Article 04

SALMON SPAWNING GROUND SURVEYS, 1995

Pacific Salmon Treaty Program
Award No. NA47FP0346

By:

Terry J. Elms-Cockrum, Senior Fishery Technician

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF APPENDICES (Cont.)

Page

LIST OF APPENDICES (Cont.)

Page

ABSTRACT

The numbers of spring and summer chinook salmon *Oncorhynchus tshawytscha* and sockeye salmon *O. nerka* returning to waters within the State of Idaho in 1995 were indexed by counting chinook salmon redds in selected areas and by operating weirs. Surveys of spawner carcasses were also conducted while counting salmon redds. The purposes of the carcass surveys were to collect length data, estimate age composition and determine sex composition of annual escapements. Adults intercepted at weirs were also sexed and measured.

Counts of spring and summer chinook salmon redds decreased to extremely small numbers throughout the Salmon River drainage in 1995. The total number of chinook salmon redds counted in 1995 was 166, compared to an average of 1,130 total redds annually during 1990-1994, and 6,891 redds annually during 1957-1966.

Numbers of spring chinook redds counted in the Clearwater River drainage were also small in 1994. The total number of redds counted in 1995 was 22, compared to an average of 127 annually during 1990-1994.

No sockeye salmon returned to the Redfish Lake Creek weir in 1995.

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Each year chinook *Oncorhynchus tshawytscha* and sockeye O. *nerka* salmon return from the ocean to spawn in Idaho. Snake River spring/summer chinook and sockeye salmon have declined dramatically in recent years and were listed in 1991-1992 under the Endangered Species Act (ESA) as threatened and endangered species, respectively. The ESA listing pertains to native salmon populations in the Salmon River and Snake River tributaries in Oregon and Washington; the reintroduced populations in the Clearwater River are not listed.

Effective management of anadromous salmon requires annual monitoring of the escapement into spawning areas. In Idaho it is especially difficult to enumerate all salmon returning to each of the spawning areas due to the vast geographic area used by these fish and limited access to the spawning habitat. Because quantifying total spawner escapement to each tributary was impractical, the Idaho Department of Fish and Game (IDFG) developed a program to index annual spawning escapements by enumerating salmon redds in selected areas. The areas surveyed represent a large portion of available chinook salmon spawning habitat, and the number of redds counted in these areas provides an index of the annual spawning escapement. Time-series trends in escapement and production can be assessed from the redd count data. Spawner carcass surveys are conducted while making redd counts to collect length data to estimate age composition and to determine the sex composition of the annual escapement. Marked fish are noted, and the snouts of all adipose fin-clipped salmon are collected during the carcass surveys. For juvenile chinook released prior to 1993, the adipose fin clip indicates the fish was coded wire-tagged (CWT). Beginning with juveniles released in 1993, all Idaho hatchery chinook salmon have an adipose or ventral fin clip, regardless of whether they are CWT.

Chinook salmon redd counts in Idaho were made as early as 1947 (Zimmer 1950; Schoning 1953). However, consistent trend counts date back to 1957. Since 1957, the redd count program was expanded to include additional spawning areas to support expanded monitoring activities and management requirements.

Hassemer (1993a) summarized and critically reviewed the Idaho redd count data for the years 1957-1992. Subsequent reports (Riley and Elms-Cockrum 1995; Elms-Cockrum et al. 1995) have updated the redd count data. In this report, the 1995 redd counts, weir counts, and data on length, age, and sex are made available for trend analysis and management and research use.

OBJECTIVES

To monitor chinook and sockeye salmon spawning escapements in trend areas and determine sex and age composition of selected runs.

METHODS

Chinook Salmon

Areas where chinook salmon redds are counted have been established on streams in the Salmon River and Clearwater River drainages of Idaho. The purpose of counting redds is to provide an index of annual spawning escapement and identify general trends in spawning escapements. Redd counts are reported for "trend areas," which are important production areas for various stocks and represent a large portion of available spawning habitat. A trend area may be divided into a number of separate transects, each of which is counted. Trend area and transect boundaries generally have remained constant from year to year. Count methods used and trend area boundary changes made from 1957-92 are described by Hassemer (1993a).

IDFG has developed and implemented standardized procedures for counting chinook salmon redds (Hassemer 1993b). Single peak-count surveys are made over each trend area each year. The surveys are timed to coincide with the period of maximum spawning activity on a particular stream, and each transect is therefore assigned a target count-time window based on historic observations. Redd count observations are made depending on the best visual technique for a particular trend area. Techniques include low-flying fixed-wing aircraft, helicopters, or ground surveys conducted on foot. The consistency and accuracy of redd counts can be maintained over time by following these standard procedures, and variability or bias caused by observer changes and hydrologic events can be minimized.

Chinook salmon redd count trend areas are classified as either wild (not influenced by hatchery-reared fish), natural, or hatchery-influenced. This separation, based on the origin or rearing history of the fish, was first used for counts made in 1986 (Hall-Griswold and Cochnauer 1988). The Salmon River drainage contains five wild spring chinook and five wild summer chinook salmon trend areas. Hatchery influence generally indicates a consistent and continuing presence of hatchery juveniles and adults in the stream. The Clearwater River drainage contains non-endemic, reintroduced spring chinook salmon populations. In the Clearwater River drainage, the Selway drainage is classified as natural, and the Lochsa and South Fork Clearwater drainages are classified as hatchery-influenced.

In 1985, additional redd count transects were established in the Salmon River drainage, and categorized as nontraditional trend areas. Data from these transects are excluded from the historic trend area data. Counts from these areas will be used for comparisons in future years. The number of nontraditional trend areas may change in the future as dictated by management and research requirements.

Spawner carcass surveys are conducted on selected streams to determine the sex ratio and length-frequency distribution of returning adults. Length-frequency information is used to estimate the age composition of the run. Also, returning adults intercepted at hatchery weirs are sexed and measured. These weirs are: the South Fork Salmon River, East Fork Salmon River, Pahsimeroi River, and at the Sawtooth Hatchery in the Salmon River drainage, as well as weirs on Red River, Walton Creek (Powell Facility), and Crooked River in the Clearwater River drainage.

Sockeye Salmon

In response to the critical status of the Snake River sockeye salmon, a weir was installed on Redfish Lake Creek in 1991, and all returning sockeye salmon were trapped (1991-1994) for development of a captive broodstock program. Hassemer (1993a) reviews sockeye redd counts made before the species was listed. For further information on the captive broodstock program, refer to Johnson (1993).

RESULTS

Salmon River Drainage

Counts of spring and summer chinook salmon redds decreased to extremely small numbers throughout the Salmon River drainage in 1995. The total number of spring and summer chinook salmon redds counted in 1995 for traditional, classified trend areas was 166, only 14.7% of the previous five-year (1990-1994) average of 1,130, and 2.4% of the 1957-1966 average of 6,891 (Tables 1-4; Figure 1). Chinook redd counts in this drainage declined sharply to 44% of that in 1994.

The number of spring chinook salmon redds counted in wild trend areas in 1995 was much lower than in 1994 and only 5% of the 1990-1994 average (Table 2; Figure 2). Spring chinook redd counts in natural and hatchery-influenced trend areas decreased to 9% of the 1990-1994 average. (Table 1, Figure 2). These are both historic low levels. No redds were observed in spring chinook trend areas in the

Table 1. Numbers of spring chinook salmon redds counted in Salmon River drainage natural (Lemhi River and Upper Valley Creek) and hatchery-influenced trend areas, 1957-1995. NC = no count.

YEAR	ALTURAS LAKE CREEK[a]	LEMHI RIVER	UPPER EAST FORK[b]	UPPER SALMON RIVER	UPPER VALLEY CREEK	UPPER YANKEE FORK	TOTALS	FIVE YEAR AVERAGE
1995	0	5	1	5	0	0	11	
1994	0	7	3	21	0	0	31	
1993	6	23	21	65	7	0	122	
1992	2	15	10	51	1	1	80	
1991	3	55	21	83	2	0	164	
1990	0	80	NC	97	3	3	183	
1989	7	32	NC	102	23	7	171	243
1988	1	179	NC	146	12	1	339	
1987	9	155	NC	162	31	0	357	
1986	14	157	NC	134	13	15	333	
1985	7	93	NC	120	1	5	226	
1984	3	35	NC	71	6	NC	115	253
1983	27	46	121	161	8	0	363	
1982	9	149	28	42	1	0	229	
1981	4	115	76	404	2	4	605	
1980	7	25	6	47	6	0	91	
1979	29	146	57	205	25	18	480	1264
1978	303	703	841	1707	141	33	3728	
1977	85	443	168	698	18	6	1418	
1976	16	227	75	378	NC	40	736	
1975	60	365	348	509	189	60	1531	
1974	42	237	346	338	127	54	1144	1482
1973	153	433	665	411	125	104	1891	
1972	143	473	448	748	182	115	2109	
1971	50	392	370	619	89	57	1577	
1970	68	344	468	432	202	67	1581	
1969	41	328	174	313	35	53	944	1905
1968	110	572	622	637	330	234	2505	
1967	74	786	614	943	253	250	2920	
1966	119	738	511	581	219	112	2280	
1965	101	433	138	472	204	77	1425	
1964	80	1038	405	706	199	146	2574	2184
1963	86	364	646	638	141	128	2003	
1962	138	1309	334	638	157	60	2636	
1961	30	1720	618	723	227	192	3510	
1960	33	1262	122	579	87	43	2126	
1959	18	468	75	486	23	10	1080	2067
1958	96	555	141	469	63	38	1362	
1957	110	719	61	1101	219	47	2257	

[a] Influenced by trapping at Sawtooth Hatchery site beginning 1981.
[b] Influenced by trapping at East Fork Weir beginning 1984.

Table 2. Numbers of spring chinook salmon redds counted in Salmon River drainage wild trend areas, 1957-1995. NC = no count.

YEAR	BEAR VALLEY CREEK	ELK CREEK	MARSH CREEK DRAINAGE	SULPHUR CREEK	UPPER BIG CREEK	TOTAL	FIVE YEAR AVERAGE
1995	9	0	0	0	2	11	
1994	10	8	5	0	3	26	
1993	148	242	120	25	56	591	
1992	41	57	65	5	22	190	
1991	47	54	40	26	13	180	
1990	62	42	57	22	20	203	
1989	15	35	44	2	30	126	386
1988	283	330	217	41	101	972	
1987	102	149	150	11	36	448	
1986	74	55	101	65	67	362	
1985	134	28	108	10	70	350	
1984	55	27	60	0	42	184	231
1983	56	38	33	8	27	162	
1982	39	9	40	3	7	98	
1981	60	23	63	7	22	175	
1980	15	8	9	2	4[a]	38	
1979	69	49	47	15	15	195	311
1978	184	208	270	64	95	821	
1977	129	86	98	5	9	327	
1976	76	61	48	14	22	221	
1975	215	169	201	50	77	712	
1974	130	108	210	30	28	506	754
1973	387	375	518	78	96	1454	
1972	221	212	312	71	60	876	
1971	108	173	281	58	32	652	
1970	334	302	456	93	68	1253	
1969	356	349	222	138	65	1130	1301
1948	574	483	466	142	90	1755	
1967	445	420	650	134	67	1716	
1966	534	525	406	142	123	1730	
1965	301	203	404	32	73	1013	
1964	576	425	709	49	51	1810	1576
1963	460	654	372	140	148	1774	
1962	484	426	341	78	223	1552	
1961	675	581	526	121	377	2280	
1960	386	346	299	39	155	1225	
1959	381	458	88	41	88	1056	1575
1958	312	359	262	131	129	1193	
1957	661	398	458	381	225	2123	

[a] Corrected from NC in Hassemer (1992).

Table 3. Numbers of summer chinook salmon redds counted in Salmon River drainage wild trend areas, 1957-1995. NC = no count.

YEAR	LOON CREEK	SECESH RIVER LAKE CR.	LOWER SALMON RIVER	LOWER VALLEY CREEK	LOWE EAST FORK	TOTAL	FIVE YEAR AVERAGE
1995	0/NC[c]	28	6/NC[c]	0	4	38	
1994	1	38	9	9	5	62	
1993	31	130	48	16	41	266	
1992	22	125	26	6	16	195	
1991	16	112	68	3	23	222	
1990	NC	55	52	9	19	135	
1989	16	78	77	26	51	248	300
1988	5	155	150	33	85	428	
1987	23	121	200	59	62	465	
1986	21	115	104	16	41	297	
1985	28	105	82	1	9	225	
1984	4	xx[c]	51	15	7	77	205
1983	7	98	111	28	27	271	
1982	23	65	39	8	19	154	
1981	30	53	75	17	43	218	
1980	9	20	11	4	0	44	
1979	NC	20	NC	15	33	68	282
1978	29	91	359	219	NC	698	
1977	62	27	94	63	136	382	
1976	31	17	44	43	39	174	
1975	32	10	45	80	38	205	
1974	47	21	40	45	49	202	402
1973	78	62	224	77	138	579	
1972	150	87	412	39	161	849	
1971	79	80	220	147	149	675	
1970	43	63	150	41	123	420	
1969	110	104	120	22	138	494	657
1968	135	58	223	63	235	714	
1967	164	140	365	79	234	982	
1966	49	140	390	184	216	979	
1965	166	134	201	57	131	689	
1964	361	181	415	71	306	1334	1030
1963	261	163	195	50	265	934	
1962	157	281	467	115	195	1215	
1961	131	191	356	158	559	1395	
1960	334	510	811	137	403	2195	
1959	123	240	352	70	240	1025	2058
1958	193	355	460	47	345	1400	
1957	425	328	2533	331	656	4273	

[a] No count for WS-6, from Cabin Creek to Canyon at Falconberry.
[b] No count for NS-22-24, from Lemhi River upstream to U.S. 93 Bridge.
[c] "xx" = count not comparable to other years.

Table 4. Numbers of summer chinook salmon redds counted in Salmon River drainage natural (Johnson Creek) and hatchery-influenced (South Fork Salmon River) trend areas, 1957-1995.

YEAR	JOHNSON CREEK	S. FORK SALMON RIVER	TOTAL	FIVE YEAR AVERAGE
1995	9	97	106	
1994	20	239	259	
1993	142	939	1081	
1992	76	685	761	
1991	64	393	457	
1990	56	386	442	
1989	42	217	259	567
1988	137	718	855	
1987	72	752	824	
1986	53	289	342	
1985	75	323	398	
1984	17	165	182	264
1983	63	185	248	
1982	37	111	148	
1981	45	126	171	
1980	24	116	140	
1979	36	115	151	227
1978	113	251	364	
1977	81	226	307	
1976	68	241	309	
1975	69	238	307	
1974	107	218	325	517
1973	271	586	857	
1972	220	567	787	
1971	183	421	604	
1970	130	527	657	
1969	273	636	909	800
1968	127	515	642	
1967	286	902	1188	
1966	110	980	1090	
1965	116	656	772	
1964	310	1124	1434	1301
1963	266	1057	1323	
1962	295	1589	1884	
1961	201	1058	1259	
1960	486	2290	2776	
1959	278	1305	1583	1991
1958	82	1206	1288	
1957	319	2732	3051	

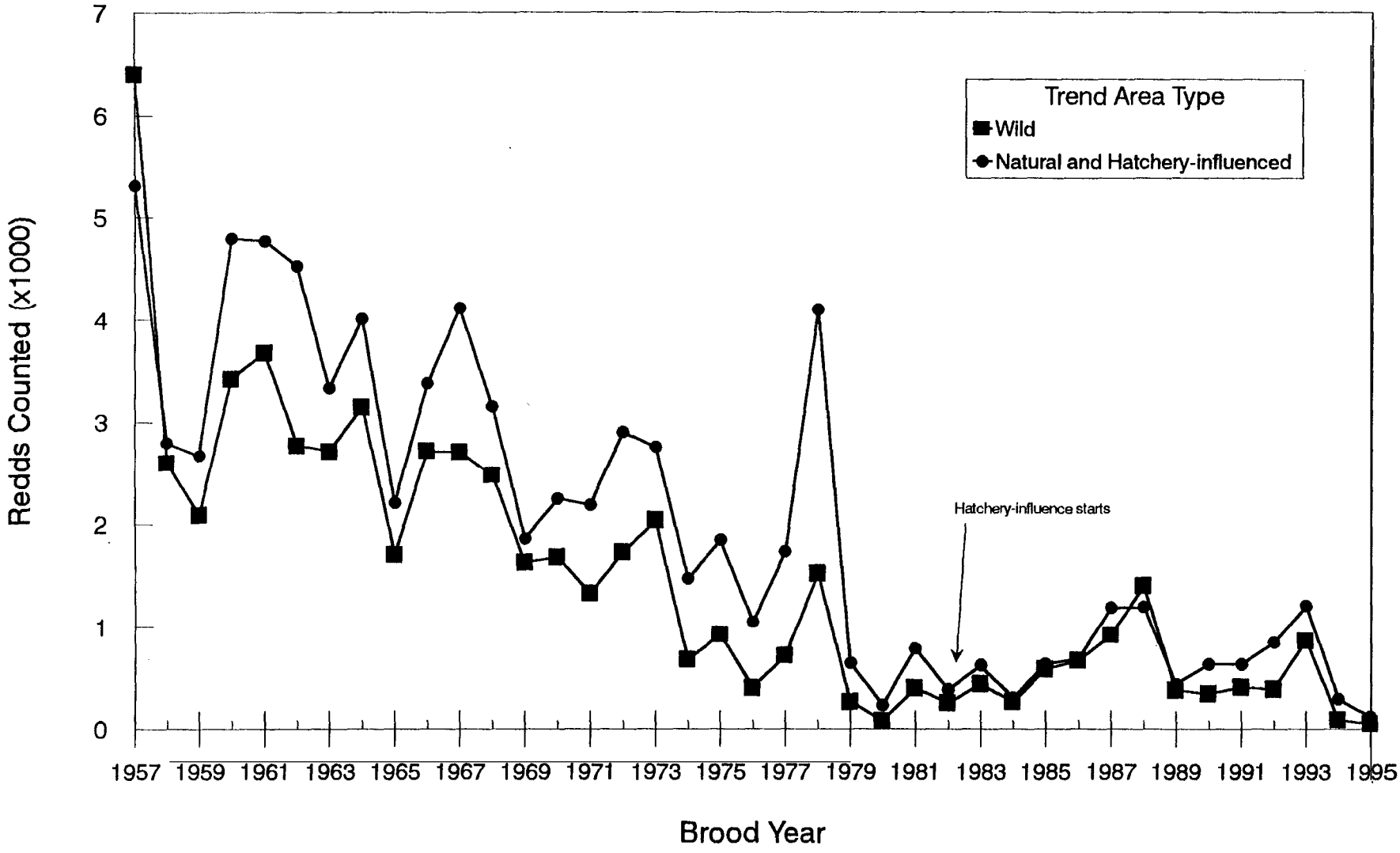

Figure 1. Numbers of combined spring and summer chinook salmon redds counted in Salmon River drainage wild and natural/hatchery influenced trend areas, 1957-1995. Hatchery influence in spring chinook salmon areas began in 1981, and in 1980 in summer chinook salmon trend areas.

