail Creek	F-10	5S	17E	19	2270	20.3	Rb,Eb,LL	1972-right pelvic 1973-right pectoral + adipose
East Fishtail Creek	F-9	5S	17E	19	2073	14.8	Rb,Eb,LL	1972-right pectoral 1973-left pelvic
Fishtail Creek	F-11	5S	17E	8,17, 18	3948	27.5	Rb,Eb,LL Wf	1972-adipose 1973-left pectoral
Stillwater River	F-1	5S	15E	28	2986	109.6	Rb,Eb,LL,Wf LNSu,LNd,MSu	1972-right pelvic 1973-adipose
Stillwater River	F-2	5S	15E	10,11 15	6710	91.6	Rb,Eb,LL,Wf LNSu,MSu,LNd	1972-adipose; 1973-left pelvic 1974-temporary
Stillwater River	F-3	5S	15E	1,2	5578	82.5	Rb,Eb,LL Wf,LNSu	1971-temporary

Table 8. continued ( ). Miscellaneous data for electrofishing sections where fish population estimates were made.

Stream	Section Number	Location T	R	S	Length (Feet)	Mean Width (Feet)	Species[a] Present	Fin Clips Used
Stillwater River	F-19	4S	16E	23	1982	124.0	Rb,Eb,Ll,Ct, Wf,LNSu,MSu, LNd	1974-adipose
Silver Creek	F-7	5S	15E	15	1289	6.4	Rb,Eb,LL	1972-left pectoral; 1973-adipose plus left pelvic; 1974-temporary
Nye Creek	F-6	5S	15E	15	1453	5.0	Rb,Eb,LL	1972-right pectoral; 1973-adipose plus right pectoral; 1974-temporary
Mountain View	F-5	5S	15E	21	2589	4.8	Rb,Eb,LL LNd,LNSu	1972-adipose plus left pelvic 1973-right pelvic; 1974-temporary

a/ Abbreviations are: Rb-rainbow trout; Ct-cutthroat; Eb-brook trout; LL-brown trout; Wf-mountain whitefish; LNSu-longnose sucker; MSu-mountain sucker; LNd-longnose dace; Lc-lake chub

b/ Estimated

Table 9. Length range and number of young-of-year (age 0) fish captured in electrofishing sections, for sections where no estimate was made for young-of-year.[a]

Stream	Section Number	Date	Species	Number Captured[b]	Length Range (inches)
Little Rocky Creek	F-8	06-72	LL	0	-
		07-73	LL	32	2.1-3.1
East Rosebud		07-74	LL	0	-
	F-14	11-71	LL	16	2.7-4.1
Morris Creek	F-12	06-72	Eb	31	1.5-2.7
		06-73	Eb	41	1.8-2.1
West Fishtail Creek	F-10	07-72	Eb	0	-
		07-73	Eb	1	2.9
East Fishtail Creek	F-9	07-72	Eb	0	-
		07-73	Eb	0	-
Fishtail Creek	F-11	07-72	Rb	0	-
		08-73	Rb	2	1.9-2.3
		07-72	LL	0	-
		08-73	LL	3	2.3-2.5
Stillwater River	F-3	11-71	LL	0[c]	-
Nye Creek	F-6	06-73	Eb	0	-
Mountain View Creek	F-5	06-72	Eb	0	-
		06-73	Eb	3	1.9-2.2
Picket Pin Creek	F-16	09-72	Eb	5[d]	2.3-3.5
		09-73	Eb	105	2.1-3.2
		09-72	LL	1	2.2
		09-73	LL	4	2.0-2.1
		09-75	LL	1	2.6
		09-72	Ct	9	2.6-3.4
		09-73	Ct	31	2.6-3.4
West Fork Stillwater River	F-17	05-73	Rb	36	1.5-2.6
		05-74	Rb	23	1.7-2.8
		05-73	LL	26	2.1-3.2
		05-74	LL	14	2.4-3.2
West Fork Stillwater River	F-22	10-74	Rb	10	2.3-3.1
West Fork Stillwater River	F-28	10-75	Rb	0	-

Table 9 continued ( ). Length range and number of young-of-year (age 0) fish captured in electrofishing sections, for sections where no estimate was made for young-of-year.[a]

Stream	Section Number	Date	Species	Number Captured[b]	Length Range (inches)
West Fork Stillwater River	F-26	05-75	Rb	24	1.2-1.7
		04-76	Rb	1[d]	1.5
West Fork Stillwater River	F-29	11-75	Rb	0	-
West Fork Stillwater River	F-24	04-75	Rb	49	1.7-2.8
Lower Deer Creek	F-18	07-73	LL	0	-
East Boulder River	F-13	08-72	Rb	5	2.3-3.3
		08-73	Rb	15	2.3-3.0
		08-72	LL	0	-
		08-73	LL	0	-
East Boulder River	F-20	09-74	Rb	0	-
		09-74	LL	0	-
Castle Creek	F-27	09-75	LL	75	2.0-2.6

a/ Number of recaptures insufficient for estimate of total numbers present.

b/ Total of marking and recapture runs.

c/ No efforts made to catch age 0 fish.

d/ More observed, but not recorded.

moderately high trout standing crops. Carlander (1953) reports standing crop values for trout streams in North America to be largely in the range of 10 to 150 pounds per acre, with an approximate median of 60. Compared to Carlander's (1953) data, standing crops of trout in streams of this study range from moderately low to high.

Total estimates in Appendices X and Y suggest considerable variation in standing crops of trout from year to year in many of the stream sections. This may be misleading. In 1973 and 1974 an estimate for yearling or under-yearling fish was added in the total estimate, if adequate numbers of fish were sampled. In 1972 an estimte for these younger fish was often lacking in the total estimate, because adequate numbers were not sampled. Also, a consideration of confidence limits minimizes apparent differences in standing crops between years. For example, on Section F-1, Stillwater River, the mean total estimates of brook trout for 1972 and 1973 were 422 and 800. However, by considering the highest probable value in the 1972 estimate (612), and the lowest probable value in the 1973 estimate (597), it is evident that there is overlap in the ranges of probable fish numbers for the 2 years. However, even with these considerations there are definite differences among years in some stream sections for numbers of under-yearling and yearling fish.

There was generally good agreement between average lengths of fish of a given age from year to year (Appendices X and Y). For the few cases where differences were relatively large, average sizes were calculated from very small samples of fish.

Age structures in Appendices X and Y were mostly typical. Some of the small imbalances can be explained on the basis of confidence intervals, but larger imbalances are probably real. These imbalances can occur by differential year class survival and migration, but no certain explanation can be confidently advanced.

Almost no movement was noted from one stream section to another from year to year. Minor exchange of fish occurred only between sections on Fishtail Creek (F-11), East Fishtail Creek (F-9) and West Fishtail Creek (F-10). These sections are separated by less than 1 mile.

Spawning movement of fish was not investigated. It was observed only incidentally in the Stillwater River in the vicinity of section F-2. Unknown, but significant, numbers of large rainbow trout moved into this section between the time of marking runs in late March and recapture runs in April. Whether or not these fish later spawned in section F-2 or were simply passing through is not known. Some sort of spawning movement, however, did seem to be occurring in this area of the Stillwater River.

A complicating factor has been introduced on section F-2 of the Stillwater River. In March 1973 over one-third of the length of this section was modified by adjacent landowners, largely by pushing streambed gravel into streambanks. Part of this modification occurred a few days prior to the 1973 fish population estimate, and part of it while the estimate was being made. From 1972-1974, pounds per acre of brown trout have gone from 20.6 to 15 to 8.7; the corresponding figures for brook trout are 2.3, 2.7 and 0.9 (Appendix X). Numbers of older fish show the greatest decrease.

No work was done with the mountain whitefish except to note their presence (Table 8). They are found in most of the larger streams at elevations below approximately 5500 feet.

Fish populations were also investigated where estimates were not made (survey electrofishing, Appendix AA). This work was done to determine species present and to get rough information on fish numbers. In the smaller tributary streams, fish tend to be present in small numbers only near the mouth, if they are present at all. The upper reaches of some smaller streams were not survey electrofished. It was assumed that fish were absent in an upstream reach if they were not present in a downstream reach.

Silver Creek is an exception. Here fish are present from the mouth upstream to springs which are the source of the stream.

Upper reaches of most smaller streams are extremely steep, becoming a series of cascades and plunge pools. Some of these streams probably dry up in winter. Some of the small streams accessible during winter were checked for water flow near the mouth following severe weather. Verdigris and Initial creeks were dry. Cathedral and Falls creeks had water flow. Crescent Creek is dry much of the year.

Cutthroat trout were stocked in upper Iron Creek and the East Boulder River in Placer Basin in 1971, when other Fish and Game Department personnel found that fish were not present. Considerable electrofishing in Iron Creek in 1974 did not recapture any of these fish or their offspring. A few of the fish planted in the upper East Boulder River are still present, but their numbers seem to be decreasing and no evidence of reproduction has been found (Appendix AA). A single hatchery cutthroat trout found in the mouth of Forge Creek was from the plant made in the upper East Boulder River.

Fish Population Stability

Stability, as used here, indicates the percentage of fish present in a stream section in year X that remained in the section in year X+1, with mortality calculations for that period considered. Percentages were calculated for 12 stream sections where data were sufficient to make the appropriate calculations (Table 10). Stability for all stream sections and species averaged 55 percent for 1972-1973, 59 percent for 1973-1974, 74 percent for one section for 1975-1976, and 79 percent for two sections on Castle Creek from spring 1975 to fall 1975.

These percentages indicate that the majority of fish in stream sections are residents and not merely passing through the sections at the time of electrofishing.

Precision of the stability estimates is similar to the precision of population estimates (Appendices X and Y) which were used in the calculation of stability.

Table 10. Number of fish marked in 1972 or 1973, number of recaptures one year later, and stability[a] of fish populations in stream sections.

Stream	Section Code	Species	Age		Number marked		Recaptures of fish marked one year previous		Stability (percent)	
			1973	1974	1972	1973	1973	1974	1973	1974
Morris Creek	F-12	Brook trout	II		176		29		42	
			III		60		21		87	
Fishtail Creek	F-11	Rainbow trout	III		51		33		81	
			IV and older		31		19		95	
		Brown trout	III		40		34		68	
			IV and older		52		27		66	
Little Rocky Creek	F-8	Brown	-	II	-	29	-	1	11	
Stillwater River	F-2	trout	III and older	III and older	104	50	34	5	46	30
		Brown	II	II	91	174	12	12	32	27
		trout	III	III	124	81	29	25	42	34
			IV and older	IV and older	142	115	21	14	66	62
Silver Creek	F-7	Brown		I	-	202	-	36	-	59
		trout	II	II and older	82	220	13	72	18	100
			III		50		13		70	
Picket Pin Creek	F-16	Brook trout	II and older		77		31		54	
		Brown trout	II		16		11		65	
			III		34		15		70	
			IV and older		37		5		50	
		Cutthroat trout	II		15		13		100	
			III and older		20		17		86	
West Fork Stillwater River	F-17	Rainbow trout		II		106		43		85
				III		43		27		83
				IV and older		87		19		91
		Brown trout		II		15		8		58
				III and older		22		8		80
East Boulder River	F-13	Rainbow trout	III		55		26		91	
			IV		115		93		81	
			V and older		44		13		41	
		Brown trout	IV		24		16		92	
			V and older		13		12		92	

Table 10 continued ( ). Number of fish marked in 1972 or 1973, number of recaptures one year later, and stability[a] of fish populations in stream sections.

Stream	Section Code	Species	Age 1973	Age 1974	Number marked 1972	Number marked 1973	Recaptures of fish marked one year previous 1973	Recaptures of fish marked one year previous 1974	Stability (percent) 1973	Stability (percent) 1974
Boulder River	F-4	Rainbow trout	II		27		1		8	
			III	III	25	17	5	1	24	20
			IV and older	IV and older	61	164	7	31	24	43
		Brook trout	I	-	185	-	10	-	23	-
			II	-	274	-	9	-	12	-
			III	-	52	-	1	-	8	-

Stream	Section Code	Species	1976	1975	1976	1976
West Fork Stillwater River	F-26	Rainbow trout	II	40	11	69
			III	40	27	86
			IV and older	52	14	66

Stream	Section Code	Species	Fall 1975	Spring 1975	Fall 1975	1975
Castle Creek	F-25	Brook[b] trout	I	223	112	86
			II	21	14	77
		Brown[b] trout	I	19	8	70
			II and older	49	40	82
Castle Creek	F-23	Brown trout[b]	I	396	67	68
			II and older	606	382	91

a/ Stability, as used here, indicates the precentage of fish present in the stream section in year X that remained in the section in year X+1, with mortality calculations for that period considered.

b/ Stability percentages are for a six month period rather than one year.

Table 11. Characteristics of brook trout and brown trout redds in the West Fork Stillwater River, Castle Creek and Picket Pin Creek.

Date	Species	Redd No.	Depth (feet)	Gravel diameter (inches)	Velocity (feet per second) at 0.6 of depth
		Castle Creek near station 077			
10-24-75	Brook trout	1	0.3	0.5-2.0	0.69-0.99
10-24-75	Brook trout	2	0.5-0.6	0.5-3.0	1.38-1.54
10-24-75	Brook trout	3	0.15-0.3	0.5-4.0	0.73-1.44
11-07-75	Brown trout	4	0.5	0.5-2.0	0.45
		Castle Creek near station 079			
11-07-75	Brown trout	1	0.7	0.5-4.0	1.20
11-07-75	Brown trout	2	0.4	0.5-2.0	2.20
11-07-75	Brown trout	3	0.5	course sand-2.0	1.05
11-07-75	Brown trout	4	0.4	0.5-2.0	1.15
11-07-75	Brown trout	5	0.4	0.5-3.0	1.08
11-07-75	Brown trout	6	0.6	0.5-4.0	2.10
11-07-75	Brown trout	7	0.55	0.5-2.0	1.55
11-07-75	Brown trout	8	0.5	0.5-2.0	1.00
		Castle Creek near station 080			
11-07-75	Brown trout	1	0.4	0.5-2.0	0.85
11-07-75	Brown trout	2	0.55	0.5-2.0	1.25
11-20-75	Brown trout	3	0.6	<2.0	0.42
11-20-75	Brown trout	4	0.5	<2.0	1.82
11-20-75	Brown trout	5	0.5	<3.0	1.10
11-20-75	Brown trout	6	0.8	1.0-2.0	0.42
11-20-75	Brown trout	7	1.0	1.0-2.0	0.30
11-20-75	Brown trout	8	0.8	1.0-2.0	1.70
11-20-75	Brown trout	9	0.5	1.0-2.0	2.00
11-20-75	Brown trout	10	0.4	1.0-2.0	0.62
11-20-75	Brown trout	11	0.45	1.0-2.0	0.90
11-20-75	Brown trout	12	0.3	-	1.80

Table 11 continued ( ). Characteristics of brook trout and brown trout redds in the West Fork Stillwater River, Castle Creek and Picket Pin Creek.

Date	Species	Redd No.	Depth (feet)	Gravel diameter (inches)	Velocity (feet per second) at 0.6 of depth
		Picket Pin Creek near station 078			
10-24-75	Brook trout	1	0.2-0.4	coarse sand-2.0	0.88
10-24-75	Brook trout	2	0.2-0.3	coarse sand-2.0	0.55
		West Fork Stillwater River near station 076			
11-25-75	Brown trout	1	0.5	0.25-2.0	1.15
12-02-75	Brown trout	2	0.55	0.5-3.0	1.60

Table 12. Percentage survival to hatching of eyed cutthroat (1972 and 1976) and eyed rainbow (1973-1975) trout eggs placed in artificial redds.

Station Number	Date eggs placed in redds	Date eggs removed from redds	Percentage survival in egg containers 1	2	3	Mean survival
East Rosebud River						
001	4-20-72	05-15-72	51	39	33	41
001	9-19-73	10-04-73	96	91	81	89
028	4-20-72	05-15-72	43	-	-	-
028	9-19-73	10-03-73	80	98	73	84
West Rosebud River						
003	4-20-72	05-15-72	27	34	34	32
003	9-19-73	10-04-73	84	76	79	80
004	4-20-72	05-15-72	69	63	62	65
004	9-19-73	10-03-73	97	90	89	92
Stillwater River						
005	4-19-72	05-16-72	42	47	51	47
005	9-19-73	10-03-73	92	88	89	90
005	9-14-74	10-05-74	91	94	93	93
006	4-19-72	05-16-72	7	-	-	-
006	9-19-73	10-03-73	85	86	89	87
006	9-14-74	10-03-74	85	90	96	90
West Fork Stillwater River						
070	9-03-75	10-06-75	77	75	70	74
070	7-08-76	07-23-76	81	68	-	75
075	7-08-76	07-20-76	90	86	-	88
037	9-14-74	10-18-74	87	89	92	89
037	9-03-75	10-06-75	65	76	62	68
007	4-19-72	05-16-72	50	59	51	53
007	9-19-73	10-11-73	66	85	78	76
007	9-14-74	10-10-74	81	74	81	79
076	9-03-75	09-22-75	66	54	67	62
036	9-14-74	10-03-74	82	87	70	80
Castle Creek						
077	9-03-75	10-01-75	74	46	82	67
079	9-03-75	09-30-75	44	64	45	51
080	9-03-75	09-25-75	77	62	65	68
Picket Pin Creek						
078	9-03-75	10-01-75	58	68	56	61

Table 12 continued ( ). Percentage survival to hatching of eyed cutthroat (1972 and 1976) and eyed rainbow (1973-1975) trout eggs placed in artificial redds.

Station Number	Date eggs placed in redds	Date eggs removed from redds	Percentage survival in egg containers 1	2	3	Mean survival
East Boulder River						
038	9-14-74	10-23-74	83	57	61	67
061	9-13-74	10-17-74	73	68	57	66
008	4-19-72	05-17-72	40	-	-	-
008	9-18-73	10-08-73	66	78	85	76
008	9-13-74	10-14-74	82	86	75	81
Boulder River						
010	9-18-73	10-05-73	79	70	75	75
010	9-13-74	10-09-74	85	84	81	83
011	9-18-73	10-12-73	90	73	81	81
011	9-13-74	10-14-74	87	81	78	82

Trout Spawning and Early Life History

This work was done only in the West Fork Stillwater River drainage. Attempts were made to locate redds, measure their physical characteristics, and determine approximate egg hatching dates. Data are shown in Table 11. Rainbow trout are present in the West Fork Stillwater River, but no redds were located. Spawning probably occurred in May and June when streamflows were high and redds difficult to locate. Brown trout occur in the system only in the West Fork Stillwater River below the confluence of Castle Creek. Only two redds were found here. Brook trout reside only in lower Picket Pin Creek and in Castle Creek upstream of the confluence of Picket Pin Creek.

Water depths and velocities over redds and gravel sizes in redds were similar at all locations regardless of stream size (Table 11). Redds were always located in shallow water. One redd was found in water 1 foot deep, but most were located in water depths of approximately 0.5 feet. Pools were never used for redd construction.

Construction of brook trout redds was first observed on October 20, 1975 in Castle and Picket Pin creeks. Spawning activity was over by the end of October. Brown trout redd construction began by November 7, 1975. Spawning appeared to be essentially completed by December 1, 1975.

Brook trout eggs in Castle Creek were all hatched by January 30, 1976. The fry remained in redd gravels on March 10, 1976. No further observations were made, but swim-up probably occurred soon after March 10, as the yolk sac was mostly absorbed. No observations were made on brook trout egg hatching in Picket Pin Creek, but it is probably somewhat later than brook trout in Castle Creek as water temperatures are lower.

Brown trout egg hatching began near March 10, 1976 in Castle and Picket Pin creeks on the Picket Pin Ranch (vicinity stations 077 and 078), and about this same time in Castle Creek downstream from Lodgepole Creek (vicinity station 080). The last observation of brown trout eggs on Castle Creek upstream of Lodgepole Creek (vicinity station 079) was made on April 8, 1976. No eggs observed had hatched by this date, but hatching probably occurred soon afterwards.

Brown trout eggs in the lower West Fork Stillwater River (vicinity station 076) began hatching in early April 1976. Some eggs had hatched on April 8, 1976. This was the last observation, but hatching was probably complete by the end of April.

Egg Bioassays

Overall average survival of eyed trout eggs placed in artificial redds (Table 12) was considerably higher in 1973, 1974 and 1975 (83, 81 and 64 percent) than in 1972 (45 percent). Differences in conditions and procedures between the years were: rainbow trout eggs used in 1973 through 1975 and cutthroat trout eggs in 1972; gravel chips placed in egg containers in 1973 through 1975, but not in 1972; September-October

incubation in 1973 through 1975 and April-May incubation in 1972. The second factor may have had some importance, but the last seems most significant.

Water temperatures were probably more favorable during the September-October period. Although maximum-minimum thermometers were not used in 1972 and 1973, spot measurements with a pocket thermometer showed considerable periods of water temperatures in the suboptimal range of 32-39 F in 1972. In 1973 no water temperatures below 40 F were observed, although they may have occurred for short periods at some stations.

In 1974 maximum-minimum thermometers were used at some of the stations during egg incubation. Also, eggs were placed at some high elevation stations not used in 1973. For 1974 at two stations where minimum temperatures did not go below 40 F, survival averaged 91.5 percent. For three stations where a minimum temperature of 36 F was recorded, survival averaged 81 percent. At one station the minimum temperature was 32 F and survival was 67 percent. In conclusion, temperatures above 39 F seemed important for survival to hatching.

Methods used in 1975 were identical to those used in 1973 and 1974, but survival was somewhat less in 1975 (64 percent vs. 83 and 81 percent). The percentages may not be directly comparable, however, because there was only one station in common between 1975 and 1974 and none between 1975 and 1973. Also in 1975, temperatures below 40 F were not related to egg survival, but temperatures in this range occurred at only two stations and the lowest temperature recorded was only 36 F.

Effect of egg transport from hatchery to artificial redds was negligible. Over 96 percent of control eggs, transported to the field but subsequently returned to the hatchery for incubation, survived to hatching in 1972 through 1974. In 1975 these eggs were destroyed before reaching hatching stage. However, 99 percent were still alive when they were destroyed and only 1 or 2 days remained until the expected hatching date.

Eggs in 1973 required fewer days of incubation in artificial redds because they were not taken from the hatchery until 3 or 4 days after reaching eyed stage. Eggs used in other years were placed in redds the day after eyeing.

In 1972 spring runoff began the last few days that eggs were in redds. This caused complete loss of egg containers at stations 010 and 011, and partial loss at stations 006, 008 and 028.

In 1973 the small number of eggs (10 or 20) used in vials was not sufficient to indicate complete hatching of eggs in screen containers. Consequently, although all eggs had hatched in vials, some screen containers were removed from redds before all eggs had hatched. Had these eggs been left in redds until hatching, average survival at stations 005,

008 and 010 would have been 3, 8 and 6 percent higher, respectively, than shown in Table 12. This problem was largely solved in later bioassays by leaving screen containers in redds for 2 or 3 days after all eggs were hatched in vials.

Only two bioassays were done in 1976 (Table 12). The West Fork Stillwater River (station 070) bioassay was used as a control to test toxicity of the adjacent adit drainage (station 075). No toxicity was evident.

Metals Concentrations in Fish Muscle Tissue

Concentrations of various metals in fish muscle tissue are shown in Appendix BB. In general, the precision of the determinations is plus and minus the detection limit. Detection limits for the various metals were different for different samples of fish analyzed at different times. Due to laboratory procedures, no great reliance should be placed on values for lead and nickel for samples collected in 1972.

It was the opinion of Environmental Protection Agency personnel that the levels of metals are well below values that could be hazardous to humans consuming the fish.

There is one possible exception to the preceding statement. The mercury values for fish collected in September 1973 from section F-17 on the West Fork Stillwater River are considerably higher than would be expected in unpolluted waters. These values, however, are probably not correct. A later sample was collected in October 1975. Only one of these fish has been analyzed for mercury (Appendix BB); the value obtained was low and did not agree with high mercury values found in the first sample. Also, much lower values for mercury were found in other sections of the West Fork Stillwater River.

Results of mercury analysis from the remainder of the October 1975 collection from section F-17 will be included as a supplement to this report if they are received in time.

Average values for nickel in trout in section F-2 of the Stillwater River were twice the values for the upstream section F-1 (2.0 and 1.0 micrograms per gram, using only values above the detection limit). Although no great reliance should be placed on the absolute values of the numbers, the difference is at least suggestive of an increase at the downstream location. An even greater difference was noted for nickel in stream sediments (stations 006 and 005, Appendix N). Values for nickel dissolved and suspended in water were similarly low at both stations (Appendices B and M). The probable sources of nickel were discussed in the general chemical water quality section. In conclusion, the metals in stream sediments may be related to metals in fish tissue.

Fish Stomach Contents

Approximately 12 fish stomachs per stream section were examined from sections of the Stillwater, Boulder and East Boulder rivers. This analysis was made to find organisms which might be of special importance as fish food. A wide variety of organisms was found in stomachs. No particular bottom fauna species appeared to be of great significance as fish food. In stomachs containing several organisms, two or more species were always present. Many more fish stomachs would have to be examined to reach any firm conclusion concerning fish foods.

Minimum Streamflow Reservations

Minimum streamflows requested for study area streams are shown in Table 13. These streamflows were requested under the state law, "Montana Water Use Act," section 89-890. Flows were requested only for streams in the study area having significant fish populations. These flows have yet to be approved. It is unknown at this time what action will be taken by the state with respect to the flows requested.

Streamflow measurements were made periodically at seven stations in the West Fork Stillwater River drainage (Table 14) to supply flow data for making streamflow reservation requests. Flows were also measured at times when streams were thought to be near annual minimums on the following streams: East and West Fishtail creeks, Fishtail Creek, Little Rocky Creek, and the East Boulder River. Flow data published by the U. S. Geological Survey were already available for the Stillwater, Boulder and East Boulder rivers.

Streamflows requested in Table 13 will not decrease the availability of water for the present level of existing uses, of which irrigation is probably the largest.

Amounts of water requested for the November-April period are near average annual minimum flows, except for the West Fork Stillwater River upstream of the mouth of Castle Creek. Requested flows here are somewhat higher. Flows requested for May through October are no greater than, and in some cases less than, average monthly minimum flows.

From the Water Surface Profile (WSP) program, it was found that the winter low flows naturally occurring in streams were near the minimum required to maintain fish populations. Young-of-the-year fish habitat (shallow, low velocity water at stream margins) was the first to be lost at lesser flows. Habitat for adult fish usually began to degrade only at flows below those that degraded young-of-the-year habitat.

ADDITIONAL STUDIES NEEDED

1. The mountain whitefish is common in the lower portions of the larger streams, but no work was done with this species other than to note its presence. Its status, population structure and movements should be investigated.

Table 13. Minimum streamflows (in cubic feet per second) requested of the Montana Department of Natural Resources for streams in the Stillwater and Boulder River drainages.[a]

J	F	M	A	M	J	J	A	S	O	N	D
West Fishtail Creek - from mouth of East Fishtail Creek (T5S,R17E,S19) to the Rickman-Kennedy ditch headgate (T5S,R16E,S27)											
4	4	4	4	10	20	10	4	4	4	4	4
East Fishtail Creek - from mouth of West Fishtail Creek (T5S,R17E,S19) to the mouth of the East Fork of East Fishtail Creek (T5S,R16E,S26)											
4	4	4	4	7	12	7	4	4	4	4	4
Fishtail Creek - from confluence of East and West Fishtail Creeks (T5S,R17E, S19) to mouth (T4S,R18E,S28)											
10	10	10	10	14	24	14	10	10	10	10	10
Little Rocky Creek - from mouth (T4S,R16E,S28) to crossing of Forest Service Road 1414 (T5S,R16E,S21)											
4	4	4	4	6	8	6	4	4	4	4	4
Stillwater River - from mouth of West Fork Stillwater River (T4S,R16E,S31) to the north end of Sioux Charlie Lake (T6S,R14E,S1)											
45	45	45	45	150	710	480	175	120	100	45	45
Stillwater River - from mouth of Rosebud River (T3S,R19E,S31) to mouth of West Fork Stillwater River (T4S,R16E,S3)											
75	75	75	75	190	1200	760	350	275	180	75	75
Stillwater River - from mouth (T2S,R20E,S29) to mouth of Rosebud River (T3S, R19E,S31)											
225	225	225	225	560	2075	1480	740	630	440	225	225
West Fork Stillwater River - from Sweet Grass - Stillwater County Line (T5S, R14E,S1) to mouth of Tumble Creek (T5S,R14E,S29)											
25	25	25	25	25	200	100	40	25	25	25	25
West Fork Stillwater River - from mouth of Castle Creek (T4S,R15E,S26) to Stillwater - Sweet Grass County Line (T5S,R15E,S6)											
30	30	30	30	60	300	110	65	50	45	30	30
West Fork Stillwater River - from mouth (T4S,R16E,S31) to mouth of Castle Creek (T4S,R15E,S26)											
35	35	35	35	70	350	125	75	60	50	50	35
Castle Creek - from mouth of Picket Pin Creek (T4S,R15E,S30) to a point 1500 stream feet upstream (T4S,R14E,S25)											
1	1	1	1	2	8	5	3	2	2	1	1

Table 13 continued ( ). Minimum streamflows (in cubic feet per second) requested of the Montana Department of Natural Resources for streams in the Stillwater and Boulder River drainages.[a]

	J	F	M	A	M	J	J	A	S	O	N	D
Castle Creek - from mouth of Lodgepole Creek (T4S,R15E,S28) to mouth of Picket Pin Creek (T4S,R15E,S30)	8	8	8	8	10	40	20	12	10	9	8	8
Castle Creek - from mouth (T4S,R15E,S26) to mouth of Lodgepole Creek (T4S, R15E,S28)	15	15	15	15	25	60	30	22	22	20	20	15
Picket Pin Creek - from mouth (T4S,R15E,S30) to mouth of Swamp Creek (T4S, R14E,S25)	5	5	5	5	7	25	10	8	6	6	5	5
East Boulder River - from mouth of Dry Fork (T4S,R13E,S11) to mouth of Brownlee Creek (T4S,R13E,S26)	10	10	10	10	14	120	36	16	14	13	10	10
East Boulder River - from mouth (T2S,R13E,S33) to mouth of Dry Fork (T4S,R13E, S11)	15	15	15	15	20	165	50	22	20	18	15	15
Boulder River - from mouth of Falls Creek (T4S,R12E,S15) to mouth of Howley Creek (T5S,R12E,S35)	40	40	40	40	75	540	240	101	72	56	40	40
Boulder River - from mouth of West Boulder River (T2S,R13E,S15) to mouth of Falls Creek (T4S,R12E,S15)	50	50	50	50	150	1080	480	200	145	115	50	50
Boulder River - from mouth (T1N,R14E,S12) to mouth of West Boulder River (T2S, R13E,S15)	80	80	80	80	300	1690	565	185	195	200	80	80

a/ Requested under the state law "Montana Water Use Act," section 89890.

Table 14. Streamflow at stations on the West Fork Stillwater River, Castle Creek and Picket Pin Creek, 1975-1976.

West Fork Stillwater River

Station 076		Station 007		Station 070	
Date	Flow (cfs)	Date	Flow (cfs)	Date	Flow (cfs)
08-06-75	169	08-06-75	160	08-04-75	132
08-21-75	116	08-21-75	103	08-21-75	78
09-05-75	96	09-08-75	63	08-29-75	52
09-29-75	79	09-29-75	45	09-30-75	25
10-20-75	77	10-20-75	44	10-29-75	21
11-24-75	57	12-01-75	36	11-14-75	17
12-24-75	56	12-09-75	30	12-09-75	13
01-14-76	49	01-12-76	23	01-14-76	12
02-18-76	39	02-19-76	20	02-19-76	8
03-16-76	38	03-16-76	16	03-16-76	7
04-06-76	37	04-08-76	23	04-08-76	11
04-23-76	50	04-26-76	25	04-20-76	13
05-05-76	101	05-05-76	54	05-04-76	28
				05-20-76	249

Castle Creek

Station 080		Station 079		Station 077		Picket Pin Creek Station 078	
Date	Flow (cfs)	Date	Flow (cfs)	Date	Flow (cfs)	Date	Flow (cfs)
07-16-75	124	07-17-75	79	07-17-75	20	07-17-75	47
07-31-75	68	07-30-75	28	07-31-75	12	07-31-75	21
08-21-75	48	08-21-75	17	08-20-75	6	08-20-75	13
09-30-75	32	09-29-75	11	08-25-75	5	08-28-75	8
10-20-75	32	10-20-75	12	09-29-75	3	09-29-75	7
11-07-75	30	11-07-75	13	10-20-75	2.3	10-20-75	6
12-08-75	23	12-08-75	10	11-25-75	1.6	11-25-75	7
01-16-76	21	01-16-76	8	12-08-75	1.5	12-08-75	6
02-18-76	18	02-13-76	6	01-16-76	1.3	01-16-76	5
03-10-76	17	03-10-76	6	02-18-76	1.0	02-18-76	4
04-07-76	15	04-07-76	5	03-10-76	1.0	03-10-76	4
04-23-76	20	04-23-76	7	04-07-76	1.0	04-07-76	4
05-05-76	38	05-05-76	13	04-23-76	1.1	04-23-76	5

Table 14 continued ( ). Streamflow at stations on the West Fork Stillwater River, Castle Creek and Picket Pin Creek, 1975-1976.

Castle Creek						Picket Pin Creek	
Station 080		Station 079		Station 077		Station 078	
Date	Flow (cfs)	Date	Flow (cfs)	Date	Flow (cfs)	Date	Flow (cfs)
05-21-76	122	05-21-76	73	05-06-76	2.6	05-06-76	11
06-05-76	130	06-05-76	90	05-21-76	14	05-21-76	46
06-21-76	115	06-21-76	82	06-05-76	20	06-05-76	55
07-05-76	76	07-05-76	48	06-21-76	21	06-21-76	46
				07-05-76	14	07-05-76	31

2. Seasonal movements, and especially spawning movements, of game fishes need investigation. There is some evidence for significant spawning movement of rainbow trout in the Stillwater River.

3. Information on the timing of spawning and early life history stages was developed only for some species in the West Fork Stillwater River drainage. This data should be developed for other streams in the area.

4. Fish population estimates are needed on the Stillwater River downstream from the mouth of the Rosebud River and on the Boulder River downstream from the mouth of the West Boulder River.

5. Metals in fish tissue were not measured for all streams. Remaining streams should be sampled for this purpose before major mining development is announced. Nickel should be remeasured in fish from sections F-1 and F-2 on the Stillwater River.

6. Weekly maximum and minimum stream temperatures should be measured for at least the summer on streams where this has not yet been done.

7. Plans for development by mining companies should be watched closely and appropriate follow-up aquatic studies planned and carried out when and where needed. This should include work to confirm the findings of this study if several years elapse before mining development becomes evident.

8. The identification of remaining streambottom macrofauna samples should be completed. This will supply considerable information for determining impact or lack of it on streams.

RECOMMENDATIONS

1. Two old problems should be remedied. Verdigris Creek carries abnormal concentrations of metals downstream from the gossan. Tailings from the Mouat tailings pond blow into the Stillwater River each winter and early spring. Neither of these situations should be allowed to continue, because there is some indication that one or both problems are causing elevated nickel concentrations in Stillwater River fish.

2. A landslide and water moving through it, one-half mile upstream from the Johns-Manville adit have washed soil into the West Fork Stillwater River in the spring of 1975 and 1976. If this landslide continues each spring, steps should be taken to protect the West Fork Stillwater River.

3. Low summer stream temperatures should not be used as a justification for increasing stream temperature by mining and related development. Downstream areas would be adversely affected.

4. Mining companies should stay informed on state and federal regulations applicable to their operations. This is especially true of water quality regulations.

5. Mills, tailings ponds and smelters should be located on flat land rather than mountainous areas. Potential problems associated with these developments in steep terrain outweigh any advantage gained by placing them close to the mine.

6. A high density of roads has already had detrimental results in the Verdigris and Mountain View drainages. All efforts should be made to limit road building. This is especially true in the Placer Basin-Iron Mountain-Chrome Mountain area at the head of the East Boulder River. Many miles of new road and bulldozer trails have been built in this area in the past several years.

7. Communication and coordination among agencies, companies and the public should be maintained and strengthened. Mining companies should inform appropriate state and federal agencies and the public at the earliest possible date of plans for development before these plans become finalized.

8. Fish are absent from all of Brownlee Creek and from Little Rocky Creek upstream of Forest Service road 1414. These streams may be capable of supporting fish populations. Fingerling cutthroat trout should probably be introduced in these streams.

9. A large spring important to portions of Lodgepole and Castle creeks and the West Fork Stillwater River downstream of Castle Creek is located on private property near the lower end of Lodgepole Creek. The present landowers recognize the importance of this spring, and it receives favorable management, but this might not be the case if the property were sold. If and when the property is for sale, the Department of Fish and Game should consider purchase.

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Waters Referred to:

Stream	Code No.
Blakely Creek	5-22-0658-1
Bobcat (E. Chippy) Cr.	5-22-0728-1
Boulder R. Sec. 01	5-22-0742-1
Boulder R. Sec. 02	5-22-0756-1
Brownlee Creek[a]	-
Castle Creek	5-22-1022-1
Cathedral Creek	5-22-1050-1
Crescent Creek[a]	-
East Boulder River	5-22-2002-1
East Fishtail Creek	5-22-2058-1
East Rosebud River	5-22-2254-1
Falls Creek	5-22-2436-1
Fishtail Creek	5-22-2492-1
Forge Creek	5-22-2598-1
Froze-to-Death Creek	5-22-2681-10
Graham Creek	5-22-2772-1
Great Falls Creek	5-22-2846-10
Hawley Creek	5-22-3010-1
Initial Creek	5-22-3346-1
Iron Creek	5-22-3360-1
Little Rocky Creek	5-22-3752-1
Lodgepole Creek	5-22-3808-1
Lower Deer Creek	5-22-3864-1
Morris Creek	5-22-4275-1
Mountain View Creek	5-22-4280-1
Nye Creek	5-22-4508-1
Picket Pin Creek	5-22-4648-1
Saderbalm Creek	5-22-5166-1
Silver Creek	5-22-5411-1
South Nye Creek[a]	-
Stillwater R. Sec. 01	5-22-6104-1
Stillwater R. Sec. 02	5-22-6118-1
Tumble Creek	5-22-6398-1
Upper Deer Creek	5-22-6454-1
Verdigris Creek[a]	-
W. Boulder River	5-22-6552-1
West Fishtail Creek	5-22-6580-1
W. Fk. Stillwater Sec.01	5-22-6664-1
W. Fk. Stillwater Sec.02	5-22-6678-1
West Fishtail Creek	5-22-6580-1
West Rosebud River	5-22-6804-1
Woodbine Creek	5-22-6944-1

[a]No code number assigned

Appendix A. Location of sampling stations.

Station Number	Stream	T	R	S[a]	Description
001	East Rosebud River	7S	17E	11	Adjacent to Jimmie Joe Campground
002	East Rosebud River	6S	18E	16	At bridge
003	West Rosebud River	6S	17E	28	At Pine Grove Campground
004	West Rosebud River	6S	17E	2	At bridge
005	Stillwater River	5S	15E	32	West channel 200 yards upstream from bridge at Woodbine Campground
006	Stillwater River	5S	15E	15	West channel 1.4 road miles north of the Mouat Mill
007	W. Fork Stillwater River	4S	15E	33	At bridge
008	East Boulder River	3S	13E	29	At Anderson Springs resort
009	East Boulder River	2S	13E	33	At Ewan Campground 200 yards upstream from mouth
010	Boulder River	4S	12E	15	At Falls Creek Campground
011	Boulder River	5S	12E	13	At Flemming Bridge
012	East Fishtail Creek	5S	17E	19	At mouth
013	West Fishtail Creek	5S	17E	19	At mouth
014	Morris Creek	6S	18E	8	200 yards downstream from MacKay Ranch house
015	Little Rocky Creek	5S	16E	21	At road crossing near Little Rocky Campground
016	Nye Creek	5S	15E	15	At road crossing 100 yards upstream from mouth
017	Initial Creek	5S	14E	14	At road crossing
018	Cathedral Creek	5S	14E	14	At road crossing near mouth
019	Iron Creek	5S	14E	12	Near mouth
020	Picket Pin Creek	5S	14E	3	At road crossing
021	Lower Deer Creek	2S	15E	20	At road crossing near National Forest boundary
022	Upper Deer Creek	2S	14E	12	At Rudd Cabin
023	Bobcat (East Chippy) Creek	5S	12E	1	At road crossing near mouth
024	Blakely Creek	4S	12E	25	At road crossing near mouth
025	Graham Creek	4S	12E	23	At road crossing near mouth
026	Great Falls Creek	4S	12E	23	At mouth
027	Falls Creek	4S	12E	15	West channel at road crossing

Appendix A continued ( ). Location of sampling stations.

Station Number	Stream	T	R	S[a]	Description
028	East Rosebud River	5S	18E	34	At Roscoe Bridge
029	West Rosebud River	5S	17E	23	At bridge near mouth
030	Fishtail Creek	5S	17E	19	At bridge near mouth
031	Little Rocky Creek	5S	16E	3	At crossing of Highway 419
032	Stillwater River	4S	16E	31	At USGS station 200 yards below mouth of West Fork
033	Stillwater River	4S	16E	28	At Moraine Fishing Access
034	Stillwater River	4S	17E	18	At Midnight Canyon Bridge
035	Stillwater River	3S	18E	35	At Johnson Bridge
036	West Fork Stillwater	4S	16E	31	At Nye Bridge, south channel
037	West Fork Stillwater	5S	14E	14	At Initial Creek campground
038	East Boulder River	5S	13E	11	0.5 miles upstream from road crossing
039	Boulder River	2S	13E	33	At Ewan Campground 50 yards downstream from bridge
040	Boulder River	2S	13E	1	At bridge
041	West Boulder River	2S	13E	15	At McLeod Bridge
042	Silver Creek	5S	15E	15	At crossing of Highway 419
043	Verdigris Creek	5S	15E	28	At crossing of Highway 419
044	Mountain View Creek	5S	15E	21	At crossing of Highway 419
045	Fishtail Creek	5S	17E	9	At bridge 100 yards upstream from mouth of Sheep Creek
046	East Rosebud River	5S	18E	15	At bridge
047	South Nye Creek	5S	15E	15	At trail crossing 200 yards upstream from mouth
048	Crescent Creek	5S	14E	29	At trail crossing near mouth
049	East Rosebud River	6S	18E	30	1 road mile downstream from TO Bar Ranch buildings
050	Boulder River	4S	12E	25	At Clydehurst Ranch buildings
051	Forge Creek	5S	13E	2	At road crossing near mouth
053	Brownlee Creek	4S	13E	26	At mouth

Appendix A continued ( ). Location of sampling stations.

