

FISHERY MANAGEMENT INVESTIGATIONS



IDAHO DEPARTMENT OF FISH AND GAME FISHERY MANAGEMENT ANNUAL REPORT

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SALMON REGION 2003

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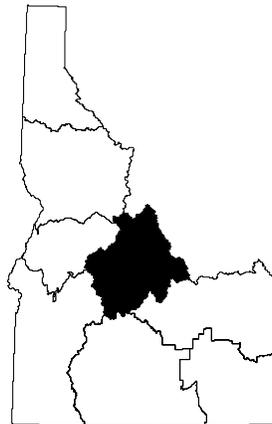


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UPPER SNAKE REGION
2003 MOUNTAIN LAKE INVESTIGATIONS

ABSTRACT

The Idaho Department of Fish and Game stocked 97 alpine mountain lakes in the Salmon Region via airplane during the summer of 2003. The Sawtooth Fish Hatchery stocked 75 lakes located in the Salmon-Challis National Forest, Sawtooth Wilderness Area, and the Sawtooth National Recreation Area with 29,700 westslope cutthroat trout *Oncorhynchus clarkii lewisi*. The McCall Fish Hatchery stocked 7,025 Arctic grayling *Thymallus arcticus* in nine lakes and 8,375 triploid (3N) Hayspur rainbow trout *O. mykiss* were stocked in 14 lakes.

Department personnel surveyed a total of 43 mountain lakes in the Sawtooth Wilderness Area, Sawtooth National Recreation Area and Salmon-Challis National Forests during July and August of 2003. We assessed fishery status visually, by angling, or by gill netting. We also assessed lake use, natural recruitment potential, presence of amphibians by species, and reviewed past stocking efforts. Twenty-three of the 43 (53%) lakes surveyed were previously stocked, but only 11 of the 23 (48%) had fish in them at the time of the survey. A total of 13 of the 43 (30%) lakes sampled, were found to have fish populations, this includes the previous 11 and an additional two of which have no record of being stocked. Six out of the 13 (46%) lakes with fish had naturally reproducing fish populations. We determined that fish stocking should be discontinued in 9 of the 23 (39%) lakes previously stocked due to a lack of appropriate habitat or because naturally reproducing fish populations were present. Thirty of the 43 (70%) lakes surveyed were fishless and should remain so to provide refugia for native fauna. Twenty-one of the 43 (49%) lakes had amphibians present. Two of the 21 (9%) lakes with amphibians also had fish present. Fourteen of the 43 lakes surveyed (33%) showed campsite impact rates of low to moderate use.

On July 29, 2003 the fish community in Casino Lake #2 was surveyed with one specialized, lightweight, backpacking gill net. Brook trout *Salvelinus fontinalis* made up 100% of the catch. The net was fished a total of 12.7 overnight hours and had a capture rate of 1.66 fish/gill net hour. Fish length data demonstrates the presence of multiple year classes indicating natural reproduction.

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INTRODUCTION

The Salmon region has approximately a thousand lakes. Many of these lakes have never been inventoried and some of these lakes have not been surveyed in decades. High levels of angler satisfaction coupled with increased requests for information on alpine angling opportunities, led the Salmon region to increase the priority of surveys. In recent years, the Salmon Region began conducting cursory mountain lake surveys on an annual basis. The information collected from these surveys is stored in a regional database. The database is used to provide information for the angling public and government agencies.

OBJECTIVES

Mountain Lake Stocking

Maintain a viable and diverse high mountain lake fishery in the Salmon Region.

Mountain Lake Surveys

Conduct rapid cursory surveys of all stocked and unstocked mountain lakes within the Salmon Region to document the amphibian and fish populations, the spawning potential of the lakes inlets and outlets, and status of angler/camper use. Information collected during this multi-year effort will be used to assist in the development of a high lake management plan.

METHODS

Mountain Lake Stocking

We used a Cessna – 185 fixed-wing airplane to stock Salmon Region high mountain lakes during the summer of 2003.

Mountain Lake Surveys

Department personnel conducted cursory surveys by backpacking into 43 mountain lakes in the Sawtooth Wilderness Area, Salmon National Recreation Area and Salmon-Challis National Forests during July and August of 2003. We documented fish communities by visual observation, angling and gill netting. Fish caught from the lakes were identified, measured (total length) to the nearest millimeter and released. We used hook and line information to estimate fish relative abundance using rating methods developed by Bahls (1992; Table 3). Visual observation was also used to determine fish presence and species. These techniques were used separately or in concert to determine stocking success and to determine whether or not there was a need to adjust stocking rates. Species presence or absence of amphibians was determined by a modification of the timed visual encounter survey (VES) methodology, of the shoreline perimeter, reported by Crump and Scott (1994). The main deviation from the VES methodology was that we performed a full perimeter search without accounting for various habitat types.

Each lake was surveyed to document campsite impacts. Lakes were visually surveyed for campsites and signs of human use and notes recorded about the difficulty of access. We used Bahls (1992) campsite impact rating to assess the condition of areas surrounding each lake (Table 4).

In addition to our cursory surveys this year, we conducted a gill net survey on Casino Lake #2. One specialized; lightweight, backpacking gill net was deployed the evening of July 30, 2003 and removed the next morning. The gill net was set perpendicular to the shore for approximately 12 hours. Fish captured were identified and measured to the nearest mm (total length; TL) and weighed to the nearest g.

All data collected was entered in the Salmon Region alpine lake Access database for future analysis. Data sheets are archived at the Salmon Region office.

RESULTS AND DISCUSSION

Mountain Lake Stocking

In 2003, Sawtooth Fish Hatchery personnel conducted high mountain lake stocking of westslope cutthroat trout *Oncorhynchus clarkii lewisii* by fixed wing aircraft in the Salmon Region. Two flights flown by McCall Air Taxi occurred on August 29 and one on September 2. A total of 29,700 westslope cutthroat trout were stocked into 75 different lakes. The sizes of the fish were between 2,500 and 3,000 fish per pound (fpp). Flight time was 11 hours at a cost of \$2,442.00 or an average of \$32.73 a lake.

McCall Fish Hatchery personnel stocked triploid Hayspur rainbow trout *O. mykiss* and Arctic grayling *Thymallus arcticus* by fixed wing aircraft into the Salmon Region. A total of 8,375 triploid Hayspur rainbow trout were stocked into 14 lakes and 7,025 Arctic grayling were stocked into nine lakes. Three flights were flown by McCall Air Taxi on July 30 and 31, and August 25 at a total cost of \$799.68 or \$34.77 per lake. Rainbow Lake was stocked twice, once with Arctic grayling and once with rainbow trout.

The stocking record of 2003, including: lakes stocked, catalog numbers of stocked lakes, trout species stocked, land area locations of lakes stocked within the Salmon Region, and numbers of trout stocked in each lake are presented in Tables 1 and 2.

Mountain Lake Surveys

Forty-three mountain lakes were surveyed. Fish occurred in 13 (30%) of the 43 lakes surveyed. There is no known stocking record for two of the 13 lakes found to have fish populations present. In five lakes catch rates ranged from 0.1 to 3.0 fish/hour, which is considered very low to moderate fish abundance by Bahls (1992; Table 3). In eight lakes, catch rates were ≥ 3.1 fish/hour, which was considered to be high to very high fish abundance. Of the 43 lakes surveyed, 23 (53%) were previously stocked. Of the 23 previously stocked lakes, we determined that stocking should be discontinued in nine (39%) lakes due to six with natural reproduction and three that lack appropriate habitat. Twenty-one of the 43 (49%) lakes had amphibians present. Two of the 21 (9%) lakes with amphibians also had fish present. Cutthroat trout was the species present in both lakes. Results from 2002 lake surveys also indicated that

cutthroat trout was the only fish species found to inhabit the same lake where amphibians were present. Thirty (70%) of the lakes surveyed were fishless and we recommend they remain so to provide refugia for natural fauna. Results of each survey are listed in Tables 5 – 48. Casino Lake #3 was surveyed twice, both survey reports have been included (Table 18-19).

We used Bahls (1992) campsite impact rating to assess the condition of areas surrounding each lake (Table 4). Fourteen of the 43 (33%) lakes showed a campsite impact rating of low to moderate. Of the 14 lakes 12 (86%) were previously stocked. Twenty-nine of the 43 (67%) lakes showed no signs of campsite impacts.

We captured 21 fish during a total of 12.7 gill net hours on Casino Lake #2. All captured fish were brook trout *Salvelinus fontinalis*. Fork lengths of the sampled brook trout ranged from 151 to 265 mm with an average of 209 mm. Three different length classes were present. Weights ranged from 39 to 172 g with an average of 98 g. Catch per unit effort (CPUE) for the gill net set was 1.66 brook trout/hour.

RECOMMENDATIONS

Continue cursory surveys of high mountain lakes to determine the current status of fish and amphibian populations, human use, and the success of current stocking strategies. Standard mountain lake surveys will be performed on selected lakes based on cursory surveys and historical stocking information to measure the response of fish and amphibian populations due to changes in management techniques. Priority will be on lakes with hatchery stocking of non-natives in drainages with indigenous salmonids. A collection of amphibian samples will be initiated for future genetic evaluation.

Table 1. Salmon Region high mountain (alpine) lakes stocked during the summer of 2003 by McCall Fish Hatchery personnel.

Lake Name	Catalog No.	Land Area ^a	Species ^b	No. Stocked
Alpine Creek L #4	7-1787	SWA	GR	2,375
Alpine Creek L #5	7-1788	SWA	T9	125
Alpine Creek L #11	7-1797	SWA	T9	425
Alpine Creek L #13	7-1800	SWA	GR	1,250
Alpine Creek L #14	7-1802	SWA	GR	400
Alpine Creek L #15	7-1804	SWA	GR	925
Imogene L #1	7-1713	SWA	T9	1,850
Iron Creek L#6	7-1547	SWA	T9	75
Iron Creek L #7	7-1548	SWA	T9	75
Island L	7-1127	SCNF	T9	1,575
Knapp L #14	7-1179	SCNF	GR	250
Langer L #1	7-1133	SCNF	T9	1,000
Muskeg L #1	7-1043	SCNF	T9	500
Muskeg L #3	7-1046	SCNF	T9	500
Rainbow L ^c	7-1153	SCNF	GR	250
Rainbow L ^c	7-1153	SCNF	T9	250
Ruffneck L	7-1130	SCNF	T9	1,250
Seafoam L #6	7-1005	SCNF	GR	600
Upper Redfish L#1	7-1634	SNRA	GR	725
Vanity L #1	7-1009	SCNF	T9	300
Vanity L #4	7-1014	SCNF	T9	250
Vanity L #7	7-1017	SCNF	T9	200
Vanity L #13	7-1027	SCNF	GR	250

^a. SCNF = Salmon-Challis National Forest, SNRA = Sawtooth National Recreation Area, SWA = Sawtooth Wilderness Area

^b. T9 = triploid Hayspur rainbow trout, GR = Arctic grayling

^c. The McCall fish Hatchery stocked Rainbow Lake twice, once with rainbow trout and then with Arctic grayling.

Table 2. Salmon Region high mountain (alpine) lakes stocked during the summer of 2003 by Sawtooth Fish Hatchery personnel. (29,700 fish)

Lake Name	Catalog No.	Land Area ^a	Species ^b	No. Stocked
Alpine L Creek #2	7-1784	SWA	C2	50
Alpine L Creek #6	7-1789	SWA	C2	300
Alpine L Creek #7	7-1790	SWA	C2	350
Alpine L Creek #12	7-1798	SWA	C2	50
Baldwin Creek L	7-1007	SCNF	C2	350
Bear Creek L #1	7-1137	SCNF	C2	200
Cabin Creek L #3	7-1503	SCNF	C2	100
Cabin Creek L #4(Crimson)	7-1504	SCNF	C2	600
Cabin Creek L #7	7-1508	SCNF	C2	200
Cabin Creek Peak L #1	7-1487	SCNF	C2	150
Cabin Creek Peak L #4	7-1493	SCNF	C2	75
Cliff Creek L #1	7-1144	SCNF	C2	150
Cliff Creek L #4	7-1146	SCNF	C2	75
Collie Creek L #1	7-1111	SCNF	C2	1075
Decker Creek L #1	7-1659	SWA	C2	575
Elizabeth L	7-1570	SNRA	C2	500
Elk L	7-1163	SCNF	C2	675
Finger L #3 (Fall Creek L#3)	7-1094	SCNF	C2	475
Fishhook Creek L #2	7-1607	SWA	C2	75
Fishhook Creek L #3	7-1610	SWA	C2	75
Goat L #1	7-1530	SWA	C2	2,225
Goat L #4	7-1535	SWA	C2	425
Goat L #5	7-1536	SWA	C2	50
Hanson L #1	7-1555	SNRA	C2	225
Hanson L #3	7-1558	SNRA	C2	725
Hanson L #5	7-1561	SNRA	C2	125
Harlan Creek L #1	7-0980	SCNF	C2	300
Harlan Creek L #2	7-0983	SCNF	C2	250
Hasbrook L #1	7-0992	SCNF	C2	375
Helldiver L	7-0989	SCNF	C2	550
Hidden L	7-1573	SNRA	C2	250
Hindman L #1	7-1495	SCNF	C2	500
Imogene L #2	7-1714	SWA	C2	200
Imogene L #3	7-1715	SWA	C2	625
Imogene L #4	7-1717	SWA	C2	100
Imogene L #6	7-1719	SWA	C2	525
Iris L #3	7-1077	SCNF	C2	350
Iris L #1	7-1074	SCNF	C2	225
Kidney L #2	7-1033	SCNF	C2	150
Knapp L #7	7-1169	SCNF	C2	200
Lola L #2	7-1148	SCNF	C2	500
Lola L #3	7-1149	SCNF	C2	500

Table 2. continued

Lake Name	Catalog No.	Land Area ^a	Species ^b	No. Stocked
Loon Creek L #3 (Fish Lake)	7-0904	SCNF	C2	150
Loon Creek L #11	7-0917	SCNF	C2	175
Loon Creek L #13	7-0919	SCNF	C2	225
Loon Creek L #15	7-0923	SCNF	C2	175
Lost L	7-0988	SCNF	C2	200
Lower Island L	7-1129	SCNF	C2	550
Lower Valley Creek L	7-1584	SCNF	C2	550
Lucille L	7-1708	SWA	C2	775
Marshall L #2	7-1525	SWA	C2	500
Martha L	7-1569	SNRA	C2	200
McGowan L #3	7-1565	SWA	C2	250
P-38 L	7-1160	SCNF	C2	325
Parks Peak L #1	7-1745	SWA	C2	500
Profile L	7-1710	SWA	C2	775
Rocky L	7-1135	SCNF	C2	450
Saddleback L #1	7-1618	SWA	C2	775
Saddleback L#2	7-1619	SWA	C2	325
Soldier L #4	7-1050	SCNF	C2	975
Soldier L #7	7-1055	SCNF	C2	250
Soldier L #8	7-1057	SCNF	C2	250
Soldier L #10	7-1059	SCNF	C2	250
Soldier L #11	7-1060	SCNF	C2	250
Tango L #4	7-0893	SCNF	C2	675
Tango L #5	7-0894	SCNF	C2	250
Tango L #6	7-0895	SCNF	C2	900
Thompson Cirque L	7-1064	SWA	C2	900
Upper Cramer L	7-1657	SWA	C2	500
Upper Hell Roaring L #1	7-1687	SWA	C2	275
Upper Hell Roaring L #2	7-1688	SWA	C2	275
Upper Redfish L #2	7-1635	SWA	C2	425
Upper Redfish L#3(Kathryn)	7-1636	SWA	C2	625
Valley Creek L #2	7-1587	SNRA	C2	400
Vanity L #5	7-1015	SCNF	C2	125
Totals				29,700

^a. SCNF = Salmon-Challis National Forest, SNRA = Sawtooth National Recreation Area, SWA = Sawtooth Wilderness Area

^b. C2 = Westslope cutthroat trout

Table 3. Bahls Trout Relative Abundance

Population Size	Angling catch/hour	Gill net catch/12 hour set
Very low	<.4	<4
Low	.4-1.0	5-8
Moderate	1.1-3.0	9-17
High	3.1-6.0	18-30
Very High	>6.0	>31-70

Table 4. Bahls Total Impact Rating for Lakes

None	No campsites found
Low	1 - 4
Moderate	5 - 7
High	> 7

Table 5. Alpine lake survey of Bates #1.

LAKE LOCATION

Lake Name: Bates #1 Survey Date: 8/29/2003
 IDFG Catalog #: 71250 Primary Drainage: Lemhi River
 Secondary Drainage: Alder Creek County: Lemhi
 Land Area: Lemhi USFS Ranger Dist: Leadore Elevation (ft):
 Section: Township: Range Acres:
 UTM East: 291207 UTM North: 4953878

LAKE USE

Campsites: 1 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 2 Trailhead Loc: Mill Creek

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.25</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Inlet from Bates #2. No Amphibs but suspect they are present. Predators - kingfishers and water snake observed. Max depth 7'. Man made water control structure at outlet & inlet.

Table 6. Alpine lake survey of Bates #2.

LAKE LOCATION

Lake Name: Bates #2 Survey Date: 8/29/2003
 IDFG Catalog #: 71253 Primary Drainage: Lemhi River
 Secondary Drainage: Alder Creek County: Lemhi
 Land Area: Lemhi USFS Ranger Dist: Leadore Elevation (ft):
 Section: Township: Range Acres:
 UTM East: 291248 UTM North: 4953649

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 2 Trailhead Loc: Mill Creek

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.167</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	30

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

4' max depth. Observed numerous amphibs & water boatman. Water level down approx. 3' so total depth could be 7'.
 Rocks on whole perimeter - no shoreline veg. Man made control structure on outlet.

Table 7. Alpine lake survey of Bear Creek #1.

LAKE LOCATION

Lake Name: Bear Creek #1 Survey Date: 7/8/2003
 IDFG Catalog #: 71137 Primary Drainage: MFk Salmon River
 Secondary Drainage: Bear Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Elevation (ft):
 Section: Township: Range Acres: 2
 UTM East: 651623 UTM North: 4927399

LAKE USE

Campsites: 1 Campsite Impact Rating: Trail Around Lake: Complete
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Vanity Summit

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.25</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	2	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	7	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

This lake would potentially hold fish although over-wintering would be in question, half of lake less than 2 ft. deep.

Table 8. Alpine lake survey of Bear Creek #1A.

LAKE LOCATION

Lake Name: Bear Creek #1A Survey Date: 7/8/2003
 IDFG Catalog #: 71137A Primary Drainage: MFk Salmon River
 Secondary Drainage: Bear Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft):
 Section: Township: Range Acres: 1.5
 UTM East: 651373 UTM North: 4927432

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Vanity Summit

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	4	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Saw 2 frogs about the size of a nickel. Unable to ID because they burrowed in the muck.

Table 9. Alpine lake survey of Bear Creek #1B.

LAKE LOCATION

Lake Name: Bear Creek #1B Survey Date: 7/8/2003
 IDFG Catalog #: 71137 Primary Drainage: MFk Salmon River
 Secondary Drainage: Bear Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft):
 Section: Township: Range Acres: 2.5
 UTM East: 651130 UTM North: 4927876

LAKE USE

Campsites: 1 Campsite Impact Rating: Trail Around Lake: Partial
 Trampled Yes Access Good (mi): 1 Access Poor (mi): 0
 Access X-Country (mi): 1 Trailhead Loc: Vanity Summit

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.25</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	1

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Table 10. Alpine lake survey of Bear Creek #1C.

LAKE LOCATION

Lake Name: Bear Creek #1C Survey Date: 7/8/2003
 IDFG Catalog #: 71137 Primary Drainage: MFk Salmon River
 Secondary Drainage: Bear Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft):
 Section: Township: Range Acres: 4
 UTM East: 650472 UTM North: 4927487

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 1 Access Poor (mi): 0
 Access X-Country (mi): 1 Trailhead Loc: Vanity Summit

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.42</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	1	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Lake appeared turbid, potentially due to wind. Cannot determine depth. Looks like two small lakes joined together.

Table 11. Alpine lake survey of Bear Creek #1D.

LAKE LOCATION

Lake Name: Bear Creek #1D Survey Date: 7/8/2003
 IDFG Catalog #: 71137 Primary Drainage: MFk Salmon River
 Secondary Drainage: Bear Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft):
 Section: Township: Range Acres: 1.75
 UTM East: 650124 UTM North: 4927294

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 1 Access Poor (mi): 0
 Access X-Country (mi): 2 Trailhead Loc: Vanity Summit

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.167</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.02 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Water level dropping.