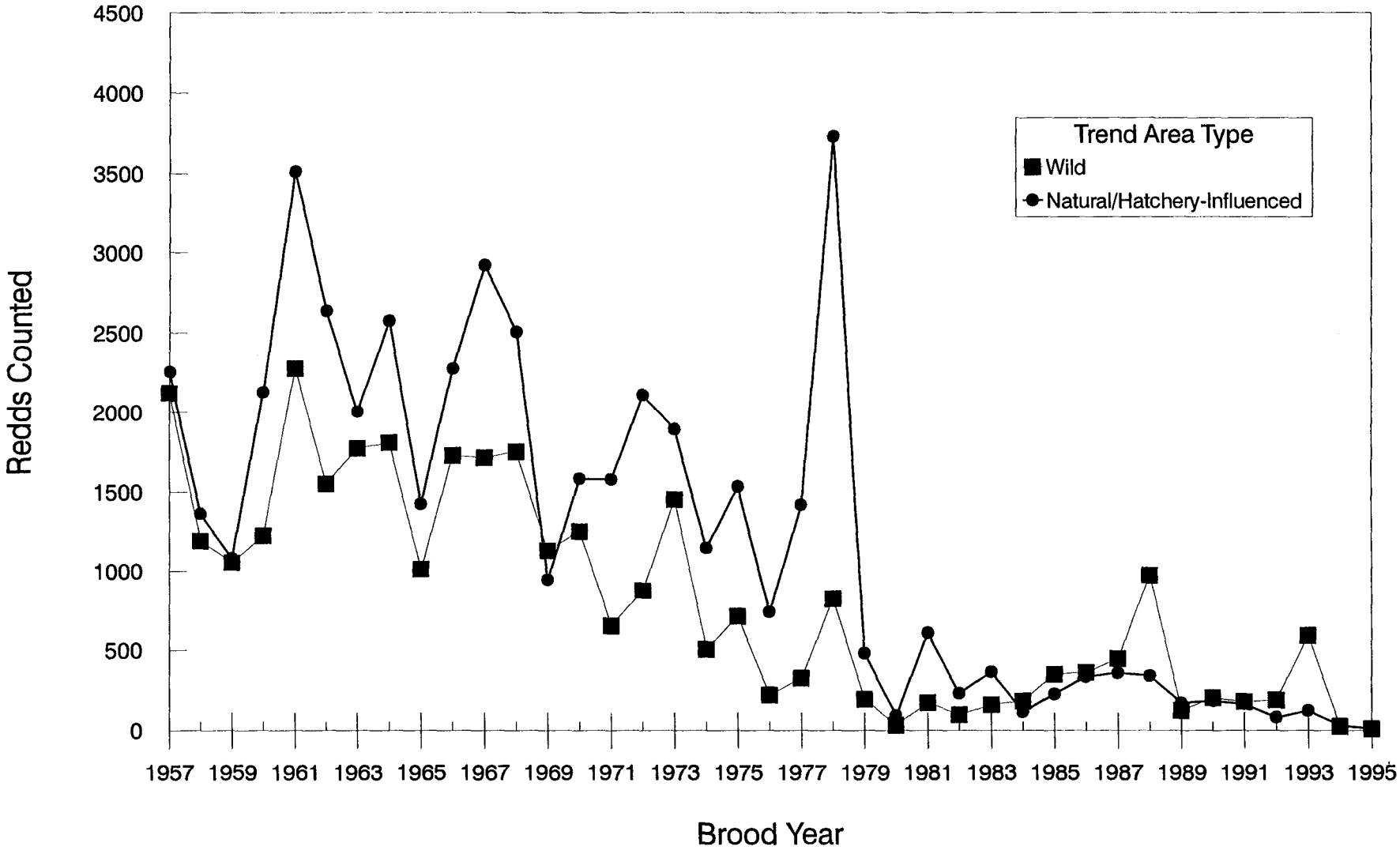

Figure 2. Numbers of spring chinook salmon redds counted in Salmon River drainage wild and natural/hatchery-influenced trend areas, 1957-1995. Hatchery influence began in 1981 at the Sawtooth hatchery weir and in 1984 at the East Fork Salmon River weir.

following streams: Marsh Creek drainage, Elk Creek, Sulphur Creek, Alturas Lake Creek, upper Valley Creek, and upper Yankee Fork (Tables 1 and 2).

Counts of summer chinook redds in wild trend areas declined in 1995 to 22% of the 1990-1994 average, with counts in natural and hatchery-influenced areas dropping to 18% of the 1990-1994 average (Tab es 3 and 4; Figure 3). These also are historic low levels.

A total of 428 spring and summer chinook salmon were trapped at hatchery weirs in the Salmon River drainage (Sawtooth, South Fork, Pahsimeroi, and Rapid River) where salmon are passed upstream to spawn naturally. This was 14% of the 1990-1994 average (Table 5). The East Fork Salmon River trap was not put into operation until July 27, 1995 due to unusually late snow runoff. No salmon were trapped on the East Fork and none were observed above the trap.

In general, few redds were counted in nontraditional areas (Table 6), with no redds counted in most of the transects. Counts in all areas either remained at similar levels to 1994 or decreased. Redd counts in these unclassified spring/summer chinook spawning areas reached a historic low level with no redds being observed in any of these areas (Table 7).

Length, age, and sex composition data are included in Appendix A for spring and summer chinook salmon trapped at the following hatchery weirs: Sawtooth, South Fork, Rapid River, and Pahsimeroi.

Length, age, and sex composition data for spring and summer chinook salmon carcasses sampled during spawning ground surveys for the Salmon River drainage are listed in Appendix B.

Redd count maps for the Salmon River drainage are presented in Appendix C.

Clearwater River Drainage

The total number of spring chinook salmon redds counted in natural spawning areas of the Clearwater River drainage during 1995 was 10, about one-half the number counted in 1994, and 31% of the 1990-1994 average count (Table 8, Figure 4). Redd counts in the hatchery-influenced spawning areas in 1995 were higher than 1994 counts for the Lochsa drainage, but lower on the South Fork Clearwater drainage. The total number of redds counted in the hatchery-influenced areas was only 13% of the 1990-1994 average and among the lowest counts ever recorded (Table 9, Figure 5).

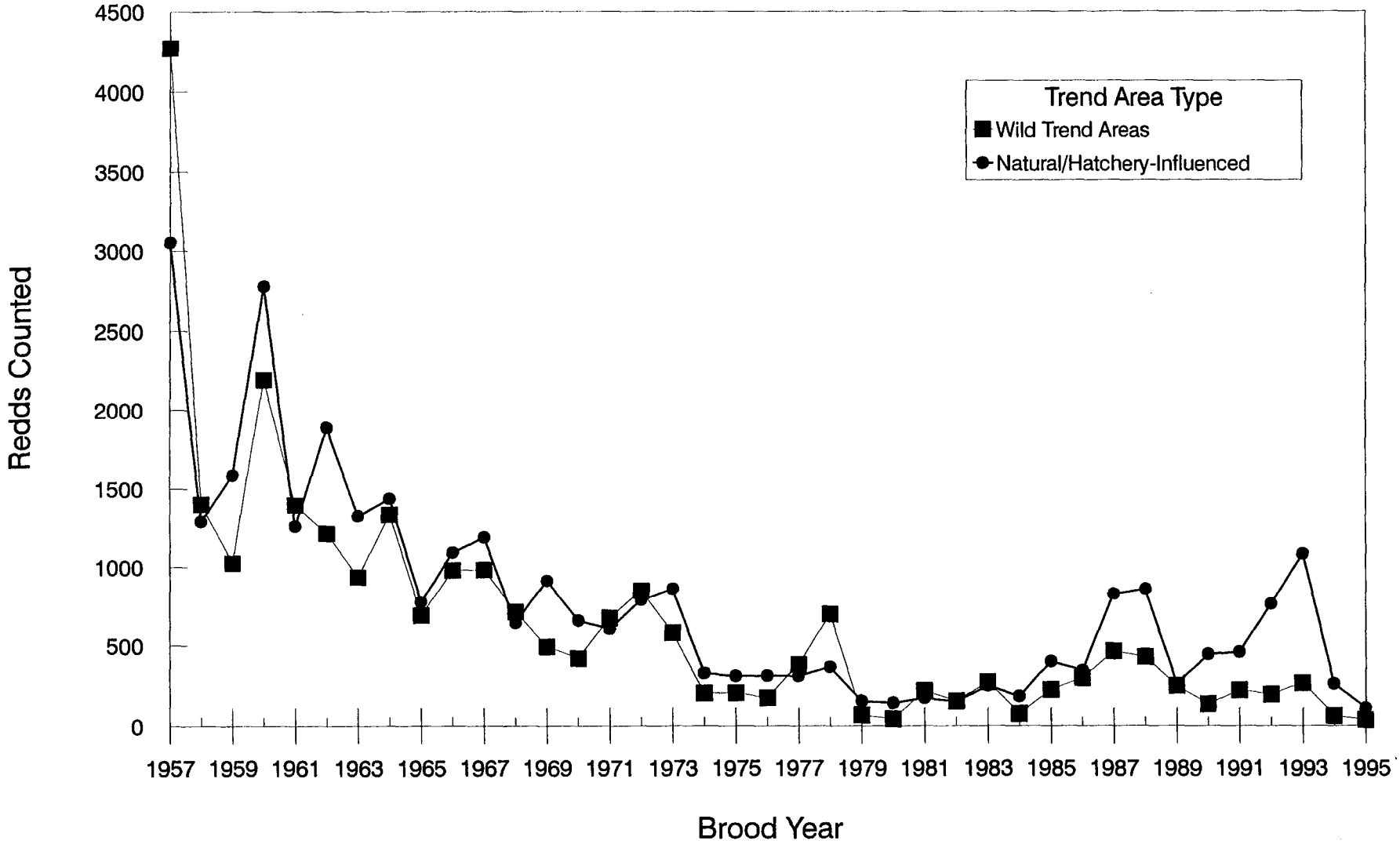

Figure 3. Numbers of summer chinook salmon redds counted in Salmon River drainage wild and natural/hatchery-influenced trend areas, 1957-1995. Hatchery influence began at the South Fork Salmon River weir in 1980.

Table 5. Numbers of adult females, adult males and jack spring and summer chinook salmon trapped at hatchery weirs on the Salmon River drainage from 1990-1995, and the number of salmon released above these weirs to spawn.

		Number trapped				Number released			
Weir	Run	Total	Females	Males	Jacks	Total	Females	Males	Jacks
Sawtooth	Spring Chinook								
1995		37	4	17	16	20	2	8	10
1994		96	40	50	6	83	33	45[a]	5
1993		587	280	278	29	423	209	207	7
1992		387	165	196	26	145	56	77	12
1991		566	267	231	68	238	94	95	49
1990		1488	503	873	112	615	167	390	58
E. Fk. Salmon	Spring Chinook								
1995[b]									
1994		15	4	11	0	15	4	11	0
1993		90	33	52	5	65	21	39	5
1992		65	13	38	14	40	6	25	9
1991		62	17	39	6	43	9	31	3
1990		145	30	103	12	88	10	71	7
S. Fk. Salmon	Summer Chinook								
1995		307	99	107	101	85	35	40	10
1994		527	266	191	70	205	104	98	3
1993		2703	1487	1188	28	1581	890	684	7
1992		2848	1151	1492	205	1595	623	854	118
1991		1212	235	156	821	288	73	44	171
1990		969	380	561	28	315	116	197	2
Pahsimeroi	Sumner Chinook								
1995		80	47	26	7	27	11	11	5
1994		36	16	11	9	36	16	11	9
1993		169	90	66	13	114	61	44	9
1992		131	54	72	5	45	18	25	2
1991		238	130	88	20	76	40	30	6
1990		470	225	206	39	154	69	65	20[c]
Rapid River	Spring/Sumner Chinook								
1995		133[e]	43	65	60	4	0	4	0
1994		290[e]	172	140	7	25	9	14	2
1993		5162	2226	2915	21	691	359	328	0[f]
1992		2776	1303	1370	103	310	130	173	7
1991		2066	791	1025	250	153	32	109	12
1990		2744	1316	1387	41	138	61	76	1

[A] Twelve males were partially spawned prior to release.
[B] E.Fk. Trap was put into operation late on 7/27/95 due to unusually late snow runoff. No salmon were trapped and none were observed above the trap.
[C] Five jacks were released into the Lemhi River.
[D] Procedure is to pond hatchery spring chinook and release natural summer chinook. Stock separation based on rur ming and visual assessment of maturation state.
[E] Total trapped in 1995 drynot include 35 fish from Oxbow which were included in sex composition; total trapped in 1994 does not include 29 fish from Oxbow .
[F] Three adult mortalities prior to release:(2)females, (1)male.

Table 6. Numbers of chinook salmon redds counted in Salmon River drainage nontraditional trend areas, 1986-1995. NC = no count, - = not routinely counted.

Stream	Section	Year 86	87	88	89	90	91	92	93	94	95
Upper Salmon River System											
Alturas Lake Creek	Cabin Cr. bridge to diversion dam	0	1	0	1	0	0	2	0	0	0
		0	0	2		2	0	1	0	0	
	Diversion dam to Alturas Lake				3						0
	Alturas Lake inlet to Alpine Creek	1	5	0	0	0	0	2	0	1	0
Salmon River	Breckenridge diversion dam to mouth of Pole Creek	0	1	2	0	NC	NC	0	4	0	0
		0	0	0		NC	NC	0	1	0	
	Mouth of Pole Creek to headwaters				0						0
Pole Creek	Mouth to diversion screen	0	0	0	0	2	0	0	0	0	0
	Fish screen to road crossing at upper end of meadow.		-		-	3	0	0	0	0	0
North Fork Salmon River											
North Fork Salmon River	Mouth to Twin Creeks	NC	NC	NC	NC	NC	NC	NC	NC	3	1
Middle Fork Salmon River System											
Middle Fork Salmon River	Mouth to mouth of Loon Creek		1[a]		0	0	0	0			
			-	99	8	18	24	0	0	0	NC
Sulphur Creek	Ranch upstream to island								36	0	1
Main Salmon River Canyon											
Chamberlain Creek	Mouth of West Fork to Flossie Creek	NC	12	20	14						
		NC	12	6	30	17	NC	17	12	10	4
West Fork Chamberlain Creek	Mouth to Game Creek					35	NC	22	8	2	2
East Fork Salmon River System											
Herd Creek	Bennett Ranch to mouth of East Pass Cr.	6	-	42[b]	-	11	2	3	39	3	0
East Fork of South Fork Salmon River (EFSF)											
Johnson Creek[d]	Mouth of Boulder Creek to head of canyon		0	0	15	0	12	16	40	1	0
Sand Creek	Sand Creek from mouth to bridge		0	0	0	0	0	0	0	0	0
EFSF	Yellow Pine to Sugar Creek						-	23	19	1	0
	Profile Creek to Tamarack Creek			-			-	9	14	6	0
	Profile Creek to Quartz Creek						6	NC	0	0	0
	Tamarack Creek to Salt Creek					-		-	21	0	NC

[a] Mouth of Loon Creek to mouth of Big Creek.
[b] Forest fire prevented aerial survey in 1988.
[c] Counts in 1988 and 1990-95 conducted by Shoshone-Bannock Tribe's Salmon River Habitat Enhancement Project.
[d] Mouth of Whiskey Creek to head of canyon prior to 1993.

Table 7. Numbers of chinook salmon redds counted in Salmon River drainage unclassified trend areas, 1960-1995. Camas Creek is defined as a wild stream and Yankee Fork as a hatchery-influenced system. Ground counting method was used except as indicated (A = air count, G = ground count for years where two methods were used). "NC" indicates transect was not counted.

YEAR	Camas Creek	Lower Yankee Fork[a]	West Fork Yankee Fork[b]
1995	0(A)[c]	0(A)	0(A)
1994	2(A)	0(A)	1(A)
1993	26(A)	5(A)	4(A)
1992	7(A)	9(A)	3(A)
1991	11(A)	6(A)	4(A)
1990	3(A)	10(A)	7(A)
1989	29(A)	0(A)	8(A)
1988	NC	2(A)	16(A)
1987	32(A)	5(A)	12(A)
1986	11(A)	2(A)	6(A)
1985	21(A)	0(A)	1(A)
1984	6(A)	NC	0(A)
1983	26(A)	0(A)	7(A)
1982	29(A)	1(A)	0(A)
1981	61	16(A)	19
1980	11	0(A)	2
1979	13	NC	13
1978	102	27	98
1977	65	12	37
1976	21	5	11
1975	98	35	55
1974	132	28	20
1973	176	71	86
1972	123	78	117
1971	69	41	31
1970	49	79	112
1969	50	44	17
1968	164	97	284
1967	109	65	283
1966	118	132	210
1965	22	63	93
1964	177	54	78
1963	151	92	142
1962	124(G),61(A)	68(G),32(A)	127(G),33(A)
1961	142	59(G),31(A)	59(G),44(A)
1960	112	43A	15

[a] 1960-62: mouth to Jordan Creek 1963-78: Pole Flat Forest Camp to Jordan Creek; 1980- 85: Pole Flat Forest Camp to West Fork Yankee Fork; 1986-95: Polecamp Creek to Jordan Creek.

[b] 1960 and 1963-76: mouth to Lightning Creek; 1977-85: mouth to Deadwood Creek; 1961-62 and 1986-95: mouth to Cabin Creek.

[c] Camas Creek: WS-8; mouth to Fly Creek = 0 redds, Hammer Creek to Castle Creek = 0 redds.

TABLES.94

Table 8. Numbers of spring chinook salmon redds counted in Clearwater River drainage natural trend areas, 1966-1995. NC = no count.

YEAR	SELWAY RIVER	BEAR CREEK	RUNNING CREEK	WHITECAP CREEK	MOOSE CREEK	TOTALS	FIVE YEAR AVERAGE
1995	4[a]	2	0	0	4	10	
1994	10	9	0	2	0	21	
1993	33	13	0	5	10	61	
1992	18	9	0	0	2	29	
1991	12	8	0	1	2	23	
1990	13	6	1	2	2	24	
1989	5	7	0	3	3	18	38
1988	38	10	2	5	7	62	
1987	36	9	4	6	8	63	
1986	30	10	NC	7	9	56	
1985	15	NC	NC	NC	NC	15	
1984	30	6	NC	6	7	49	44
1983	26	8	NC	4	6	44	
1982	38	8	NC	3	5	54	
1981	47	8	NC	4	6	65	
1980	40	7	1	3	4	55	
1979	21	3	0	2	4	30	90
1978	125	13	6	NC	17	161	
1977	97	18	2	1	23	141	
1976	58	14	3	4	15	94	
1975	21	5	NC	1	4	31	
1974	66	10	4	2	15	97	160
1973	261	26	21	7	32	347	
1972	175	25	11	8	13	232	
1971	55	14	8	NC	NC	77	
1970	65	19	10	4	NC	98	
1969	57	6	21	NC	NC	84	63
1968	16	7	4	NC	NC	27	
1967	22	7	NC	NC	NC	29	
1966	36	8	NC	NC	NC	44	

[a] Includes ground count for WC-7, from Magruder Crossing to Little Clearwater River.