Station Number	Stream	T	R	S[a]	Description
054	West Fork Stillwater River	5S	14E	30	Near mouth of Lightning Creek
055	Verdigris Creek	5S	15E	20	At wood culvert
058	Woodbine Creek	5S	15E	32	200 yards upstream from mouth
060	Brownlee Creek	4S	13E	27	50 feet below headwater confluence
061	East Boulder River	4S	13E	2	At bridge
070	West Fork Stillwater River	5S	14E	14	0.5 mile upstream from bridge
071	West Fork Stillwater River	5S	14E	14	50 feet above bridge near adit
072	West Fork Stillwater River	5S	14E	14	100 feet downstream from bridge near adit
073	Unnamed tributary to West Fork Stillwater River	5S	14E	14	Adjacent to adit portal
075	Drainage from adit	5S	14E	14	At pipe below adit portal
076	West Fork Stillwater River	4S	15E	26	100 feet upstream from mouth of Horseman Creek
077	Castle Creek	4S	14E	25	At U.S. Forest Service boundary
078	Picket Pin Creek	4S	14E	25	At U.S. Forest Service boundery
079	Castle Creek	4S	15E	29	100 feet upstream from Limestone School bridge
080	Castle Creek	4S	15E	28	1000 feet downstream from mouth of Lodgepole Creek
083	Saderbalm Creek	5S	14E	22	Near mouth
084	Froze-to-death Creek	4S	12E	10	Near mouth
085	Hawley Creek	5S	12E	35	Near mouth

a/ Township, Range, and Section

Appendix B. Summarization of water quality of major streams, 1971 - 1972 - 1973 - 1974[a].

	East Rosebud River Station 001				East Rosebud River Station 002			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
Ca[b]	4.10	5.70	2.00	9	5.60	8.60	2.60	9
Mg	1.10	1.50	0.60	9	1.40	1.80	0.70	9
Na	0.90	1.30	0.50	9	1.40	2.40	0.60	9
K	0.80	1.40	0.50	9	0.80	1.70	0.60	9
SiO_2	2.20	3.00	1.00	9	3.50	6.00	1.30	9
HCO_3	17.10	24.00	10.00	9	24.00	36.00	11.00	9
CO_3	0.00	0.00	0.00	9	0.00	0.00	0.00	9
OH	0.00	0.00	0.00	9	0.00	0.00	0.00	9
Cl	0.30	1.00	0.00	9	0.50	1.40	0.10	9
SO_4	3.60	6.00	1.80	9	3.90	5.60	2.60	9
NO_{3-N}	0.07	0.16	0.00	9	0.09	0.20	0.00	9
F	0.00	0.10	0.00	9	0.00	0.10	0.00	9
pH (lab)	6.74	7.15	6.19	9	6.90	7.18	6.33	9
pH (field)	8.30	8.40	8.20	6	8.20	8.40	8.10	6
F°	43.00	57.00	32.00	8	43.00	60.00	32.00	9
Dis. Sol.	30.50	38.40	18.60	9	41.80	59.60	21.70	9
Hard.	14.00	20.00	9.00	9	20.00	28.00	10.00	9
Alk.	14.00	20.00	8.00	9	20.00	30.00	9.00	9
D.O.	11.20	13.00	8.50	5	11.30	13.00	8.50	6
JTU	1.00	4.00	0.00	4	2.00	3.00	0.00	4
Zn	<0.01	0.01	<0.01	9	<0.01	0.01	<0.01	9
Cd	<0.01	<0.01	<0.01	9	<0.01	<0.01	<0.01	9
Cu	<0.01	<0.01	<0.01	9	<0.01	<0.01	<0.01	9
Ni	<0.02	<0.02	<0.01	9	<0.02	<0.02	<0.02	9
Fe	0.02	0.08	0.00	9	0.12	0.41	<0.02	9
Mn	0.00	0.00	0.00	9	0.00	0.01	0.00	9

SAMPLING DATES	SAMPLING DATES
4-12-71	4-12-71
6-09-71	6-09-71
7-26-71	7-26-71
10-20-71	10-20-71
11-11-71	11-14-71
3-14-72	2-16-72
5-22-72	5-22-72
8-16-72	8-16-72
11-21-72	11-21-72

Appendix B continued ( ). Summarization of water quality of major streams, 1971 - 1972 - 1973 - 1974[a].

	WEST ROSEBUD RIVER STATION 003				WEST ROSEBUD RIVER STATION 004			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
Ca[b]	4.30	10.50	2.60	9	5.20	8.60	3.30	9
Mg	0.90	1.30	0.40	9	0.90	1.40	0.60	9
Na	1.00	1.30	0.70	9	1.30	1.90	0.80	9
K	0.80	1.10	0.40	9	0.80	1.20	0.60	9
SiO_2	2.50	4.30	0.00	9	3.60	7.00	1.00	9
HCO_3	17.00	34.00	10.00	9	20.00	27.00	15.00	9
CO_3	0.00	0.00	0.00	9	0.10	1.00	0.00	9
OH	0.00	0.00	0.00	9	0.00	0.00	0.00	9
Cl	0.50	1.40	0.10	9	0.40	1.00	0.10	9
SO_4	3.20	6.20	2.00	9	4.40	7.40	2.20	9
NO_3-N	0.07	0.18	0.00	9	0.04	0.16	0.00	9
F	0.00	0.10	0.00	9	0.00	0.10	0.00	9
pH (lab)	6.70	7.22	6.24	9	6.91	8.42	6.34	9
pH (field)	8.10	8.30	7.90	6	8.20	8.40	7.90	6
F°	43.00	57.00	32.00	8	44.00	60.00	32.00	8
Dis. Sol.	30.30	57.60	19.60	9	36.80	48.50	28.10	9
Hard.	15.00	31.00	10.00	9	17.00	26.00	12.00	9
Alk.	14.00	28.00	8.00	9.	17.00	26.00	12.00	9
D. O.	11.10	12.00	8.60	6	10.90	12.00	8.30	5
JTU	3.00	8.00	0.00	4	2.00	3.00	0.00	4
Zn	<0.01	0.01	<0.01	9	<0.01	0.01	<0.01	9
Cd	<0.01	<0.01	<0.01	9	<0.01	<0.01	<0.01	9
Cu	<0.01	0.01	<0.01	9	<0.01	<0.01	<0.01	9
Ni	<0.02	<0.02	<0.01	9	<0.02	<0.02	<0.02	9
Fe	0.02	0.07	0.02	9	0.03	0.12	0.00	9
Mn	0.00	0.01	0.00	9	0.00	0.01	0.00	9

SAMPLING DATES	SAMPLING DATES
04-12-71	04-12-71
06-09-71	06-09-71
07-26-71	07-26-71
10-20-71	10-20-71
11-11-71	11-11-71
02-10-72	02-10-72
05-22-72	05-22-72
08-09-72	08-09-72
12-01-72	11-21-72

Appendix B continued ( ). Summarization of water quality of major streams, 1971 - 1972 - 1973 - 1974[a].

STILLWATER RIVER STATION 005					STILLWATER RIVER STATION 006			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
Ca[b]	4.90	7.10	2.60	16	8.40	16.40	3.60	16
Mg	1.10	1.80	0.60	16	2.00	3.10	0.70	16
Na	1.40	2.50	0.60	16	1.60	2.70	0.60	16
K	0.70	1.60	0.40	16	0.80	1.50	0.40	16
SiO_2	4.60	7.30	1.30	16	5.00	9.00	1.30	16
HCO_3	19.00	26.00	13.00	16	28.00	51.00	13.00	16
CO_3	0.00	0.00	0.00	16	0.00	0.00	0.00	16
OH	0.00	0.00	0.00	16	0.00	0.00	0.00	16
Cl	0.50	1.50	0.20	16	0.50	1.40	0.00	16
SO_4	4.50	7.40	2.00	16	8.30	14.00	2.80	16
NO_{3-N}	0.07	0.23	0.00	16	0.07	0.23	0.00	16
F	0.00	0.10	0.00	16	0.00	0.10	0.00	16
pH (lab)	6.81	7.24	6.32	16	6.88	8.12	6.04	16
pH (field)	8.30	8.40	7.80	13	8.20	8.50	7.00	13
F°	41.00	55.00	32.00	15	43.00	56.00	32.00	15
Dis. Sol.	37.00	48.60	23.40	16	54.30	92.00	26.80	16
Hard.	17.00	21.00	11.00	16	28.00	51.00	12.00	16
Alk	15.00	22.00	10.00	16	23.00	42.00	10.00	16
D. O.	11.40	16.00	9.50	12	10.90	13.40	9.40	13
JTU	2.00	10.00	0.00	9	2.00	8.00	0.00	9
Zn	<0.01	0.01	<0.01	16	<0.01	0.02	<0.01	16
Cd	<0.01	<0.01	<0.01	16	<0.01	<0.01	<0.01	16
Cu	<0.01	0.01	<0.01	16	<0.01	0.02	<0.01	16
Ni	<0.02	<0.02	<0.02	16	<0.02	<0.02	<0.02	16
Fe	0.06	0.20	0.00	16	0.06	0.24	0.00	16
Mn	0.00	0.01	0.00	16	0.00	0.01	0.00	16

SAMPLING DATES	SAMPLING DATES
04-12-71	04-12-71
06-09-71	06-09-71
07-26-71	07-26-71
10-19-71	10-19-71
11-11-71	11-11-71
12-18-71	12-18-71
01-17-72	01-22-72
02-14-72	02-14-72
03-14-72	03-14-72
04-19-72	04-29-72
05-16-72	05-16-72
06-21-72	06-21-72
07-14-72	07-14-72
08-03-72	08-03-72
09-18-72	09-18-72
12-01-72	12-01-72

Appendix B continued ( ). Summarization of water quality of major streams, 1971 - 1972 - 1973 - 1974[a].

WEST FORK STILLWATER RIVER STATION 007					WEST FORK STILLWATER RIVER STATION 054			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
Ca[b]	13.00	21.00	5.00	16	6.50	7.90	3.40	8
Mg	4.00	6.70	0.50	16	2.30	3.80	0.40	8
Na	1.60	2.40	0.80	16	1.20	1.50	0.90	8
K	0.90	1.80	0.50	16	0.80	1.00	0.50	8
SiO_2	6.80	10.00	2.00	16	5.50	7.00	3.00	8
HCO_3	57.00	94.00	22.00	16	26.00	33.00	13.00	8
CO_3	0.00	1.00	0.00	16	0.00	0.00	0.00	8
OH	0.00	0.00	0.00	16	0.00	0.00	0.00	8
Cl	0.40	1.10	0.20	16	0.60	2.00	0.20	8
SO_4	5.90	8.60	2.20	16	6.10	11.40	2.80	8
NO_3-N	0.04	0.23	0.00	16	0.07	0.16	0.00	8
F	0.00	0.10	0.00	16	0.00	0.00	0.00	8
pH (lab)	7.29	8.32	6.38	16	7.28	7.74	6.73	8
pH (field)	8.30	8.60	6.90	13	8.20	8.60	7.40	8
F°	42.00	53.00	32.00	15	40.00	47.00	33.00	8
Dis. Sol.	90.10	133.10	40.00	16	49.20	54.60	27.00	8
Hard.	48.00	76.00	21.00	16	25.00	35.00	16.00	8
Alk.	47.00	76.00	21.00	16	21.00	27.00	11.00	8
D. O.	10.80	12.80	9.00	12	10.10	10.90	9.20	8
JTU	0.00	2.00	0.00	10	0.00	2.00	0.00	8
Zn	<0.01	0.02	<0.01	16	<0.01	0.02	<0.01	7
Cd	<0.01	<0.01	<0.01	16	<0.01	<0.01	<0.01	7
Cu	<0.01	0.02	<0.01	16	<0.01	<0.02	<0.01	7
Ni	<0.02	<0.02	<0.02	16	<0.01	<0.05	<0.01	7
Fe	0.10	0.92	0.00	16	0.02	0.10	0.00	8
Mn	0.00	0.01	0.00	16	0.00	0.00	0.00	8

SAMPLING DATES	SAMPLING DATES
04-13-71	05-30-73
06-09-71	07-24-73
07-26-71	09-24-73
10-19-71	10-24-73
11-11-71	05-13-74
12-18-71	07-23-74
01-17-72	09-19-74
02-16-72	10-11-74
03-14-72	
04-19-72	
05-16-72	
06-21-72	
07-14-72	
08-07-72	
09-18-72	
12-01-72	

Appendix B continued ( ). Summarization of water quality of major streams, 1971 - 1972 - 1973 - 1974[a].

EAST BOULDER RIVER STATION 038					EAST BOULDER RIVER STATION 008			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
Ca[b]	3.40	6.30	2.00	7	23.80	32.00	10.40	16
Mg	1.40	1.70	1.00	7	5.70	6.90	2.00	16
Na	1.50	1.60	1.20	7	1.40	2.00	0.80	16
K	0.60	0.60	0.50	7	0.50	1.00	0.20	16
SiO_2	7.40	9.60	3.80	7	6.70	10.00	2.60	16
HCO_3	16.00	24.00	12.00	7	89.00	122.00	36.00	16
CO_3	0.00	0.00	0.00	7	0.00	2.00	0.00	16
OH	0.00	0.00	0.00	7	0.00	0.00	0.00	16
Cl	0.70	1.30	0.30	7	0.30	1.00	0.00	16
SO_4	2.70	5.60	0.30	7	7.00	12.20	1.80	16
NO_3-N	0.07	0.18	0.02	7	0.02	0.18	0.00	16
F	0.00	0.00	0.00	6	0.00	0.10	0.00	16
pH (lab)	7.46	8.53	7.12	7	7.65	8.41	6.82	16
pH (field)	8.10	8.60	7.40	6	8.50	8.60	8.00	13
F°	52.00	61.00	42.00	7	40.00	52.00	32.00	16
Dis. Sol.	33.80	43.60	29.60	7	142.00	180.10	63.00	16
Hard.	14.00	21.00	10.00	7	82.00	105.00	35.00	16
Alk.	13.00	21.00	10.00	7	78.00	104.00	29.00	16
D. O.	8.50	9.40	7.30	6	11.00	12.10	9.20	12
JTU	1.00	5.00	0.00	6	1.00	5.00	0.00	10
Zn	<0.01	0.01	<0.01	5	<0.01	0.01	<0.01	16
Cd	<0.01	<0.01	<0.01	5	<0.01	<0.01	<0.01	16
Cu	<0.01	<0.01	<0.01	5	<0.01	<0.01	<0.01	16
Ni	<0.01	<0.05	<0.01	5	<0.02	<0.02	<0.02	16
Fe	0.02	0.10	0.00	7	0.02	0.17	0.00	16
Mn	0.00	0.01	0.00	7	0.00	0.01	0.00	16

SAMPLING DATES
07-28-71
07-25-73
09-20-73
10-23-73
07-25-74
09-18-74
10-10-74

SAMPLING DATES
04-15-71
06-10-71
07-27-71
10-26-71
11-14-71
12-17-71
01-17-72
02-17-72
03-24-72
04-19-72
05-17-72
06-22-72
07-19-72
08-14-72
09-19-72
11-30-72

Appendix B continued ( ). Summarization of water quality of major streams, 1971 - 1972 - 1973 - 1974[a].

EAST BOULDER RIVER STATION 009					BOULDER RIVER STATION 010			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
Ca[b]	41.60	55.00	17.90	16	9.00	13.20	4.80	16
Mg	9.60	15.30	3.20	16	2.20	3.50	0.80	16
Na	4.80	12.70	1.60	16	2.00	2.80	1.00	16
K	1.20	2.50	0.50	16	1.20	2.10	0.60	16
SiO_2	7.10	11.00	3.20	16	7.70	11.00	3.00	16
HCO_3	141.00	178.00	59.00	16	37.00	54.00	23.00	16
CO_3	0.00	5.00	0.00	16	0.00	1.00	0.00	16
OH	0.00	0.00	0.00	16	0.00	0.00	0.00	16
Cl	1.40	3.30	0.30	16	0.50	1.50	0.10	16
SO_4	44.00	63.00	9.40	16	6.50	11.40	2.60	16
NO_{3-N}	0.07	0.23	0.00	16	0.04	0.18	0.00	16
F	0.00	0.20	0.00	16	0.02	0.13	0.00	16
pH (lab)	7.92	8.48	7.00	16	7.06	8.34	6.53	16
pH (field)	8.40	8.70	7.60	13	8.40	8.70	8.30	13
F°	42.00	58.00	33.00	16	40.00	54.00	32.00	16
Dis. Sol	253.20	324.90	97.70	16	69.90	89.90	40.60	16
Hard.	150.00	196.00	57.00	16	31.00	46.00	20.00	16
Alk.	116.00	158.00	48.00	15	30.00	44.00	19.00	16
D. O.	11.10	12.40	9.30	12	11.10	12.00	8.90	13
JTU	4.00	20.00	0.00	10	3.00	8.00	0.00	9
Zn	<0.01	0.015	<0.01	16	<0.01	0.01	<0.01	16
Cd	<0.01	<0.01	<0.01	16	<0.01	<0.01	<0.01	16
Cu	<0.01	<0.01	<0.01	16	<0.01	<0.01	<0.01	16
Ni	<0.02	<0.02	<0.02	16	<0.02	<0.02	<0.02	16
Fe	0.11	0.55	0.00	16	0.10	0.68	0.00	16
Mn	0.00	0.02	0.00	16	0.00	0.03	0.00	16

SAMPLING DATES	SAMPLING DATES
04-15-71	04-15-71
06-10-71	06-10-71
07-27-71	07-27-71
10-26-71	10-26-71
11-14-71	11-14-71
12-17-71	12-17-71
01-17-72	01-22-72
02-17-72	02-17-72
03-24-72	03-24-72
04-29-72	04-19-72
05-18-72	05-17-72
06-22-72	06-22-72
07-19-72	07-19-72
08-17-72	08-17-72
09-19-72	09-19-72
11-30-72	11-30-72

Appendix B continued ( ). Summarization of water quality of major streams, 1971 - 1972 - 1973 - 1974[a].

BOULDER RIVER STATION 011

	Mean	Max.	Min.	No. of Samples	SAMPLING DATES
Ca[b]	8.70	14.20	4.80	11	
Mg	2.20	2.80	1.40	11	10-26-71
Na	2.00	2.80	1.00	11	11-14-71
K	1.00	1.50	0.60	11	12-17-71
SiO_2	9.00	11.00	3.20	11	03-24-72
HCO_3	36.00	47.00	24.00	11	04-19-72
CO_3	0.00	0.00	0.00	11	05-17-72
OH	0.00	0.00	0.00	11	06-22-72
Cl	0.40	0.60	0.10	11	07-19-72
SO_4	5.80	10.40	2.60	11	08-15-72
NO_3-N	0.07	0.16	0.00	11	09-19-72
F	0.01	0.12	0.00	11	11-27-72
pH (lab)	7.17	7.94	6.46	11	
pH (field)	8.40	8.70	8.20	11	
F°	41.00	52.00	31.00	10	
Dis. Sol.	65.30	86.00	44.80	11	
Hard.	31.00	44.00	20.00	11	
Alk.	30.00	39.00	20.00	11	
D. O.	10.70	12.00	9.10	11	
JTU	1.00	7.00	0.00	8	
Zn	<0.01	0.01	<0.01	11	
Cd	<0.01	<0.01	<0.01	11	
Cu	<0.01	<0.01	<0.01	11	
Ni	<0.02	<0.02	<0.02	11	
Fe	0.07	0.27	0.00	11	
Mn	0.00	0.01	0.00	11	

a/ Units are milligrams per liter except as indicated.

b/ Standard chemical abbreviations, and as follows:

F° = Temperature, field
Dis. Sol. = Calculated dissolved solids
Hard. = Total hardness as $CaCO_3$
Alk. = Total alkalinity as $CaCO_3$
D. O. = Dissolved oxygen, field
JTU = Turbidity, field

Appendix C. Summarization of water quality data for stations on Rosebud tributaries, 1972[a].

	EAST FISHTAIL CREEK STATION 012[b]		WEST FISHTAIL CREEK STATION 013[c]			MORRIS CREEK STATION 014[c]		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.
Ca	10.80	10.20	5.10	8.70	3.00	16.50	20.00	10.80
Mg	3.80	3.80	1.10	1.60	0.60	3.60	4.90	2.20
Na	3.70	2.50	1.90	2.50	1.00	12.00	17.00	7.00
K	0.71	0.61	0.69	0.90	0.60	1.00	1.40	0.70
SiO_2	11.40	8.70	7.90	11.50	5.00	16.00	18.00	14.00
HCO_3	55.00	52.00	22.00	32.00	15.00	92.00	115.00	66.00
CO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cl	0.50	0.40	0.30	0.60	0.10	0.80	1.30	0.30
SO_4	6.00	4.20	4.40	5.60	2.60	6.60	9.60	2.00
NO_{3-N}	0.16	0.00	0.09	0.18	0.00	0.09	0.23	0.04
F	0.00	0.00	0.00	0.00	0.00	0.10	0.20	0.00
pH (lab)	6.75	6.65	6.64	7.18	6.40	7.08	7.11	6.90
pH (field)	8.50	8.40	8.30	8.50	8.10	8.40	8.40	8.30
Fo	41.00	32.00	40.00	52.00	32.00	45.00	70.00	32.00
Dis. Sol.	89.20	86.00	43.90	61.70	28.30	150.40	187.40	105.80
Hard.	43.00	41.00	17.00	25.00	10.00	56.00	70.00	39.00
Alk.	45.00	43.00	18.00	27.00	12.00	75.00	94.00	54.00
D. O.	11.50	10.40	10.70	11.60	9.60	10.70	12.10	7.10
JTU	12.00	5.00	1.00	5.00	0.00	18.00	35.00	8.00
Zn	0.01	<0.01	<0.01	0.015	<0.01	<0.01	0.01	<0.01
Cd	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cu	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ni	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fe	0.21	0.06	0.02	0.05	0.00	0.71	1.10	0.46
Mn	0.00	0.00	0.00	0.00	0.00	0.10	0.36	0.00

Appendix C continued ( ). Summarization of water quality data for stations on Rosebud tributaries, 1972[a].

EAST FISHTAIL CREEK STATION 012[b]			WEST FISHTAIL CREEK STATION 013[c]			MORRIS CREEK STATION 014[c]		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.
SAMPLING DATES			SAMPLING DATES			SAMPLING DATES		
05-25-72			02-14-72			02-10-72		
11-22-72			05-25-72			05-22-72		
			08-09-72			08-16-72		
			11-22-72			11-21-72		

a/ Units are milligrams per liter except as indicated.

b/ Two samples.

c/ Four samples.

Appendix D. Summarization of water quality data for stations on Stillwater River tributaries, 1972 - 1973[a].

	LITTLE ROCKY CREEK STATION 015[b]			NYE CREEK STATION 016[b]		
	Mean	Max.	Min.	Mean.	Max.	Min.
Ca	14.30	18.20	11.20	9.40	10.40	8.70
Mg	4.50	5.60	3.70	7.60	7.70	7.50
Na	1.90	2.40	1.50	2.00	2.20	1.80
K	0.50	0.60	0.38	0.45	0.60	0.31
SiO_2	10.50	12.80	8.70	17.00	18.00	16.00
HCO_3	67.00	80.00	54.00	67.00	69.00	64.00
CO_3	0.00	0.00	0.00	0.00	0.00	0.00
OH	0.00	0.00	0.00	0.00	0.00	0.00
Cl	0.20	0.40	0.00	0.10	0.10	0.10
SO_4	4.80	7.90	2.00	6.90	7.90	6.40
NO_{3-N}	0.09	0.16	0.00	0.16	0.23	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00
pH (lab)	6.73	6.77	6.69	6.97	7.16	6.78
pH (field)	8.30	8.50	8.10	8.50	8.50	8.40
F°	41.00	54.00	32.00	42.00	51.00	32.00
Dis. Sol.	103.90	128.60	86.30	111.20	115.10	105.10
Hard.	55.00	68.00	44.00	56.00	57.00	53.00
Alk.	55.00	66.00	44.00	55.00	57.00	52.00
D. O.	10.60	12.90	8.20	10.40	12.10	9.20
JTU	2.00	7.00	0.00	2.00	5.00	0.00
Zn	0.01	0.01	<0.01	<0.01	0.01	<0.01
Cd	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cu	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ni	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fe	0.05	0.11	0.00	0.21	0.53	0.00
Mn	0.00	0.01	0.00	0.00	0.01	0.00
SAMPLING DATES				SAMPLING DATES		
05-25-72				05-24-72		
08-07-72				08-10-72		
11-22-72				11-24-72		

a/ Units are milligrams per liter except as indicated.

b/ Three samples except for lab pH which is two.

Appendix D continued ( ). Summarization of water quality data for stations on Stillwater River tributaries, 1972 - 1973.

	SILVER CREEK STATION 042[c]		MOUNTAIN VIEW CREEK STATION 044[d]		SOUTH NYE CREEK STATION 047[c]	
	Max.	Min.	Max.	Min.	Max.	Min.
Ca	50.00	49.00	17.40	15.00	17.90	8.80
Mg	18.00	17.80	17.90	12.20	9.80	6.80
Na	2.30	1.90	4.00	2.90	3.50	1.80
K	0.70	0.59	0.70	0.70	0.52	0.46
SiO_2	12.80	8.60	17.10	16.00	18.50	16.00
HCO_3	147.00	143.00	136.00	102.00	101.00	58.00
CO_3	0.00	0.00	0.00	0.00	0.00	0.00
OH	0.00	0.00	0.00	0.00	0.00	0.00
Cl	0.40	0.10	2.00	0.00	0.80	0.50
SO_4	74.00	74.00	11.00	7.20	9.00	4.80
NO_3-N	0.20	0.04	0.5	0.07	0.18	0.00
F	0.20	0.00	0.00	0.00	0.00	0.00
pH (lab)	8.42	7.28	7.00	--	7.64	7.26
pH (field)	8.60	8.60	8.50	8.50	8.40	8.40
Fo	60.00	50.00	52.00	36.00	49.00	37.00
Dis. Sol.	304.50	300.60	208.80	157.00	163.10	97.80
Hard.	199.00	195.00	118.00	88.00	85.00	50.00
Alk.	126.00	121.00	112.00	84.00	83.00	48.00
D. O.	9.60	8.60	11.20	9.00	10.80	9.70
JTU	0.00	0.00	10.00	0.00	12.00	5.00
Zn	0.01	0.01	0.01	0.01	0.01	0.01
Cd	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cu	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ni	< 0.02	< 0.02	< 0.02	< 0.02	0.02	< 0.02
Fe	0.04	0.03	0.21	0.16	1.28	0.08
Mn	0.01	0.00	0.00	0.00	0.03	0.00
SAMPLING DATES			SAMPLING DATES		SAMPLING DATES	
06-21-72			06-21-72		06-21-72	
11-24-72			11-24-72		11-24-72	

c/ Two samples.

d/ Two samples except for lab pH which is one.

Appendix D continued ( ). Summarization of water quality data for station on Stillwater River tributaries, 1972 - 1973.[a]

	VERDIGRIS CREEK STATION 043[e]			VERDIGRIS CREEK STATION 055[f]			WOODBINE CREEK STATION 058[g]	
	Mean	Max.	Min.	Mean	Max.	Min.	Max.	Min.
Ca	7.90	11.30	3.40	4.50	6.60	2.30	3.1	2.60
Mg	10.90	16.00	4.30	4.50	5.60	2.70	1.10	0.50
Na	2.30	3.00	1.50	1.80	2.00	1.40	1.20	1.00
K	0.75	1.10	0.50	0.60	0.70	0.40	0.60	0.51
SiO_2	13.80	16.00	11.00	11.20	13.50	9.80	6.00	-
HCO_3	38.00	48.00	21.00	35.00	42.00	25.00	11.00	11.00
CO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cl	1.10	3.30	0.10	0.20	0.40	0.00	0.20	0.10
SO_4	36.70	61.00	7.20	3.40	4.40	2.40	3.00	2.90
NO_{3-N}	0.11	0.23	0.00	0.23	0.54	0.00	0.07	0.02
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pH (lab)	7.24	7.97	6.61	7.52	7.83	6.78	6.89	6.65
pH (field)	8.20	8.50	7.70	8.10	8.50	7.50	8.40	7.50
F°	48.00	59.00	32.00	41.00	47.00	37.00	43.00	42.00
Dis. Sol.	112.80	149.80	49.60	60.00	76.20	45.50	26.10	19.90
Hard.	65.00	93.00	26.00	30.00	37.00	20.00	11.00	10.00
Alk.	31.00	39.00	18.00	29.00	34.00	20.00	9.00	9.00
D. O.	9.60	10.70	8.50	9.80	10.40	8.90	10.60	10.40
JTU	4.00	10.00	0.00	0.00	0.00	0.00	8.00	0.00
Zn	< 0.01	0.015	< 0.01	< 0.01	0.01	< 0.01	< 0.01	-
Cd	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-
Cu	0.10	0.14	0.05	< 0.02	< 0.02	< 0.02	< 0.02	-
Ni	0.40	0.59	0.09	< 0.05	< 0.05	< 0.05	< 0.05	-
Fe	0.30	0.58	0.17	0.05	0.10	0.00	0.05	0.00
Mn	0.04	0.06	0.01	0.00	0.00	0.00	0.00	0.00

Appendix D continued ( ). Summarization of water quality data for station on Stillwater River tributaries, 1972 - 1973.

VERDIGRIS CREEK STATION 043[e]				VERDIGRIS CREEK STATION 055[f]				WOODBINE CREEK STATION 058[g]	
	Mean	Max.	Min.		Mean	Max.	Min.	Max.	Min.
SAMPLING DATES				SAMPLING DATES				SAMPLING DATES	
06-21-72				06-04-73				06-04-73	
09-18-72				07-26-73				09-25-73	
11-24-72				09-25-73					
06-04-73				10-25-73					
07-26-73									
09-25-73									
10-25-73									

e/ Seven samples except six for cadmium, nickel, copper and zinc.

f/ Four samples except three for cadmium, nickel, copper, zinc and temperature.

g/ Two samples except one for silica, cadmium, nickel, copper and zinc.

Appendix E. Summarization of water quality data for stations on the West Fork Stillwater River, 1975 and 1976[a].

	STATION 076			STATION 037		
	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples
Ca	39.35	14.80	7	10.61	3.50	10
Mg	14.27	4.70	7	5.59	1.60	10
Na	4.00	1.80	7	2.00	0.90	10
K	1.20	0.60	7	1.20	0.60	10
SiO_2	10.30	6.00	7	8.80	4.70	10
HCO_3	149.08	59.00	7	51.00	17.00	10
CO_3	0.00	0.00	7	0.00	0.00	10
Cl	2.50	0.30	7	1.70	0.10	10
SO_4	31.44	9.70	7	7.30	3.50	10
NO_3-N	0.27	0.04	7	0.17	0.00	11
NO_2-N	<0.01	-	1	<0.01	< 0.01	3
NH_3-N	0.04	-	1	0.04	< 0.03	2
F	0.10	0.00	7	<0.10	0.00	10
pH (lab)	8.29	6.26	7	7.79	5.80	10
pH (field)	8.60	8.00	7	8.70	7.70	18[b]
F°	50.00	36.00	7	46.00	34.00	10
Dis. Sol.	248.70	97.00	7	86.50	33.00	10
Hard.	157.00	56.00	7	48.00	16.00	10
Alk.	146.00	48.00	7	42.00	14.00	10
D. O.	11.50	9.60	7	11.30	9.70	8
JTU	48.00	2.00	7	12.00	0.00	16[b]
T. Susp. Sol.[c]	122.76	0.61	7	7.21	< 0.10	18[b]
V. Susp. Sol.[d]	10.93	0.50	7	1.20	< 0.10	18[b]
Zn-Total	<0.01	<0.01	7	< 0.01	< 0.01	10
Zn-Dissolved	<0.01	<0.01	7	< 0.01	< 0.01	10
Cd-Total	<0.01	<0.01	7	< 0.01	< 0.01	10
Cd-Dissolved	<0.01	<0.01	7	< 0.01	< 0.01	10
Cu-Total	0.01	<0.01	7	< 0.01	< 0.01	10
Cu-Dissolved	<0.01	<0.01	7	< 0.01	< 0.01	10
Ni-Total	0.03	<0.01	7	< 0.01	< 0.01	10
Ni-Dissolved	<0.01	<0.01	7	< 0.01	< 0.01	10
Fe-Dissolved	0.23	<0.01	7	0.12	0.00	10
Mn-Dissolved	<0.01	<0.01	7	< 0.01	0.00	10
Al-Total	2.43	0.05	7	0.68	< 0.05	10
Al-Dissolved	0.14	<0.05	7	0.19	< 0.05	10

SAMPLING DATES	SAMPLING DATES
06-20-75	03-17-75
07-23-75	05-13-75
08-12-75	06-21-75
09-09-75	07-24-75
10-07-75	08-12-75
12-05-75	09-11-75
03-09-76	10-06-75
	12-04-75
	01-12-76 (NO_3 and NO_2 only)
	02-09-76
	03-08-76

a/ Units are milligrams per liter except as indicated.

b/ Sampling period 1-75 to 3-76.

c/ T. Susp. Sol. = Total Suspended solids.

d/ V. Susp. Sol. = Volatile suspended solids.

Appendix E continued ( ). Summarization of water quality data for stations on the West Fork Stillwater River, 1975 and 1976[a].

STATION 072				STATION 070		
	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples
Ca	9.70	3.60	9	10.33	3.40	11
Mg	4.90	1.60	9	4.76	1.40	11
Na	2.00	0.90	9	2.30	0.90	11
K	1.20	0.60	9	1.20	0.60	11
SiO_2	7.80	4.10	9	8.60	4.30	11
HCO_3	45.00	23.00	9	45.75	10.00	11
CO_3	0.00	0.00	9	0.00	0.00	11
Cl	1.80	0.00	9	1.90	1.30	11
SO_4	9.50	3.40	9	8.90	3.60	11
NO_3-N	0.27	0.04	9	0.16	0.00	12
NO_2-N	-	-	0	< 0.01	< 0.01	3
NH_3-N	-	-	0	0.03	< 0.03	2
F	0.10	0.00	9	0.10	< 0.10	11
pH (lab)	7.62	5.86	9	7.82	5.93	11
pH (field)	8.50	7.80	16[e]	8.60	7.60	18[b]
F°	47.00	33.00	9	47.00	33.00	11
Dis. Sol.	78.60	37.70	9	80.50	24.70	11
Hard.	44.00	15.00	9	44.00	14.00	11
Alk.	37.00	19.00	9	38.00	8.00	11
D. O.	11.20	9.40	6	11.20	9.30	7
JTU	8.00	0.00	14[e]	5.00	0.00	16[b]
T. Susp. Sol.	40.62	0.10	16[e]	4.99	< 0.10	17[b]
V. Susp. Sol.	3.91	0.00	16[e]	1.00	< 0.10	17[b]
Zn-Total	< 0.01	< 0.01	9	0.01	< 0.01	10
Zn-Dissolved	< 0.01	< 0.01	9	< 0.01	< 0.01	11
Cd-Total	< 0.01	< 0.01	9	< 0.01	< 0.01	10
Cd-Dissolved	< 0.01	< 0.01	9	< 0.01	< 0.01	11
Cu-Total	< 0.01	< 0.01	9	< 0.01	< 0.01	10
Cu-Dissolved	< 0.01	< 0.01	9	< 0.01	< 0.01	11
Ni-Total	< 0.01	< 0.01	9	< 0.01	< 0.01	10
Ni-Dissolved	< 0.01	< 0.01	9	< 0.01	< 0.01	11
Fe-Dissolved	0.07	0.00	9	0.05	0.00	10
Mn-Dissolved	< 0.01	0.00	9	< 0.01	0.00	11
Al-Total	0.30	< 0.05	7	0.20	< 0.05	9
Al-Dissolved	0.14	< 0.05	7	0.12	< 0.05	9

SAMPLING DATES	SAMPLING DATES
01-07-75	01-07-75
03-03-75	03-03-75
05-13-75	05-13-75
06-21-75	06-21-75
07-24-75	07-24-75
08-12-75	08-12-75
09-11-75	09-11-75
10-06-75	10-06-75
12-04-75	12-04-75
	01-12-76 (NO_2, NO_3 only)
	02-09-76
	03-08-76

e/ Sampling period 1-75 to 12-75.

Appendix F. Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1972 - 1973 - 1974[a].

	INITIAL CREEK[b] STATION 017		CATHEDRAL CREEK[b] STATION 018		IRON CREEK STATION 019			
	Max.	Min.	Max.	Min.	Mean	Max.	Min.	No. of Samples
Ca	34.00	23.00	4.10	3.50	15.70	21.00	10.70	6
Mg	11.30	8.20	2.90	2.80	4.10	5.30	2.90	6
Na	2.10	1.40	2.10	1.60	1.40	1.80	0.80	6
K	0.41	0.33	0.48	0.33	0.36	0.78	0.20	6
SiO_2	11.40	10.00	10.00	8.60	9.70	10.00	8.70	6
HCO_3	154.00	112.00	28.00	27.00	55.00	87.00	48.00	6
CO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6
OH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6
Cl	0.20	0.20	0.30	0.30	0.50	0.90	0.30	6
SO_4	7.80	1.60	3.90	2.40	4.20	5.40	2.60	6
NO_{3-N}	0.02	0.00	0.04	0.00	0.02	0.07	0.00	6
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6
pH (lab)	7.46	-	6.45	-	7.46	7.93	6.55	5
pH (field)	8.60	8.60	8.30	8.30	8.20	8.60	7.60	6
F°	36.00	32.00	36.00	32.00	41.00	53.00	36.00	6
Dis. Sol.	220.40	156.50	50.40	48.20	101.10	131.10	74.60	6
Hard.	130.00	90.00	22.00	20.00	56.00	70.00	39.00	6
Alk.	126.00	92.00	23.00	22.00	53.00	72.00	36.00	6
D. O.	10.80	9.70	10.80	8.70	9.30	10.80	5.00	6
JTU	4.00	0.00	2.00	0.00	1.00	7.00	0.00	6
Zn	0.01	< 0.01	0.01	< 0.01	< 0.01	0.01	< 0.01	6
Cd	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	6
Cu	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	6
Ni	< 0.02	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	6
Fe	0.06	0.02	0.06	0.00	0.02	0.06	0.00	6
Mn	0.01	0.01	0.01	0.00	0.01	0.01	0.00	6

Appendix F continued ( ). Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1972 - 1973 - 1974[a].

INITIAL CREEK[b] STATION 017			CATHEDRAL CREEK[b] STATION 018			IRON CREEK STATION 019			
	Max.	Min.		Max.	Min.	Mean	Max.	Min.	No. of Samples
SAMPLING DATES			SAMPLING DATES			SAMPLING DATES			
05-24-72			05-24-72			05-24-72			
11-22-72			11-22-72			11-22-72			
						05-14-74			
						07-23-74			
						09-19-74			
						10-11-74			

a/ Units are milligrams per liter except as indicated.

b/ 2 samples per station except for lab pH which is 1.

Appendix F continued ( ). Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1972 - 1973 - 1974[a].

	PICKET PIN CREEK STATION 020				CRESCENT CREEK STATION 048			
	Mean	Max.	Min.	No. of Samples	Mean.	Max.	Min.	No. of Samples
Ca	14.30	16.20	10.70	6	6.00	6.60	5.10	4
Mg	2.20	3.30	1.20	6	8.40	9.60	6.70	4
Na	1.50	1.70	1.30	6	0.70	1.00	0.50	4
K	0.19	0.20	0.16	6	0.40	0.50	0.29	4
SiO_2	8.80	9.30	8.20	6	14.00	15.00	13.00	4
HCO_3	51.00	57.00	40.00	6	53.00	59.00	45.00	4
CO_3	0.00	0.00	0.00	6	0.00	0.00	0.00	4
OH	0.00	0.00	0.00	6	0.00	0.00	0.00	4
Cl	0.50	0.90	0.20	6	0.50	0.70	0.20	4
SO_4	4.00	6.40	2.00	6	6.20	7.30	3.80	4
NO_3-N	0.02	0.07	0.00	6	0.04	0.07	0.00	4
F	0.00	0.00	0.00	6	0.00	0.00	0.00	4
pH (lab)	7.28	7.71	6.50	5	7.01	7.21	6.87	4
pH (field)	8.40	8.60	7.90	6	8.10	8.50	7.00	4
F°	40.00	46.00	32.00	6	45.00	54.00	33.00	4
Dis. Sol.	82.90	94.60	64.60	6	89.20	98.50	80.90	4
Hard.	44.00	52.00	32.00	6	49.00	54.00	44.00	4
Alk.	42.00	48.00	33.00	6	43.00	48.00	37.00	4
D. O.	9.60	10.30	8.60	6	8.70	10.40	6.00	4
JTU	1.00	7.00	0.00	6	3.00	6.00	0.00	4
Zn	< 0.01	0.015	< 0.01	6	< 0.01	0.03	< 0.01	3
Cd	< 0.01	< 0.01	< 0.01	6	< 0.01	< 0.01	< 0.01	3
Cu	< 0.01	< 0.01	< 0.01	6	< 0.01	0.01	< 0.01	3
Ni	< 0.01	< 0.02	< 0.01	6	< 0.01	0.02	< 0.01	3
Fe	0.02	0.05	0.00	6	0.19	0.55	0.00	4
Mn	0.00	0.02	0.00	6	0.01	0.03	0.00	4

Appendix F continued ( ). Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1972 - 1973 - 1974[a].

PICKET PIN CREEK STATION 020					CRESCENT CREEK STATION 048			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
SAMPLING DATES					SAMPLING DATES			
05-25-72					09-12-72			
12-01-72					05-30-73			
05-14-74					05-13-74			
07-24-74					07-23-74			
09-19-74								
10-10-74								

Appendix G. Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1975 and 1976[a].

