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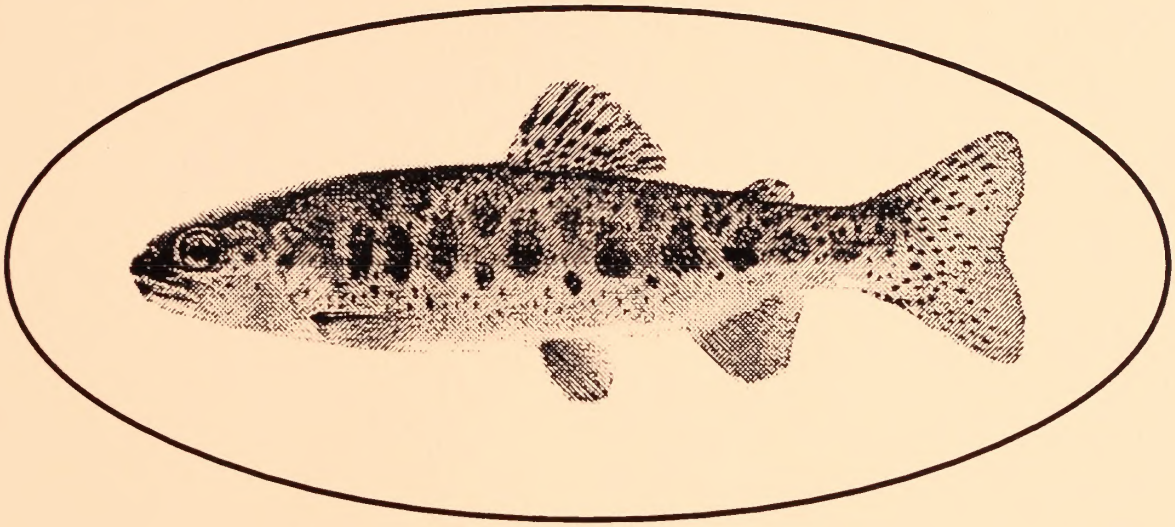

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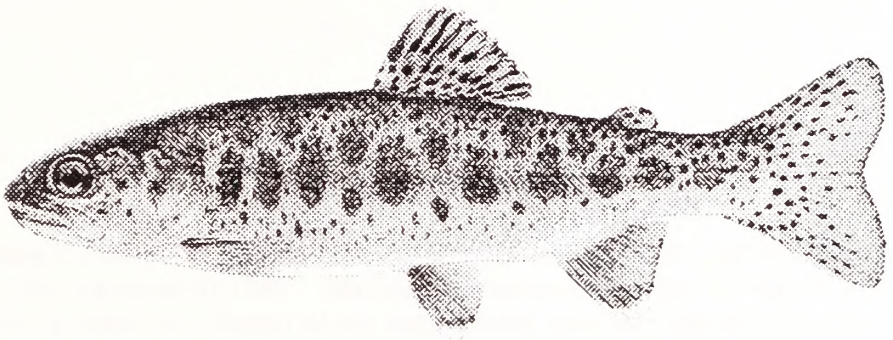

REDBAND TROUT *Oncorhynchus mykiss gairdneri* POPULATION AND STREAM HABITAT SURVEYS IN NORTHERN OWYHEE COUNTY AND THE OWYHEE RIVER AND ITS TRIBUTARIES, 1997

Prepared for

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ABSTRACT

Redband trout *Oncorhynchus mykiss gairdneri* were collected in ten of seventeen stream segment sampled in 1997. Densities of redbands ranged from 0 to 31.0/100M^2 for all sizes of trout collected. Seven of the sites visited had been sampled since 1993 in this study, and generally trout densities had increased. The sample sites were located on Jordan Creek, Flint Creek, Reynolds Creek, Macks Creek, Salmon Creek, Squaw Creek, Sinker Creek, Scotch Bob Creek, Deep Creek, Red Canyon Creek, and the North Fork Owyhee River. The Owyhee River was sampled by angling from the Duck Valley Indian Reservation to the Oregon border by utilizing small inflatable rafts, few redband trout were captured.

Habitat information was collected on most stream segments sampled.

Water quality measurements of temperature, pH, conductivity, and hardness were taken and values were acceptable for trout survival. Eight recording thermographs were placed into stream segments that were sampled for redband densities. Two of the thermographs recorded water temperatures consistently greater than 25 C. One of these streams had a redband population the other did not.

INTRODUCTION

This report presents redband trout *Oncorhynchus mykiss gairdneri* population and stream habitat data collected in 1997 on the Bruneau and Owyhee Resource Areas of the Bureau of Land Management (BLM) lands in Owyhee County, Idaho. Data was collected by Idaho Department of Fish and Game (IDFG) Southwest Region fisheries management staff in a cooperative project with the Lower Snake River District, BLM. This report documents the fifth field season of stream and habitat surveys conducted by IDFG. Previous survey data were reported in Allen et al., 1994, 1995, 1997a and 1997b.

Redband trout historically occupied perennial drainages in Owyhee County, Idaho (Behnke, 1992). Sampling of these redband trout populations by BLM staff from 1976-1991 documented fragmented populations composed of small numbers of redband trout. Drought conditions experienced from 1987-1994 likely negatively impacted these redband trout populations. Unfortunately, accurate distribution maps documenting the presence or absence of redband trout in Owyhee County streams were not available to help document changes in redband distributions. The objectives of this investigation were:

(1) To determine redband trout density estimates for previously sampled stream segments

(2) To establish trout density estimates for unsurveyed stream segments

(3) To measure stream habitat variables and water quality

(4) To revisit sites sampled in 1993 to document trout population responses following "normal" water years after the drought

STUDY AREA

Seven of the seventeen sites sampled in 1997 had been sampled within the last four years, one was a historical site, and the remaining sites were all new in 1997 (Table 1). The nine new sites lie in drainages connected to the Snake River on the northern edge of Owyhee County. A float trip was taken on the Owyhee River in early July 1997 to survey the inaccessible mouths of the major tributaries to the Owyhee River for redband trout populations.

METHODS

Fish Populations

The 1997 sample sites were chosen to document trout populations in northwestern Owyhee County, and along the Owyhee River. Seven sites that had been sampled previously by IDFG were revisited to document any trout density changes.

Sample stream segments were approximately 61 m in length. The upstream and downstream sample segment boundaries were located at stream constrictions to minimize fish migration during electrofishing.

A Smith-Root Model 15-B backpack electrofishing unit was utilized by two people electrofishing from the lower to the upper boundaries of the sample segment. All fish species encountered were netted and placed in small net pens placed in the stream. We made two or three electrofishing passes, removing and segregating the fish from each pass. If no redband trout were encountered on the first pass and collection conditions were considered good, no further electrofishing passes were completed. All trout collected were measured to the nearest mm and weighed to the nearest gram. Trout were released after data collection. All other fish were identified to species, counted and released.

Redband trout population estimates and confidence intervals were calculated utilizing the MicroFish 3.0 program developed by Van Deventer and Platts (1987). Population estimates were calculated for all trout captured and for all trout greater than 100 mm in length, giving two estimates for sites where trout were collected. Trout densities were calculated by dividing the population estimate by the sample area and reported as trout/100m^2.

Stream Habitat

Each stream segment was divided into ten equal length sections starting from the bottom. At each cross section, depth measurements were taken at 1/4,1/2, and 3/4 widths across the channel. Substrate composition was determined with standard IDFG methods, categorizing the substrate into size classes (Petrosky and Holubetz, 1988).

Instream fish cover was a subjective visual assessment of several parameters and was recorded for each cross-section as the percentage of the stream width defined as cover. For this study, cover was defined as areas where redband trout were likely to be found: (1) pools >0.45 m (>1.5 feet) in depth, (2) overhanging bank vegetation, (3) instream vegetation, (4) near large instream rocks, (5) velocity breaks ie. broken water surface (6) pocket water behind or beside large rocks, (7) near large woody debris.

Stream gradient was measured using an ocular hand level and a stadia rod. Gradient is the vertical drop between the upstream and downstream boundaries divided by the stream segment length and reported as a percentage.

Thermal input to the stream waters was measured using a Solar Pathfinder™ following methodologies outlined in Platts et. al. (1987). Percent stream shading was reported as the average percent of shading on the stream surface during June through September at 10 cross sections.

Water Quality

Several water quality parameters were measured at each stream segment. Conductivity and pH measurements were taken with hand held conductivity and pH meters. Hardness measurements were taken with Hach Company field titration kit. Water temperature was recorded with a pocket thermometer at each site.

Recording thermographs (HOBOS) were placed in 8 stream segments; 2 in Sinker Creek; 3 in the Reynolds watershed; 2 in the Squaw Creek watershed; and one at the Mud Flat Road crossing of Deep Creek. The HOBOS were placed in pools or runs to prevent dewatering and/or vandalism.

RESULTS AND DISCUSSION

Redband Trout Populations

Trout Densities

Ten of seventeen sampled stream segments contained redband trout in 1997 (Table 2). Seven of the sample sites had been sampled historically (BLM file data), and seven sites had been sampled since 1993 in conjunction with this project. Densities of redband trout ranged from 0 to 31.0/100 m^2 for trout > 100mm (Table 2). Generally an increase in density has occurred at sites since the drought ended.

Jordan Creek Drainage

Three Jordan Creek sites, and one site on Flint Creek were resampled in 1997. The 1997 densities were higher than any documented in the previous two samples (Table 2). At sites JORDA095.4 and FLINT003.9 redband trout densities have increased in both samples taken in the 1990's when compared to the historical 1977 data. The two other Jordan Creek sites had lower trout densities in 1993 from the historic sampling but

rebounded to higher densities in 1997 (Table 2).