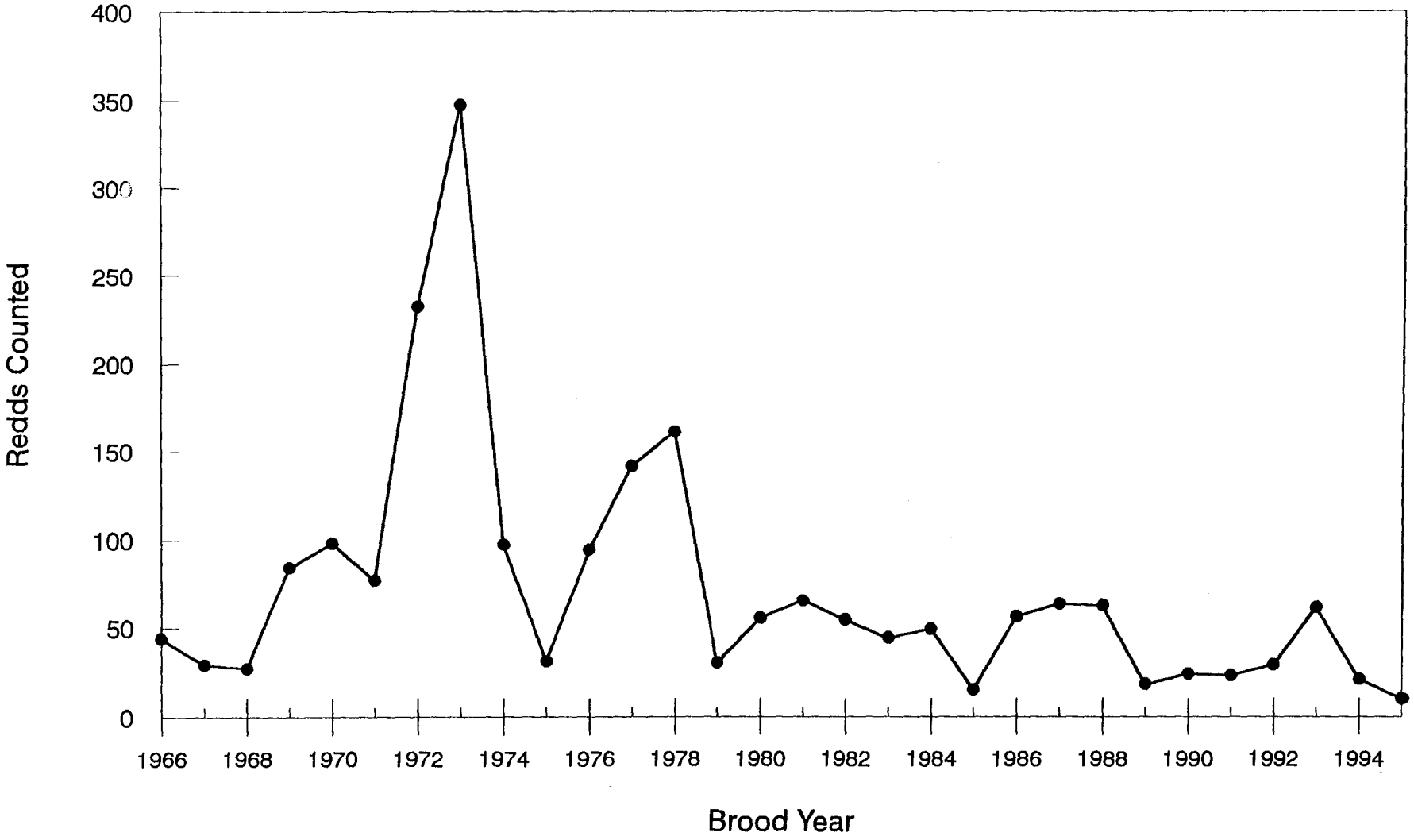

Figure 4. Numbers of spring chinook salmon redds counted in Clearwater River drainage natural trend areas, 1966-1995.

Table 9. Numbers of spring chinook salmon redds counted in Clearwater River drainage hatchery-influenced trend areas, 1967-1995. NC = no count, - = not routinely counted.

YEAR	CROOKED FORK	BRUSHY FORK	LOCHSA RIVER DRAINAGE TOTAL	LOCHSA RIVER DRAINAGE FIVE YR.	NEWSOME CREEK	CROOKED RIVER	RED RIVER	AMERICAN RIVER	SOUTH FORK DRAINAGE TOTAL	SOUTH FORK DRAINAGE FIVE YR.	CLEARWATER RIVER DRAINAGE TOTAL	CLEARWATER RIVER DRAINAGE FIVE YR.
1995	1	5	6		0	2	4	0	6		12	
1994	1	0	1		0	4	11	1	16		17	
1993	34	29	63		64	27	43	75	209		272	
1992	22	1	23		0	NC	46	1	47		70	
1991	9	1	10		0	NC	5	1	6		16	
1990	16	4	20		0	10	66	2	78		98	
1989	8	9	17	27	4	3	45	1	53	78	70	105
1988	42	9	51		20	27	51	12	110		161	
1987	28	10	38		15	17	81	31	144		182	
1986	30	11	41		6	9	82	14	111		152	
1985	47	14	61		7	10	92	23	132		193	
1984	28	9	37	41	1	22	65	NC	88	111	125	152
1983	7	6	13		7	12	85	9	113		126	
1982	34	17	51		5	4	82	21	112		163	
1981	27	25	52		7	9	47	12	75		127	
1980	16	10	26		7	6	31	7	51		77	
1979	6	12	18	45	9	4	20	-	33	69	51	114
1978	37	25	62		22	17	52	-	91		153	
1977	51	15	66		26	21	50	-	97		163	
1976	33	13	46		5	13	15		33		79	
1975	22	4	26		6	33	20		59		85	
1974	22	6	28	45	-	5	12		17	22	45	66
1973	60	-	60		-	-	-		0		60	
1972	32	31	63						0		63	
1971	1		1						0		1	
1970	34		34						0		34	
1969	112		112	32					0	0	112	32
1968	15		15						0		15	
1967	0		0						0		0	

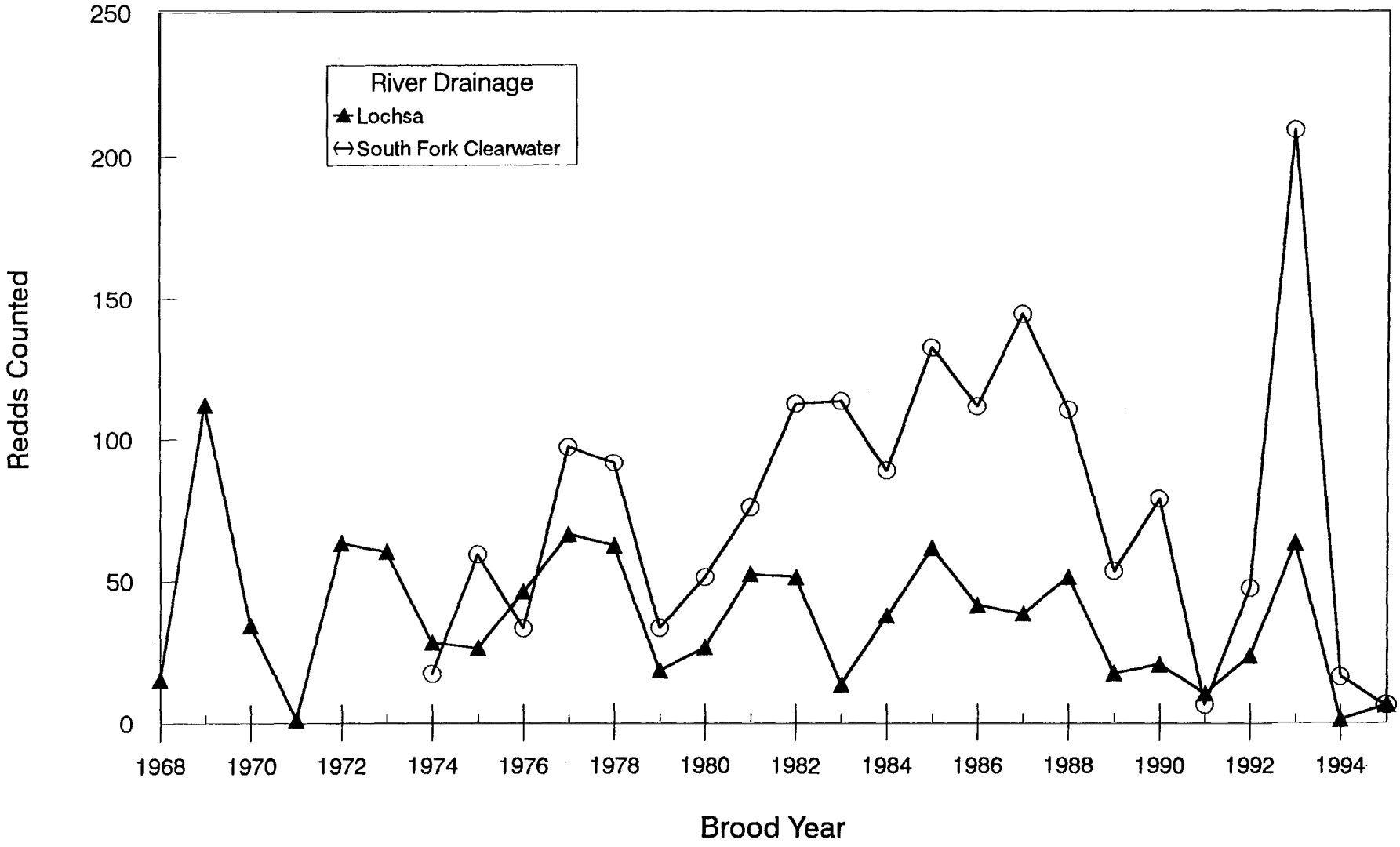

Figure 5. Numbers of spring chinook salmon redds counted in Clearwater River drainage hatchery-influenced trend areas, 1968-1995.

Total redds counted in the nontraditional trend areas of the Clearwater River drainage during 1995 was the lowest ever recorded. The number of redds declined 29% from the 1994 counts to only 10 redds (Table 10).

Numbers of spring chinook salmon trapped at hatchery weirs in the Clearwater River drainage (Red River, Powell, Crooked River, and Kooskia National Fish Hatchery) where salmon are passed upstream to spawn naturally totalled 64 (Table 11).

Length, age, and sex composition data for spring chinook salmon intercepted at the Red River, Crooked River, and Powell (Walton Creek) weirs are listed in Appendix A.

Length, age, and sex composition data for spring chinook salmon carcasses sampled during spawning ground surveys for the Clearwater River drainage are listed in Appendix B.

Redd count maps for the Clearwater River drainage are presented in Appendix C.

Sockeye Salmon

No sockeye salmon were captured at the Redfish Lake weir in 1995 (T. Rogers, IDFG, personal communication).

Table 10. Numbers of spring chinook salmon redds counted in Clearwater River drainage nontraditional trend areas, 1987-1995. NC = no count, - = not routinely counted.

Stream	Section	Year								
		1987	1988	1989	1990	1991	1992	1993	1994	1995
S.F. Red River		0	0	NC	NC	NC	NC	NC	2	0
Crooked Fork Cr.	Mouth to Brushy Fork	12	12	0	-	-	-	-	-	-
	Brushy Fk. to Shotgun Cr.	36	59	7	-	-	-	-	-	-
	Shotgun Cr. to Boulder Cr.	4	5	0	-	-	-	-	-	-
	Boulder Cr. to Hopeful Cr.	NC	NC	NC	-	-	-	-	-	-
	Mouth to Hopeful Creek	-	-	-	6	10	32	49	7	4
Brushy Fork Cr.	Mouth to Twin Cr.	14	10	0	-	-	-	-	-	-
	Twin Cr. to Spruce Cr.	12	19	6	-	-	-	-	-	-
	Mouth to Spruce Creek	-	-	-	6	5	9	28	4	6
White Sand Creek	Mouth to Big Flat Cr.	NC	NC	NC	0	0	0	4	1	0
Lolo Creek	White Cr. bridge to uppermost K-dam	31	31	15	27	11	14	-	-	-
Total		109	136	28	39	26	55	81	14	10

Table 11. Numbers of adult females, adult males and jack spring chinook salmon trapped at hatchery weirs on the Clearwater River drainage in 1990 - 1995, and the number of salmon released above these weirs to spawn.

Weir	Run	Number trapped				Number released			
		Total	Females	Males	Jacks	Total	Females	Males	Jacks
Powell	Spring Chinook								
1995		14	1	1	12	5	0	1	4
1994		86	55	30	1	0	0	0	0
1993		500	242	250	0	40	15	25	0
1992		270	133	131	6	0	0	0	0
1991		33	5	21	7	22	3	13	6
1990		179	70	107	2	162	55	105	2
Red River	Spring Chinook								
1995		4	2[a]	0	2	2	1	0	1
1994		31	13	18	0	15	5	10	0
1993		139	65	73	1	91	42	49	0
1992		39	16	18	5	26	10	12	4
1991		18	7	10	1	7	3	4	0
1990		53	16	35	2	45	12	31	2
Crooked River	Spring Chinook								
1995		6	0	0	6	0	0	0	0
1994		26	18	0	0	11	6	5[b]	0
1993		402	211[c]	185	6	152	75	77	0
1992		228	94	121	13	206	86	110	10
1991		20	5	13	2	19	5	12	2
1990		29	10	17	2	27	9	17	1
Kooskia NFH	Spring Chinook								
1995		40	8	11	21	0	0	0	0
1994		232[d]	111	89	1	25	N/A	N/A	N/A
1993		1180[e]	565	498	9	91	N/A	N/A	N/A
1992		312[f]	N/A	N/A	N/A	0	0	0	0
1991		467[f]	N/A	N/A	N/A	0	0	0	0
1990		1265[f]	N/A	N/A	N/A	0	0	0	0

[a] Includes (1) one-ocean ad clipped female which was released above the weir.
[b] Five adult males were spawned prior to release.
[c] Includes (1) one-ocean female.
[d] Includes (31) sex unknown of which 25 were released above the weir to spawn.
[e] Includes (108) sex unknown of which 91 were released above the weir to spawn.
[f] Sex delineation unknown.

Table 12 . Redd counts conducted for purposes other than Idaho Department of Fish and Game standard redd count information, 1995.

Agency/Tribe	Study	Drainage	Stream
Idaho Dept. Fish and Game	ISS[a]	Clearwater River	Red River
	ISS		American River
	ISS		S. Fk. Clearwater River
	ISS		Ten Mile Creek
	ISS		Johns Creek
	ISS		Big Flat Creek
	ISS		Whitesand Creek
	ISS		Spruce Creek
	ISS		Crooked Fork Creek
	ISS		Brushy Fork Creek
	ISS	Salmon River	Pahsimeroi River
	ISS		Lemhi River
	ISS		N. Fk. Salmon River
	ISM[b]		Alturas Lake Creek
	ISM		Upper Salmon River
	ISM		Frenchman Creek
	ISM		Smiley Creek
Nez Perce Tribe	UCS[c]	Salmon River	Salmon River
	ISS		Slate Creek
	LSRCP[d]	S. Fk. Salmon River	Johnson Creek
	ISS		Lake Creek
	ISS		Secesh River
	LSRCP		S. Fk. Salmon River
	LSRCP	M. Fk. Salmon River	Big Creek
	UCS	Clearwater River	Clearwater River
	NPTH[e]/ISS		Lolo Creek
	NPTH/ISS		Yoosa Creek
	NPTH/ISS		Eldorado Creek
	NPTH	S. Fk. Clearwater	Meadow Creek
	NPTH		Mill Creek
	NPTH/ISS		Newsome Creek
	UCS		S. Fk. Clearwater River
	UCS	M. Fk. Clearwater	M. Fk. Clearwater River
	NPTH	Selway River	Meadow Creek
	NPTH/UCS		Selway River
	NPTH	Lochsa River	Boulder Creek
	ISS		Papoose Creek
	ISS		Squaw Creek
	NPTH		Warmsprings Creek
Shoshone-Bannock	ISS	M. Fk. Salmon River	Bear Valley Creek
	ISS	Salmon River	E. Fk. Salmon River
	ISS		Herd Creek
	ISS		Valley Creek
	ISS		W. Fk. Yankee Fork
	SRHE[f]		Yankee Fork Salmon River
U.S. Fish & Wildlife Service	ISS	Clearwater River	Pete King Creek
	ISS		Clear Creek

Table 12 (cont) . Redd counts conducted for purposes other than Idaho Department of Fish and Game standard redd count information, 1995.

Agency/Tribe	Study	Drainage	Stream
U.S. Forest Service - Intermountain Research Station	*[9]	M. Fk. Salmon River	Mainstem Bear Valley Big Creek Camas Creek Indian Creek Loon Creek Marble Creek Marsh Creek Pistol Creek Rapid River Sheep Creek Sulphur Creek Wilson Creek

[a] Idaho Supplementation Study (ISS).
[b] Intensive Smolt Monitoring (ISM).
[c] Upper Clearwater fall chinook salmon Study (UCS), multiple air counts
[d] Lower Snake River Compensation (LSRCP), multiple ground counts
[e] Nez Perce Tribe Hatchery Monitoring and Evaluation (NPTH), multiple ground counts.
[f] Salmon River Habitat Enhancement Project
[g] Chinook Salmon Spatial Habitat Analysis Project.

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APPENDICES

APPENDIX A

Table A1. Length frequency and age composition of spring chinook salmon trapped at the Sawtooth Hatchery weir, 1995.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	1	3.0%		44	0	0.0%	
46	1	3.0%		46	0	0.0%	
48	2	6.1%	Jacks	48	0	0.0%	
50	2	6.1%	n=16	50	0	0.0%	n=0
52	3	9.1%	48.5%	52	0	0.0%	0.0%
54	2	6.1%		54	0	0.0%	
56	1	3.0%		56	0	0.0%	
58	2	6.1%		58	0	0.0%	
60	1	3.0%		60	0	0.0%	
62	1	3.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	1	3.0%		66	0	0.0%	
68	1	3.0%		68	0	0.0%	
70	1	3.0%	Age 4	70	0	0.0%	Age 4
72	1	3.0%	n=10	72	0	0.0%	n=1
74	1	3.0%	30.3%	74	0	0.0%	25.0%
76	2	6.1%		76	0	0.0%	
78	3	9.1%		78	1	25.0%	
80	2	6.1%		80	1	25.0%	
82	1	3.0%		82	0	0.0%	
84	1	3.0%		84	0	0.0%	
86	1	3.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	1	25.0%	
92	1	3.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=7	94	1	25.0%	n=3
96	0	0.0%	21.2%	96	0	0.0%	75.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
110	1	3.0%		110	0	0.0%	
Total	33				4		

Table A2. Length frequency and age composition of summer chinook salmon trapped at the Pahsimeroi Hatchery weir, 1995.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	1	3.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=7	50	0	0.0%	n=0
52	1	3.0%	21.2%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	3	9.1%		56	0	0.0%	
58	2	6.1%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	1	3.0%		68	0	0.0%	
70	0	0.0%	Age 4	70	0	0.0%	Age 4
72	1	3.0%	n=15	72	0	0.0%	n=19
74	3	9.1%	45.5%	74	3	6.4%	40.5
76	6	18.2%		76	3	6.4%	
78	4	12.2%		78	13	27.7%	
80	1	3.0%		80	9	19.1%	
82	5	15.1%		82	7	14.9%	
84	1	3.0%		84	6	12.8%	
86	1	3.0%		86	4	8.5%	
88	1	3.0%		88	1	2.1%	
90	1	3.0%		90	0	0.0%	
92	1	3.0%	Age 5	92	1	2.1%	Age 5
94	0	0.0%	n=11	94	0	0.0%	n=28
96	0	0.0%	33.3%	96	0	0.0%	59.5
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
Total	33				47		

Table A3. Length frequency and age composition of summer chinook salmon trapped at the South Fork Salmon River weir, 1995.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	4	1.9%		38	0	0.0%	
40	1	0.5%		40	0	0.0%	
42	2	1.0%		42	0	0.0%	
44	4	1.9%		44	0	0.0%	
46	6	2.9%		46	0	0.0%	
48	9	4.3%	Jacks	48	0	0.0%	
50	8	3.8%	n=100	50	0	0.0%	n=0
52	17	8.2%	48.1	52	0	0.0%	0.0%
54	18	8.7%		54	0	0.0%	
56	15	7.2%		56	0	0.0%	
58	9	4.3%		58	0	0.0%	
60	6	2.9%		60	0	0.0%	
62	1	0.5%		62	0	0.0%	
64	1	0.5%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	1	0.5%		68	0	0.0%	
70	1	0.5%	Age 4	70	1	1.0%	Age 4
72	1	0.5%	n=29	72	0	0.0%	n=12
74	5	2.4%	13.9	74	4	4.0%	12.2%
76	12	5.7%		76	2	2.0%	
78	8	3.8%		78	5	5.2%	
80	14	6.7%		80	18	18.2%	
82	17	8.2%		82	29	29.3%	
84	14	6.7%		84	18	18.2%	
86	10	4.8%		86	11	11.0%	
88	9	4.3%		88	6	6.1%	
90	7	3.4%		90	1	1.0%	
92	3	1.4%	Age 5	92	2	2.0%	Age
94	0	0.0%	n=79	94	1	1.0%	n=87
96	1	0.5%	38.0%	96	0	0.0%	87.8
98	0	0.0%		98	1	1.0%	
100	1	0.5%		100	0	0.0%	
102	1	0.5%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	1	0.5%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
120	1	0.5%		112	0	0.0%	
Total	208				99		