	CASTLE CREEK STATION 080			CASTLE CREEK STATION 079			CASTLE CREEK STATION 077		
	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples
Ca	52.89	32.00	7	48.94	26.00	7	50.46	36.00	7
Mg	17.73	8.00	7	16.71	5.60	7	20.74	8.40	7
Na	4.00	2.30	7	3.20	1.40	7	1.50	0.90	7
K	1.20	0.80	7	1.20	0.70	7	1.00	0.80	7
SiO_2	11.20	7.60	7	8.60	6.70	7	7.30	4.70	7
HCO_3	208.00	154.00	7	208.00	96.00	7	206.79	144.00	7
CO_3	3.00	0.00	7	0.00	0.00	7	0.00	0.00	7
Cl	1.40	0.00	6	2.35	0.20	7	1.60	0.00	7
SO_4	46.39	26.00	7	28.61	8.20	7	34.80	11.40	7
NO_{3-N}	0.43	0.16	7	0.25	0.02	7	0.23	0.04	7
NO_{2-N}	< 0.01	-	1	< 0.02	-	1	< 0.01	-	1
NH_{3-N}	< 0.03	-	1	< 0.03	-	1	< 0.03		1
F	0.20	0.10	7	0.10	0.00	7	0.8	0.00	7
pH (lab)	8.45	6.88	7	8.30	6.31	7	8.23	6.29	7
pH (field)	8.50	8.20	7	8.60	8.10	7	8.60	8.10	7
Fo	51.00	40.00	7	51.00	37.00	7	50.00	41.00	7
Dis. Sol.	329.20	191.60	7	305.80	146.60	7	323.20	201.70	7
Hard.	205.00	113.00	7	190.00	86.00	7	211.00	124.00	7
Alk.	200.00	102.00	7	204.00	79.00	7	196.00	118.00	7
D. O.	10.90	9.30	7	11.30	9.30	7	10.30	9.10	7
JTU	105.00	0.00	7	30.00	0.00	7	20.00	0.00	7
T. Susp. Sol.[b]	219.62	2.33	7	70.85	1.22	6	42.10	0.30	7
V. Susp. Sol.[b]	13.80	0.70	7	6.53	0.60	6	5.80	0.20	7
Zn-Total	0.02	< 0.01	7	0.01	< 0.01	7	0.01	< 0.01	7
Zn-Dissolved	< 0.01	< 0.01	7	< 0.01	< 0.01	7	< 0.01	< 0.01	7
Cd-Total	< 0.01	< 0.01	7	< 0.01	< 0.01	7	< 0.01	< 0.01	7
Cd-Dissolved	< 0.01	< 0.01	7	< 0.01	< 0.01	7	< 0.01	< 0.01	7
Cu-Total	0.01	< 0.01	7	0.01	< 0.01	7	< 0.01	< 0.01	7
Cu-Dissolved	< 0.01	< 0.01	7	< 0.01	< 0.01	7	< 0.01	< 0.01	7
Ni-Total	0.01	< 0.01	7	< 0.01	< 0.01	7	0.02	< 0.01	7
Ni-Dissolved	< 0.01	< 0.01	7	< 0.01	< 0.01	7	0.02	< 0.01	7
Fe-Dissolved	0.28	0.00	7	0.09	0.00	7	0.02	0.00	7

Appendix G continued ( ). Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1975 and 1976[a].

	CASTLE CREEK STATION 080			CASTLE CREEK STATION 079			CASTLE CREEK STATION 077		
	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples
Mn-Dissolved	0.01	0.00	7	< 0.01	0.00	7	< 0.01	0.00	7
Al-Total	5.02	< 0.05	7	1.21	< 0.05	7	0.43	< 0.05	7
Al-Dissolved	0.12	< 0.05	7	0.09	< 0.05	7	0.17	< 0.05	7

SAMPLING DATES	SAMPLING DATES	SAMPLING DATES
06-20-75	06-20-75	06-20-75
07-23-75	07-23-75	07-23-75
08-14-75	08-14-75	08-14-75
09-09-75	09-09-75	09-09-75
10-07-75	10-07-75	10-07-75
12-05-75	12-05-75	12-05-75
03-09-76	03-09-75	03-09-75

a/ Units are milligrams per liter except as indicated.

b/ Abbreviations: T. Susp. Sol. = total suspended solids; V. Susp. Sol. = volatile suspended solids.

Appendix G continued ( ). Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1975 and 1976[a].

	PICKET PIN CREEK STATION 078			SADERBOLM CREEK STATION 083			CATHEDRAL CREEK STATION 018		
	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples
Ca	43.66	18.40	7	2.56	1.40	3	4.01	2.70	3
Mg	13.90	5.30	7	1.26	0.20	3	2.96	1.50	3
Na	1.50	1.10	7	1.40	0.80	3	1.80	1.30	3
K	0.80	0.40	7	0.80	0.40	3	0.60	0.50	3
SiO_2	8.10	6.20	7	5.80	3.20	3	10.90	9.20	3
HCO_3	176.90	68.00	7	12.32	7.00	3	29.16	17.00	3
CO_3	2.00	0.00	7	0.00	0.00	3	0.00	0.00	3
Cl	1.40	0.00	7	1.85	0.30	3	1.40	0.30	3
SO_4	21.78	6.00	7	4.10	1.40	3	3.90	2.00	3
NO_{3-N}	0.29	0.04	7	0.27	0.02	3	0.23	0.00	3
NO_{2-N}	< 0.01	-	1	-	-	0	-	-	0
NH_{3-N}	< 0.03	-	1	-	-	0	-	-	0
F	0.10	0.00	7	< 0.10	0.00	0	< 0.10	0.00	0
pH (lab)	8.41	6.56	7	6.89	6.03	3	7.35	5.98	3
pH (field)	8.60	8.20	7	7.00	6.70	3	8.50	7.30	13[d]
F°	50.00	38.00	7	50.00	42.00	3	45.00	38.00	3
Dis. Sol.	264.9	107.40	7	30.3	16.1	3	54.8	35.40	3
Hard.	161.00	63.00	7	12.00	4.00	3	22.00	13.00	3
Alk.	172.00	56.00	7	12.00	6.00	3	29.00	14.00	3
D. O.	11.00	9.40	7	9.70	8.30	3	10.20	9.70	3
JTU	4.00	0.00	7	0.00	0.00	3	5.00	0.00	11[d]
T. Susp. Sol.	12.19	0.10	7	1.10	0.20	3	1.20	< 0.10	13[d]
V. Susp. Sol.	2.50	< 0.10	7	0.40	0.20	3	0.80	< 0.10	13[d]
Zn-Total	0.01	< 0.01	7	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Zn-Dissolved	0.01	< 0.01	7	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Cd-Total	< 0.01	< 0.01	7	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Cd-Dissolved	< 0.01	< 0.01	7	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Cu-Total	0.01	< 0.01	7	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Cu-Dissolved	0.01	< 0.01	7	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Ni-Total	0.03	< 0.01	7	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Ni-Dissolved	0.02	< 0.01	7	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Fe-Dissolved	0.02	0.00	7	0.03	0.01	3	0.05	0.00	3

Appendix G continued ( ). Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1975 and 1976[a].

	PICKET PIN CREEK STATION 078			SADERBOLM CREEK STATION 083			CATHEDRAL CREEK STATION 018		
	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples
Mn-Dissolved	< 0.01	0.00	7	< 0.01	0.00	3	< 0.01	0.00	3
Al-Total	0.25	< 0.05	7	-	-	0	0.14[c]	< 0.05[c]	3
Al-Dissolved	0.14	< 0.05	7	-	-	0	0.16[c]	0.05[c]	3

SAMPLING DATES	SAMPLING DATES	SAMPLING DATES
06-20-75	07-24-75	06-21-75
07-23-75	09-15-75	08-12-75
08-14-75	10-06-75	10-06-75
09-09-75		
10-07-75		
12-05-75		
03-09-76		

c/ Anomalous values caused by inherent variability in laboratory technique at low values.

d/ Sampling period 1-75 to 3-76.

Appendix G continued ( ). Summarization of water quality data for stations on West Fork Stillwater River tributaries, 1975 and 1976[a].

	UNNAMED TRIBUTARY STATION 073			DRAINAGE FROM ADIT STATION 075		
	Max.	Min.	No. of Samples	Max.	Min.	No. of Samples
Ca	36.00	23.00	3	119.00	6.81	3
Mg	5.30	4.10	3	39.00	0.30	3
Na	1.70	1.20	3	29.80	24.50	3
K	0.70	0.60	3	1.50	0.10	3
SiO_2	9.80	8.40	3	18.80	14.30	3
HCO_3	126.00	86.00	3	115.00	0.00	3
CO_3	0.00	0.00	3	13.10	0.00	3
Cl	0.60	0.40	3	14.50	4.05	3
SO_4	10.30	7.10	3	25.90	7.50	3
NO_{3-N}	0.04	0.02	3	144.64	1.06	4
NO_{2-N}	-	-	0	2.90	0.12	3
NH_{3-N}	-	-	0	1.43	1.00	2
F	0.00	0.00	3	0.10	0.00	3
pH (lab)	7.71	7.29	3	10.34	7.66	3
pH (field)	8.50	7.60	3	9.90	7.70	3
F°	39.00	34.00	3	52.00	40.00	3
Dis. Sol.	188.70	133.60	3	981.00	51.50	4
Hard.	111.00	77.00	3	454.00	18.00	3
Alk.	103.00	71.00	3	95.00	22.00	3
D. O.	9.10	-	1	8.50	7.00	4
JTU	5.00	0.00	2	285.00	42.00	4
T. Susp. Sol.	1.40	0.91	3	641.80	62.37	3
V. Susp. Sol.	0.70	0.50	3	23.60	2.89	3
Zn-Total	< 0.01	< 0.01	3	0.03	< 0.01	3
Zn-Dissolved	< 0.01	< 0.01	3	0.01	< 0.01	3
Cd-Total	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Cd-Dissolved	< 0.01	< 0.01	3	< 0.01	< 0.01	3
Cu-Total	< 0.01	< 0.01	3	0.05	< 0.01	3
Cu-Dissolved	< 0.01	< 0.01	3	0.02	< 0.01	3
Ni-Total	< 0.01	< 0.01	3	0.22	< 0.01	3
Ni-Dissolved	< 0.01	< 0.01	3	0.05	< 0.01	3
Fe-Dissolved	0.03	0.00	3	0.33	< 0.01	3
Mn-Dissolved	0.00	0.00	3	0.07	< 0.01	3
Al-Total	0.17	0.08	2	35.30	2.52	3
Al-Dissolved	0.10	0.08	2	0.26	0.14	3
SAMPLING DATES				SAMPLING DATES		
04-23-75				06-21-75		
05-13-75				01-12-76 (NO_{3-N}, Dis.Sol., DO,		
06-22-75				02-09-76 JTU only)		
				03-08-76		

Appendix H. Summarization of water quality data for stations on the Deer Creeks, 1972 - 1973[a].

	UPPER DEER CREEK[b] STATION 022			LOWER DEER CREEK[b] STATION 021		
	Mean	Max.	Min.	Mean	Max.	Min.
Ca	34.00	42.00	28.00	27.00	35.00	23.00
Mg	5.20	6.30	4.30	4.10	5.00	3.40
Na	4.80	6.80	3.40	4.00	5.80	3.00
K	0.41	0.45	0.39	0.34	0.40	0.28
SiO_2	12.60	13.70	12.00	13.60	14.00	13.00
HCO_3	120.00	149.00	100.00	91.00	123.00	84.00
CO_3	0.00	0.00	0.00	0.00	0.00	0.00
OH	0.00	0.00	0.00	0.00	0.00	0.00
Cl	0.40	0.60	0.30	0.70	1.60	0.20
SO_4	16.70	24.00	12.20	13.30	19.00	9.50
NO_3-N	0.02	0.04	0.00	0.07	0.16	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00
pH (lab)	7.62	8.20	7.13	7.59	7.98	7.34
pH (field)	8.50	8.60	8.30	8.40	8.50	8.40
F°	47.00	49.00	43.00	45.00	48.00	42.00
Dis. Sol.	195.00	243.50	160.90	161.50	204.60	137.20
Hard.	106.00	123.00	87.00	85.00	107.00	71.00
Alk.	99.00	123.00	82.00	80.00	101.00	69.00
D. O.	10.00	10.30	9.80	10.20	10.50	9.80
JTU	8.00	13.00	5.00	3.00	5.00	0.00
Zn	-	< 0.01	< 0.01	-	< 0.02	< 0.01
Cd	-	< 0.01	< 0.01	-	< 0.01	< 0.01
Cu	-	< 0.02	< 0.01	-	< 0.02	< 0.01
Ni	-	< 0.05	< 0.02	-	< 0.05	< 0.02
Fe	0.17	0.37	0.01	0.06	0.10	0.02
Mn	0.00	0.01	0.00	0.00	0.01	0.00
SAMPLING DATES				SAMPLING DATES		
05-26-72				05-26-72		
06-01-73				06-01-73		
09-28-73				09-28-73		

a/ Units are milligrams per liter except as indicated.

b/ Three samples except two for zinc, cadmium, copper, and nickel.

Appendix I. Summarization of water quality data for stations on East Boulder River tributaries, 1973 - 1974[a].

	FORGE CREEK STATION 051				BROWNLEE CREEK STATION 053				BROWNLEE CREEK STATION 060			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
Ca	3.60	4.90	1.30	6	5.10	7.20	3.40	3	5.30	6.90	3.80	4
Mg	3.20	4.10	1.60	6	2.80	3.40	2.20	3	3.10	3.90	1.80	4
Na	0.80	0.90	0.70	6	0.80	1.00	0.60	3	0.70	0.80	0.50	4
K	0.30	0.40	0.20	6	0.10	0.20	0.10	3	0.10	0.10	0.10	4
SiO_2	7.50	9.40	6.20	6	6.60	7.70	5.90	3	6.40	7.30	5.70	4
HCO_3	23.00	27.00	15.00	6	26.00	33.00	19.00	3	29.00	36.00	19.00	4
CO_3	0.00	0.00	0.00	6	0.00	0.00	0.00	3	0.00	0.00	0.00	4
OH	0.00	0.00	0.00	3	0.00	0.00	0.00	3	0.00	0.00	0.00	4
Cl	0.80	1.20	0.20	6	0.60	0.90	0.03	3	0.50	0.70	0.30	4
SO_4	3.70	6.30	0.20	6	4.20	5.20	2.60	3	2.70	6.00	0.60	4
NO_{3-N}	0.04	0.11	0.00	6	0.02	0.04	0.00	3	0.07	0.23	0.02	4
F	0.00	0.00	0.00	6	0.00	0.00	0.00	3	0.00	0.00	0.00	4
pH (lab)	7.37	7.69	7.09	6	7.23	7.37	7.09	3	7.35	7.80	6.99	4
pH (field)	8.00	8.50	7.30	6	8.00	8.50	7.50	3	8.20	8.50	7.60	4
F°	48.00	50.00	40.00	5	46.00	50.00	39.00	3	45.00	54.00	38.00	4
Dis. Sol.	42.30	49.10	30.90	6	48.30	62.00	36.90	3	47.60	59.10	32.10	4
Hard.	22.00	27.00	14.00	6	24.00	32.00	18.00	3	25.00	33.00	17.00	4
Alk.	18.00	22.00	12.00	6	22.00	27.00	16.00	3	23.00	30.00	16.00	4
D. O.	8.80	9.60	7.80	6	9.20	10.20	8.50	3	9.30	9.90	8.50	3
JTU	3.00	13.00	0.00	6	0.00	1.00	0.00	3	0.00	1.00	0.00	4
Zn	<0.01	< 0.01	< 0.01	6	< 0.01	< 0.01	< 0.01	3	<0.01	< 0.01	<0.01	4
Cd	<0.01	< 0.01	< 0.01	6	< 0.01	< 0.01	< 0.01	3	<0.01	< 0.01	<0.01	4
Cu	<0.01	< 0.02	< 0.01	6	< 0.01	< 0.01	< 0.01	3	<0.01	< 0.01	<0.01	4
Ni	<0.05	< 0.05	< 0.01	6	< 0.01	< 0.01	< 0.01	3	<0.01	< 0.01	<0.01	4
Fe	0.02	0.10	0.00	6	0.01	0.02	0.00	3	0.00	0.00	0.00	4
Mn	0.00	0.00	0.00	6	0.00	0.00	0.00	3	0.00	0.00	0.00	4

Appendix I continued ( ). Summarization of water quality data for stations on East Boulder River tributaries, 1973 - 1974[a].

FORGE CREEK STATION 051					BROWNLEE CREEK STATION 053				BROWNLESS CREEK STATION 060			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
SAMPLING DATES					SAMPLING DATES				SAMPLING DATES			
07-25-73					07-16-74				07-26-74			
09-20-73					08-06-74				08-08-74			
10-23-73					10-03-74				09-18-74			
07-24-74									10-10-74			
09-18-74												
10-10-74												

a/ Units are milligrams per liter except as indicated.

Appendix J. Summarization of water quality data for stations on Boulder River tributaries, 1972 and 1974[a].

	BOBCAT (EAST CHIPPY) CREEK STATION 023[b]		GREAT FALLS CREEK STATION 026[b]		FALLS CREEK STATION 027[b]	
	Max.	Min.	Max.	Min.	Max.	Min.
Ca	10.80	8.30	6.40	4.20	7.90	4.60
Mg	4.10	3.00	0.80	0.00	1.20	1.00
Na	0.83	0.83	2.10	1.10	3.00	1.10
K	0.67	0.64	0.94	0.92	1.00	0.90
SiO_2	10.00	9.50	8.60	5.90	7.10	5.90
HCO_3	42.00	33.00	16.00	14.00	22.00	17.00
CO_3	0.00	0.00	0.00	0.00	0.00	0.00
OH	0.00	0.00	0.00	0.00	0.00	0.00
Cl	0.40	0.30	0.30	0.20	1.50	0.20
SO_4	14.30	6.80	11.60	6.60	12.00	4.00
NO_3-N	0.18	0.02	0.14	0.00	0.18	0.04
F	0.00	0.00	0.00	0.00	0.00	0.00
pH (lab)	6.82	-	6.66	6.37	7.17	6.37
pH (field)	8.50	8.20	8.40	7.80	8.40	8.40
F°	40.00	32.00	40.00	32.00	40.00	33.00
Dis.ol.	84.00	53.90	46.90	33.80	56.20	35.40
Hard.	44.00	33.00	16.00	14.00	24.00	15.00
Alk.	34.00	27.00	13.00	11.00	18.00	14.00
D. O.	12.10	10.50	10.60	10.10	11.80	10.50
JTU	1.00	0.00	2.00	0.00	2.00	0.00
Zn	0.015	< 0.01	0.01	< 0.01	0.01	< 0.01
Cd	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cu	0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01
Ni	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Fe	0.02	0.02	0.08	0.02	0.09	0.02
Mn	0.00	0.00	0.00	0.00	0.00	0.00
SAMPLING DATES			SAMPLING DATES		SAMPLING DATES	
05-17-72			05-18-72		05-18-72	
11-27-72			08-16-72		11-30-72	

a/ Units are milligrams per liter except as indicated.

b/ Two samples per station except for lab pH, which is one at station 023.

Appendix J continued ( ). Summarization of water quality data for stations on Boulder River tributaries, 1972 and 1974[a].

	BLAKELY CREEK STATION 024				GRAHAM CREEK STATION 025			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
Ca	12.5	13.8	9.9	6	12.7	15.2	9.9	4
Mg	7.5	8.8	4.9	6	3.6	4.5	1.9	4
Na	1.3	1.4	0.97	6	1.8	2.2	1.3	4
K	0.36	0.4	0.26	6	0.22	0.3	0.18	4
SiO_2	10.1	11.4	9.2	6	10.0	11.4	8.3	4
HCO_3	69	78	50	6	53	63	38	4
CO_3	0	0	0	6	0	0	0	4
OH	0	0	0	6	0	0	0	4
Cl	0.7	0.9	0.4	6	0.6	0.7	0.5	4
SO_4	5.9	9.2	4.4	6	6.0	10.6	3.2	4
NO_{3-N}	0.02	0.04	0.0	6	0.04	0.09	0.0	4
F	0.0	0.0	0.0	6	0.0	0.0	0.0	4
pH (lab)	7.72	7.95	7.08	5	7.45	7.85	6.79	3
pH (field)	8.4	8.6	8.1	6	8.4	8.7	8.1	4
F°	41	46	32	6	39	48	32	4
Dis. Sol.	107.8	118.4	80.7	6	88.4	100.6	64.0	4
Hard.	62.5	70	45	6	46	55	32	4
Alk.	57	64	41	6	43	51	31	4
D. O.	10.6	11.9	9.6	6	10.8	11.6	9.6	4
JTU	0	2	0	6	0	1	0	4
Zn	<0.01	0.01	<0.01	6	<0.01	0.01	<0.01	4
Cd	<0.01	<0.01	<0.01	6	<0.01	<0.01	<0.01	4
Cu	<0.01	0.01	<0.01	6	<0.01	<0.01	<0.01	4
Ni	<0.01	<0.02	<0.01	6	<0.01	<0.02	<0.01	4
Fe	0.01	0.02	0.00	6	0.13	0.50	0.00	4
Mn	0.00	0.01	0.00	6	0.00	0.01	0.00	4

Appendix J continued ( ). Summarization of water quality data for stations on Boulder River tributaries, 1972 and 1974[a].

BLAKELY CREEK STATION 024					GRAHAM CREEK STATION 025			
	Mean	Max.	Min.	No. of Samples	Mean	Max.	Min.	No. of Samples
SAMPLING DATES					SAMPLING DATES			
05-17-72					05-18-72			
11-27-72					11-27-72			
05-14-74					05-14-74			
07-29-74					07-29-74			
09-17-74								
10-09-74								

Appendix K. Summarization of water quality data for stations on Boulder River tributaries, 1975[a].

	FROZE-TO-DEATH CREEK STATION 084[b]		HAWLEY CREEK STATION 085[b]	
	Max.	Min.	Max.	Min.
Ca	10.01	5.20	7.61	3.50
Mg	1.75	1.00	2.43	1.20
Na	1.70	1.10	1.50	0.80
K	1.20	0.90	0.90	0.60
SiO_2	8.10	5.10	6.50	4.30
HCO_3	31.35	19.00	29.77	15.00
CO_3	0.00	0.00	0.00	0.00
Cl	0.70	0.25	0.50	0.30
SO_4	9.30	5.10	6.20	3.10
NO_3-N	0.23	0.04	0.25	0.00
F	< 0.10	0.00	< 0.10	0.00
pH (lab)	7.16	6.05	6.82	5.98
pH (field)	8.30	8.20	8.40	7.80
F°	46.00	38.00	46.00	36.00
Dis. Sol.	63.80	38.90	55.40	29.00
Hard.	32.00	17.00	29.00	14.00
Alk.	31.00	16.00	30.00	12.00
D. O.	10.80	9.90	11.20	9.70
JTU	6.00	0.00	1.00	0.00
T. Susp. Sol.[c]	1.50	0.40	1.80	0.30
V. Susp. Sol.[d]	0.80	0.40	0.80	0.20
Zn-Total	< 0.01	< 0.01	< 0.01	< 0.01
Zn-Dissolved	< 0.01	< 0.01	< 0.01	< 0.01
Cd-Total	< 0.01	< 0.01	< 0.01	< 0.01
Cd-Dissolved	< 0.01	< 0.01	< 0.01	< 0.01
Cu-Total	< 0.01	< 0.01	< 0.01	< 0.01
Cu-Dissolved	< 0.01	< 0.01	< 0.01	< 0.01
Ni-Total	< 0.01	< 0.01	< 0.01	< 0.01
Ni-Dissolved	< 0.01	< 0.01	< 0.01	< 0.01
Fe-Dissolved	< 0.01	0.00	0.01	0.00
Mn-Dissolved	< 0.01	0.00	< 0.01	0.00
SAMPLING DATES			SAMPLING DATES	
07-25-75			07-25-75	
08-13-75			08-13-75	
10-08-75			10-08-75	

a/ Units are milligrams per liter except as indicated.
b/ Three samples per station.
c/ T. Susp. Sol. = total suspended solids.
d/ V. Susp. Sol. = Volatile suspended solids.

Appendix L. Suspended solids data for stations on major streams, 1974[a].

STILLWATER RIVER

	STATION 034			STATION 006			STATION 005		
	Total	Vola-tile	%Vola-tile	Total	Vola-tile	%Vola-tile	Total	Vola-tile	%Vola-tile
March	0.59	0.27	45.8	0.52	0.30	57.7	0.94	0.35	37.2
April	0.95	0.47	49.5	0.97	0.41	42.3	0.68	0.24	35.3
May (early)	2.96	1.22	41.2	2.15	1.13	52.6	0.90	0.90	100.0
May (late)	18.17	3.08	17.0	9.90	2.30	23.2	7.52	2.31	30.7
June (early)	9.90	1.80	18.2	5.10	1.10	21.6	4.41	0.90	20.4
June (mid)	106.74	10.46	9.8	32.72	5.15	15.7	82.51	11.36	13.8
June (late)	20.30	1.71	8.4	7.98	1.40	17.5	7.74	0.90	11.6
July	3.6	1.8	50.0	2.0	0.8	40.0	1.4	0.6	42.9
August	1.9	0.5	26.3	1.9	0.8	42.1	0.7	0.6	85.7
September	0.10	0.10	100.0	0.10	0.10	100.0	0.6	0.5	83.3
October	0.30	0.30	100.0	0.70	0.40	57.1	< 0.10	< 0.10	100.0
November	1.10	0.40	36.4	0.70	0.40	57.1	0.30	0.10	33.3
December	0.80	0.50	62.5	0.50	0.50	100.0	0.70	0.30	42.9

WEST FORK STILLWATER RIVER

	STATION 007			STATION 037		
	Total	Vola-tile	%Volta-tile	Total	Vola-tile	%Volta-tile
March	0.24	0.16	66.7			
April	0.20	0.18	90.0			
May (early)	0.51	0.41	80.4			
May (late)	5.27	1.10	20.9	5.96	1.29	21.6
June (early)	2.59	0.70	27.0	3.21	0.60	18.7
June (mid)	59.81	6.75	11.3	53.46	5.02	9.4
June (late)	14.10	1.30	9.2	19.10	2.00	10.5
July	1.1	0.4	36.4	1.0	0.4	40.0
August	0.9	0.6	66.7	0.5	0.4	80.0
September	0.40	0.20	50.0	0.4	0.3	75.0
October	0.20	0.20	100.0	0.50	0.20	40.0
November	0.40	0.40	100.0	0.20	0.20	100.0
December	0.60	0.60	100.0	0.30	0.20	66.7

Appendix L continued ( ). Suspended solids data for stations on major streams, 1974[a].

EAST BOULDER RIVER

	STATION 008			STATION 061		
	Total	Volatile	%Volatile	Total	Volatile	%Volatile
March	0.35	0.29	82.9			
April	0.22	0.17	77.3			
May (early)	1.01	0.91	90.0			
May (late)	6.81	2.10	30.8	4.17	1.49	35.7
June (early)	5.80	3.30	56.9	9.40	1.20	12.8
June (mid)	33.63	4.82	14.3	47.84	5.96	12.5
June (late)	4.51	1.00	22.2	4.50	0.90	20.0
July	0.5	0.3	60.0			
August	1.1	1.0	90.9	0.6	0.4	66.7
September	0.10	0.10	100.0	0.30	0.30	100.0
October	0.20	0.20	100.0	0.20	0.20	100.0
November	0.30	0.30	100.0			
December	0.30	0.30	100.0			

BOULDER RIVER

	STATION 010			STATION 011		
	Total	Volatile	%Volatile	Total	Volatile	%Volatile
March	0.53	0.29	54.7	0.44	0.29	65.9
April	0.31	0.27	87.1	0.31	0.29	93.5
May (early)	5.96	1.52	25.5	3.01	1.10	36.5
May (late)	22.35	3.11	13.9	18.14	2.71	14.9
June (early)	14.2	2.3	16.2	2.60	1.00	38.4
June (mid)	192.16	11.36	5.9	142.67	9.83	6.9
June (late)	30.70	2.40	7.8	30.20	2.10	6.9
July	1.3	0.7	53.8	0.9	0.4	44.4
August	0.5	0.4	80.0	0.8	0.5	62.5
September	0.5	0.4	80.0	0.10	0.10	100.0
October	0.6	0.2	33.3	0.40	0.30	75.0
November	0.3	0.3	100.0	0.10	0.10	100.0
December	0.5	0.3	60.0	0.50	0.30	60.0

a/ Units are milligrams per liter.

Appendix M. Total and dissolved concentrations (parts-per-billion) of metals for samples collected at eleven stations in 1973.

COLLECTION DATE	COPPER Total	COPPER Dis.	LEAD Total	LEAD Dis.	NICKEL Total	NICKEL Dis.	CADMIUM Total	CADMIUM Dis.
EAST ROSEBUD RIVER - STATION 001								
March	7	1	< 5	< 5	21	< 5	< 1	< 1
May	3	< 1	10	< 5	< 5	< 5	< 1	< 1
July	< 2	< 2	< 5	< 5	< 5	< 5	< 1	< 1
August	< 2	< 2	< 5	< 5	< 5	< 5	< 1	< 1
September	4	3	5	2	4	< 1	< 1	< 1
EAST ROSEBUD RIVER - STATION 002								
March	7	1	5	5	11	< 5	< 1	< 1
May	6	1	6	< 5	12	< 5	< 1	< 1
July	6	6	< 5	< 5	< 5	< 5	< 1	< 1
August	< 2	< 2	< 5	< 5	< 5	< 5	< 1	< 1
September	3	2	10	< 1	3	2	< 1	< 1
WEST ROSEBUD RIVER - STATION 003								
March	5	1	< 5	< 5	24	< 5	< 1	< 1
May	5	< 1	< 5	< 5	< 5	< 5	< 1	< 1
July	2	2	< 5	< 5	< 5	< 5	< 1	< 1
August	< 2	< 2	< 5	< 5	< 5	< 5	< 1	< 1
September	3	3	7	3	5	< 1	< 1	< 1
WEST ROSEBUD RIVER - STATION 004								
March	19	1	< 5	< 5	11	< 5	< 1	< 1
May	9	1	< 5	< 5	< 5	< 5	< 1	< 1
July	6	4	< 5	< 5	< 5	< 5	< 1	< 1
August	< 2	< 2	< 5	< 5	< 5	< 5	< 1	< 1
September	9	2	9	1	6	2	< 1	< 1
STILLWATER RIVER - STATION 005								
March	4	2	< 5	< 5	15	< 5	< 1	< 1
May	17	3	< 5	< 5	< 5	< 5	< 1	< 1
July	< 2	< 2	< 5	< 5	< 5	< 5	< 1	< 1
August	3	3	< 5	< 5	< 5	< 5	< 1	< 1
September	4	4	12	< 1	4	2	< 1	< 1
October	3	1	4	3	< 1	< 1	< 1	< 1
STILLWATER RIVER - STATION 006								
March	3	3	< 5	< 5	16	< 5	< 1	< 1
May	6	3	< 5	< 5	7	7	< 1	< 1
July	7	<2	< 5	< 5	< 5	< 5	< 1	< 1
August	4	2	< 5	< 5	< 5	< 5	< 1	< 1
September	3	3	5	< 1	6	2	< 1	< 1
October	5	<1	5	2	< 1	< 1	< 1	< 1

Appendix M continued ( ). Total and dissolved concentrations (part-per-billion) of metals for samples collected at eleven station in 1973.

COLLECTION DATE	COPPER Total	COPPER Dis.	LEAD Total	LEAD Dis.	NICKEL Total	NICKEL Dis.	CADMIUM Total	CADMIUM Dis.
WEST FORK STILLWATER RIVER - STATION 007								
March	2	2	5	5	9	< 5	< 1	< 1
May	3	1	< 5	< 5	20	< 5	< 1	< 1
July	4	< 2	< 5	< 5	< 5	< 5	< 1	< 1
August	2	2	< 5	< 5	< 5	< 5	< 1	< 1
September	4	3	3	< 1	< 1[a]	2[a]	< 1	< 1
October	4	< 1	11	3	< 1	< 1	< 1	< 1
EAST BOULDER RIVER - STATION 038								
September	4	3	5	2	< 1[a]	2[a]	< 1	< 1
October	3	1	5	4	< 1	< 1	< 1	< 1
EAST BOULDER RIVER - STATION 008								
March	4	2	< 5	< 5	23	< 5	< 1	< 1
May	26	< 1	< 5	< 5	23	< 5	< 1	< 1
July	2	2	< 5	< 5	< 5	< 5	< 1	< 1
August	5	3	< 5	< 5	< 5	< 5	< 1	< 1
September	2	2	8	3	< 1	< 1	< 1	< 1
October	4	2	11	5	< 1	< 1	< 1	< 1
BOULDER RIVER - STATION 010								
March	6	1	< 5	< 5	9	< 5	< 1	< 1
May	4	< 1	< 5	< 5	< 5	< 5	< 1	< 1
July	3	2	< 5	< 5	10	< 5	< 1	< 1
August	< 2	< 2	< 5	< 5	7	< 5	< 1	< 1
September	2	2	8	< 1	< 1	< 1	< 1	< 1
October	4	< 1	4	2	< 1	< 1	< 1	< 1
BOULDER RIVER - STATION 011								
March	18	2	9	7	18	< 5	< 1	< 1
May	2	1	< 5	< 5	< 5	< 5	< 1	< 1
July	2	2	< 5	< 5	< 5	< 5	< 1	< 1
August	2	2	< 5	< 5	< 5	< 5	< 1	< 1
September	2	1	4	< 1	< 1	< 1	< 1	< 1
October	2	1	5	3	< 1	< 1	< 1	< 1

a/ Error of unknown source.

Appendix N. Concentration (parts-per-million) of metals in stream sediments, 1973-1974[a].

COLLECTION DATE[b]	COPPER	NICKEL	LEAD	CADMIUM	ZINC	IRON ($X10^3$)
EAST ROSEBUD RIVER - STATION 001						
March, 1973	19	30	15	1	27	15
May, 1973	20	32	16	<1	34	15
July, 1973	24	35	19	1	57	29
August, 1973	20	31	19	<1	36	26
September, 1973	22	35	32	<1	39	33
Range-all samples	13-39.5	21-52.5	15-57	<1-1	27-99.5	15-40
EAST ROSEBUD RIVER - STATION 002						
March, 1973	20	31	21	<1	33	15
May, 1973	12	21	22	<1	30	14
July, 1973	13	24	13	<1	34	20
August, 1973	11	22	15	<1	33	21
September, 1973	18	36	13	<1	48	26
Range-all samples	11-24	19.5-46	9-22	<1-1	28-55	13-32
WEST ROSEBUD RIVER - STATION 003						
March, 1973	9	18	12	<1	18	12
May, 1973	9	20	13	<1	22	9
July, 1973	9	20	50	<1	29	18
August, 1973	10	19	15	<1	32	17
September, 1973	12	29	12	<1	57	18
Range-all samples	7-16.5	16.5-42	11.5-76	<1-1	18-107.5	9-22
WEST ROSEBUD RIVER - STATION 004						
March, 1973	9	13	17	<1	18	12
May, 1973	9	16	16	<1	29	11
July, 1973	10	16	13	1	26	19
August, 1973	10	15	14	<1	38	21
September, 1973	8	16	12	<1	30	21
Range-all samples	5.5-13	10-18.5	10-17.5	<1-1	17.5-47	11-23
STILLWATER RIVER - STATION 005						
March, 1973	72	18	18	1	36	14
May, 1973	65	20	21	<1	46	11
July, 1973	48	16	25	<1	40	18
August, 1973	65	15	18	<1	55	20
September, 1973	56	14	12	<1	36	19
October, 1973	22	48	42	<1	48	25
Range-all samples	12.5-87	11-61	9.5-48.5	<1-1	24-71	11-27

Appendix N continued ( ). Concentration (parts-per-million) of metals in stream sediments, 1973-1974[a].

COLLECTION DATE[b]	COPPER	NICKEL	LEAD	CADMIUM	ZINC	IRON ($X10^3$)
STILLWATER RIVER - STATION 006						
March, 1973	46	209	19	1	20	15
May, 1973	62	192	20	<1	34	17
July, 1973	101	107	18	2	59	27
August, 1973	70	196	20	1+	50	30
September, 1973	63	209	11	<1	30	28
October, 1973	20	35	52	<1	100	22
Range-all samples	17-110	25.5-330	9.5-57	<1-3.0	20-124.5	15-36
WEST FORK STILLWATER RIVER - STATION 054						
May, 1974	49	72	28	<1	54	40
July, 1974	63	77	21	<1	54	41
September, 1974	55	84	16	1	46	40
October, 1974	43	70	16	1	47	39
Range-all samples	36-70.5	87.5-59	13.5-36.5	0.5-1.5	43.5-65.0	37.6-44.5
WEST FORK STILLWATER RIVER - STATION 007						
March, 1973	40	85	20	1	27	16
May, 1973	31	68	20	<1	30	18
July, 1973	37	78	16	1.5	34	35
August, 1973	36	77	18	1.4	36	36
September, 1973	97	123	14	<1	104	34
October, 1973	37	91	28	<1	36	32
Range-all samples	28-212	60-193	12-31	<1-1.9	25.5-254.5	16-38
EAST BOULDER RIVER - STATION 038						
September, 1973	48	138	17	1	63	61
October, 1973	50	146	38	1.1	77	66
July, 1974	62	141	26	1.5	87	68
September, 1974	45	133	23	<1	61	59
October, 1974	50	157	26	1.8	71	75
Range-all samples	41.5-69	130-168.5	16-55	1-2	49.5-94.0	53.8-77.6
EAST BOULDER RIVER - STATION 061						
July, 1974	51	84	21	1	40	43
September, 1974	38	79	19	1	34	44
October, 1974	35	71	20	1.5	56	36
Range-all samples	34-55.5	58.5-86	15.5-22.5	<1-1.5	28.5-72	31.8-45.7

Appendix N continued ( ). Concentration (parts-per-million) of metals in stream sediments, 1973-1974[a].

COLLECTION DATE[b]	COPPER	NICKEL	LEAD	CADMIUM	ZINC	IRON (X10^3)
BLAKELY CREEK - STATION 024						
May, 1974	65	177	32	1	35	37
July, 1974	69	159	23	< 1	36	43
September, 1974	68	161	24	1	26	33
October, 1974	71	176	22	1.2	20	40
Range-all samples	62.5-75	140-196	19-41	0.5-1.5	16-39	28-48
GRAHAM CREEK - STATION 025						
May, 1974	66	640	29	<1	65	57
July, 1974	71	625	31	1	57	55
Range-all samples	65-74	590-705	25-38	0.5-1	43-81	52-63
CRESCENT CREEK - STATION 048						
May, 1974	195	470	21	<1	67	63
July, 1974	233	501	22	1	74	55
Range-all samples	155-235	350-520	19.5-23	1-1	64.5-79	42-66
FORGE CREEK - STATION 051						
July, 1974	143	262	16	1	59	95
September, 1974	145	289	24	2	53	87
October, 1974	148	351	20	2	59	83
Range-all samples	120-168	234-430	12-31.5	1-2.5	43-70	81-103
BROWNLEE CREEK - STATION 053						
July, 1974	75	137	25	1	55	34
August, 1974	114	145	37	1	53	36
October, 1974	59	137	24	1	40	33
Range-all samples	49-166	128-153	21.5-43.5	1-1.5	37-57	28-41
BROWNLEE CREEK - STATION 060						
July, 1974	93	246	23	1	54	40
August, 1974	84	210	28	1	66	38
September, 1974	77	210	24	1	49	45
October, 1974	76	227	21	2	51	38
Range-all samples	72.5-112.5	189.5-309.5	18.5-29.5	1-2	34-67.5	36-48

Appendix N. continued ( ). Concentration (parts-per-million) of metals in stream sediments, 1973-1974[a].

COLLECTION DATE[b]	COPPER	NICKEL	LEAD	CADMIUM	ZINC	IRON ($X10^3$)
EAST BOULDER RIVER - STATION 008						
March, 1973	46	78	20	1	33	16
May, 1973	33	70	26	< 1	38	20
July, 1973	41	76	20	1.7	50	31
August, 1973	36	76	28	1.5	49	32
September, 1973	36	74	17	1.3	34	31
October, 1973	38	80	34	< 1	47	33
Range-all samples	31-46.5	58-96	14-36	< 1-2.0	25.5-54	16-38
BOULDER RIVER - STATION 011						
March, 1973	21	40	14	1	30	18
May, 1973	26	45	25	< 1	48	29
July, 1973	17	27	15	1.3	45	34
August, 1973	17	30	20	1.1	38	35
September, 1973	17	27	12	1.1	37	34
October, 1973	72	101	28	< 1	53	35
Range-all samples	13.5-81	23.5-143	9-32.5	< 1-2.0	20-72.5	18-43
BOULDER RIVER - STATION 010						
March, 1973	25	57	19	1	29	18
May, 1973	24	54	20	< 1	40	30
July, 1973	20	44	14	1	44	45
August, 1973	19	40	19	1	37	39
September, 1973	22	49	13	1	44	38
October, 1973	126	46	42	< 1	90	41
Range-all samples	20-132.5	36-85	10.5-64	< 1-1.3	29-141.5	18-50
IRON CREEK - STATION 019						
May, 1974	45	109	25	1	48	31
July, 1974	43	113	24	< 1	44	31
September, 1974	45	110	20	1	37	27
October, 1974	39	111	36	1	23	29
Range-all samples	36.5-55	102-126.5	17-72	< 1-1.5	21.5-49	26-37
PICKET PIN CREEK - STATION 020						
May, 1974	57	78	29	1	99	29
July, 1974	53	76	59	1.5	53	22
September, 1974	50	71	23	1	69	26
October, 1974	55	85	24	1	43	27
Range-all samples	44-65	62.5-89.5	19-79.5	1-2	20.5-157	19-30

Appendix N. continued ( ). Concentration (parts-per-million) of metals in stream sediments, 1973-1974[a].

COLLECTION DATE[b]	COPPER	NICKEL	LEAD	CADMIUM	ZINC	IRON ($X10^3$)

a/ Fractions of field samples passing through 100 mesh per inch screening were retained for analysis.

b/ Values for March and May 1973 are for single samples; the remainder are average for three samples.

APPENDIX O. Concentration (parts-per-million) of metals in stream sediment, 1975 and 1976[a].

COLLECTION DATE[b]	COPPER	NICKEL	LEAD	CADMIUM	ZINC	IRON ($X10^3$)	ALUMINUM ($X10^3$)
WEST FORK STILLWATER RIVER - STATION 070							
4-23-75	45	89	15	0.5	70	30	-
5-13-75	46	87	20	0.6	63	37	15
6-05-75	38	70	22	0.5	64	31	14
7-24-75	30	70	15	< 0.5	34	39	10
9-11-75	50	78	16	< 0.5	54	36	15
Range-all samples	30-59	62-101	11-27	0.3-0.9	34-92	26-39	10-17
WEST FORK STILLWATER RIVER - STATION 072							
4-23-75	41	111	17	0.7	51	25	-
5-13-75	41	108	22	0.5	43	29	21
6-05-75	38	82	25	0.3	43	33	14
7-24-75	41	86	14	1.0	48	37	16
9-11-75	48	102	12	0.5	180	38	17
Range-all samples	32-48	82-119	12-27	0.2-1.0	37-180	23-38	12-23
WEST FORK STILLWATER RIVER - STATION 037							
4-23-75	44	100	17	0.6	54	27	-
5-13-75	41	96	32	0.5	56	33	15
6-05-75	42	100	25	0.6	57	30	16
7-24-75	48	88	16	0.5	53	40	17
9-11-75	48	91	19	0.5	46	45	15
Range-all samples	37-49	78-117	16-56	0.5-0.7	46-69	26-45	12-18
WEST FORK STILLWATER RIVER - STATION 076							
7-23-75	22	51	14	0.5	52	38	14
9-09-75	21	42	15	1.0	56	33	13
3-09-76	32	53	23	0.5	78	33	18

APPENDIX O. continuted ( ). Concentration (part-per-million) of metals in stream sediment, 1975 and 1976[a].