Table 12. Alpine lake survey of Cache Creek #2.

LAKE LOCATION

Lake Name: Cache Creek #2 Survey Date: 8/6/2003
 IDFG Catalog #: 70844 Primary Drainage: MFk Salmon River
 Secondary Drainage: Cache Creek County: Custer
 Land Area: Sleeping Deer USFS Ranger Dist: Middle Fork Elevation (ft): 8600
 Section: Township: Range Acres: 5
 UTM East: 681714 UTM North: 4959348

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 47 Access Poor (mi): 2
 Access X-Country (mi): 2 Trailhead Loc: Sleeping Deer

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.25</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	3	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.25 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>CUT</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0	0

Comments:

Looks deep enough & lots of aquatic insects.

Table 13. Alpine lake survey of Cache Creek #3.

LAKE LOCATION

Lake Name: Cache Creek #3 Survey Date: 8/5/2003
 IDFG Catalog #: 70845 Primary Drainage: MFk Salmon River
 Secondary Drainage: Cache Creek County: Custer
 Land Area: Sleeping Deer USFS Ranger Dist: Middle Fork Elevation (ft): 8600
 Section: Township: Range Acres: 3
 UTM East: 682271 UTM North: 4960319

LAKE USE

Campsites: 1 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 45 Access Poor (mi): 2
 Access X-Country (mi): 2 Trailhead Loc: Sleeping Deer

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.75</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 2 Hrs Fished: 1.75 # Fish Caught: 8 Fish/Hr: 4.6
 Fish Abundance: High Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	1	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	7	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

H.L. cutthroat possibly, plus, grayling.

Table 14. Alpine lake survey of Cache Creek #3A.

LAKE LOCATION

Lake Name: Cache Creek #3A Survey Date: 8/5/2003
 IDFG Catalog #: 70845A Primary Drainage: MFk Salmon River
 Secondary Drainage: Cache Creek County: Custer
 Land Area: Sleeping Deer USFS Ranger Dist: Middle Fork Elevation (ft):
 Section: Township: Range Acres: .25
 UTM East: 682198 UTM North: 4960583

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 47 Access Poor (mi): 3
 Access X-Country (mi): 3 Trailhead Loc: Sleeping Deer

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.25</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	1	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Frog pond.

Table 15. Alpine lake survey of Cache Creek #3B.

LAKE LOCATION

Lake Name: Cache Creek #3B Survey Date: 8/5/2003
 IDFG Catalog #: 70845 Primary Drainage: MFk Salmon River
 Secondary Drainage: Cache Creek County: Custer
 Land Area: Sleeping Deer USFS Ranger Dist: Middle Fork Elevation (ft): 7900
 Section: Township: Range Acres: .3
 UTM East: 682173 UTM North: 4961109

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 47 Access Poor (mi): 4
 Access X-Country (mi): 4 Trailhead Loc: Sleeping Deer

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.25</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	25
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Frog pond.

Table 16. Alpine lake survey of Cache Creek #5.

LAKE LOCATION

Lake Name: Cache Creek #5 Survey Date: 8/6/2003
 IDFG Catalog #: 70848 Primary Drainage: MFk Salmon River
 Secondary Drainage: Cache Creek County: Custer
 Land Area: Sleeping Deer USFS Ranger Dist: Middle Fork Elevation (ft):
 Section: Township: Range Acres: 2
 UTM East: 681601 UTM North: 4959709

LAKE USE

Campsites: 1 Campsite Impact Rating: Trail Around Lake: Partial
 Trampled No Access Good (mi): 47 Access Poor (mi): 2
 Access X-Country (mi): 2 Trailhead Loc: Sleeping Deer

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	22	Spotted Frog	13
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Use westslope cutthroat.

Table 17. Alpine lake survey of Casino #2.

LAKE LOCATION

Lake Name: Casino #2 Survey Date: 7/29/2003
 IDFG Catalog #: 71520 Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Casino Creek County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft): 8628
 Section: Township: Range Acres: 4
 UTM East: 674543 UTM North: 4893549

LAKE USE

Campsites: 2 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 6 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Boundary Cr./Casino

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>30</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.5 # Fish Caught: 6 Fish/Hr: 12
 Fish Abundance: Very High Fish Observed: Gear: Angling/Gill net
 Hrs Set (gill net): 12.67 Fish/Hr: 1.66

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm:	0	0	0	0	0	0	0
150-199mm:	0	0	0	0	0	0	7
200-249mm:	0	0	0	0	0	0	18
250-299mm:	0	0	0	0	0	0	2
300-349mm:	0	0	0	0	0	0	0
350-399mm:	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Besides the two inlets, numerous seeps/run-off into lake. Gill net survey set at 18:50 and pulled next morning @ 07:30.
Of the 18 fish from size 151-265, six are from angling.

Table 18. Alpine lake survey of Casino #3 – 7/5/2003.

LAKE LOCATION

Lake Name: Casino #3 Survey Date: 7/5/2003
 IDFG Catalog #: 71523 Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Casino Cr County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres:
 UTM East: 675025 UTM North: 4893423

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake:
 Trampled Access Good (mi): 5 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Boundary Cr.

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.25</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	3	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.5 # Fish Caught: 1 Fish/Hr: 2
 Fish Abundance: Low Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	1	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Very quick inventory, fishing was slow, fish were observed rising.

Table 19. Alpine lake survey of Casino #3 – 7/29/2003.

LAKE LOCATION

Lake Name: Casino #3 Survey Date: 7/29/2003
 IDFG Catalog #: 71523 Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Casino Cr. County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft): 8793
 Section: Township: Range Acres:
 UTM East: 674666 UTM North: 4893227

LAKE USE

Campsites: 2 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 5 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Boundary Cr./Casino

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus		0	Western Chorus	0
Spotted Frog		4	Spotted Frog	0
Pacific Chorus Frog		0	Pacific Chorus	0
Tailed Frog		0	Tailed Frog	0
Western Toad		0	Western Toad	0
Long Toed Salamander		0	Long Toed Salamander	0

Search Time (hrs.min) : 0.33

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.3 # Fish Caught: 3 Fish/Hr: 10
 Fish Abundance: Moderate Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>CUT</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0	0
200-249mm	0	3	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0	0

Comments:

Seems productive, inlets & outlets small. Bog species encroaching, beaver dam holds lake level.

Table 20. Alpine lake survey of Challis Creek #1.

LAKE LOCATION

Lake Name: Challis Creek #1 Survey Date: 7/9/2003
 IDFG Catalog #: 71330 Primary Drainage: Main Salmon (EFk - Yankee Fk)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Challis Elevation (ft): 8973
 Section: Township: Range Acres: 12
 UTM East: 697577 UTM North: 4936114

LAKE USE

Campsites: 4 Campsite Impact Rating: Trail Around Lake: Partial
 Trampled No Access Good (mi): 11 Access Poor (mi): 3
 Access X-Country (mi): 14 Trailhead Loc: Challis Creek Road

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.92</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.42 # Fish Caught: 2 Fish/Hr: 4.76
 Fish Abundance: High Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	1	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	1	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Extremely rough road. Dry rocky slopes. Outlet man made & controlled, acts like reservoir. Challis Ck Lake is 14 miles from turn off sign on Challis Ck Rd.

Table 21. Alpine lake survey of Challis Creek #1A.

LAKE LOCATION

Lake Name: Challis Creek #1A Survey Date: 7/9/2003
 IDFG Catalog #: 71330A Primary Drainage: Main Salmon (EFk - Yankee Fk)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Challis Elevation (ft):
 Section: Township: Range Acres: .5
 UTM East: 697214 UTM North: 4936069

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 11 Access Poor (mi): 3
 Access X-Country (mi): 14 Trailhead Loc: Challis Creek Road

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.167</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Lake less than 2 feet deep.

Table 22. Alpine lake survey of Challis Creek #1B.

LAKE LOCATION

Lake Name: Challis Creek #1B Survey Date: 7/9/2003
 IDFG Catalog #: 71330 Primary Drainage: Main Salmon (EFk - Yankee Fk)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Challis Elevation (ft):
 Section: Township: Range Acres: .6
 UTM East: 697185 UTM North: 4936080

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 11 Access Poor (mi): 3
 Access X-Country (mi): 14 Trailhead Loc: Challis Creek Road

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.08</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Lake less than 2 feet deep.

Table 23. Alpine lake survey of Challis Creek #2.

LAKE LOCATION

Lake Name: Challis Creek #2 Survey Date: 7/9/2003
 IDFG Catalog #: 71333 Primary Drainage: Main Salmon (EFk - Yankee Fk)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Challis Elevation (ft):
 Section: Township: Range Acres: 4
 UTM East: 697255 UTM North: 4935784

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 11 Access Poor (mi): 3
 Access X-Country (mi): 14 Trailhead Loc: Challis Creek Road

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: Low Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	9	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

3 of 9 fish found dead.

Table 24. Alpine lake survey of Challis Creek #3.

LAKE LOCATION

Lake Name: Challis Creek #3 Survey Date: 7/9/2003
 IDFG Catalog #: 71335 Primary Drainage: Main Salmon (EFk - Yankee Fk)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Challis Elevation (ft): 8950
 Section: Township: Range Acres: 3
 UTM East: 696979 UTM North: 4935955

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 14 Trailhead Loc: Challis Creek Road

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus	0	0	Western Chorus	0
Spotted Frog	0	0	Spotted Frog	0
Pacific Chorus Frog	0	0	Pacific Chorus	0
Tailed Frog	0	0	Tailed Frog	0
Western Toad	0	0	Western Toad	0
Long Toed Salamander	0	0	Long Toed Salamander	0

Search Time (hrs.min) : 0.167

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.08 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>CUT</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0	0

Comments:

Didn't see a living thing. Lake level receding.

Table 25. Alpine lake survey of Devil's.

LAKE LOCATION

Lake Name: Devil's Survey Date: 7/19/2003
 IDFG Catalog #: 71260 Primary Drainage: Lemhi River
 Secondary Drainage: Big Eightmile Creek County: Lemhi
 Land Area: Lemhi USFS Ranger Dist: Leadore Elevation (ft):
 Section: Township: Range Acres: 20
 UTM East: 298575 UTM North: 4941868

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: Partial
 Trampled Yes Access Good (mi): 0 Access Poor (mi): 9
 Access X-Country (mi): 0 Trailhead Loc: Big Eightmile

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 2 Hrs Fished: 0.25 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: Low Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Only a short time was spent at the lake, did not observe any fish that we were able to determine size.

Table 26. Alpine lake survey of Garland #1.

LAKE LOCATION

Lake Name: Garland #1 Survey Date: 7/29/2003
 IDFG Catalog #: 71468 Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Garland Creek County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft): 8822
 Section: Township: Range Acres: 6
 UTM East: 677327 UTM North: 4891932

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: Intermittent
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Boundary Creek/Casino

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus		0	Western Chorus	0
Spotted Frog		5	Spotted Frog	150
Pacific Chorus Frog		0	Pacific Chorus	0
Tailed Frog		0	Tailed Frog	0
Western Toad		0	Western Toad	0
Long Toed Salamander		0	Long Toed Salamander	0

Search Time (hrs.min) : 0.5

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Stock westslope cutthroat trout, 2 genetic samples taken from 5 inch adults.

Table 27. Alpine lake survey of Garland #2.

LAKE LOCATION

Lake Name: Garland #2 Survey Date: 7/29/2003
 IDFG Catalog #: 71469 Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Garland Creek County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft): 8869
 Section: Township: Range Acres:
 UTM East: 676500 UTM North: 4892426

LAKE USE

Campsites: 5 Campsite Impact Rating: Trail Around Lake: Intermittent
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Boundary Creek/Casino

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus	0	0	Western Chorus	0
Spotted Frog	0	0	Spotted Frog	0
Pacific Chorus Frog	0	0	Pacific Chorus	0
Tailed Frog	0	0	Tailed Frog	0
Western Toad	2	0	Western Toad	0
Long Toed Salamander	0	0	Long Toed Salamander	0

Search Time (hrs.min) : 0.42

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.33 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: Low Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

1 genetic sample, unknown amphibian, possibly a western toad. 12 or 14 inch fish, unable to ID. Stock with cutthroat.

Table 28. Alpine lake survey of Garland #2A.

LAKE LOCATION

Lake Name: Garland #2A Survey Date: 7/29/2003
 IDFG Catalog #: 71469A Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Garland Creek County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: .8
 UTM East: 676991 UTM North: 4892415

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc:

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.08</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Less than 2 feet deep.

Table 29. Alpine lake survey of Garland #3.

LAKE LOCATION

Lake Name: Garland #3 Survey Date: 7/29/2003
 IDFG Catalog #: 71470 Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Garland Creek County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft): 8917
 Section: Township: Range Acres: 2
 UTM East: 675847 UTM North: 4893548

LAKE USE

Campsites: 3 Campsite Impact Rating: Trail Around Lake: Partial
 Trampled Yes Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Boundary Cr./Casino

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus		0	Western Chorus	0
Spotted Frog		100	Spotted Frog	1
Pacific Chorus Frog		0	Pacific Chorus	0
Tailed Frog		0	Tailed Frog	0
Western Toad		0	Western Toad	0
Long Toed Salamander		0	Long Toed Salamander	0

Search Time (hrs.min) : 0.25

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

10 genetic samples taken, multiple year classes of frogs ranging in size from 1.5" - 4".

Table 30. Alpine lake survey of Garland #3A.

LAKE LOCATION

Lake Name: Garland #3A Survey Date: 7/29/2003
 IDFG Catalog #: 71470A Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Garland Creek County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: .1
 UTM East: 676148 UTM North: 4893451

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Boundary Creek/Casino

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus		0	Western Chorus	0
Spotted Frog		30	Spotted Frog	0
Pacific Chorus Frog		0	Pacific Chorus	0
Tailed Frog		0	Tailed Frog	0
Western Toad		0	Western Toad	0
Long Toed Salamander		0	Long Toed Salamander	0

Search Time (hrs.min) : 0.167

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Multiple year classes, 10 genetic samples.

Table 31. Alpine lake survey of Garland #3B.

LAKE LOCATION

Lake Name: Garland #3B Survey Date: 7/29/2003
 IDFG Catalog #: 71470 Primary Drainage: Main Salmon (Yankee Fk - Headwaters)
 Secondary Drainage: Garland Creek County: Custer
 Land Area: SNRA USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: 1
 UTM East: 676040 UTM North: 4893770

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Boundary Creek/Casino

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus		0	Western Chorus	0
Spotted Frog		7	Spotted Frog	15
Pacific Chorus Frog		0	Pacific Chorus	0
Tailed Frog		0	Tailed Frog	0
Western Toad		0	Western Toad	0
Long Toed Salamander		0	Long Toed Salamander	0

Search Time (hrs.min) : 0.23

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Intermittent outlet.

Table 32. Alpine lake survey of Seafoam #1.

LAKE LOCATION

Lake Name: Seafoam #1 Survey Date: 7/8/2003
 IDFG Catalog #: 70997 Primary Drainage: MFk Salmon River
 Secondary Drainage: Seafoam Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft): 7782
 Section: Township: Range Acres:
 UTM East: 648601 UTM North: 4930023

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: 200 yds. below Seafoam Guard Station

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus		0	Western Chorus	0
Spotted Frog		3	Spotted Frog	0
Pacific Chorus Frog		0	Pacific Chorus	0
Tailed Frog		0	Tailed Frog	0
Western Toad		0	Western Toad	0
Long Toed Salamander		0	Long Toed Salamander	0

Search Time (hrs.min) : 0.33

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>CUT</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0	0

Comments:

One spotted frog was found dead in water, lake is turning into a bog.

Table 33. Alpine lake survey of Seafoam #1A.

LAKE LOCATION

Lake Name: Seafoam #1A Survey Date: 7/8/2003
 IDFG Catalog #: 70997A Primary Drainage: MFk Salmon River
 Secondary Drainage: Seafoam Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft): 8067
 Section: Township: Range Acres:
 UTM East: 648796 UTM North: 4930011

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: Seafoam Guard Station

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.167</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	1	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Table 34. Alpine lake survey of Seafoam #2.

LAKE LOCATION

Lake Name: Seafoam #2 Survey Date: 7/8/2003
 IDFG Catalog #: 70999 Primary Drainage: MFk Salmon River
 Secondary Drainage: Seafoam Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft): 8175
 Section: Township: Range Acres: 2.5
 UTM East: 648466 UTM North: 4929944

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: 200 yds below Seafoam Guard Station

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Very small, marginal spawning area potentially in inlet.

Table 35. Alpine lake survey of Seafoam #3.

LAKE LOCATION

Lake Name: Seafoam #3 Survey Date: 7/7/2003
 IDFG Catalog #: 71001 Primary Drainage: MFk Salmon River
 Secondary Drainage: Seafoam Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft): 7782
 Section: Township: Range Acres: 7
 UTM East: 649520 UTM North: 4930148

LAKE USE

Campsites: 5 Campsite Impact Rating: Trail Around Lake: Intermittent
 Trampled Yes Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: 200 yds below Seafoam Guard Station

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 2 Hrs Fished: 0.33 # Fish Caught: 5 Fish/Hr: 15
 Fish Abundance: Very High Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	2
150-199mm	0	0	0	0	0	0	3
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Multiple year classes (at least 3) observed, including fry observed.

Table 36. Alpine lake survey of Seafoam #3A.

LAKE LOCATION

Lake Name: Seafoam #3A Survey Date: 7/8/2003
 IDFG Catalog #: 71001A Primary Drainage: MFk Salmon River
 Secondary Drainage: Seafoam Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft): 7799
 Section: Township: Range Acres: 1
 UTM East: 649706 UTM North: 4930288

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: 200 yds. below Seafoam Guard Station

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus	0	0	Western Chorus	0
Spotted Frog	0	0	Spotted Frog	0
Pacific Chorus Frog	0	0	Pacific Chorus	0
Tailed Frog	0	0	Tailed Frog	0
Western Toad	0	0	Western Toad	0
Long Toed Salamander	0	0	Long Toed Salamander	0

Search Time (hrs.min) : 0.25

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.25 # Fish Caught: 3 Fish/Hr: 12
 Fish Abundance: Very High Fish Observed: Gear: Angling/Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>CUT</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0	7
100-149mm	0	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0	3
200-249mm	0	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0	0

Comments:

Poor visibility condition, fish snakey looking.

Table 37. Alpine lake survey of Seafoam #4.

LAKE LOCATION

Lake Name: Seafoam #4 Survey Date: 7/7/2003
 IDFG Catalog #: 71003 Primary Drainage: MFk Salmon River
 Secondary Drainage: Seafoam Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft): 7934
 Section: Township: Range Acres: 4
 UTM East: 649062 UTM North: 4929779

LAKE USE

Campsites: 1 Campsite Impact Rating: Trail Around Lake: Complete
 Trampled Yes Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: 200 yds below Seafoam Guard Station

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.42</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 2 Hrs Fished: 0.42 # Fish Caught: 4 Fish/Hr: 9.5
 Fish Abundance: Very High Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	2
150-199mm	0	0	0	0	0	0	2
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

3 year classes observed, no fry observed, all BKT. BKT seen in outlet, great spawning trib. One of the BKT in outlet was 10 inches long.

Table 38. Alpine lake survey of Seafoam #5.

LAKE LOCATION

Lake Name: Seafoam #5 Survey Date: 7/7/2003
 IDFG Catalog #: 71004 Primary Drainage: MFk Salmon River
 Secondary Drainage: Seafoam Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft): 8036
 Section: Township: Range Acres: 2
 UTM East: 648865 UTM North: 4929595

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: Partial
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: 200 yds. below Seafoam Guard Station

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus		1	Western Chorus	0
Spotted Frog		0	Spotted Frog	0
Pacific Chorus Frog		0	Pacific Chorus	0
Tailed Frog		0	Tailed Frog	0
Western Toad		0	Western Toad	0
Long Toed Salamander		0	Long Toed Salamander	0

Search Time (hrs.min) : 0.38

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.08 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Majority of lake approx. 6 ft. in depth or less. The deeper end approx. 9-10 ft. deep.

Table 39. Alpine lake survey of Seafoam #6.