Table A4. Length frequency and age composition of summer chinook salmon trapped at the Rapid River Hatchery weir, 1995.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=0	50	0	0.0%	n=0
52	0	0.0%	0.0%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	1	25.0%		66	0	0.0%	
68	0	0.0%		68	0	0.0%	
70	0	0.0%	Age 4	70	0	0.0%	Age 4
72	0	0.0%	n=2	72	0	0:0%	n=0
74	0	0.0%	50.0%	74	0	0.0%	0.0%
76	1	25.0%		76	0	0.0%	
78	0	0.0%		78	0	0.0%	
80	1	25.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	1	25.0%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=2	94	0	0.0%	n=0
96	0	0.0%	50.0%	96	0	0.0%	0.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
Total	4				0		

Table A5. Length frequency and age composition of spring chinook salmon trapped at the Powell weir, 1995.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	3	23.1%	n=11	50	0	0.0%	n=0
52	3	23.1%	84.6%	52	0	0.0%	0.0%
54	2	15.4%		54	0	0.0%	
56	2	15.4%		56	0	0.0%	
58	1	7.7%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	2	15.4%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%		68	0	0.0%	
70	0	0.0%	Age 4	70	0	0.0%	Age 4
72	0	0.0%	n=2	72	0	0.0%	n=0
74	0	0.0%	15.4%	74	0	0.0%	0.0%
76	0	0.0%		76	0	0.0%	
78	0	0.0%		78	0	0.0%	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	1	100.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=0	94	0	0.0%	n=1
96	0	0.0%	0.0%	96	0	0.0%	100.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
Total	13				1		

Table A6. Length frequency and age composition of spring chinook salmon trapped at the Red River weir, 1995.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=2	50	0	0.0%	n=1
52	0	0.0%	100.0%	52	0	0.0%	50.0%
54	1	50.0%		54	0	0.0%	
56	1	50.0%		56	0	0.0%	
58	0	0.0%		58	1	50.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%		68	0	0.0%	
70	0	0.0%	Age 4	70	0	0.0%	Age 4
72	0	0.0%	n=0	72	0	0.0%	n=0
74	0	0.0%	0.0%	74	0	0.0%	0.0%
76	0	0.0%		76	0	0.0%	
78	0	0.0%		78	0	0.0%0	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	1	50.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=0	94	0	0.0%	n=1
96	0	0.0%	0.0%	96	0	0.0%	50.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
Total	2				2		

Table A7. Length frequency and age composition of spring chinook salmon trapped at the Crooked River weir, 1995.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	2	33.3%	Jacks	48	0	0.0%	
50	0	0.0%	n=6	50	0	0.0%	n=0
52	2	33.3%	100.0%	52	0	0.0%	0.0%
54	2	33.3%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%		68	0	0.0%	
70	0	0.0%	Age 4	70	0	0.0%	Age 4
72	0	0.0%	n=0	72	0	0.0%	n=0
74	0	0.0%	0.0%	74	0	0.0%	0.0%
76	0	0.0%		76	0	0.0%	
78	0	0.0%		78	0	0.0%	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=0	94	0	0.0%	n=0
96	0	0.0%	0.0%	96	0	0.0%	0.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
Total	6				0		

APPENDIX B

Table B1. Traditional spawning ground survey trend areas where carcass counts were conducted but no carcasses were sampled by Idaho Department of Fish and Game personnel, 1995.

Drainage	Stream
Clearwater River	Red River
	American River
	Chamberlain Creek
	W. Fk. Chamberlain Creek
Salmon River (Lower)	E. Fk. Salmon River
	Herd Creek
Salmon River (Upper)	Valley Creek
M. Fk. Salmon River	Capehorn Creek
	Knapp Creek
	Beaver Creek
	Marsh Creek
	Elk Creek
	Sulphur Creek

Table B2. Length frequency and age composition of spring chinook salmon carcasses recovered from Bear Valley Creek (Middle Fork Salmon River drainage) during spawning ground surveys, 1995.[a] All carcasses were sampled by Idaho Department of Fish and Game personnel.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
58	0	0.0%	Jacks	58	0	0.0%	
60	0	0.0%	n=0	60	0	0.0%	n=0
62	0	0.0%	0.0%	62	0	0.0%	0.0%
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	0	0.0%	n=0	70	0	0.0%	n=0
72	0	0.0%	0.0%	72	0	0.0%	0.0%
74	0	0.0%		74	0	0.0%	
76	0	0.0%		76	0	0.8%	
78	0	0.0%		78	0	0.0%	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.8%	n=0	94	0	0.0%	n=0
96	0	0.0%	0.0%	96	0	0.0%	0.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	0	0.0%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
112	0	0.0%		112	0	0.0%	
114	0	0.0%		114	0	0.0%	
116	0	0.0%		116	0	0.0%	
Total	0				0		

[a] One carcass was observed but not measured.

Table B3. Length frequency and age composition of spring chinook salmon carcasses recovered from Big Creek (M. FK. Salmon River drainage) spawning ground surveys, 1995 . All carcasses were sampled by Nez Perce Tribe personnel.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
58	0	0.0%	Jacks	58	0	0.0%	
60	0	0.0%	n=0	60	0	0.0%	n=0
62	0	0.0%	0.0%	62	0	0.0%	0.0%
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	0	0.0%	n=0	70	0	0.0%	n=0
72	0	0.8%	0.0%	72	0	0.0%	0.0%
74	0	0.0%		74	0	0.0%	
76	0	0.0%		76	0	0.0%	
78	0	0.0%		78	0	0.0%	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	1	100.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.8%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	N=0	94	0	0.0%	n=1
96	0	0.0%	0.0%	96	0	0.0%	100.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	0	0.0%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
112	0	0.0%		112	0	0.0%	
114	0	0.0%		114	0	0.0%	
116	0	0.0%		116	0	0.0%	
Total	0				1		

Table B4. Length frequency and age composition of summer chinook salmon carcasses recovered from S.Fk. Salmon River during spawning ground surveys, 1995. All carcasses were sampled by Nez Perce Tribe personnel.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
48	0	0.0%		48	0	0.0%	
50	0	0.0%		50	0	0.0%	
52	0	0.0%	Jacks	52	0	0.0%	
54	0	0.0%	n=0	54	0	0.0%	n=0
56	0	0.0%	0.0%	56	0	0.0%	0.0%
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	0	0.0%	n=2	70	0	0.0%	n=0
72	1	25.0%	50.0%	72	0	0.0%	0.0%
74	0	0.0%		74	0	0.0%	
76	1	25.0%		76	0	0.0%	
78	0	0.0%		78	0	0.0%	
80	0	0.0%		80	1	20.0%	
82	1	25.0%		82	0	0.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	1	20.0%	
92	0	0.0%	Age 5	92	1	20.0%	Age 5
94	0	0.0%	n=2	94	1	20.0%	n=5
96	0	0.0%	50.0%	96	1	20.0%	100.0%
98	1	25.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	0	0.0%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
112	0	0.0%		112	0	0.0%	
114	0	0.0%		114	0	0.0%	
Total	4				5		

Table B5. Length frequency and age composition of summer chinook salmon carcasses recovered from Johnson Creek (S.Fk. Salmon River drainage) during spawning ground surveys, 1995. All carcasses were sampled by Nez Perce Tribe personnel.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
58	0	0.0%	Jacks	58	0	0.0%	
60	0	0.0%	n=0	60	0	0.0%	n=0
62	0	0.0%	0.0%	62	0	0.0%	0.0%
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	0	0.0%	n=0	70	0	0.0%	n=1
72	0	0.0%	0.0%	72	0	0.0%	50.0%
74	0	0.0%		74	0	0.0%	
76	0	0.0%		76	0	0.0%	
78	0	0.0%		78	1	50.0%	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.0%		86	1	50.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=0	94	0	0.0%	n=1
96	0	0.0%	0.0%	96	0	0.0%	50.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	0	0.0%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
112	0	0.0%		112	0	0.0%	
Total	0				2		

Table B6. Length frequency and age composition of summer chinook salmon carcasses recovered from the Secesh River (S.Fk. Salmon River drainage) during spawning ground surveys, 1995[a].

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
54	1	6.7%		54	0	0.0%	
56	1	6.7%		56	0	0.0%	
58	1	6.7%	Jacks	58	0	0.0%	
60	1	6.7%	n=4	60	0	0.0%	n=0
62	0	0.0%	26.7%	62	0	0.0%	0.0%
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%	Age 4	68	2	25.0%	Age 4
70	1	6.7%	n=4	70	0	0.0%	n=4
72	0	0.0%	26.7%	72	1	12.5%	50.0%
74	2	13.2%		74	0	0.0%	
76	0	0.0%		76	0	0.0%	
78	1	*6.7%*		78	1	12.5%	
80	4	26.7%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	1	12.5%	
86	0	0.0%		86	0	0.0%	
88	2	13.2%		88	0	0.0%	
90	0	0.0%		90	1	12.5%	
92	0	0.0%	Age 5	92	1	12.5%	Age 5
94	0	0.0%	n=7	94	1	12.5%	n=4
96	1	6.7%	46.6%	96	0	0.0%	50.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	0	0.0%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
112	0	0.0%		112	0	0.0%	
Total	15				8		

[a] Sixteen carcasses were sampled by Nez Perce Tribe personnel.

Table B7. Length frequency and age composition of summer chinook salmon carcasses recovered from Lake Creek (S.Fk. Salmon River drainage) during spawning ground surveys, 1995. All carcasses were sampled by Nez Perce Tribe personnel.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
58	0	0.0%	Jacks	58	0	0.0%	
60	0	0.0%	n=0	60	0	0.0%	n=0
62	0	0.0%	0.0%	62	0	0.0%	0.0%
64	0	0.0%		64	0	0.07.	
66	0	0.0%		66	0	0.0%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	0	0.0%	n=1	70	0	0.0%	n=2
72	0	0.0%	100.0%	72	0	0.0%	100.0%
74	0	0.0%		74	0	0.0%	
76	0	0.0%		76	1	50.0%	
78	1	100.0%		78	1	50.0%	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=0	94	0	0.0%	n=0
96	0	0.0%	0.0%	96	0	0.0%	0.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	0	0.0%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
112	0	0.0%		112	0	0.0%	
Total	1				2		

Table B8. Length frequency and age composition of spring chinook salmon carcasses recovered from Crooked Fork (Lochsa River drainage) during spawning ground surveys, 1995. All carcasses were sampled by Idaho Department of Fish and Game personnel.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
58	0	0.0%	Jacks	58	0	0.0%	
60	0	0.0%	n=0	60	0	0.0%	n=0
62	0	0.0%	0.0%	62	0	0.0%	0.0%
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	1	33.3%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	0	0.0%	n=0	70	0	0.0%	n=3
72	0	0.0%	0.0%	72	1	33.3%	100.0%
74	0	0.0%		74	1	33.3%	
76	0	0.0%		76	0	0.0%	
78	0	0.0%		78	0	0.0%	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=0	94	0	0.0%	n=0
96	0	0.0%	0.0%	96	0	0.0%	0.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	0	0.0%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
112	0	0.0%		112	0	0.0%	
Total	0				3		

Table B9. Length frequency and age composition of spring chinook salmon carcasses recovered from Brushy Fork (Lochsa River drainage) during spawning ground surveys, 1995. All carcasses were sampled by Idaho Department of Fish and Game personnel.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
58	0	0.0%	Jacks	58	0	0.0%	
60	0	0.0%	n=0	60	0	0.0%	n=0
62	0	0.0%	0.0%	62	0	0.0%	0.0%
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	1	50.0%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	0	0.0%	n=0	70	0	0.0%	n=2
72	0	0.0%	0.0%	72	1	50.0%	100.0%
74	0	0.0%		74	0	0.0%	
76	0	0.0%		76	0	0.0%	
78	0	0.0%		78	0	0.0%	
80	0	0.0%		80	0	0.0%	
82	0	0.0%		82	0	0.0%	
84	0	0.0%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=0	94	0	0.0%	n=0
96	0	0.0%	0.0%	96	0	0.0%	0.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	0	0.0%	
108	0	0.0%		108	0	0.0%	
110	0	0.0%		110	0	0.0%	
112	0	0.0%		112	0	0.0%	
Total	0				2		

APPENDIX C. Maps showing 1995 chinook salmon redd count transects and numbers of redds counted.

LEGEND

Transect Boundaries 

Ground Redd Counts 

Helicopter Redd Counts 

Road

Trail

Forest Service Station 

Campground 

Road or Highway Bridge 

Pack Bridge 

Transect Codes (See Appendix B) **[WS-##], [NS-##], [WC-##], etc.**

DRAINAGE Salmon River

STREAM Salmon River

OBSERVATION CONDITIONS Good

TIMING Early On Time Late

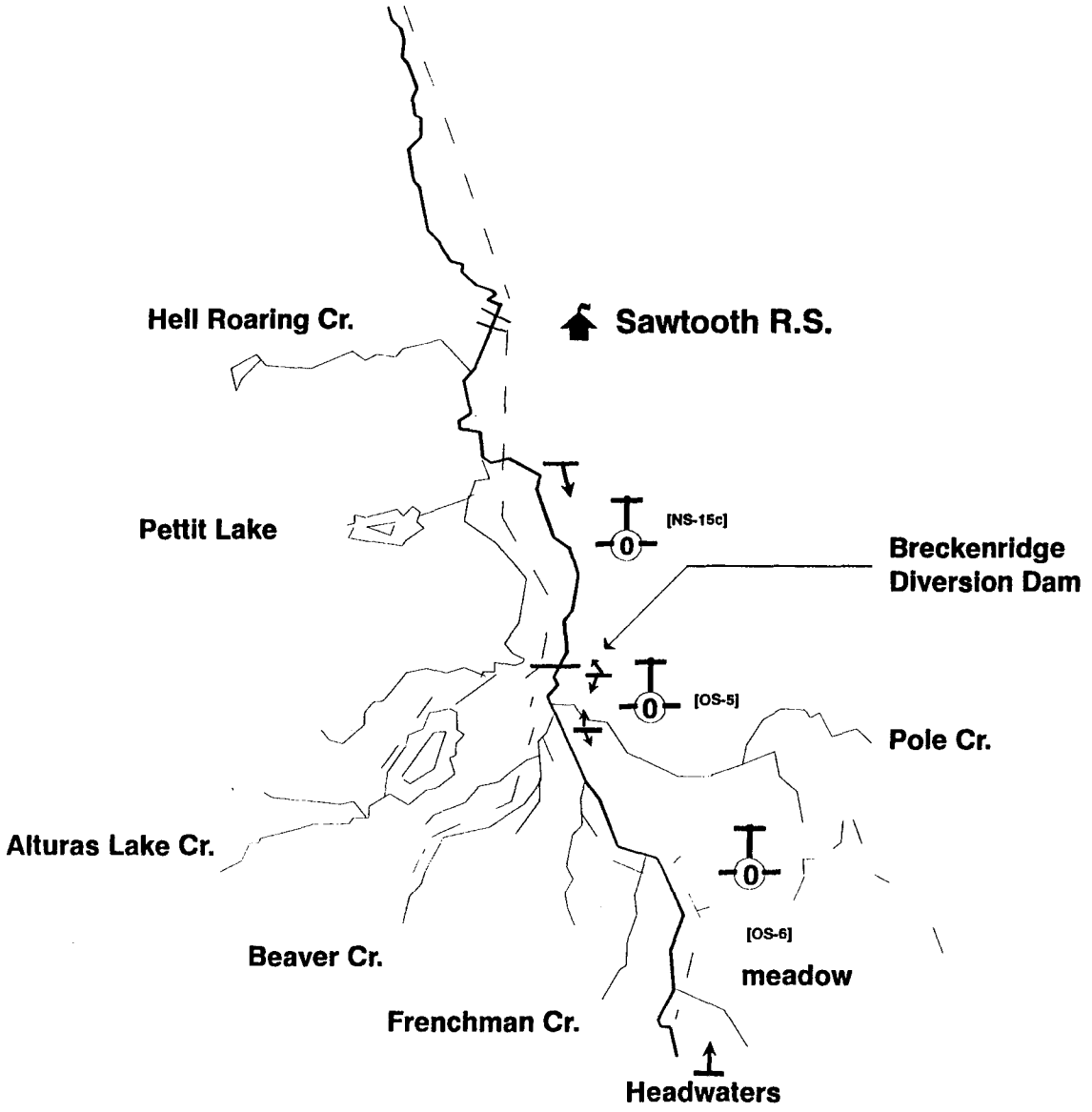
SURVEY DATE 9/8/95

MAP SCALE 0.78 cm = 1 mile

OBSERVER Curet & Faurot

REMARKS Helicopter

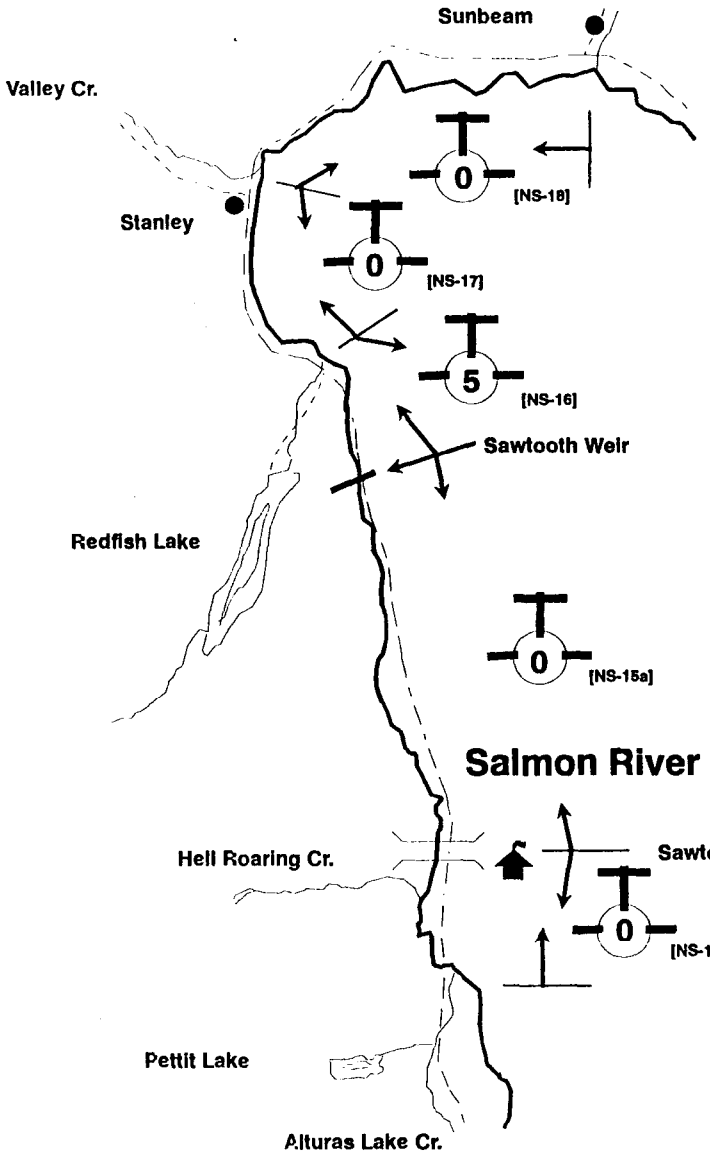
Salmon River



MAP-23

DRAINAGE Salmon River
STREAM Salmon River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/5/95 & 9/14/95
MAP SCALE 0.78 cm = 1 mile
OBSERVER Curet, Moller, Faurot
REMARKS Helicopter