COLLECTION DATE[b]	COPPER	NICKEL	LEAD	CADMIUM	ZINC	IRON ($X10^3$)	ALUMINUM ($X10^3$)
CASTLE CREEK - STATION 077							
7-23-75	12	25	18	1.0	49	21	8
9-09-75	15	22	19	1.5	50	18	7
3-09-76	19	24	25	0.5	64	25	11
CASTLE CREEK - STATION 079							
7-23-75	12	22	13	0.5	38	16	10
9-09-75	14	22	14	1.0	34	16	10
3-09-76	27	34	38	0.5	59	22	18
CASTLE CREEK - STATION 080							
7-23-75	9	16	13	< 0.5	52	32	11
9-09-75	12	17	10	1.0	56	32	11
3-09-76	16	17	55	< 0.5	65	29	11
PICKET PIN CREEK - STATION 078							
7-23-75	22	36	16	0.5	118	22	18
9-09-75	22	34	16	1.0	42	21	18
3-09-76	19	24	35	0.8	67	20	11

a/ Fraction of field samples passing through 100 mesh per inch screening were retained for analysis.

b/ Values for July, September and March are for single samples; values for April, May and June are averages for three samples.

APPENDIX P. Maximum and minimum water temperatures (F) recorded at stations in the West Fork Stillwater River drainage, 1975-1976.

DATE THERMOMETER WAS READ AND RESET[a]	STATIONS							
	WEST FORK STILLWATER RIVER				CASTLE CREEK			PICKET PIN CREEK
	076	007	037	070	080	079	077	078
07-30-75	57-52					54-48	52-46	52-46
07-31-75					54-48			
08-04-75			53-42	52-42				
08-06-75	57-46	b			57-46	54-44		
08-07-75		c	52-44	b,c			50-44	b
08-12-75	56-50		52-45					
08-14-75		--46			56-48	56-44	50-44	c
08-15-75			52-44	52-44				
08-16-75	57-48				b.c.			
08-20-75	57-48	54-46			58-49	54-44	49-44	52-44
08-21-75			52-42	53-42				
08-25-75	56-44				57-48	54-43	50-44	48-42
08-26-75		55-43						
08-28-75	56-44	54-43			58-48	54-42	51-43	52-42
08-29-75			52-43	b,c				
09-03-75	56-44		50-41	49-40	58-48	56-42	52-43	52-41

APPENDIX P. continued ( ). Maximum and minimum water temperatures (F) recorded at stations in the West Fork Stillwater River drainage, 1975-1976.

DATE THERMOMETER WAS READ AND RESET[a]	STATIONS							
	WEST FORK STILLWATER RIVER				CASTLE CREEK			PICKET PIN CREEK
	076	007	037	070	080	079	077	078
09-08-75		55-43						
09-09-75	56-44				57-45	56-43	48-42	53-42
09-11-75			51-41	b,c				
09-15-75						54-41		
09-16-75	55-44				56-46		47-44	50-41
09-17-75		54-42						
09-19-75			49-38	50-37				
09-22-75	54-43				53-46	54-40		
09-23-75							48-42	49-40
09-25-75	51-39				55-46	52-42		
09-26-75			46-38	46-36				
09-29-75	54-44	48-40				53-40	46-42	48-40
09-30-75			b	45-35	54-46			
10-01-75							46-42	47-39
10-06-75			c	46-36				
10-07-75	54-42	50-39			54-41	53-38	46-43	48-40

APPENDIX P. continued ( ). Maximum and minimum water temperatures (F) recorded at stations in the West Fork Stillwater River drainage, 1975-1976.

DATE THERMOMETER WAS READ AND RESET[a]	STATIONS							
	WEST FORK STILLWATER RIVER				CASTLE CREEK			PICKET PIN CREEK
	076	007	037	070	080	079	077	078
10-15-75				48-34				
10-16-75			48-36					
10-17-75	50-41	46-37			52-44	50-40	44-42	46-40
10-20-75		45-40			54-46	50-41	45-43	46-40
10-24-75	50-36	43-32			53-40	50-34	43-41	45-36
10-27-75			44-32					
10-28-75				43-32				
11-05-75		43-32			50-39	47-32	44-40	45-35
11-06-75			40-33	39-32				
11-11-75	44-38	41-32			50-40	46-33	42-38	42-36
11-14-75			38-33	38-32				
11-20-75	36-33				42-38			
11-24-75	43-34		37-32	d				
11-25-75					44-38	44-32	43-40	42-34
12-01-75	38-33	38-32						
12-02-75					40-37	38-32	43-40	40-33

APPENDIX P. continued ( ). Maximum and minimum water temperatures (F) recorded at stations in the West Fork Stillwater River drainage, 1975-1976.

DATE THERMOMETER WAS READ AND RESET[a]	STATIONS							
	WEST FORK STILLWATER RIVER				CASTLE CREEK			PICKET PIN CREEK
	076	007	037	070	080	079	077	078
12-04-75			36-32	36-32				
12-05-75	41-36	37-32			45-40	42-35	42-41	42-38
12-08-75	42-36				46-40	43-33	44-42	42-36
12-09-75		39-32	37-33	35-32				
12-15-75	43-32	40-32			47-34	b,c	43-40	42-32
12-24-75	38-33		37-32	35-32				
12-30-75	40-33	37-32	36-32	35-32	45-36	41-32	43-39	40-33
01-08-76	37-33	35-32	35-32	33-32	42-35	37-33	43-40	36-32
01-12-76		35-32	35-32	34-32				
01-14-76	37-33		35-32					
01-16-76	40-35	36-32			42-35	38-32	43-41	41-34
01-23-76	40-34	37-32	36-32	34-32	45-38	42-33	43-41	39-35
01-28-76			36-32	34-32				
01-30-76	41-33	37-32			47-36	43-32	43-41	41-33
02-07-76			36-32	34-32				
02-10-76			36-33	34-32				

APPENDIX P. continued ( ). Maximum and minimum water temperatures (F) recorded at stations in the West Fork Stillwater River drainage, 1975-1976.

DATE THERMOMETER WAS READ AND RESET[a]	STATIONS							
	WEST FORK STILLWATER RIVER				CASTLE CREEK			PICKET PIN CREEK
	076	007	037	070	080	079	077	078
02-13-76	41-33	37-32			46-34	43-33	43-41	41-32
02-18-76					46-35		43-40	40-34
02-19-76	41-33	36-32	36-33			42-33		
02-22-76			36-33	34-32				
02-24-76	42-33	37-32			47-37	43-32	43-40	40-34
03-05-76	42-32	37-32			47-34	43-32	43-40	36-33
03-08-76			37-32	37-32				
03-09-76	40-33	36-32			48-36	42-33	44-41	41-34
03-16-76		38-32	38-32	36-32				
03-17-76	43-33				50-34	47-32	44-41	42-33
03-22-76	47-33	40-32	39-33	36-32	52-37	49-33	45-41	44-34
03-26-76			39-33	37-32				
03-30-76	46-33	39-32	38-32	35-32	51-37	49-33	45-42	43-34
04-07-76	53-34				57-37	55-33	47-41	47-34
04-08-76		45-33	41-34	43-32				
04-12-76			43-36	44-34				

APPENDIX P. continued ( ). Maximum and minimum water temperatures (F) recorded at stations in the West Fork Stillwater River drainage, 1975-1976.

DATE THERMOMETER WAS READ AND RESET[a]	STATIONS							
	WEST FORK STILLWATER RIVER				CASTLE CREEK			PICKET PIN CREEK
	076	007	037	070	080	079	077	078
04-14-76			43-36					
04-16-76	54-38	47-35			59-41	57-37	47-42	48-38
04-20-76			42-33	44-32				
04-23-76	51-38	45-36			54-40	53-35	46-42	45-38
04-30-76	52-34				58-35	57-32	47-40	47-33
05-04-76			46-33	48-32				
05-05-76	53-39	49-32			55-39	55-36		
05-06-76							47-42	48-37
05-10-76		51-36			56-41	56-37	50-41	47-38
05-17-76	55-38							
05-18-76		51-35	48-33	48-32				
05-20-76			45-36	43-34				
05-21-76	53-40	48-36			56-41	b,c	48-40	48-36
05-26-76	50-38	47-36	45-35	43-34	52-42	50-38	47-39	46-37
06-03-76	b,c	50-37	47-36	46-34	54-42	51-39	48-40	48-38
06-10-76	52-38	49-39	47-38	50-36	54-44	51-41	49-41	48-40

APPENDIX P. continued ( ). Maximum and minimum water temperatures (F) recorded at stations in the West Fork Stillwater River drainage, 1975-1976.

DATE THERMOMETER WAS READ AND RESET[a]	STATIONS							
	WEST FORK STILLWATER RIVER				CASTLE CREEK			PICKET PIN CREEK
	076	007	037	070	080	079	077	078
06-17-76	46-40	b,c	46-36	b,c	50-41	49-39	46-37	49-39
06-21-76	53-42	52-39	51-38	50-36	56-44	53-39	51-41	50-40
6-28-76	52-40	50-38	49-37	49-35	54-44	52-40	49-40	50-39
07-02-76	54-45	54-42	52-40	51-38	56-46	54-44	53-43	52-42
07-05-76			51-42		56-48	53-45	52-44	52-44
07-08-76			54-42	53-41				
07-20-76	59-45	58-43	b	53-41	59-48	55-46	53-44	54-44
07-23-76	60-49	56-48	c	55-45	60-48	58-47	53-46	54-46
08-02-76	60-48	58-47	55-43	55-42	60-46	58-45	54-44	53-44

a/ Thermometers were first placed at stations 076,080,079,077 and 078 on 7-28-75 and at stations 007,037 and 070 on 7-31-75.

b/ Thermometer malfunction - no reading.

c/ Malfunctioning thermometer reset or replaced.

d/ Thermometer temporarily lost below ice.

APPENDIX Q. Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Rosebud River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
EAST ROSEBUD RIVER - STATION 001								
08-70	46	17	93	29	0	0	0	185
04-71	66(.5)	2 (T)[b]	143(.2)	7 (T)	0	0	0	218 (.7)
10-71	39(.2)	1 (T)	132(.5)	9 (.1)	0	0	1(T)	182 (.8)
10-71	8(.4)	8(.2)	43(.1)	1 (T)	0	0	0	60 (.7)
10-71	72(.2)	3(.1)	141(.6)	4 (T)	0	0	0	220 (.9)
05-72	11 (T)	2 (T)	81(.3)	12 (.1)	0	0	3(T)	109 (.4)
05-72	15 (T)	1 (T)	27(.1)	7 (.3)	0	0	5(T)	55 (.4)
05-72	3 (T)	2 (T)	22(.1)	8 (.2)	0	0	2(T)	37 (.3)
08-72	20(.2)	3 (T)	94(.2)	6 (T)	0	0	0	123 (.4)
08-72	21(.3)	9(.2)	105(.2)	18 (.3)	0	0	0	153(1.0)
08-72	55(.3)	20(.1)	190(.1)	32 (.1)	0	62(T)	0	359 (.6)
02-73	83(.4)	24(.2)	297(.9)	38(1.4)	0	0	2(T)	444(2.9)
02-73	102(.6)	18(.2)	377(.6)	28 (T)	4(T)	2(T)	0	531(1.4)
02-73	52(.1)	4(.1)	260(.8)	13 (T)	2(T)	0	0	331(1.0)
05-73	34(.1)	11 (T)	139(.4)	26 (.2)	2(T)	0	1(T)	213 (.7)
05-73	57(.2)	4 (T)	198(.8)	22 (.1)	1(T)	0	4(T)	286(1.1)
05-73	59(.5)	2(.1)	228(.9)	19 (.7)	0	0	8(T)	316(2.2)
07-73	18 (T)	4 (T)	53(.3)	6 (T)	0	0	0	81 (.3)
07-73	29(.4)	22 (T)	64(.7)	18 (.1)	0	0	2(T)	135(1.2)
07-73	53(.1)	11 (T)	103(.6)	17 (T)	0	0	0	184 (.7)
10-73	26(.1)	0	122(.2)	10 (T)	0	0	3(T)	161 (.3)
10-73	61(.1)	3 (T)	188(.2)	24 (.8)	0	0	2(T)	278(1.1)
10-73	33(.1)	6(.1)	161(.2)	22 (.2)	0	0	0	222(0.6)
EAST ROSEBUD RIVER - STATION 049								
08-70	47	0	95	17	0	0	0	159
04-71	23(.3)	57(.2)	149(.5)	12 (T)	2(T)	0	0	243(1.0)
10-71	5(.1)	16 (T)	83(.2)	5 (T)	0	0	0	109 (.3)
10-71	9(.2)	10 (T)	189(.5)	1 (T)	2(T)	0	1(T)	212 (.7)
10-71	18(.5)	12(.1)	106(.3)	6 (T)	0	0	1(T)	143 (.9)

APPENDIX Q. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Rosebud River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
EAST ROSEBUD RIVER - STATION 028								
02-72	20(.2)	100 (.7)	187 (.7)	39 (.2)	2 (T)	9 (T)	0	357(1.8)
02-72	30(.1)	92(1.0)	172(2.0)	11 (.2)	1 (T)	10 (T)	1(T)	317(3.3)
02-72	6 (T)	33 (.5)	191 (.4)	2 (T)	0	1 (T)	0	233 (.9)
05-72	3 (T)	12 (.1)	78 (.2)	3 (T)	1 (T)	0	0	97 (.3)
05-72	0	103 (.1)	26 (.1)	5 (T)	4 (T)	1 (T)	1(T)	140 (.2)
05-72	14(.1)	17 (.1)	71 (.6)	3 (T)	0	1 (T)	0	106 (.8)
08-72	12(.1)	17 (.2)	90 (.2)	18 (T)	1 (T)	0	0	138 (.5)
08-72	3 (T)	5 (T)	32 (T)	28 (.1)	1 (T)	8 (T)	0	77 (.1)
08-72	1 (T)	8 (T)	43 (.1)	9 (T)	1 (T)	2 (T)	1(T)	65 (.1)
02-73	26(.4)	98(1.2)	286(1.4)	12 (.2)	4 (T)	47 (T)	0	473(3.2)
02-73	19(.2)	104 (.4)	239(1.3)	14 (.2)	1 (T)	42 (T)	0	419(2.1)
02-73	28(.1)	136(1.8)	212(1.3)	37 (.6)	2 (T)	62 (T)	0	477(3.8)
EAST ROSEBUD RIVER - STATION 046								
10-71	17(.1)	62 (.2)	87 (.3)	10 (.1)	8 (T)	0	26(T)	210 (.7)
10-71	14(.3)	67 (.7)	94 (.2)	17 (.2)	10 (T)	0	35(T)	237(1.4)
10-71	25(.2)	99(1.1)	137 (.5)	16 (.2)	8 (T)	0	29(T)	314(2.0)
02-72	13(.1)	25 (.1)	86 (.5)	2 (.1)	0	0	0	126 (.8)
02-72	28(.1)	50 (.2)	272(1.1)	2 (T)	0	0	0	352(1.4)
02-72	14 (T)	71 (.3)	229 (.7)	1 (T)	0	0	0	315(1.0)
05-72	6(.4)	159 (.5)	141 (.5)	5 (T)	2 (T)	4(.8)	0	317(2.2)
05-72	8 (T)	92 (.1)	44 (.4)	17 (.1)	2 (T)	15 (T)	0	178 (.6)
05-72	12(.1)	36 (.3)	169 (.6)	8 (T)	1 (T)	0	0	226(1.0)
08-72	4 (T)	23 (.1)	76 (T)	46 (T)	1 (T)	3 (T)	0	153 (.1)
08-72	17 (T)	56 (.2)	153 (T)	61 (.1)	1 (T)	6 (T)	0	294 (.3)
08-72	23 (T)	30 (.1)	136 (.1)	28 (.2)	6 (T)	2 (T)	2(T)	227 (.4)
02-73	36(.2)	48 (.2)	205(1.0)	20 (.8)	0	37 (T)	1(T)	347(2.2)
02-73	9 (T)	15 (.1)	195 (.8)	52(1.7)	0	0	0	271(2.6)
02-73	25(.4)	45 (.3)	134 (.7)	46(1.3)	1 (T)	9 (T)	3(T)	263(2.7)
05-73	5(.1)	87 (.7)	74 (.3)	43 (.2)	1 (T)	148 (T)	0	358(1.3)
05-73	7(.1)	90 (T)	146 (.2)	30 (.1)	7 (T)	278(.1)	0	558 (.5)
05-73	24(.4)	32 (T)	84 (.2)	21 (.1)	5 (T)	28 (T)	0	194 (.7)

APPENDIX Q. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Rosebud River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
EAST ROSEBUD RIVER - STATION 046								
08-73	8 (T)	19 (.1)	63 (.1)	47 (T)	0	1 (T)	0	138 (.2)
08-73	7 (T)	21 (.1)	95 (.2)	62 (.1)	4 (T)	21 (T)	0	210 (.4)
08-73	18(.4)	95 (.5)	148(1.4)	59 (.2)	7(.1)	19 (T)	0	346(2.6)
10-73	34(.1)	177 (.7)	154 (.1)	21 (.7)	7 (T)	158 (T)	2(T)	553(1.6)
10-73	38(.4)	145 (.6)	182 (.1)	18 (.1)	3 (T)	153(.1)	2(T)	541(1.3)
10-73	33(.1)	72 (.1)	130 (.1)	20 (.1)	15 (T)	113 (T)	1(T)	384 (.4)
WEST ROSEBUD RIVER - STATION 003								
08-70	50	3	102	31	4	5	2	197
04-71	18(.1)	17 (.3)	103(.3)	13 (T)	2 (T)	0	63(T)	216 (.7)
10-71	37(.1)	8 (.1)	106(.3)	4 (T)	3 (T)	18 (T)	0	176 (.5)
10-71	59(.4)	16 (.1)	260(.2)	9 (.1)	5 (T)	71 (T)	0	420 (.8)
10-71	62(.3)	27 (.2)	249(.3)	5 (.1)	1(.1)	15 (T)	0	359(1.0)
02-72	60(.7)	41 (.7)	288(.7)	15 (T)	4(.1)	20 (T)	4(T)	432(2.2)
02-72	155(.3)	32 (.4)	400(.8)	49 (.1)	7 (T)	54 (T)	0	697(1.6)
02-72	24(.2)	23 (.3)	350(.6)	4 (.1)	5 (T)	3 (T)	0	409(1.2)
05-72	8 (T)	11 (T)	55(.1)	23 (.1)	13 (T)	98 (T)	0	208 (.2)
05-72	20(.1)	10 (T)	146(.3)	24 (.4)	0	26 (T)	0	226 (.8)
05-72	19(.1)	10 (T)	110(.6)	18 (.1)	8 (T)	116 (T)	0	281 (.8)
08-72	94(.1)	2 (T)	59 (T)	16 (.6)	3 (T)	91 (T)	0	265 (.7)
08-72	28(.1)	1 (.1)	86(.1)	5 (T)	0	1 (T)	0	121 (.3)
08-72	60(.2)	5 (T)	162(.1)	6 (.1)	0	95(.1)	0	328 (.5)
02-73	33(.1)	14 (.2)	87(.3)	8 (.1)	5 (T)	21 (T)	0	168 (.7)
02-73	41(.3)	14 (.2)	152(.5)	37 (.4)	14 (T)	90 (T)	0	348(1.4)
02-73	163(1.1)	66(1.7)	577(1.9)	46 (.2)	10(.1)	149 (T)	0	1011(5.0)
05-73	17(.2)	20 (.3)	89(.4)	18 (T)	2 (T)	50 (T)	5(T)	201 (.9)
05-73	99(1.4)	95(3.2)	311(.6)	45 (.2)	7 (T)	61 (T)	0	618(5.4)
05-73	36(.4)	62(1.2)	136(.8)	32 (T)	6 (T)	33 (T)	3(T)	308(2.4)
07-73	40(.5)	6 (T)	111(.2)	11 (.2)	6 (T)	19 (T)	0	193 (.9)
07-73	23(.1)	2 (T)	29(.2)	6 (T)	1 (T)	13 (T)	1(T)	75 (.3)

APPENDIX Q. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Rosebud River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
WEST ROSEBUD RIVER - STATION 003								
07-73	26(.3)	2 (T)	57(.6)	9 (.1)	4 (T)	66 (T)	0	164(1.0)
10-73	70(.1)	49(.5)	201(.2)	4 (.2)	5 (T)	32 (T)	0	361(1.0)
10-73	110(1.1)	38(.4)	207(.1)	16 (.3)	3 (T)	48 (T)	4(T)	426(1.9)
10-73	112(.3)	60(.3)	135(.1)	9 (.1)	7(.1)	45 (T)	1(T)	369 (.9)
WEST ROSEBUD RIVER - STATION 029								
08-70	5	18	127	59	10	0	0	219
04-71	29(.1)	53(.3)	190(.4)	22 (T)	11 (T)	1 (T)	44(T)	350 (.8)
10-71	52(.4)	76(2.0)	167(.7)	43 (.1)	5 (T)	41 (T)	0	384(3.2)
10-71	27(.3)	101(.4)	134(.3)	38 (T)	7 (T)	35 (T)	0	342(1.0)
10-71	43(.2)	57(.5)	172(.4)	29 (.1)	6 (T)	51 (T)	0	358(1.2)
02-72	27(.2)	152(1.1)	117(.4)	5 (.1)	2 (T)	7 (T)	0	310(1.8)
02-72	25 (T)	59(.5)	76(.2)	19 (T)	3 (T)	13 (T)	1(T)	196 (.7)
02-72	24(.4)	82(.2)	98(.5)	20 (.1)	7 (T)	1 (T)	1(T)	233(1.2)
05-72	18(.5)	192(1.0)	96(1.0)	34 (.1)	10 (T)	77 (T)	1(T)	428(2.6)
05-72	21(.3)	82(.6)	123(.2)	39 (.2)	13(.1)	52(.1)	0	330(1.5)
05-72	5(.3)	108(.5)	22(.3)	22 (.1)	19 (T)	9 (T)	3(T)	188(1.2)
08-72	20(.5)	94(.2)	290(.2)	66 (T)	12 (T)	49 (T)	0	531 (.9)
08-72	1 (T)	9 (T)	57 (T)	21 (T)	11 (T)	42 (T)	3(T)	144 (T)
08-72	32 (T)	29(.1)	150(.1)	46 (T)	21 (T)	164 (T)	3(T)	445 (.2)
02-73	12 (T)	22 (T)	80(.6)	10 (T)	5 (T)	16 (T)	0	145 (.6)
02-73	8 (T)	28(.4)	51(.3)	32 (.2)	0	5 (T)	0	124 (.9)
02-73	21(.3)	18(.2)	43(.2)	16 (T)	1 (T)	9 (T)	1(T)	109 (.7)
05-73	14(.1)	17(.1)	53(.1)	64 (.7)	5 (T)	141 (T)	1(T)	295(1.0)
05-73	6 (T)	15(.1)	109(.2)	105 (.1)	5 (T)	74(.1)	0	314 (.5)
05-73	21(.2)	49(.1)	186(.3)	82 (.1)	6 (T)	102(.1)	0	446 (.8)
08-73	8 (T)	15(.2)	131(.2)	36 (.2)	7(.1)	14 (T)	0	211 (.7)
08-73	5 (T)	23(.2)	49(.1)	35 (T)	3 (T)	6 (T)	1(T)	122 (.3)
08-73	10 (T)	32(.1)	174(1.1)	66 (.1)	3 (T)	14 (T)	1(T)	300(1.3)
10-73	9 (T)	87(.8)	118(.2)	17 (.1)	6 (T)	10 (T)	0	247(1.1)
10-73	34(.3)	58(.4)	153(.1)	23 (T)	5 (T)	5 (T)	0	278 (.8)
10-73	6 (T)	67(.1)	87(.1)	51 (.1)	11 (T)	4 (T)	0	226 (.3)

APPENDIX Q. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Rosebud River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
WEST ROSEBUD RIVER - STATION 004								
08-70	28	64	62	49	4	16	1	224
04-71	39(.4)	123(1.0)	219(.7)	6 (T)	4 (T)	0	62 (T)	453(1.2)
10-71	6(.1)	12 (.1)	48(.1)	3 (T)	1 (T)	11 (T)	0	81 (.3)
10-71	7 (T)	14 (.1)	36(.1)	5 (T)	0	4 (T)	0	66 (.2)
10-71	34 (T)	20 (.2)	97(.2)	10(.1)	3(.1)	9 (T)	0	173 (.6)
02-72	14(.1)	23 (.1)	162(.5)	2 (T)	4 (T)	29 (T)	0	234 (.7)
02-72	18(.1)	28 (.2)	107(.5)	2 (T)	2 (T)	25 (T)	0	182 (.8)
02-72	16(.2)	108 (.5)	214(.8)	2(.1)	1 (T)	11 (T)	0	352(1.6)
05-72	4 (T)	6 (.1)	14(.1)	11(.1)	1 (T)	35 (T)	1 (T)	72 (.3)
05-72	7(.1)	5 (.1)	45(.3)	20(.2)	0	19(.5)	0	96(1.2)
05-72	5 (T)	8 (T)	12(.1)	17(.4)	1 (T)	52 (T)	2 (T)	97 (.5)
08-72	21 (T)	1 (T)	30 (T)	6 (T)	4(.1)	71 (T)	0	133 (.1)
08-72	17 (T)	3 (T)	38 (T)	7 (T)	1 (T)	102 (T)	0	168 (T)
08-72	16 (T)	7 (.1)	21(.1)	6(.1)	1 (T)	75 (T)	0	126 (.3)
02-73	22 (T)	43 (.1)	107(.4)	5(.1)	0	31 (T)	1 (T)	209 (.6)
02-73	50(.1)	35 (.1)	266(.9)	3 (T)	2 (T)	20 (T)	0	376(1.1)
02-73	14 (T)	54 (.1)	34(.2)	5(.3)	0	17 (T)	0	124 (.6)
05-73	10(.2)	45 (.6)	137(.3)	11(.1)	8 (T)	106 (T)	0	317(1.2)
05-73	40(.1)	162 (.2)	151(.7)	9(.4)	2 (T)	259(.1)	4 (T)	627(1.5)
05-73	40 (T)	57 (.1)	182(.6)	18(.1)	2 (T)	241 (T)	2 (T)	542 (.8)
08-73	4 (T)	3 (T)	13(.1)	5 (T)	0	23 (T)	2 (T)	50 (.1)
08-73	3 (T)	6 (T)	9(.1)	9(.1)	3 (T)	1 (T)	0	31 (.2)
08-73	8 (T)	16 (.1)	18(.1)	8(.1)	2 (T)	2 (T)	0	54 (.3)
10-73	12 (T)	62 (.2)	164(.2)	16(.2)	2 (T)	81(.1)	3 (T)	340 (.7)
10-73	12(.1)	37 (.1)	91(.2)	7 (T)	4 (T)	15 (T)	1 (T)	167 (.4)
10-73	10(.1)	28 (.1)	117(.2)	1 (T)	3 (T)	29 (T)	2 (T)	190 (.4)
MORRIS CREEK - STATION 014								
8-72	3 (T)	121 (.2)	62(.1)	25(.1)	29(.1)	3 (T)	0	243 (.5)
8-72	35 (T)	62 (.1)	95(.1)	25(.1)	21 (T)	3 (T)	0	241 (.4)
8-72	12 (T)	28 (.1)	23(.1)	14(.1)	11 (T)	1 (T)	0	89 (.4)

APPENDIX Q. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Rosebud River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
EAST FISHTAIL CREEK - STATION 012								
08-72	58(.2)	61(.3)	53(.1)	46 (T)	5 (T)	301 (T)	62(.1)	586(.7)
08-72	31 (T)	62(.2)	14(.1)	34 (T)	4 (T)	65 (T)	21(.1)	231(.4)
08-72	56 (T)	50(.1)	68(.1)	108 (T)	19 (T)	215(.1)	97(.2)	613(.5)
08-73	19(.2)	27 (T)	119(.2)	6 (T)	7 (T)	81 (T)	50(.2)	309(.6)
08-73	18(.1)	27 (T)	120(.1)	27 (T)	38(.1)	49 (T)	55(.2)	334(.5)
08-73	29 (T)	28(.2)	102(.1)	19 (T)	5 (T)	29 (T)	15(.1)	227(.4)
07-74	6 (T)	24(.1)	32(.1)	8 (T)	1 (T)	28 (T)	16 (T)	115(.2)
07-74	7 (T)	11(.1)	29(.1)	3 (T)	0 (0)	8 (T)	11 (T)	69(.2)
07-74	5 (T)	7 (T)	53(.2)	11(.1)	3 (T)	48 (T)	9 (T)	136(.3)
WEST FISHTAIL CREEK - STATION 013								
08-72	43 (T)	61(.3)	59(.1)	168 (T)	1 (T)	43 (T)	47 (T)	422(.4)
08-72	33(.1)	23(.1)	32 (T)	23 (T)	4 (T)	103 (T)	6 (T)	224(.2)
08-72	37(.3)	50(.1)	44(.2)	29(.1)	2 (T)	97 (T)	32 (T)	291(.7)
08-73	63(.2)	66(.1)	109(.4)	92 (T)	4 (T)	96 (T)	39(.1)	469(.8)
08-73	53(.7)	74(.3)	112(.2)	86 (T)	5 (T)	129(.1)	44(.1)	503(1.6)
08-73	25(.1)	19(.1)	28(.3)	18 (T)	3 (T)	131(.1)	26(.1)	250(.7)
07-74	21(.3)	9(.1)	73(.2)	23 (T)	2 (T)	7 (T)	18(.1)	153(.7)
07-74	20 (T)	29(.3)	106(.2)	22 (T)	0	12 (T)	8 (T)	197(.5)
07-74	40(.1)	36(.3)	85(.2)	31(.2)	2 (T)	18 (T)	37(.1)	249(.9)
FISHTAIL CREEK - STATION 030								
10-71	48(.4)	90(1.3)	155(.5)	5 (T)	1 (T)	104 (T)	49(.2)	452(2.4)
10-71	41(.1)	50 (.1)	96(.2)	21 (T)	9 (T)	75 (T)	16(.1)	308 (.5)
10-71	27(.2)	44 (.2)	166(.2)	8 (T)	8 (T)	91 (T)	29(.1)	373 (.7)
02-72	20(.7)	189 (.4)	211(.5)	18 (T)	3 (T)	18 (T)	16 (T)	475(1.6)
02-72	12(.1)	250 (.7)	103(.2)	4(.1)	11(.1)	92(.1)	34(.1)	506(1.4)
02-72	29(.1)	76 (.2)	96(.3)	4 (T)	7(.1)	45 (T)	13 (T)	270 (.7)
05-72	18(.1)	203(1.1)	103(.4)	46(.1)	5 (T)	91(.1)	36(.1)	502(1.9)
05-72	6(.1)	36 (.4)	42(.2)	23 (T)	1 (T)	31 (T)	0	139 (.7)
05-72	7 (T)	50 (.1)	184(.8)	12 (T)	5 (T)	109(.1)	31(.1)	398(1.1)

APPENDIX Q. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Rosebud River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
FISHTAIL CREEK - STATION 030								
08-72	8 (T)	56(.2)	80(.2)	36 (T)	4(.1)	8 (T)	17(.1)	209 (.6)
08-72	14(.1)	30(.1)	49(.1)	7 (T)	8 (T)	3 (T)	15(.1)	126 (.4)
08-72	23 (T)	38 (T)	68(.1)	39(.7)	5 (T)	30 (T)	50(.1)	253 (.9)
02-73	54(.1)	69(.2)	359(.7)	32 (T)	9 (T)	125 (T)	54(.1)	702(1.1)
02-73	144(.7)	122(1.5)	528(1.2)	97(.1)	12 (T)	289 (T)	188(.5)	1380(4.0)
02-73	49(.1)	73(.5)	269(.4)	35(.1)	10 (T)	98(.1)	85(.2)	619(1.4)
05-73	3 (T)	36(.2)	31(.2)	27 (T)	6 (T)	6 (T)	44(.1)	153 (.5)
05-73	10(.1)	64(.2)	36(.1)	60(.1)	24 (T)	11 (T)	43(.1)	248 (.6)
05-73	14 (T)	79(.3)	54(.2)	60(.1)	18 (T)	106 (T)	53(.1)	384 (.7)
08-73	27 (T)	34(.2)	33(.1)	93 (T)	3 (T)	71 (T)	58(.2)	319 (.5)
08-73	26(.8)	40(.1)	74(.3)	47 (T)	5 (T)	223 (T)	33(.1)	448(1.3)
08-73	20(.1)	27(.2)	38(.1)	17 (T)	6 (T)	136 (T)	25(.1)	269 (.5)
10-73	54(1.4)	73(.2)	170(.2)	25 (T)	11 (T)	261(.1)	49(.1)	643(2.0)
10-73	96(.2)	85(.4)	169(.1)	5(.1)	3 (T)	95 (T)	40(.1)	493 (.9)
10-73	77(.2)	47(.3)	155(.2)	19 (T)	5 (T)	172(.1)	43(.1)	518 (.9)
02-74	94(.6)	133(.3)	263(.6)	60(.1)	5 (T)	277(.1)	150(.2)	982(1.9)
05-74	4(.1)	92(.2)	57(.1)	4 (T)	1 (T)	8 (T)	14 (T)	180 (.4)
05-74	20(.2)	92(.3)	206(.5)	10 (T)	5 (T)	31 (T)	40(.1)	404(1.1)
05-74	47(.3)	147(.5)	396(.9)	69(.1)	7 (T)	151 (T)	142(.2)	959(2.0)
07-74	9 (T)	9(.2)	34(.1)	11 (T)	1 (T)	18 (T)	7 (T)	89 (.3)
07-74	13 (T)	16(.1)	52(.1)	15 (T)	7 (T)	44 (T)	46(.1)	193 (.3)
07-74	9(.2)	7 (T)	50(.1)	6 (T)	1 (T)	7 (T)	6 (T)	86 (.3)
10-74	147(.3)	305(.7)	252(.4)	61(.1)	15 (T)	300(.5)	56(.1)	1137(2.1)
10-74	19(.1)	42(.4)	313(.4)	20 (T)	4 (T)	126 (T)	28 (T)	552 (.9)
10-74	57(1.0)	66(.7)	221(.2)	32 (T)	11 (T)	219 (T)	42(.1)	648(2.0)
FISHTAIL CREEK - STATION 045								
10-71	54(.6)	120(1.2)	140(.3)	27(.3)	11(.1)	94(.1)	2 (T)	448(2.5)
10-71	28(.1)	111(1.1)	139(.2)	78(.1)	15 (T)	146(.1)	1 (T)	518(1.6)
10-71	41(.8)	102(1.1)	111(.2)	23(.1)	10 (T)	88 (T)	0	375(2.2)
02-72	35(.5)	233 (.5)	222(.6)	80(.1)	15(.1)	97(.1)	0	682(1.9)
02-72	33(.3)	215 (.4)	172(.5)	21 (T)	8(.1)	46 (T)	0	495(1.3)

APPENDIX Q. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Rosebud River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
FISHTAIL CREEK - STATION 045								
02-72	6(.1)	34 (.2)	62 (.2)	9 (.1)	6 (T)	16 (T)	0	133 (.6)
05-72	11(.4)	58 (.3)	61 (.4)	40 (.1)	19(.1)	24 (T)	3 (T)	216(1.3)
05-72	6(.1)	118 (.5)	47 (.2)	28 (.1)	15 (T)	39 (T)	3 (T)	256 (.9)
05-72	5(.1)	45 (.1)	57 (.4)	34 (.2)	17 (T)	19 (T)	3 (T)	180 (.8)
08-72	16(.3)	14 (.1)	191 (.5)	24 (.3)	19 (T)	16 (T)	4 (T)	284(1.2)
08-72	22(.5)	31 (.4)	161(1.2)	22 (.1)	17(.1)	17 (T)	5 (T)	275(2.3)
08-72	6(.2)	6 (T)	39 (.5)	26 (.1)	3 (T)	16 (T)	4 (T)	100 (.8)
02-73	75(.2)	109(1.0)	328 (.5)	91 (.1)	9 (T)	28 (T)	0	640(1.8)
02-73	34(1.7)	144 (.6)	229 (.3)	29 (T)	22 (T)	20 (T)	1 (T)	479(2.6)
02-73	108(.4)	130 (.8)	623(1.2)	63 (.2)	12 (T)	83 (T)	1 (T)	1020(2.6)
05-73	23(.1)	100 (.3)	257 (.5)	100(1.4)	13 (T)	29 (T)	3 (T)	525(2.3)
05-73	5(.3)	67 (.1)	60 (.2)	40 (.2)	7 (T)	23 (T)	6 (T)	208 (.8)
05-73	12 (T)	53 (.1)	66 (.2)	32 (.9)	4 (T)	28 (T)	0	195(1.2)
08-73	26(.3)	26 (.2)	180(2.5)	74 (.2)	4 (T)	99(.1)	22(.1)	431(3.4)
08-73	9(.2)	9 (.1)	147 (.4)	17 (.1)	5 (T)	37 (T)	5 (T)	229 (.8)
08-73	12 (T)	32 (.4)	264 (.7)	33 (.1)	10(.1)	14 (T)	2 (T)	367(1.3)
10-73	52(.4)	185(1.1)	247 (.1)	36 (.2)	29 (T)	68 (T)	4 (T)	621(1.8)
10-73	15(.1)	68 (.3)	98 (.1)	8 (.6)	4 (T)	17 (T)	0	210(1.1)
10-73	51(.3)	100(1.1)	201 (.2)	28 (.2)	36(.1)	2 (T)	2 (T)	420(1.9)
05-74	2 (T)	39 (.7)	120 (.4)	12 (.1)	7 (T)	7 (T)	2 (T)	189(1.2)
05-74	4(.5)	67 (.5)	103 (.2)	7 (T)	3 (T)	11 (T)	1 (T)	196(1.2)
05-74	7 (T)	60 (.6)	119 (.3)	41 (.1)	6 (T)	6 (T)	0	239(1.0)
07-74	7 (T)	6 (T)	111 (.6)	26 (.2)	11 (T)	13 (T)	3 (T)	177 (.8)
07-74	0	2 (T)	28 (.2)	8 (T)	1 (T)	30 (T)	0	69 (.2)
07-74	27(.2)	6 (.1)	114 (.4)	38 (T)	12 (T)	1 (T)	6 (T)	204 (.7)
10-74	61(.4)	146 (.9)	519 (.7)	58 (.4)	13(.1)	26 (T)	7 (T)	830(2.5)
10-74	37(.3)	98 (.4)	301 (.3)	9 (T)	0	2 (T)	1 (T)	448(1.0)
10-74	45(.5)	225(1.5)	519 (.7)	69 (.1)	14 (T)	39 (T)	12 (T)	923(2.8)

a/ Mostly made up of Turbellaria, Nematoda and Hydracarina.

b/ Trace.