LAKE LOCATION

Lake Name: Seafoam #6 Survey Date: 7/8/2003
 IDFG Catalog #: 71005 Primary Drainage: MFk Salmon River
 Secondary Drainage: Seafoam Creek County: Custer
 Land Area: Capehorn USFS Ranger Dist: Middle Fork Elevation (ft): 8204
 Section: Township: Range Acres:
 UTM East: 648545 UTM North: 4929355

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 0 Access Poor (mi): 0
 Access X-Country (mi): 0 Trailhead Loc: 200 yds. below Seafoam Guard Station

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	1	Spotted Frog	100
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

3 dead fish between 220-300mm. Unidentifiable due to decomposition. The lake could support fish. Lots of spotted frog tadpoles present.

Table 40. Alpine lake survey of Twin Creek #1.

LAKE LOCATION

Lake Name: Twin Creek #1 Survey Date: 8/12/2003
 IDFG Catalog #: 71318 Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Twin Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres:
 UTM East: 700918 UTM North: 4939130

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 27 Access Poor (mi): 1
 Access X-Country (mi): 1 Trailhead Loc: Twin Peaks

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.08</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Lake is nearly dry & dropping.

Table 41. Alpine lake survey of Twin Creek #2.

LAKE LOCATION

Lake Name: Twin Creek #2 Survey Date: 8/12/2003
 IDFG Catalog #: 71319 Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: 4.5
 UTM East: 7000378 UTM North: 4939543

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: Intermittent
 Trampled No Access Good (mi): 27 Access Poor (mi): 2
 Access X-Country (mi): 2 Trailhead Loc: Twin Peaks

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.5 # Fish Caught: 3 Fish/Hr: 6
 Fish Abundance: Moderate Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	1	0	0	0	0	0	0
250-299mm	1	1	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

RB+CT=why mix 'em? Consider westslope cutts. Many year classes observed. Check recent stocking history before stopping stocking.

Table 42. Alpine lake survey of Twin Creek #3.

LAKE LOCATION

Lake Name: Twin Creek #3 Survey Date: 8/12/2003
 IDFG Catalog #: 71320 Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: 5
 UTM East: 700097 UTM North: 4939002

LAKE USE

Campsites: 2 Campsite Impact Rating: Trail Around Lake: Intermittent
 Trampled No Access Good (mi): 27 Access Poor (mi): 2
 Access X-Country (mi): 2 Trailhead Loc: Twin Peak

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.25 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Seems like lake would support fish.

Table43. Alpine lake survey of Twin Creek #3A.

LAKE LOCATION

Lake Name: Twin Creek #3A Survey Date: 8/12/2003
 IDFG Catalog #: 71320A Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres:
 UTM East: 700060 UTM North: 4938783

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 27 Access Poor (mi): 2
 Access X-Country (mi): 2 Trailhead Loc: Twin Peak

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.08</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 0 Hrs Fished: 0 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Lake is dry.

Table 44. Alpine lake survey of Twin Creek #4.

LAKE LOCATION

Lake Name: Twin Creek #4 Survey Date: 8/13/2003
 IDFG Catalog #: 71323 Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: 1
 UTM East: 700042 UTM North: 4938647

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 27 Access Poor (mi): 2
 Access X-Country (mi): 2 Trailhead Loc: Twin Peak

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.167</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.08 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Table 45. Alpine lake survey of Twin Creek #5.

LAKE LOCATION

Lake Name: Twin Creek #5 Survey Date: 8/13/2003
 IDFG Catalog #: 71324 Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: 5
 UTM East: 699807 UTM North: 4938895

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: Intermittent
 Trampled No Access Good (mi): 27 Access Poor (mi): 4
 Access X-Country (mi): 4 Trailhead Loc: Twin Peak

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.33</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	2

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.167 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Visual
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Stocking question a good one: might be deep enough, lots of groceries, amphibs, try westslope cutts.

Table 46. Alpine lake survey of Twin Creek #6.

LAKE LOCATION

Lake Name: Twin Creek #6 Survey Date: 8/12/2003
 IDFG Catalog #: 71325 Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: 8
 UTM East: 699698 UTM North: 4938729

LAKE USE

Campsites: 1 Campsite Impact Rating: Trail Around Lake: Complete
 Trampled No Access Good (mi): 27 Access Poor (mi): 3
 Access X-Country (mi): 3 Trailhead Loc: Twin Peaks

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.5</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	0	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.33 # Fish Caught: 3 Fish/Hr: 9
 Fish Abundance: Very High Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
	<u>CUT</u>				<u>CUT</u>		
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	3	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Rainbows were healthy.

Table 47. Alpine lake survey of WF Bear Creek #1.

LAKE LOCATION

Lake Name: WF Bear Creek #1 Survey Date: 8/13/2003
 IDFG Catalog #: 71328 Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: 8
 UTM East: 699583 UTM North: 4937694

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 25 Access Poor (mi): 5
 Access X-Country (mi): 2 Trailhead Loc: Twin Peaks Road

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Search Time (hrs.min) : <u>0.5</u>	Western Chorus	0	Western Chorus	0
	Spotted Frog	7	Spotted Frog	0
	Pacific Chorus Frog	0	Pacific Chorus	0
	Tailed Frog	0	Tailed Frog	0
	Western Toad	0	Western Toad	0
	Long Toed Salamander	0	Long Toed Salamander	0

FISHERY AND FISH POPULATIONS

Anglers: 2 Hrs Fished: 0.75 # Fish Caught: 10 Fish/Hr: 13.3
 Fish Abundance: Very High Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	1	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	2	0	0	0	0	0
250-299mm	0	3	0	0	0	0	0
300-349mm	0	4	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Excellent westslope population with 4 year classes. Fry in inlet. Lake has rudimentary outlet structure.

Table 48. Alpine lake survey of WF Bear Creek #2.

LAKE LOCATION

Lake Name: WF Bear Creek #2 Survey Date: 8/13/2003
 IDFG Catalog #: 71329 Primary Drainage: Main Salmon (Pahsimeroi - EFK)
 Secondary Drainage: Challis Creek County: Custer
 Land Area: Challis USFS Ranger Dist: Yankee Fork Elevation (ft):
 Section: Township: Range Acres: 3
 UTM East: 699316 UTM North: 4937735

LAKE USE

Campsites: 0 Campsite Impact Rating: Trail Around Lake: None
 Trampled No Access Good (mi): 25 Access Poor (mi): 4
 Access X-Country (mi): 2 Trailhead Loc: Twin Peaks

AMPHIBIAN SURVEY DATA

	<u>Adults</u>	<u>#</u>	<u>Juveniles</u>	<u>#</u>
Western Chorus		0	Western Chorus	0
Spotted Frog		60	Spotted Frog	100
Pacific Chorus Frog		0	Pacific Chorus	0
Tailed Frog		0	Tailed Frog	0
Western Toad		0	Western Toad	0
Long Toed Salamander		0	Long Toed Salamander	0

Search Time (hrs.min) : 0.67

FISHERY AND FISH POPULATIONS

Anglers: 1 Hrs Fished: 0.25 # Fish Caught: 0 Fish/Hr: 0
 Fish Abundance: None Fish Observed: Gear: Angling
 Hrs Set (gn): 0

(Length Frequency)

<u>LENGTH</u>	<u>RBT</u>	<u>CUT</u>	<u>GNT</u>	<u>BLT</u>	<u>RBTx</u>	<u>GRL</u>	<u>EBT</u>
0-49mm:	0	0	0	0	0	0	0
50-99mm:	0	0	0	0	0	0	0
100-149mm	0	0	0	0	0	0	0
150-199mm	0	0	0	0	0	0	0
200-249mm	0	0	0	0	0	0	0
250-299mm	0	0	0	0	0	0	0
300-349mm	0	0	0	0	0	0	0
350-399mm	0	0	0	0	0	0	0
>399mm:	0	0	0	0	0	0	0

Comments:

Great frog population.

LITERATURE CITED

- Bahls, Peter. 1992. Report of the High Lake Fisheries Project 1991. Clearwater National Forest.
- Crump, M.L. and N.J. Scott, Jr. 1994. Visual encounter surveys. In *Measuring and monitoring biological diversity: Standard methods for amphibians*. Heyer, W.R., M.A. Donnelly, R.W. McDiarmid, L.C. Hayek, and M.S. Foster (Eds.), Smithsonian Institution Press, Washington, D.C., pp. 84-92.

SALMON REGION

LOWLAND LAKE INVESTIGATIONS

ABSTRACT

2003

Herd Lake

On July 31 and August 1, 2003, the fish community in Herd Lake was surveyed using experimental variable mesh gill nets. The species composition consisted entirely of rainbow trout *Oncorhynchus mykiss*. The nets were fished a total of 49.3 overnight hours and had a capture rate of 1.88 rainbow trout/gill net hr. A relative weight of 73.8 g was determined for the rainbow trout sampled.

On July 31, 2003, Herd Lake was sampled to assess zooplankton resources available for fish forage. Zooplankton samples were collected, preserved and processed to determine average values for zooplankton ratio (ZPR) and zooplankton quality index (ZQI), which were 0.08 and 0.01, respectively. These values indicate that zooplankton resources are limited as a forage resource for trout production in the lake.

On June 24, 2003, Lake Creek, the outlet stream of Herd Lake, was surveyed for fish composition and relative abundance utilizing backpack electrofishing methodologies. We also measured physical characteristics. Rainbow trout and sculpin *Cottus sp.* were the two species found. The density estimate was 2 rainbow trout/100m² and 3.6 sculpin/100m².

Jimmy Smith Lake

On July 31, 2003, the zooplankton community in Jimmy Smith Lake was sampled to determine zooplankton ratios (ZPR) and zooplankton quality index (ZQI) at the outlet and mid-lake. Due to limited numbers of large zooplankton, results for the averaged ZPR and ZQI values were 0.1 and 0.15, respectively. These data suggest that zooplankton resources in Jimmy Smith Lake are limited as a forage resource for trout production.

On July 31 and August 1, 2003 the fish community in Jimmy Smith Lake was surveyed with four experimental variable mesh gill nets; two floating and two sinking. Rainbow trout *O. mykiss* made up 100% of the catch. The nets were fished a total of 62.12 overnight hours and had a capture rate of 2.32 rainbow trout/gill net hour. Fish length data demonstrates the presence of multiple year classes indicating natural reproduction supports the fishery. A relative weight of 105.5 was determined for the rainbow trout sampled.

Mosquito Flats Reservoir

On August 19, 2003, the zooplankton community in Mosquito Flats Reservoir was sampled to determine zooplankton ratios (ZPR) and zooplankton quality index (ZQI) at the outlet and mid-lake. Zooplankton samples were collected preserved and processed using methods outlined by Teuscher 1999. The average ZPR and ZQI values were 0.8 and 0.45, respectively. These values suggest that competition for food resources may be occurring.

Williams Lake

The Williams Lake zooplankton community was sampled August 19, 2003 to determine the lake's standing crop of zooplankton available for fish utilization. Zooplankton ZPR values averaged 1.56 and zooplankton ZQI values averaged 0.70. The values generated suggest that competition for forage by fish is unlikely.

In June 2003, dissolved oxygen, temperature, conductivity and pH were sampled as part of an ongoing multi-agency and citizen's water-monitoring project. We found acceptable oxygen levels (5.0 ppm) to a depth of 15 m and the lake to be stratified by temperature during sampling efforts. Lake level gauge readings were measured from April to September 2003 and ranged from 2.65 m to 3.26 m. As of January 2003, the Idaho Department of Environmental Quality (IDEQ) has determined a no-change status in the lakes trophic levels from 1992 to 2002.

With the assistance of volunteers, Department staff collected and spawned 21 pairs of adult rainbow trout *O. mykiss*. Resultant progeny, estimated to number 40,000 were released into the inlet creek at the early fry stage.

On June 5 and 6, 2003, Williams Lake was sampled with five experimental variable mesh gill nets. A total of 93 trout were captured in 77.8 overnight hours of gill net effort. Catch per unit effort (CPUE) was 1.19 fish per hour. The catch was comprised of 78 rainbow trout *O. mykiss* and 15 bull trout *Salvelinus confluentus*. A relative weight of 100.6 was determined for the rainbow trout sampled.

Carlson Lake

In 2002, forty-one tiger muskellunge *Esox lucius x E. masquinongy* were introduced into Carlson Lake in an effort to shift the size structure of the brook trout *S. fontinalis* population to fewer, larger fish. In 2003, post-introduction studies indicated a decrease (8.5%) in the brook trout population and no significant change in relative weights. Prior to the tiger muskellunge introduction, the brook trout population was estimated to be 9,900 for fish greater than three inches (9,829 – 10,007, 95%CI) and relative weight calculation had a mean value of 89.58 (N = 90). In 2003, the brook trout population was estimated to be 9,064 fish (9,027 – 9,129, 95%CI) and the relative weight of these fish had a mean value of 89.8 (N = 116). We estimate 943 brook trout were consumed by tiger muskellunge.

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INTRODUCTION

Herd Lake

Herd Lake, a landslide lake, is located in Custer County at 2,187m elevation (UTM coordinates 11T 726324mE, 4885654mN, NAD 27). The surface area is 6.9 hectares. It is a coldwater rainbow trout *Oncorhynchus mykiss* fishery under general management regulations. The inlet of Herd Lake is Lake Creek a tributary to Herd Creek, in the East Fork Salmon River drainage.

Jimmy Smith Lake

Jimmy Smith Lake is a landslide lake, located in north central Custer County at 1,948 meters elevation with a surface area of 26 hectares (UTM coordinates 11T 707474mE, 4894112mN NAD 27). The lake has one outlet and two inlet streams. The outlet stream is located at the north end of the lake and two inlet streams are located at the west and south ends of the lake. These tributaries provide adequate spawning habitat.

Jimmy Smith Lake is a eutrophic body of water dominated by an abundance of aquatic macrophytes. It supports a naturally reproducing population of rainbow trout. The lake was stocked with 184,600 rainbow trout from Mackay Hatchery between 1927 and 1938 and has not been stocked since.

During the week of July 30, 2000 approximately 1,000 rainbow trout mortalities were observed as a result of high water temperature and low dissolved oxygen. These conditions were caused by extremely hot weather, little precipitation, and high biological oxygen demand due to the decay of the aquatic plants in the lake (Brimmer 2000). This is the first documented fish kill found in the Salmon Region's records for Jimmy Smith Lake. Prior to this fish kill the rainbow trout size structure had remained stable.

Mosquito Flat Reservoir

Mosquito Flat Reservoir is located on Challis Creek 16.1 kilometers west of Challis (11T 703768mE, 4932646mN, NAD 27) at an elevation of 2,112 meters. The reservoir was built in 1954 and stores 965,822 m³ (793 acre-feet) of irrigation water. The Idaho Department of Fish and Game (Department) has water rights to 28% of the storage, reserved as a minimum pool. This represents a 273,835 m³ (222 acre-foot) pool with a surface area of approximately 8.5 hectares. Mosquito Flat Reservoir is a popular fishery with local anglers.

Based on ZQI results in 2000, annual fingerling stockings were discontinued in 2001. This stocking reduction was attempted to determine if a response in ZQI could be quantified. It was decided that a long term ZQI monitoring project would be undertaken.

Williams Lake

Williams Lake, an early eutrophic lake, is located in north central Lemhi County (UTM coordinates 12T 265427mE, 4989077mN NAD 27) at 1,600 m elevation. The lake has a surface area of 73 hectares, maximum depth of 58 m, and mean depth of 23 m. The principle in-flow is provided by Lake Creek, with some inflow originating from springs and intermittent streams. Rainbow trout *O. mykiss* and bull trout *S. confluentus* are the only fish species recorded from the lake.

Winter dissolved oxygen concentrations fall below 5.0 ppm within 2-4m of the surface. In summer and winter, dissolved oxygen concentrations of 1.0 ppm occur as shallow as 8 m. These low dissolved oxygen levels are limiting the available fish habitat and therefore, are limiting the fish production potential of the lake. Furthermore, these low oxygen levels have been responsible for past fish kills in the lake. Poor water quality in the lake is caused by nutrient input in the form of phosphorous, eroded sediments from the watershed and the leaching of human waste from private septic systems around the lake. During 2000 and 2001 private landowners renovated their septic systems to reduce septic inputs.

Carlson Lake

Carlson Lake is a two hectare, sub-alpine lake located in the Pahsimeroi River drainage located at UTM Coordinates 12T 280334mE, 4906829mN, NAD 27, and is situated at about 2,438 m elevation. Subterranean flow from the lake drains into Double Springs Creek, a tributary of the Pahsimeroi River. There appears to be a historical surface outlet, however there has been no indication of surface flow in the channel for 26 years (personnel communication, Mark Armbruster). Historically, Idaho Department of Fish and Game (Department) stocked brook trout *S. fontinalis*. Additionally, stocking records indicate stocking of rainbow trout *O. mykiss* in 1975 and 1993. Brook trout are the only fish species currently found in Carlson Lake.

During the 1960s and 1970s, Carlson Lake produced 0.9 to 1.4 kg brook trout, but by 1975 there was public concern over the decline in the numbers of these large fish (Kent Ball, intradepartmental memos 1975). Notes from a 1992 lake survey indicated that the littoral zone was heavily grazed, aquatic macrophyte growth was prolific, and the brook trout sampled were in poor condition with disproportionately large heads (Liter and Lukens 1994).

In 1993, the Department stocked 702 predatory Kamloops rainbow trout (Gerrard strain) in an effort to reduce the numbers of stunted brook trout and restore larger fish to the lake. However, this introduction evidently failed as subsequent sampling failed to yield any rainbow trout.

In 1997, 1999, 2000 and 2001 a total of 3,361 brook trout were gill netted and removed from the lake in an additional effort to manipulate the size structure. In 1998, 818 brook trout were removed in a similar gill netting effort done in conjunction with explosives in littoral areas to target younger year classes which were not effectively removed using gill nets (Curet et al. 2001). None of these efforts effected a change in size structure in the brook trout population.

In 2002, forty-one tiger muskellunge *Esox lucius x E. masquinongy* were introduced in an effort to shift the size structure of the brook trout population to fewer, larger fish. Prior to stocking tiger muskellunge in Carlson Lake, we used a mark-recapture study to estimate the population of brook trout. We also used Catch per Unit Effort (CPUE) to estimate relative abundance of brook trout. Brook trout were captured via angling, adipose fin clipped, and released. Experimental variable mesh gill nets were set overnight in the lake. The nets were pulled the next morning, all fish were enumerated, measured for length and weight and all marked fish were documented. An adjusted Peterson mark-recapture population estimate generated the following results 9,900 (9,829 – 10,007, 95%CI) (Ricker, 1975).

OBJECTIVES

Herd Lake

1. Monitor the fishery's species composition, relative weight, and size structure.
2. Monitor the lake's zooplankton community to determine the zooplankton ratios (ZPR) and zooplankton quality index (ZQI).
3. Determine physical attributes of outlet.
4. Survey stream for species composition and relative abundance.

Jimmy Smith Lake

1. Monitor the lake's zooplankton community to determine the zooplankton ratios (ZPR) and zooplankton quality index (ZQI).
2. Monitor relative weight and size structure of the rainbow trout population.

Mosquito Flat Reservoir

1. Determine the status of the zooplankton community and suitability for forage.
2. Monitor ZQI values to evaluate stocking reductions over time.

Williams Lake

1. Determine the status of the zooplankton community and its availability for fish forage.
2. Monitor oxygen and temperatures at historic sampling locations and depths.
3. Engage private interests with a goal of addressing fisheries and water quality issues.
4. Spawn rainbow trout in inlet tributary and release progeny into Lake Creek a tributary to Williams Lake

Carlson Lake

1. Monitor the effects of a tiger muskellunge introduction on the size and relative weight of brook trout population.

METHODS

Herd Lake

Two experimental gill nets, one floating and one sinking, were deployed the evening of July 31, 2003 and removed the next day. The gill nets were set perpendicular to the shore, with small mesh toward shore. We set the sinking and floating gills nets for approximately 24 hours. Fish captured were identified and measured to nearest mm in total length (TL). A regression

analysis of fork length to total length was developed from 143 rainbow trout captured at Williams Lake. Total lengths were calculated as follows: $1.0073 \times \text{fork length} + 11.589$. An R^2 value of 0.9955 indicates a strong relationship. For age and growth comparison otolith samples were taken from 14 fish.

Zooplankton was sampled on July 31, 2003 using methods outlined by Teuscher, 1999. In the laboratory procedures, zooplankton abundance and quality was analyzed using ZPR and ZQI methods developed by the Wyoming Game and Fish (Dan Yule, Wyoming Game and Fish, unpublished data) and Teuscher, 1999.