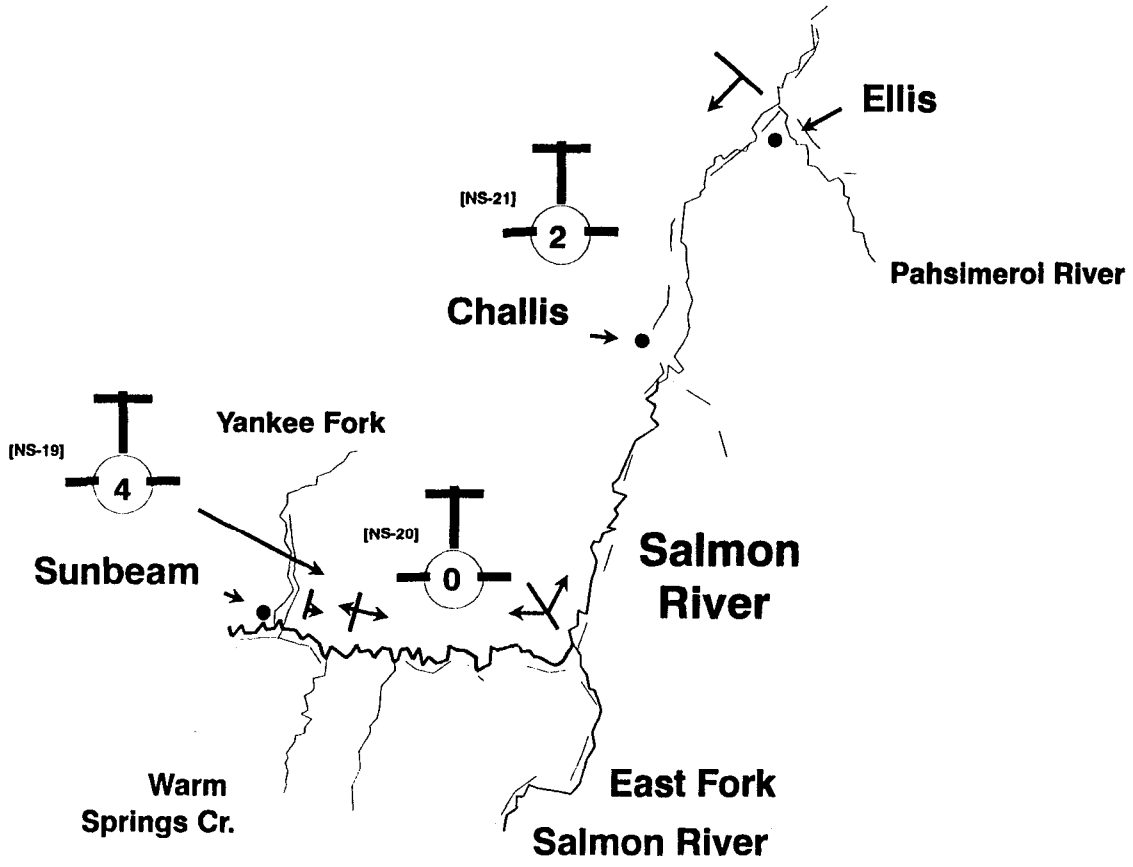
Number of Spring Chinook released above Sawtooth weir:

Males	8
Jacks	10
Females	2

Total trap count = 37

MAP-01

STREAM	Salmon River	SURVEY DATE	9/14/95
OBSERVATION CONDITIONS	Good	MAP SCALE	0.35 cm = 1 mile
TIMING Early On Time Late		OBSERVER	Curet & Moller
		REMARKS	Helicopter



MAP-10

DRAINAGE Salmon River

STREAM Alturas Lake Cr./Pole Cr.

OBSERVATION CONDITIONS Good

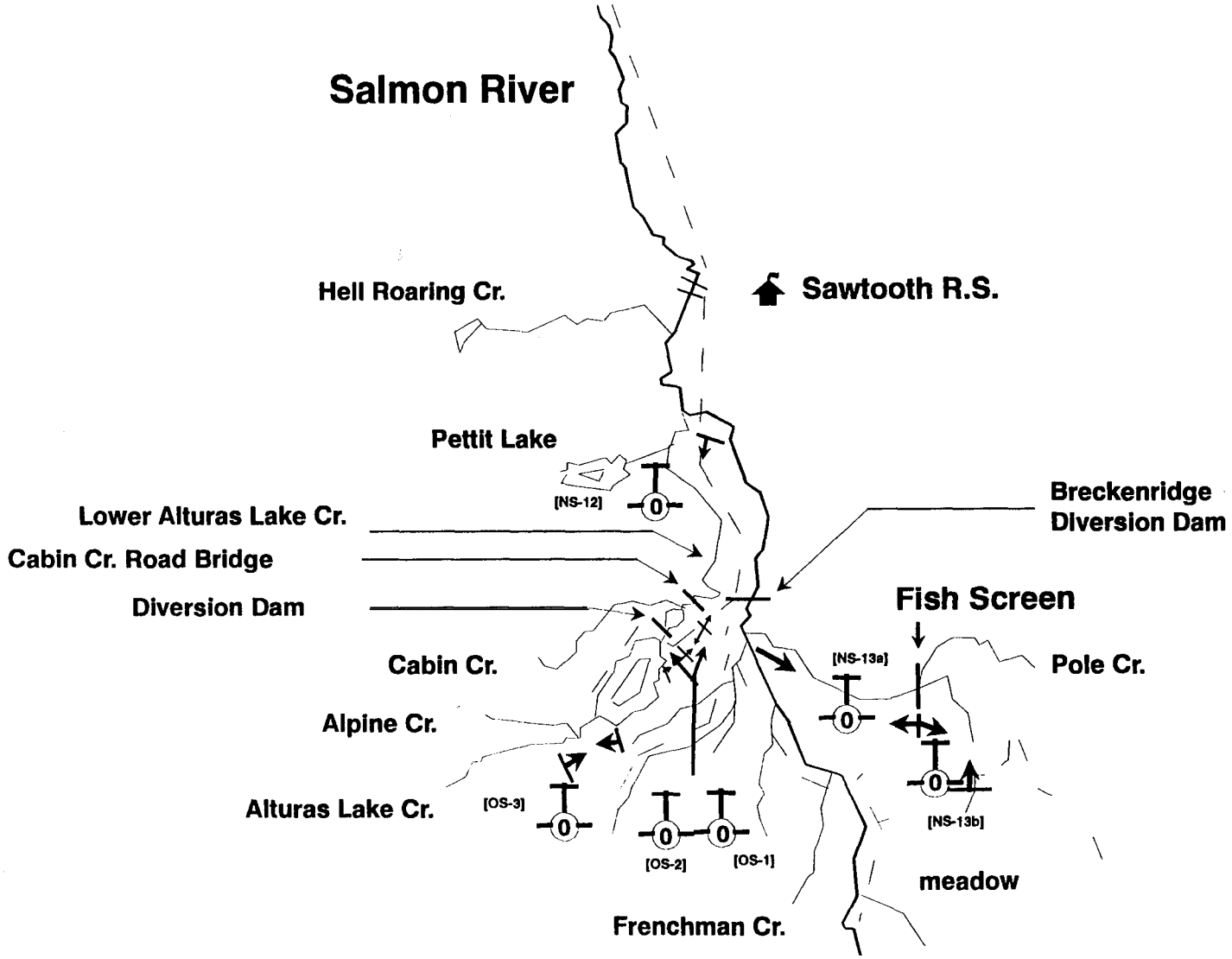
TIMING Early On Time Late

SURVEY DATE 9/5/95

MAP SCALE 0.78 cm = 1 mile

OBSERVER Curet & Faurot

REMARKS Helicopter



MAP-24

DRAINAGE Salmon River

STREAM Valley Creek

OBSERVATION CONDITIONS Good

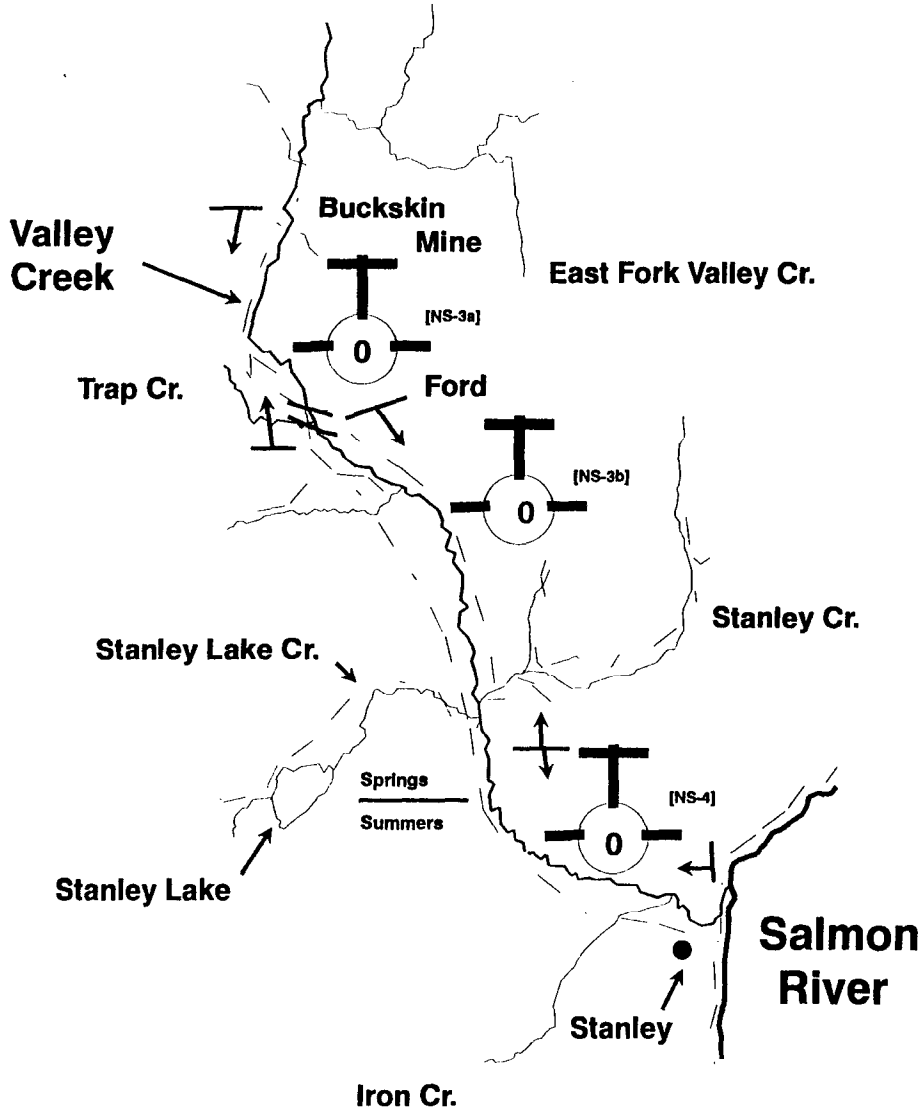
TIMING Early On Time Late

SURVEY DATE 9/8/95

MAP SCALE 1.6 cm = 1 mile

OBSERVER Curet & Faurot

REMARKS Helicopter



MAP-0

DRAINAGE Salmon River

STREAM Yankee Fork

OBSERVATION CONDITIONS Good

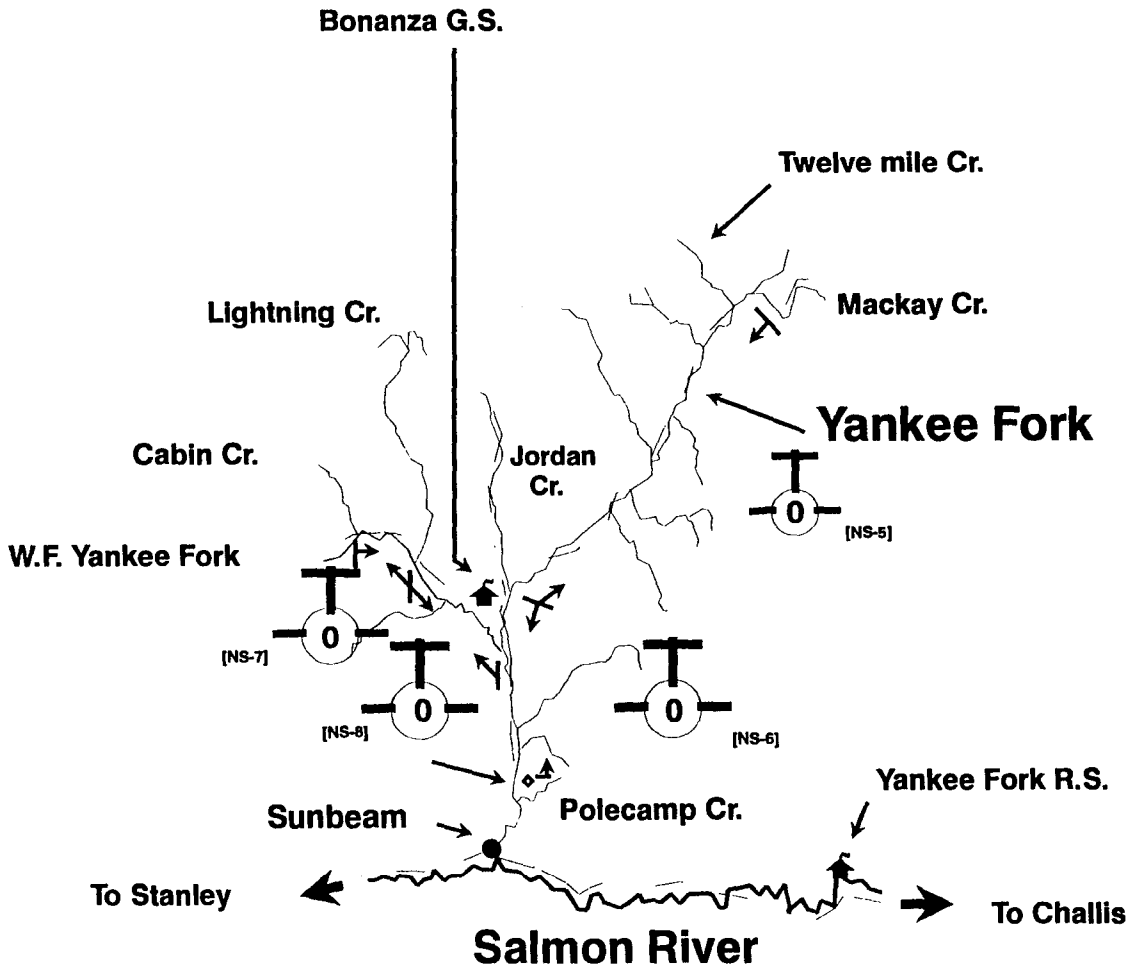
TIMING Early On Time Late

SURVEY DATE 9/14/95

MAP SCALE 0.70 cm = 1 mile

OBSERVER Curet & Moller

REMARKS Helicopter



MAP-11

DRAINAGE Salmon River

STREAM East Fork Salmon River

OBSERVATION CONDITIONS Good

TIMING Early On Time Late

SURVEY DATE 9/14/95

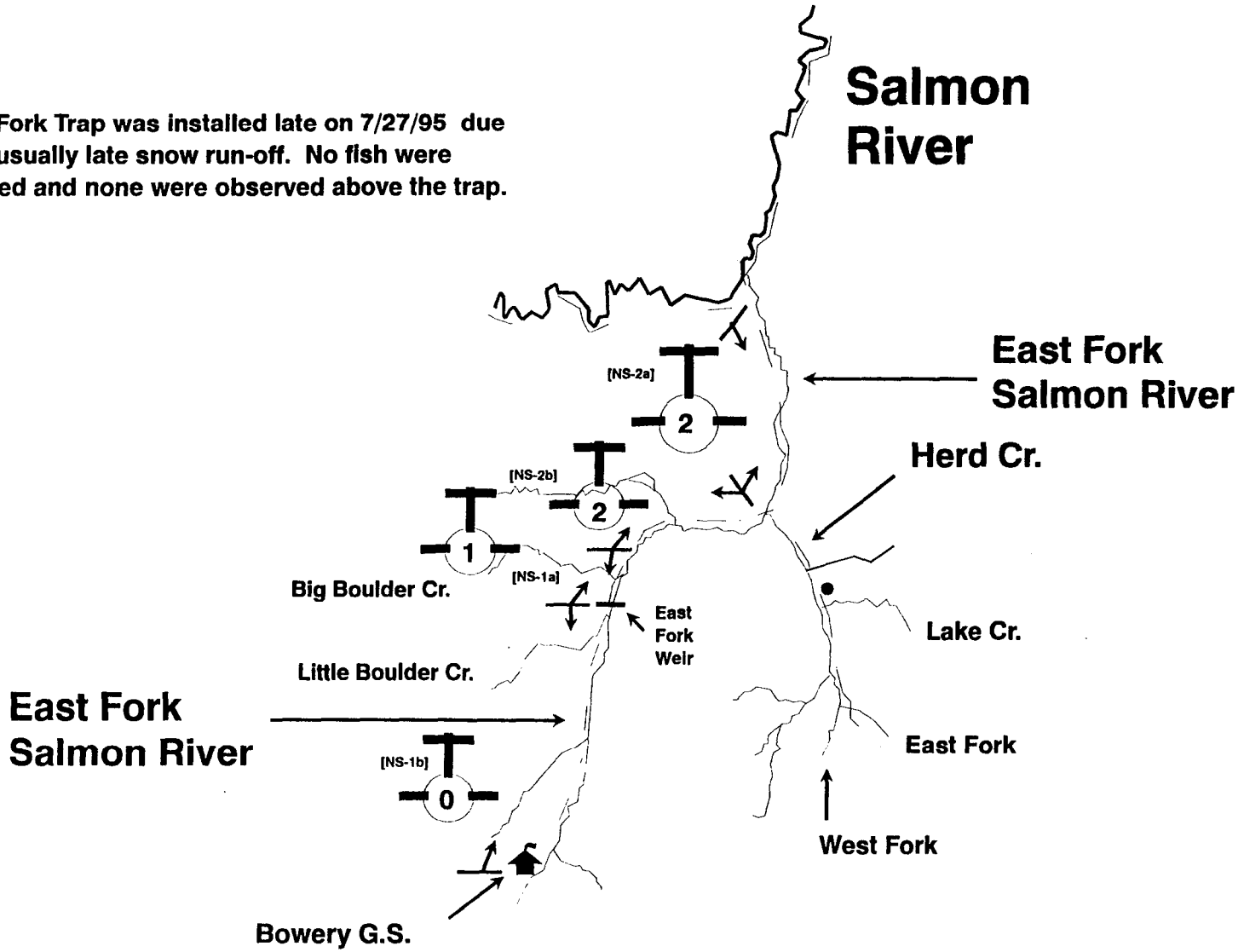
MAP SCALE 0.6 cm 1 = mile

OBSERVER Curet & Moller

REMARKS Helicopter

Transect NS-2b ends 3.5 miles below Big Boulder Creek.