Squaw Creek Drainage

No redband trout were found at the three sites in 1997. There is no record of historical fish sampling in this drainage.

Reynolds Creek Drainage

Three of the four Reynolds Creek drainage stream segments sampled contained redband trout in 1997 (REYNO023.7,REYNO006.6, and SALMO000.6). Sample site MACKS002.0 did not have redbands (Table 2). There were major increases in the two Reynolds Creek sites from 1994 when there were zero redband captured at the sites (Table 2). The upper Reynolds Creek site REYNO023.7 was dry when visited in 1994. The Salmon Creek site may have helped the lower Reynolds Creek site repopulate since 1994.

Sinker Creek Drainage

Two sites were investigated in the Sinker drainage in 1997 (SINKE016.0 and SCBOB000.7). The Sinker Creek site was located approximately 0.6 km downstream of the road leading to Silver City. Redbands were collected at this site at a density of 2.5/100M^2 for trout >100mm. Sinker Creek was previously sampled downstream at stream mile 7.6 and was found to contain a density of redbands of 34.0/100 M^2. Scotch Bob Creek, a tributary to Sinker Creek, also contained a low density of redbands at 2.0/100 M^2 for trout >100mm (Table 2).

Deep Creek Drainage

Two sites were sampled in Deep Creek, a site just downstream of Mud Flat Road and a site at the confluence with the EF Owyhee River (DEEP_ 034.4 and DEEP 000.1). Neither of the sites contained redbands in 1997 at the time of sampling. The DEEP_034.4 site had been previously sampled in 1993 (this study) and in 1977. The 1977 survey documented 13.0 trout /100 M^2 (Table 2). Sampling had been done at two other sites between these 1997 sites, and no redbands had been located (Allen et al., 1994). One 300 mm redband was collected by angling in the Owyhee River just below the Deep Creek confluence during the July 1997 float trip.

Red Canyon Drainage

Sample site REDCA000.1 just above the confluence with the EF Owyhee River

contained redband trout at a low density of 1.6/100 M² for trout >100mm (Table 2). Red Canyon Creek was sampled at several sites in 1994 and contained varying densities of redbands (Allen et al., 1994). Redband trout were observed in the EF Owyhee River near the mouth of Red Canyon Creek, during July, 1997.

North Fork Owyhee River

The NF Owyhee River was sampled downstream of the Mud Flat Road crossing and no redband trout were collected in 1997. A previous sampling in 1991 collected a few redband trout (Table 2).

Owyhee River Float Trip

Five biologists floated the Owyhee River in inflatable kayaks and rafts from the Garat put-in to the Three Forks take-out in eastern Oregon from July 7 -15, 1997. We investigated all tributary confluences with the river. The Owyhee River was extremely low and at times several portages were necessary even with the small watercraft used on the trip. We extensively fished the river while paddling downstream, and only one redband trout was captured by angling in the Idaho reaches of the Owyhee River. Two tributaries were sampled via electrofishing methods, Deep Creek and Red Canyon Creek, previously described. The mouth of the South Fork Owyhee River was not sampled with electrofishing gear because it was deemed to deep to effectively sample, no fish were observed. The confluences of Piute Creek, Yatahoney Creek, Red Basin Creek, and Bald Mountain Creek were dry when visited. The angling catch was comprised of smallmouth bass and northern squawfish. Smallmouth bass were distributed along the entire reach floated. Our conclusion was that redband trout were almost entirely absent in these reaches of the Owyhee River.

Redband Trout Length Frequencies

Redband trout length frequencies for all sample sites are presented in Appendice 1. No age and growth information was collected in 1997.

Nongame Fish Species Collected

Nongame fish species were observed or captured at most sites. Species observed were: bridgelip sucker, *Catostomus columbianus*; Chislemouth, *Acrocheilus alutaceus*; longnose dace, *Rhinichthys cataractae*; Mottled sculpin, *Cottus bairdi*; redside shiner,

Richardsonius balteatus; Smallmouth bass, *Micropterus dolomieui*; and speckled dace, *Rhinichthys osculus*. Species occurence and location is presented in Table 3.

Habitat

Habitat variables were collected consistent with previous survey years (Allen et al., 1994). As before, habitat data were collected to provide a baseline riparian habitat condition. Habitat variables of stream sample length, mean stream width, mean depth, percent gradient, and percent substrate composition are presented in Table 4. Table 5 contains the percent habitat type and percent trout cover observed. Percent stream shading derived from a Solar Pathfinder™ are presented in Table 6.

Water Quality

The results of water quality measurements taken during 1997 are presented in Table 7. Water temperatures taken at time of fish sampling generally showed a higher trend than most previous samples. The stream sampling in 1997 was done mostly in the summer months while previous years data was collected later in the year, which may account for the higher water temperatures. Water temperatures although higher were still within acceptable limits for redband trout. Conductivity and pH were also elevated from previous survey ranges.

Eight recording thermographs (HOBOS) were placed in the study stream reaches near the sample sites in Squaw Creek (2), Salmon Creek, Macks Creek, Reynolds Creek, Sinker Creek (2), and Deep Creek. The thermograph data and locations and dates of deployment are provided in Appendice 2A - 2H. Macks Creek and Sinker Creek thermographs documented water temperatures above 25 C. Macks Creek did not contain redbands while the site on Sinker Creek near the thermograph did have a population of redband trout.

CONCLUSION

Ten of seventeen stream sites contained redband trout. Generally an increase in density has occurred since the drought of the late 1980's and early 1990's. In Deep Creek and the NF Owyhee River redbands were not located where previously found and may well be much reduced in abundance. The Owyhee River redband population seems much reduced from their previously estimated range (BLM data maps). The loss of redband trout populations fits with the data collected for this report, with their absence in the tributaries to the Owyhee River, and with their absence in the SF Owyhee River (Allen et

al.,1997b) and Battle Creek (Allen et al., 1996). The pattern of redband trout population distribution is similar within the County, in that the redband populations are isolated from each other because the fish do not inhabit the larger streams and rivers anymore. This loss of connectivity between streams and their local redband populations is the greatest threat to the long-term persistence of these redband populations.

As suggested in Allen et al. (1996) a series of 5-20 ha riparian enclosures should be developed to allow the study of possible maximum densities of the these desert redband trout.

RECOMMENDATIONS

1. Establish several 5-20 hectare stream and riparian exclosures and monitor the changes to the riparian area, stream channel, and fish populations over time.

2. Publish a summary report of redband trout densities and estimated distributions found during these studies compared against the historical data.

3. Establish monitoring sites within each hydrologic unit within Owyhee County that can be resampled every five years for redband trout densities.

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Table 1. Location and site descriptions of sites sampled in Owyhee County, Idaho in 1997.

SITE	LOCATION	LATITUDE/ LONGITUDE	SITE DESCRIPTION
JORDA095.4	T4S R3W S31	N 43 1.98 W 116 44.75	Above first bridge below Silver City
JORDA088.3	T4S R4W S31	N 43 1.61 W 116 51	Just down stream from Sage Hen Creek mouth
JORDA075.9	T6S R5W S1	N 42 56.04 W 116 52.69	In canyon
FLINT003.9	T6S R4W S22	N 42 53.64 W 116 48.38	Above Triangle Road crossing
SQUAW008.7	T1N R5W S35 NESE	N 43 22.49 W 116 53.512	1/4 mile below private fence
SQUAW004.8	T1N R4W S8 NWSE	N 43 26.287 W 116 50.062	Above canyon near only large cottonwood
LSQUA000.2	T1N R5W S35 NENE	N 43 23.169 W 116 53.516	100 yds above confluence into Squaw Cr.
SALMO000.6	T2S R4W S13 NWNE	N 43 15.204 W 116 45.373	1/4 mile upstream of gaging station
MACKS002.0	T2S R4W S27 NWNE	N 43 13.62 W 116 47.758	50 m above diversion
REYNO019.5	T3S R4W S24 NESW	N 43 8.596 W 116 45.715	150 m below upper gaging station
REYNO011.3	T2S R4W S12 SWNE	N 43 15.847 W 116 45.102	150 m below lower gaging station
SCBOB000.7	T4S R3W S24 NESW	N 43 3.456 W 116 38.71	0.7 mi upstream of Sinker Creek
SINKE016.0	T4S R2W S19 NENW	N 43 3.882 W 116 37.551	1/2 mi downstream of upper road crossing
DEEP_034.4	T10S R3W S3 NWSE	N 42 34.82 W 116 40.65	200 m below bridge on Mud Flat road
DEEP_000.1	T13S R3W S25 NWSW	N/A	Mouth of Deep Creek upstream
REDCA000.1	T13S R4W S20 NWNW	N 42 16.96 W 116 50.36	From Owyhee River upstream
NFOWY011.8	T9S R5W S36 SESE	N 42 35.695 W 116 59.043	150m below bridge at the campground

Table 2. Redband trout population estimates and densities for stream sites sampled in Owyhee County, Idaho in 1997.