On June 24, 2003, Lake Creek, the outlet stream of Herd Lake, was surveyed for species composition, and relative abundance utilizing backpack electrofishing methodologies. Two transects on the creek were sampled by electrofishing with use of a Smith Root SR-15 backpack shocking unit. Samplers attempted to catch all sizes of game and non-game fish in the two transects of approximately 100 m in length while moving upstream. The upper transect was sampled with a two-pass method in order to calculate a density estimate. Density estimates (fish sampled per 100 m²) were calculated by use of Microfish population software (Van Deventer & Platts, 1989). Captured fish were measured (total length) to the nearest mm, placed in holding pens, and monitored for recovery until all passes were completed. Once electrofishing was completed, fish were returned to the general area where they were captured. The outlet was also inventoried to determine lengths of passage barriers to upstream and downstream fish movement.

Jimmy Smith Lake

Zooplankton samples were collected on July 31, 2003 using methods outlined by Teuscher, 1999. In the laboratory procedures, zooplankton abundance and quality were analyzed using ZPR and ZQI methods developed by the Wyoming Game and Fish (Dan Yule, Wyoming Game and Fish, unpublished data) and Teuscher, 1999.

Four experimental variable mesh gill nets, two floating and two sinking, were deployed the evening of July 21st, 2003 and removed the next morning. Gills nets were set perpendicular to the shore. Fish captured were weighed to the nearest gram, measured to the nearest mm and identified. A regression of fork length to total length was developed from 143 rainbow trout captured at Williams Lake. Total lengths were calculated as follows: $1.0073 \times \text{fork length} + 11.589$. An R^2 value of 0.9955 indicates a strong relationship. Otoliths and genetic samples were also taken on several fish for later analysis.

Mosquito Flat Reservoir

Zooplankton was sampled on August 19, 2003 using methods outlined by Teuscher, 1999. In the laboratory, zooplankton abundance and quality was analyzed using zooplankton ratio method (ZPR) and zooplankton quality index (ZQI) methods developed by the Wyoming Game and Fish (Dan Yule, Wyoming Game and Fish, unpublished data) and Teuscher, 1999.

Williams Lake

Zooplankton samples were collected on August 19, 2003 using methods outlined by Teuscher, 1999. In the laboratory, zooplankton abundance and quality was analyzed using zooplankton ratio method (ZPR) and zooplankton quality index (ZQI) methods developed by the

Wyoming Game and Fish (Dan Yule, Wyoming Game and Fish, unpublished data) and Teuscher, 1999.

Dissolved oxygen was monitored on June 17, 2003 with an YSI oxygen meter. Temperature was monitored with an YSI meter, which was verified with a hand held thermometer.

A lake level gauge located at (12T 266199mE, 4988741mN) the east end of the lake was used to monitor fluctuations in water levels. Lake level measurements were recorded every two to three days from April 9 to September 12, 2004. Measurements were recorded to the nearest 30 mm (.1 ft).

Idaho Department of Environmental Quality (IDEQ) used their Lake Watch program to calculate Burns and Carlson Trophic State Index (TSI) values for Williams Lake from January 1992 to December 2002 (Herron, 2003). The variables used by IDEQ to determine TSI values were chlorophyll a, Secchi depth, total phosphorous, and total nitrogen.

In an effort to address the perception of the lake community of the need to increase the fish population through stocking, a spawning project has been performed annually. A target goal of twenty pairs of adult rainbow trout migrating upstream of the lake are electrofished and spawned. The resultant embryos are incubated and the resultant fry released.

Five experimental mesh gill nets, two floating and three sinking, were deployed the evening of August 17, 2003 and removed the next morning. Gill nets were set perpendicular to the shore. We set the sinking and floating gills nets for approximately 15.5 hours. Fish captured were weighed to the nearest gram, measured to the nearest mm in fork and total length and identified. Otoliths were also taken on several fish for later analysis.

Carlson Lake

Between June 4 and June 12, 2003, 804 brook trout were angled, left ventral (LV) fin clipped and returned to the lake. On the evening of June 12, eleven experimental variable mesh gill nets were set. Nets were checked and fish removed periodically throughout the sample effort. The nets were removed on June 14. The nets were fished a total of 416.9 overnight hours. Captured brook trout were measured to the nearest mm (total length; TL) and weighed to the nearest g. Length and weight data was used to calculate relative weights for brook trout. Relative weight formulas used in the analysis where obtained from Murphy et al. 1991. Relative weights were then taken from 2002 and 2003 and compared using a separate variance t-test to determine if there was a significant difference between years.

The data collected from these efforts were also used to calculate a population estimate for brook trout. An adjusted Petersen mark-recapture population estimate, standard error, and 95% confidence interval were generated as follows (Ricker, 1975):

$$N = \frac{(M + 1)(C + 1)}{R + 1}$$

Where,

- N = the population estimate
- M = the number of fish marked
- C = the number of fish caught
- R = the number of marked fish recaptured.

Live tiger muskellunge encountered during the sample event were immediately returned to the lake. Dead tiger muskellunge were measured to the nearest mm (TL) and weighed to the nearest gram. Stomachs of retained tiger muskellunge that contained prey items (brook trout) were cut open and the brook trout removed. The average weight of prey (brook trout) was determined for each fish found in an individual stomach sample. The average weight of the predators was determined at introduction and on the survey date 2003. These numbers allowed us to estimate the number of brook trout consumed by tiger muskellunge by using the calculation below:

$$\text{Number of brook trout consumed} = \frac{G \times N \times C}{W}$$

Where,

- G = the average weight gain of tiger muskellunge
- N = the number of tiger muskellunge
- C = conversion number (2.5)
- W = average weight of brook trout.

The average weight gain was determined by subtracting the average weight at stocking from the average weight at date of survey. A conversion of 2.5 was utilized (R. Klett, Wisconsin Department of Natural Resources, personal communication). The Wild Rose Fish Hatchery raises tiger muskellunge in large ponds. Fish are started on a commercial diet and then switched to live forage (sucker fry).

RESULTS AND DISCUSSION

Herd Lake

We captured 93 fish during a total of 49.3 gill net hours. All captured fish were rainbow trout. Total lengths of the sampled rainbow trout ranged in size from 107 to 308 mm with an average of 212.2 mm (Figure 1). Total lengths from previous year's efforts are also represented in Figure 1. The mean capture per unit effort (CPUE) for the two-gill nets set was 1.88 fish/hour for 2003. This represents a trend of increasing catch rates of 0.94, 0.92 and 1.58 in 1996, 2001 and 2002, respectively (Figure 2). A winter fish kill in 1994/1995 (Liter et al 1997) probably explains lower CPUE in subsequent years. However, CPUE over the last year has increased, suggesting the population is recovering. A relative weight value of 73.8 indicates a poorer than average relationship of weight to length.

Results of the zooplankton tows provided ZPR and ZQI values of 0.07 and 0.01 at mid-lake and 0.09 and 0.01 at the inlet, respectively. These values suggest that forage resources are limited and the fish population is cropping off almost entirely the preferred zooplankton size (Table 1).

Fish size in Herd Lake, similar to Jimmy Smith Lake, is believed to be density dependent and available forage limited. ZQI results given above coupled with fish length frequency data leads us to consider an effort to increase fish size. However, the lake is meeting the objectives of the five-year management plan. The objective is to maintain a fishery with natural reproduction and to increase the average length of fish.

A migration barrier was installed in 1994 to limit inlet spawning (its efficiency is questionable). We suggest additional methods to reduce the fish population. Potential management methods would include: promoting increased angler use, and/or tiger muskellunge *Esox lucius* x *E. masquinongy* introduction. The Department is currently experimenting with tiger muskellunge introductions in several mountain lakes in the Clearwater and Salmon Regions. Results suggest these introductions have been successful in significantly reducing brook trout *Salvelinus fontinalis* numbers (Murphy et al. 2001).

The outlet was surveyed and characterized as to surface or subterranean flow to determine passage of subterranean flow as a fish barrier. Lengths were recorded. Total distance surveyed was 305 meters. Length of the subterranean flow totaled 63.1 meters. The length of subsurface flow led to a determination of a complete barrier for fish passage. This is an important consideration should a predator type fish be considered for introduction.

The density estimate for the upper section of Lake Creek for rainbow trout was 2 fish/100m² and for sculpin *Cottus sp.* it was 3.6 fish/100m². The total number of rainbow trout caught was 5 rainbow and 10 sculpin.

Jimmy Smith Lake

Results from the averaged zooplankton ZPR and ZQI indices for the lake were 0.1 and 0.15, respectively (Table 1). The sites sampled in 2002 (inlet and mid-lake), were devoid of large zooplankton so the values from the 750 mesh net were zero. Therefore, the calculations made to generate the ZPR and ZQI values were zero. Large zooplanktons were present in 2003 samples at low abundance. The difference in numbers of the larger sized zooplankton in the 2003 tow compared to 2002 tows can be due to a variety of factors such as time of year sampled and lake productivity. The slight increasing trend in the ZPR and ZQI indices may mean an increase in larger zooplankton. One sampling effort each year may not represent zooplankton population fluctuations. Continued monitoring of the zooplankton community along with fish condition factors and diet analysis would better enable us to evaluate the zooplankton population size composition and fluctuations.

We captured 144 fish, during a total of 62.2 overnight gill net hours. Rainbow trout made up 100% of the catch. The nets had a capture rate of 2.32 fish/gill hour. Fish length data demonstrates four-year classes suggesting natural reproduction (Figure 3). However, it is unusual that gill net efforts did not show many fish less than 220 mm. Ninety-seven percent of the fish caught were over 220 mm in length. In 2003 the mean total length of fish sampled was 277 mm, compared to mean total lengths of 202 mm and 213 mm in 2001 (Curet et al. 2001), and 1996 respectively (Figure 3). Correspondingly CPUE is decreasing while the rainbow trout size is increasing (Figure 4). A relative weight value of 105.47 indicates a better than average relationship of weight to length.

Jimmy Smith Lake is a highly productive body of water. The ZQI results suggest that even though there is substantial productivity there are few large zooplankters for fish to consume. Considering these results, we have determined that the lack of smaller sized fish

could be due to a combination of reasons: 1) direct predation of smaller fish by larger fish, 2) lower survival by juveniles in rearing tributaries due to low flows, 3) reduced spawning efforts due to fish kill induced stress, and 4) the possibility of intermittent undocumented fish kills. Overall, Jimmy Smith Lake is meeting the direction of the Five Year Management Plan, to provide a fishery of larger sized fish supported by natural production. Of note, the region has had reports of high angler satisfaction for the last two years.

Mosquito Flat Reservoir

The ZPR indices for the dam and mid-lake sites were 0.6 and 1.0, respectively. The ZQI for the dam and mid-lake sites were 0.6 and 0.3. These values suggest that competition for food resources may be occurring (Table 1). However, ZQI values are trending in a favorable manner (Figure 1.) The only variation from the methods outlined by Teuscher is that all zooplankton tows were taken at 4.8 m instead of the standardized 9.1 m due to the depth of reservoir at the time of sampling.

From 2001 through 2003, a fingerling request of 10,000 rainbow trout was not stocked to determine if zooplankton numbers or size structure would increase accordingly. Given the ZQI values from 2000 through 2003, the elimination of fingerling stocking may have led to increased ZQI values (Figure 5). Future management will look at relative weight trends and zooplankton monitoring over time to consider further stocking alterations.

Williams Lake

Results from the zooplankton ZPR were 1.2 at the inlet, 1.8 at mid-lake and 1.7 at the outlet. Results from the zooplankton ZQI were 0.5 at the inlet, 0.8 at mid-lake and 0.8 at the dam. The averaged ZQI (0.7) for the entire lake suggests that competition for food is unlikely. By comparison, results of 2000, 2001, 2002, and 2003 averaged ZQI values were 0.92, 0.67, 0.66 and 0.72 (Figure 6). ZQIs will be monitored in the future if stocking rate is changed, dramatic changes in water quality are detected or change in fish population occurs.

Dissolved oxygen, temperature, conductivity and pH recordings taken on June 17, 2003 demonstrated similar profiles to those collected in the last 10 years. These profiles indicate the lake to be stratified for dissolved oxygen. As in the recent past, oxygen levels hold above 5 mg/l for the upper 10 meters of the lake and then decline with depth (Table 2).

The IDEQ has determined that no change had occurred in the lake's trophic status from 1992 to 2002 using their Lake Watch program to calculate Burns and Carlson TSI values. These results reported in 2003, indicate a stabilization of the trophic state of Williams Lake (Tom Herron, IDEQ personal communication). Further collaboration with IDEQ in monitoring of the lakes chlorophyll a, Secchi depth, total phosphorous, and total nitrogen is suggested to determine whether further degradation of the trophic status occurs.

The long-term goal for Williams Lake is to determine if any strategies can be employed to make improvements in water quality. Options under consideration include hypolimnetic withdrawal, solar powered aerators and alum treatment. Additionally, the Department is currently collaborating with the Idaho Department of Water Resources, Idaho State University and private landowners to develop a long-term strategy to track the trophic status of the lake.

On May 16 and May 23, 10 female rainbows and 11 female rainbows, respectively, were collected with electrofishing gear and spawned with more than 21 male rainbow trout. Fertilized eggs were incubated at a facility downstream of the lake. The fry were then released in the inlet to the lake. A cooperator (Ken John) tended the eggs until "button up". Approximately 40,000 fry were released on July 7, 2003. The cooperator described the project a success in that fry "were all over the lake". This effort was written up in the Williams Lake homeowners' newsletter as a positive collaboration effort with the Department to maintain a recreational fishery in the lake.

Williams Lake was sampled with five-gill nets on September 16, 2003. Fish captured included 78 rainbow trout and 15 bull trout. Average CPUE for the five nets was 1.19 fish per gill net hour. Mean length and range of lengths for rainbow trout were: 278mm and 164mm – 480mm respectively. Bull trout had a mean length of 269mm and a range in lengths of 180 – 400mm. A relative weight of 100.6 was determined for the rainbow trout sampled.

For comparison, CPUE values have ranged from 2.04 to 1.02 for years 1992 through 2003 (Table 3). The average CPUE for 2003 falls within this range. Time of year, deployment time of nets, number of nets and location of net sets can all affect average CPUE. This demonstrates the relative stability in catch rates. Size ranges of rainbow trout and bull trout, as per Table 3, also show relatively little change over the last decade.

At this time the management objectives for Williams Lake are being met. In 2000 and 2001, private landowners renovated their septic systems to reduce the leaching of human waste from private septic systems around the lake. During the last decade there has been no change in the lakes trophic status. Williams Lake rainbow trout population is a trophy size, self-reproducing, adfluvial fishery with general regulations. In addition, there is a naturally reproducing population of bull trout in the lake.

Carlson Lake

A total of 804 brook trout were angled and marked during the marking portion of our effort. Five hundred and seventy-seven fish were caught during gill net recapture efforts. Five hundred and sixty-two fish were brook trout and the remaining fish were tiger muskellunge. One hundred thirteen brook trout were recaptures. Thirty-four recaptured brook trout had only LV clips, 15 had both LV and AD clips, and 64 fish had only AD clips. The ad clipped fish are from the group marked for a population estimate in 2002.

In 2003, catch-per-unit effort (CPUE) for brook trout was 1.38 fish/gill net hour. While in 2002, CPUE was 3.69 fish/gill net hour prior to tiger muskellunge introduction. These results represent a reduction of 267%. This reduction might be explained by a change in distribution or behavior of the brook trout. The esomid family is typically ambush predators. In Carlson Lake the tiger muskellunge would most likely operate close to the shoreline where most structure is present. This may have lead to the change in spatial distribution of brook trout from shoreline regions to pelagic areas. Staff also noted a decrease of fry observed in littoral areas. The resulting change in distribution would render the brook trout less likely to be captured in the shoreline-oriented gill nets. Furthermore the decrease in CPUE may be explained by the reduction in the brook trout population.

Relative weight calculations of 116 brook trout yielded a mean value of 89.8. A value of 100 is average for North American populations. This confirms historic field observations of a stunted brook trout population. Relative weight calculations of fish sampled in 2002 yielded a

mean value of 89.6. A separate variance t-test was used to determine if there was a significant difference between years. Since $t' = -0.685$ was greater than -1.653 , we failed to reject the H_0 that there was no significant difference between 2002 and 2003 mean relative weights.

During the initial stages of calculating relative weights it was determined that data collected on 185 of the 301 brook trout weighed and measured had to be eliminated. The reason for the removal of these fish from our calculations was due to a faulty scale that needed to be recalibrated during sampling.

In 2003, we estimated the brook trout population (fish > than 76 mm), to be at 9,064 fish (9,027 – 9,129, 95% CI). Brook trout under 76 mm were not used in this calculation due to the bias of the sampling gear. Total lengths of brook trout sampled in 2003, ranged from 96-270 mm (Figure 8). Mean total length of brook trout sampled was 209 mm (Table 4).

In 2002, we estimated the brook trout population (fish > than 76 mm), to be 9,900 (9,829 – 10,007, 95%CI). Fork lengths of brook trout, sampled in 2002, ranged from 102-266 mm (Figure 8). Mean fork length of brook trout sampled was 192 mm (Table 4). Comparison between 2003 and 2002 suggests a decrease (8.5%) in population size and a slight increase in length.

The tiger muskellunge population was surveyed incidental to the brook trout population. Length, weight and stomach content data was taken from retained fish. Tiger muskellunge nearly doubled in length. At the time of stocking the tiger muskellunge averaged 274 mm in total length (TL), and upon capture they averaged 535 mm (TL). Upon introduction in 2002, the tiger muskellunge weighed an average of 102.9 g. On the date of survey in 2003, these fish weighed 1,029 g.

We applied a simplistic bioenergetics calculation to estimate the number of brook trout consumed by the tiger muskellunge in Carlson Lake. An estimate of the number of brook trout consumed was calculated to be: 943. This number is based on the conversion rate of 2.5 lbs of brook trout required to make one lb of tiger muskellunge (R. Klett, Wisconsin Department of Natural Resources, personal communication). This calculated number (943) is close to the difference in population estimates 2002 (9,900) to 2003 (9064). This suggests that the tiger muskellunge population has had a measurable effect on the brook trout population.

RECOMMENDATIONS

Herd Lake

1. Continue to monitor the zooplankton population in 2004.
2. Explore opportunities, such as tiger muskellunge introductions, for population control in Herd Lake to improve the average size of fish.

Jimmy Smith Lake

1. Sample Jimmy Smith Lake to monitor the size structure, relative weight and food habits of resident rainbow trout with gill net sampling in 2005.
2. Monitor zooplankton community and determine zooplankton species present.
3. Investigate the use of a predator type biological control, such as tiger muskellunge (*Esox lucius* x *E. masquinongy*).

Mosquito Flat Reservoir

1. Continue elimination of fingerling stocking in Mosquito Flat Reservoir to determine if adjustments in stocking will improve fish relative weights and ZPR and ZQI values.
2. Continue to monitor trends in the trout population in Mosquito Flat reservoir with a consideration for determining the possible causes of decline of brook trout within the drainage.

Williams Lake

1. Continue collaboration with interested parties to develop a long term strategy for improving water quality in Williams Lake.
2. Consult with a limnological specialist to review hypolimnetic withdrawal and/or an alum treatment as a potential management option.
3. Monitor oxygen and temperatures at specified locations and depths.
4. Continue trapping, spawning and stocking fry. The positive public relations are resulting in support for the Department.

Carlson Lake

1. Evaluate hoop nets and/or electrofishing as a substitute for gill netting to estimate the brook trout population while minimizing the impacts to the tiger muskellunge.
2. Fisheries staff has requested an additional 100 tiger muskellunge for introduction in 2004.
3. Sample lake in the 2006 field season to track changes in the size structure of the brook trout population.