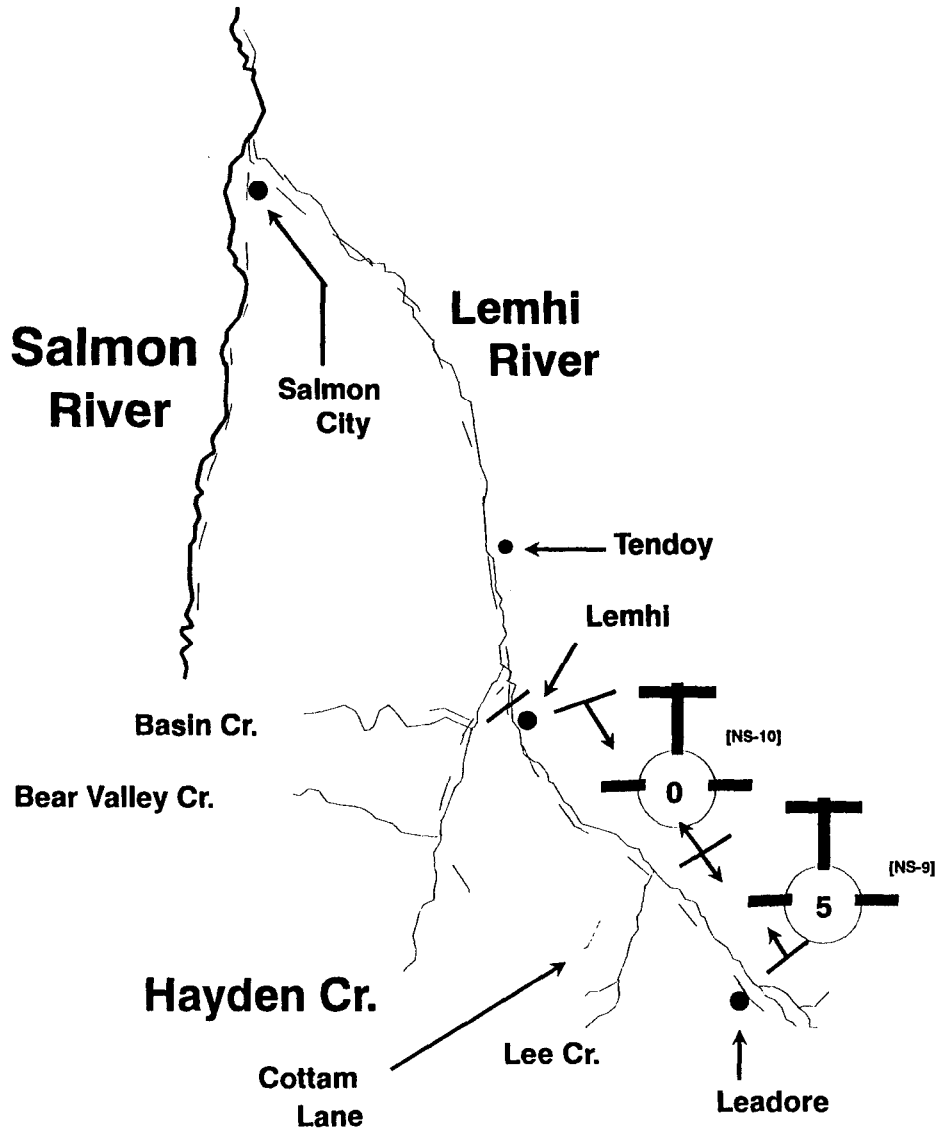
East Fork Trap was installed late on 7/27/95 due to unusually late snow run-off. No fish were trapped and none were observed above the trap.



MAP-12

DRAINAGE Salmon River
STREAM Lemhi River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/5/95
MAP SCALE 0.40 cm = 1 mile
OBSERVER Curet & Moller
REMARKS Helicopter



MAP-13

DRAINAGE Middle Fork Salmon River

STREAM Marsh,Beaver,Knapp,and Capehorn Cks.

OBSERVATION CONDITIONS Good

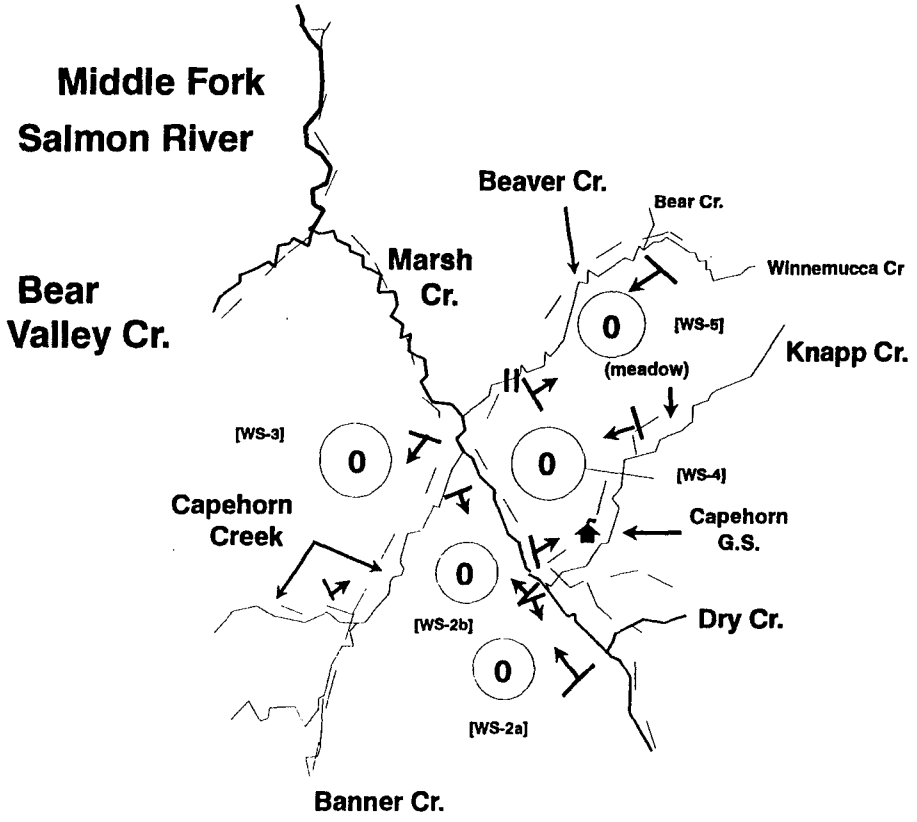
TIMING Early On Time Late

SURVEY DATE 8/16/95

MAP SCALE 1.15 cm = 1 mile

OBSERVER Rasmussen

REMARKS Ground



MAP-06

DRAINAGE Middle Fork Salmon River

STREAM Bear Valley Creek

OBSERVATION CONDITIONS Good

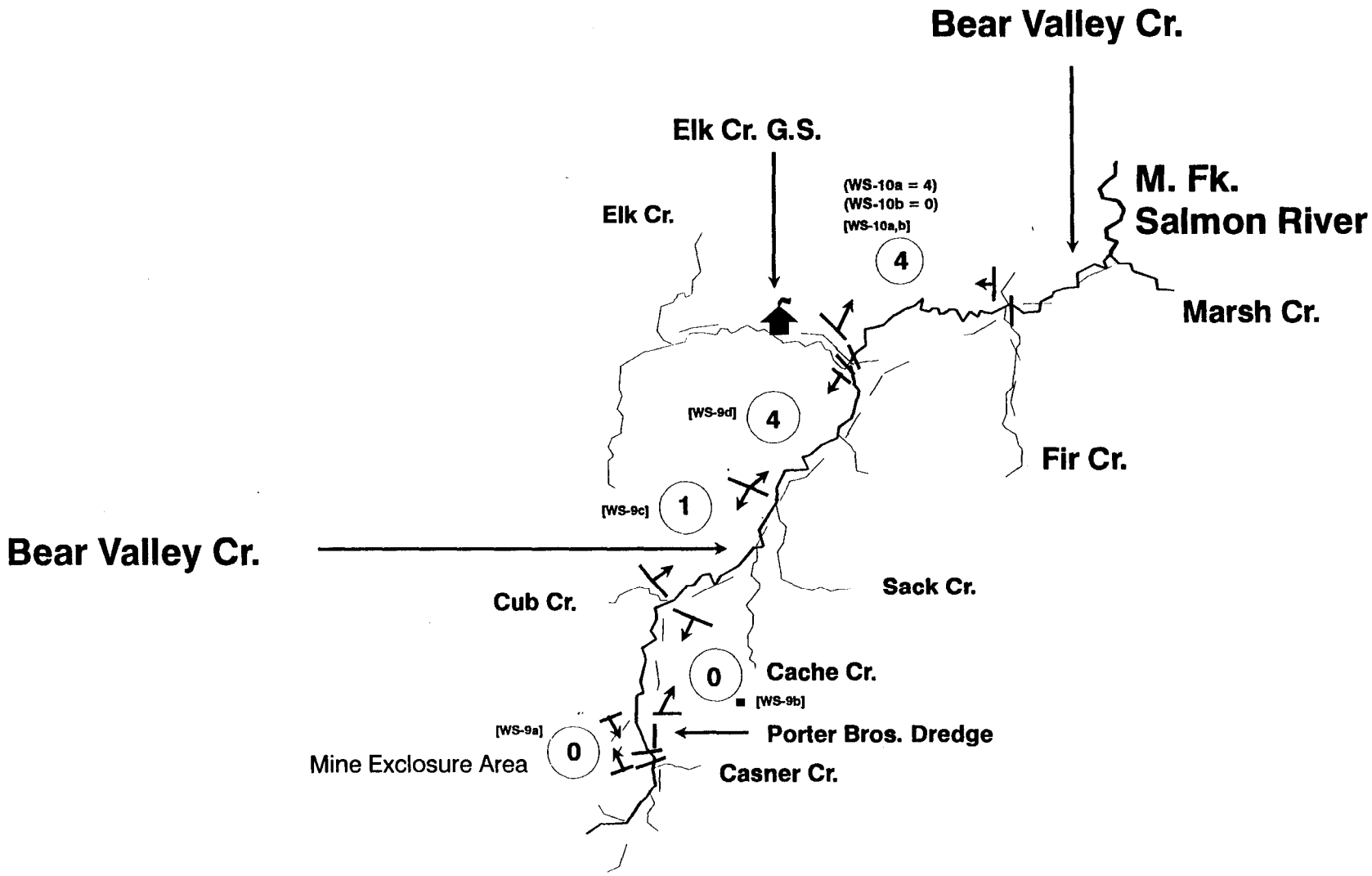
TIMING Early On Time Late

SURVEY DATE 8/28, 8/29 & 8/31/95

MAP SCALE 0.90 cm = 1 mile

OBSERVER Yundt

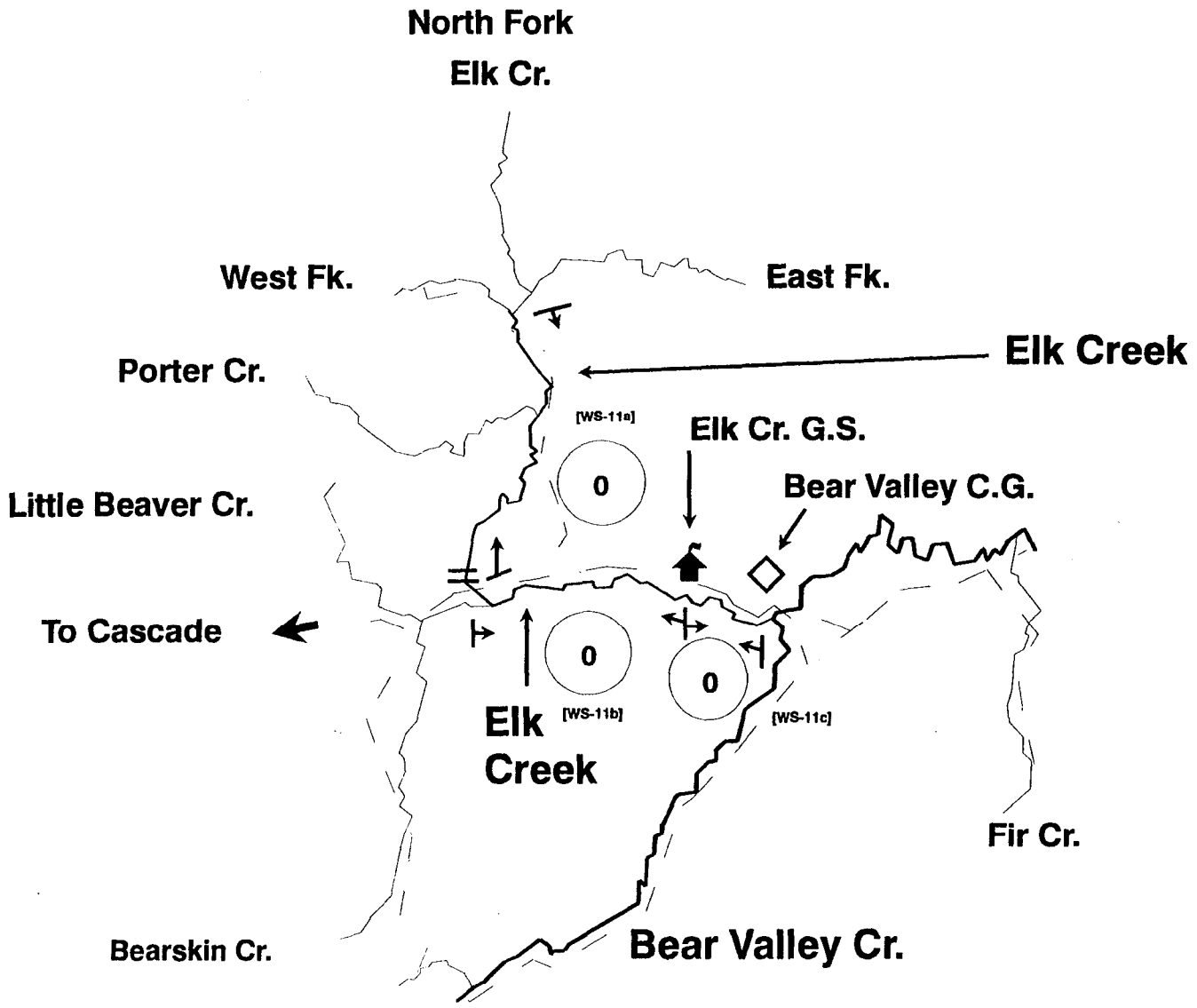
REMARKS Ground



MAP-20

STREAM Elk Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

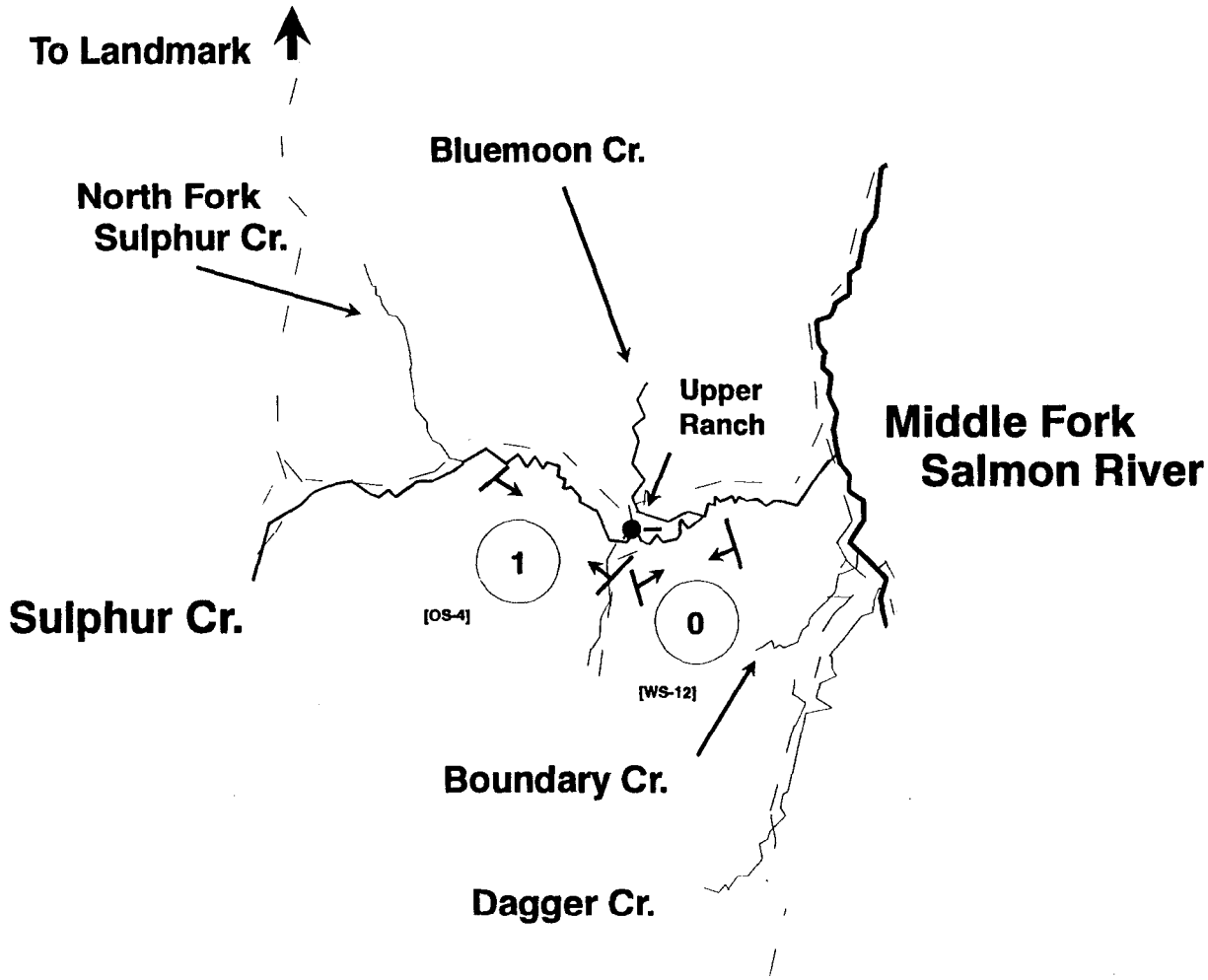
MAP SCALE 1.3 cm = 1 mile
OBSERVER Yundt
REMARKS Ground



MAP-22

DRAINAGE Middle Fork Salmon River
STREAM Sulphur Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/1/95
MAP SCALE 1.3 cm = 1 mile
OBSERVER Yundt
REMARKS Ground