APPENDIX R. Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
STILLWATER RIVER - STATION 005								
03-70	43	18	74	168	4	2	0	309
04-71	15(.1)	9(.1)	163(.2)	5 (T)	1 (T)	0	10 (T)[b]	203 (.4)
10-71	30(.1)	14(.3)	85(.1)	22 (T)	2 (T)	27 (T)	0	180 (.5)
10-71	24(.1)	22(.3)	84(.1)	40 (T)	3 (T)	39 (T)	0	212 (.5)
10-71	5 (T)	5 (T)	48(.1)	3 (T)	1 (T)	5 (T)	0	67 (.1)
02-72	61(.2)	14(.2)	329(.5)	7 (T)	1 (T)	0	1 (T)	413 (.9)
02-72	39(.1)	11(.2)	344(.7)	5(.1)	0	1 (T)	0	400(1.1)
02-72	59(.5)	6 (T)	215(.3)	7 (T)	1 (T)	0	2 (T)	300 (.8)
05-72	0	0	108(.4)	1 (T)	0	0	0	109 (.4)
05-72	14(.3)	1 (T)	154(.6)	10(.1)	0	0	0	179(1.0)
05-72	12(.1)	2(.1)	97(.5)	7(.1)	3 (T)	41 (T)	0	162 (.8)
08-72	5 (T)	1 (T)	14 (T)	12 (T)	0	0	0	32 (T)
08-72	10 (T)	0	12 (T)	16 (T)	1 (T)	0	0	39 (T)
08-72	5(.1)	6 (T)	24(.1)	19 (T)	0	0	0	54 (.2)
02-73	19(.3)	2 (T)	360(.5)	8 (T)	1 (T)	0	1 (T)	391 (.8)
02-73	30(.1)	5 (T)	403(.4)	11(.1)	2 (T)	0	0	451 (.6)
02-73	47(.2)	26(.3)	366(.7)	29 (T)	0	0	3 (T)	471(1.2)
05-73	4 (T)	5 (T)	33(.1)	10(.1)	0	0	0	52 (.2)
05-73	7(.1)	2 (T)	114(.3)	68 (T)	2 (T)	0	1 (T)	194 (.9)
05-73	7 (T)	2 (T)	72(.4)	23(.2)	3 (T)	0	0	107 (.6)
07-73	9(.1)	12(.1)	61(.2)	21(.2)	5 (T)	0	3 (T)	111 (.6)
07-73	11 (T)	7(.1)	38(.1)	25 (T)	4 (T)	0	0	85 (.2)
07-73	26 (T)	5 (T)	31(.1)	54(.1)	4 (T)	0	0	120 (.2)
10-73	51(.4)	48(.4)	94(.2)	852(1.6)	0	0	21(.1)	1066(2.7)
10-73	61(.2)	46(.5)	141(.1)	26(.1)	2 (T)	10 (T)	2 (T)	288 (.9)
10-73	86(.2)	0	132(.1)	37(.1)	3 (T)	0	1 (T)	259 (.4)
02-74	38(.4)	28(.3)	158(.2)	15(.1)	0	1 (T)	2 (T)	242(1.0)
02-74	61(.7)	36(.3)	579(1.1)	49(.1)	0	5 (T)	3 (T)	733(2.2)
02-74	19 (T)	14 (T)	213(.5)	38(.1)	1 (T)	0	1 (T)	286 (.6)
05-74	114(.2)	13(.1)	270(.3)	162(.1)	6 (T)	64 (T)	15 (T)	644 (.7)
05-74	16(.3)	7(.2)	136(.6)	22(.1)	0	0	7 (T)	188(1.2)
05-74	0	3 (T)	48(.2)	11 (T)	2 (T)	0	0	64 (.2)
07-74	42(.3)	12(.6)	105(.1)	18(.1)	0	0	1 (T)	178(1.1)
07-74	7 (T)	5 (T)	96(.3)	4 (T)	0	1 (T)	0	113 (.3)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
STILLWATER RIVER - STATION 005								
07-74	18(.1)	9(.4)	113(.2)	17 (T)	2 (T)	6 (T)	3 (T)	168 (.7)
10-74	34(.1)	8(.2)	162(.2)	28(.1)	1 (T)	1 (T)	4 (T)	238 (.6)
10-74	12 (T)	1 (T)	18 (T)	11 (T)	0	1 (T)	3 (T)	46 (T)
10-74	36(.1)	9(.2)	101(.1)	31 (T)	2 (T)	1 (T)	1 (T)	181 (.4)
STILLWATER RIVER - STATION 006								
08-70	11	4	145	41	2	0	0	203
04-71	92(.4)	83(.3)	300(.1)	65 (T)	0	0	0	540 (.8)
10-71	30(.3)	52(.6)	254(.3)	63(.2)	0	1 (T)	0	400(1.4)
10-71	10(.1)	2(.4)	135(.3)	8(.4)	0	4 (T)	0	159(1.2)
10-71	19(.1)	12(.3)	71(.2)	5(.1)	0	0	0	107 (.7)
02-72	126(.3)	51(.9)	409(.9)	105(.1)	1 (T)	23 (T)	1 (T)	716(2.2)
02-72	29 (T)	26(.2)	339(.8)	41(.1)	0	2 (T)	1 (T)	438(1.1)
02-72	100(.6)	39(.4)	456(.8)	45 (T)	0	7 (T)	1 (T)	648(1.8)
05-72	41(.7)	5 (T)	152(.2)	29(.2)	0	2 (T)	0	229(1.1)
05-72	17(.2)	0	84(.3)	13 (T)	0	27 (T)	0	141 (.5)
05-72	14(.1)	1 (T)	98(.2)	6 (T)	0	6 (T)	0	125 (.3)
08-72	13(.2)	4 (T)	86(.1)	28(.2)	1 (T)	9 (T)	1 (T)	142 (.5)
08-72	19 (T)	3(.1)	110(.2)	17 (T)	2 (T)	15 (T)	1 (T)	167 (.3)
08-72	3 (T)	0	70(.2)	10(.1)	0	0	0	83 (.3)
02-73	55(.2)	17(.1)	195(.2)	28 (T)	1 (T)	0	1 (T)	297 (.5)
02-73	130(.9)	97(.9)	461(.9)	120(.4)	0	23 (T)	1 (T)	832(2.7)
02-73	47(.1)	35(.5)	241(.8)	20 (T)	1 (T)	0	1 (T)	345(1.4)
05-73	19(.1)	22(.3)	399(.8)	26(.4)	1 (T)	41 (T)	1 (T)	509(1.6)
05-73	21(.2)	38(.7)	221(.7)	21(.1)	0	11 (T)	1 (T)	313(1.7)
05-73	28(.1)	4(.1)	129(.2)	15 (T)	1 (T)	2 (T)	0	179 (.4)
07-73	31 (T)	13(.5)	178(.2)	29(.1)	1 (T)	0	1 (T)	253 (.8)
07-73	13 (T)	27(1.0)	201(.5)	35 (T)	1 (T)	0	1 (T)	278(1.5)
07-73	35(.1)	37(1.5)	147(.5)	45(.2)	0	13 (T)	2 (T)	279(2.3)
10-73	13(.2)	15(.2)	125(.1)	11(.4)	1 (T)	1 (T)	0	166 (.9)
10-73	88(.4)	49(.8)	331(.2)	37(.2)	0	6 (T)	1 (T)	512(1.6)
10-73	24(.1)	18(.2)	132(.2)	6 (T)	0	0	2 (T)	182 (.5)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
STILLWATER RIVER - STATION 006								
02-74	186(.5)	98(1.1)	726(1.0)	188(.2)	2 (T)	20 (T)	2 (T)	1222(2.8)
02-74	102(.3)	96(1.3)	383(.7)	168(.4)	0	2 (T)	0	751(2.7)
02-74	41(.2)	20(.1)	376(.7)	21(.1)	1 (T)	46 (T)	0	505(1.1)
05-74	19(.3)	13(.8)	111(.7)	7(.3)	1 (T)	2 (T)	0	153(2.1)
05-74	13(.8)	25(.5)	109(.5)	12(.1)	1 (T)	3 (T)	1 (T)	164(1.9)
05-74	21(.1)	24(.3)	268(.4)	20(.6)	1 (T)	5 (T)	0	339(1.4)
07-74	12 (T)	4(.1)	61(.3)	3 (T)	0	0	0	80 (.4)
07-74	10 (T)	5(.1)	66(.2)	6 (T)	0	0	0	87 (.3)
07-74	13 (T)	1 (T)	49(.1)	0	0	0	0	63 (.1)
10-74	113(.4)	11(.4)	219(.2)	5 (T)	0	47 (T)	1 (T)	396 (.7)
10-74	75(.1)	30(.4)	368(.7)	12(.3)	1 (T)	86 (T)	4 (T)	576(1.5)
10-74	7 (T)	5 (T)	108(.2)	6(.2)	0	0	0	126 (.4)
STILLWATER RIVER - STATION 032								
04-71	31(.1)	131(1.5)	505(.7)	120(.1)	3(.1)	0	0	790(2.5)
10-71	30(.2)	13(.1)	89(.2)	13(.1)	2 (T)	0	0	147 (.6)
10-71	20(.1)	15(.1)	57(.3)	20(.1)	2 (T)	3 (T)	2 (T)	119 (.6)
10-71	24 (T)	4 (T)	61(.2)	1 (T)	0	0	0	90 (.2)
02-72	30(.2)	58(.3)	225(.8)	47(.3)	4 (T)	24 (T)	0	388(1.6)
02-72	44(.1)	86(.8)	201(1.0)	32(.3)	0	25 (T)	0	388(2.2)
02-72	32(.1)	18(.1)	125(.5)	28(.1)	3 (T)	46 (T)	0	252 (.8)
05-72	18(.2)	3 (T)	161(.4)	5 (T)	0	0	0	187 (.6)
05-72	14(.1)	5(.1)	139(.3)	4 (T)	0	2 (T)	0	164 (.5)
05-72	24(.3)	9(.1)	223(.5)	5 (T)	0	0	0	261 (.9)
08-72	32(.1)	3 (T)	206(.3)	32 (T)	0	0	0	273 (.4)
08-72	38 (T)	0	111(.1)	21 (T)	0	0	0	170 (.1)
08-72	13(.1)	3 (T)	120(.2)	21 (T)	1 (T)	0	0	158 (.3)
02-73	14(.1)	80(.5)	81(.5)	64(.3)	3 (T)	19 (T)	0	261(1.4)
02-73	36(.4)	107(.4)	140(.8)	80(.3)	2 (T)	33 (T)	4 (T)	402(1.9)
02-73	103(.2)	94(.2)	180(.9)	78(.4)	4 (T)	133 (T)	1 (T)	593(1.7)
05-73	71(.5)	116(.8)	181(.8)	54(.4)	7 (T)	34 (T)	1 (T)	464(2.5)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
STILLWATER RIVER - STATION 032								
05-73	32(.1)	10(.1)	345(1.0)	93(.1)	1 (T)	7 (T)	1 (T)	489(1.3)
05-73	37(.3)	45(.2)	546(.7)	50(.6)	21(.1)	163 (T)	6 (T)	868(1.9)
07-73	27 (T)	13(.6)	204(.2)	58 (T)	3 (T)	2 (T)	0	307 (.8)
07-73	17(.4)	3 (T)	102(.2)	54(.1)	0	0	2 (T)	178 (.7)
07-73	12(.1)	9(.1)	75(.1)	32 (T)	1 (T)	6 (T)	1 (T)	136 (.3)
10-73	61(.1)	135(.6)	183(.4)	34(.3)	5 (T)	5 (T)	1 (T)	424(1.4)
10-73	84(.2)	194(1.3)	135(.3)	51(.3)	4 (T)	3 (T)	0	471(2.1)
10-73	214(.8)	198(1.1)	411(.8)	60(.5)	14 (T)	8 (T)	10 (T)	915(3.2)
02-74	84(.3)	232(3.2)	269(.9)	47(.7)	2 (T)	70 (T)	1 (T)	705(5.1)
02-74	42(.2)	136(1.5)	102(.5)	47(.8)	3 (T)	9 (T)	5 (T)	344(3.0)
02-74	49(.4)	72(.6)	129(.5)	29(.3)	1 (T)	16 (T)	6 (T)	302(1.8)
05-74	44(.2)	32(.3)	275(.6)	36(.1)	0	10 (T)	4 (T)	401(1.2)
05-74	3 (T)	9(.1)	146(.2)	18(.2)	1 (T)	0	1 (T)	178 (.5)
05-74	35(.1)	12(.1)	171(.3)	27(.1)	3 (T)	9 (T)	1 (T)	258 (.6)
07-74	14(.1)	1 (T)	68(.2)	3 (T)	0	0	0	86 (.3)
07-74	28(.1)	0	79(.4)	5 (T)	0	0	0	112 (.5)
07-74	50(.1)	7(.2)	241(.6)	19 (T)	1 (T)	1 (T)	0	319 (.9)
10-74	45(.1)	25(.2)	298(.3)	20(.4)	11(.1)	10 (T)	0	409(1.1)
10-74	36(.1)	16(.2)	316(.4)	19 (T)	0	46 (T)	1 (T)	434 (.7)
10-74	26(.2)	9(.2)	380(.5)	21(.2)	3 (T)	27 (T)	2 (T)	468(1.1)
STILLWATER RIVER - STATION 033								
08-70	47	31	163	26	3	3	2	275
04-71	25(.1)	101(.9)	154(.6)	3 (T)	3(.1)	18(.5)	0	304(2.2)
10-71	91(.5)	105(1.1)	388(1.3)	64(.3)	1 (T)	2 (T)	0	651(3.2)
10-71	67(.2)	179(1.0)	197(.7)	39(.6)	1 (T)	8 (T)	0	491(2.5)
10-71	57(.3)	91(1.0)	177(.9)	229(.5)	4 (T)	23 (T)	1 (T)	582(2.7)
02-72	89(.5)	156(1.8)	401(.9)	185(.4)	18(.1)	70 (T)	2 (T)	921(3.7)
02-72	93(1.1)	125 (.8)	465(1.5)	99(.4)	5 (T)	114(.1)	2 (T)	903(3.9)
02-72	68(.7)	122 (.7)	297(2.2)	65(.3)	3 (T)	54 (T)	1 (T)	610(3.9)
05-72	34(.2)	25 (.1)	215(1.0)	11(.1)	2 (T)	2 (T)	0	289(1.4)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
STILLWATER RIVER STATION 033								
05-72	13(.5)	6(.2)	105(.7)	3(.1)	2 (T)	0	0	129(1.5)
05-72	24(.2)	17(.3)	82(.5)	14 (T)	0	72 (T)	0	209(1.0)
08-72	57(.1)	6 (T)	188(.2)	35 (T)	9 (T)	4 (T)	1 (T)	300 (.3)
08-72	73 (T)	2 (T)	180(.3)	37(.2)	30 (T)	9 (T)	0	331 (.5)
08-72	37(.4)	4 (T)	253(.5)	25(.2)	2 (T)	0	0	321(1.1)
02-73	141(2.8)	158(1.6)	225(1.8)	323(.2)	3 (T)	35 (T)	3 (T)	888(6.4)
02-73	124(.7)	143(1.0)	204(1.1)	100(1.0)	8 (T)	118 (T)	7 (T)	704(3.8)
02-73	48(1.5)	70(1.0)	203(1.4)	134(.4)	5 (T)	62 (T)	3 (T)	525(4.3)
05-73	37(1.5)	81(1.7)	122(1.4)	38(.2)	1 (T)	0	2 (T)	281(4.8)
05-73	15(.1)	30(.1)	80(.8)	65(.5)	14 (T)	0	2 (T)	206(1.6)
05-73	20 (T)	29(.5)	271(.5)	123(.8)	9 (T)	59 (T)	2 (T)	513(1.8)
08-73	61(.1)	25(.1)	202(.5)	35(.1)	4 (T)	12 (T)	6 (T)	345 (.8)
08-73	71(.1)	5 (T)	80(.2)	57(.1)	2 (T)	37 (T)	5 (T)	257 (.4)
08-73	14 (T)	3 (T)	108(.2)	5(.2)	3 (T)	4 (T)	3 (T)	140 (.4)
10-73	39(.5)	63(.2)	134(.2)	337(.3)	6 (T)	24 (T)	3 (T)	606(1.2)
10-73	66(.2)	141(1.1)	290(.6)	378(.6)	4 (T)	94(.1)	10 (T)	983(2.6)
10-73	107(.4)	150(.8)	374(1.0)	374(1.0)	4 (T)	37 (T)	4 (T)	1050(3.2)
02-74	77(.3)	103(.5)	319(1.3)	30(.7)	2 (T)	51 (T)	4 (T)	586(2.8)
02-74	65(.2)	28(.1)	162(.8)	11(.2)	0	6 (T)	0	272(1.3)
02-74	236(1.5)	111(.8)	396(1.9)	33(.7)	1 (T)	91 (T)	0	868(4.9)
05-74	52(.3)	211(2.5)	801(2.3)	89(.4)	8 (T)	106 (T)	5 (T)	1272(5.5)
05-74	63(1.0)	160(2.3)	461(1.2)	69(.4)	5 (T)	30 (T)	2 (T)	790(4.9)
05-74	88(.5)	158(3.2)	457(2.0)	94(.5)	3 (T)	34 (T)	1 (T)	835(6.2)
07-74	16(.2)	6(.1)	86(.6)	23(.1)	1 (T)	0	0	132(1.0)
07-74	31(.2)	10(.1)	103(.5)	15(.2)	2 (T)	10 (T)	0	171(1.0)
07-74	40(.7)	11(.1)	128(.9)	28(.2)	0	61 (T)	1 (T)	269(1.9)
10-74	60(.2)	17(.1)	349(.8)	47(.6)	2 (T)	12 (T)	1 (T)	488(1.7)
10-74	101(.1)	43(.3)	220(.5)	27(.1)	0	0	4 (T)	395(1.0)
10-74	89(.1)	23(.1)	264(.5)	89(.5)	3 (T)	18 (T)	2 (T)	488(1.2)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
STILLWATER RIVER - STATION 034								
08-70	21	41	159	30	7	0	0	258
04-71	45(.3)	198(.7)	577(1.0)	48(.2)	10 (T)	0	0	878(2.2)
10-71	41(.6)	51(.2)	112(.8)	121(.4)	13 (T)	0	0	338(1.8)
10-71	47(1.6)	425(2.1)	191(.5)	46(.3)	9 (T)	67 (T)	0	785(4.5)
10-71	36(1.5)	197(3.3)	151(.7)	101(.4)	19 (T)	0	9 (T)	513(5.9)
02-72	156(.6)	216(.6)	320(1.3)	228(.7)	7 (T)	84 (T)	16(.1)	1027(3.3)
02-72	66(.6)	168(.7)	210(.3)	142(.5)	6 (T)	22 (T)	0	614(2.1)
02-72	112(.7)	276(1.0)	238(.6)	167(.4)	10(.1)	98 (T)	4 (T)	905(2.8)
05-72	15(.1)	2 (T)	188(1.2)	4 (T)	0	2 (T)	0	211(1.3)
05-72	12 (T)	1 (T)	345(1.7)	135(.1)	1 (T)	7 (T)	0	501(1.8)
05-72	16(.1)	3 (T)	108(.3)	20(.1)	1 (T)	10 (T)	0	158 (.5)
08-72	61(.2)	103(.2)	348(.5)	75(.3)	10 (T)	32 (T)	5 (T)	634(1.2)
08-72	43(.1)	45(.1)	293(.3)	74(.3)	7 (T)	33 (T)	2 (T)	497 (.8)
08-72	21(.1)	34(.2)	112(.2)	22 (T)	5 (T)	0	0	194 (.5)
02-73	185(1.5)	234(1.9)	325(1.6)	163(1.3)	3 (T)	167 (T)	1 (T)	1081(6.3)
02-73	28(.7)	95(.7)	169(.8)	108(.3)	11 (T)	68 (T)	4 (T)	483(2.5)
02-73	26(1.5)	56(.3)	171(1.1)	69(.5)	5 (T)	57 (T)	2 (T)	386(3.4)
05-73	51(.4)	156(.5)	465(1.7)	305(.7)	9 (T)	0	2 (T)	988(3.3)
05-73	28(.5)	45(.3)	482(.5)	339(1.3)	43(.1)	32 (T)	0	969(2.7)
05-73	60(1.8)	171(1.2)	258(.4)	336(.9)	33 (T)	0	14 (T)	872(4.3)
08-73	66(.2)	37(.1)	199(.4)	60(.3)	16 (T)	109 (T)	9 (T)	496(1.0)
08-73	17 (T)	28(.1)	95(.2)	95(.3)	11 (T)	10 (T)	8 (T)	264 (.6)
08-73	48(.1)	38(.1)	257(.4)	58(.2)	24 (T)	23 (T)	2 (T)	450 (.8)
10-73	43(.1)	84(.3)	110(.2)	46(.3)	1 (T)	6 (T)	1 (T)	291 (.9)
10-73	47(1.6)	330(2.4)	133(.3)	95(.4)	3 (T)	8 (T)	4 (T)	620(4.7)
10-73	86(.2)	266(1.2)	163(.4)	98(.5)	13 (T)	83 (T)	13 (T)	722(2.3)
02-74	64(.5)	213(1.0)	167(.6)	54(.8)	5 (T)	39 (T)	5 (T)	547(2.9)
02-74	64(.7)	62(.1)	329(.6)	98(.2)	10 (T)	56 (T)	7 (T)	626(1.6)
02-74	73(.4)	182(.9)	221(1.1)	60(.3)	4 (T)	31 (T)	16 (T)	587(2.7)
05-74	68(.6)	293(1.1)	482(.8)	197(1.2)	48 (T)	119 (T)	25(.1)	1232(3.8)
05-74	49(1.3)	126(.5)	470(.8)	105(.3)	16 (T)	128(.1)	26(.1)	920(3.1)
05-74	16(.2)	111(.4)	304(.5)	40(.3)	7 (T)	11 (T)	3 (T)	492(1.4)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
STILLWATER RIVER - STATION 034								
07-74	9 (T)	19(.2)	30(.2)	6 (T)	2 (T)	0	0	66 (.4)
07-74	27(.1)	9(.1)	59(.7)	3 (T)	0	0	1 (T)	99 (.9)
07-74	27(.1)	24(.2)	186(.4)	41(.1)	6 (T)	0	1 (T)	285 (.8)
10-74	65(.6)	37(.1)	254(.3)	111(.6)	7 (T)	24 (T)	5 (T)	503(1.6)
10-74	92(.3)	76 (T)	154(.2)	39(.2)	2 (T)	5 (T)	2 (T)	370 (.7)
10-74	91(.4)	85(.4)	142(.3)	39(.4)	3 (T)	14 (T)	0	374(1.5)
STILLWATER RIVER - STATION 035								
08-70	29	74	64	324	1	2	0	494
10-71	41(.4)	524(8.8)	156(.2)	28 (T)	19 (T)	0	29 (T)	797(9.4)
10-71	39(.2)	533(9.1)	109(.5)	42(.3)	24 (T)	0	20 (T)	767(10.1)
10-71	32(.1)	242(3.1)	205(.4)	60(.6)	14 (T)	0	30 (T)	583(4.2)
02-72	51(.5)	190(1.3)	119(.8)	13(.2)	17 (T)	18 (T)	1 (T)	409(2.8)
02-72	22(.4)	82(.7)	112(.3)	10 (T)	5 (T)	9 (T)	0	240(1.4)
02-72	26(.7)	248(1.7)	162(.2)	31(.5)	19(.1)	41 (T)	2 (T)	529(2.7)
05-72	3(.1)	3 (T)	9(.1)	30(.1)	0	1 (T)	0	46 (.3)
05-72	2 (T)	0	4(.1)	35(.1)	0	7 (T)	0	48 (.2)
05-72	7 (T)	28(.2)	106(.7)	258(1.1)	10 (T)	7 (T)	1[c]	417(2.0)
08-72	7 (T)	80(.3)	50(.2)	137(.1)	0	0	0	274 (.6)
08-72	5 (T)	174(1.2)	41(.2)	136(.1)	6 (T)	0	3 (T)	365(1.5)
08-72	5 (T)	38(.1)	81(.3)	110(.1)	5 (T)	0	1 (T)	240 (.5)
02-73	42(.7)	338(2.8)	328(.5)	117(.6)	15 (T)	40 (T)	0	880(4.6)
02-73	26(.6)	345(3.8)	500(.8)	165(.5)	9 (T)	28 (T)	1 (T)	1074(5.7)
02-73	66(1.5)	499(5.7)	421(.7)	156(1.0)	31(.1)	59 (T)	1 (T)	1233(9.0)
05-73	21(.6)	94(1.1)	184(.5)	190(.2)	5(.1)	0	0	494(2.5)
05-73	14 (T)	20(.1)	110(.4)	90(.1)	3 (T)	0	0	237 (.6)
05-73	16(.1)	35(.2)	149(.6)	96(1.8)	6 (T)	1 (T)	1 (T)	304(2.7)
08-73	14(.1)	21(.1)	96(.1)	559(.8)	19 (T)	0	1 (T)	710(1.1)
08-73	11(.1)	38(.3)	103(.2)	213(.4)	4 (T)	0	3 (T)	372(1.0)
08-73	9 (T)	34(.1)	105(.3)	326(.4)	10 (T)	0	0	484 (.8)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
STILLWATER RIVER - STATION 035								
10-73	57(.4)	491(5.6)	112(.2)	50(.5)	13(T)	0	2 (T)	725(6.7)
10-73	58(.1)	214(1.0)	141(.3)	19(.2)	7(T)	6 (T)	3 (T)	448(1.6)
10-73	61(.4)	220(1.3)	160(.5)	55(.5)	12(T)	1 (T)	4 (T)	513(2.7)
02-74	28(.3)	281(2.4)	212(.9)	37(.1)	10(T)	0	2 (T)	570(3.7)
02-74	44(.5)	442(4.4)	175(.3)	58(.2)	9(T)	1 (T)	1 (T)	730(5.4)
02-74	54(.2)	137(.4)	221(1.4)	34(1.0)	3(T)	3 (T)	1 (T)	453(3.0)
05-74	57(.7)	320(1.4)	386(1.6)	75(.1)	21(T)	13 (T)	8(.2)	880(4.0)
05-74	7(.1)	241(1.1)	195(.6)	55(.9)	12(T)	8 (T)	3 (T)	521(2.7)
05-74	11(.2)	208(1.4)	151(.6)	63(.1)	12(T)	5 (T)	2 (T)	452(2.3)
07-74	2 (T)	14(.2)	28(.1)	27(.2)	0	0	1 (T)	72 (.5)
07-74	3 (T)	7 (T)	28(.1)	28(.1)	8(T)	1(.1)	0	75 (.3)
07-74	5(.3)	25(.8)	21(.1)	19(.2)	2(T)	0	0	72(1.4)
10-74	15 (T)	54(.5)	79(.1)	22(.2)	5(T)	2 (T)	0	177 (.8)
10-74	51(.3)	182(.6)	395(.4)	48(.1)	50(T)	51 (T)	4 (T)	781(1.4)
10-74	48(.8)	107(.4)	210(.1)	28(.1)	10(T)	29 (T)	0	432(1.4)
VERDIGRIS CREEK - STATION 043								
08-72	0	0	0	1 (T)	0	0	0	1 (T)
08-72	0	2 (T)	0	1 (T)	0	0	0	3 (T)
08-72	1 (T)	0	0	0	0	0	0	1 (T)
VERDIGRIS CREEK - STATION 055								
07-74	2 (T)	0	3 (T)	2 (T)	0	2 (T)	2 (T)	11 (T)
07-74	9 (T)	15(.2)	61(.1)	19 (T)	0	118(.1)	8 (T)	230(.4)
07-74	4 (T)	10(.1)	17(.1)	0	0	3 (T)	4 (T)	38(.2)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
MOUNTAIN VIEW CREEK - STATION 044								
08-72	3 (T)	7(.2)	23(.1)	16 (T)	2 (T)	4(.1)	0	55(.4)
08-72	21 (T)	6 (T)	27(.1)	4 (T)	0	0	0	58(.1)
08-72	10 (T)	5(.2)	27 (T)	2 (T)	0	0	0	44(.2)
07-73	0	10(.2)	30(.3)	10 (T)	0	0	1 (T)	51(.5)
07-73	10 (T)	9(.2)	46(.3)	1 (T)	1 (T)	0	0	67(.5)
07-73	9 (T)	14 (T)	26(.1)	10 (T)	0	2 (T)	0	61(.1)
07-74	19 (T)	21(.4)	26(.2)	9 (T)	2(.1)	8(.3)	2 (T)	87(1.0)
07-74	1 (T)	5 (T)	13(.1)	21(.1)	0	3 (T)	2 (T)	45(.2)
07-74	18 (T)	11 (T)	56(.2)	14 (T)	0	4(.1)	3 (T)	106(.3)
NYE CREEK - STATION 016								
08-72	4 (T)	2 (T)	6 (T)	24 (T)	1 (T)	5 (T)	1 (T)	43 (T)
08-72	0	1 (T)	8 (T)	8 (T)	1 (T)	0	2 (T)	20 (T)
08-72	0	1 (T)	3 (T)	0	0	0	3 (T)	7 (T)
07-73	0	12(.2)	66(.1)	12 (T)	0	0	5 (T)	95(.3)
07-73	0	0	14 (T)	5 (T)	0	0	2 (T)	21 (T)
07-73	1 (T)	4 (T)	34(.1)	4 (T)	0	0	8 (T)	51(.1)
07-74	0	4 (T)	17 (T)	7(.1)	0	2 (T)	0	30(.1)
07-74	1 (T)	12(.1)	18 (T)	14 (T)	0	1 (T)	5 (T)	51(.1)
07-74	0	11 (T)	8 (T)	4 (T)	1 (T)	0	0	24 (T)
SILVER CREEK - STATION 042								
08-72	0	1 (T)	8 (T)	1 (T)	5 (T)	1(.1)	2 (T)	18(.1)
08-72	15(.1)	16(.1)	134(.2)	28(.1)	37 (T)	2 (T)	2 (T)	234(.5)
08-72	5 (T)	15(.1)	132(.3)	7(.1)	17 (T)	3(.1)	4 (T)	183(.6)
07-73	10 (T)	7(.1)	58(.1)	26 (T)	100 (T)	1(.1)	0	202(.3)
07-73	24(.1)	23(.1)	60(.1)	34 (T)	82 (T)	4(.1)	0	227(.4)
07-73	30 (T)	34(.1)	168(.1)	86(.8)	99 (T)	5(.3)	1(.8)	423(2.1)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
LITTLE ROCKY CREEK - STATION 015								
08-72	41(.1)	60(.7)	129(.5)	22(.1)	2 (T)	167(.1)	14(.1)	435(1.6)
08-72	17(.1)	11(.1)	47(.4)	3 (T)	4 (T)	10 (T)	0	92 (.6)
08-72	62(.1)	27(.1)	74(.4)	10 (T)	6 (T)	127 (T)	4 (T)	310 (.6)
07-73	26 (T)	29(.4)	42(1.1)	0	7 (T)	32 (T)	7 (T)	143(1.5)
07-73	29 (T)	20(.2)	29(1.3)	1 (T)	4 (T)	29 (T)	4(.1)	116(1.6)
07-73	59(.1)	52(.8)	53(.5)	21 (T)	5 (T)	58 (T)	11 (T)	259(1.4)
07-74	23(.2)	22(.1)	19(.1)	7 (T)	3 (T)	1 (T)	4 (T)	79 (.4)
07-74	50 (T)	34(.3)	67(.4)	6 (T)	1 (T)	2 (T)	7 (T)	167 (.7)
07-74	23(.2)	29(.3)	49(.6)	3 (T)	6 (T)	5 (T)	4 (T)	119(1.1)
LITTLE ROCKY CREEK - STATION 031								
10-71	34 (T)	4 (T)	71(.1)	72(1.1)	12 (T)	3 (T)	0	196(1.2)
10-71	14 (T)	1 (T)	19(.1)	20(2.1)	7 (T)	2 (T)	0	63(2.2)
10-71	38(.1)	15(.1)	85(.1)	59(1.3)	11(.1)	2 (T)	0	210(1.7)
02-72	17(.3)	51 (T)	119(.3)	322(1.9)	40 (T)	1 (T)	52(.1)	602(2.6)
02-72	26 (T)	78(.1)	126(.2)	424(3.5)	103(.1)	0	26 (T)	783(3.9)
02-72	8 (T)	78(.1)	113(.2)	826(.4)	80 (T)	0	31 (T)	1140 (.7)
05-72	1 (T)	67(.4)	92(.5)	247(4.3)	22(.1)	1 (T)	16 (T)	446(5.3)
05-72	5(.1)	103(.3)	60(.1)	164(.5)	12 (T)	2 (T)	14(.1)	360(1.1)
05-72	5(.1)	65(.3)	117(.7)	170(1.5)	7 (T)	6 (T)	18(.1)	388(2.7)
08-72	14 (T)	56(.6)	218(.5)	15(.1)	24 (T)	0	12(.1)	339(1.3)
08-72	8 (T)	46(.4)	89(.4)	9 (T)	2 (T)	0	1 (T)	155 (.8)
08-72	17 (T)	28(.2)	157(.2)	20 (T)	19(.1)	0	5 (T)	246 (.5)
02-73	28(.4)	101(.6)	113(.5)	171(.4)	48(.1)	0	40(.1)	501(2.1)
02-73	16(.1)	93(.5)	51(.3)	172(1.0)	65(.1)	6 (T)	28 (T)	431(2.0)
02-73	44(.1)	62(.1)	148(.2)	432(2.3)	46 (T)	0	31 (T)	763(2.7)
05-73	8 (T)	44(.2)	130(.7)	50(.2)	27 (T)	0	24 (T)	283(1.1)
05-73	4 (T)	101(.5)	137(.3)	77(2.8)	18 (T)	0	14 (T)	351(3.6)
05-73	4 (T)	81(.5)	71(.4)	130(.5)	37 (T)	0	15 (T)	338(1.4)
07-73	20 (T)	78(.3)	153(.5)	44(.1)	32 (T)	0	4 (T)	331 (.9)
07-73	4 (T)	21(.2)	62(.1)	15 (T)	13 (T)	0	8 (T)	123 (.3)
07-73	7 (T)	30(.2)	196(.2)	74(.1)	45 (T)	0	12(.1)	364 (.6)

APPENDIX R. continued ( ). Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Stillwater River drainage.

DATE	PLECOPTERA	TRICHOPTERA	EPHEMEROPTERA	DIPTERA	COLEOPTERA	ANNELIDA	OTHER[a]	TOTAL
LITTLE ROCKY CREEK - STATION 031								
10-73	21 (T)	157(.8)	86(.2)	168(.3)	148(.1)	6 (T)	18(.1)	604(1.5)
10-73	67(.8)	129(.2)	52(.1)	85(.1)	41(.1)	3 (T)	11 (T)	388(1.3)
10-73	54(.1)	233(.6)	132(.1)	176(.7)	83(.1)	2 (T)	20 (T)	700(1.6)
02-74	17(.1)	108(.4)	75(.3)	106(.4)	18 (T)	0	9 (T)	333(1.2)
02-74	25(.3)	77(.4)	76(.1)	55(.1)	5 (T)	0	4 (T)	242 (.9)
02-74	5 (T)	63(.2)	22(.2)	121(.2)	14 (T)	0	6 (T)	231 (.6)
05-74	2 (T)	77(.5)	331(.5)	57(.1)	6 (T)	2 (T)	4 (T)	479(1.1)
05-74	6(.1)	85(.5)	209(.4)	49(.1)	9 (T)	1 (T)	9 (T)	368(1.1)
05-74	15(.2)	46(.2)	314(.5)	57(1.3)	13 (T)	0	6 (T)	451(2.3)
07-74	10 (T)	35(.2)	50(.7)	4 (T)	30 (T)	2 (T)	10 (T)	141 (.9)
07-74	12(.1)	26(.2)	49(1.4)	2 (T)	11 (T)	0	4 (T)	104(1.7)
07-74	16(.1)	24(.2)	52(1.3)	8 (T)	18 (T)	1 (T)	4 (T)	123(1.6)
10-74	39(.1)	48(.4)	172(.2)	64(.1)	66(.1)	0	1 (T)	390 (.9)
10-74	67(.2)	165(1.4)	140(.1)	35(.1)	26 (T)	1 (T)	48 (T)	482(1.8)
10-74	192(.3)	288(1.8)	545(.5)	214(.2)	72(.1)	0	12 (T)	1323(3.0)

a/ Mostly made up of Turbellaria, Nematoda and Hydracarina

b/ Trace

c/ Snail

Appendix S. Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the West Fork Stillwater River drainage.

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
		West Fork Stillwater River - Station 054						
7-73	34(.1)	47(.1)	168(.3)	6(T)[b]	2(T)	158(T)	2(T)	417(.5)
7-73	54(T)	76(.3)	139(.5)	24(.1)	0	11(T)	1(T)	305(.9)
7-73	23(T)	33(.3)	69(.3)	7(T)	0	93(.1)	0	225(.7)
5-74	40(.3)	62(.5)	177(.8)	34(.2)	0	29(T)	6(T)	348(1.8)
5-74	22(.2)	40(.2)	114(.2)	14(.3)	0	39(T)	0	229(.9)
5-74	20(.1)	73(.4)	60(.1)	2(T)	0	13(T)	0	168(.6)
7-74	12(T)	17(.4)	44(.1)	6(.1)	0	0	0	79(.6)
7-74	7(T)	16(.1)	37(.2)	2(T)	0	0	0	62(.3)
7-74	3(T)	6(.1)	14(.1)	9(T)	0	0	1(T)	33(.2)
9-74	18(.1)	13(.1)	40(.1)	5(T)	0	0	0	76(.3)
9-74	20(T)	55(T)	140(.2)	9(.1)	0	73(T)	5(T)	302(.3)
9-74	51(.2)	24(.6)	93(.1)	9(T)	0	71(T)	2(T)	250(.9)
		West Fork Stillwater River - Station 070						
4-75	5(.1)	29(.2)	98(.2)	1(T)	0	0	3(T)	136(.5)
4-75	10(.1)	76(.6)	118(.3)	10(T)	0	0	0	214(1.0)
4-75	6(T)	8(T)	96(.5)	7(T)	0	0	2(T)	119(.5)
11-75	55	22	90	2	0	141	0	310
11-75	106	36	105	3	0	38	0	288
11-75	89	18	156	2	0	45	0	310
2-76	86(.2)	19(.1)	70(.2)	0	0	5(T)	7(T)	187(.5)
2-76	43(.3)	2(T)	101(.2)	8(T)	0	0	2(T)	156(.5)
2-76	84(.8)	6(T)	66(.4)	2(T)	0	0	2(T)	160(.2)
5-76	28	2	59	4	0	2	0	95
5-76	29	4	69	7	0	16	0	125
5-76	21	12	38	4	0	3	0	203
		West Fork Stillwater River - Station 037						
8-70	19	18	208	20	0	0	0	265
10-71	53(.1)	47(.1)	94(.4)	3(T)	0	24(T)	0	221(.6)
10-71	65(T)	35(.2)	137(.4)	3(T)	2(T)	39(T)	0	281(.6)
10-71	43(T)	28(.1)	74(.2)	7(.4)	1(T)	17(T)	0	170(.7)
5-72	1(T)	6(T)	6(.1)	1(T)	0	33(.1)	0	47(.2)
5-72	4(T)	3(T)	7(.1)	4(T)	0	46(T)	0	64(.1)
5-72	9(T)	11(.1)	48(.2)	19(.1)	0	140(.1)	1	228(.5)
8-72	24(T)	12(T)	66(.3)	5(.1)	0	67(T)	0	174(.4)
8-72	21(T)	6(T)	44(.2)	11(T)	0	50(T)	0	132(.2)
8-72	13(T)	6(T)	71(.2)	4(.1)	0	34(T)	0	128(.3)
5-73	11(.1)	23(.2)	86(.5)	4(T)	0	33(T)	5(T)	162(.8)
5-73	22(T)	36(.4)	215(1.4)	13(T)	0	13(T)	10(T)	309(1.8)
5-73	16(T)	29(.4)	161(1.2)	3(.1)	1(T)	48(T)	8(.1)	266(1.8)
7-73	64(.1)	3(T)	188(.4)	21(.2)	0	39(T)	1(T)	316(.7)
7-73	32(T)	7(T)	207(.4)	17(.4)	0	122(T)	1(T)	386(.8)
7-73	33(T)	10(.1)	181(.4)	14(.1)	1(T)	146(T)	2(T)	387(.6)
10-73	78(.1)	20(T)	125(.2)	4(T)	2(T)	13(T)	2(T)	244(.3)
10-73	41(.1)	28(.2)	104(.2)	11(T)	1(T)	15(T)	1(T)	201(.5)
10-73	16(T)	14(.2)	58(.1)	7(.3)	3(T)	1(T)	1(T)	100(.6)
5-74	49(T)	45(.6)	132(1.1)	19(T)	1(T)	10(T)	2(T)	258(1.7)
5-74	10(T)	98(.2)	117(.8)	15(.2)	0	5(T)	1(T)	246(1.2)
5-74	45(.1)	49(.3)	181(1.1)	22(.1)	2(T)	48(T)	7(T)	354(1.6)

a - Mostly made up of Turbellaria, Nematoda, and Hydracarina
b - Trace

Appendix S. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[d]	Total
			West Fork Stillwater River - Station 037 continued					
7-74	5(T)	4(T)	39(.2)	2(T)	0	0	0	50(.2)
7-74	5(T)	27(.1)	39(.1)	1(T)	1(T)	2(T)	0	75(.2)
7-74	3(T)	1(T)	10(T)	2(T)	0	0	0	16(T)
10-74	35(.2)	36(.2)	87(.1)	10(.1)	2(T)	43(T)	3(T)	216(.6)
10-74	32(.1)	35(.2)	61(.1)	14(T)	0	31(T)	2(T)	175(.4)
10-74	20(T)	7(T)	83(.2)	16(.1)	0	16(T)	4(T)	146(.3)
4-75	48(.2)	19(.1)	113(.7)	19(.1)	4(T)	1(T)	2(T)	206(1.1)
4-75	23(.1)	11(T)	58(.2)	4(.3)	0	0	0	96(.6)
4-75	14(T)	23(.5)	65(.8)	1(T)	0	0	0	103(1.3)
7-75	1	10	26	3	0	2	0	42
7-75	0	7	59	5	0	1	0	72
7-75	2	4	41	1	0	1	0	49
11-75	117	27	138	6	0	78	2	368
11-75	77	40	91	1	0	0	26	235
11-75	70	27	83	3	0	26	0	209
2-76	228(1.4)	25(.2)	147(1.6)	6(T)	0	5(T)	3(T)	414(3.2)
2-76	231	20	102	5	0	1	3	362
2-76	90(.6)	24(T)	45(.3)	3(T)	0	0	0	162(.9)
5-76	23	22	51	12	0	6	0	114
5-76	11	24	86	20	0	3	0	144
5-76	9	14	38	9	3	0	1*	73
			West Fork Stillwater River - Station 00/					
8-70	18	15	224	8	4	3	0	272
4-71	69(.1)	14(.1)	228(1.2)	5(T)	8(T)	0	23(T)	347(1.4)
10-71	90(.2)	13(T)	64(.1)	3(.3)	36(T)	99(T)	0	305(.6)
10-71	71(.4)	25(.1)	138(.3)	18(.3)	11(T)	3(T)	0	226(1.1)
10-71	103(.2)	20(.4)	70(.3)	2(.4)	1(T)	27(T)	0	223(1.3)
2-72	186(.2)	22(.2)	89(.5)	13(.3)	0	17(T)	7(T)	334(1.2)
2-72	170(.4)	37(.2)	115(.6)	64(2.5)	0	36(T)	4(T)	426(3.7)
2-72	230(.5)	25(.2)	196(1.1)	59(2.5)	2(T)	13(T)	3(T)	528(4.3)
5-72	48(.1)	6(.1)	366(.9)	10(T)	0	31(T)	0	461(1.1)
5-72	54(.1)	9(T)	260(.6)	104(.2)	3(T)	19(T)	1(T)	450(.9)
5-72	61(.1)	31(.2)	283(1.1)	24(.2)	6(T)	38(T)	1(T)	444(1.6)
8-72	76(.2)	6(T)	97(.3)	59(.1)	1(T)	62(T)	1(T)	302(.6)
8-72	6(T)	3(T)	29(.1)	2(T)	1(T)	2(T)	0	43(.1)
8-72	25(.1)	1(T)	39(.2)	11(.7)	1(T)	0	2(T)	79(1.0)
2-73	277(.4)	46(.4)	265(1.3)	26(.3)	3(T)	195(T)	10(T)	822(2.4)
2-73	71(.2)	55(.4)	251(1.5)	20(.1)	4(T)	108(T)	14(T)	523(2.2)
2-73	100(.6)	73(.5)	214(1.4)	41(.7)	15(T)	333(.1)	28(T)	804(3.3)
5-73	61(.2)	24(.1)	123(.5)	86(.5)	34(.1)	12(T)	27(.1)	367(1.5)
5-73	21(.3)	15(.1)	124(.8)	24(.1)	4(T)	254(.1)	5(T)	447(1.4)
5-73	56(.8)	48(.4)	208(.5)	38(.2)	12(T)	247(.1)	15(T)	624(2.0)
7-73	29(.5)	9(T)	169(.4)	36(T)	2(T)	186(.1)	3(T)	434(1.0)
7-73	13(T)	11(T)	54(.4)	11(T)	0	38(T)	3(T)	130(.4)
7-73	12(.1)	20(.2)	162(.2)	23(T)	1(T)	43(T)	1(T)	262(.5)
10-73	121(.2)	36(.1)	131(.3)	10(.4)	6(T)	39(T)	8(.1)	351(1.1)
10-73	250(.3)	32(.2)	170(.5)	12(.1)	9(T)	9(T)	20(.1)	502(1.2)
10-73	83(.3)	31(.1)	90(.2)	10(.3)	0	54(T)	7(T)	275(.9)
2-74	105(.2)	22(.1)	64(.2)	12(T)	0	11(T)	6(T)	220(.5)
2-74	27(.2)	31(.1)	88(.7)	5(T)	8(T)	0	3(T)	162(1.0)
2-74	17(T)	14(.1)	90(.3)	17(.1)	5(T)	17(T)	22(T)	182(.5)