SITE	DATE COLLECTED	POPULATION ESTIMATE (se)	DENSITY Number of Trout/100M ^{2}	DENSITY Number of Trout >100mm/ 100M ^{2}
JORDA095.4	9/4/97	86 (3.3)	40.7	24.15
JORDA095.4	7/93	54 (4.9)	15.5	
JORDA095.4	6/77	86 (16.2)	10.2	
JORDA088.3	9/4/97	73 (2.2)	20.9	14.4
JORDA088.3	8/93	4 (0.6)	0.9	
JORDA088.3	8/76	29 (0)	13.9	
JORDA075.9	9/5/97	30 (2.6)	16.4	14.7
JORDA075.9	8/93	4 (0)	1.2	
JORDA075.9	8/77	6 (0.9)	3.2	
FLINT003.9	9/5/97	94 (8.7)	104.1	31.0
FLINT003.9	9/93	70 (0.9)	40.0	
FLINT003.9	7/77	62 (46.3)	11.7	
SQUAW008.7	7/8/97	0	0	0
SQUAW004.8	7/3/97	0	0	0
LSQUA000.2	7/8/97	0	0	0
SALMO000.6	7/9/97	189 (2.7)	110.7	8.8
MACKS002.0	7/9/97	0	0	0
REYNO023.7	7/16/97	44 (1.9)	20.0	20.0
REYNO023.7	9/27/94	0 Dry		
REYNO023.7	7/13/77	48 (18.0)	17.0	
REYNO006.6	7/16/97	36 (9.4)	19.7	14.7
REYNO006.6	9/27/94	0	0	0

SCBOB000.7	7/15/97	2.0	2.0	2.0
SINKE016.0	7/15/97	29 (0.9)	18.3	2.5
DEEP_034.4	8/25/97	0	0	0
DEEP_034.4	10/93	0	0	0
DEEP_034.4	7/20/77	19 (4.4)	13.0	
DEEP_000.1	7/9/97	0	0	0
REDCA000.1	7/11/97	11 (1.1)	5.7	1.6
NFOWY011.8	7/10/97	0	0	0
NFOWY011.8	7/12/91	2 (0)	1.0	

Table 3. Presence (X) of fish species at sample sites in Owyhee County, Idaho in 1997.

SITE	BLS	CSL	LND	MTS	RSS	SCP	SMB	SPD	SUK	WRB
JORDA095.4										X
JORDA088.3	X							X		X
JORDA075.9	X	X	X	X	X			X		X
FLINT003.9				X						X
SQUAW008.7			X							
SQUAW004.8	X		X							
LSQUA000.2										
SALMO000.6										X
MACKS002.0										
REYNO019.5								X		X
REYNO011.3								X		X
SCBOB000.7										X
SINKE016.0										X
DEEP_034.4	X				X	X		X		
DEEP_000.1		X	X			X	X		X	
REDCA000.1	X		X			X				X
NFOWY011.8			X			X		X		

BLS = Bridgelip sucker, CSL = Chislemouth, LND = Longnose dace, MTS = Mottled sculpin, RSS = Redside shiner, SCP = Sculpin spp., SMB = Smallmouth bass, SPD = Speckled dace, SUK = Sucker spp., WRB = Redband trout.

Table 4. Stream sample site length, average width, average depth, percent gradient, and percent composition of substrate in stream sections sampled in Owyhee County, Idaho in 1997.

SITE	LEN (m)	AVE WIDTH (m)	AVE DEPTH (m)	% GRAD-IENT	% SAND	% GRA-VEL	% RUBBLE	% BOUL-DER	% BED ROCK
JORDA095.4	66	3.2	0.1	nd	26	12	54	7	0
JORDA088.3	66	5.3	0.1	nd	11	7	71	11	0
JORDA075.9	61	3.0	0.2	nd	15	28	49	9	0
FLINT003.9	43	2.1	0.2	nd	7	13	80	0	0
SQUAW008.7	61	1.9	0.1	1.02	21	13	47	19	0
SQUAW004.8	61	2.4	0.2	1.83	9	30	57	4	0
LSQUA000.2	61	1.0	0.1	2.11	17	12	72	0	0
SALMO000.6	61	2.8	0.1	1.76	14	3	74	10	0
MACKS002.0	61	2.0	0.1	1.31	11	24	42	23	0
REYNO019.5	61	3.6	0.2	1.81	0	19	62	16	3
REYNO011.3	61	3.0	0.2	0.73	12	30	43	16	0
SCBOB000.7	61	1.6	0.1	2.95	26	21	43	4	7
SINKE016.0	61	2.6	0.1	0.89	33	18	26	18	3
DEEP_034.4	61	3.9	0.1	nd	46	54	0	0	0
DEEP_000.1	300	nd	nd	nd	nd	nd	nd	nd	nd
REDCA000.1	53	nd	nd	nd	nd	nd	nd	nd	nd
NFOWY011.8	61	5.5	0.2	0.85	7	7	84	1	0

nd = no data

Table 5. Percent habitat type and percent trout cover at stream sample sites in Owyhee County, Idaho in 1997.

SITE	% POOL	% RIFFLE	% RUN	% POCKET WATER	% TROUT COVER
JORDA095.4	0.0	53.3	46.7	0.0	10.0
JORDA088.3	26.7	53.3	20.0	0.0	17.0
JORDA075.9	40.0	60.0	0.0	0.0	32.0
FLINT003.9	40.0	26.7	33.3	0.0	0.0
SQUAW008.7	0.0	13.3	86.7	0.0	33.0
SQUAW004.8	0.0	50.0	50.0	0.0	50.0
LSQUA000.2	25.0	50.0	25.0	0.0	21.0
SALMO000.6	20.0	36.7	43.3	0.0	58.0
MACKS002.0	0.0	46.7	53.3	0.0	17.0
REYNO019.5	0.0	10.0	53.3	36.7	38.0
REYNO011.3	13.3	36.7	50.0	0.0	35.0
SCBOB000.7	10.0	30.0	20.0	40.0	20.0
SINKE016.0	0.0	20.0	50.0	30.0	7.0
DEEP_034.4	0.0	0.0	100.0	0.0	0.0
DEEP_000.1	nd	nd	nd	nd	nd
REDCA000.1	nd	nd	nd	nd	nd
NFOWY011.8	0.0	29.6	70.4	0.0	25.0

nd = no data

Table 6. Percent stream shading on stream sites sampled in Owyhee County, Idaho in 1997.

SITE	PERCENT SHADE
JORDA095.4	nd
JORDA088.3	nd
JORDA075.9	nd
FLINT003.9	nd
SQUAW008.7	44.1
SQUAW004.8	53.8
LSQUA000.2	27.0
SALMO000.6	9.7
MACKS002.0	9.3
REYNO019.5	nd
REYNO011.3	nd
SCBOB000.7	53.7
SINKE016.0	18.7
DEEP_034.4	11.3
DEEP_000.1	nd
REDCA000.1	nd
NFOWY011.8	6.42

nd = no data

Table 7. Water quality results for stream sites sampled in Owyhee County, Idaho in 1997.

SITE	DATE	WATER TEMP C	pH	CONDUC-TIVITY *Us*/cm	HARD-NESS mg/l as $CaCO_3$
JORDA095.4	9/4/97	17	nd	nd	nd
JORDA088.3	9/4/97	20	nd	nd	nd
JORDA075.9	9/5/97	12	nd	nd	nd
FLINT003.9	9/5/97	16	nd	nd	nd
SQUAW008.7	7/8/97	21	9.5	290	160
SQUAW004.8	7/3/97	11	9.0	260	140
LSQUA000.2	7/8/97	17.5	9.2	600	160
SALMO000.6	7/9/97	19.5	9.6	330	187
MACKS002.0	7/9/97	16	9.2	240	140
REYNO019.5	7/16/97	17	9.3	90	85
REYNO011.3	7/16/97	22	9.5	950	340
SCBOB000.7	7/15/97	17	9.1	90	100
SINKE016.0	7/15/97	18	8.9	100	102
DEEP_034.4	8/25/97	20	9.3	50	60
DEEP_000.1	7/9/97	18	nd	nd	nd
REDCA000.1	7/11/97	17	nd	nd	nd
NFOWY011.8	7/10/97	17	9.8	70	85

nd = no data

APPENDICES

Appendix 1. Stream site summaries for Owyhee County stream surveys done in 1997.

STREAM: Squaw Creek SAMPLE DATE: 7/3/97
SECTION: SQUAW004.8
EPA REACH: 17050103025 QUAD MAP: Opalene Gultch
RTS: R4W, T1N, S8 NWSE LAT/LONG: 43 26.287 ; 116 50.062
SECTION DESCRIPTION: Squaw Creek - Site begins above canyon near only large cottonwood.

Transect Information:

Section Length (m):	61		
Elevation (m):	800		
Gradient (%):	1.83%		
Population Est:	0.0	S.E(popest):	0
Shade (%):	53.8		
Mean Width (m):	2.4		
Mean Depth (m):	0.2		
Cover (%):	50		

Water Chemistry

Time:	12:50 PM
H2O Temp(C):	11
Air Temp(C):	26.7
pH:	9.0
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	140
Conductivity(mg/l CaCO3):	260

Habitat Type:

Pool:	0.0 %
Riffle:	50.0 %
Run:	50.0 %
Pocket:	0.0 %

Substrate

Organic:	0 %
Sand:	9 %
Gravel:	30 %
Rubble:	57 %
Boulder:	4 %
Bedrock:	0 %

Species

BLS	Bridgelip sucker
LND	Longnose dace

Length Frequency

Species	CM Group	Method	Number Measured
BLS	8	EF	2
BLS	10	EF	1
BLS	11	EF	1
BLS	12	EF	1
BLS	14	EF	1
BLS	15	EF	1
BLS	16	EF	2
BLS	17	EF	1
BLS	18	EF	1
LND	7	EF	1

STREAM: Squaw Creek SAMPLE DATE: 7/8/97
SECTION: SQUAW008.7
EPA REACH: 17050103025 QUAD MAP: Jump Creek Canyon
RTS: R5W, T1N, S35 NESE LAT/LONG: 43 22.49 ; 116 53.512
SECTION DESCRIPTION: Squaw Creek - 1/4 mile below private fence.