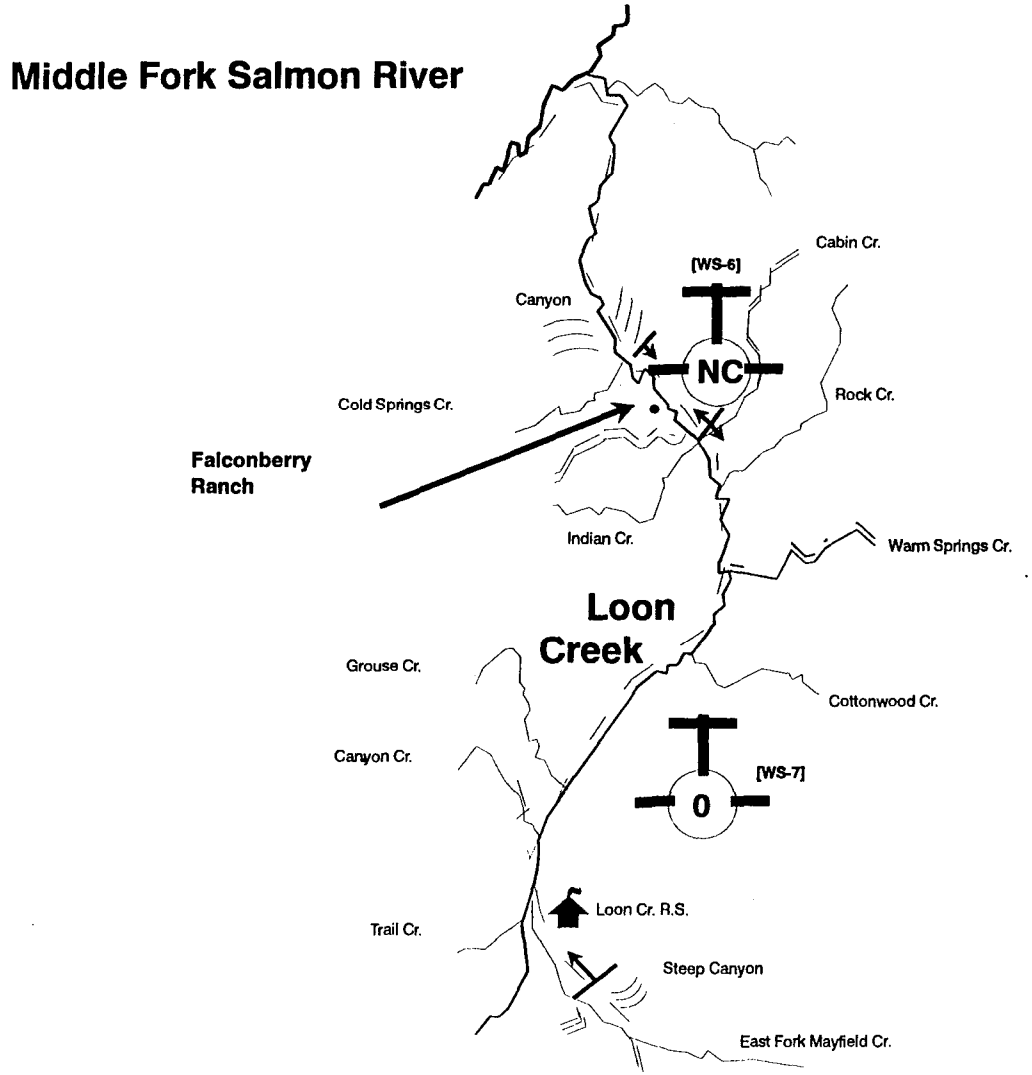


MAP-07

STREAM Loon Creek
OBSERVATION CONDITIONS Moderate
TIMING Early On Time Late

MAP SCALE 0.85 cm = 1 mile
OBSERVER Curet & Moller
REMARKS Helicopter

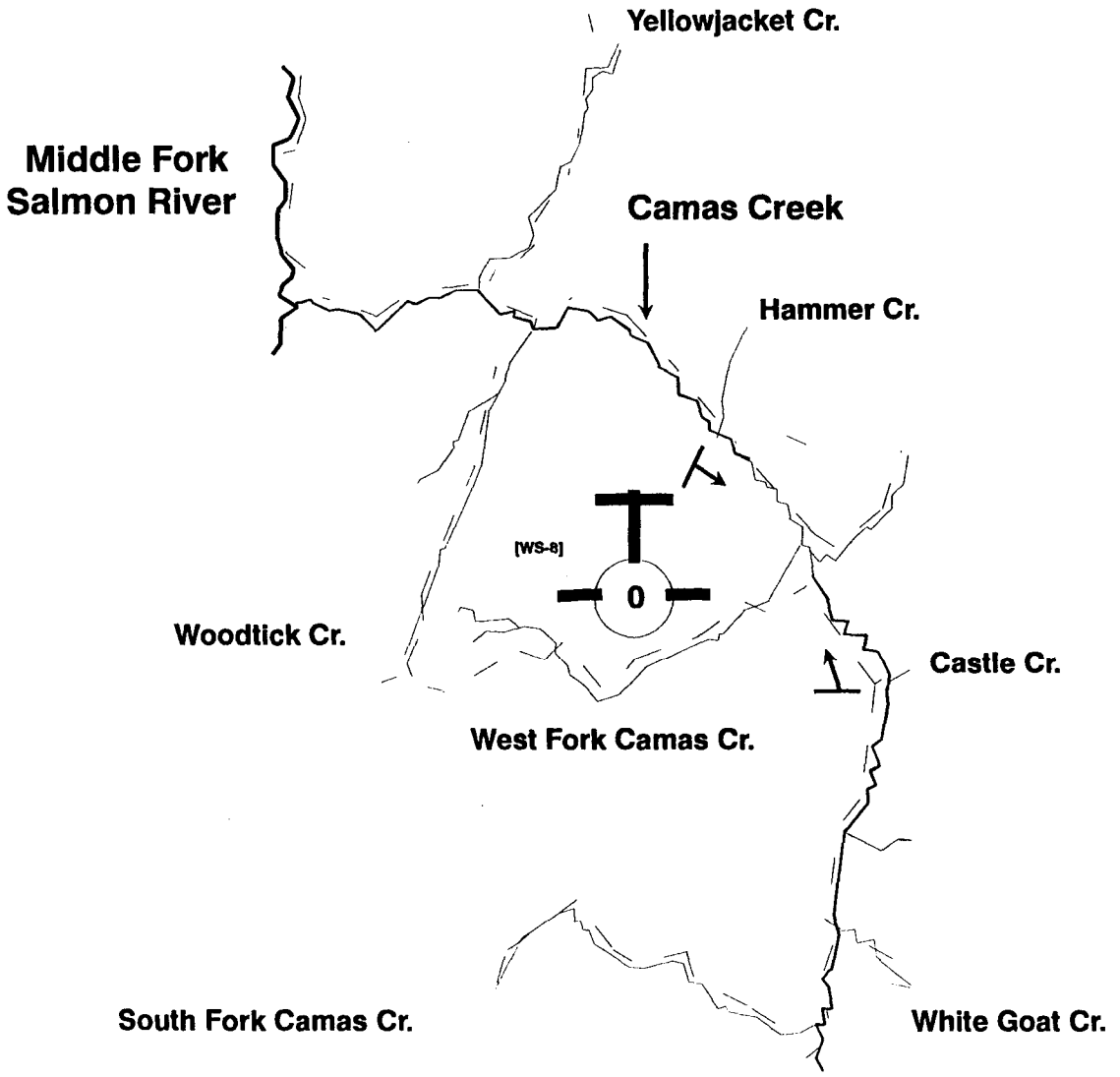
WS-6 not counted due to high turbidity.



MAP-02

DRAINAGE Middle Fork Salmon River
STREAM Camas Creek
OBSERVATION CONDITIONS Moderate to poor
TIMING Early On Time Late

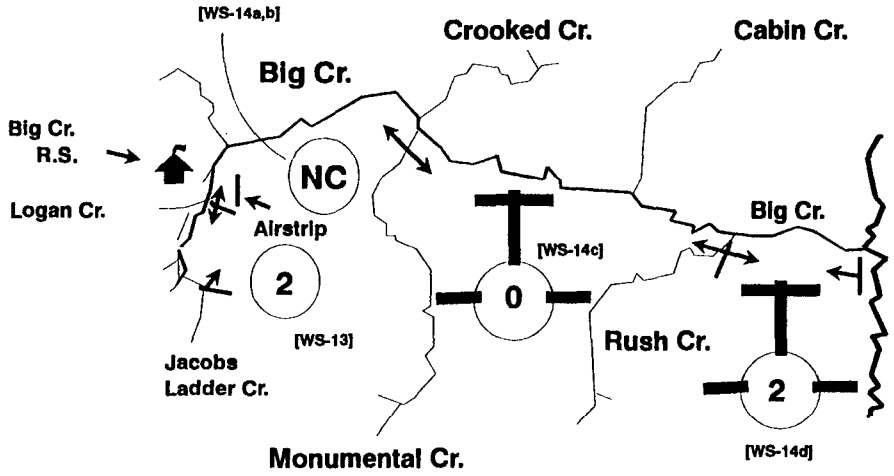
SURVEY DATE 9/14/95
MAP SCALE 1.10 cm = 1 mile
OBSERVER Curet & Moller
REMARKS Helicopter



MAP-08

DRAINAGE Middle Fork Salmon River
STREAM Big Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/29/95 & 9/6/95
MAP SCALE 0.45 cm = 1 mile
OBSERVER Anderson & Curet
REMARKS Ground - Helicopter



Middle Fork Salmon River

MAP-05

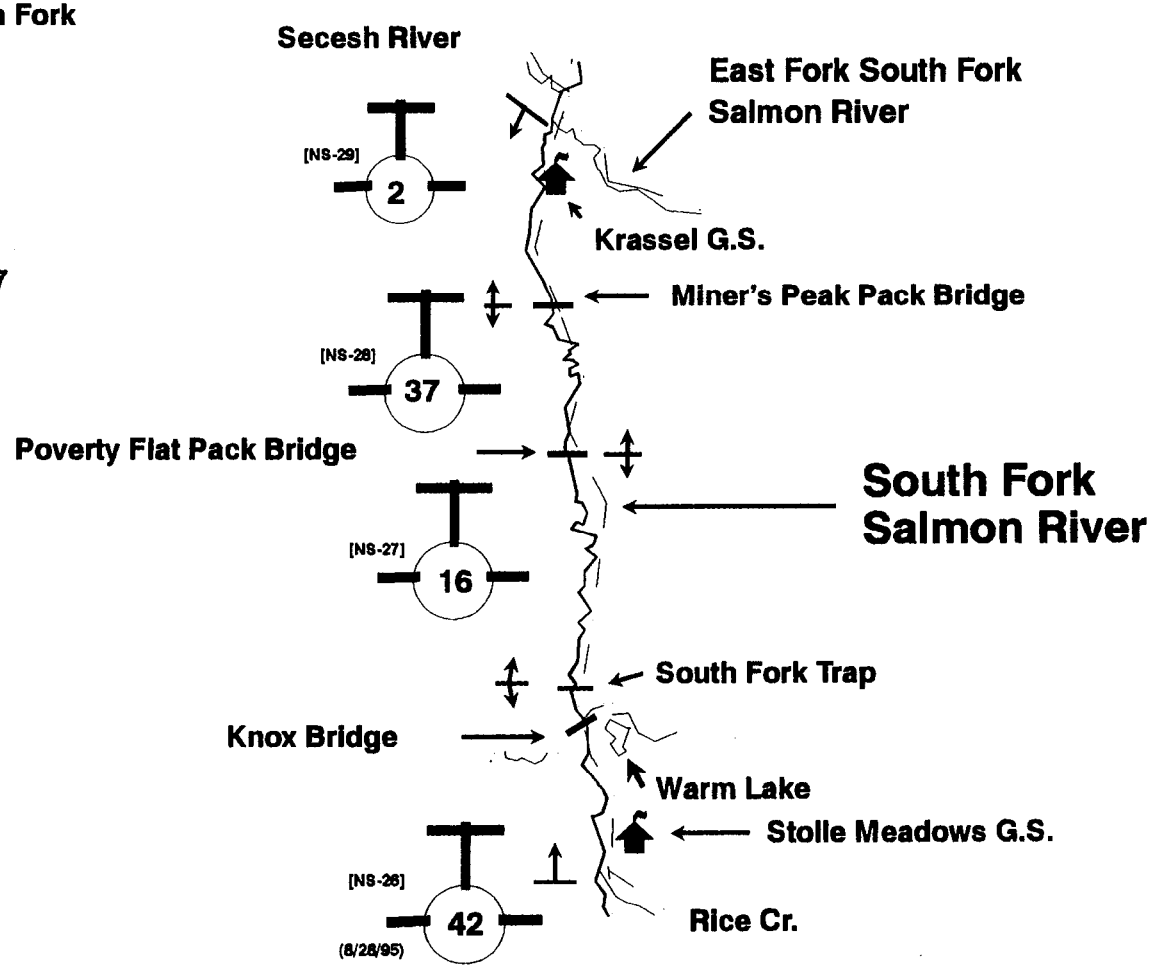
DRAINAGE Salmon River
STREAM South Fork Salmon River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/28/95 & 9/6/95
MAP SCALE 0.40 cm = 1 mile
OBSERVER Anderson
REMARKS Helicopter

Number of Chinook Salmon released above South Fork Salmon Trap:

Males	40
Jacks	10
Females	35

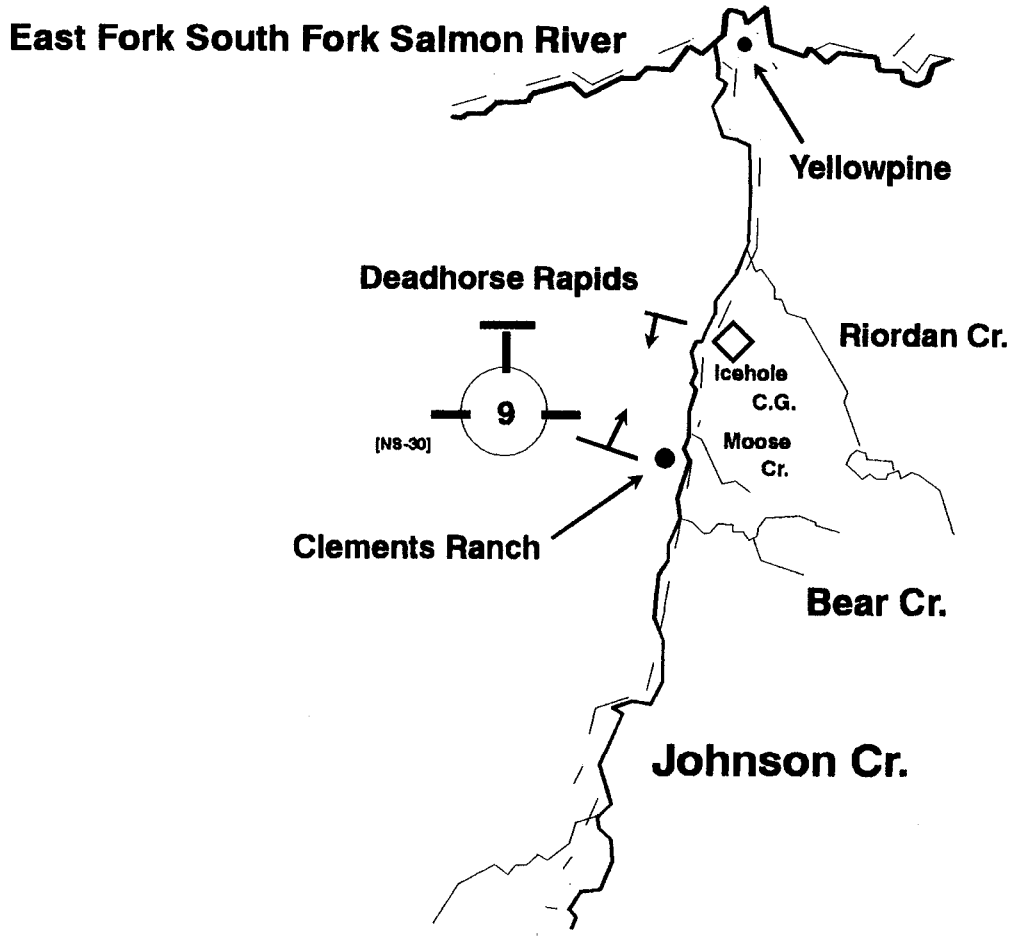
Total trap count = 307



MAP-21

DRAINAGE E.F. of South Fork Salmon
STREAM Johnson Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

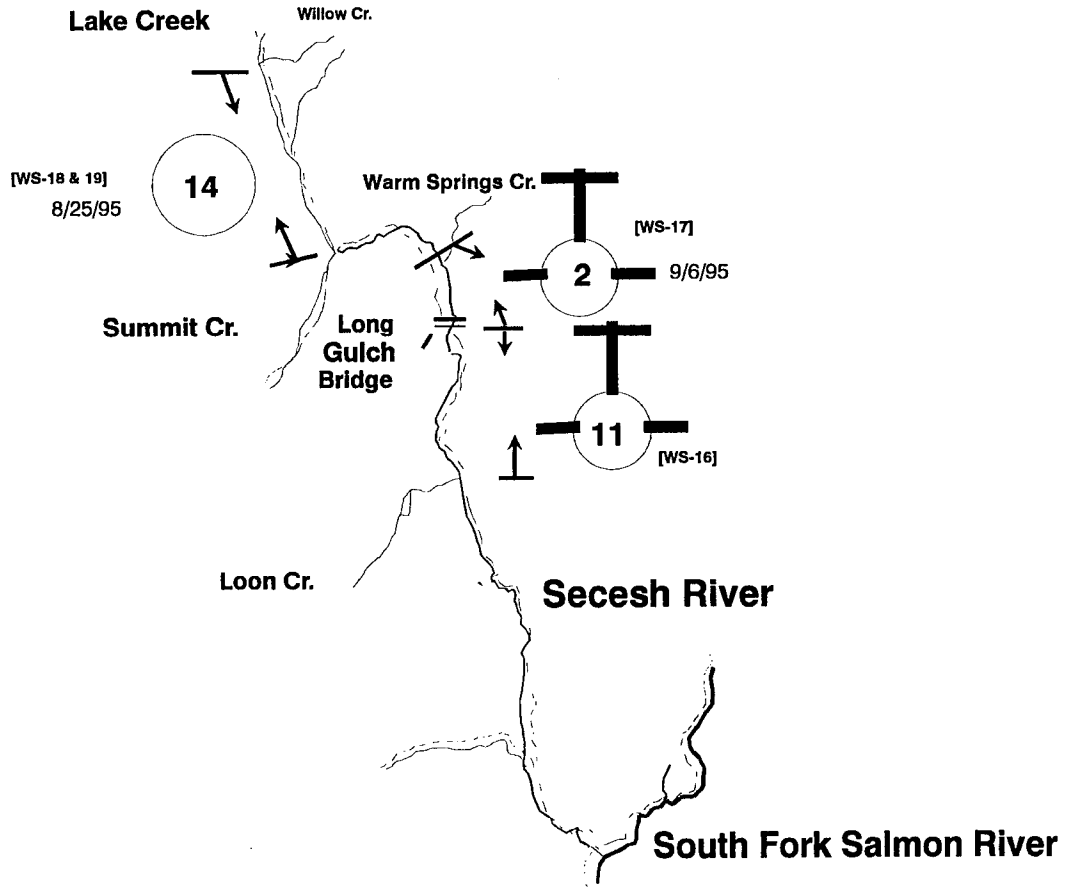
SURVEY DATE 8/28/95
MAP SCALE 0.95 cm = 1 mile
OBSERVER Anderson
REMARKS Helicopter



MAP-04

DRAINAGE South Fork Salmon River
STREAM Lake Creek - Secesh River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