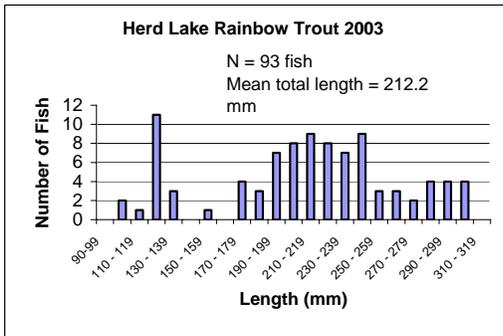
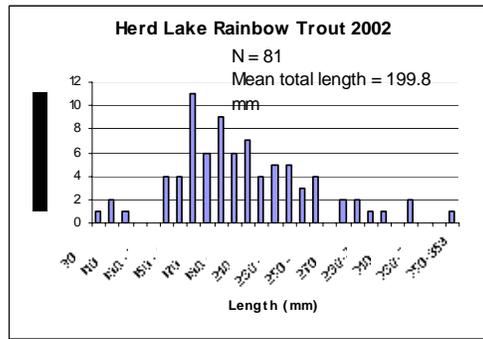
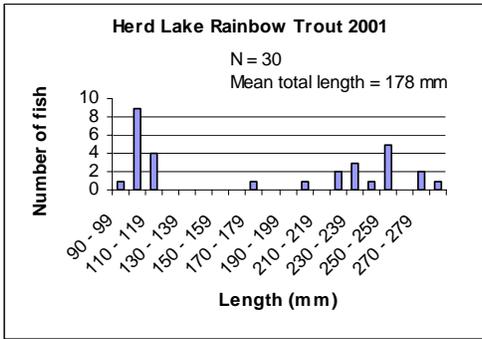
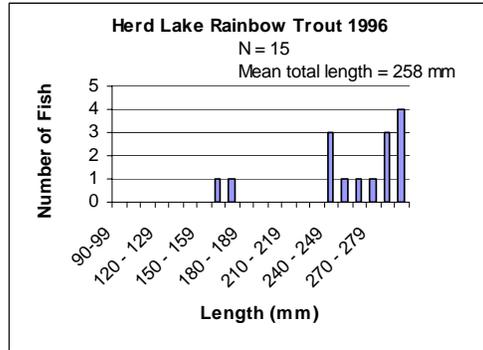
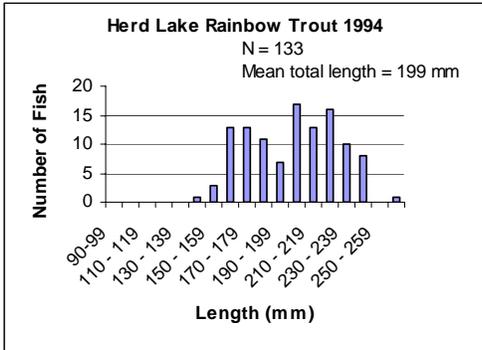


Figure 1. Length frequency of rainbow trout collected from Herd Lake, Idaho 1994-2003

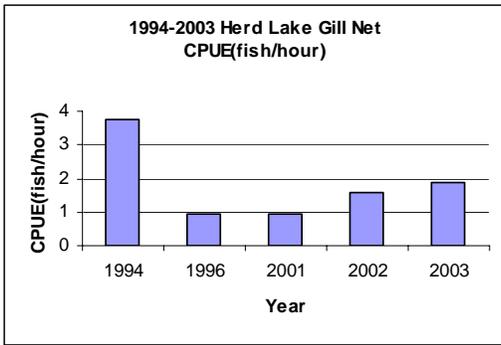


Figure 2. Gill Net CPUE (fish/hour) at Herd Lake '94-'03

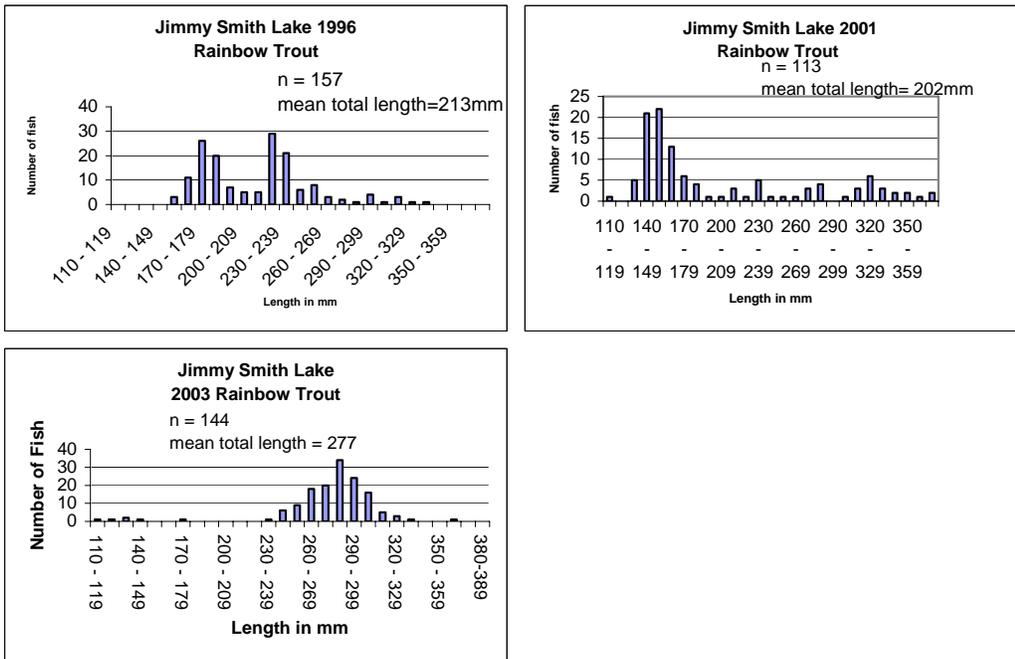


Figure 3. Length frequency of rainbow trout collected from Jimmy Smith Lake, Idaho.

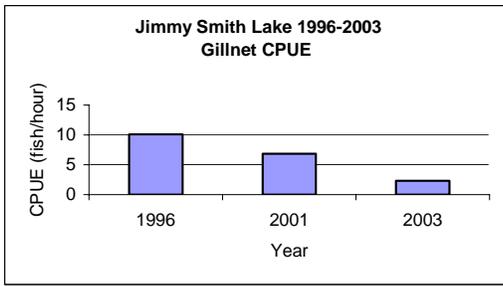


Figure 4. Gill Net CPUE (fish/hour) at Jimmy Smith Lake 1996-2003.

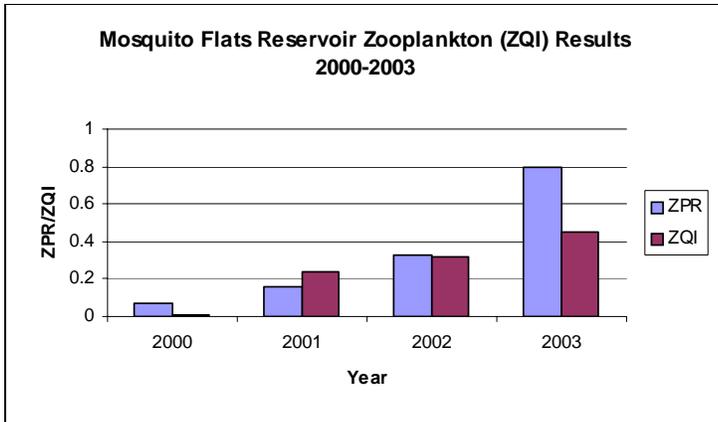


Figure 5. Zooplankton ZPR and ZQI Indices from Mosquito Flats Reservoir, Idaho, during 2000, 2001, 2002 and 2003.

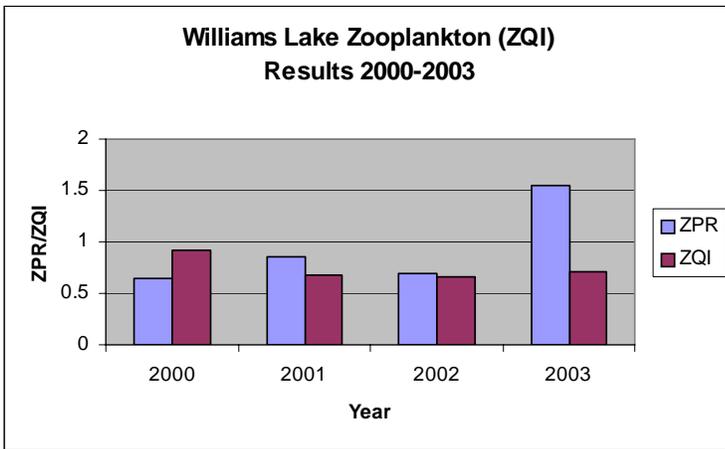


Figure 6. Zooplankton (ZQI) results from 2000 – 2003.

Table 1. Zooplankton ratio (ZPR), and zooplankton quality index (ZQI) from Teuscher, 1999.

ZQI > 0.60	Competition for food unlikely stock fingerlings from 150 to 300 per acre
0.60 > ZQI > 0.10	Competition for food may be occurring stock fingerlings from 75 to 150 per acre
ZQI < 0.10	Forage resources are limiting stock less than 75 fingerlings per acre or catchables

Table 2. Water temperature, dissolved oxygen, conductivity and pH measurements for Williams Lake at Zmax^a. June 17, 2003.

Lake Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/l)	Conductivity (µmhos/cm)	pH
0	18.65	10.96	0.109	9.31
1	18.50	11.02	0.109	9.32
2	18.30	10.90	0.109	9.29
3	16.21	10.65	0.104	9.07
4	15.02	10.26	0.102	8.90
5	13.45	10.37	0.104	8.87
6	11.36	10.63	0.112	8.87
7	09.83	10.74	0.115	8.84
8	08.75	10.76	0.117	8.79
9	07.75	10.45	0.118	8.56
10	05.80	05.45	0.119	8.12
15	04.84	01.64	0.121	7.87
20	04.47	00.39	0.122	7.67
25	04.35	00.21	0.123	7.57
30	04.23	00.30	0.124	7.46
40	04.20	00.37	0.125	7.41
45	04.21	00.33	0.125	7.37
50	04.18	00.31	0.125	7.35
55	04.16	00.38	0.126	7.31
60	04.17	00.98	0.129	7.26

^a Zmax is the deepest location in body of water.

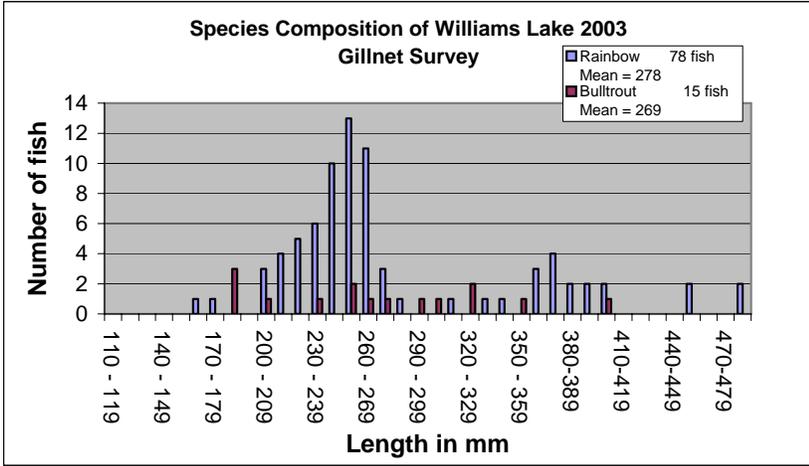


Figure 7. Species Composition of Williams Lake Gill net Survey for 2003.

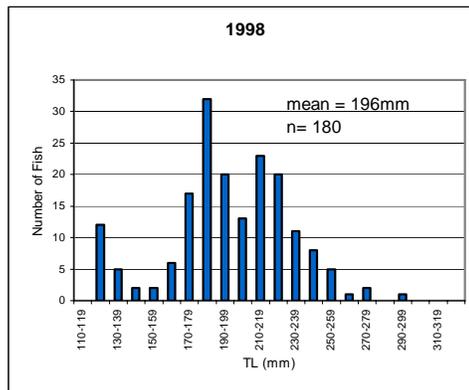
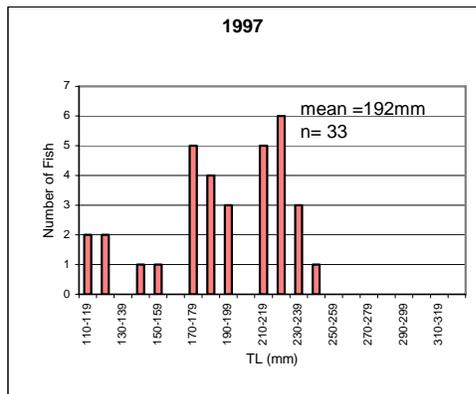
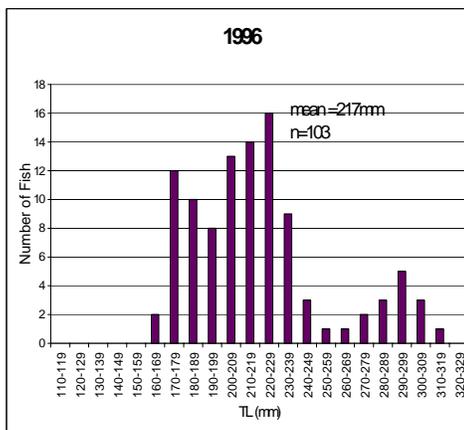
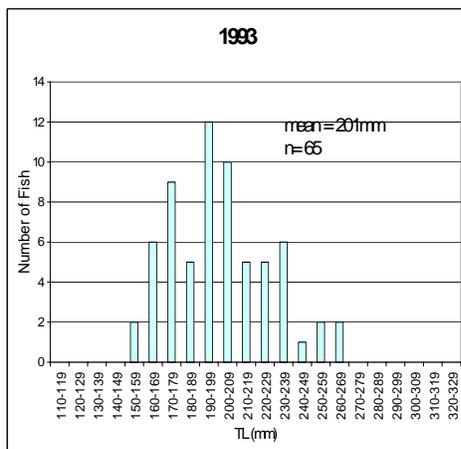
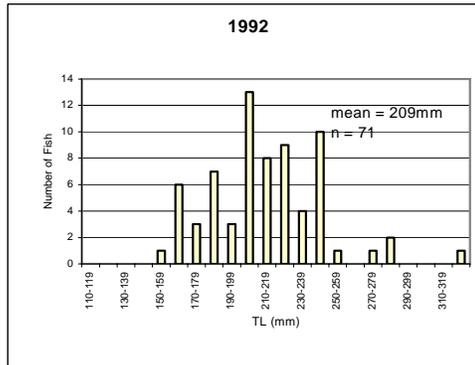
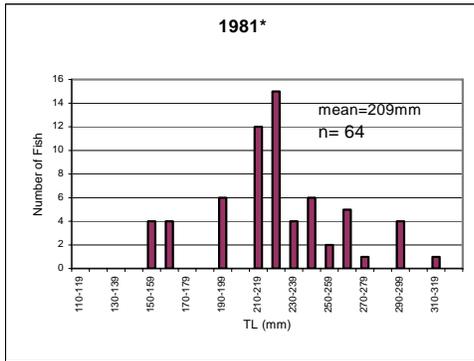
Table 3. Williams Lake gill net data from 1992 – 2003

	1992	1993	1996	2000	2003
Date	6/9	6/24	6/14	10/23	9/16
Numbers Captured	RBT 180 BT 13	RBT 48 BT 9	RBT 42 BT 4	RBT 10 BT 1	RBT 78 BT 15
Size Range (mm) Rainbow Trout	140-470	160-440	140-500	180-430	164-480
Mean Total Length (mm) Rainbow Trout	303	324	271	315	278
Size Range(mm) Bull Trout	170-340	225-355	205-455	378	180-400
Mean Total Length (mm) Bull Trout	255	289	295	378	269
Total Gill Net Hours	94.4	55.8	26.3	7.0	77.8
Fish/hour	2.04	1.02	1.67	1.22	1.19

RBT = Rainbow Trout
BT = Bull Trout

Figure 8. Length frequency histograms for brook trout in Carlson Lake during specified years, 1981-2002. In 1981, a mean length is not available as brook trout were measured by 10 mm length classes and no individual lengths were taken.

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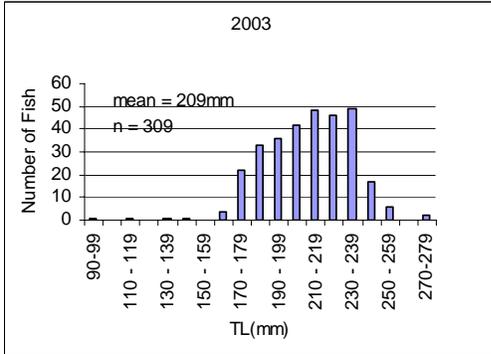
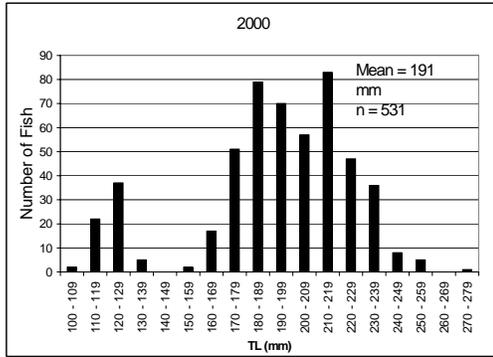
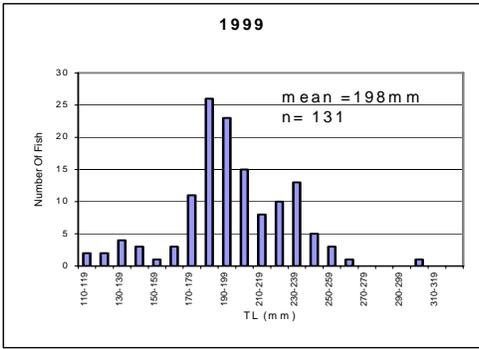


Figure 8. Continued.

Table 4. Comparison of brook trout lengths and gill netting efforts in Carlson Lake, Idaho 1992-2003.

	1996	1997	1998	1999	2000	2002	2003
Date	6/13	5/27-28	5/22-23	5/27-29	10/8-9	6/13-14	6/13-14
Numbers Removed	N/A	999	818*	1,151	665	546	562
Size Range (mm)	164-310	118-240	120-292	112-300	108-270	102-266	96-270
Mean Total Length (mm)	217	192	196	198	191	191.8**	209
Mean Weight (g)	N/A	N/A	N/A	N/A	N/A	77.3	78.12
Total Gill Net Hours	N/A	466.4	483.3	386.1	270.9	147.8	416.86
Fish / net hour (CPUE)	N/A	2.1	1.7	3.0	2.5	3.69	1.38

*An additional 460 brook trout were removed with explosives

**Mean total length was recorded in 2002(mm)

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SALMON REGION
RIVERS AND STREAM INVESTIGATIONS

2003

ABSTRACT

Middle Fork Salmon River Snorkeling Transects

In July 2003, project personnel used snorkeling to sample 27 mainstem Middle Fork Salmon River transects, 10 tributary sites and 6 additional historical sites, for fish presence and density. Mean snorkel densities of age one and older westslope cutthroat trout *Oncorhynchus clarkii lewisi*, rainbow trout/steelhead *O. mykiss gairdneri* and juvenile Chinook salmon *O. tshawytscha* counted in Middle Fork Salmon River mainstem transects were 1.2, 0.5, and 8.2 fish/100 m², respectively. In Middle Fork Salmon River tributary transects, westslope cutthroat trout snorkel densities averaged 1.81/100 m², rainbow trout/steelhead averaged 2.17/100 m², and Chinook salmon averaged 8.84/100 m². In Middle Fork Salmon River historical snorkel transects, westslope cutthroat trout snorkel densities averaged 0.91/100 m², rainbow trout/steelhead averaged 0.22/100 m², and Chinook salmon averaged 1.4/100 m². The species composition of fish caught by project anglers was 65% cutthroat trout and 35% rainbow trout.

Wild Trout Redd Counts and Stream Surveys

During the summer of 2003, Idaho Department of Fish Game, Bureau of Land Management, US Forest Service, and Department of Environmental Quality sampled 57 tributary streams of the upper Salmon River basin to determine fish species composition, relative abundance and size distribution. Fifty of the 57 tributary streams had fish present. Rainbow trout/steelhead were found in 42% of the 50 fish-bearing tributary streams surveyed and had total lengths ranging from 23 to 293 mm. Westslope cutthroat trout were found in 68% of the fish-bearing tributary streams surveyed and had total lengths ranging from 33 to 286 mm. Bull trout *Salvelinus confluentus* were found in 52% of the fish bearing streams and had total lengths ranging from 31 to 470 mm. Hybrid rainbow/cutthroat trout were found in 22% of the 50 fish-bearing tributary streams surveyed with fish. Hybrid rainbow/cutthroat trout total lengths ranged from 75 to 195 mm. The following salmonids were found in less than 10% of the surveyed streams: Brook trout *S. fontinalis* 4% (total lengths ranging from 25 to 266 mm) and juvenile Chinook salmon 8%. Non-game fish were found in 38% of the fish bearing streams.