Appendix S. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
	West Fork Stillwater River - Station 007 - continued							
5-74	31(.1)	20(.1)	136(.6)	5(T)	0	8(T)	2(T)	202(.8)
5-74	47(.1)	10(.1)	107(.2)	7(.1)	1(T)	8(T)	4(T)	184(.5)
5-74	86(.1)	22(.2)	156(.9)	7(T)	1(T)	61(T)	13(T)	346(1.2)
7-74	4(T)	9(.2)	59(.7)	4(T)	2(T)	0	0	78(.9)
7-74	18(.1)	25(.1)	50(.4)	11(.1)	1(T)	27(T)	0	132(.7)
7-74	9(T)	22(T)	42(.1)	9(T)	0	0	1(T)	83(.1)
10-74	74(.2)	28(.1)	341(.5)	20(.5)	3(T)	282(.1)	4(T)	752(1.4)
10-74	25(.1)	44(T)	176(.3)	18(T)	4(T)	4(T)	1(T)	272(.4)
10-74	46(.1)	17(.1)	169(.3)	16(T)	6(T)	50(T)	6(T)	310(.5)
	West Fork Stillwater River - Station 076							
7-75	7	2	38	4	0	2	0	53
7-75	9	5	51	5	1	2	1	74
7-75	11	4	38	4	0	2	1	60
11-75	17	12	86	305	0	4	1	425
11-75	75	46	118	112	5	15	3	374
11-75	18	55	92	257	0	19	1	442
2-76	111	38	141	558	0	4	2	854
2-76	62(.5)	25(.7)	104(1.4)	388(.6)	0	0	4	583
2-76	60	25	43	420	0	4	2	554
4-76	13	45	66	292	0	5	4	425
4-76	12	7	39	271	0	8	11	348
4-76	21	19	63	192	0	5	2	302
	West Fork Stillwater River - Station 036							
8-70	26	27	207	16	3	18	1	298
10-71	85(.4)	17(.3)	182(1.1)	80(.2)	8(T)	0	34(T)	406(2.0)
10-71	26(.1)	58(.5)	93(.6)	13(T)	9(T)	0	24(T)	223(1.2)
10-71	40(.3)	26(.4)	136(1.1)	82(.3)	5(T)	0	8(T)	297(2.1)
2-72	153(.5)	23(.1)	348(1.6)	180(.3)	8(T)	242(.1)	1(T)	955(2.6)
2-72	161(.7)	38(.6)	441(2.4)	80(.6)	13(T)	187(.1)	3(T)	925(4.4)
2-72	83(.2)	39(.3)	136(.6)	31(.1)	9(.1)	52(T)	1(T)	351(1.3)
5-72	17(.5)	0	88(.4)	11(T)	3(T)	10(T)	2(T)	131(.9)
5-72	22(.1)	2(T)	68(.5)	37(.1)	1(T)	7(T)	0	137(.7)
5-72	12(.5)	3(.1)	28(.7)	0	0	0	0	43(1.3)
8-72	27(T)	7(.1)	79(.3)	32(T)	4(T)	109(T)	8(T)	266(.4)
8-72	29(.1)	5(.3)	124(.1)	25(.2)	6(T)	11(T)	1(T)	201(.7)
8-72	58(.3)	29(.5)	151(.4)	29(T)	4(T)	66(T)	2(T)	339(1.2)
2-73	227(1.6)	47(.6)	419(2.1)	134(.3)	5(T)	142(T)	1(T)	975(4.6)
2-73	89(.5)	27(.2)	324(2.5)	56(1.3)	9(T)	190(.1)	3(T)	698(4.6)
2-73	36(.1)	33(.1)	121(.8)	32(.3)	2(T)	63(T)	5(T)	292(1.3)
5-73	40(.1)	88(.5)	221(.9)	66(.3)	7(.1)	57(T)	3(T)	482(1.9)
5-73	39(.1)	20(.1)	185(.8)	48(.1)	10(T)	68(T)	4(T)	374(1.1)
5-73	39(.5)	71(.1)	426(1.5)	91(.5)	8(T)	187(T)	1(T)	823(2.6)
7-73	29(.1)	27(.3)	182(.5)	37(.4)	8(T)	47(T)	6(T)	336(1.3)
7-73	86(.6)	49(.3)	561(2.6)	151(.2)	8(T)	134(.1)	6(T)	995(3.8)
7-73	28(.1)	24(.4)	213(1.8)	119(.3)	5(T)	22(T)	10(T)	421(2.6)
10-73	111(.2)	65(.1)	378(.5)	13(.7)	9(T)	81(.1)	3(T)	660(1.6)
10-73	67(.1)	52(.1)	218(.3)	11(.1)	15(T)	31(T)	7(T)	401(.6)
10-73	100(.3)	60(.2)	228(.3)	16(.6)	10(T)	49(T)	1(T)	464(1.4)
2-74	239(2.2)	67(.4)	317(1.5)	114(1.2)	9(T)	308(.2)	5(T)	1059(5.5)
2-74	37(.2)	15(.1)	141(.8)	47(.3)	4(T)	113(.1)	1(T)	358(1.5)

Appendix S[illegible]ntinued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
			West Fork Stillwater River - Station 036 - continued					
2-74	62(.2)	66(.2)	286(1.1)	26(.4)	5(T)	129(.1)	9(T)	583(2.0)
5-74	19(.1)	28(.2)	234(.7)	39(.1)	1(T)	15(T)	1(T)	337(1.1)
5-74	30(.3)	49(.1)	238(.4)	114(.4)	9(T)	42(T)	9(T)	491(1.2)
5-74	49(.2)	72(.2)	190(.8)	39(T)	1(T)	17(T)	4(T)	372(1.2)
7-74	29(T)	17(.3)	111(.2)	33(.1)	2(T)	19(T)	2(T)	213(.6)
7-74	33(1.9)	50(.3)	174(.4)	77(.3)	8(T)	84(T)	5(T)	431(2.9)
7-74	28(.1)	20(.1)	71(.3)	26(.1)	8(T)	12(T)	2(T)	167(.6)
10-74	50(.1)	89(.2)	146(.3)	8(.2)	9(T)	80(T)	2(T)	384(.8)
10-74	71(.2)	23(.1)	189(.8)	32(.3)	7(T)	23(T)	1(T)	346(1.4)
10-74	34(.1)	14(.1)	140(.3)	13(T)	7(T)	60(T)	1(T)	266(.5)
			Cathedral Creek - Station 018					
8-72	23(.1)	5(T)	14(.1)	102(.1)	0	1(T)	1(T)	146(.3)
8-72	21(T)	18(.1)	33(.1)	18(T)	0	0	0	90(.2)
8-72	9(T)	7(.2)	15(.2)	37(.1)	0	0	0	68(.5)
7-73	10(T)	4(.1)	3(T)	22(T)	0	11(T)	1(T)	51(.1)
7-73	22(.1)	8(.2)	7(.1)	28(T)	0	9(T)	0	74(.4)
7-73	48(.1)	6(.1)	8(T)	99(T)	0	65(.1)	2(T)	228(.3)
7-74	26(.1)	13(T)	17(.1)	55(T)	0	7(T)	5(T)	123(.2)
7-74	9(T)	11(.1)	12(.1)	4(T)	0	18(T)	0	54(.2)
7-74	40(.1)	17(.1)	24(.2)	169(.1)	0	31(T)	15(.1)	296(.6)
			Initial Creek - Station 017					
8-72	5(T)	1(T)	6(T)	7(T)	0	10(T)	0	29(T)
8-72	5(T)	0	6(T)	24(T)	0	6(T)	0	41(T)
8-72	6(T)	3(.1)	8(.1)	223(.2)	1(T)	17(T)	0	258(.4)
7-73	3(.1)	3(.1)	25(.1)	26(T)	1(T)	1(T)	0	59(.3)
7-73	5(T)	5(.1)	25(.1)	4(T)	0	0	2(.1)	41(.3)
7-73	63(.1)	2(.1)	38(.1)	42(T)	0	0	0	145(.3)
7-74	1(T)	0	11(T)	10(T)	0	0	0	22(T)
7-74	4(T)	0	13(T)	0	0	0	0	17(T)
7-74	2(T)	0	4(.1)	3(T)	0	0	1(T)	10(.1)
			Iron Creek - Station 019					
8-72	5(T)	0	16(T)	0	0	58(T)	1(T)	80(T)
8-72	9(T)	0	30(T)	3(T)	0	1(T)	0	43(T)
8-72	4(.1)	3(.1)	31(T)	12(T)	0	112(T)	1(T)	163(.2)
7-73	32(T)	7(.1)	58(.1)	14(T)	0	1(T)	2(T)	114(.2)
7-73	6(.1)	1(T)	14(T)	10(T)	0	1(T)	2(T)	34(.1)
7-73	34(.2)	10(.2)	58(.1)	18(T)	0	0	6(T)	126(.5)
7-74	19(T)	3(T)	69(.1)	64(.1)	0	0	4(T)	159(.2)
7-74	11(T)	5(.3)	25(.1)	10(T)	0	2(T)	1(T)	54(.4)
7-74	30(.8)	5(T)	53(.2)	4(.1)	0	0	4(T)	96(1.1)
			Castle Creek - Station 077					
7-75	2	2	9	4	1	0	3	21
7-75	1	1	12	1	0	2	1	18
7-75	2	1	9	3	2	0	2	19
11-75	26	43	37	16	10	2	8	142
11-75	4	17	13	8	3	5	2	52
11-75	5	10	31	11	2	0	2	61
2-76	18	15	24	77	0	1	0	135
2-76	46	19	58	92	0	0	3	218

Appendix S. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
4-76	11	26	82	11	0	1	6	137
4-76	2	9	41	12	0	1	3	68
4-76	1	4	6	2	0	0	0	13
			Castle Creek - Station 079					
7-75	3	10	32	1	0	6	3	55
7-75	9	22	54	2	0	4	7	98
7-75	12	9	24	0	1	4	6	56
11-75	23	39	41	60	2	36	9	210
11-75	36	97	38	93	0	25	0	289
11-75	63	159	105	140	3	66	3	539
2-76	10	34	49	123	0	34	5	255
2-76	1	32	21	56	2	23	8	143
2-76	3	29	29	89	0	34	3	187
4-76	15	61	124	120	1	44	11	376
4-76	3	40	130	42	0	10	7	232
4-76	13	20	187	68	0	2	21	311
			Castle Creek - Station 080					
7-75	2	15	106	57	1	3	5	189
7-75	6	5	21	11	0	0	3	46
7-75	2	22	66	22	2	2	4	120
11-75	34	64	131	41	0	16	0	286
11-75	10	62	89	28	2	1	1	193
11-75	18	151	105	25	0	26	2	327
2-76	14	66	89	777	0	3	4	953
2-76	4	42	69	502	0	0	8	625
2-76	27	83	68	576	0	16	9	779
4-76	14	136	285	67	3	8	7	520
4-76	4	18	122	67	0	5	4	220
4-76	9	81	369	71	0	1	12	543
			Picket Pin Creek - Station 020					
8-72	38(T)	4(.1)	127(.3)	88(T)	2(T)	8(T)	58(.1)	325(.5)
8-72	32(.1)	6(T)	295(.7)	118(.1)	8(T)	33(T)	102(.2)	594(1.1)
8-72	58(.1)	6(T)	303(.7)	87(.1)	10(T)	35(T)	90(.1)	589(1.0)
7-73	31(T)	6(.1)	68(.2)	26(.1)	3(T)	110(T)	22(.1)	266(.5)
7-73	20(.1)	5(.1)	169(.5)	12(T)	0	46(T)	38(.1)	290(.8)
7-73	107(.3)	4(.1)	122(.3)	66(T)	2(T)	333(.1)	86(.3)	720(1.1)
7-74	10(T)	1(T)	43(.2)	8(T)	0	5(T)	14(.1)	81(.3)
7-74	8(T)	5(.1)	41(.1)	2(T)	0	1(T)	2(T)	59(.2)
7-74	38(.2)	7(.1)	38(.1)	10(T)	1(T)	6(T)	27(.1)	127(.5)
			Picket Pin Creek - Station 078					
7-75	5	35	24	3	0	4	2	73
7-75	3	40	16	0	0	2	1	62
7-75	3	15	12	2	1	2	2	37
11-75	54	21	84	93	6	19	5	282
11-75	38	7	49	30	2	1	2	129
11-75	34	14	76	116	4	18	3	265
2-76	64	18	115	53	0	3	3	256
2-76	60	37	134	71	0	20	8	330
2-76	59	28	111	56	0	15	1	270
4-76	32	40	76	39	0	4	4	195
4-76	14	18	94	23	2	8	4	163
4-76	5	24	75	11	1	5	5	126

Appendix T. Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stationson the Deer creeks.

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
			Lower Deer Creek - Station 021					
8-72	4(T)[b]	14(T)	50(.1)	5(T)	5(T)	5(T)	5(T)	88(.1)
8-72	13(T)	11(T)	57(.1)	1(T)	3(T)	2(T)	4(T)	91(.1)
8-72	33(T)	8(.1)	80(.1)	7(.2)	18(T)	10(T)	10(T)	166(.5)
			Upper Deer Creek - Station 022					
8-72	42(.2)	62(.3)	97(.3)	71(.2)	37(T)	57(T)	3(T)	369(1.0)
8-72	23(.1)	128(.4)	175(.4)	73(.8)	39(T)	47(T)	5(T)	490(1.7)
8-72	26(.1)	130(.2)	131(.4)	53(.3)	43(.1)	23(T)	6(T)	412(1.1)

a). Mostly made up of Turbellaria, Nemotoda, and Hydracarina
b). Trace

Appendix U. Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the East Boulder River drainage.

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Others	Total
			East Boulder River - Station 038					
8-72	15(.1)	14(T)	12(T)	15(.5)	15(T)	1(T)	2(T)	74(.6)
8-72	40(.1)	6(T)	53(.2)	12(T)	10(T)	3(T)	1(T)	125(.3)
8-72	38(.1)	20(.1)	28(.2)	9(.2)	19(T)	0	3(T)	117(.6)
7-73	23(.1)	4(.1)	65(.2)	43(.1)	10(T)	0	2(T)	147(.5)
7-73	25(.1)	2(T)	88(.3)	18(T)	28(.1)	0	3(T)	164(.5)
7-73	30(.1)	5(T)	44(.2)	56(T)	26(.1)	0	2(T)	163(.4)
9-73	18(.1)	9(.1)	62(.2)	14(.3)	31(T)	15(T)	4(T)	153(.7)
9-73	28(.2)	4(T)	72(.1)	26(T)	21(T)	21(T)	0	172(.3)
9-73	39(.3)	8(.1)	74(.1)	16(.1)	44(.1)	1(T)	4(.1)	186(.8)
10-73	14(.1)	7(.1)	25(.1)	6(T)	10(T)	4(T)	3(T)	69(.3)
10-73	36(.2)	7(T)	49(.1)	22(T)	16(T)	5(T)	7(T)	142(.3)
10-73	22(.1)	2(T)	44(.1)	11(T)	21(T)	2(T)	6(T)	108(.2)
7-74	13(.1)	1(T)	20(.1)	10(T)	8(T)	3(T)	0	55(.2)
7-74	29(.1)	1(T)	32(.1)	27(T)	13(.1)	1(T)	2(.1)	105(.4)
7-74	23(.1)	3(T)	44(.1)	11(T)	17(T)	1(T)	0	99(.2)
			East Boulder River - Station 061					
7-74	8(T)	17(.1)	85(.2)	4(T)	1(T)	13(T)	1(T)	129(.3)
7-74	13(.1)	9(T)	89(.1)	2(T)	0	19(T)	2(T)	134(.2)
7-74	16(.2)	14(T)	92(.2)	5(T)	3(T)	5(T)	1(T)	136(.4)
9-74	14(T)	15(.2)	74(.2)	5(T)	1(T)	10(T)	1(T)	121(.4)
9-74	5(.1)	9(T)	40(.2)	0	0	13(T)	3(T)	70(.3)
9-74	22(.2)	29(.6)	79(.2)	1(T)	1(T)	2(T)	2(T)	136(1.0)
			East Boulder River - Station 008					
10-70	63	52	239	64	24	1	7	450
4-71	54(.1)	8(T)	120(.3)	1(T)	12(T)	0	22(T)	217(.4)
10-71	12(T)	8(.2)	55(.3)	0	5(T)	0	5(T)	85(.5)
10-71	83(.3)	43(.3)	135(.8)	13(T)	16(T)	1(T)	18(T)	309(1.4)
10-71	89(1.0)	33(1.2)	118(.6)	9(T)	7(T)	0	2(T)	258(1.8)
2-72	106(.5)	8(.1)	174(1.0)	10(.3)	6(T)	28(T)	7(T)	339(1.9)
2-72	103(.15)	12(.1)	171(.8)	13(.1)	2(T)	11(T)	5(T)	317(1.5)
2-72	107(.5)	11(T)	111(.5)	4(T)	5(T)	10(T)	1(T)	249(1.0)
5-72	27(.5)	12(.1)	137(.7)	4(T)	10(.1)	28(T)	1(T)	219(1.4)
5-72	53(.1)	12(T)	208(.7)	8(.4)	13(.1)	146(.1)	5(T)	445(1.4)
5-72	20(.1)	12(.1)	105(.3)	7(.3)	17(.1)	59(.1)	5(T)	225(1.0)
8-72	2(T)	16(.1)	28(.2)	4(T)	0	0	0	50(.3)
8-72	26(.1)	55(.2)	81(.3)	4(T)	1(T)	1(T)	9(.1)	177(.7)
8-72	36(.1)	24(T)	93(.3)	39(.1)	6(T)	31(T)	5(T)	234(.5)
2-73	43(.2)	26(.4)	166(1.0)	9(T)	25(T)	20(T)	4(T)	293(1.6)
2-73	37(.1)	9(.2)	130(.2)	3(T)	3(T)	7(T)	3(T)	192(.5)
2-73	68(.3)	10(.2)	243(1.8)	14(T)	14(T)	59(T)	7(T)	415(2.3)
5-73	43(.1)	13(.1)	80(.3)	8(T)	4(T)	3(T)	0	151(.5)
5-73	32(.2)	12(.1)	115(.8)	8(T)	11(T)	59(T)	7(T)	244(1.1)
5-73	30(.1)	56(.5)	292(2.0)	12(.1)	15(T)	25(T)	15(T)	445(2.7)
7-73	43(.2)	13(T)	134(.6)	11(T)	7(T)	42(T)	11(T)	261(.8)
7-73	9(T)	25(.3)	75(.8)	6(.1)	3(T)	0	3(T)	121(1.2)
7-73	34(.8)	33(.3)	169(.5)	28(.6)	15(T)	53(T)	8(T)	340(2.2)

Appendix U. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
			East Boulder River - Station 008 (continued)					
10-73	207(.1)	64(.7)	245(.4)	10(T)	15(T)	67(T)	14(T)	622(1.2)
10-73	208(.2)	138(1.6)	220(.5)	40(.1)	13(T)	19(T)	15(.1)	653(2.5)
10-73	94(.2)	45(.4)	206(.2)	24(.1)	11(T)	36(T)	6(T)	422(.9)
2-74	42(1.7)	20(.2)	121(.6)	10(T)	12(T)	23(T)	3(T)	231(2.5)
2-74	131(.2)	36(.2)	225(1.0)	16(.2)	21(T)	83(T)	2(T)	514(1.6)
2-74	42(.2)	20(.2)	107(.7)	20(T)	12(T)	15(T)	2(T)	218(1.1)
5-74	49(.1)	24(.2)	79(.8)	2(T)	0	8(T)	2(T)	164(1.1)
5-74	43(.3)	46(.3)	109(1.2)	8(T)	11(T)	49(T)	25(T)	291(1.8)
5-74	60(.1)	55(.4)	157(.9)	12(.1)	9(T)	216(.1)	15(T)	524(1.6)
7-74	14(.1)	17(.1)	135(.2)	8(.1)	9(T)	27(T)	9(T)	219(.5)
7-74	41(.1)	19(.1)	195(.3)	68(.1)	7(T)	25(T)	2(T)	357(.6)
7-74	30(.3)	3(T)	90(.1)	18(T)	19(T)	2(T)	3(T)	165(.4)
10-74	111(.3)	20(.1)	288(.4)	65(T)	18(T)	50(T)	5(T)	557(.8)
10-74	113(.2)	20(.5)	246(.4)	17(.4)	5(T)	40(T)	10(T)	451(1.5)
10-74	272(.3)	75(.6)	227(.3)	14(T)	8(T)	24(T)	3(T)	628(1.2)
			East Boulder River - Station 009					
10-70	98	162	152	261	4	0	0	677
04-71	82(.1)	217(2.0)	585(1.0)	790(.9)	10(T)	0	10(T)	1694(4.9)
10-71	44(1.1)	279(3.2)	142(1.8)	124(1.7)	4(T)	0	51(T)	644(7.8)
10-71	64(.7)	307(4.1)	146(1.4)	138(.5)	4(T)	0	23(T)	682(6.7)
10-71	76(1.3)	385(5.4)	142(1.0)	236(1.5)	2(T)	0	49(T)	890(9.2)
02-72	226(.6)	353(2.5)	599(.8)	1077(.8)	5(T)	166(T)	4(T)	2430(4.7)
02-72	207(2.5)	104(.4)	320(.4)	1176(.8)	10(T)	269(T)	3(T)	2089(4.1)
02-72	70(.2)	184(.9)	194(.2)	337(.5)	4(T)	102(T)	2(T)	893(1.7)
05-72	8(.2)	13(.1)	39(.2)	63(2.2)	1(T)	41(T)	6(T)	171(2.7)
05-72	10(.1)	54(.4)	200(.8)	193(1.8)	6(T)	74(T)	9(T)	546(3.1)
05-72	7(.1)	34(.1)	169(1.1)	250(2.1)	3(T)	8(T)	7(T)	488(3.4)
08-72	98(.3)	35(.4)	311(.6)	165(.2)	5(T)	17(T)	5(T)	636(1.5)
08-72	154(.5)	14(.1)	224(.6)	135(.7)	10(T)	8(T)	10(.1)	555(2.0)
08-72	34(.1)	41(.4)	84(.2)	122(.2)	2(T)	23(T)	1(T)	307(.9)
02-73	42(1.8)	508(1.8)	145(.3)	161(1.3)	39(T)	18(T)	4(T)	917(5.2)
02-73	268(2.3)	261(1.8)	104(.4)	762(2.4)	31(T)	0	2(T)	1428(6.9)
02-73	170(1.9)	266(1.1)	69(.2)	963(2.9)	47(.1)	0	2(T)	1517(6.2)
05-73	68(1.1)	160(1.6)	255(1.3)	579(.6)	1(T)	357(T)	9(T)	1429(4.6)
05-73	57(1.2)	375(2.1)	163(.4)	353(2.2)	34(T)	0	8(T)	990(5.9)
05-73	38(.2)	555(2.9)	251(1.3)	290(1.7)	44(.1)	268(.1)	23(T)	1469(6.3)
07-73	46(.1)	14(.1)	342(.7)	180(.4)	7(T)	18(T)	4(T)	611(1.3)
07-73	72(.3)	55(.2)	308(1.0)	70(.7)	9(T)	18(.1)	3(T)	535(2.3)
07-73	27(T)	25(.2)	225(.5)	66(.4)	6(T)	38(T)	14(T)	401(1.1)
10-73	173(.6)	211(.4)	216(.7)	1701(3.2)	10(T)	107(.1)	24(T)	2442(5.0)
10-73	100(.4)	753(3.5)	66(.2)	128(.9)	21(T)	0	8(T)	1076(5.0)
10-73	168(.7)	496(2.1)	121(.3)	858(1.8)	3(T)	22(T)	5(T)	1673(4.9)
02-74	33(.8)	403(1.4)	108(.1)	266(1.1)	25(T)	17(T)	2(T)	854(3.4)
02-74	117(2.4)	773(4.3)	197(.4)	551(1.6)	23(T)	34(T)	4(T)	1699(8.7)
02-74	324(1.3)	2025(9.3)	621(.8)	1585(3.5)	195(.1)	156(.1)	64(T)	4970(15.1)
05-74	23(.2)	586(1.9)	448(1.1)	323(1.2)	21(T)	96(T)	35(.1)	1532(4.5)
05-74	28(.3)	1137(3.7)	752(1.1)	506(2.2)	31(T)	88(T)	29(.1)	2571(7.4)
05-74	33(.6)	873(5.5)	607(1.6)	363(3.2)	24(T)	23(T)	11(.1)	1934(11.0)

Appendix U. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
			East Boulder River - Station 009 (continued)					
7-74	8(T)	2(T)	28(.1)	23(.1)	1(T)	2(T)	0	64(.2)
7-74	8(.1)	4(T)	24(T)	18(.2)	1(T)	23(T)	3(T)	81(.3)
7-74	17(.1)	13(.3)	41(.3)	33(.1)	4(T)	10(T)	0	118(.8)
10-74	35(.6)	49(.1)	60(.2)	45(.5)	6(T)	0	0	195(1.4)
10-74	85(1.3)	220(.9)	110(.2)	112(.4)	17(T)	16(T)	4(T)	564(2.8)
10-74	54(.1)	298(1.7)	80(.2)	39(.1)	7(T)	14(T)	3(T)	495(2.1)
			Forge Creek - Station 051					
7-73	13(.1)	1(T)	55(.1)	9(T)	1(T)	0	0	79(.2)
7-73	17(T)	4(T)	78(.2)	26(T)	5(T)	0	2(T)	132(.2)
7-73	15(T)	4(T)	45(.1)	10(T)	1(T)	12(T)	1(T)	88(.1)
9-73	27(.1)	13(.1)	14(.1)	0	8(T)	0	5(T)	67(.3)
9-73	38(.1)	6(T)	17(.1)	6(T)	2(T)	2(T)	0	71(.2)
9-73	10(T)	2(T)	6(T)	1(T)	3(T)	0	0	22(T)
7-74	20(.1)	1(T)	27(.1)	9(T)	2(T)	0	2(T)	61(.2)
7-74	37(.1)	3(T)	16(.1)	13(T)	1(T)	3(T)	1(T)	74(.2)
7-74	10(T)	0	15(T)	1(T)	1(T)	0	2(T)	29(T)
			Brownlee Creek - Station 060					
7-74	11(.1)	4(.1)	31(.1)	8(T)	0	2(T)	3(T)	59(.3)
7-74	19(.1)	4(T)	36(.2)	11(T)	0	6(T)	1(T)	77(.3)
7-74	26(.1)	12(.2)	63(.2)	12(.1)	1(T)	5(T)	2(T)	121(.6)
9-74	36(.2)	4(T)	45(.2)	7(T)	0	1(T)	3(T)	96(.4)
9-74	67(.4)	5(T)	18(T)	24(.1)	1(T)	15(T)	4(T)	134(.5)
9-74	38(.1)	8(.2)	3(T)	7(.3)	0	6(T)	0	62(.6)
			Brownlee Creek - Station 053					
8/6/74	29(.1)	13(.1)	31(.1)	2(T)	0	4(T)	5(T)	84(.3)
8/6/74	57(.1)	19(.3)	82(.2)	15(.1)	0	14(T)	5(T)	192(.7)
8/6/74	50(.1)	25(.1)	76(.2)	8(T)	0	13(T)	6(T)	178(.4)
10/3/74	28(.1)	13(.1)	129(.1)	18(T)	0	5(T)	9(.1)	202(.4)
10/3/74	16(.1)	23(T)	25(.2)	0	0	0	5(T)	69(.3)
10/3/74	28(.1)	35(.4)	73(.3)	6(T)	0	16(.1)	17(.2)	175(1.1)

Appendix V. Number and volume (in parentheses) of macroinvertebrates collected in one square foot stream bottom samples for stations in the Boulder River drainage.

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
			Boulder River - Station 011					
10-70	31	67	103	16	0	33	0	250
04-71	127(1.2)	29(.4)	131(1.4)	34(T)[b]	0	0	37(T)	358(3.0)
10-71	51(.1)	18(.2)	39(.1)	6(T)	0	0	6(T)	120(.4)
10-71	75(.2)	33(.7)	292(.9)	2(.4)	0	0	34(T)	436(2.2)
10-71	19(.1)	18(.7)	101(.4)	0	0	0	8(T)	146(1.2)
05-72	22(.5)	4(.1)	29(.1)	66(.4)	0	1(T)	2(T)	124(1.1)
05-72	16(.7)	0	11(T)	61(T)	0	0	0	88(.7)
05-72	20(.1)	1(T)	12(.1)	2(T)	0	0	0	35(.2)
08-72	28(.8)	12(T)	113(.3)	6(T)	0	3(T)	4(T)	166(1.1)
08-72	15(T)	48(.2)	126(.6)	12(.5)	0	0	1(T)	202(1.3)
08-72	30(1.0)	78(.4)	190(.5)	13(T)	2(T)	6(T)	5(T)	324(1.9)
02-73	11(.2)	47(.5)	230(.8)	2(T)	0	4(T)	1(T)	295(1.5)
02-73	10(.1)	43(.4)	310(1.5)	3(T)	0	15(T)	2(T)	383(2.0)
02-73	56(.2)	93(.3)	237(1.0)	10(T)	1(T)	5(T)	3(T)	406(1.5)
05-73	33(.1)	42(.4)	72(1.1)	13(.2)	0	10(T)	0	174(1.8)
05-73	17(T)	29(.2)	68(.9)	12(.1)	0	50(T)	3(T)	179(1.2)
05-73	39(.5)	33(.6)	89(1.3)	11(T)	0	12(T)	3(T)	187(2.4)
07-73	50(.1)	12(T)	364(1.2)	41(.1)	0	18(T)	8(.1)	493(1.5)
07-73	4(T)	5(T)	98(.3)	15(.2)	0	59(T)	0	181(.5)
07-73	29(T)	37(.3)	126(1.1)	5(.1)	0	42(T)	6(T)	245(1.5)
10-73	17(.4)	52(.1)	136(.3)	3(T)	0	12(T)	0	220(.8)
10-73	98(.1)	129(.7)	273(.4)	7(.1)	2(T)	107(T)	11(T)	627(1.3)
10-73	43(.1)	23(.1)	245(.6)	10(.1)	1(T)	24(T)	8(T)	354(.9)
05-74	21(.2)	13(.2)	84(.8)	12(.7)	0	1(T)	20(.1)	151(2.0)
05-74	51(.3)	2(T)	122(.7)	6(.1)	0	0	33(.1)	214(1.2)
05-74	25(.2)	0	70(.9)	2(T)	0	0	5(T)	102(1.1)
7-74	10(T)	7(T)	81(.3)	3(.1)	0	4(T)	3(T)	108(.4)
7-74	18(T)	16(.2)	59(.3)	3(T)	0	0	2(T)	98(.5)
7-74	11(T)	14(.3)	37(.7)	2(T)	0	1(T)	5(T)	70(1.0)
10-74	20(.1)	62(.4)	107(.3)	9(T)	1(T)	6(T)	5(T)	210(.8)
10-74	15(T)	39(.1)	67(.2)	2(T)	1(T)	2(T)	0	126(.3)
10-74	11(.4)	59(.5)	105(.2)	0	0	1(T)	3(T)	179(1.1)
			Boulder River - Station 050					
10-70	35	28	138	5	3	13	0	222
04-71	48(.1)	76(1.0)	118(.3)	31(T)	0	0	0	273(1.4)
10-71	154(.2)	94(.4)	153(.6)	4(T)	2(T)	62(.1)	0	469(1.3)
10-71	77(.2)	66(.3)	130(.5)	4(.1)	1(T)	69(T)	0	347(1.1)
10-71	169(.2)	141(1.1)	255(1.0)	13(.1)	0	24(T)	0	602(2.4)

a). Mostly made up of Turbellaria, Nematoda, and Hydracarina
b). Trace

Appendix V. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
				Boulder River - Station 010				
10-70	40	29	99	4	5	21	0	198
04-71	38(.2)	14(.1)	93(.8)	7(T)	0	0	74(T)	226(1.1)
10-71	116(.3)	62(.4)	172(.6)	9(.1)	0	3(T)	3(T)	365(1.4)
10-71	50(.1)	55(.3)	121(.4)	11(.2)	0	4(T)	0	241(1.0)
10-71	109(.3)	86(.5)	150(.4)	7(.2)	1(T)	37(T)	0	390(1.4)
02-72	70(.4)	25(.1)	117(.7)	13(T)	4(T)	69(.1)	1(T)	299(1.3)
02-72	73(.6)	12(.2)	136(.9)	9(.1)	2(T)	61(.1)	0	293(1.9)
02-72	17(.1)	2(T)	44(.4)	3(T)	2(T)	10(T)	0	78(.5)
05-72	8(.3)	1(T)	10(T)	3(T)	0	0	0	22(.3)
05-72	19(1.0)	5(T)	40(.2)	22(T)	0	0	0	86(1.2)
05-72	21(.3)	0	39(.2)	16(T)	0	0	0	76(.5)
08-72	12(T)	23(.2)	58(.2)	15(.1)	1(T)	1(T)	0	110(.5)
08-72	9(T)	40(.3)	118(.2)	11(T)	6(T)	2(T)	1(T)	187(.5)
08-72	30(.1)	74(.4)	137(.4)	19(.1)	2(T)	42(T)	1(T)	305(1.0)
02-73	38(1.0)	105(1.6)	257(1.6)	19(.3)	4(T)	23(T)	0	446(4.5)
02-73	13(.4)	123(.8)	211(2.0)	11(T)	1(T)	2(T)	0	361(3.2)
02-73	16(.2)	72(.6)	184(1.1)	12(T)	3(T)	69(T)	0	356(1.9)
05-73	47(.3)	5(T)	108(.7)	14(.1)	10(T)	24(T)	1(T)	209(1.1)
05-73	33(.3)	3(T)	119(.7)	8(T)	0	33(T)	0	196(1.0)
05-73	8(T)	9(.2)	95(.9)	0	1(T)	4(T)	1(T)	118(1.1)
07-73	64(.1)	13(T)	141(.8)	11(T)	0	55(T)	0	284(.9)
07-73	29(.1)	2(T)	98(.1)	12(.1)	0	20(T)	2(T)	163(.3)
07-73	31(.1)	1(T)	69(.3)	16(.2)	1(T)	3(T)	0	121(.6)
10-73	61(.3)	46(T)	243(.4)	6(T)	0	70(T)	0	426(.7)
10-73	42(.5)	72(.2)	201(.4)	9(.1)	0	22(T)	0	346(1.2)
10-73	63(.4)	159(1.0)	206(.3)	11(.3)	0	11(T)	2(T)	452(2.0)
02-74	28(.1)	55(.3)	132(.5)	11(.2)	1(T)	8(T)	2(T)	237(1.1)
02-74	70(.3)	44(.3)	130(.4)	2(T)	0	6(T)	1(T)	253(1.0)
02-74	77(.4)	35(.4)	266(1.4)	8(.2)	2(T)	18(T)	2(T)	408(2.4)
05-74	56(.5)	32(.5)	165(.7)	5(.3)	2(T)	6(T)	3(T)	269(2.0)
05-74	36(.5)	1(.2)	115(.4)	3(.3)	0	2(T)	2(T)	159(1.4)
05-74	29(2.1)	1(T)	141(.9)	6(T)	0	1(T)	0	178(3.0)
7-74	27(.4)	13(.2)	99(.2)	21(1.1)	0	4(T)	0	164(.9)
7-74	6(T)	1(T)	18(.1)	9(T)	0	1(T)	0	35(.1)
7-74	35(.1)	1(T)	64(.1)	16(T)	0	2(T)	0	118(.2)
10-74	68(.1)	45(.1)	331(.5)	11(.4)	3(T)	44(T)	1(T)	503(1.1)
10-74	56(.1)	11(T)	280(.5)	7(.1)	3(T)	82(T)	2(T)	441(.7)
10-74	47(.3)	20(.1)	213(.4)	10(.1)	1(T)	22(T)	0	313(.3)

Appendix V. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
			Boulder River - Station 039					
10-70	8	84	49	33	1	0	2	177
04-71	48(.2)	288(.3)	337(1.2)	271(.2)	9(.1)	0	0	953(2.0)
10-71	10(T)	129(2.3)	79(.7)	11(.1)	2(T)	0	3(T)	234(3.1)
10-71	4(T)	90(.5)	37(.2)	30(.4)	4(T)	0	2(T)	167(1.1)
10-71	1(T)	23(.1)	42(.3)	17(.2)	1(T)	0	0	84(.6)
02-72	55(.2)	34(.3)	180(.5)	969(.5)	3(T)	25(T)	4(T)	1270(1.5)
02-72	41(.1)	126(.8)	157(.7)	53(3.5)	0	57(T)	9(T)	443(5.1)
02-72	18(.1)	31(.1)	65(.3)	3(T)	0	17(T)	1(T)	135(.5)
05-72	8(.2)	5(T)	53(.2)	29(.7)	1(T)	18(T)	0	114(1.1)
05-72	14(.2)	15(T)	12(.1)	11(.2)	0	3(T)	0	55(.5)
05-72	21(.2)	22(.1)	72(.4)	11(T)	0	15(T)	0	141(.7)
08-72	20(.2)	20(.1)	143(.4)	107(.2)	10(T)	0	0	300(.9)
08-72	15(T)	8(T)	39(.1)	36(.1)	2(T)	2(T)	2(T)	104(.2)
08-72	15(.1)	30(.2)	172(.3)	35(.1)	4(T)	1(T)	2(T)	259(.7)
02-73	3(T)	144(.2)	43(.1)	49(T)	1(T)	0	1(T)	241(.3)
02-73	73(.4)	118(.5)	171(.8)	255(1.1)	4(T)	47(T)	22(T)	690(2.8)
02-73	26(.9)	171(.5)	77(.3)	62(.3)	4(T)	19(T)	13(T)	372(2.0)
05-73	7(T)	247(.4)	212(.3)	53(.2)	5(T)	25(T)	6(T)	555(.9)
05-73	21(.1)	361(1.9)	310(.5)	66(.3)	3(T)	34(T)	9(T)	804(2.8)
05-73	16(T)	206(.8)	215(1.1)	122(.2)	4(T)	26(T)	7(T)	596(2.1)
07-73	7(.1)	30(.2)	122(.1)	26(.1)	3(T)	0	0	188(.5)
07-73	3(T)	13(T)	195(.2)	59(.1)	7(T)	11(T)	4(T)	292(.3)
07-73	7(.2)	13(T)	144(.2)	59(.1)	7(T)	7(T)	1(T)	238(.5)
10-73	42(T)	403(.9)	139(.3)	120(.7)	15(T)	41(T)	8(T)	768(1.9)
10-73	25(.1)	166(1.1)	148(.4)	60(.9)	3(T)	19(T)	5(T)	426(2.5)
10-73	2(T)	231(.5)	33(.1)	16(.1)	2(T)	5(T)	3(T)	292(.7)
02-74	8(T)	122(.2)	39(.2)	36(.2)	1(T)	6(T)	4(T)	216(.6)
02-74	3(T)	84(.1)	36(.1)	34(.1)	4(T)	0	2(T)	163(.3)
02-74	4(T)	63(.1)	38(.2)	54(.2)	2(T)	1(T)	1(T)	163(.5)
05-74	19(1.1)	203(.8)	141(.2)	66(1.7)	9(T)	2(T)	0	440(3.8)
05-74	7(.3)	17(.8)	73(.2)	28(.1)	2(T)	3(T)	1(T)	131(1.4)
05-74	22(.2)	9(T)	86(.3)	33(T)	3(T)	0	4(T)	157(.5)
7-74	14(T)	11(T)	121(.3)	7(T)	2(T)	0	1(T)	155(.3)
7-74	21(T)	2(T)	68(.1)	5(T)	1(T)	0	0	98(.1)
7-74	21(T)	0	66(.1)	1(T)	0	0	12(T)	88(.1)
10-74	78(.2)	252(1.2)	187(.2)	110(.4)	11(T)	0	2(T)	650(2.0)
10-74	15(T)	37(.3)	46(.2)	75(.5)	10(T)	0	3(T)	185(1.0)
10-74	10(.1)	17(T)	17(.1)	48(.1)	2(T)	3(T)	0	80(.3)

Appendix V. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other	Total
Boulder River - Station 040								
10-71	17(1.2)	102(.3)	91(.2)	20(T)	4(T)	0	0	234(1.7)
10-71	5(T)	44(.1)	30(.1)	3(.1)	2(T)	13(T)	0	97(.3)
10-71	28(.2)	210(1.1)	101(.3)	7(T)	1(T)	19(T)	0	366(1.6)
02-72	84(.4)	282(.9)	461(1.1)	96(2.1)	6(T)	425(.1)	0	1354(4.6)
02-72	74(.6)	375(1.0)	651(1.7)	34(.6)	4(T)	736(.2)	1(T)	1875(4.1)
02-72	158(.3)	290(1.0)	648(2.4)	29(.5)	4(T)	855(.3)	0	1984(4.5)
05-72	20(.7)	55(.1)	146(.4)	11(T)	1(T)	4(.2)	1(T)	238(1.4)
05-72	51(.3)	210(.4)	147(.5)	126(.1)	15(T)	89(T)	0	638(1.3)
05-72	55(1.5)	342(.5)	208(.5)	42(T)	3(T)	18(T)	1(T)	669(2.5)
08-72	13(.3)	38(.2)	152(.3)	68(.6)	6(T)	14(T)	0	291(1.4)
08-72	24(1.0)	37(.2)	164(.2)	140(.3)	8(T)	8(T)	3(T)	384(1.7)
08-72	37(1.1)	54(.4)	153(.3)	144(.5)	13(T)	25(T)	4(T)	430(2.4)
02-73	9(.1)	306(.6)	228(.7)	244(.9)	24(T)	158(T)	0	969(2.3)
02-73	37(2.1)	120(.3)	89(.2)	109(.5)	4(T)	50(T)	0	410(3.1)
02-73	36(1.5)	641(2.5)	365(1.7)	222(1.4)	14(T)	176(.1)	18(T)	1472(7.2)
05-73	15(T)	159(.4)	187(.6)	53(.5)	6(T)	86(T)	5(T)	511(1.5)
05-73	7(.1)	418(1.2)	1343(1.9)	332(.9)	14(T)	81(T)	2(T)	2197(4.1)
05-73	62(.1)	207(.5)	675(1.1)	304(.7)	14(T)	112(T)	4(T)	1378(2.4)
07-73	46(.1)	37(.1)	460(.6)	193(.2)	15(T)	65(T)	4(T)	820(1.0)
07-73	8(.3)	22(.3)	146(.5)	371(.6)	6(T)	9(T)	1(T)	563(1.7)
07-73	28(.1)	21(.1)	203(.5)	402(.9)	13(T)	61(T)	8(T)	736(1.6)
10-73	9(T)	66(T)	6(T)	10(.1)	6(T)	14(T)	2(T)	113(.1)
10-73	17(.1)	349(2.4)	70(.2)	60(.4)	5(T)	42(T)	7(T)	550(3.1)
10-73	22(T)	180(.6)	62(.1)	40(.1)	12(T)	78(.1)	9(T)	403(.9)
02-74	7(T)	160(.8)	34(.2)	40(.4)	6(T)	2(T)	0	249(1.4)
02-74	49(1.8)	360(1.2)	231(.2)	173(.4)	18(T)	29(T)	0	860(3.6)
02-74	18(T)	558(2.7)	165(.4)	120(1.2)	14(T)	101(T)	3(T)	979(4.3)
05-74	7(.1)	225(.3)	479(.9)	83(.6)	32(.1)	11(T)	2(T)	839(2.0)
05-74	83(.3)	140(.5)	371(.9)	33(.1)	0	60(T)	0	687(1.8)
05-74	28(.7)	538(2.0)	818(2.0)	104(.4)	14(T)	94(T)	2(T)	1598(5.1)
7-74	3(T)	6(T)	28(.3)	14(.1)	1(T)	0	0	52(.4)
7-74	13(.1)	11(.1)	85(.2)	19(T)	3(T)	1(T)	0	132(.4)
7-74	18(.3)	9(.1)	123(.3)	118(.2)	5(T)	10(T)	1(T)	284(.9)
Bobcat (East Chippy) Creek-Station 023								
8-72	20(T)	5(T)	75(.1)	4(T)	0	27(T)	0	131(.1)
8-72	22(T)	5(.1)	160(.1)	6(T)	0	1(T)	2(T)	196(.2)
8-72	45(T)	8(.1)	168(.1)	10(T)	0	89(T)	2(T)	322(.2)
8-73	163(.1)	8(.2)	94(.3)	13(T)	0	140(T)	6(T)	424(.6)
8-73	27(T)	7(.1)	48(.2)	4(T)	0	23(T)	2(T)	111(.3)
8-73	12(T)	3(T)	69(.2)	3(T)	0	27(T)	0	114(.2)
7-74	10(T)	5(.1)	26(.1)	0	0	0	0	41(.2)
7-74	0	1(T)	9(T)	2(T)	0	0	0	12(T)
7-74	6(T)	1(T)	25(.1)	2(T)	0	0	0	34(.1)