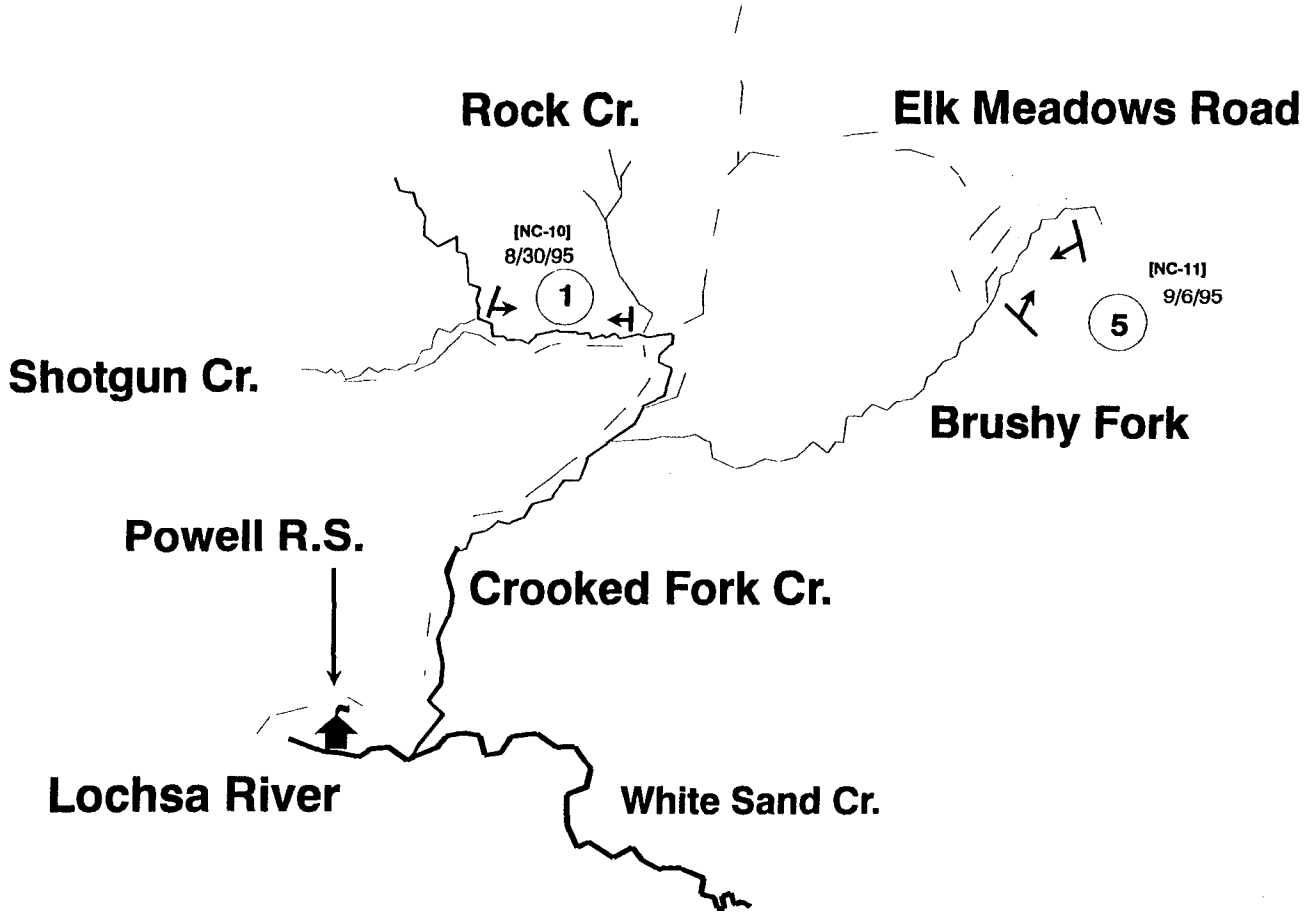
SURVEY DATE 8/25/95 & 9/6/95
MAP SCALE 0.65 cm = 1 mile
OBSERVER Anderson
REMARKS Ground - Helicopter



MAP-03

DRAINAGE Clearwater [illegible]
STREAM Crooked Fork & Brushy Fork
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

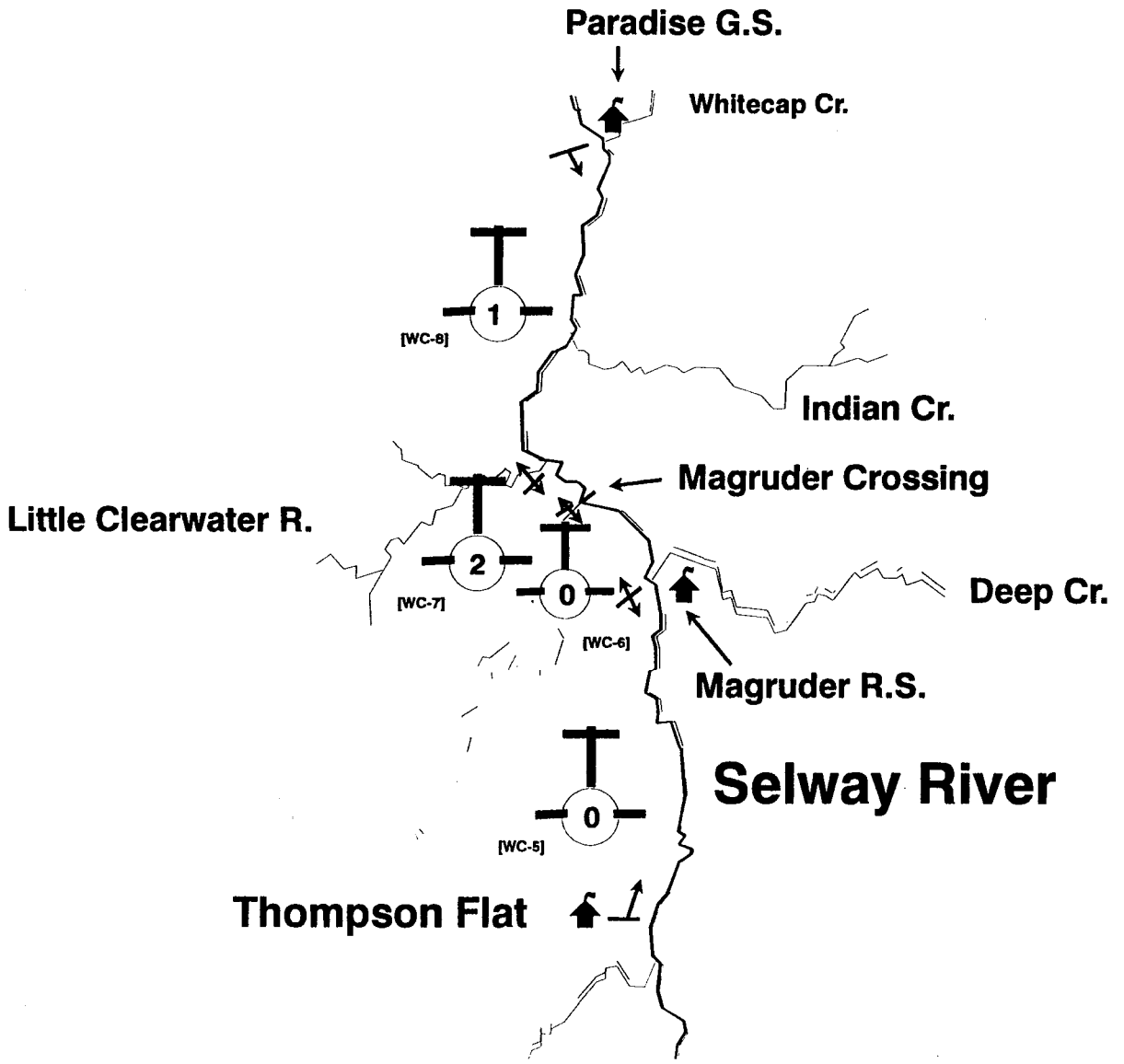
SURVEY DATE 8/30/95 & 9/13/95
MAP SCALE 0.95 cm = 1 mile
OBSERVER Barrett
REMARKS Ground



MAP-19

DRAINAGE Clearwater River
STREAM Upper Selway River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

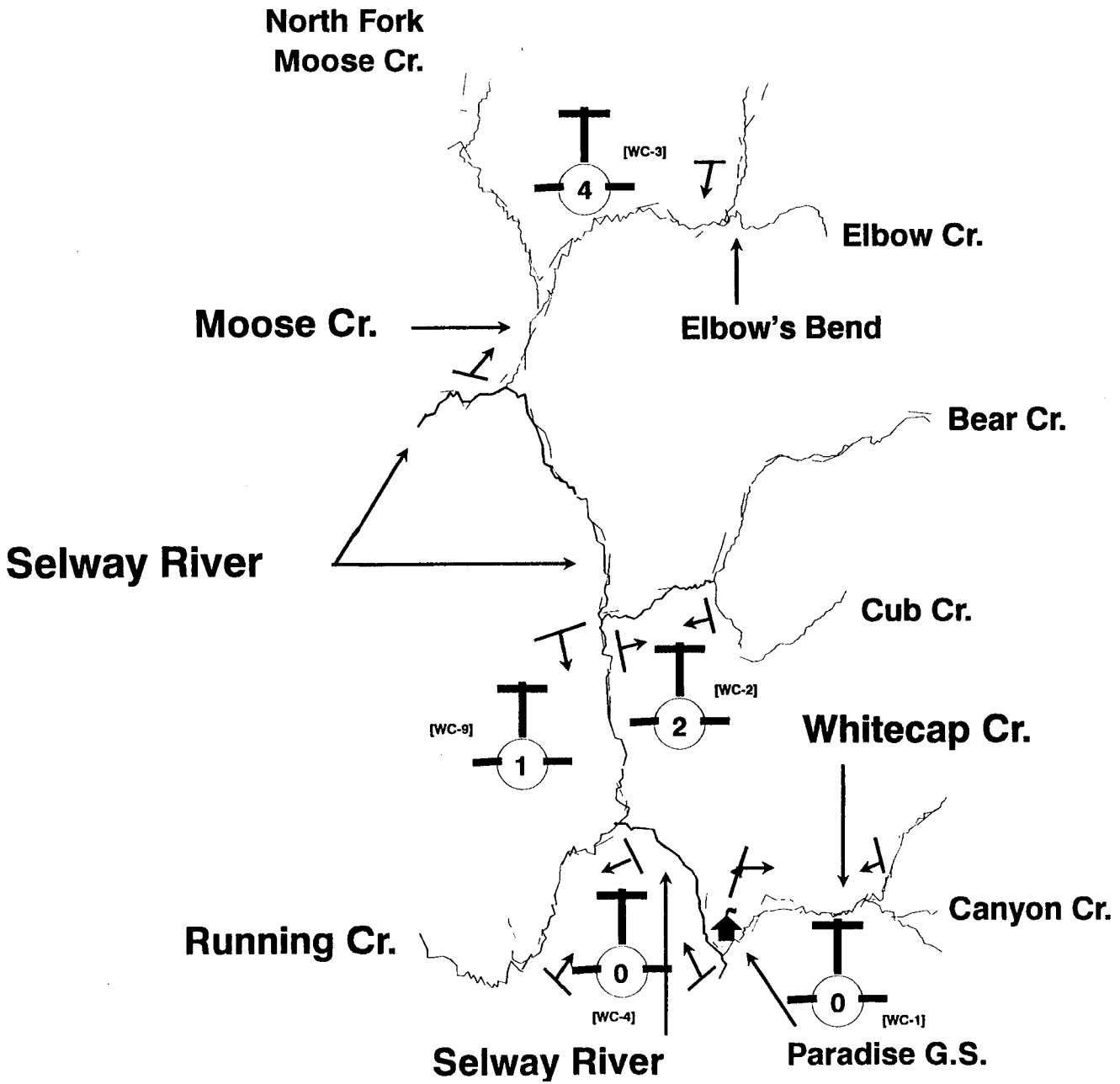
SURVEY DATE 9/12/95
MAP SCALE 0.85 cm = 1 mile
OBSERVER Barrett
REMARKS Helicopter - Ground



MAP-17

DRAINAGE Clearwater R.
STREAM Selway River & tributaries
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

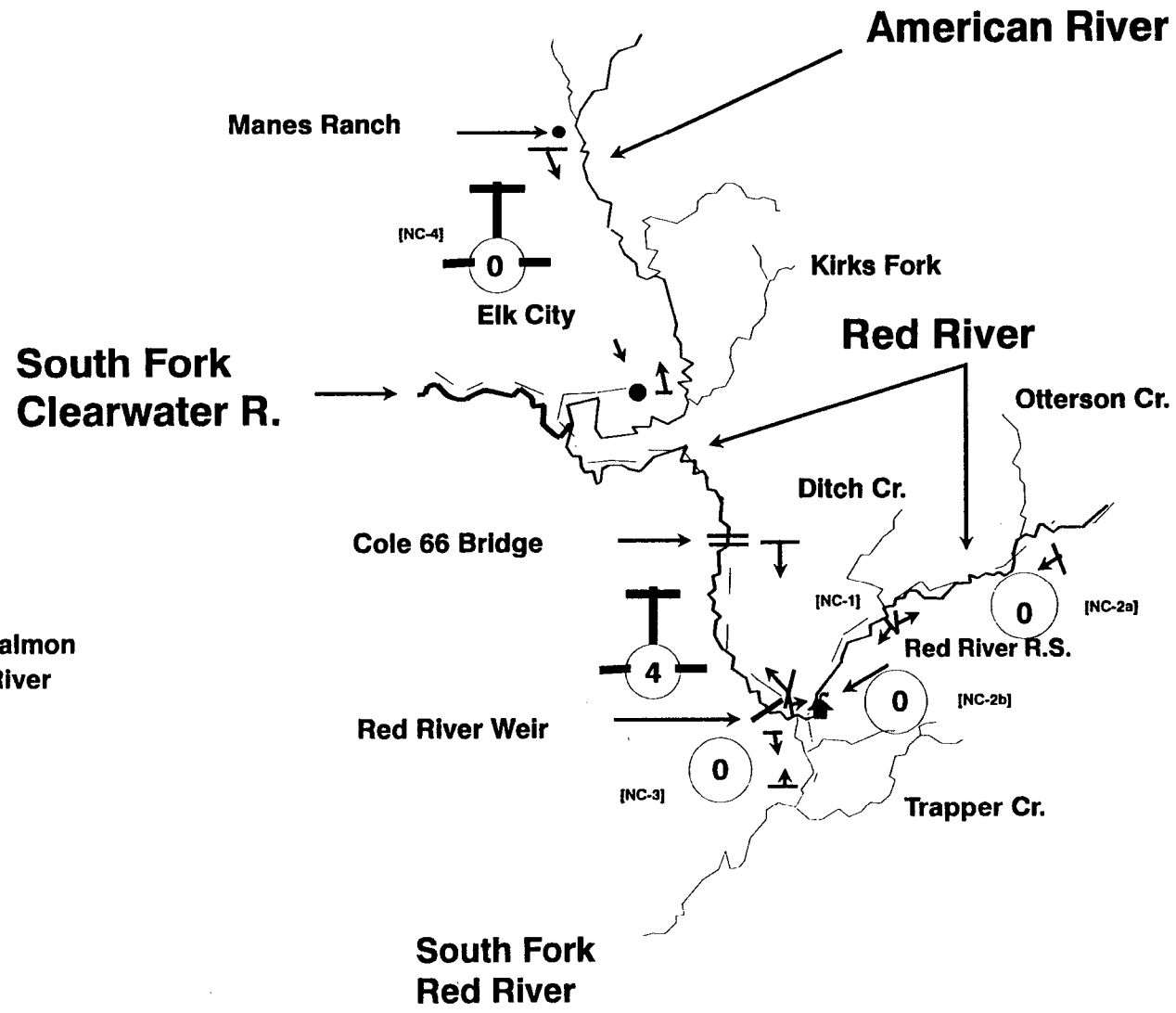
SURVEY DATE 9/12/95
MAP SCALE 0.65 cm = 1 mile
OBSERVER Barrett
REMARKS Helicopter



MAP-18

DRAINAGE Clearwater River
STREAM Red R. and American River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/14/95 & 9/17/95
MAP SCALE 0.75 cm = 1 mile
OBSERVER Barrett & Nelson
REMARKS Helicopter - Ground



Number of Chinook Salmon released above Red River weir:

Males	0
Jacks	1
Females	1

Total trap count = 4

MAP-16

DRAINAGE Clearwater River

STREAM Crooked River & Newsome Creek

OBSERVATION CONDITIONS Good

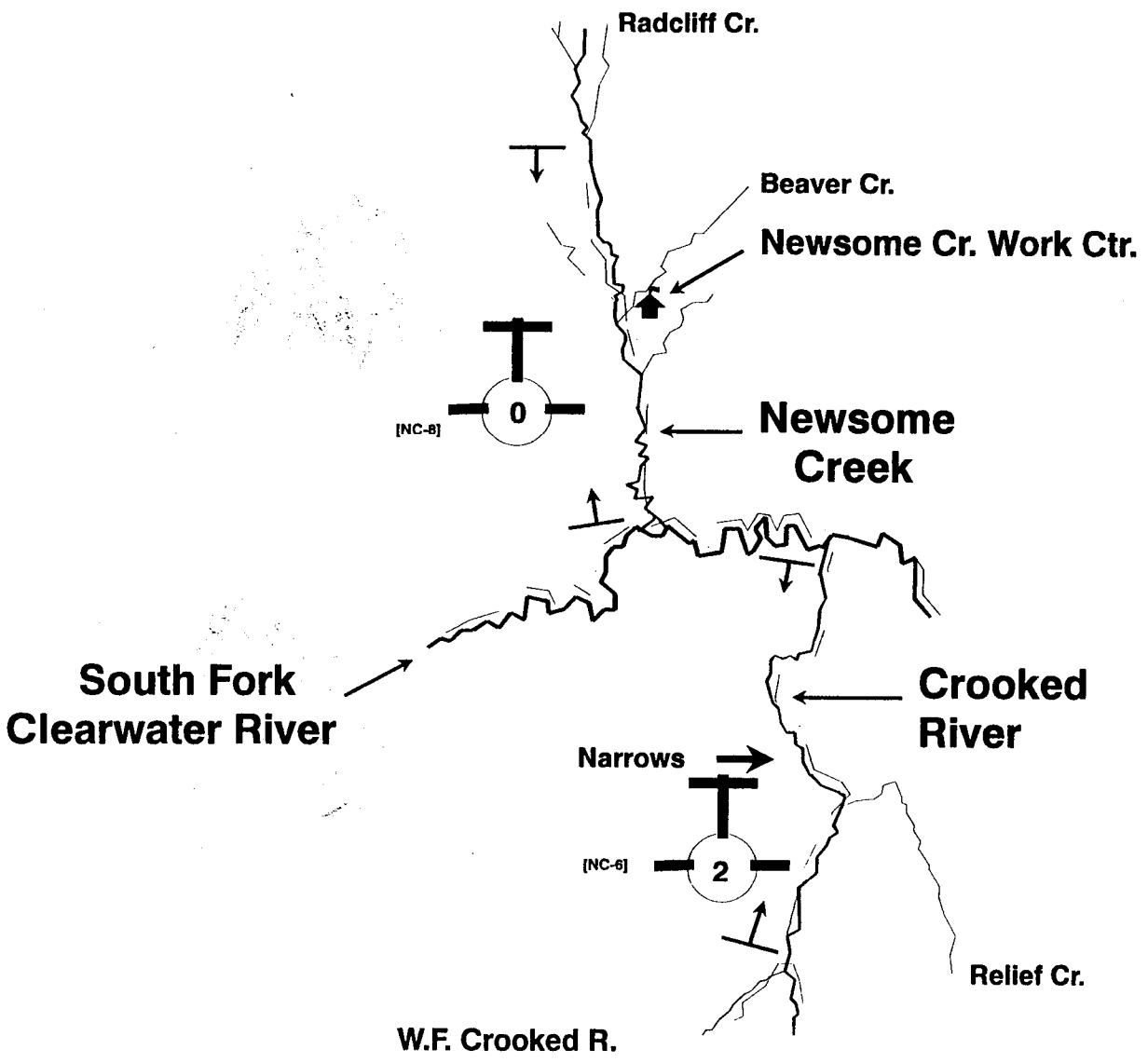
TIMING Early On Time Late

SURVEY DATE 9/14/95

MAP SCALE 0.85 cm = 1 mile

OBSERVER Barrett

REMARKS Helicopter



MAP-15

Submitted by:

Terry J. Elms-Cockrum
Senior Fishery Technician

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

Steven M. Huffaker, Chief
Bureau of Fisheries

Edward C. Bowles
Anadromous Fishery Manager