Transect Information:

Section Length (m):	61		
Elevation (m):	1125		
Gradient (%):	1.02%		
Population Est:	0.0	S.E(popest):	0
Shade (%):	44.1		
Mean Width (m):	1.9		
Mean Depth (m):	0.1		
Cover (%):	33		

Water Chemistry

Time:	02:30 PM
H2O Temp(C):	21
Air Temp(C):	37
pH:	9.5
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	160
Conductivity(mg/l CaCO3):	290

Habitat Type:

Pool:	0.0 %
Riffle:	13.3 %
Run:	86.7 %
Pocket:	0.0 %

Substrate

Organic:	0 %
Sand:	21 %
Gravel:	13 %
Rubble:	47 %
Boulder:	19 %
Bedrock:	0 %

Species

LND	Longnose dace

Length Frequency

Species	CM Group	Method	Number Measured
LND	5	EF	1
LND	6	EF	2
LND	7	EF	13
LND	8	EF	10
LND	9	EF	5
LND	10	EF	2

STREAM: Little Squaw Creek SAMPLE DATE: 7/8/97
SECTION: LSQUA000.2
EPA REACH: 17050103026 QUAD MAP: Jump Creek Canyon
RTS: R5W, T1N, S35 NENE LAT/LONG: 43 23.169 ; 116 53.516
SECTION DESCRIPTION: Little Squaw Creek - Section is ~ 100 yds above confluence into Squaw Creek. The section ends at a natural barrier.

Transect Information:

Section Length (m):	61
Elevation (m):	1125
Gradient (%):	2.11%
Population Est:	0.0 S.E(popest): 0
Shade (%):	27.0
Mean Width (m):	0.9
Mean Depth (m):	0.1
Cover (%):	17

Water Chemistry

Time:	11:20 AM
H2O Temp(C):	17.5
Air Temp(C):	31.5
pH:	9.2
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	160
Conductivity(mg/l CaCO3):	600

Length Frequency

Species	CM Group	Method	Number Measured

Habitat Type:

Pool:	20.0	%
Riffle:	60.0	%
Run:	20.0	%
Pocket:	0.0	%

Substrate

Organic:	0	%
Sand:	20	%
Gravel:	19	%
Rubble:	61	%
Boulder:	0	%
Bedrock:	0	%

Species

STREAM: Reynolds Creek SAMPLE DATE: 7/16/97
SECTION: REYNO011.3
EPA REACH: 17050103033 QUAD MAP: Rooster Comb Peak
RTS: R4W, T2S, S12 SWNE LAT/LONG: 43 15.847 ; 116 45.102
SECTION DESCRIPTION: Reynolds Creek - Section is located ~150m below the lower gauging station. Follow animal trail until it comes out a flat. The section begins there.

Transect Information:

Section Length (m):	61		
Elevation (m):	1090		
Gradient (%):	0.73%		
Population Est:	36.0	S.E(popest):	9
Shade (%):			
Mean Width (m):	3.0		
Mean Depth (m):	0.2		
Cover (%):	35		

Habitat Type:

Pool:	13.3	%
Riffle:	36.7	%
Run:	50.0	%
Pocket:	0.0	%

Substrate

Organic:	0	%
Sand:	12	%
Gravel:	30	%
Rubble:	43	%
Boulder:	16	%
Bedrock:	0	%

Water Chemistry

Time:	03:30 PM
H2O Temp(C):	22
Air Temp(C):	31
pH:	9.5
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	340
Conductivity(mg/l CaCO3):	950

Species

SPD	Speckled dace
WRB	Wild rainbow/redband

Length Frequency

Species	CM Group	Method	Number Measured
SPD	3	EF	1
SPD	4	EF	3
SPD	5	EF	37
SPD	6	EF	73
SPD	7	EF	24
SPD	8	EF	25
SPD	9	EF	8
WRB	5	EF	2
WRB	6	EF	3
WRB	7	EF	1
WRB	8	EF	1
WRB	12	EF	2
WRB	13	EF	2
WRB	15	EF	5
WRB	16	EF	2
WRB	17	EF	1
WRB	18	EF	4
WRB	19	EF	2
WRB	20	EF	1
WRB	21	EF	1
WRB	25	EF	1

STREAM: Salmon Creek SAMPLE DATE: 7/9/97
SECTION: SALMO000.6
EPA REACH: 17050103034 QUAD MAP: Soilder Cap
RTS: R4W, T2S, S13 NWNE LAT/LONG: 43 15.204 ; 116 45.373
SECTION DESCRIPTION: Salmon Creek - 1/4 mile upstream of gauging station.

Transect Information:

Section Length (m):	61		
Elevation (m):	1150		
Gradient (%):	1.76%		
Population Est:	189.0	S.E(popest):	3
Shade (%):	9.7		
Mean Width (m):	2.8		
Mean Depth (m):	0.1		
Cover (%):	58		

Water Chemistry

Time:	04:00 PM
H2O Temp(C):	19.5
Air Temp(C):	27.5
pH:	9.6
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	187
Conductivity(mg/l CaCO3):	330

Habitat Type:

Pool:	20.0	%
Riffle:	36.7	%
Run:	43.3	%
Pocket:	0.0	%

Substrate

Organic:	0	%
Sand:	14	%
Gravel:	3	%
Rubble:	74	%
Boulder:	10	%
Bedrock:	0	%

Species

WRB	Wild rainbow/redband

Length Frequency

Species	CM Group	Method	Number Measured
WRB	4	EF	14
WRB	5	EF	82
WRB	6	EF	71
WRB	7	EF	8
WRB	13	EF	2
WRB	14	EF	4
WRB	15	EF	1
WRB	16	EF	2
WRB	17	EF	1
WRB	18	EF	3
WRB	20	EF	2

STREAM: Macks Creek SAMPLE DATE: 7/9/97
SECTION: MACKS002.0
EPA REACH: 17050103036 QUAD MAP: Roostercomb Peak
RTS: R4W, T2S, S27 NWNE LAT/LONG: 43 13.62 ; 116 47.758
SECTION DESCRIPTION: Macks Creek - Section is located ~ 50m above the diversion. There is an old jeep trail that can be taken all the way to it.

Transect Information:

Section Length (m):	61		
Elevation (m):	1225		
Gradient (%):	1.31%		
Population Est:	0.0	S.E(popest):	0
Shade (%):	9.3		
Mean Width (m):	2.0		
Mean Depth (m):	0.1		
Cover (%):	17		

Water Chemistry

Time:	10:20 AM
H2O Temp(C):	16
Air Temp(C):	22
pH:	9.2
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	140
Conductivity(mg/l CaCO3):	240

Length Frequency

Species	CM Group	Method	Number Measured

Habitat Type:

Pool:	0.0	%
Riffle:	46.7	%
Run:	53.3	%
Pocket:	0.0	%

Substrate

Organic:	0	%
Sand:	11	%
Gravel:	24	%
Rubble:	42	%
Boulder:	23	%
Bedrock:	0	%

Species

STREAM: Reynolds Creek SAMPLE DATE: 7/16/97
SECTION: REYNO019.5
EPA REACH: 17050103037 QUAD MAP: Soilder Cap
RTS: R4W, T3S, S24 NESW LAT/LONG: 43 8.596 ; 116 45.715
SECTION DESCRIPTION: Reynolds Creek - Section is located ~150 m below the upper gauging station at the first bend where the water channel narrows, then widens again.

Transect Information:

Section Length (m):	61		
Elevation (m):	1400		
Gradient (%):	1.81%		
Population Est:	44.0	S.E(popest):	2
Shade (%):			
Mean Width (m):	3.6		
Mean Depth (m):	0.2		
Cover (%):	38		

Habitat Type:

Pool:	0.0	%
Riffle:	10.0	%
Run:	53.3	%
Pocket:	36.7	%

Substrate

Organic:	0	%
Sand:	0	%
Gravel:	19	%
Rubble:	62	%
Boulder:	16	%
Bedrock:	3	%

Water Chemistry

Time:	12:00 PM
H2O Temp(C):	17
Air Temp(C):	28
pH:	9.3
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	85
Conductivity(mg/l CaCO3):	90

Species

SPD	Speckled dace
WRB	Wild rainbow/redband

Length Frequency

Species	CM Group	Method	Number Measured
SPD	5	EF	1
SPD	7	EF	1
SPD	9	EF	1
WRB	10	EF	1
WRB	11	EF	3
WRB	12	EF	6
WRB	13	EF	7
WRB	14	EF	9
WRB	15	EF	1
WRB	16	EF	3
WRB	17	EF	3
WRB	18	EF	1
WRB	19	EF	3
WRB	20	EF	2
WRB	21	EF	1
WRB	25	EF	2

STREAM: Sinker Creek SAMPLE DATE: 7/15/97
SECTION: SINKE016.0
EPA REACH: 17050103048 QUAD MAP: Sinker Canyon
RTS: R2W, T4S, S19 NENW LAT/LONG: 43 3.882 ; 116 37.551
SECTION DESCRIPTION: Sinker Creek - 1/2 mile downstream of upper road crossing

Transect Information:

Section Length (m):	61
Elevation (m):	1140
Gradient (%):	0.89%
Population Est:	29.0 S.E(popest): 1
Shade (%):	18.7
Mean Width (m):	2.6
Mean Depth (m):	0.1
Cover (%):	7

Water Chemistry

Time:	12:00 PM
H2O Temp(C):	18
Air Temp(C):	28
pH:	8.9
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	102
Conductivity(mg/l CaCO3):	100

Habitat Type:

Pool:	0.0 %
Riffle:	20.0 %
Run:	50.0 %
Pocket:	30.0 %

Substrate

Organic:	0 %
Sand:	33 %
Gravel:	18 %
Rubble:	26 %
Boulder:	18 %
Bedrock:	3 %

Species

WRB	Wild rainbow/redband

Length Frequency

Species	CM Group	Method	Number Measured
WRB	3	EF	1
WRB	4	EF	8
WRB	5	EF	12
WRB	6	EF	3
WRB	14	EF	1
WRB	16	EF	1
WRB	20	EF	2

STREAM: Scotch Bob Creek SAMPLE DATE: 7/15/97
SECTION: SCBOB000.7
EPA REACH: 17050103090 QUAD MAP: Silver City
RTS: R3W, T4S, S24 NESW LAT/LONG: 43 3.456 ; 116 38.71
SECTION DESCRIPTION: Scotch Bob Creek - .7 mile upstream of Sinker Cr.