Appendix V. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
			Blakely Creek-Station 024					
8-72	2(T)	1(T)	10(.1)	1(T)	0	0	7(.1)	21(.2)
8-72	0	0	36(.1)	5(T)	0	0	3(T)	44(.1)
8-72	24(.1)	5(.1)	26(.1)	18(T)	0	0	42(.4)	115(.7)
8-73	119(.2)	13(.1)	156(.5)	47(.2)	0	23(T)	36(.2)	394(1.2)
8-73	125(.2)	15(.2)	181(.6)	15(T)	0	7(T)	51(.3)	394(1.3)
8-73	148(.1)	12(.1)	113(.5)	30(T)	0	3(T)	26(.1)	332(.8)
7-74	9(T)	2(.1)	66(.2)	13(T)	1(T)	2(T)	1(T)	94(.3)
7-74	5(T)	1(T)	34(.8)	1(T)	0	0	0	41(.8)
7-74	5(T)	3(T)	37(.3)	13(T)	0	0	0	58(.3)
			Graham Creek - Station 025					
7-74	3(.1)	8(.2)	14(.1)	24(T)	0	0	0	49(.4)
7-74	0	0	16(T)	18(.1)	2(T)	0	0	36(.1)
7-74	7(T)	0	29(.2)	15(.1)	0	0	0	51(.3)
			Great Falls Creek-Station 026					
8-72	6(T)	4(.4)	91(.2)	1(T)	0	0	0	102(.6)
8-72	8(.1)	5(.3)	67(.3)	3(T)	0	0	1(T)	84(.7)
8-72	18(.1)	2(.1)	119(.7)	4(T)	0	1(T)	1(T)	145(.9)
8-73	12(T)	2(T)	121(.2)	2(T)	0	14(T)	0	151(.2)
8-73	5(T)	1(T)	73(.1)	7(T)	0	0	5(T)	91(.1)
8-73	10(T)	6(.1)	57(.2)	8(.1)	0	5(T)	5(T)	91(.4)
			Falls Creek-Station 027					
8-72	6(T)	22(.1)	97(.8)	9(.1)	0	8(T)	0	142(1.0)
8-72	13(T)	16(T)	52(.3)	7(T)	0	1(T)	0	89(.3)
8-72	31(.1)	15(.2)	118(1.0)	20(T)	5(T)	6(T)	0	195(1.4)
8-73	23(.1)	2(T)	62(.1)	27(.1)	0	25(T)	0	139(.3)
8-73	18(.1)	2(.1)	45(.1)	3(T)	0	3(T)	1(T)	72(.3)
8-73	11(T)	3(.1)	40(.2)	8(T)	0	2(T)	0	64(.3)

Appendix V. Continued

Date	Plecoptera	Trichoptera	Ephemeroptera	Diptera	Coleoptera	Annelida	Other[a]	Total
			West Boulder River - Station 041					
10-70	18	10	139	6	5	56	2	236
04-71	7(.1)	5(.1)	55(.2)	21(T)	1(T)	0	1(T)	90(.4)
10-71	29(.2)	21(.4)	178(.6)	10(T)	4(T)	0	18(T)	260(1.2)
10-71	25(.7)	34(.7)	126(.4)	3(T)	2(T)	125(T)	0	315(1.8)
10-71	33(.1)	6(T)	96(.4)	7(T)	1(T)	28(T)	0	171(.5)
02-72	54(.2)	10(T)	91(.2)	4(T)	2(T)	52(T)	2(T)	215(.4)
02-72	75(.2)	10(T)	123(.2)	9(T)	3(T)	0	3(T)	223(.4)
02-72	62(.1)	12(.1)	113(.2)	10(T)	1(T)	30(T)	3(T)	231(.4)
05-72	24(.9)	8(.3)	92(.6)	17(.1)	1(T)	7(.6)	0	149(2.5)
05-72	96(2.1)	12(.1)	389(1.0)	47(.1)	3(T)	1(T)	0	548(3.3)
05-72	13(.1)	0	63(.3)	5(T)	0	0	0	81(.4)
08-72	28(.3)	27(.3)	344(.3)	60(.1)	2(T)	65(T)	3(T)	529(1.0)
08-72	43(.1)	28(.7)	406(.6)	124(.1)	2(T)	18(T)	4(T)	625(1.5)
08-72	19(.1)	19(.1)	521(.8)	157(.1)	2(T)	20(T)	4(T)	742(1.1)
02-73	37(.2)	39(.2)	266(1.1)	20(.1)	1(T)	137(T)	1(T)	501(1.6)
02-73	71(1.1)	61(.2)	338(1.2)	86(1.1)	5(T)	200(T)	4(T)	765(3.6)
02-73	16(.1)	64(.5)	227(1.0)	21(.2)	3(T)	84(T)	0	415(1.8)
05-73	33(.1)	52(.3)	273(1.5)	89(.3)	4(T)	80(T)	0	531(2.2)
05-73	27(.1)	76(.3)	422(.9)	238(.3)	5(T)	295(.1)	0	1063(1.7)
05-73	18(.1)	19(.1)	203(.8)	97(.1)	2(T)	90(T)	1(T)	430(1.1)
07-73	33(.2)	12(.2)	214(.6)	63(.1)	5(T)	69(.1)	5(T)	401(1.2)
07-73	32(.2)	18(.3)	188(1.1)	49(.1)	2(T)	158(.3)	0	447(2.0)
07-73	48(.4)	7(.1)	323(1.3)	86(.1)	2(T)	114(.1)	0	580(2.0)
10-73	59(.2)	41(T)	126(.2)	12(.1)	1(T)	11(T)	0	250(.5)
10-73	77(.2)	31(T)	221(.2)	10(.1)	3(T)	60(T)	1(T)	403(.5)
10-73	82(.3)	40(.1)	224(.3)	11(.1)	1(T)	5(T)	0	363(.8)

Appendix W. Number of insects in one square foot stream bottom samples, identified to lowest taxa possible.

West Fork Stillwater River

Station 054-7/24/73		Station 037-5/30/73 #1		Station 037-5/30/#2	
PLECOPTERA		PLECOPTERA		PLECOPTERA	
Nemoura sp	8	*Nemoura* spp	6	*Acroneuria* sp	1
Alloperla sp	25	*Alloperla* sp	3	*Alloperla* sp	6
Total	33[a]	*Acroneuria* sp	1	*Nemoura* sp	15
		Total	10	*Capnia* sp	1
				Total	23
TRICHOPTERA		TRICHOPTERA		TRICHOPTERA	
Rhyacophila sp	17	*Rhyacophila* spp[b]	13	*Parapsyche* sp	3
Glossosoma sp	29	*Glossosoma* sp	4	*Rhyacophila* sp	29
Total	46	*Psychomyia* sp	3	*Glossosoma* sp	1
		Micrasema sp	2	*Oligophlebodes* sp	2
		Dolophilodes aequalis	1	Total	35
		Total	23		
EPHEMEROPTERA		EPHEMEROPTERA		EPHEMEROPTERA	
Baetis spp	26	*Baetis* sp	46	*Epeorus grandis*	32
Rhithrogena sp	87	*Rhithrogena* sp	16	*Epeorus longimanus*	6
Epeorus sp	5	*Epeorus* sp	6	*Rithrogena robusta*	20
Cinygmula sp	43	*Cinygmula* sp	11	*Baetis* spp	104
Ephemerella doddsi	1	*Ephemerella inermis*	10	*Cinygmula* sp	19
Total	162	*Ephemerella doddsi*	6	*Ephemerella doddsi*	16
		Ephemerella grandis	1	*Ephemerella grandis*	8
		Total	96	*Ephemerella* sp	5
				Total	210
DIPTERA		DIPTERA		DIPTERA	
Chironomidae	4	*Diamesa* sp	2	*Diamesa* sp	11
Tipulidae (2 genera)	2	*Dicranota* sp	2	*Rheotanytarsus* sp	2
Total	6	Total	4	*Dicranota* sp	2
				Total	15
COLEOPTERA					
Elmidae	2				
Total	2				

a) Order totals may not agree exactly with numbers in Appendices S and U. This is probably due to minor counting inaccuracies at the Helena laboratory, by the identifier, or by both.

b) Three species.

Appendix W. Continued

West Fork Stillwater River

Station 007/5-3-73	
PLECOPTERA	
Capnia sp	7
Nemoura sp	14
Alloperla sp	7
Acroneuria sp	4
Isogenus sp	11
unknown	11
Total	54
TRICHOPTEREA	
Rhyacophila sp	35
Glossosoma verdona	10
Brachycentrus sp	1
Ecclisomyia sp	1
Total	47
EPHEMEROPTERA	
Rhithrogena sp	14
Epeorus longimanus	69
Ephemerella inermis	51
Ephemerella doddsi	16
Ephemerella grandis	1
Baetis sp	6
Paraleptophlebia sp	2
Cinygmula sp	30
Ameletus sp	19
Total	208
DIPTERA	
Chironomidae	6
Pericoma sp	7
Holorusia sp	1
2 unknown genera	22
Total	36
COLEOPTERA	
Heterlimnius sp	12

Station 036/2-8-72	
PLECOPTERA	
Nemoura spp	29
Acroneuria sp	6
Capnia sp	6
Alloperla sp	48
Total	89
TRICHOPTERA	
Rhyacophila spp	12
Hydropsyche sp	2
Arctopsyche sp	2
Glossosoma sp	19
unknown Limnephilidae	3
Total	38
EPHEMEROPTERA	
Ameletus sp	3
Baetis sp	44
Ephemerella doddsi	6
Ephemerella inermis	10
Ephemerella grandis	1
Ephemerella spinifera	2
Epeorus sp	7
Paraleptophlebia sp	1
Rithrogena sp	20
Cinygmula sp	54
Total	148
DIPTERA	
Pericoma sp	14
Hexatoma sp	2
Diamesa sp	3
Micropsectra sp	3
Orthocladius sp(probably)	2
Ablabesmyia sp	1
unknown	4
Total	29
COLEOPTERA	
Heterlimnius sp	6

Appendix W. Continued

East Boulder River - Station 009/5-2-73

Sample #1	
PLECOPTERA	
Acroneuria pacifica	4
Capnia sp	3
Alloperla sp	15
Nemoura sp	3
Isoperla fulva	36
Unknown *Isoperla* sp	1
Total	62
TRICHOPTERA	
Arctopsyche grandis	11
Hydropsyche sp	95
Brachycentrus sp	24
Lepidostoma sp	18
Glossosoma sp	8
Rhyacophila acropedes	2
Rhyacophila bifila	3
Total	161
EPHEMEROPTERA	
Baetis bicaudatus	1
Baetis tricaudatus	39
Baetis sp	2
Epeorus longimanus	20
Ephemerella doddsi	21
Ephemerella grandis grandis	2
Ephemerella coloradensis	55
Ephemerella inermis	88[c]
Cinygmula sp	15
Rithrogena hageni	6
Rithrogena robusta	2
	251
COLEOPTERA	
Optioservus sp	1
DIPTERA[d]	
Wiedemannia sp	24
Chelifera sp	32
unknown Empididae	17
Hexatoma sp	44
Limonia sp	107
unknown Tipulidae	1
Bibiocephala sp	1
unknown psychodidae	164
Atherix sp	44
unknown Chironomidae	400+
Total	834+

Sample #2	
PLECOPTERA	
Acroneuria pacifica	36
Isoperla fulva	9
Isoperla(prob.*fulva*)	2
Alloperla sp	10
Nemoura sp	1
Total	58
TRICHOPTERA	
Arctopsyche grandis	6
Hydropsyche sp	269
Brachycentrus sp	9
Lepidostoma sp	5
Glossosoma sp	69
Rhyacophila acropedes	2
Rhyacophila bifila	13
Total	373
EPHEMEROPTERA	
Baetis tricaudatus	21
Ephemerella spinifera	1
Ephemerella grandis grandis	1
Ephemerella coloradensis	5
Ephemerella inermis	123[c]
Heptagenia sp	1
Cinygmula sp	3
Rithrogena hageni	2
Epeorus longimonus	4
Total	161
COLEOPTERA	
Optioservus sp	28
Narpus sp	3
Total	31

Sample #3	
PLECOPTERA	
Acroneuria pacifica	10
Capnia sp	6
Alloperla sp	10
Nemoura sp	2
Isoperla fulva	4
Total	32
TRICHOPTERA	
Arctopsyche grandis	8
Hydropsyche sp	285
Brachycentrus sp	33
Lepidostoma sp	9
Glossosoma sp	212
Rhyacophila acropedes	3
Rhyacophila bifila	5
Micrasema sp	1
Total	556
EPHEMEROPTERA	
Baetis tricaudatus	49
Ephemerella doddsi	15
Ephemerella grandis grandis	4
Ephemerella coloradensis	65
Ephemerella inermis	81[c]
Cinygmula sp	10
Epeorus longimonus	11
Total	235
COLEOPTERA	
Optioservus sp	42
Narpus sp	4
Total	46

d) Samples #1, #2, & #3 were grouped together.

c) May contain some *Ephemerella infrequens*.

Appendix X. Fish population estimates for the period 1971 - 1974.

Age class	Mean length (inches)			Mean weight (lbs.)			Estimated number			Estimated weight (lbs.)			Pounds per acre			Mortality rate (%	
	1972	1973	1974	1972	1973	1974	1972	1973	1974	1972	1973	1974	1972	1973	1974	1972 -73	1973 -7
Stillwater River - Section F-2 - March, April																	
Brown Trout																	
0	---	3.5	3.6	---	0.01	0.01	---	1208	1012	---	16.8	14.1					
I	6.0	5.9	5.9	0.08	0.08	0.08	377	462	327	30.4	35.3	25.4					73
II	9.1	9.5	9.0	0.26	0.29	0.25	258	96	99	67.3	27.6	24.6				75	79
III	11.9	12.6	12.1	0.55	0.65	0.57	187	109	57	103.2	70.7	32.8				58	40
IVand older	15.0	15.3	15.2	1.14	1.18	1.10	79	50	23	90.1	59.4	25.8				81	85
						Totals	901 (±172)[a]	1927 (±597)	1518 (±278)	290 (±33)	209 (±23)	122 (±11)	20.6	15	8.7		
Brook Trout																	
0	4.2	4.0	3.9	0.02	0.02	0.02	134	1296	88	3.4	28.5	1.6					
I	6.8	6.6	6.6	0.11	0.10	0.10	128	81	69	14.0	8.1	6.8				40	95
II	9.5	9.0	8.5	0.28	0.23	0.20	53	9	12	14.7	2.1	2.5				93	85
						Totals	315 (±147)	1386 (±831)	169 (±45)	32.1 (±16)	38.7 (±19)	10.9 (±3)	2.3	2.7	0.9		
Silver Creek - Section F-7 - Brown Trout - June																	
0	2.6	2.4	2.5	0.01	0.01	0.01	192	1036	697	2.0	10.4	7.0					
I	5.0	5.0	4.7	0.05	0.05	0.04	106	258	254	5.0	12.7	10.2					75
II[b]	7.1	7.0	7.4	0.14	0.13	0.15	78	57	70	10.6	7.4	10.6				46	79
III	9.2	8.9	---	0.27	0.24	----	24	19	---	6.5	4.7	----				75	
						Totals	400 (±140)	1370 (±262)	1020 (±128)	24.1 (±5)	35.2 (±3)	27.8 (±3)	127	185	148.		

a-95% confidence interval in parentheses b-Age group II and older in 1974

ppendix X. Continued

e ass	Mean length (inches)			Mean weight (lbs.)			Estimated number			Estimated weight (lbs.)			Pounds per acre			Mortality rate (%)	
	1972	1973	1974	1972	1973	1974	1972	1973	1974	1972	1973	1974	1972	1973	1974	1972 -73	1973 -74
Little Rocky Creek - Section F-8 - Brown Trout - June, July																	
I	----	3.8	4.5	----	0.01	0.03	----	70	411	----	1.0	13.8					62
I	6.7	7.1	7.8	0.13	0.14	0.20	76	30	26	9.8	4.4	5.4				48	62
Iand der	11.2	10.7	11.2	0.62	0.53	0.63	65	73	40	39.8	38.3	24.8					
						Totals	141 (+17)	173 (+33)	477 (+151)	49.6 (+6)	43.7 (+12)	44.0 (+14)	59.3	53	52		
Boulder River - Section F-4 - March, April																	
Rainbow Trout																	
0	----	2.5	2.7	----	0.01	0.01	----	957	2306		9.5	23.1					85
I	5.5	5.0	5.4	0.07	0.05	0.06	98	139	142	6.5	7.0	8.0				11	63
II	9.0	8.8	9.4	0.26	0.23	0.29	91	88	52	23.8	20.6	15.0					
II	12.9	12.0	11.9	0.79	0.63	0.58	68	242	49	53.7	151.1	28.1				21	99
IV	16.8	16.1	15.7	1.67	1.50	1.35	249	250	299	415.3	374.3	404.1					
						Totals	506 (+192)	1676 (+465)	2848 (+663)	499.3 (+253)	562.5 (+173)	478.3 (+131)	51.0	58.0	49.0		
Brook Trout																	
0	3.5	3.2	3.5	0.01	0.01	0.01	1787	6927	2023	22.6	74.3	25.3				24	89
I	6.0	5.6	5.6	0.08	0.06	0.06	955	1361	737	73.8	86.0	44.1				47	97
II[b]	8.6	9.1	9.4	0.20	0.25	0.31	124	511	49	25.0	126.9	15.0				66	
II	12.7	12.3	----	0.66	0.62	----	12	43	---	8.2	26.5	---					
						Totals	2878 (+937)	8842 (+2221)	2809 (+563)	129.6 (+25)	313.7 (+90)	84.4 (+14)	13.3	32.0	8.6		

Appendix X. Continued

Age class	Mean length (inches)		Mean weight (lbs.)		Estimated number		Estimated weight (lbs.)		Pounds per acre		Mortality rate (%)
	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1972 to 19 or 1973 to 19
East Rosebud River - Section F-14 - Brown Trout - November - 1971											
I	5.8		0.06		135		8.7				
II	9.1		0.25		159		39.7				
III	12.1		0.57		113		65.1				
IV	16.6		1.49		53		79.3				
				Totals	460 (±105)[a]		192.8 (±55)		17.2		
Morris Creek - Section F-12 - Brook Trout - June 1972, June 1973											
I	5.0	4.4	0.05	0.03	465	758	23.4	20.8			
II	7.6	6.9	0.17	0.12	105	142	18.3	16.9			69
III	9.0	9.2	0.28	0.27	78	25	22.0	6.8			76
				Totals	648 (±87)	925 (±189)	63.7 (±6)	44.5 (±6)	242	173	
West Fishtail Creek - Section F-10 - Brook Trout - July 1972, July 1973											
I	4.6	4.6	0.04	0.04	118	93	4.4	3.6			
II and older	7.7	7.2	0.19	0.16	28	57	5.5	9.1			61
				Totals	146 (±70)	150 (±42)	9.9 (±5)	12.7 (±5)	9.4	12.0	

Appendix X. Continued

Age class	Mean length (inches)		Mean weight (lbs.)			Estimated number		Estimated weight (lbs)		Pounds per acre		Mortality rate (%)
	1st year	2nd year	1st year	2nd year		1st year	2nd year	1st year	2nd year	1st year	2nd year	1972 to 1973 or 1973 to 1974
East Fishtail Creek - Section F-9 - Rainbow Trout - July 1972, July 1973												
I	---	2.8	---	0.01		---	113	---	1.2			
II	4.9	4.7	0.05	0.04		16	69	0.7	2.9			
IIIand older	8.3	7.8	0.28	0.22		10	24	2.7	5.2			9
					Totals	26	206	3.4	9.3	4.3	13	
						(±11)	(±84)	(±2)	(±3)			
Fishtail Creek - Section F-11 - July, 1972, August, 1973												
Rainbow Trout												
I	---	3.7	---	0.01		---	1002	---	14.4			
II	5.5	6.0	0.08	0.09		174	158	13.3	14.7			
III	8.0	8.0	0.22	0.21		41	86	9.0	18.1			51
IVand older	10.8	10.8	0.52	0.50		29	34	14.9	17.0			51
					Totals	244	1280	37.2	64.2	15.7	27.0	
						(±101)	(±270)	(±12)	(±8)			
Brown Trout												
I	---	4.8	---	0.04		---	330	---	14.3			
II	6.9	7.3	0.14	0.17		94	84	13.1	13.9			
III	9.8	10.4	0.39	0.46		56	90	21.5	41.7			4
IVand older	12.7	13.5	0.83	0.96		49	67	41.1	63.8			37
					Totals	199	571	75.7	133.7	30.5	53.0	
						(±46)	(±84)	(±18)	(±19)			

Appendix X. Continued

Age class	Mean length (inches)		Mean weight (lbs.)		Estimated number		Estimated weight (lbs.)		Pounds per acre		Mortality rate (%)
	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1972 to 19[illegible] or 1973 to 1[illegible]
Stillwater River - Section F-1 - May 1972; April, May 1973											
Brook Trout											
0	3.9	3.6	0.02	0.01	233	494	4.0	6.6			
I	5.6	6.0	0.06	0.08	151	296	9.5	22.4			
II	8.2	9.6	0.19	0.28	38	10	7.0	2.9			93
				Totals	422	800	20.5	31.9	2.7	4.1	
					(±190)	(±203)	(±8)	(±8)			
Rainbow Trout											
0	---	2.4	---	0.01	---	481	---	4.8			
I	---	4.2	---	0.03	---	357	---	9.6			
II	---	6.9	---	0.12	---	54	---	6.3			
III and older	---	11.7	---	0.62	---	43	---	26.9		6.3	
				Totals		935 (±346)		47.6 (±19)			
Stillwater River - Section F-3 - Brown Trout - November 1971											
I	6.0	---	0.06	---	604	---	38.7				
II	8.9	---	0.25	---	544	---	135.2				
III	12.3	---	0.65	---	224	---	145.2				
IV and older	15.3	---	1.24	---	149	---	186.1				
				Totals	1521 (±460)		505.2 (±101)		47.8		

Appendix X. Continued

Age class	Mean length (inches)		Mean weight (lbs.)			Estimated number		Estimated weight (lbs.)		Pounds per acre		Mortality rate (%)
	1st year	2nd year	1st year	2nd year		1st year	2nd year	1st year	2nd year	1st year	2nd year	1972 to 1973 or 1973 to 1974
Stillwater River - Section F-19 - Brown Trout - March, April - 1974												
0	3.9	---	0.02	---		1031	---	18.9	---			
I	6.9	---	0.12	---		590	---	68.7	---			
II	9.8	---	0.35	---		233	---	80.5	---			
IIIand older	13.0	---	0.74	---		134	---	99.2	---	47.5		
					Totals	1988 (±334)		267.3 (±30)				
Nye Creek - Section F-6 - Brook Trout - June 1973												
I	4.1	---	0.02	---		3	---	0.06	---			
IIand older	6.3	---	0.10	---		10	---	0.99	---			
					Totals	13 (±5)		1.05 (± 1)		6.0		
Mountain View Creek - Section F-5 - Brook Trout - June 1972, 1973												
I	4.5	4.6	0.04	0.04		100	84	4.1	3.1			
II	8.7	6.7	0.26	0.12		11	15	2.9	1.9			
					Totals	111 (±64)	99 (±23)	7.0 (±5)	4.0 (±2)	24.6	14.0	85
Picket Pin Creek - Section F-16 - August, September, 1972; September, 1973												
Brook Trout												
I	5.3	5.4	0.06	0.06		49	241	3.0	14.1			
IIand older	8.8	8.1	0.30	0.24		47	38	14.0	9.3			60
					Totals	96 (±13)	279 (±34)	17.0 (±1)	23.4 (±3)	26.6	38.0	

Appendix X. Continued

Age class	Mean length (inches)		Mean weight (lbs.)		Estimated number		Estimated weight (lbs.)		Pounds per acre		Mortality rate(%)
	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1972 to 197 or 1973 to 19
Picket Pin Creek - Section F-16 - Continued											
Brown Trout											
I	4.4	4.2	0.03	0.02	22	70	0.6	1.5			
II	6.4	6.3	0.09	0.09	42	14	3.9	1.2			37
III	9.4	8.3	0.35	0.23	33	12	11.6	2.9			70
IVand older	11.3	12.0	0.59	0.69	8	7	4.9	4.9			83
				Totals	105 (+14)	103 (+27)	21.0 (+3)	10.5 (+2)	34.0	19.0	
Cutthroat Trout											
I	5.1	5.2	0.05	0.05	27	23	1.3	1.2			
II	7.3	7.6	0.16	0.16	13	10	2.1	1.7			61
IIIand older	9.5	9.4	0.34	0.33	8	14	2.8	4.5			37
				Totals	48 (+12)	47 (+12)	6.2 (+2)	7.4 (+2)	9.4	11.0	
West Fork Stillwater River - Section F-17 - April, May 1973, 1974											
Rainbow Trout											
I	4.3	4.4	0.03	0.03	359	489	10.4	14.8			
II	6.3	6.5	0.09	0.10	93	194	8.4	19.8			46
III	---	8.4	---	0.23	---	73	---	16.7			21
III and older	8.4	---	0.23	---	177	---	40.5	---			
IV and older		10.0	---	0.39	---	59	---	23.1			67
				Totals	629 (+108)	815 (+106)	59.3 (+9)	74.4 (+16)	27.7	35.1	

Appendix X. Continued

Age class	Mean length (inches)		Mean weight (lbs.)		Estimated number		Estimated weight (lbs.)		Pounds per acre		Mortality rate(%)
	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1972 to 1973 or 1973 to 1974
West Fork Stillwater River - Section F-17 - Continued											
Brown Trout											
I	4.8	5.1	0.04	0.05	34	102	1.5	5.2			
II	7.3	7.2	0.16	0.15	20	25	3.2	3.6			27
III and older	10.5	11.0	0.48	0.56	27	15	13.0	8.2			69
				Totals	81 (±30)	142 (±23)	17.7 (±6)	17.0 (±3)	8.3	7.8	
West Fork Stillwater River - Section F-22 - Rainbow Trout - October, 1974											
I	5.3	---	0.06	---	27	---	1.5	---			
II	6.6	---	0.13	---	22	---	2.8	---			
III	8.1	---	0.23	---	46	---	10.4	---			
IV and older	9.8	---	0.40	---	82	---	33.0	---			
				Totals	177 (±56)		47.7 (±17)		16.2		
Lower Deer Creek - Section F-18 - Brown Trout - June, July 1973											
I	4.4	---	0.03	---	197	---	5.6	---			
II	7.5	---	0.17	---	44	---	7.4	---			
III	11.2	---	0.50	---	58	---	28.9	---			
IV and older	14.1	---	0.88	---	38	---	33.8	---			
				Totals	337 (±76)		75.7 (±11)		21.3		

Appendix X. Continued

Age class	Mean length (inches)		Mean weight (lbs.)		Estimated number		Estimated weight (lbs.)		Pounds per acre		Mortality rate(%)
	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1972 to 197 or 1973 to 197
Boulder River - Section F-21 - Rainbow Trout - September 1974											
0	3.3	---	0.01	---	34	---	0.3	---			
I	5.2	---	0.06	---	304	---	18.2	---			
II	8.0	---	0.22	---	170	---	37.0	---			
III	10.2	---	0.44	---	77	---	34.2	---			
IVand older	12.7	---	0.87	---	80	---	70.4	---			
				Totals	665 (±178)		160.1 (±58)		35.6		
East Boulder River - Section F-13 - July, August 1972; August 1973											
Rainbow Trout											
I	4.0	3.9	0.02	0.02	37	116	0.9	2.4			
II	5.1	5.2	0.05	0.05	145	41	7.5	2.1			
III	6.2	6.3	0.09	0.10	252	63	22.5	6.4			56
IV	8.2	7.3	0.21	0.15	62	203	12.9	30.7			19
Vand older	10.3	8.9	0.35	0.27	6	43	2.0	11.4			36
				Totals	502 (±80)	466 (±70)	45.8 (±6)	53.0 (±6)	28.8	35.0	
Brown Trout											
II	4.1	4.7	0.02	0.04	11	46	0.3	1.8			
III	6.2	6.1	0.09	0.09	49	30	4.3	2.6			
IV	7.5	7.7	0.16	0.18	15	33	2.5	5.9			32
Vand older	10.9	9.2	0.51	0.32	7	21	3.8	6.8	7.1	11.0	7
				Totals	82 (±25)	130 (±26)	10.9 (±3)	17.1 (±5)			

Appendix X. Continued

Age class	Mean length (inches)		Mean weight (lbs.)		Estimated number		Estimated weight (lbs.)		Pounds per acre		Mortality rate(%)
	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1972 to 1973 or 1973 to1974
East Boulder River - Section F-20 - September 1974											
Rainbow Trout											
I	3.5	---	0.01	---	297	---	3.6	---			
II	5.5	---	0.06	---	177	---	10.9	---			
III	7.4	---	0.16	---	160	---	25.0	---			
IVand older	9.5	---	0.35	---	86	---	30.0	---			
				Totals	720 (±120)		69.5 (±8)		28.7		
Brown Trout											
I	4.1	---	0.02	---	98	---	2.1	---			
II	6.2	---	0.09	---	70	---	6.0	---			
III	8.0	---	0.20	---	88	---	17.4	---			
IVand older	11.6	---	0.63	---	38	---	24.2	---	20.1		
				Totals	294 (±48)		49.7 (±6)				

Appendix Y. Fish population estimates for stream sections in the West Fork Stillwater River drainage, 1975 - 1976.

Age class	Mean length (inches)	Mean weight (pounds)	Estimated number	Estimated weight(pounds)	Pounds per acre
West Fork Stillwater River - Section F-28 - October 1975 - Rainbow trout					
II	5.6	0.07	161	10.6	
III	7.5	0.16	81	13.1	
IV and older	9.5	0.34	43	14.7	
		Totals	285 (±129)[a]	38.7 (±17)	17.5

	Mean length (inches)		Mean weight (pounds)		Estimated number		Estimated weight(pounds)		Pounds per acre	
West Fork Stillwater River - Section F-26 - May 1975; April 1976 - Rainbow trout										
	1975	1976	1975	1976	1975	1976	1975	1976	1975	1976
I	3.8	3.3	0.02	0.01	278	106	4.5	1.1		
II	6.5	5.6	0.10	0.07	84	142	8.2	9.5		
III	8.5	8.1	0.23	0.20	33	63	7.5	12.6		
IV and older	10.1	9.9	0.40	0.39	50	44	19.8	17.2		
				Totals	445 (±176)	355 (±81)	40.0 (±7.8)	40.4 (±10.9)	20.6	20.8

West Fork Stillwater River - Section F-29 - November 1975 - Rainbow trout					
I	3.8	0.01	82	1.2	
II	5.7	0.07	111	7.7	
III	8.1	0.21	37	7.7	
IV and older	10.4	0.44	49	21.2	
		Totals	279 (±89)	37.8 (±12)	24.7

West Fork Stillwater River - Section F-24 - April 1975					
Brown Trout					
0	3.7	0.01	478	7.1	
I	7.1	0.13	251	33.0	
II	9.9	0.36	296	105.3	
III and older	12.6	0.70	53	36.9	
		Totals	1078 (±123)	182.3 (±22)	51.3

Appendix Y. Continued

Age Class	Mean length (inches)	Mean weight (pounds)	Estimated number	Estimated weight (pounds)	Pounds per acre
Rainbow Trout					
I	5.3	0.05	154	8.2	
II and older	7.8	0.19	211	40.5	
		Totals	365	48.7	13.8
			(±48)	(±6)	

Castle Creek - Section F-25 - April 1975; October 1975

	Mean length (inches)		Mean weight (pounds)		Estimated number		Estimated weight (pounds)		Pounds per acre	
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Brown Trout										
0	2.8	--	0.01	--	89	--	0.9	--		
I	4.8	4.3	0.04	0.03	56	40	2.2	1.1		
II and older	8.2	7.6	0.20	0.20	7	43	1.4	8.5		
				Totals	152	83	4.5	9.6	25.4	50.8
					(±55)	(±14)	(±0)	(±2)		
Brook Trout										
0	3.8	3.3	0.02	0.01	321	159	5.3	1.6		
I	6.2	5.8	0.08	0.08	24	130	2.0	10.0		
II	8.6	8.7	0.21	0.30	5	11	1.0	3.4		
				Totals	350	300	8.3	15.0	45.7	76.1
					(±28)	(±42)	(±0)	(±2)		

a) 95% confidence interval in parentheses

Appendix Y. Continued

Age Class	Mean length (inches)	Mean weight (pounds)	Estimated number	Estimated weight (pounds)	Pounds per acre
Castle Creek - Section F-27 - September 1975 - Brown Trout					
I	4.9	0.04	528	22.8	
II	7.5	0.16	185	30.0	
III and older	10.5	0.49	167	82.1	
		Totals	880 (±97)	134.9 (±6.2)	116.9

	Castle Creek - Section F-23 - April 1975; October 1975 - Brown Trout									
	Mean length (inches)		Mean weight (pounds)		Estimated number		Estimated weight (pounds)		Pounds per acre	
Age Class	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
0	3.7	3.0	0.02	0.01	1388	820	24.2	8.4		
I	6.7	6.0	0.11	0.08	214	414	22.8	32.9		
II and older	9.7	10.0	0.31	0.39	590	507	180.1	199.6		
				Totals	2192 (±278)	1741 (±302)	227.1 (±9)	240.9 (±27)	239	256

	Picket Pin Creek - Section F-16 - September 1975			
	Mean length (inches)	Mean weight (pounds)	Estimated number	Estimated weight (pounds)	Pounds per acre
Brown Trout					
I	4.5	0.03	18	0.6	
II	6.4	0.10	35	3.4	
III and older	10.3	0.44	32	13.8	
		Totals	85 (±17)	17.8 (±3.1)	28.1
Brook Trout					
0	2.6	0.01	24	0.2	
I	5.4	0.06	39	2.5	
II and older	8.3	0.25	53	13.0	
		Totals	116 (±25)	15.7 (±3)	25.0
Cutthroat Trout					
0	2.9	0.01	16	0.2	
I	4.5	0.03	4	0.1	
II and older	8.1	0.23	21	4.9	
			41 (±16)	5.2 (±2)	7.8

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
Little Rocky Creek - F-8	Brown trout	6-72	5.3-8.8	II,III	54	50	35	77
			8.9-14.9	III & older	50	47	37	63
	Brown trout	7-73	3.2-3.9	I	23	27	11	55
			4.0-5.5	I	6	17	7	15
			5.6-7.2	II	9	23	12	17
			7.3-10.9	II, III	29	59	29	59
			11.0-15.0	III and older	12	16	7	27
	Brown trout	7-74	3.5-4.9	I	73	94	18	369
			5.0-8.7	I,II	31	37	17	67
			8.8-14.5	II, III and older	15	20	7	41
Picket Pin Creek F-16	Brook trout	9-72	4.2-6.8	I	34	23	16	48
			6.9-11.9	II and older	43	31	29	46
	Brown trout	9-72	3.6-6.0	I, II	26	11	8	35
			6.1-7.9	II	24	12	10	29
			8.0-9.8	III	24	18	18	24
			9.9-14.1	III,IV	13	11	8	18
	Cutthroat trout	9-72	4.2-6.3	I	15	13	7	27
			6.4-10.9	II,III	20	13	12	22
Picket Pin Creek F-16	Brook trout	9-73	4.0-6.9	I, II	132	191	102	247
			7.0-12.4	II and older	19	46	27	33
	Brown trout	9-73	3.5-5.1	I	23	52	17	70
			5.2-7.9	II, III	13	18	13	18
			8.0-8.9	III	4	12	8	6
			9.0-14.6	III, IV and older	8	8	7	9
	Cutthroat trout	9-73	4.3 - 5.9	I	11	19	9	23
			6.0-11.6	II, III and older	14	24	14	24

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
Picket Pin Creek F-16	Brook trout	9-75	2.2-5.3	0, I	21	15	7	43
			5.4-6.7	I	11	17	9	21
			6.8-8.2	II and older	19	15	10	28
			8.3-11.3	II and older	16	20	13	25
	Brown trout	9-75	3.5-5.6	I, II	11	19	8	26
			5.7-9.9	II,III and older	29	27	19	41
			10.0-13.4	III and older	15	10	8	19
	Cutthroat trout	9-75	2.6-14.0	0, I, II and older	22	19	10	41
West Fork Stillwater River F-22	Rainbow trout	10-74	4.3-7.8	I, II, III	23	31	10	69
			7.9-12.9	III, IV and older	44	28	11	108
West Fork Stillwater River F-28	Rainbow trout	10-75	4.7-12.2	II, III, IV and older	67	58	13	286
West Fork Stillwater River F-26	Rainbow trout	5-75	2.9-4.9	I, II	40	54	7	281
			5.0-6.9	II	28	33	15	61
			7.0-8.9	II, III	25	28	16	43
			9.0-12.6	III, IV and older	39	29	19	59
	Rainbow trout	4-76	2.7-4.1	I, II	28	29	7	108
			4.2-5.3	II	25	21	9	56
			5.4-6.7	II	38	23	11	77
			6.8-8.2	II, III	22	32	16	44
			8.3-11.8	III, IV and older	32	23	10	71
West Fork Stillwater River F-29	Rainbow trout	11-75	2.8-5.9	I, II	33	57	11	163
			6.0-6.9	II, III	13	14	6	29
			7.0-13.1	II, III, IV and older	29	46	15	87

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
West Fork Stillwater River F-17	Brown trout	5-73	4.2-8.7	I, II	24	19	8	55
			8.8-17.6	III and older	13	15	7	27
	Rainbow trout	5-73	3.4-3.9	0, I	31	43	9	140
			4.0-4.9	I	55	93	31	164
			5.0-5.9	I, II	27	28	8	89
			6.0-6.9	I, II	32	45	26	55
			7.0-8.9	II, III	70	73	34	149
			9.0-11.9	III and older	24	32	18	42
West Fork Stillwater River F-17	Brown trout	5-74	3.9-6.0	I	66	45	29	102
			6.1-8.9	II, III	17	14	9	26
			9.0-19.2	III and older	12	9	8	13
	Rainbow trout	5-74	3.0-3.9	0, I	52	42	14	151
			4.0-4.9	I	118	96	44	256
			5.0-5.9	I, II	59	41	24	100
			6.0-6.9	I, II	71	57	26	154
			7.0-8.9	II, III, IV and older	59	42	25	98
			9.0-11.7	III, IV and older	23	25	8	68
West Fork Stillwater River F-24	Brown trout	4-75	2.7-3.9	0	121	111	40	332
			4.0-5.5	0	46	52	16	146
			5.6-7.3	I	70	63	27	161
			7.4-8.9	I, II	77	61	31	150
			9.0-9.9	II	62	42	26	99
			10.0-12.9	II, III and older	85	72	36	169
			13.0-16.3	III and older	18	13	12	19
	Rainbow trout	4-75	3.8-5.6	I	59	47	23	119
			5.7-6.9	I, II and older	59	77	41	110
			7.0-8.9	II & older	53	43	25	90
			9.0-13.8	II & older	30	29	19	46

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
Castle Creek F-25	Brook trout	4-75	2.8-3.9	0	139	129	90	199
			4.0-5.1	0	84	100	69	122
			5.2-6.9	I	17	20	17	20
			7.0-9.6	I, II	9	7	7	9
	Brown trout	4-75	2.0-3.8	0	19	35	7	89
			3.9-5.4	I	40	30	22	54
			5.5-10.6	I, II and older	9	7	7	9
	Brook trout	10-75	2.3-3.0	0	18	18	8	39
			3.1-3.9	0	58	46	22	120
			4.0-6.9	I	89	87	63	123
			7.0-10.0	I, II	18	16	15	19
	Brown trout	10-75	3.6-4.9	I	22	26	16	36
			5.0-7.9	I, II and older	28	25	18	39
			8.0-12.5	II and older	8	8	7	9
Castle Creek F-27	Brown trout	9-75	3.4-4.9	I	140	92	37	344
			5.0-6.9	I, II	126	93	51	229
			7.0-9.9	II, III and older	155	140	109	199
			10.0-10.9	III and older	41	44	36	50
			11.0-14.6	III and older	57	42	41	58
Castle Creek F-23	Brown trout	4-75	2.2-3.2	0	55	76	9	430
			3.3-3.9	0	149	190	60	469
			4.0-4.9	0	184	209	81	473
			5.0-5.9	0, I	28	31	15	57
			6.0-8.9	I, II and older	248	247	180	340
			9.0-12.9	II and older	323	338	268	407
			13.0-15.9	II and older	15	12	12	15