Project personnel conducted rainbow trout spawning ground surveys on Big Springs Creek (tributary to the Lemhi River) and the Upper Lemhi River to monitor trends in numbers of redds which may reflect benefits of fishing regulation changes and habitat improvement projects sponsored by the Upper Salmon Basin Watershed Project. We counted a total of 234 redds on April 22, 2004, a decrease from previous years (287 in 2003, 556 in 2002, 283 in 2001 and 306 in 2000).

On September 17, 2003 Department staff surveyed a reach of Fourth of July Creek and counted 14 bull trout redds with 3 possible redds.

On September 8, 2003 regional staff surveyed a meadow reach of Bear Valley Creek to determine the number of bull trout redds. Forty-two bull trout redds were observed.

On September 8, 2003 project staff surveyed a meadow reach of the East Fork of Hayden Creek and counted 25 bull trout redds.

On August 27, 2003 Department staff did an initial bull trout redd count survey of Alpine and Fishhook creeks in the Stanley Basin. Final counts were conducted on September 8, 2003. A total of 12 completed bull trout redds were observed in Alpine Creek and 15 in Fishhook Creek.

Valley Creek Brook Trout Reduction

Since 1995, Department personnel have electrofished and removed 28,377 brook trout from Valley Creek to open habitat for native fishes. In 2003, 2,314 brook trout were removed. From 1995 to 2000, we have stocked 103,517 native bull trout, westslope cutthroat trout and rainbow trout/westslope cutthroat trout hybrids from adjacent watersheds to reestablish native fishes.

Members of the Shoshone-Bannock Indian Tribes snorkeled in Valley Creek and found that brook trout densities have declined substantially since we began reduction efforts.

The last two seasons (2002 and 2003) have demonstrated an increase in numbers of native fish. Throughout the drainage, native fish are present in low numbers in areas that previously contained only brook trout. We believe that it will take more time before significant increases in native fish populations are apparent.

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INTRODUCTION

Middle Fork Salmon River Snorkeling Transects

The Middle Fork Salmon River (MFSR), part of the Wild and Scenic Rivers System, flows through the Frank Church River of No Return Wilderness, a remote area in east central Idaho. The MFSR originates at the confluence of Bear Valley and Marsh creeks near Cape Horn Mountain. It flows 171 km to its confluence with the Salmon River, 92 km downstream from Salmon (Figure 1).

Primitive roads access Dagger Falls and the headwaters of some tributaries. Access to the lower 156 km of the MFSR is limited to aircraft, float boats, or horse/foot trails.

The MFSR is a major recreational river that offers a wide variety of outdoor and backcountry experiences. The number of people floating the river during the permit season has increased substantially in the past 30 years from 625 in 1962 to 10,509 in 2003. The US Forest Service estimates total use days to be 63,794 days (S. Hughes, U.S. Forest Service, Salmon-Challis National Forest, Middle Fork Ranger District, personal communication).

The earliest MFSR fishery study conducted in 1959 and 1960 evaluated the life history and seasonal movements of westslope cutthroat trout *Oncorhynchus clarkii lewisi* (Mallet 1963). In 1971 the Idaho Department of Fish and Game (Department) initiated studies to monitor MFSR westslope cutthroat trout abundance and to evaluate catch-and-release regulations established by the Idaho Fish and Game Commission in 1972. The Commission adopted similar regulations for major MFSR tributaries in the early and mid-1980s.

The 1971 study included establishment of snorkeling transects to be surveyed periodically (Corley 1972; Jeppson and Ball 1977, 1979). Since then the Department has begun additional studies within the MFSR drainage. In 1981, using only traditional steelhead transects established in that year, we began to evaluate wild steelhead trout population *O. mykiss gairdneri* on the MFSR (Thurow 1982, 1983, 1985). In 1985 the Department added additional sites to enumerate cutthroat trout and Chinook salmon *O. tshawytscha*. In the same year, the Department started measuring juvenile steelhead, Chinook salmon and westslope cutthroat trout densities in the MFSR and its tributaries (Reingold and Davis 1987a, 1987b, 1988; Lukens and Davis 1989; Davis et al. 1992; Schrader and Lukens 1992; LITER and Lukens 1992).

This report, a continuation of the 1985 study, presents data collected in July 2003 on fish densities in the Middle Fork Salmon River drainage.

Wild Trout Redd Counts and Stream Surveys

Wild Trout Population Surveys

During the summer of 2003, the Idaho Department of Fish and Game (Department) and the Salmon and Challis Resource Areas of the Bureau of Land Management (BLM), US Forest Service (USFS), and the Idaho Department of Environmental Quality (IDEQ) cooperatively inventoried fish communities in tributary streams of the upper Salmon River basin. Accurate and current information is needed to effectively manage fish stocks, particularly since several endangered fish species (bull trout *Salvelinus confluentus*, Chinook salmon *O. tshawytscha*, sockeye salmon *O. nerka*, and steelhead trout) are known to inhabit the upper Salmon River basin.

Big Springs Creek

In 1994 the Department initiated resident rainbow trout redd count surveys on Big Springs Creek (BSC), a tributary to the Upper Lemhi River near Leadore. We established three transect areas in 1997 to monitor long-term resident rainbow trout population trends; two on BSC and one on the Upper Lemhi River. The two sites on BSC include the portion of the creek that flows through the Karl Tyler Ranch and the Darwin Neibaur Ranch. The Upper Lemhi River site includes the section that flows through the Merrill Beyeler Ranch. The redd counts are usually conducted during the last week of April or the first week of May. These efforts are performed to track trends in numbers of redds observed. Theoretically, regulation changes implemented in 1994 (only rainbow trout over 14 inches may be kept), habitat projects and tributary reconnections should be reflected with increased spawning activity.

Bear Valley Creek

2003 marked the second year for conducting bull trout redd counts in Bear Valley Creek. Bear Valley Creek is a tributary of Hayden Creek, which is a high quality bull trout rearing and spawning tributary to the Lemhi River. Bear Valley Creek is located within a relatively low gradient meadow formed by a landslide. This meadow has a reputation for bull trout spawning and is located about 3.2 km upstream from the confluence of Bear Valley Creek with Hayden Creek.

East Fork Hayden Creek

The monitoring of bull trout redds in the East Fork Hayden Creek was conducted for the second year in 2003. East Fork Hayden Creek is a tributary to Hayden Creek in the Lemhi River drainage. East Fork of Hayden Creek has bull trout spawning in a meadow 5 km upstream from the confluence with Hayden Creek.

Alpine and Fishhook Creeks

In 1995 the Department initiated bull trout redd count surveys on Alpine (tributary to Alturas Lake) and Fishhook (inlet to Redfish Lake) creeks. In 1998 standardized transects were established in order to monitor long term bull trout spawning trends.

Fourth of July Creek

The monitoring of bull trout redds in Fourth of July Creek was conducted for the first time in 2003. Fourth of July Creek is a tributary to the mainstem Salmon River. The survey was started approximately 6.8 km upstream from the confluence of the mainstem Salmon River and ended at a streamside camping area.

Valley Creek Brook Trout Reduction

The Department is involved in numerous research and management projects to return to fishable levels those native fish stocks federally listed as threatened or endangered (or proposed for listing). The Department's Salmon Region is attempting to reestablish native fishes into Valley Creek, in the Sawtooth Valley near Stanley.

Native salmonid fishes of the Valley Creek drainage include Chinook salmon, steelhead/rainbow trout, bull trout, westslope cutthroat trout and mountain whitefish *Prosopium williamsoni*. The only salmonids known to be introduced in the watershed are brook trout and

lake trout *S. namaycush*. Lake trout are confined to Stanley Lake and have never been observed elsewhere in the basin.

We suspect that brook trout in both Valley Creek and other western watersheds may suppress the reestablishment of native fishes if numbers of native fishes have been driven below some threshold level. Habitat loss, historically liberal fishing regulations, and the introduction of brook trout have compromised native fish stocks in Valley Creek.

To help reestablish native fishes in Valley Creek the Department is reducing brook trout numbers. Complete removal of brook trout would be physically, and most likely, socially impossible to implement. The objective is to open niches for wild stocks and to increase the size of remaining brook trout, thus making them more appealing to anglers. Although brook trout are abundant in the watershed, anglers do not generally target the fish, due to their small size.

In 1995, we began to reduce brook trout numbers and introduce native salmonids in Valley Creek. This report summarizes project results for the first 8 years.

OBJECTIVES

Middle Fork Salmon River Snorkeling Transects

1. Monitor juvenile steelhead trout and Chinook salmon densities within the MFSR and its tributaries.
2. Monitor the effects of catch-and-release regulations on resident fish populations in the MFSR drainage, particularly on westslope cutthroat trout.
3. Collect fish genetic samples in select tributaries for analysis and reporting by the Department's Eagle Genetics Lab.

Wild Trout Redd Counts and Stream Surveys

1. Monitor fish populations in streams to determine species, size, and density information.
2. Evaluate the effects of harvest restrictions and habitat improvement efforts on resident rainbow trout populations in the Upper Lemhi River and Big Springs Creek.
3. Monitor the number of bull trout redds in Bear Valley, East Fork Hayden, Alpine, Fishhook and Fourth of July creeks to provide baseline information relative to bull trout recovery.

Valley Creek Brook Trout Reduction

1. Reduce brook trout numbers in Valley Creek.
2. Assess the change in population of native cutthroat and bull trout from nearby streams for reestablishment of a fishable population.
3. Track the relative abundance of brook trout in selected reaches.

STUDY AREA AND METHODS

Middle Fork Salmon River Snorkeling Transects

Between July 14 and July 21, 2003, project personnel snorkeled 27 mainstem MFSR transects, 10 MFSR tributary transects, and 6 historical transects (Corley 1972) (Tables 1-3). The MFSR transects at Tappan Run and Survey were not surveyed.

The snorkeling techniques are described by Thurow (1994). We used conventional fly-fishing and spin cast gear to evaluate fish species and length frequencies on the MFSR below the confluence of Boundary Creek.

Wild Trout Redd Counts and Stream Surveys

Wild Trout Population Studies

Between April 24 and October 27, 2003, 57 tributary streams of the upper Salmon River basin were surveyed for fish composition, relative abundance, and size distribution. Stream characteristics (temperature, gradient, altitude, and area sampled) were also recorded (Appendix A). Drainage information and map coordinates are found in Appendix B.

In the summer of 2003, fish presence and abundance were documented by utilization of backpack electrofishing methodologies. Site locations were selected to encompass a complete sampling coverage of fish communities within a drainage. Some site locations had to be based on adequate access and permission from landowners.

Streams were sampled by electrofishing with use of a Smith Root SR-15 backpack shocking unit. Samplers attempted to catch all sizes of game and non-game fish in transects ranging in size from 28 to 958 m in length while moving upstream. A given transect was sampled one or two times or until a 50% reduction in fish numbers was realized. Captured fish were measured (total length; TL) to the nearest mm, placed in holding pens, and monitored for recovery until all passes were completed. Genetic samples were taken on some of the game fish for analysis at a later date. Non-target fish were enumerated only. Once electrofishing was completed, fish were released back into the surveyed reach.

Density estimates (fish sampled per 100 m²) were calculated by use of Microfish population software (Van Deventer & Platts, 1989). When consecutive passes did not achieve the appropriate reduction (50%), no population estimate for that stream was calculated.

Big Springs Creek

Since 1994 the Department has performed resident rainbow trout redd count surveys on Big Springs Creek (BSC), a tributary to the upper Lemhi River near Leadore. We established three transect areas in 1997 to monitor long-term resident rainbow trout population trends; two on BSC and one on the upper Lemhi River. The two sites on BSC include the portion of the creek that flows through the Karl Tyler Ranch and the Darwin Neibaur Ranch. The upper Lemhi River site includes the section that flows through the Merrill Beyeler Ranch. The redd counts are usually conducted during the last week of April or the first week of May using visual, on the ground, count methods. We conducted resident rainbow trout redd counts on April 22, 2004.

Bear Valley Creek

Area reconnaissance indicated bull trout spawning during the first full week of September. Redd counts were conducted during the first week of September using visual, on the ground, count methods. We conducted fluvial bull trout redd counts on September 8th, 2003.

NAD27 UTM coordinates for the start and end of the redd count transect on Bear Valley Creek are: 12T 0282998E, 4961730N and 12T 0282169E, 4962479N respectively. The transect for Bear Valley Creek consists of c-channel habitat.

East Fork Hayden Creek

East Fork Hayden Creek redd counts are conducted during the third week of September using visual, on the ground, count methods. We conducted fluvial bull trout redd counts on September 8, 2003.

The starting and ending NAD27 UTM coordinates for the 2003 survey are as follows for East Fork of Hayden Creek Start: 12T 288683E, 4955925N End: 12T 289197E, 4955050N. The transect for the East Fork consists of c-channel type.

Alpine and Fishhook Creeks

Two bull trout redd counts were conducted on Fishhook and Alpine creeks on August 27 and September 8, 2003. All redds were flagged during the first survey. On the second survey any additional redds were counted, including the flagged redds to provide a total number of redds counted for each standardized section of Fishhook and Alpine creeks. The starting and ending NAD27 UTM coordinates for the 2003 surveys are as follows: Fishhook Creek Start; 11T 662601E, 4888913N, End; 11T 661966E, 4888623N and for Alpine Creek Start; 11T 666223E, 4863395N, End; 11T 665350E, 4863075N.

Fourth of July Creek

Fourth of July Creek redd counts were conducted September 17, 2003 using visual, on the ground, count methods.

The starting and ending NAD27 UTM coordinates for the 2003 survey are as follows for Fourth of July Creek: Start; 11T 679680E, 4878679N, End; 11T 684992E, 4879856N.

Valley Creek Brook Trout Reduction

Valley Creek is located in Custer County in central Idaho. It flows into the Salmon River at river km 609.0, and is bordered by the Sawtooth Mountains on the south and the headwaters of the Middle Fork Salmon River on the north. Elevation ranges from 1,887 to 3,277 m. Land uses within the watershed are typical of central Idaho and include recreation, grazing, and very limited private mining and timber harvest.

Our study area begins 9.6 km upstream from Valley Creek's confluence with the Salmon River and extends upstream for approximately 12 km. The lower 0.8 km of Elk Creek, East Fork Valley Creek and several unnamed sloughs and side tributaries (Stanley Lake Creek) are also included.

To evaluate basin-wide changes in fish populations, we depended on existing anadromous fish reports. Snorkel surveys, conducted by the Shoshone-Bannock Indian Tribes (SBT), provided an independent evaluation of the project with no additional cost or effort to the Department.

The historical removal reach of the creek was treated by electrofishing with use of a Smith Root SR-15 backpack shocking unit. Netters attempted to catch all sizes of brook trout in this reach while moving upstream. Brook trout that were captured were removed from the system. Native fish encountered were released back to the stream.

RESULTS AND DISCUSSION

Middle Fork Salmon River Snorkeling Transects

We counted 302 westslope cutthroat trout, 87 rainbow trout/steelhead, and 1,659 juvenile Chinook salmon in mainstem MFSR transects (Table 4). Mean densities were 1.2, 0.5, and 8.2 fish/100 m² for westslope cutthroat trout, rainbow trout/steelhead and juvenile Chinook salmon, respectively (Table 5).

In 1986, rainbow trout/steelhead densities showed a downward trend (Figure 2). This trend had leveled off by 1993 and increased between 1996 and 1999 (N = 141 fish). In 2003, densities once again indicated a downward trend (N = 84 fish). Yearly spawner escapement and down-river migration conditions heavily influence juvenile rainbow trout/steelhead densities and may have been a factor in the decrease observed in 2003. In addition, the relationship between resident rainbow trout, residual steelhead, and migratory steelhead makes this data difficult to interpret.

There was a dramatic decline in juvenile Chinook salmon densities from 1989 to 1996, for reasons similar to those for the decrease in steelhead (Figure 3). Since 1996 an upward trend in juvenile Chinook salmon has been noted. The highest juvenile Chinook salmon numbers in traditional MFSR transects was recorded in 2003.

The density of westslope cutthroat trout counted in 2003 seemingly decreased by one-third from what was observed in 1999 (Figure 4). One explanation for the density of cutthroat trout appearing to have declined is due to the change in snorkeling methodology. In 1999 each snorkeler looked in one direction towards the bank. In 2003, following traditional snorkeling protocol, each snorkeler looked from side to side (middle and bank) when observing and counting fish. By doing this in 2003, the snorkeler increased the transect area which in turn lowered the fish density estimates. This reduction due to methodology would apply to all species observed.

In 1999, the total number of westslope cutthroat trout counted in the mainstem Middle Fork Salmon River snorkel counts was 304 fish and 302 fish in 2003. Essentially there was no change in the total number of westslope cutthroat trout counted for each year. In actuality the 2003 fish densities appear to have declined by one-third because the increase in transect area lowered the densities even with a difference of only two westslope cutthroat trout. This indicates that it is no more beneficial for a snorkeler to look from side to side than it is to look in one direction towards the stream bank. However, in the future, traditional snorkeling protocols will be adhered to so densities can be compared over time.

In 1971, when project personnel first established snorkeling transects specifically for westslope cutthroat trout, observed numbers of fish were low. The Idaho Fish and Game Commission established catch-and-release regulations for the MFSR in 1972. After this, westslope cutthroat trout numbers increased and appeared to peak in the early to mid-1980s. The trend during the early 1990s had been a general decline with lower numbers observed. However, westslope cutthroat trout are now slowly increasing in numbers and size (Figure 5).

Middle Fork Salmon River Tributary Snorkeling Transects

Juvenile rainbow trout/steelhead densities ranged from 0.3 to 5.2 fish/100 m² with a mean of 2.17 fish/100 m² (Table 6). The mean juvenile Chinook salmon density was 8.84 fish/100 m² and ranged from 0 to 35.3 fish/100 m². Mean westslope cutthroat trout density was 1.81 fish/100 m² and ranged from 0.2 to 6.3 fish/100 m².

Rainbow trout/steelhead densities in MFSR tributary snorkeling transects indicated a downward trend in 2003 (Figure 6). Yearly spawner escapement and down-river migration conditions heavily influence juvenile steelhead densities. The time of year counts are conducted, visibility and other environmental factors can also affect the number of fish observed and counted. The relationship between resident rainbow trout, residual steelhead, and migratory steelhead can also make this data difficult to interpret.

From 1989 to 1996 there had been a dramatic decline in Chinook salmon densities for reasons similar to those for the decrease in steelhead. Since 1996 an upward trend in juvenile Chinook salmon has been seen in tributary snorkel counts. In 2003, the highest juvenile Chinook salmon numbers in MFSR tributary transects was recorded since the Department began collecting Chinook data in 1981 (Figure 6). This change can be traced to increased adult escapement into the MFSR tributaries for spawning.

Between 1993 and 1999, westslope cutthroat trout densities varied little in tributary transects snorkeled (Figure 6). Although there was some slight variation in densities among tributaries, no major changes occurred. In 2003, westslope cutthroat densities were the highest recorded since 1983. The variations probably reflect no more than normal yearly population fluctuations.

In 2003, the highest density of juvenile Chinook salmon was recorded since the Department began evaluating Chinook in 1981. We observed juvenile Chinook salmon in 12 of the 16 transects sampled in 2003. Densities have shown a substantial increase from 1996 when juvenile Chinook salmon were seen in only one of thirteen transects. Juvenile Chinook salmon densities have been low in all the MFSR tributaries snorkeled since 1990 (Figure 6).

Rainbow trout/steelhead densities have decreased slightly since 1999. Yearly spawner escapement and down-river migration conditions heavily influence juvenile steelhead densities.

Middle Fork Salmon River Historical Snorkeling Transects

Juvenile rainbow trout/steelhead densities ranged from 0 to 1.5 fish/100 m² with a mean of 0.22 fish/100 m² (Table 7). The mean juvenile Chinook salmon density was 1.4 fish/100 m² and ranged from 0 to 16.7 fish/100 m². Mean westslope cutthroat trout density was 0.91 fish/100 m² and ranged from 0.1 to 7.8 fish/100 m².