Transect Information:

Section Length (m):	61
Elevation (m):	1225
Gradient (%):	2.95%
Population Est:	2.0 S.E(popest):
Shade (%):	53.7
Mean Width (m):	1.6
Mean Depth (m):	0.1
Cover (%):	20

Water Chemistry

Time:	02:30 PM
H2O Temp(C):	17
Air Temp(C):	29
pH:	9.1
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	100
Conductivity(mg/l CaCO3):	90

Length Frequency

Species	CM Group	Method	Number Measured
WRB	14	EF	1
WRB	19	EF	1

Habitat Type:

Pool:	10.0 %
Riffle:	30.0 %
Run:	20.0 %
Pocket:	40.0 %

Substrate

Organic:	0 %
Sand:	26 %
Gravel:	21 %
Rubble:	43 %
Boulder:	4 %
Bedrock:	7 %

Species

WRB	Wild rainbow/redband

STREAM: Deep Creek SAMPLE DATE: 7/9/97
SECTION: DEEP_000.1
EPA REACH: 17050104088 QUAD MAP: Brace Flat
RTS: R3W, T13S, S25 NWSW LAT/LONG: 0 0 ; 0 0
SECTION DESCRIPTION: Deep Creek - Mouth of Deep Cr. upstream.

Transect Information:

Section Length (m): 300
Elevation (m): 1460
Gradient (%): 0.00%
Population Est: 0.0 S.E(popest): 0

Shade (%):
Mean Width (m):

Mean Depth (m):
Cover (%):

Water Chemistry

Time: 01:00 PM
H2O Temp(C): 18
Air Temp(C):
pH:
Alkalinity(mg/l CaCO3):
Hardness(uS/cm3):
Conductivity(mg/l CaCO3):

Habitat Type:

Pool: %
Riffle: %
Run: %
Pocket: %

Substrate

Organic: %
Sand: %
Gravel: %
Rubble: %
Boulder: %
Bedrock: %

Species

CSL	Chiselmouth
LND	Longnose dace
SCP	Sculpin spp.
SMB	Smallmouth bass
SUK	Sucker spp.

Length Frequency

Species	CM Group	Method	Number Measured
CSL	7	EF	1
CSL	9	EF	1
LND	8	EF	2
SCP	3	EF	1
SCP	6	EF	1
SCP	7	EF	2
SMB	7	EF	1
SMB	9	EF	2
SMB	11	EF	2
SMB	12	EF	1
SMB	15	EF	1
SUK	9	EF	1
SUK	14	EF	1

STREAM: Deep Creek SAMPLE DATE: 8/25/97
SECTION: DEEP_034.4
EPA REACH: 17050104101 QUAD MAP: Slack Mountain
RTS: R3W, T10S, S3 NWSE LAT/LONG: 42 34.82 ; 116 40.65
SECTION DESCRIPTION: Deep Creek - Section begins ~200 m below the bridge crossing on Mud Flat Road. The top of the section is a barbwire fence that marks the private ground.

Transect Information:

Section Length (m):	61
Elevation (m):	1582
Gradient (%):	0.00%
Population Est:	0.0 S.E(popest): 0
Shade (%):	11.3
Mean Width (m):	3.9
Mean Depth (m):	0.1
Cover (%):	0

Water Chemistry

Time:	12:30 PM
H2O Temp(C):	20
Air Temp(C):	31
pH:	9.3
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	60
Conductivity(mg/l CaCO3):	50

Habitat Type:

Pool:	0.0 %
Riffle:	0.0 %
Run:	100.0 %
Pocket:	0.0 %

Substrate

Organic:	0 %
Sand:	46 %
Gravel:	54 %
Rubble:	0 %
Boulder:	0 %
Bedrock:	0 %

Species

BLS	Bridgelip sucker
RSS	Redside shiner
SCP	Sculpin spp.
SPD	Speckled dace

Length Frequency

Species	CM Group	Method	Number Measured
BLS	2	EF	2
BLS	3	EF	2
BLS	4	EF	3
BLS	6	EF	1
BLS	7	EF	1
BLS	8	EF	1
BLS	9	EF	1
RSS	2	EF	2
RSS	4	EF	5
RSS	5	EF	7
RSS	6	EF	2
RSS	7	EF	1
RSS	8	EF	2
SCP	3	EF	1
SCP	4	EF	3
SPD	2	EF	2
SPD	5	EF	18
SPD	6	EF	18
SPD	7	EF	1
SPD	8	EF	1

STREAM: Red Canyon Creek SAMPLE DATE: 7/11/97
SECTION: REDCA000.1
EPA REACH: 17050104111 QUAD MAP: Red Basin Idaho
RTS: R4W, T13S, S20 NWNW LAT/LONG: 42 16.96 ; 116 50.36
SECTION DESCRIPTION: Red Canyon Creek - From Owyhee River upstream.

Transect Information:

Section Length (m): 53.4
Elevation (m): 1162
Gradient (%): 0.00%
Population Est: 11.0 S.E(popest): 1

Shade (%):
Mean Width (m):

Mean Depth (m):
Cover (%):

Water Chemistry

Time: 04:00 PM
H2O Temp(C): 17
Air Temp(C):
pH:
Alkalinity(mg/l CaCO3):
Hardness(uS/cm3):
Conductivity(mg/l CaCO3):

Habitat Type:

Pool: %
Riffle: %
Run: %
Pocket: %

Substrate

Organic: %
Sand: %
Gravel: %
Rubble: %
Boulder: %
Bedrock: %

Species

BLS	Bridgelip sucker
LND	Longnose dace
SCP	Sculpin spp.
WRB	Wild rainbow/redband

Length Frequency

Species	CM Group	Method	Number Measured
BLS	15	EF	1
LND	8	EF	2
SCP	0	EF	6
WRB	4	EF	5
WRB	5	EF	3
WRB	12	EF	1
WRB	15	EF	1
WRB	17	EF	1

STREAM: Owyhee River, NF SAMPLE DATE: 7/10/97
SECTION: NFOWY011.8
EPA REACH: 17050107043 QUAD MAP: Fairylawn
RTS: R5W, T9S, S36 SESE LAT/LONG: 42 35.695 ; 116 59.043
SECTION DESCRIPTION: N.F. Owyhee River - Section is located ~ 150m below bridge at the campround. The site runs alongside a large gravelbar.

Transect Information:

Section Length (m):	61		
Elevation (m):	1425		
Gradient (%):	0.85%		
Population Est:	0.0	S.E(popest):	0
Shade (%):	6.4		
Mean Width (m):	5.3		
Mean Depth (m):	0.2		
Cover (%):	28		

Water Chemistry

Time:	02:00 PM
H2O Temp(C):	17
Air Temp(C):	22
pH:	9.8
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	85
Conductivity(mg/l CaCO3):	70

Length Frequency

Species	CM Group	Method	Number Measured
LND	4	EF	1
LND	5	EF	3
LND	6	EF	3
LND	7	EF	2
LND	8	EF	1
LND	9	EF	2
SCP	5	EF	2
SCP	6	EF	1
SCP	7	EF	1
SPD	5	EF	7
SPD	6	EF	2
SPD	7	EF	2
SPD	10	EF	1

Habitat Type:

Pool:	0.0	%
Riffle:	26.7	%
Run:	73.3	%
Pocket:	0.0	%

Substrate

Organic:	0	%
Sand:	7	%
Gravel:	6	%
Rubble:	86	%
Boulder:	1	%
Bedrock:	0	%

Species

LND	Longnose dace
SCP	Sculpin spp.
SPD	Speckled dace

STREAM: Jordan Creek
SECTION: JORDA075.9
EPA REACH: 17050108055
RTS: R, T, S
SECTION DESCRIPTION: In canyon

SAMPLE DATE: 9/5/97
QUAD MAP: Triangle
LAT/LONG: 42 56.04 ; 116 52.69

Transect Information:

Section Length (m): 61
Elevation (m):
Gradient (%):
Population Est: 30.0 S.E(popest): 3

Shade (%):
Mean Width (m): 3.0

Mean Depth (m): 0.2
Cover (%): 32

Water Chemistry

Time: 11:00 PM
H2O Temp(C): 12
Air Temp(C):
pH:
Alkalinity(mg/l CaCO3):
Hardness(uS/cm3):
Conductivity(mg/l CaCO3):

Habitat Type:

Pool:	40.0	%
Riffle:	60.0	%
Run:	0.0	%
Pocket:	0.0	%

Substrate

Organic:	0	%
Sand:	15	%
Gravel:	28	%
Rubble:	49	%
Boulder:	9	%
Bedrock:	0	%

Species

BLS	Bridgelip sucker
CSL	Chiselmouth
LND	Longnose dace
MTS	Mottled sculpin
RSS	Redside shiner
SPD	Speckled dace
WRB	Wild rainbow/redband

Length Frequency

Species	CM Group	Method	Number Measured
BLS	3	ef-3	3
BLS	4	ef-3	1
BLS	6	ef-3	2
BLS	7	ef-3	1
BLS	8	ef-3	3
BLS	9	ef-3	6
BLS	10	ef-3	2
BLS	11	ef-3	5
BLS	12	ef-3	5
BLS	13	ef-3	6
BLS	15	ef-3	2
CSL	6	ef-3	1
CSL	10	ef-3	3
CSL	11	ef-3	1
CSL	16	ef-3	1
LND	5	ef-3	1
LND	6	ef-3	7
LND	7	ef-3	3
LND	8	ef-3	1
LND	9	ef-3	1

MTS	4	ef-3	2
MTS	6	ef-3	1
MTS	7	ef-3	1
RSS	7	ef-3	1
RSS	8	ef-3	9
RSS	9	ef-3	4
RSS	10	ef-3	3
SPD	2	ef-3	1
SPD	3	ef-3	1
SPD	4	ef-3	3
SPD	5	ef-3	13
SPD	6	ef-3	33
SPD	7	ef-3	10
SPD	8	ef-3	1
WRB	5	ef-3	2
WRB	10	ef-3	3
WRB	11	ef-3	4
WRB	12	ef-3	5
WRB	13	ef-3	5
WRB	14	ef-3	1
WRB	17	ef-3	1
WRB	19	ef-3	3
WRB	20	ef-3	2
WRB	25	ef-3	2

STREAM: Jordan Creek SAMPLE DATE: 9/4/97
SECTION: JORDA088.3
EPA REACH: 17050108055 QUAD MAP: Triangle
RTS: R, T, S LAT/LONG: 43 1.61 ; 116 51
SECTION DESCRIPTION: Just down stream from Sage Hen Creek mouth.

Transect Information:

Section Length (m):	65.7
Elevation (m):	
Gradient (%):	0.00%
Population Est:	73.0 S.E(popest): 2
Shade (%):	0.0
Mean Width (m):	5.3
Mean Depth (m):	0.1
Cover (%):	17

Water Chemistry

Time:	04:00 PM
H2O Temp(C):	20
Air Temp(C):	
pH:	
Alkalinity(mg/l CaCO3):	
Hardness(uS/cm3):	
Conductivity(mg/l CaCO3):	

Habitat Type:

Pool:	26.7 %
Riffle:	53.3 %
Run:	20.0 %
Pocket:	0.0 %

Substrate

Organic:	0 %
Sand:	11 %
Gravel:	7 %
Rubble:	71 %
Boulder:	11 %
Bedrock:	0 %

Species

BLS	Bridgelip sucker
SPD	Speckled dace
WRB	Wild rainbow/redband

Length Frequency

Species	CM Group	Method	Number Measured
BLS	4	EF	1
BLS	9	EF	1
BLS	10	EF	1
BLS	16	EF	1
SPD	3	EF	3
SPD	4	EF	1
SPD	6	EF	3
SPD	7	EF	12
SPD	8	EF	7
SPD	9	EF	4
WRB	5	EF	9
WRB	6	EF	10
WRB	7	EF	3
WRB	10	EF	3
WRB	11	EF	9
WRB	12	EF	8
WRB	13	EF	8
WRB	14	EF	2
WRB	15	EF	2
WRB	16	EF	4
WRB	17	EF	2
WRB	18	EF	3
WRB	19	EF	3
WRB	20	EF	3
WRB	22	EF	1
WRB	25	EF	1

STREAM: Jordan Creek SAMPLE DATE: 9/4/97
SECTION: JORDA095.4
EPA REACH: 17050108055 QUAD MAP:
RTS: R, T, S LAT/LONG: 43 1.98 ; 116 44.75
SECTION DESCRIPTION: Above first bridge below Silver City

Transect Information:

Section Length (m): 66
Elevation (m):
Gradient (%):
Population Est: 86.0 S.E(popest): 3

Shade (%):
Mean Width (m): 3.2

Mean Depth (m): 0.1
Cover (%): 10

Water Chemistry

Time: 12:29 PM
H2O Temp(C): 17
Air Temp(C):
pH:
Alkalinity(mg/l CaCO3):
Hardness(uS/cm3):
Conductivity(mg/l CaCO3):

Habitat Type:

Pool:	0.0	%
Riffle:	53.3	%
Run:	46.7	%
Pocket:	0.0	%

Substrate

Organic:	0	%
Sand:	26	%
Gravel:	12	%
Rubble:	54	%
Boulder:	7	%
Bedrock:	1	%

Species

WRB Wild rainbow/redband

Length Frequency

Species	CM Group	Method	Number Measured
WRB	5	ef-3	9
WRB	6	ef-3	14
WRB	7	ef-3	3
WRB	8	ef-3	2
WRB	9	ef-3	4
WRB	10	ef-3	5
WRB	11	ef-3	5
WRB	12	ef-3	7
WRB	13	ef-3	6
WRB	14	ef-3	5
WRB	15	ef-3	7
WRB	16	ef-3	4
WRB	17	ef-3	3
WRB	18	ef-3	3
WRB	19	ef-3	4
WRB	20	ef-3	1

STREAM: Flint Creek SAMPLE DATE: 9/5/97
SECTION: FLINT003.9
EPA REACH: 17050108079 QUAD MAP: Triangle
RTS: R4W, T6S, S22 LAT/LONG: 42 53.64 ; 116 48.38
SECTION DESCRIPTION: Above Triangle Road Crossing

Transect Information:

Section Length (m): 43
Elevation (m):
Gradient (%):
Population Est: 94.0 S.E(popest): 9

Shade (%):
Mean Width (m): 2.1

Mean Depth (m): 0.2
Cover (%): 0

Water Chemistry

Time: 01:00 PM
H2O Temp(C): 16
Air Temp(C):
pH:
Alkalinity(mg/l CaCO3):
Hardness(uS/cm3):
Conductivity(mg/l CaCO3):

Habitat Type:

Pool:	40.0	%
Riffle:	26.7	%
Run:	33.3	%
Pocket:	0.0	%

Substrate

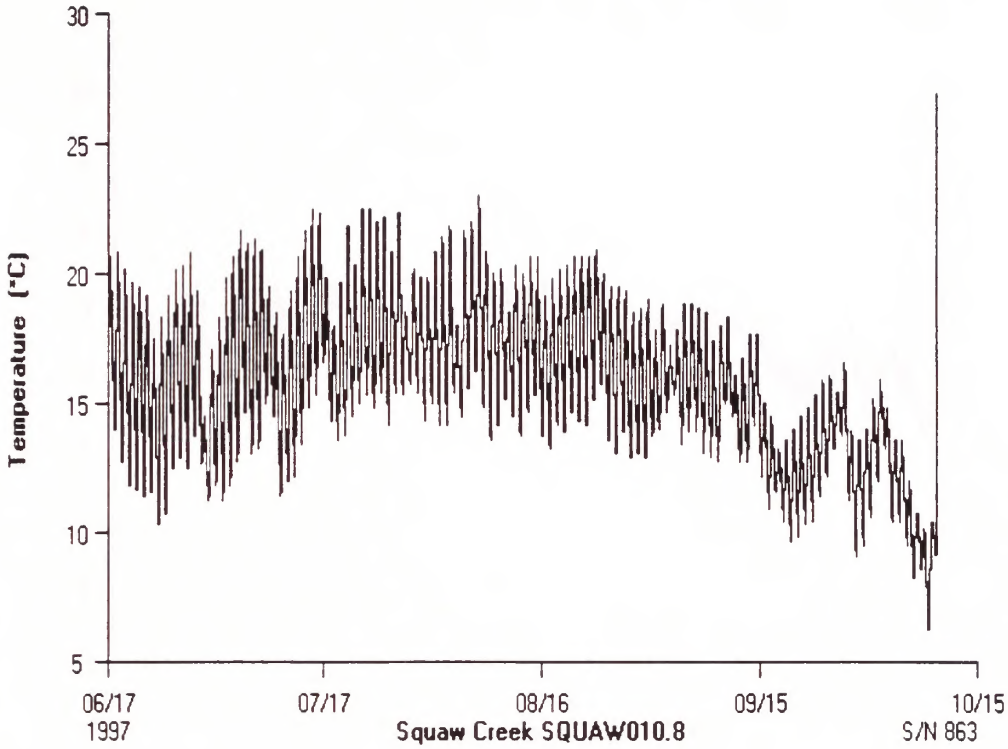
Organic:	0	%
Sand:	7	%
Gravel:	13	%
Rubble:	80	%
Boulder:	0	%
Bedrock:	0	%