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
	Brown trout	10-75	2.0-3.0	0	83	58	10	450
			3.1-3.9	0	84	54	12	359
			4.0-6.9	0, I	165	154	64	395
			7.0-9.9	I, II and older	172	161	95	291
			10.0-11.9	II and older	104	107	57	195
			12.0-15.9	II and older	26	23	11	53
Lower Deer Creek F-18	Brown trout	7-73	3.4-4.3	I	31	23	7	95
			4.4-4.9	I	17	36	7	82
			5.0-7.9	I, II	25	31	14	54
			8.0-9.9	II, III	12	18	10	21
			10.0-13.5	III, IV and older	33	41	25	54
			13.6-16.5	IV and older	24	18	14	31
Boulder River F-4	Brook trout	4-72	2.2-4.6	0	185	124	12	1787
			4.7-7.9	I, II	285	159	45	994
			8.0-13.9	II, III	47	30	14	98
	Rainbow trout	4-72	4.1-11.6	I, II, III	55	42	11	200
			11.7-21.9	III, IV and older	58	51	9	306
	Brook trout	4-73	2.2-3.9	0	534	416	33	6561
			4.0-5.9	0, I	123	253	22	1368
			6.0-7.9	I, II	29	189	11	474
			8.0-14.1	II, III	19	219	9	439
	Rainbow trout	4-73	1.8-3.9	0, I	151	102	15	978
			4.0-8.6	I, II	34	40	8	158
			8.7-11.6	II, III	25	55	9	145

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
			11.7-13.0	III, IV and older	55	66	31	116
			13.1-14.9	III, IV and older	48	38	23	79
			15.0-21.1	III, IV and older	44	48	10	199
	Brook trout	4-74	2.4-3.9	0	305	204	35	1742
			4.0-4.9	0, I	123	76	25	366
			5.0-6.9	I	169	134	35	637
			7.0-13.4	I, II and older	29	23	10	64
	Rainbow trout	4-74	1.8-2.9	0	262	226	30	1925
			3.0-3.4	0	97	71	19	352
			3.5-8.9	0, I, II	53	28	7	195
			9.0-11.9	II, III, IV and older	28	18	7	68
			12.0-14.0	III, IV and older	38	26	15	65
			14.1-15.9	IV and older	30	28	10	81
			16.0-17.9	IV and older	30	45	9	142
			18.0-22.4	IV and older	12	14	8	21
Boulder River F-21	Rainbow trout	9-74	2.4-4.9	0, I	42	50	12	168
			5.0-7.9	I, II	53	58	11	265
			8.0-9.9	II, III, IV, and older	26	38	9	104
			10.0-15.6	II, III, IV and older	21	58	9	129

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
East Boulder	Brown trout	8-72	3.7-6.8	II, III	28	23	11	57
			6.9-12.9	III, IV, V and older	15	14	8	26
River F-13	Rainbow trout	8-72	3.7-4.9	I, II	31	34	9	111
			5.0-6.3	II, III	105	117	56	218
			6.4-7.1	III	37	45	18	91
			7.2-7.8	III, IV	17	20	11	31
			7.9-8.9	IV	16	27	11	39
			9.0-11.9	IV, V	8	8	6	11
	Brown trout	8-73	3.8-4.9	I, II	22	14	9	34
			5.0-7.1	II, III, IV	31	17	10	51
			7.2-12.9	IV, V and older	30	21	13	48
	Rainbow trout	8-73	2.3-4.0	0, I	36	31	9	117
			4.1-5.7	I, II	61	65	42	94
			5.8-6.9	III, IV	77	74	45	126
			7.0-8.0	IV	74	78	49	118
			8.1-10.7	IV, V and older	43	31	20	66
East Boulder River F-20	Brown trout	9-74	3.2-4.9	I	42	38	16	98
			5.0-5.9	II	14	13	10	18
			6.0-7.9	II, III	43	47	21	95
			8.0-9.9	III, IV and older	39	28	21	52
			10.0-10.9	IV and older	8	8	8	8
			11.0-15.3	IV and older	17	22	16	23
	Rainbow trout	9-74	2.5-3.9	0, I	65	75	17	278
			4.0-4.9	I, II	34	39	21	63
			5.0-5.8	II	69	61	38	110
			5.9-7.3	II, III	63	84	45	117
			7.4-8.9	III, IV and older	63	76	44	109
			9.0-13.1	IV and older	33	37	21	58

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
East Rosebud River F-14	Brown trout	11-71	4.4-7.1	I	43	36	11	135
			7.2-10.6	II, III	66	40	15	171
			10.7-13.7	III	37	26	10	92
			13.8-19.9	III, IV	23	20	7	62
Morris Creek F-12	Brook trout	6-72	3.5-5.9	I	169	200	74	455
			6.0-6.9	I, II	17	25	16	27
			7.0-7.9	II, III	33	36	18	65
			8.0-8.9	II, III	37	41	27	56
			9.0-11.9	II, III	33	27	19	47
	Brook trout	6-73	2.8-3.9	I	23	63	8	170
			4.0-4.9	I	80	236	36	518
			5.0-5.8	I	17	70	17	70
			5.9-6.9	II	35	70	27	90
			7.0-7.9	II	19	41	19	41
			8.0-8.9	II, III	11	20	10	22
			9.0-10.6	III and older	10	17	12	14
West Fishtail Creek F-10	Brook trout	7-72	3.7-9.3	I, II and older	35	48	11	146
		7-73	3.5-5.3	I	40	47	20	93
			5.4-10.3	II and older	17	28	8	57
East Fishtail Creek F-9	Rainbow trout	7-72	4.3-11.5	II, III and older	15	14	8	26
		7-73	2.3-4.6	I, II	37	33	8	143
			4.7-10.9	II, III and older	22	27	9	63
Fishtail Creek F-11	Brown trout	7-72	6.0-7.9	II	38	29	12	89
			8.0-10.5	II, III	19	29	11	49
			10.6-11.7	III, IV and older	15	11	7	23
			11.8-17.9	IV and older	20	14	7	38

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
	Rainbow trout	7-72	4.0-5.9	I, II	55	37	10	192
			6.0-8.0	II, III	19	22	7	57
			8.1-13.0	III, IV and older	23	15	7	47
Fishtail Creek F-11	Brown trout	8-73	4.0-4.9	I	82	84	28	242
			5.0-6.9	I, II	44	89	33	118
			7.0-8.0	II	22	22	13	37
			8.1-9.3	II, III	23	26	17	35
			9.4-11.7	III	32	45	25	57
			11.8-12.6	III, IV	24	21	12	41
			12.7-18.4	IV and older	24	30	18	40
	Rainbow trout	8-73	2.8-3.9	0, I	137	166	28	794
			4.0-4.9	I	71	146	51	203
			5.0-5.9	I, II	49	61	32	93
			6.0-6.9	II	48	66	41	77
			7.0-7.9	II, III	35	50	39	45
			8.0-8.8	III	17	27	13	35
			8.9-12.8	III, IV and older	26	29	18	42
Stillwater River F-1	Brook trout	5-72	2.7-5.9	0, I	33	109	10	339
			6.0-10.0	I, II	21	45	11	83
	Brook trout	5-73	2.2-3.6	0	43	61	8	302
			3.7-6.6	0, I	130	191	59	418
			6.7-10.9	I, II	30	20	7	80
	Rainbow trout	5-73	1.7-3.4	0, I	47	85	7	515
			3.5-4.0	I	29	31	7	119
			4.1-4.9	I	68	48	19	168
			5.0-15.3	I, II, III and older	42	27	8	133
Stillwater River F-2	Brook and Brown trout	4-72	3.0-11.7	0, I, II	78	51	12	315
		4-72	4.5-7.6	I, II	96	73	17	398
			7.7-10.2	II	98	75	33	220
			10.3-11.4	II, III	53	30	19	83

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
			11.5-12.9	III	67	32	23	93
			13.0-14.6	III, IV	50	27	19	70
			14.7-23.9	IV and older	25	20	13	38
	Brook trout	4-73	2.6-5.2	0	94	108	7	1293
			5.3-5.9	0, I	13	19	12	21
			6.0-10.4	I, II	29	43	17	72
	Brown trout	4-73	2.4-4.9	0, I	94	213	15	1270
			5.0-7.5	I	156	168	68	384
			7.6-8.3	I, II	19	12	10	23
			8.4-10.3	II	60	48	40	72
			10.4-11.3	II, III	26	25	21	31
			11.4-13.0	III	49	36	29	61
			13.1-14.7	III, IV and older	33	22	13	55
			14.8-20.6	IV and older	22	17	12	31
	Brook trout	4-74	2.5-4.9	0, I	34	32	12	88
			5.0-5.9	0, I	10	9	8	11
			6.0-7.1	I	16	18	7	39
			7.2-9.2	I, II	16	14	7	31
Stillwater River F-2	Brown trout	4-74	2.6-3.9	0	132	198	31	826
			4.0-4.9	0, I	62	65	20	197
			5.0-5.9	0, I	64	98	39	160
			6.0-8.2	I, II	115	108	72	172
			8.3-8.9	II	33	22	18	40
			9.0-10.9	II, III	29	19	11	49
			11.0-12.9	II, III	34	35	31	38
			13.0-17.9	III, IV and older	30	17	14	36
Stillwater River F-3	Brown trout	11-71	3.7-9.4	I, II	187	84	15	998
			9.5-12.1	II, III	76	43	11	281
			12.2-21.9	III, IV and older	114	71	33	243

Appendix Z. Length groups used and numbers of fish captured in making population estimates.

Stream and Section number	Species	Date	Length group (inches)	Age(s)	Number of fish marked	Number of fish in recapture sample	Number of marked fish in recapture sample	Number estimate
Stillwater River F-19	Brown trout	4-74	2.8-4.9	0	186	191	34	1025
			5.0-6.9	0, I	102	123	37	335
			7.0-9.0	I, II	123	114	43	323
			9.1-9.9	II	41	42	28	61
			10.0-10.9	II, III and older	36	31	13	84
			11.0-12.9	II, III and older	52	47	24	101
			13.0-17.8	III and older	37	45	28	59
Silver Creek	Brown trout	6-72	1.7-4.5	0, I	31	54	7	219
			4.6-5.9	I, II	31	43	16	82
			6.0-7.9	II	38	48	31	59
			8.0-10.7	II, III	27	24	16	40
	Brown trout	6-73	1.7-2.9	0	179	259	46	995
			3.0-4.9	0, I	85	104	58	152
			5.0-5.9	I	84	81	49	138
			6.0-7.9	I, II	52	47	41	60
			8.0-10.9	II, III	22	18	15	26
	Brown trout	6-74	1.7-2.8	0	157	294	75	612
			2.9-3.9	0, I	54	86	35	132
			4.0-4.9	I	74	58	47	91
			5.0-5.9	I	66	54	33	107
			6.0-6.9	I, II and older	30	25	20	37
			7.0-9.6	II and older	30	22	16	41
Nye Creek F-6	Brook trout	6-73	4.1-7.3	I, II and older	9	12	8	13
Mountain View Creek F-5	Brook trout	6-72	3.2-10.0	I, II	30	28	7	111
	Brook trout	6-73	2.9-3.9	I	16	9	8	18
			4.0-4.9	I	19	16	7	42
			5.0-7.6	I, II	26	29	19	40

Appendix AA. Results of survey electrofishing.

Stream and location description	T	R	S	Stream section length (feet)	Species	Number caught	Length range (inches)	Fish age(s)	Date
East Fishtail Creek									
West fork near mouth	5S	16E	26	1000	Eb[a]	9	3.7-7.8	1,2	7-09-74
					LL	1	3.4	1	
West fork of West Fork									
near mouth	5S	16E	35	500	Eb	1	3.8	-	7-10-74
0.5 miles above mouth	5S	16E	34	500	-	0	-	-	7-10-74
East fork of west fork									
near mouth	5S	16E	35	500	Eb	3	4.0-6.3	1,2	7-10-74
West Fishtail Creek									
near ditch headgate	5S	16E	27	500	Eb	11	3.6-8.5	1,2,3	8-12-74
3.5 miles above mouth	5S	16E	27	400	-	0	-	-	8-12-74
Little Rocky Creek									
near mouth	4S	16E	28	700	LL	43	4.9-12.7	1,2,3,4	7-19-74
					Rb	2	6.5-8.7	-	
					LnSu	1	16.2	-	
					Lnd	4	4.0-5.5	-	
at Forest Service Camp	5S	16E	21	500	-	0	-	-	7-18-74
West fork near mouth	5S	16E	29	500	-	0	-	-	7-11-74
West fork above Benbow Mine	5S	16E	31	500	-	0	-	-	7-18-74
East fork near mouth	5S	16E	29	500	-	0	-	-	7-11-74
East fork near road crossing	5S	16E	32	500	-	0	-	-	7-11-74
South Nye Creek-near mouth	5S	15E	15	1850	-	0	-	-	6-08-72
Nye Creek-lower Nye basin	5S	15E	22,23	1000	-	0	-	-	6-11-74
Vedigris Creek									
near mouth	5S	15E	28	1520	-	0	-	-	6-13-72
near wood culvert above gossan	5S	15E	20	500	-	0	-	-	7-19-74
Mountain View Creek									
0.75 miles above mouth	5S	15E	21	500	-	0	-	-	6-12-74
outlet of Mountain View Lake	5S	15E	20	640	Lake Chub	1	3.5	-	6-12-74

a- Abbreviations are: Rb=Rainbow Trout; Ct=Cutthroat Trout; Eb=Brook Trout; LL=Brown Trout; LNSu=Longnose Sucker; Lnd=Longnose Dace

Appendix AA. Continued

Stream and location description	T	R	S	Stream section length (feet)	Species	Number caught	Length range (inches)	Fish age(s)	Date
Silver Creek									
just below east and west forks	5S	15E	16	450	LL	31	2.3-9.8	-	6-13-74
					Eb	2	3.3-3.9	-	
South fork 0.25 miles above mouth	5S	15E	16	250	LL	17	2.1-6.9	-	6-13-74
North fork 0.25 miles above mouth	5S	15E	16	200	LL	4	5.0-6.8	-	6-13-74
					Eb	1	4.2	-	
Iron Creek									
0.5 miles above mouth	5S	14E	11	1600	Rb	32	3.6-11.2	1,2,3,4	9-6,7,17-7
one mile above mouth	5S	14E	11	500	-	0	-	-	8-16-74
meadow 2 miles east of Iron Mountain	5S	14E	8	1000	-	0	-	-	7-31-74
South fork near mouth	5S	14E	7	500	-	0	-	-	7-31-74
North fork near mouth	5S	14E	7	500	-	0	-	-	7-31-74
Initial Creek near mouth	5S	14E	13,14	900	-	0	-	-	7-12-72
Cathedral Creek near mouth	5S	14E	14	900	Rb	1	5.5	-	7-12-72
Picket Pin Creek									
near Bear Pen Creek	4S	14E	36	500	Ct-Rb hybrid	1	12.1	4	7-30-74
					Eb	1	8.4	2	
1.5 miles below old sawmill	5S	14E	2	500	Rb	3	7.3-10.5	3,4	8-28-72
near road crossing	5S	14E	3	250	Rb	3	7.2-9.4	3,4	8-28-72
South fork near mouth	5S	14E	3	500	-	0	-	-	7-30-74
North fork near mouth	5S	14E	3	500	-	0	-	-	7-30-74
outlet of South Picket Pin Lake	5S	14E	6	500	-	0	-	-	7-30-74
East Boulder River									
near Canyon Creek	4S	13E	14	700	Rb	9	3.8-8.7	1,2,3,4	8-5-74
					Rb-Ct hybrid	5	4.2-11.3	1,2,4	
					LL	1	10.2	5+	
near Brownlee Creek	4S	13E	26	500	-	0	-	-	8-6-74
one mile above Brownlee Creek	4S	13E	35	1500	-	0	-	-	8-9-74
one mile below road crossing	4S	13E	35	500	-	0	-	-	8-9-74

Appendix AA. Continued

Stream and location description	T	R	S	Stream section length (feet)	Species	Number caught	Length range (inches)	Fish age(s)	Date
East Boulder River continued									
Placer Basin road crossing	5S	13E	11	1500	Ct[b]	4	6.3-7.5	-	8-24-72
Placer Basin road crossing	5S	13E	11	1500	Ct[b]	1	10.8	-	8-01-[illegible]
one mile above road crossing	5S	13E	11,14	500	-	0	-	-	8-20-[illegible]
East fork near mouth	5S	13E	14	500	-	0	-	-	8-20-74
West fork near mouth	5S	13E	14	500	-	0	-	-	8-20-74
Forge Creek									
near mouth	5S	13E	2	500	Ct[b]	1	10.1	-	8-01-74
North fork near mouth	5S	13E	3	500	-	0	-	-	8-19-74
South fork near mouth	5S	13E	3	500	-	0	-	-	8-19-74
Brownlee Creek									
near mouth	4S	13E	26	500	Ct	1	9.6	-	8-06-74
one mile above mouth	4S	13E	27	500	-	0	-	-	8-08-74
two miles above mouth	4S	13E	27	500	-	0	-	-	8-08-74
East Chippy Creek									
near mouth	5S	12E	1	400	-	0	-	-	5-16-74
1.5 miles above mouth	5S	13E	6	500	-	0	-	-	8-19-74
Blakely Creek									
near mouth	4S	12E	26	500	Rb	20	1.7-9.9	0,1,2,3	6-21-73
					Eb	1	3.8	1	
1000 feet above mouth	4S	12E	25	400	-	0	-	-	6-21-[illegible]
2 miles above mouth	4S	13E	30	500	-	0	-	-	8-15-74
Graham Creek									
near mouth	4S	12E	14	1000	-	0	-	-	6-21-73
trail crossing 1.5 miles above mouth	4S	12E	24	500	-	0	-	-	8-13-74
Falls Creek-near mouth	14S	12E	15	500	Eb	1	6.2	-	5-16-74
Great Falls Creek	4S	12E	23	900	Rb	6	5.1-8.0	1,2,3	5-16-74
					Eb	4	5.6-8.7	1,2	

b- Fish of hatchery origin.

Appendix AA. Continued

Stream and location description	Date	T R S	Steam section length (feet)	Species	Number caught	length range (inches)	Test age(s)
Castle Creek-above mouth of Pass Creek	7/28/75	4S 14E 25	250	-	0	-	-
Saderbalm Creek near mouth	8/4/75	5S 14E 22	300	Rb	19	3.4-9.9	-
Hawley Creek near mouth	8/5/75	5S 12E 35	300	-	-[c]	-	-
Froze-to-Death Creek near mouth	8/5/75	4S 12E 10	400	Eb	1	6.0	-

c). Saw one Rainbow trout approximately 7" long, but this fish was not captured.

Appendix BB. Concentration (microgram/gram wet weight) of metals in fish muscle tissue.

Species[a]	Length (inches)	Weight (pounds)	Mercury	Copper	Nickel	Cadmium	Lead
			Fishtail Creek-Section F-11 - July 1972				
Rb[b]	4-5	-	<0.05	0.4	2.4	0.1	<1
Rb	6.5	0.10	<0.05	0.4	3.5	0.2	<1
Rb	6.5	0.14	<0.05	0.2	1.0	<0.1	<1
Rb	6.8	0.12	<0.05	0.2	1.0	0.1	<1
Rb	8.0	0.20	<0.05	0.2	<0.5	<0.1	<1
Rb	8.0	0.19	<0.05	-	<0.5	<0.1	<1
Rb	9.6	0.32	<0.05	0.1	1.5	<0.1	<1
Rb	10.0	0.38	<0.05	0.2	1.0	0.1	<1
Rb	11.8	0.65	<0.05	0.1	1.0	0.1	<1
Rb	13.0	0.78	<0.05	0.4	<0.5	<0.1	<1
LL[b]	4-5	-	<0.05	0.1	<0.5	<0.1	<1
LL[b]	4-5	-	<0.05	0.2	1.0	0.2	<1
LL	6.5	0.10	<0.05	0.1	1.0	0.2	-
LL	6.6	0.10	<0.05	0.2	1.0	<0.1	<1
LL	7.0	0.11	<0.05	0.4	1.5	0.2	<1
LL	7.4	0.16	<0.05	-	<0.5	0.1	<1
LL	8.8	0.22	<0.05	0.2	<0.5	0.2	<1
LL	9.3	0.32	<0.05	0.3	<0.5	<0.1	<1
LL	9.7	0.34	<0.05	0.1	1.0	<0.1	<1
LL	9.9	0.38	-	0.2	<0.5	<0.1	<1
LL	12.0	0.64	-	0.4	<0.5	<0.1	<1
LL	12.2	0.72	<0.05	0.2	<0.5	<0.1	<1
LL	12.5	0.80	<0.05	0.1	<0.5	<0.1	<1
LL	15.3	1.47	<0.05	0.1	<0.5	0.1	<1
Eb	7.5	0.20	<0.05	0.1	<0.5	<0.1	<1
Eb	7.7	0.20	<0.05	<0.1	<0.5	0.1	<1
Eb	10.7	0.50	<0.05	0.5	1.0	0.2	<1
Wf	15.0	1.30	<0.05	0.1	<0.5	<0.1	<1
			Stillwater River-Section F-1 - May 1972				
Rb[b]	<5.0	-	<0.05	<0.5	<0.5	0.2	<1
Rb	7.4	0.12	<0.05	0.5	1.5	0.2	<1
Rb	7.8	0.14	<0.05	0.5	1.0	0.1	<1
Rb	7.8	-	<0.05	<0.5	1.0	0.1	<1
Rb	11.1	0.51	0.15	<0.5	0.5	0.6	<1
Rb	13.3	0.81	0.45	<0.5	0.5	0.6	<1
LL	6.8	0.11	<0.05	<0.5	<0.5	0.2	<1
LL	7.1	0.13	<0.05	<0.5	0.5	0.2	<1
LL	8.1	0.21	<0.05	0.6	<0.5	0.5	<1
LL	13.3	0.64	0.20	<0.5	<0.5	0.5	<1
LL	13.5	0.86	<0.05	0.5	3.5	<0.1	<1

Appendix BB. Continue

Species[a]	Length (inches)	Weight (pounds)	Mercury	Copper	Nickel	Cadmium	Lead
Stillwater River- Section F-1 (con'd)							
Eb[b]	< 5.0	-	< 0.05	< 0.5	0.5	0.2	< 1
Eb	6.6	0.10	0.4	< 0.5	< 0.5	0.5	< 1
Eb	7.3	0.12	< 0.05	< 0.5	0.5	0.2	< 1
Eb	7.8	0.14	< 0.05	-	-	-	-
Eb	8.3	0.18	< 0.05	3.4	1.0	0.3	< 1
Eb	8.5	0.21	< 0.05	< 0.5	< 0.5	0.3	< 1
Eb	8.6	0.20	< 0.05	-	1.0	-	< 1
Wf[b]	< 6.0	-	< 0.05	< 0.5	0.5	0.3	< 1
Wf	9.8	0.40	< 0.05	0.5	0.5	0.6	< 1
Wf	10.1	0.34	< 0.05	0.6	1.0	0.5	< 1
Wf	10.9	0.40	< 0.05	< 0.5	< 0.5	0.5	< 1
Wf	11.3	0.38	< 0.05	0.8	1.5	0.1	< 1
Wf	12.6	0.59	< 0.05	< 0.5	0.5	0.9	-
Wf	13.7	0.68	< 0.05	0.7	0.5	0.3	< 1
Wf	13.7	0.70	< 0.05	< 0.5	1.5	0.7	< 1
Stillwater River-Section F-2 - April, 1972							
Rb[b]	< 6.0	-	<0.05	1.1	1.6	0.6	< 2	28
Rb	7.5	0.15	<0.05	< 0.5	4.2	< 0.5	< 2	9.0
Rb	9.0	0.28	<0.05	0.9	1.4	< 0.5	< 2	9.5
Rb	9.1	0.30	<0.05	0.9	2.4	0.6	< 2	7.5
Rb	9.7	0.38	<0.05	0.7	1.6	0.6	< 2	5.0
Rb	10.6	0.40	<0.05	1.1	2.6	0.7	< 2	12
Rb	12.5	0.60	<0.05	< 0.5	2.0	1.0	< 2	4.5
Rb	14.8	1.00	<0.05	0.9	< 1.0	< 0.5	< 2	7.5
Rb	15.3	1.22	<0.05	1.0	1.6	1.0	< 2	7.0
Rb	15.4	1.30	<0.05	< 0.5	< 1.0	0.6	< 2	4.5
Rb	17.4	2.16	<0.05	1.4	< 1.0	< 0.5	< 2	7.0
Eb[b]	< 6.0	-	<0.05	0.6	< 1.0	< 0.5	< 2	13
Eb	6.3	0.12	<0.05	< 0.5	1.4	< 0.5	< 2	7.0
Eb	6.4	0.08	<0.05	0.8	2.0	0.6	< 2	16
Eb	6.8	0.09	<0.05	0.7	< 1.0	< 0.5	< 2	13
Eb	7.1	0.10	<0.05	1.5	1.0	< 0.5	< 2	15
Eb	8.5	0.18	<0.05	0.6	1.8	< 0.5	< 2	8.5
Eb	8.8	0.25	<0.05	0.7	1.4	0.6	< 2	14
Eb	9.3	0.26	<0.05	0.7	3.4	< 0.5	< 2	4.5
Eb	11.1	0.40	<0.05	< 0.5	2.8	< 0.5	< 2	16
LL[b]	< 6.0	-	<0.05	1.3	1.2	0.8	< 2	10
LL	6.4	0.13	<0.05	1.3	1.1	< 0.5	< 2	17
LL	6.4	0.08	<0.05	0.6	< 1.0	< 0.5	< 2	12
LL	7.8	0.20	<0.05	0.6	< 1.0	< 0.5	< 2	5.5
LL	7.8	0.18	<0.05	1.4	1.2	< 0.5	< 2	16
LL	10.3	0.34	<0.05	< 0.5	3.5	0.6	< 2	14
LL	10.3	0.35	<0.05	< 0.5	4.0	0.6	< 2	8.0
LL	10.8	0.44	<0.05	0.6	1.1	< 0.5	< 2	4.5
LL	12.9	0.71	<0.05	< 0.5	2.8	1.0	< 2	16
LL	15.5	1.30	<0.05	0.7	1.3	< 0.5	< 2	4.0
LL	15.6	1.05	<0.05	0.9	< 1.0	0.6	3	7.5
LL	15.7	1.22	<0.05	0.7	1.1	< 0.5	< 2	4.0
LL	15.7	1.28	<0.05	1.2	< 1.0	0.6	< 2	22

Appendix BB. Continued

Boulder River-Section F-4 - April, 1972

Rb[b]	< 5.0	-	< 0.05	0.5	0.5	0.3	< 1
Rb	5.6	0.05	0.11	0.5	< 0.5	0.7	1.5
Rb	7.0	0.15	< 0.05	0.5	0.5	0.2	< 1
Rb	7.1	0.15	< 0.05	0.5	1.0	0.5	< 1
Rb	8.3	0.21	< 0.05	< 0.5	1.0	0.3	< 1
Rb	8.7	0.23	< 0.05	< 0.5	< 0.5	0.1	< 1
Rb	8.7	0.22	< 0.05	< 0.5	0.5	0.2	< 1
Rb	12.4	0.72	< 0.05	< 0.5	< 0.5	0.3	< 1
Rb	13.4	0.88	< 0.05	< 0.5	0.5	0.2	< 1
Rb	15.4	1.35	< 0.05	-	-	-	-
Rb	17.5	2.05	< 0.05	0.5	1.0	0.5	1
Rb	17.7	1.96	< 0.05	< 0.5	< 0.5	0.1	< 1
Rb	18.0	1.80	< 0.05	< 0.5	< 0.5	< 0.1	< 1
Rb	21.6	3.18	< 0.05	< 0.5	< 0.5	0.1	< 1
Eb[b]	< 5.0	-	< 0.05	0.5	< 0.5	0.3	< 1
Eb	5.8	.07	< 0.05	< 0.5	< 0.5	0.1	< 1
Eb	6.0	.07	< 0.05	< 0.5	< 0.5	-	< 1
Eb	6.1	.08	< 0.05	< 0.5	< 0.5	< 0.1	< 1
Eb	7.6	.13	< 0.05	< 0.5	< 0.5	< 0.1	< 1
Eb	8.1	.14	< 0.05	< 0.5	< 0.5	< 0.1	< 1
Eb	8.7	.19	< 0.05	< 0.5	< 0.5	0.1	< 1
Eb	9.2	.22	< 0.05	< 0.5	0.5	0.4	1
Eb	9.8	.30	< 0.05	< 0.5	< 0.5	< 0.1	< 1

Appendix BB. Continued

West Fork Stillwater River - Section F-28 - October 1975

Species[a]	Length (inches)	Weight (pounds)	Mercury	Copper	Nickel	Cadmium	Lead	Arsenic	Zinc
Rb[b]	4.0-5.0	--	--	<0.25	<1.0	<0.25	<0.25	0.57	9.1
Rb	6.0	0.09	--	<0.25	<1.0	<0.25	<0.25	<0.25	9.4
Rb	6.4	0.11	<0.1	0.43	<1.0	<0.25	<0.25	<0.25	10.0
Rb	6.6	0.12	--	0.58	<1.0	<0.25	<0.25	<0.25	6.8
Rb	7.9	0.18	--	<0.25	1.1	<0.25	<0.25	<0.25	9.6
Rb	8.0	0.18	0.11	0.55	<1.0	<0.25	0.44	<0.25	5.6
Rb	8.6	0.21	--	0.31	<1.0	<0.25	<0.25	<0.25	11.0
Rb	8.9	0.27	<0.1	0.57	<1.0	<0.25	<0.25	<0.25	13.0
Rb	9.3	0.36	<0.1	0.54	<1.0	<0.25	0.32	0.81	13.0
Rb	9.7	0.37	--	0.34	<1.0	<0.25	<0.25	<0.25	5.4
Rb	10.0	0.37	<0.1	0.44	<1.0	<0.25	<0.25	<0.25	8.9
Rb	10.0	0.38	--	0.27	<1.0	<0.25	<0.25	<0.25	5.5

West Fork Stillwater River - Section F-26 - May 1975

Rb[b]	3.0-4.9	--	--	0.14	<0.5	<0.1	<0.25	<0.25	9.8
Rb	6.7	0.12	--	<0.1	0.74	<0.1	<0.25	<0.25	5.4
Rb	7.3	0.13	--	<0.1	<0.5	<0.1	<0.25	<0.25	6.6
Rb	7.4	0.18	--	0.35	<0.5	<0.1	<0.25	0.49	4.4
Rb	9.2	0.28	--	0.13	0.58	<0.1	<0.25	<0.25	4.4
Rb	9.2	0.31	--	0.28	<0.5	<0.1	<0.25	<0.25	4.6
Rb	9.4	0.30	--	0.14	<0.5	<0.1	<0.25	<0.25	4.7
Rb	9.7	0.33	--	0.28	<0.5	<0.1	<0.25	0.29	5.0
Rb	10.2	0.43	--	0.18	0.71	<0.1	<0.25	<0.25	4.5
Rb	11.2	0.54	--	0.24	0.51	<0.1	<0.25	0.25	5.9

West Fork Stillwater River - Section F-29 - November 1975

Rb[b]	4.0-5.0	--	--	0.67	<1.0	<0.25	<0.25	<0.25	6.6
Rb	6.1	0.07	<0.1	0.50	<1.0	<0.25	0.25	0.25	7.0
Rb	6.6	0.12	<0.1	0.71	<1.0	<0.25	<0.25	<0.25	5.7
Rb	7.0	0.14	<0.1	0.95	<1.0	<0.25	<0.25	<0.25	7.7
Rb	8.8	0.23	<0.1	0.42	<1.0	<0.25	<0.25	<0.25	5.6
Rb	9.1	0.28	<0.1	0.59	<1.0	<0.25	<0.25	<0.25	4.6
Rb	10.1	0.44	<0.1	0.48	<1.0	<0.25	<0.25	<0.25	6.3
Rb	11.1	0.61	<0.1	0.89	<1.0	<0.25	<0.25	<0.25	6.8

Appendix BB. Continued

Species[a]	Length (inches)	Weight (pounds)	Mercury	Copper	Nickel	Cadmium	Lead	Arsenic	Zinc
		West Fork Stillwater River - Section F-29 - November 1975							
Rb	12.0	0.66	<0.1	<0.25	<1.0	<0.25	<0.25	0.54	4.3
Rb	13.1	0.79	<0.1	0.47	<1.0	<0.25	<0.25	<0.25	5.4
LL	6.2	0.09	<0.1	0.70	<1.0	<0.25	<0.25	<0.25	14.0
LL	6.5	0.10	<0.1	0.45	<1.0	<0.25	<0.25	<0.25	17.0
LL	7.1	0.12	<0.1	0.64	<1.0	<0.25	<0.25	<0.25	11.0
LL	10.6	0.45	<0.1	0.49	<1.0	<0.25	<0.25	0.25	8.9
LL	10.9	0.39	<0.1	0.49	<1.0	<0.25	<0.25	<0.25	8.5
LL	11.7	0.57	<0.1	0.59	<1.0	<0.25	<0.25	1.0	19.0
LL	11.7	0.71	<0.1	0.57	<1.0	<0.25	<0.25	1.2	3.4
LL	11.9	0.65	<0.1	0.53	<1.0	<0.25	<0.25	<0.25	4.3
		West Fork Stillwater River - Section F-17 - September 1973							
Rb[b]	4.0-5.5	--	1.0	<0.5	<1.0	<0.5	<5.0	--	30 0
Rb	6.2	0.09	0.2	<0.5	2.0	<0.5	<5.0	--	15.0
Rb	6.7	0.12	1.3	<0.5	<1.0	<0.5	<5.0	--	27.0
Rb	6.8	0.11	0.4	<0.5	<1.0	<0.5	9.0	--	2.3
Rb	6.8	0.15	2.1	<0.5	2.0	<0.5	<5.0	--	33.0
Rb	7.0	0.14	0.6	<0.5	<1.0	0.5	5.0	--	45.0
Rb	7.0	0.15	0.4	0.9	<1.0	<0.5	<5.0	--	<1.0
Rb	8.2	0.22	1.0	<0.5	3.0	<0.5	<5.0	--	<1.0
Rb	8.4	0.23	0.8	0.9	3.0	<0.5	<5.0	--	35.0
Rb	8.4	0.26	1.3	<0.5	2.0	<0.5	<5.0	--	4.1
Rb	8.5	0.23	2.7	<0.5	4.0	<0.5	11.0	--	33.0
Rb	8.7	0.31	0.2	<0.5	2.0	<0.5	<5.0	--	<1.0
Rb	8.8	0.30	1.0	0.8	3.0	<0.5	16.0	--	32.0
Rb	8.8	0.33	0.4	0.6	2.0	<0.5	5.0	--	<1.0

Appendix BB. Continued

Species[a]	Length (inches)	Weight (pounds)	Mercury	Copper	Nickel	Cadmium	Lead	Arsenic	Zinc
West Fork Stillwater River - Section F-17 - October 1975									
Rb	6.0	0.08	--	0.25	<1.0	<0.25	<0.25	0.40	7.4
Rb	6.0	0.09	--	0.25	<1.0	<0.25	<0.25	0.49	2.5
Rb	6.3	0.11	<0.1	0.53	<1.0	<0.25	<0.25	<0.25	32.0
Rb	7.8	0.17	--	0.51	<1.0	<0.25	<0.25	0.46	7.7
Rb	8.0	0.18	--	<0.25	1.3	<0.25	<0.25	<0.25	7.2
Rb	8.4	0.23	--	0.47	<1.0	<0.25	<0.25	<0.25	9.0
Rb	9.0	0.30	--	0.47	<1.0	<0.25	<2.5	<0.25	1.9
Rb	9.3	0.30	--	0.57	<1.0	<0.25	<0.25	<0.25	19.0
Rb	10.0	0.40	--	0.43	<1.0	--	<0.25	<0.25	6.4
Rb	10.1	0.42	--	0.51	<1.0	<0.25	<0.25	<0.25	12.0
Castle Creek - Section F-25 - November 1975									
LL[b]	3.5-5.0	--	--	0.56	<1.0	<0.25	<0.25	<0.25	10.0
LL	5.4	0.06	<0.1	<0.25	<1.0	<0.25	<0.25	0.49	8.3
LL	6.2	0.09	--	<0.25	<1.0	<0.25	<0.25	<0.25	9.6
LL	6.9	0.13	0.34	0.46	1.0	<0.25	<0.25	0.31	13.0
LL	7.8	0.18	--	0.57	<1.0	<0.25	<0.25	<0.25	4.8
LL	8.2	0.21	--	0.58	<1.0	<0.25	<0.25	0.44	3.9
LL	8.2	0.23	<0.1	0.50	<1.0	<0.25	<0.25	0.55	16.0
LL	10.0	0.38	<0.1	<0.25	<1.0	<0.25	<0.25	0.27	1.8
LL	11.0	0.53	--	<0.25	<1.0	<0.25	<0.25	0.59	15.0
LL	11.1	0.50	--	0.58	<1.0	<0.25	<0.25	0.25	10.0
Eb	5.6	0.07	<0.1	0.51	<1.0	<0.25	<0.25	0.51	14.0
Eb	5.9	0.08	--	0.71	<1.0	<0.25	<0.25	<0.25	10.0
Eb	6.1	0.09	--	0.25	<1.0	<0.25	0.25	<0.25	11.0
Eb	6.1	0.09	--	0.50	<1.0	<0.25	<0.25	<0.25	11.0
Eb	7.1	0.15	--	0.47	<1.0	<0.25	<0.25	0.32	8.4
Eb	7.9	0.20	--	0.55	<1.0	<0.25	<0.25	1.1	6.9
Eb	8.2	0.23	--	0.48	<1.0	<0.25	<0.25	<0.25	11.0
Eb	8.8	0.23	--	<0.25	<1.0	<0.25	<0.25	<0.25	18.0

Appendix BB. Continued

Species[a]	Length (inches)	Weight (pounds)	Mercury	Copper	Nickel	Cadmium	Lead	Arsenic	Zinc
		Castle Creek - Section F-27 - November 1975							
LL[b]	4.0-5.0	--	<0.1	0.59	<1.0	<0.25	<0.25	<0.25	12.0
LL	6.1	0.09	<0.1	0.80	<1.0	<0.25	<0.25	<0.25	9.9
LL	6.6	0.11	<0.1	0.98	<1.0	<0.25	<0.25	<0.25	14.0
LL	6.7	0.12	<0.1	0.25	<1.0	<0.25	<0.25	<0.25	11.0
LL	7.8	0.18	<0.1	0.56	<1.0	<0.25	<0.25	<0.25	7.0
LL	8.5	0.24	<0.1	0.70	<1.0	<0.25	<0.25	<0.25	5.2
LL	8.6	0.25	<0.1	0.93	<1.0	<0.25	<0.25	<0.25	7.1
LL	10.3	0.38	<0.1	0.64	<1.0	<0.25	<0.25	<0.25	6.7
LL	10.5	0.42	<0.1	0.25	<1.0	<0.25	<0.25	<0.25	5.5
LL	10.7	0.47	<0.1	<0.25	<1.0	<0.25	4.1	<0.25	4.8
LL	11.6	0.58	<0.1	1.0	<1.0	<0.25	0.25	<0.25	7.0
LL	11.7	0.53	<0.1	0.62	<1.0	<0.25	<0.25	<0.25	4.5
		Castle Creek - Section F-23 - October 1975							
LL[b]	<5.0	--	--	0.25	<1.0	<0.25	<0.25	<0.25	8.6
LL	6.6	0.10	--	0.51	<1.0	<0.25	0.81	0.41	6.6
LL	6.8	0.10	--	0.52	<1.0	<0.25	<0.25	0.26	11.0
LL	7.6	0.16	--	<0.25	<1.0	<0.25	<0.25	<0.25	8.7
LL	8.4	0.23	--	0.57	<1.0	<0.25	<0.25	0.38	10.0
LL	8.8	0.22	--	0.52	<1.0	<0.25	<0.25	0.52	7.8
LL	9.2	0.27	--	0.53	<1.0	<0.25	<0.25	0.57	6.1
LL	10.5	0.42	--	<0.25	<1.0	<0.25	0.47	0.32	5.9
LL	10.5	0.47	<0.1	0.44	<1.0	<0.25	<0.25	<0.25	13.0
LL	11.3	0.50	<0.1	0.55	<1.0	<0.25	0.36	<0.25	6.4
LL	11.9	0.67	<0.1	<0.25	<1.0	<0.25	0.31	0.43	5.1
LL	11.9	0.69	--	0.46	<1.0	<0.25	0.28	<0.25	6.1
LL	13.9	0.94	<0.1	0.47	<1.0	<0.25	<0.25	0.28	7.1

Appendix BB. Continued

Species[a]	Length (inches)	Weight (pounds)	Mercury	Copper	Nickel	Cadmium	Lead	Arsenic	Zinc
			Picket Pin Creek - Section F-16 - November 1975						
LL[b]	<5.0	--	<0.1	0.65	<1.0	<0.25	<0.25	<0.25	4.3
LL	6.2	0.08	<0.1	0.55	<1.0	<0.25	<0.25	0.35	15.0
LL	6.6	0.10	<0.1	0.64	<1.0	<0.25	<0.25	<0.25	6.9
LL	6.8	0.11	<0.1	0.71	<1.0	<0.25	<0.25	<0.25	12.0
LL	7.0	0.12	<0.1	0.68	<1.0	<0.25	<0.25	0.32	32.0
LL	7.8	0.20	<0.1	0.61	<1.0	<0.25	<0.25	<0.25	6.8
LL	9.1	0.29	<0.1	0.70	<1.0	<0.25	<0.25	<0.25	7.9
LL	10.9	0.44	<0.1	<0.25	<1.0	<0.25	<0.25	<0.25	7.0
LL	12.6	0.72	<0.1	0.61	<1.0	<0.25	<0.25	<0.25	5.2
Eb	5.0	--	<0.1	0.71	<1.0	<0.25	<0.25	<0.25	12.0
Eb	6.3	0.09	<0.1	0.76	1.3	<0.25	<0.25	<0.25	17.0
Eb	6.4	0.10	<0.1	0.50	<1.0	<0.25	<0.25	<0.25	6.3
Eb	6.4	0.11	<0.1	0.61	<1.0	<0.25	<0.25	0.25	20.0
Eb	6.9	0.10	<0.1	<0.25	<1.0	<0.25	<0.25	0.58	6.7
Eb	7.1	0.12	<0.1	0.25	<1.0	<0.25	<0.25	<0.25	6.0
Eb	7.6	0.15	<0.1	0.64	<1.0	<0.25	<0.25	0.25	8.9
Eb	8.8	0.24	<0.1	0.26	<1.0	<0.25	<0.25	<0.25	22.0

a- Abbreviations are: Rb=Rainbow Trout; Eb=Brook Trout; LL=Brown Trout; Wf=Mountain Whitefish
b- Composite of several fish.