This is the first time since the early 1970s that these six historical sites have been

snorkeled. We will compare these additional historical snorkeling sites once multiple years of data are available.

Middle Fork Salmon River Project Angling

Idaho Department of Fish and Game project anglers caught 258 fish: 167 westslope cutthroat trout (65%) and 91 rainbow trout/steelhead (35%) (Figure 7). Mean total lengths were 255.6 mm for westslope cutthroat trout and 162.9 mm for rainbow trout/steelhead. Length frequency of angler caught trout is shown in Figure 8.

The Idaho Fish and Game Commission established catch-and-release regulations in MFSR in 1972. Before this approximately 20% of the westslope cutthroat trout caught by project anglers were larger than 300 mm (Figure 9). Since the regulation change, this proportion has fluctuated yearly ranging from 33 to 53% and averaged 43%. The proportion of large westslope cutthroat trout caught in 1996 was 33% and in 2003, 32%. This fluctuation is probably because of variation in sample timing, gear type, angler skill, and fish migration patterns. The mean length of angler caught westslope cutthroat trout is currently 255.6 mm.

Wild Trout Redd Counts and Stream Surveys

Wild Trout Population Studies

Population estimates, for all species of salmonids, were calculated for three-pass electrofishing transect sites. Population estimates were based on total sample size (n) of all salmonids sampled during each electrofishing pass (Table 8). Salmonids were found in 49 of 50 streams surveyed with fish present (Table 8). Westslope cutthroat trout was the predominant species encountered during our investigations and was found in 68% of the tributary streams surveyed. Westslope cutthroat trout had total lengths ranging from 33 to 286 mm. The highest densities of westslope cutthroat trout occurred in Bruno and Morgan creeks (Table 8). Rainbow trout were found in 42% of the tributary streams surveyed and had total lengths ranging from 23 to 293 mm. Hat and Squaw creeks had the highest densities of rainbow trout (Table 8). Bull trout were found in 52% of the streams surveyed and had total lengths ranging from 31 to 470 mm. Falls and Rocky creeks had the highest densities of bull trout (Table 8). Apparent hybrid rainbow/cutthroat trout were found in 22% of the 50 tributary streams surveyed with fish. Apparent hybrid rainbow/cutthroat trout total lengths ranged from 75 to 195mm. The following salmonids were found in less than 10% of the surveyed streams: brook trout 4% (total lengths ranging from 25 to 266mm) and juvenile Chinook salmon 8%.

Highest densities of brook trout were found in Kenney and Beaver creeks. Squaw and Wallace creeks had the highest densities of juvenile Chinook salmon (Table 8). Fish were not found in the following seven tributaries: Allan, Hull, Inyo, Little Beaver, Negro Green, Sage, and Sulphur creeks.

Non-target species found included: dace (various species), longnose dace *Rhinichthys cataractae*, sculpin *Cottus sp.*, mottled sculpin *Cottus bairdi*, mountain whitefish *Prosopium williamsoni*, and redbreast shiner *Richardsonius balteatus* (Table 9). Non-target species were found in 38% of tributaries surveyed. Sculpin species were sampled in 18 of the 50 tributaries with fish present. The highest densities of sculpins were found in Kenney and Big Eightmile creeks. Other non-target species found in less than 5% of tributaries are: dace species (5%), mountain whitefish (10%), redbreast shiner (5%), and sucker species (1%).

More detailed information on stream sites is located in Appendix A and Appendix B. Appendix A. lists stream sites surveyed, dates of sampling, and transect measurements. Appendix B. lists streams surveyed, primary drainage, secondary drainage, UTM zone, and UTM coordinates.

Big Springs Creek

We observed a total of 234 resident rainbow trout redds on Big Springs Creek (BSC) and the upper Lemhi River. One hundred and seventy-four redds were counted on the Neibaur Ranch while 45 were observed on the Tyler Ranch. Fifteen redds were counted on the Beyeler Ranch (upper Lemhi River) (Figure 10 and Table 10).

The Neibaur Ranch reach had a fencing project of 2.5 km completed during February and March of 2003. Variable numbers of redds on the Neibaur Ranch may be a ramification of lack of stability in part due to habitat degradation. This should improve over time as the effects of the new fencing project are realized. The BSC transect within Tyler Ranch boundaries, with an exclusionary fencing project completed in 1998, contained fewer redds in 2004 than the previous year. We believe the general increase over time and improving stability of the habitat will result in continued upward trends in redd numbers in the future.

Reviewing resident rainbow trout redd counts from the three reaches over time suggests there may be alternate year spawning occurring. Should alternate year spawning be occurring, this year would be the expected lesser year. Of note, this year the steelhead run was earlier than normal to area hatcheries and we suspect the peak for rainbow trout redds was missed and some amount of redd degradation may have resulted in lower counts for the Beyeler and Tyler reaches. These sites will continue to be monitored and trends evaluated in the rainbow trout population in future years. Habitat changes will be monitored over the next 10 years to document improvements in the riparian areas.

Bear Valley Creek

On September 8, 2003, 42 bull trout redds were observed. The majority of the redds were still in progress having both the females and males present on the redds. The population of bull trout, which uses Bear Valley Creek for spawning, appears to be a fluvial population in that relatively large adults are observed. The estimated size of the bull trout ranged from 254 mm to 635 mm. Anglers reported catching bull trout up to 685.8mm long in Bear Valley Creek. These fish may be spending part of their lives in the main stem Salmon and Lemhi Rivers, then, migrate into Hayden Creek up to the meadow on Bear Valley Creek to spawn.

East Fork Hayden Creek

On September 8, we observed 25 bull trout redds in East Fork Hayden Creek. This population appears to be a resident population with individuals being significantly smaller than the Bear Valley Creek population. The bull trout observed were estimated to be 203 to 355.6 mm in length.

Alpine and Fishhook Creeks

Final counts were conducted on September 8, 2003. Twelve completed bull trout redds were observed in Alpine Creek and 15 in Fishhook Creek. In 2002, a total of 14 redds were counted in Alpine Creek and 17 redds were counted in Fishhook Creek.

Fourth of July Creek

On September 17, 2003 14 completed bull trout redds and three other possible redds were observed.

Valley Creek Brook Trout Reduction

In 2001 and 2002, no brook trout removal efforts were conducted. During the 2003 field season 2,314 brook trout were removed on October 7 and 8 (Table 11). Snorkel surveys performed in 2003 by the Shoshone-Bannock Tribes indicated that no brook trout were observed. Native salmonids have increased in middle Valley Creek while upper Valley Creek has remained stable between 2002 and 2003 (Figure 11). In light of the number of brook trout removed in 2003 (2,314 fish) there is concern that recolonization is occurring due to the two previous seasons in which removal efforts were not performed (Table 11). Over time the data suggests that the reduction program may be effectively impacting the brook trout population (Figures 12–14) while observing slight increases in native fish.

Table 1. Locations and dimensions of sample transects on Middle Fork Salmon River, July 2003.

Location River km ^a	Transect Name	Transect Length (m)	Visibility (m)	Visibility Corridor (m)	Area (m ²)	Traditional Transects ^b
0.3	Boundary	61	4.2	16.8	1,024.8	SB
4.3	Gardells Hole	126	3.7	14.8	1,864.8	C2, ck
8.8	Velvet	37	2.0	08.0	296.0	C2, ck
13.6	Elkhorn	68	2.7	10.8	734.4	SB
21.3	Sheepeater	68	2.7	10.8	734.4	SB
24.5	Greyhound	68	2.7	10.8	734.4	C2, ck
29.6	Rapid River	74	3.5	14.0	1,036.0	SB
40.0	Indian	137	3.0	12.0	1,644.0	SB
44.3	Pungo	77	3.5	14.0	1,078.0	C2, ck
51.0	Marble Pool	142	2.5	10.0	1,420.0	C2, ck
52.3	Skijump	155	2.7	10.8	1,674.0	SB
60.6	Lower Jackass	111	2.7	10.8	1,198.8	C2, ck
64.6	Cougar	50	2.7	10.8	540.0	SB
73.9	Whitey Cox	102	2.3	09.2	938.4	C2, ck
74.1	Rock Island	122	3.3	13.2	1,610.4	SB
82.9	Hospital Pool	80	3.2	12.8	1,024	C2, ck
84.3	Hospital Run	66	2.3	09.2	607.2	SB
92.6	Tappan Pool	137	2.3	09.2	1,260.4	C2, ck
92.8	Tappan Run ^c	n/a	n/a	n/a	n/a	SB
106.6	Flying B	75	2.3	09.2	690.0	C2, ck
108.6	Airstrip	110	2.3	09.2	1,012.0	SB
119.7	Survey ^c	n/a	n/a	n/a	n/a	SB
124.6	Big Creek Bridge	185	1.6	06.4	1,184.0	C2, ck
127.8	Love Bar	100	3.2	12.8	1,280.0	SB
135.8	Ship Island	126	3.2	12.8	1,612.8	C2, ck
144.0	Little Ouzel	87	2.3	09.2	800.4	SB
144.6	Otter Bar	143	2.3	09.2	1,315.6	C2, ck
151.5	Goat Creek Pool	134	2.5	10.0	1,340.0	C2, ck
151.8	Goat Creek Run	122	2.5	10.0	1,220.0	SB

^a River km starts at Dagger Falls and goes downstream from this point.

^b Traditional steelhead transects established in 1981; SB = Steelhead, Traditional cutthroat trout and Chinook transects established in 1985; C2 = westslope cutthroat trout and ck = Chinook salmon.

^c Tappan Run and Survey were not surveyed in 2003.

Table 2. Middle Fork Salmon River tributary snorkeling transects, July 2003.

Transect Name	Transect Length (m)	Visibility (m)	Visibility Corridor (m)	Area (m²)	Species Present^a	Location River km^b
Loon Creek Lower	52	2.4	04.8	249.6	SB,C2, ck	Below pack bridge
Loon Creek Upper	36	2.4	04.8	172.8	SB,C2, ck	360 m above pack bridge
Big Creek	99	2.4	09.6	950.4	SB,C2	360 m above mouth
Pistol Creek Lower	28	2.0	08.0	224.0	SB,C2, ck	At mile marker 16
Pistol Creek Upper	40	2.5	15.0	600.0	SB,C2, ck	Above mile marker 16
Indian Creek Lower	76	1.6	06.4	486.4	SB,C2, ck	75 m above mouth
Indian Creek Upper	50	2.2	08.8	440.0	SB,C2, ck	300 m above mouth
Marble Creek	64	2.5	10.0	640.0	SB,C2, ck	Above pack bridge
Camas Creek Lower	75	2.1	08.4	630.0	SB,C2	From pack bridge downstream
Camas Creek Upper	37	2.1	08.4	310.8	SB,C2, ck	Above pack bridge

^a SB = steelhead; C2 = westslope cutthroat trout; ck = Chinook salmon.

^b Marble Creek #2 and both Wilson Creek sites were not snorkeled in 2003.

Table 3. Middle Fork Salmon River historical snorkeling transects, July 2003.

Transect Name	Transect Length (m)	Visibility (m)	Visibility Corridor (m)	Area (m²)	Species Present^a	Location River km^b
Hancock Rapids Hole	126	2.3	9.2	1,159.2	C2	Directly below Hancock Rapids
Cliffside Rapids Hole	300	2.3	09.2	2,760.0	SB,C2	Directly below Cliffside Rapids
Bernard Airstrip	100	2.3	09.2	920.0	SB,C2	Site below airstrip site
Mahoney Camp	50	2.7	10.8	540.0	SB,C2, ck	
White Creek Pack Bridge	300	3.2	12.8	3,840.0	SB,C2, ck	Above Loon Creek sites
Little Ck Guard Station	85	2.5	10.0	850.0	C2, ck	Above pack bridge

^a SB = steelhead; C2 = westslope cutthroat trout; ck = Chinook salmon.

^b All sites snorkeled in 2003.

Table 4. Numbers of westslope cutthroat trout and rainbow trout/steelhead by length group (mm), Chinook salmon by age group, and other fish^a, Middle Fork Salmon River snorkel counts, July 2003.

Transect Name	River km	Westslope Cutthroat Trout					Total C2	Rainbow Trout/ Steelhead				Total R1	Chinook		Total Ck	BU	WF	FNP	SUC	RSS	Total Fish
		<75	75-150	150-230	230-300	>300		75-150	150-230	230-300	>300		Age 0	Age 1							
Boundary	0.3	0	0	2	2	1	5	0	6	2	2	10	40	0	40	0	9	0	50	0	114
Gardells Hole	4.3	0	1	17	3	1	22	3	2	0	0	5	300	0	300	0	9	0	0	0	336
Velvet	8.8	0	0	6	4	6	16	12	4	0	0	16	323	0	323	0	14	0	0	0	369
Elkhorn	13.6	0	0	4	0	4	8	2	3	0	0	5	4	0	4	0	4	0	0	0	21
Sheepeater	21.3	0	0	0	0	0	0	2	5	0	1	8	10	0	10	0	2	0	0	0	20
Greyhound	24.5	0	0	0	7	5	12	0	0	0	0	16	1	17	0	3	0	0	0	0	32
Rapid River	29.6	0	0	0	10	4	14	0	5	0	0	5	5	0	5	0	5	0	0	0	29
Indian	40	0	6	25	10	5	46	0	0	2	0	2	50	0	50	0	14	1	1	0	114
Pungo	44.3	0	0	1	2	1	4	0	3	0	0	3	307	0	307	1	11	1	1	0	328
Marble Pool	51	0	1	6	6	2	15	0	0	0	0	0	256	0	256	0	9	1	0	0	281
Skijump	52.3	0	0	2	6	1	9	0	1	1	0	2	6	0	6	0	8	0	0	0	25
Lower Jackass	60.6	0	0	2	8	1	11	0	0	0	0	0	106	0	106	1	8	18	3	0	147
Cougar	64.6	0	0	7	1	0	8	0	0	0	0	0	51	0	51	0	2	0	0	0	61
Whitey Cox	73.9	0	0	42	2	5	49	0	1	0	0	1	60	0	60	0	2	8	15	0	135
Rock Island	74.1	0	1	9	2	2	14	1	0	0	0	1	13	0	13	0	4	0	0	0	32
Hospital Pool	82.9	0	0	2	10	0	12	0	4	0	0	4	50	0	50	0	9	10	10	0	95
Hospital Run	84.3	0	0	2	4	1	7	1	2	0	0	3	25	0	25	0	7	6	4	0	52
Tappan Pool	92.6	0	2	1	3	1	7	2	2	1	0	5	27	0	27	0	5	1	4	12	61
Tappan Run	92.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flying B	106.6	0	0	4	2	0	6	0	0	0	0	0	0	0	0	0	2	1	18	0	27
Airstrip	108.6	0	0	1	2	1	4	0	2	0	0	2	0	0	0	0	9	0	14	0	29
Survey	119.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Big Creek Bridge	124.6	0	0	2	13	2	17	0	8	0	0	8	4	0	4	0	8	10	3	233	283
Love Bar	127.8	0	0	1	1	0	2	0	2	3	0	5	5	0	5	0	6	36	0	69	123
Ship Island	135.8	0	0	0	2	1	3	0	0	1	0	1	0	0	0	0	2	20	58	133	217
Little Ouzel	144	0	0	0	7	2	9	0	0	0	0	0	0	0	0	0	11	6	13	30	69
Otter Bar	144.6	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	5	1	302	309
Goat Creek Pool	151.5	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	9	2	13	1	27
Goat Creek Run	151.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	34	1	20	0	57
Total		0	11	137	107	47	302	23	50	11	3	87	1658	1	1659	4	206	127	228	780	3393

^a (BU = bull trout, WF = mountain whitefish, FNP = northern pikeminnow, SUC = all sucker species, RSS = redbreast shiners).

Table 5. Densities (fish/100 m²) of westslope cutthroat trout, rainbow trout/steelhead, and Chinook salmon, Middle Fork Salmon River snorkel transects, July 2003.

Transect Name	River km	Area (m ²)	Densities (fish/100m ²)			Total Fish ^a
			Westslope Cutthroat Trout	Rainbow Trout	Chinook Salmon	
Boundary	0.3	1,024.8	0.5	1.0	3.9	11.1
Gardells Hole	4.3	1,864.8	1.2	0.3	16.1	18.0
Velvet	8.8	296.0	5.4	5.4	109.1	124.7
Elkhorn	13.6	734.4	1.1	0.7	0.5	2.9
Sheepeater	21.3	734.4	0.0	1.1	1.4	2.7
Greyhound	24.5	734.4	1.6	0.0	2.3	4.4
Rapid River	29.6	1,036.0	1.4	0.5	0.5	2.8
Indian	40.0	1,644.0	2.8	0.1	3.0	6.9
Pungo	44.3	1,078.0	0.4	0.3	28.5	30.4
Marble Pool	51.0	1,420.0	1.1	0.0	18.0	19.8
Skijump	52.3	1,674.0	0.5	0.1	0.4	1.5
Lower Jackass	60.6	1,198.8	0.9	0.0	8.8	12.3
Cougar	64.6	540.0	1.5	0.0	9.4	11.3
Whitey Cox	73.9	938.4	5.2	0.1	6.4	14.4
Rock Island	74.1	1,610.4	0.9	0.1	0.8	2.0
Hospital Pool	82.9	1,024.0	1.2	0.4	4.9	9.3
Hospital Run	84.3	607.2	1.2	0.5	4.1	8.6
Tappan Pool	92.6	1,260.4	0.6	0.4	2.1	4.8
Tappan Run	92.8	n/a	n/a	n/a	0	n/a
Flying B	106.6	690.0	0.9	0.0	0	3.9
Airstrip	108.6	1,012.0	0.4	0.2	0	2.9
Survey	119.7	n/a	n/a	n/a	0	n/a
Big Creek Bridge	124.6	1,184.0	1.4	0.7	0.3	23.9
Love Bar	127.8	1,280.0	0.2	0.4	0.4	9.6
Ship Island	135.8	1,612.8	0.2	0.1	0	13.5
Little Ouzel	144.0	800.4	1.1	0.0	0	8.6
Otter Bar	144.6	1,315.6	0.1	0.0	0	23.5
Goat Creek Pool	151.5	1,340.0	0.1	0.1	0	2.0
Goat Creek Run	151.8	1,220.0	0.0	0.0	0	4.7

^a Total fish includes suckers, northern pikeminnow, shiners, whitefish, and bull trout.

Table 6. Numbers of westslope cutthroat trout and rainbow trout/steelhead by length group (mm), Chinook salmon by age group, and other fish species counted in Middle Fork Salmon River tributaries, July 2003.

Transect Name	Area (m ²)	Westslope Cutthroat Trout					Density	Rainbow Trout/ Steelhead				Density	Chinook		Total Ck	Density	BU	WF	FNP	SUC	RSS	Total Fish
		<75	75-150	150-230	230-300	>300		75-150	150-230	230-300	>300		Age 0	Age 1								
Loon Creek Lower	249.6	0	0	0	5	0	2.0	0	13	0	0	5.2	49	0	49	19.6	0	26	8	0	0	101
Loon Creek Upper	172.8	0	0	0	6	0	3.5	4	4	0	0	4.6	23	0	23	13.3	0	6	0	0	0	43
Big Creek	950.4	0	1	4	3	0	0.8	10	8	0	0	1.9	36	0	36	3.8	0	4	1	3	0	70
Pistol Creek Lower	224.0	0	0	3	3	8	6.3	0	0	1	0	0.4	79	0	79	35.3	0	7	0	0	0	101
Pistol Creek Upper	600.0	0	0	0	1	0	0.2	7	5	1	0	2.2	43	4	43	7.2	0	7	0	0	0	64
Indian Creek Lower	486.4	0	0	2	2	1	1.0	17	5	0	0	4.5	113	0	113	23.2	0	3	0	0	0	143
Indian Creek Upper	440.0	0	7	1	1	2	2.5	14	2	3	0	4.3	58	0	58	13.2	0	20	0	0	0	108
Marble Creek	640.0	0	0	0	1	1	0.3	3	0	0	0	0.5	4	0	4	0.6	0	1	0	0	0	10
Camas Creek Lower	630.0	0	0	6	13	2	3.3	4	0	0	0	0.6	0	0	0	0.0	0	33	0	1	0	59
Camas Creek Upper	310.8	0	0	4	8	0	3.9	1	0	0	0	0.3	7	0	7	2.3	0	5	0	0	0	25

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Table 7. Numbers of westslope cutthroat trout and rainbow trout/steelhead by length group (mm), Chinook salmon by age group, and other fish species counted in Middle Fork Salmon River historical transects, July 2003.