Species

MTS	Mottled sculpin
WRB	Wild rainbow/redband

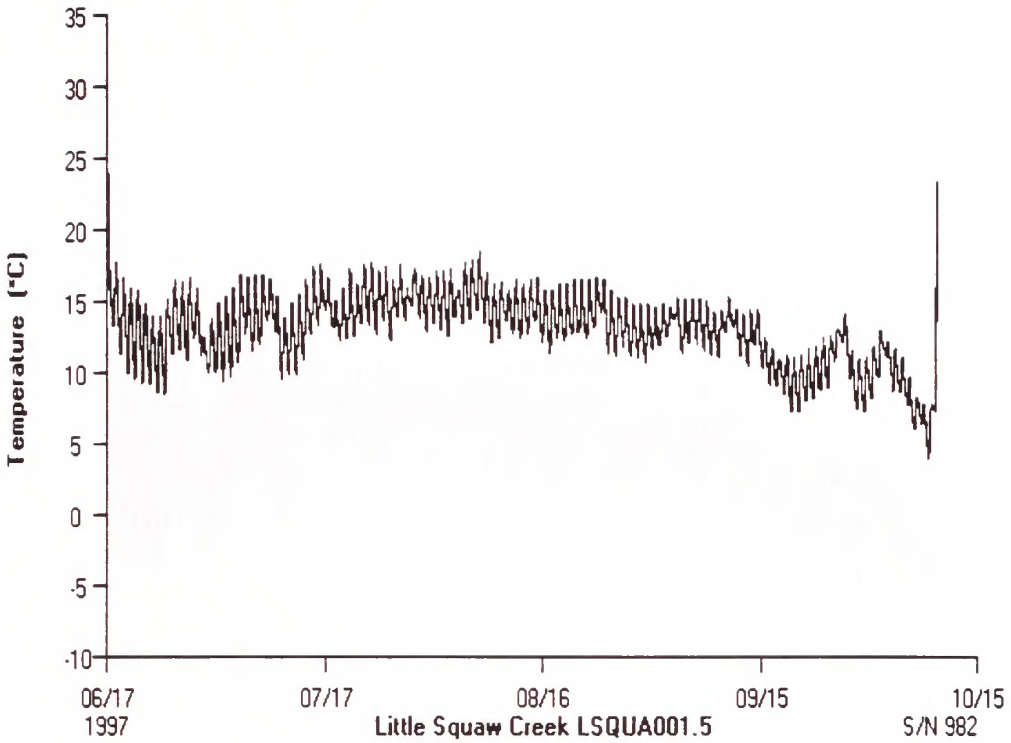
Length Frequency

Species	CM Group	Method	Number Measured
MTS	2	ef-	1
MTS	5	ef-	2
MTS	6	ef-	1
MTS	7	ef-	4
MTS	8	ef-	2
MTS	9	ef-	1
WRB	4	ef-	6
WRB	5	ef-	21
WRB	6	ef-	16
WRB	7	ef-	4
WRB	8	ef-	3
WRB	9	ef-	3
WRB	10	ef-	3
WRB	11	ef-	7
WRB	13	ef-	4
WRB	14	ef-	6
WRB	15	ef-	2
WRB	16	ef-	1
WRB	17	ef-	1
WRB	18	ef-	1
WRB	20	ef-	1
WRB	23	ef-	1



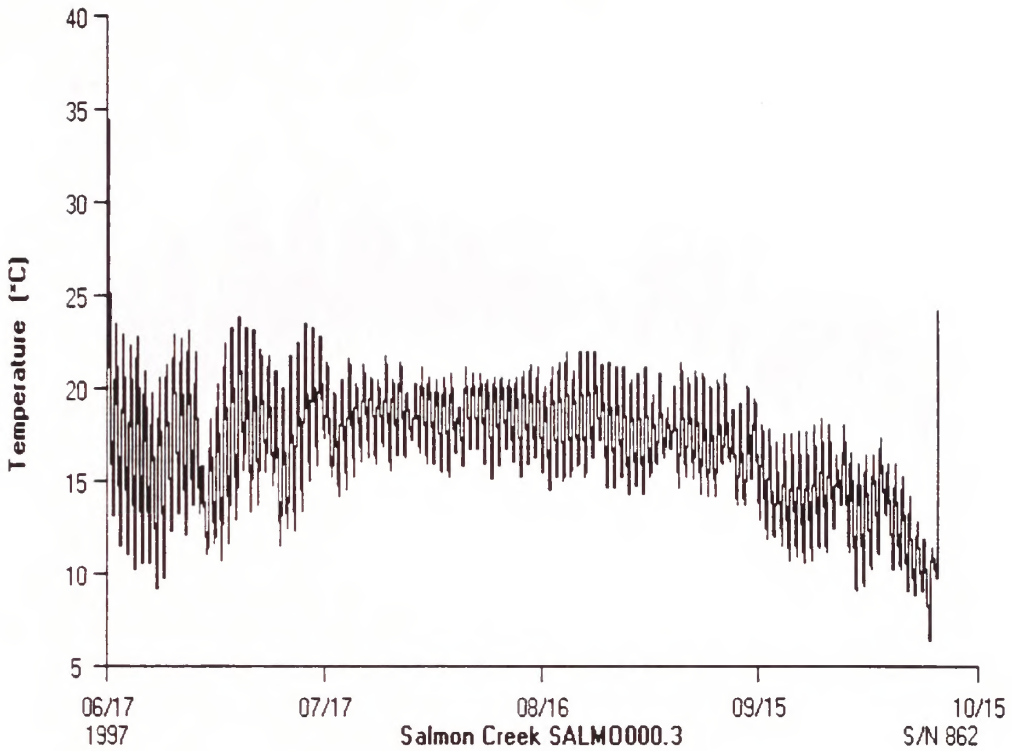
Appendix 2A.

Recording thermograph data for Squaw Creek, Owyhee County, ID. Site is located at Stream Mile 10.8, Legal Description T1N R5W S36 SWSW, Elevation 1175m. Thermograph was set on 6/17/97 and pulled on 10/15/97.



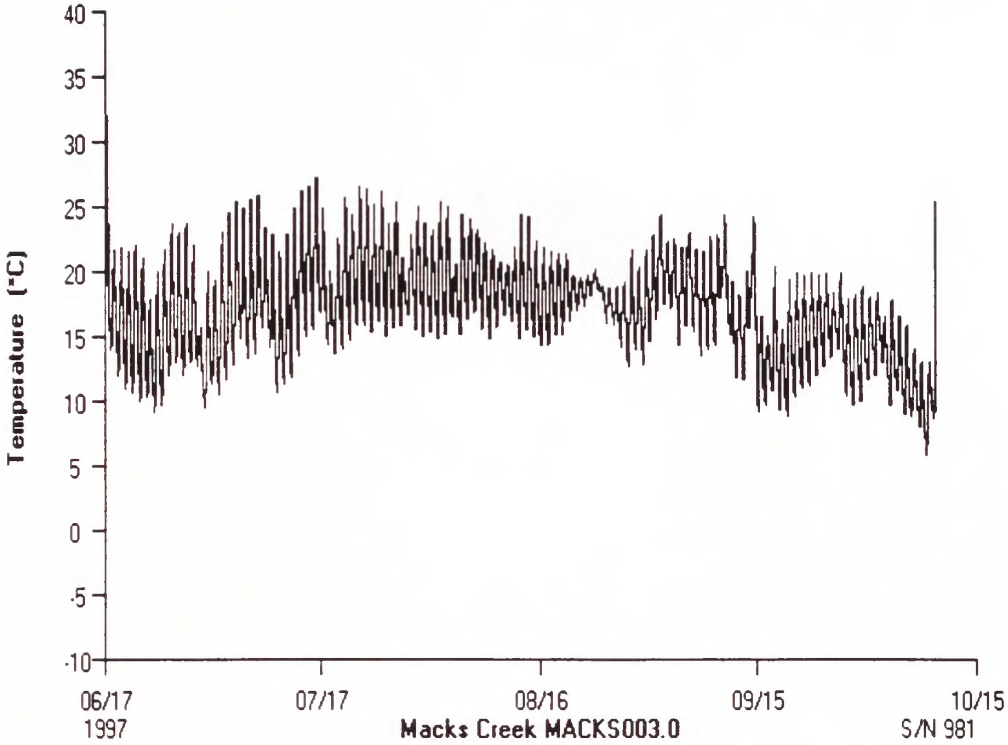
Appendix 2B.

Recording thermograph data for Little Squaw Creek, Owyhee County, ID. Site is located at Stream Mile 1.5, Legal Description T1N R5W S34 NESE, Elevation 1225m. Thermograph was set on 6/17/97 and pulled on 10/15/97.



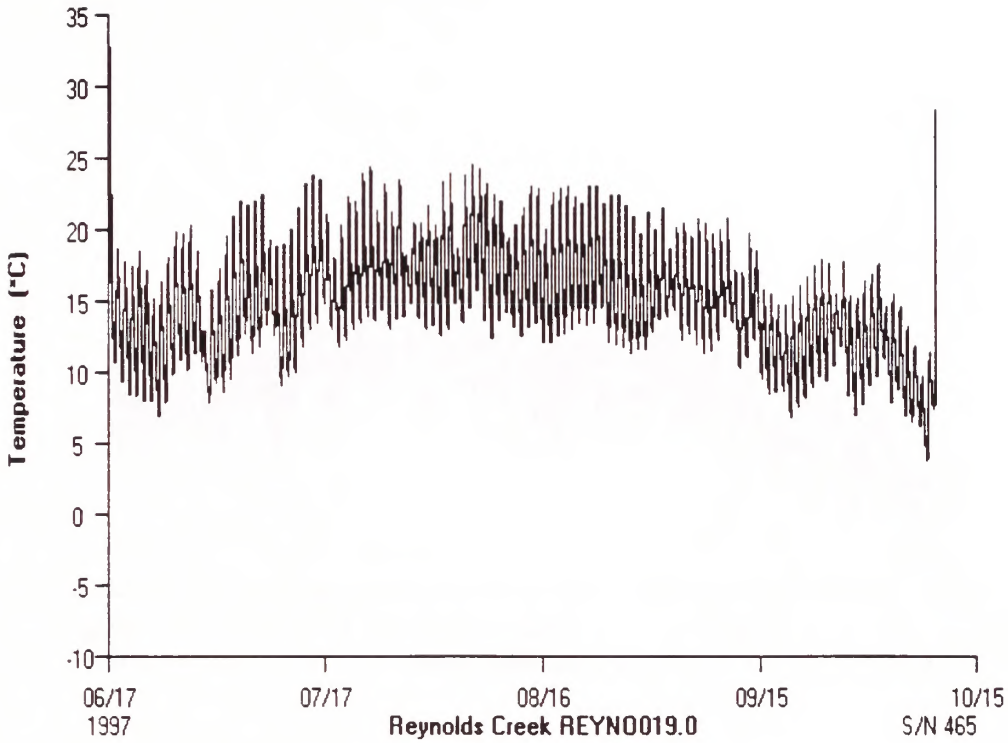
Appendix 2C.

Recording thermograph data for Salmon Creek, Owyhee County, ID. Site is located at Stream Mile 0.3, Legal Description T2S R4W S13 NWNE, Elevation 1125m. Thermograph was set on 6/17/97 and pulled on 10/15/97.



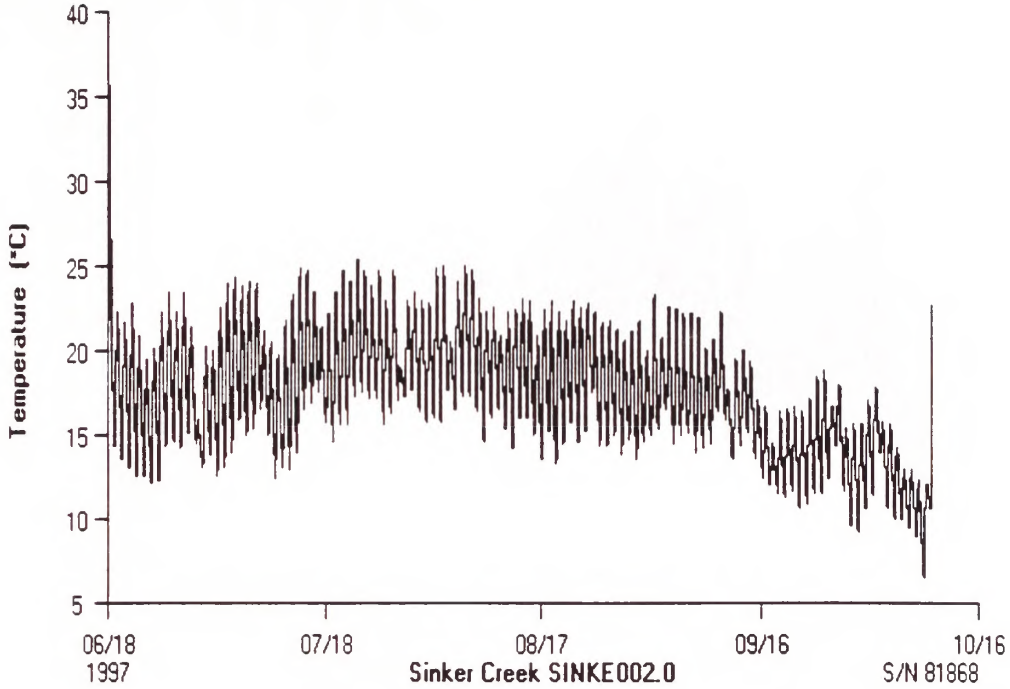
Appendix 2D.

Recording thermograph data for Macks Creek, Owyhee County, ID. Site is located at Stream Mile 3.0, Legal Description T2S R4W S27 NWNE, Elevation 1250m. Thermograph was set on 6/17/97 and pulled on 10/15/97.



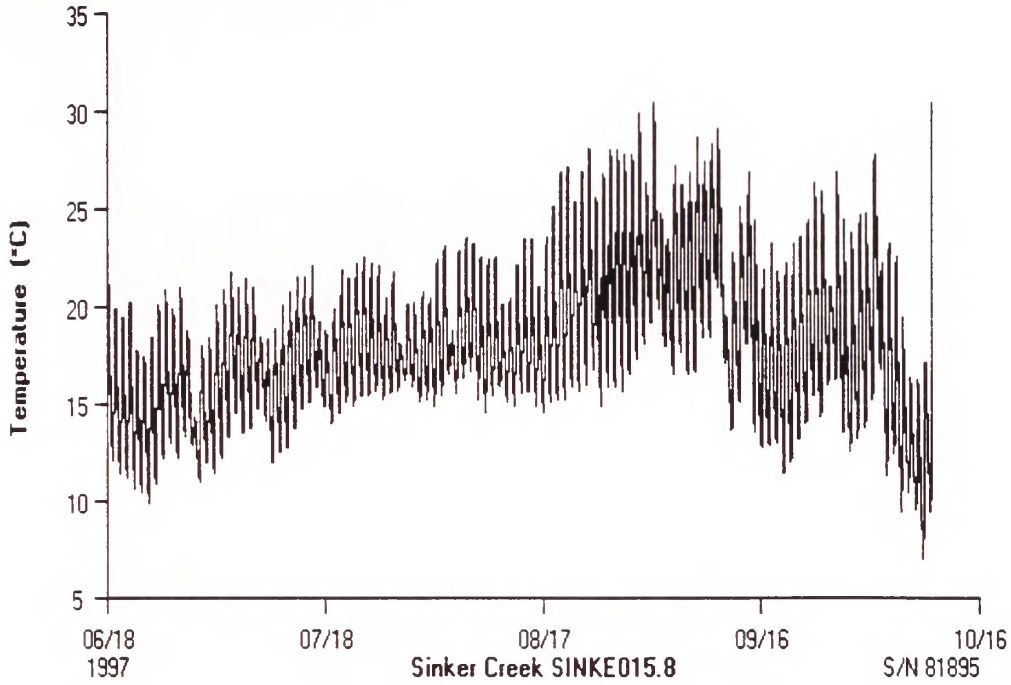
Appendix 2E.

Recording thermograph data for Reynolds Creek, Owyhee County, ID. Site is located at Stream Mile 19.0, Legal Description T3S R4W S24 NESW, Elevation 1425m. Thermograph was set on 6/17/97 and pulled on 10/15/97.



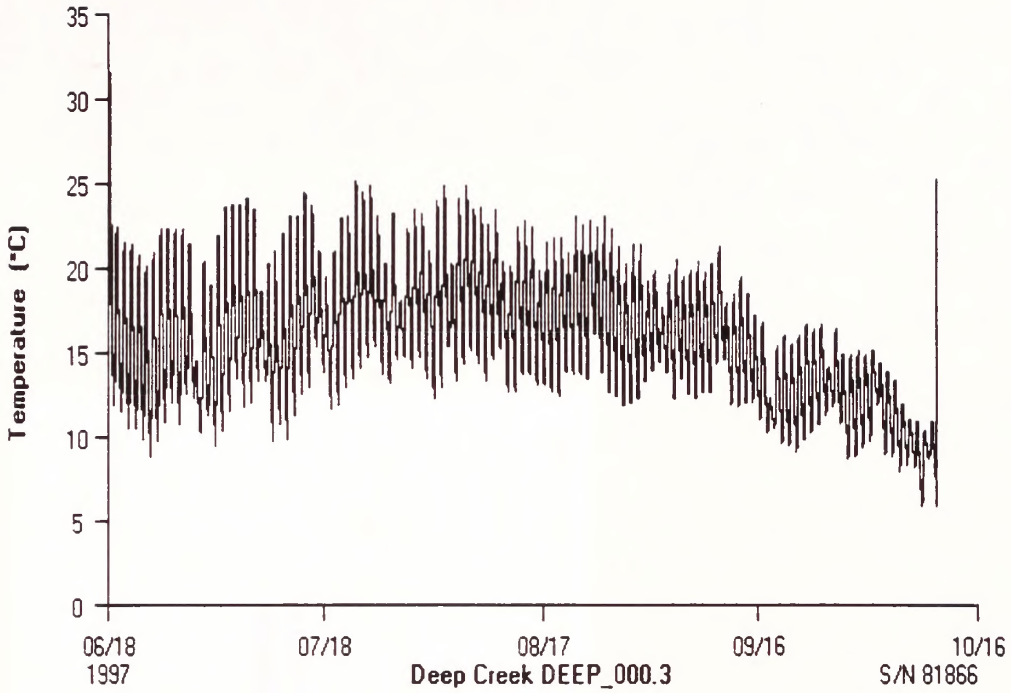
Appendix 2F.

Recording thermograph data for Sinker Creek, Owyhee County, ID. Site is located at Stream Mile 2.0, Legal Description T3S R1W S13 SWNE, Elevation 825m. Thermograph was set on 6/18/97 and pulled on 10/16/97.



Appendix 2G.

Recording thermograph data for Sinker Creek, Owyhee County, ID. Site is located at Stream Mile 15.8, Legal Description T4S R2W S19 NENW, Elevation 1125m. Thermograph was set on 6/18/97 and pulled on 10/16/97 (Stream was dry when pulled).



Appendix 2H.

Recording thermograph data for Deep Creek, Owyhee County, ID. Site is located at Stream Mile 18.2, Legal Description T10S R3W S3 NWSE, Elevation 1700m. Thermograph was set on 6/18/97 and pulled on 10/16/97.

Bureau of Land Management
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Boise, Idaho 83709

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