Transect Name	Area (m ²)	Westslope Cutthroat Trout					Density	Rainbow Trout/Steelhead				Density	Chinook		Total Ck	Density	BU	WF	FNP	SUC	RSS	Total Fish
		<75	75-150	150-230	230-300	>300		75-150	150-230	230-300	>300		Age 0	Age 1								
Cliffside Rapids Hole	2,760.0	0	0	1	1	0	0.1	0	0	0	0	0.0	0	0	0	0.0	0	7	14	7	2	32
Hancock Rapids Hole	1,159.2	0	0	0	4	1	0.4	1	0	0	0	0.1	0	0	0	0.0	0	13	3	1	2	25
Mahoney Camp	540.0	0	0	3	12	27	7.8	4	4	0	0	1.5	90	0	90	16.7	0	18	14	4	0	176
WhiteCreekPack Bridge	3,840.0	0	1	13	8	3	0.7	0	2	0	0	0.1	17	0	17	0.4	0	10	2	0	0	56
Bernard Airstrip	920.0	0	0	0	0	4	0.4	11	0	0	0	1.2	0	0	0	0.0	0	16	25	4	0	60
Little Ck Guard Station	850.0	0	0	5	6	3	1.6	0	0	0	0	0.0	34	0	34	4.0	1	15	7	8	0	79

Table 8. Number of resident rainbow trout redds counted in Big Springs Creek (BSC) and Lemhi River, 1994 through 2004.

Date	Lemhi River Beyeler Ranch ^a	BSC Neibaur Ranch	BSC Tyler Ranch ^b	Total
4/26/94	-	-	-	40 ^c
5/3/95	-	57	-	57
5/3/96	7	32	-	39
4/21-5/3/97	8	44	45	97
5/3/98	18	93	124	235
4/29/99	29	39	71	139
4/20/00	23	160	123	306
4/5/01	2	95	186	283
4/25/02	3	360	193	556
4/22/03	56	128	103	287
4/22/04	15	174	45	234

^a Habitat improvement project implemented spring 1995.

^b Habitat improvement project implemented spring 1998.

^c Incidental count taken during a Lemhi Model Watershed Project habitat survey includes all of Big Spring Creek.

Table 9. Continued.

Table 9. Combined salmonids population estimates excluding fry, 95% confidence intervals (CI), and species composition for selected streams of the Upper Salmon River Basin in 2003.

Stream	Transect ^a	Fish Sampled (n)	Population Estimate (95% CI)	Fish/100m ²	Species Composition ^b					
					CT	RB	BLT	RBXCT	EBT	CK
Basin	L	45	**	29.0		100				
Basin	U	31	**	21.8	100					
Beaver	U	24	**	5.6					100	
Beaver	U	37	37(37-39)	11.0	5	92			3	
Beaver	M	22	**	5.7					100	
Beaver	M	18	**	3.7		11			89	
Beaver	L	29	**	6.0		41			59	
Beaver	L	71	71(71-72)	15.0		62			38	
Beaver	L	18		4.0		50			40	10
Big Eightmile	U	55	62(55-73)	12.2			100			
Big Eightmile	M	32	**	9.0		100				
Big Eightmile	M	33	**	7.9		91	9			
Big Eightmile	M	44	**	7.0	2	55	43			
Big Eightmile	U	25	**	5.9		20	80			
Big Eightmile	L	24	24(24-25)	5.0		100				
Big Eightmile	M	47	60(56-67)	12.5		23	72	5		
Big Hat	L	23	25(23-30)	14.1		100				
Big Hat	M	22	**	6.7	32	68				
Big Hat	U	23	**	14.7	100					
Big Timber	M	34	**	5.5	9	53	35	3		
Big Timber	U	50	**	24.0	74		26			
Big Timber	M	43	**	6.2		95	5			
Big Timber	L	33	**	5.7		100				
Big Timber	L	101	143(101-191)	20.6		100				
Big Timber	U	32	33(32-36)	7.2	6	3	91			
Big Timber	U	24	**	7.1	12		88			
Big Timber	L	40	**	6.5		100				
Big Timber	M	22	**	3.7		96	4			
Big Timber	U	30	**	5	37	10	53			
Bruno	M	11	**	2.4	100					
Bruno	M	25	**	47.6	100					
Bruno	U	5	**	n/a	100					
Cabin	M	36	**	17.6	11	3	86			
Canyon	U	17	17(17-19)	4.6		100				
Canyon	M	5	5(5-6)	1.5		100				
Carmen	M	50	50(50-52)	14.4		100				
Cash	L	39	**	17.1	74	26				
Challis	U	11	**	7.6	54			46		
Cinnabar	M	34	**	12.1	100					
Climb	L	6	**	4.3	67		33			
Dairy	U	15	**	5.6			93	7		
Dairy	M	19	**	8.6			100			

Table 9. Continued.

Stream	Transect ^a	Fish Sampled (n)	Population Estimate (95% CI)	Fish/100m ²	Species Composition ^b					
					CT	RB	BLT	RBXCT	EBT	CK
Darling	U	9	**	8.3	45			55		
Ditch	L	9	9(9-9.8)	3.8	100					
East Fork Kenney	L	17	**	11.3	53		47			
East Fork Pahsimeroi	M	3	**	1.2			100			
Falls	L	31	**	12.7			100			
Fourth of July	M	21	21(21-23)	4.7	90		10			
Hat	L	137	**	37.5		98				2
Hat	U	20	**	4.1	55	5	40			
Hat	U	20	**	4.9	70	5	20	5		
Hat	U	35	**	10.5	89			11		
Hat	L	35	**	7.3		94				6
Hoodoo	L	16	**	8.0		94	6			
Hughes	L	28	28(28-30)	1.1	4	96				
Jordan	L	45	**	13.4				100		
Jordan	M	40	**	12.0		15		85		
Kenney	U	51	**	14.2	35				65	
Kenney	L	84	**	46.9		47			53	
Kenney	L	47	**	27.6		55			45	
Kenney	L	73	77(73-83)	22.7	1	94	1			4
Kenney	M	19	**	6.1	5	63	11	5	16	
Kenney	M	58	**	19.9	67		33			
Kenney	M	44	45(44-48)	13.2	55	7	36	2		
Kinnikinic	L	7	**	7	100					
Lake	U	5	5(5-6)	2.0		100				
Little Hat	L	9	**	4.2		100				
Little Hat	M	1	**	0.8		100				
Little Timber	U	20	**	4.8	100					
Mahogany	U	9	**	4.6			100			
Martin	M	13	**	3.7	92		8			
Middle Fork Hat	M	28	**	9.1	25		71	4		
Middle Fork Little Timber	U	28	**	16.1	2		26			
Middle Fork Little Timber	L	51	**	18.5	100					
Middle Fork Little Timber	M	47	**	21.5	5		42			
Middle Fork Little Timber	M	79	82(79-87)	23.0	27		73			
Morgan	U	16	**	25.3	100					
North Fork Hat	M	20	**	5.8	15		85			
North Fork Hat	L	13	**	2.9	62		38			
North Fork Little Timber	M	20	**	6.2	100					
North Fork Little Timber	U	20	**	12.6	45		55			
North Fork Little Timber	U	6	**	2.8	100					
North Fork Little Timber	L	14	**	4	100					
Prospect	L	10	**	4.6			100			
Rocky	L	38	**	18.5			100			
Squaw	M	21	**	3.7	81	14	5			

Table 9. Continued.

Stream	Transect ^a	Fish Sampled (n)	Population Estimate (95% CI)	Fish/100m ²	Species Composition ^b					
					CT	RB	BLT	RBXCT	EBT	CK
Squaw	L	181	**	40.5						18
Squaw	U	13	**	2.8	100					
Squaw	M	13	**	2.2	3	10				
Squaw	L	11	**	1.8		100				
Squaw	L	67	69(67-73)	10.5		94		2		4
Squaw	U	34	**	12.7	100					
Squaw	L	58	**	10.4	2			93		5
Squaw	M	22	**	3.1		22				
Squirrel	L	21	**	10.7	10		90			
Thompson	U	5	**	n/a				100		
Thompson	M	5	**	n/a				100		
Thompson	M	8	**	1.7				100		
Thompson	M	5	**	1.0				100		
Thompson	M	5	**	1.5				100		
Thompson	M	1	**	0.3				100		
Threemile	L	13	13(13-15)	1.4	100					
Trail	M	79	96(79-117)	24.3	100					
Trail	M	17	**	12.1			100			
Twin	L	4	**	1.7	75		25			
Van Horn	M	3	**	1.7			100			
Wagonhammer	M	52	53(52-56)	29.2	96	4				
Wagonhammer	M	25	25(25-27)	12.5						
Wallace	L	49	**	51.5		93				7
Wallace	L	9	**	4.6	89	11				
West Fork	M	12	**	8.4	8		92			
West Fork Hughes	L	28	30(28-35)	14.9	14	86				

^a L= lower reach, M= middle reach, and U= upper reach.

^b CT=westslope cutthroat trout, RB=rainbow trout/steelhead, BLT=bull trout, RBXCT=rainbow trout/steelhead X westslope cutthroat trout hybrid, EBT=eastern brook trout, CK=Chinook salmon.

Table 10. Continued.

Table 10. Combined non-game fish population densities, and species composition for selected streams of the Upper Salmon River Basin in 2003.

Stream	Transect ^a	Fish		Species ^b Composition (%)				
		Sampled (n)	Fish/100m ²	SCU	DAC	SUC	MTW	RSS
Basin	U	3	2.1	100				
Basin	L	11	7.1	100				
Beaver	U	21	4.9	100				
Beaver	M	57	14.9	100				
Beaver	M	82	16.7	100				
Beaver	L	20	4.1	100				
Beaver	L	90	19.1	100				
Beaver	L	4	0.9	100				
Big Eightmile	M	155	43.5	100				
Big Eightmile	M	81	19.5	100				
Big Eightmile	M	55	8.7	100				
Big Eightmile	U	21	4.9	100				
Big Eightmile	L	252	52.6	100				
Big Eightmile	M	152	40.5	100				
Big Timber	M	141	22.7	89			11	
Big Timber	M	141	20.2	94			6	
Big Timber	L	179	31.0	99			1	
Big Timber	L	218	44.4	98			2	
Big Timber	U	57	12.9	100				
Big Timber	L	78	12.6	87			13	
Big Timber	M	82	13.9	100				
Big Timber	U	52	8.7	100				
Canyon	U	41	11.0	100				
Canyon	M	24	7.0	100				
Cash	L	31	13.6	100				
East Fork Pahsimeroi	M	14	5.6	100				
Hat	L	45	12.3	100				
Hat	L	76	15.9	100				
Jordan	L	36	10.8	100				
Jordan	M	50	15.1	100				
Kenney	L	55	30.7	100				
Kenney	L	29	17.1	100				
Kenney	L	284	88.2	100				
Kenney	M	217	70.0	100				
Kenney	M	68	20.4	100				
Lake	L	1	0.6	100				
Lake	U	10	4.0	100				
Little Timber	U	86	20.7	100				
Martin	M	17	4.9	100				
Middle Fork Little Timber	L	93	33.7	100				

Table 10. Continued.

Stream	Transect ^a	Fish Sampled (n)	Fish/ 100m ²	Species ^b Composition (%)				
				SCU	DAC	SUC	MTW	RSS
North Fork Hat	M	146	42.2	100				
North Fork Little Timber	M	95	29.3	100				
Squaw	M	68	12.0	100				
Squaw	L	20	4.5	95	5			
Squaw	U	42	8.9	100				
Squaw	M	109	18.5	100				
Squaw	L	115	19.0	100				
Squaw	L	77	12.0	99				1
Squaw	L	36	6.5	100				
Squaw	M	108	15.5	100				
Thompson	U	5	**	100				
Thompson	M	5	**	100				
Thompson	M	5	1.0	100				
Thompson	M	5	1.5	100				
Yankee Fork	M	5	**				100	
Yankee Fork	L	5	**				100	

^a L= lower reach, M= middle reach, and U= upper reach.

^b SCU=sculpin, DAC=dace, SUC=suckers, MTW=mountain whitefish, RSS=red-sided shiner.

Table 11. Number of brook trout removed from Valley Creek 1995-2003.

Year	No. of brook trout removed
1995	193
1996	4,804
1997	16,025
1998	4,503
1999	212
2000	326
2003	2314
Total	28,377

RECOMMENDATIONS

Middle Fork Salmon River Snorkeling Transects

Continue monitoring densities of juvenile rainbow trout/steelhead, westslope cutthroat trout and juvenile Chinook salmon in the 27 mainstem MFSR sites, 10 tributary sites and 6 historical sites (Corley) by snorkeling annually between the second week of July and the third week of August. This information is important because it is the longest standing data set on westslope cutthroat trout in the nation.

Valley Creek Brook Trout Reduction

Continue to have Shoshone-Bannock Indian Tribes fisheries staff snorkel Valley Creek to evaluate response of brook trout and native fish stocks to brook trout reduction. In addition, continue reduction efforts at least once every three years.

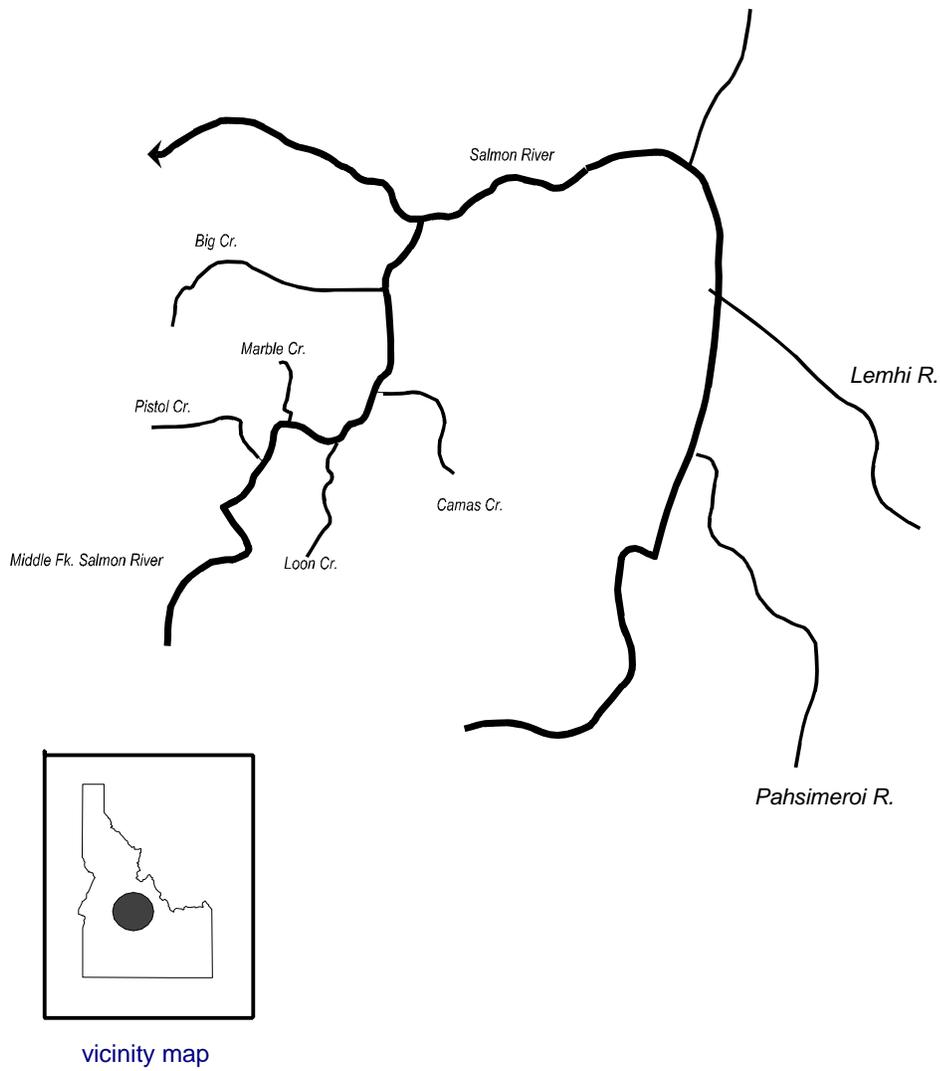


Figure 1. Map of Middle Fork Salmon River and tributaries, Idaho.

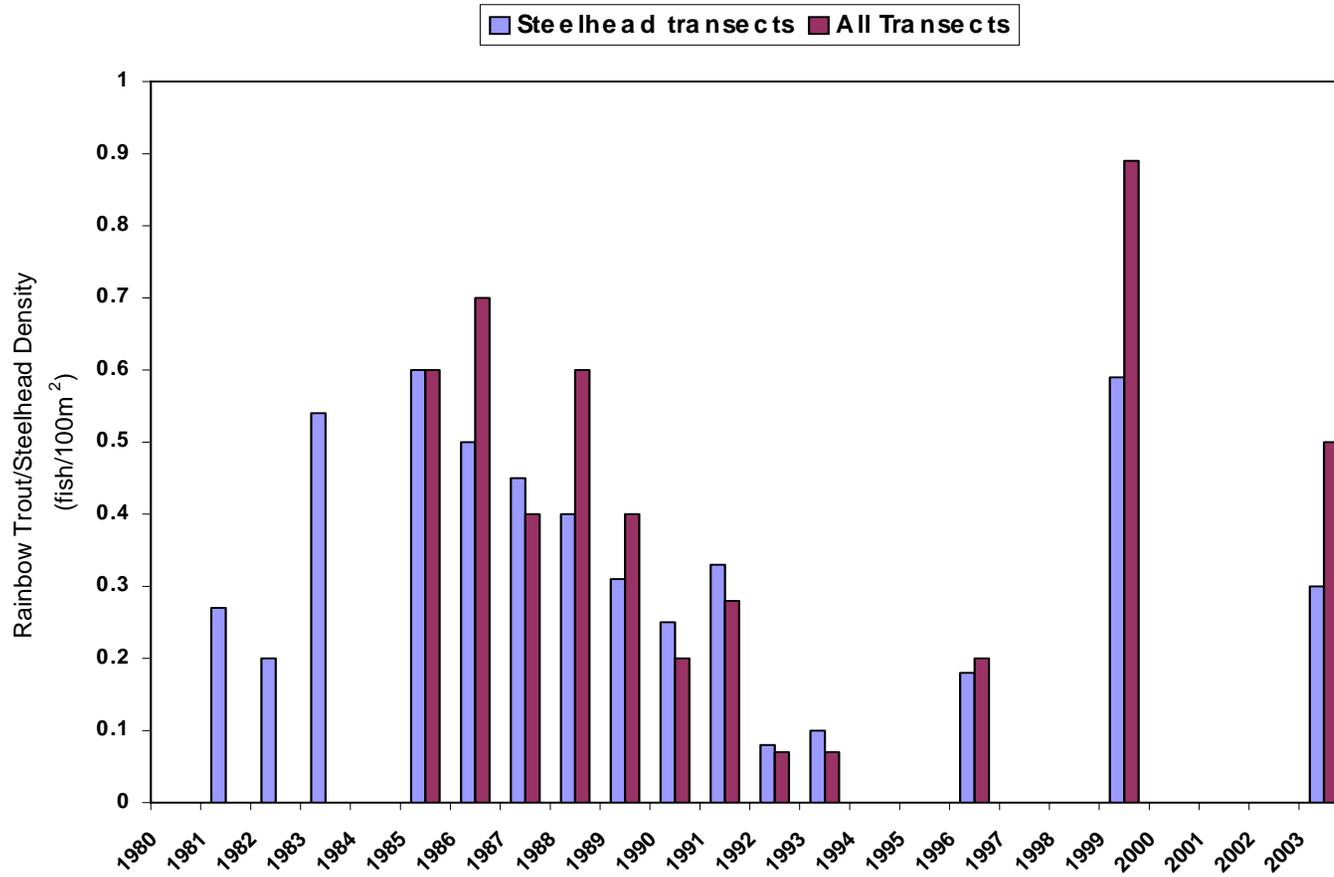


Figure 2. Densities of juvenile rainbow trout/steelhead counted in all transects and in steelhead-only transects (see Table 1) for Middle Fork Salmon River snorkeling surveys in 1981-1983, 1985-1993, 1996, 1999, and 2003. Data for 1981-1983 from Thurow (1982, 1983, 1985). Not all transects were sampled in all years.

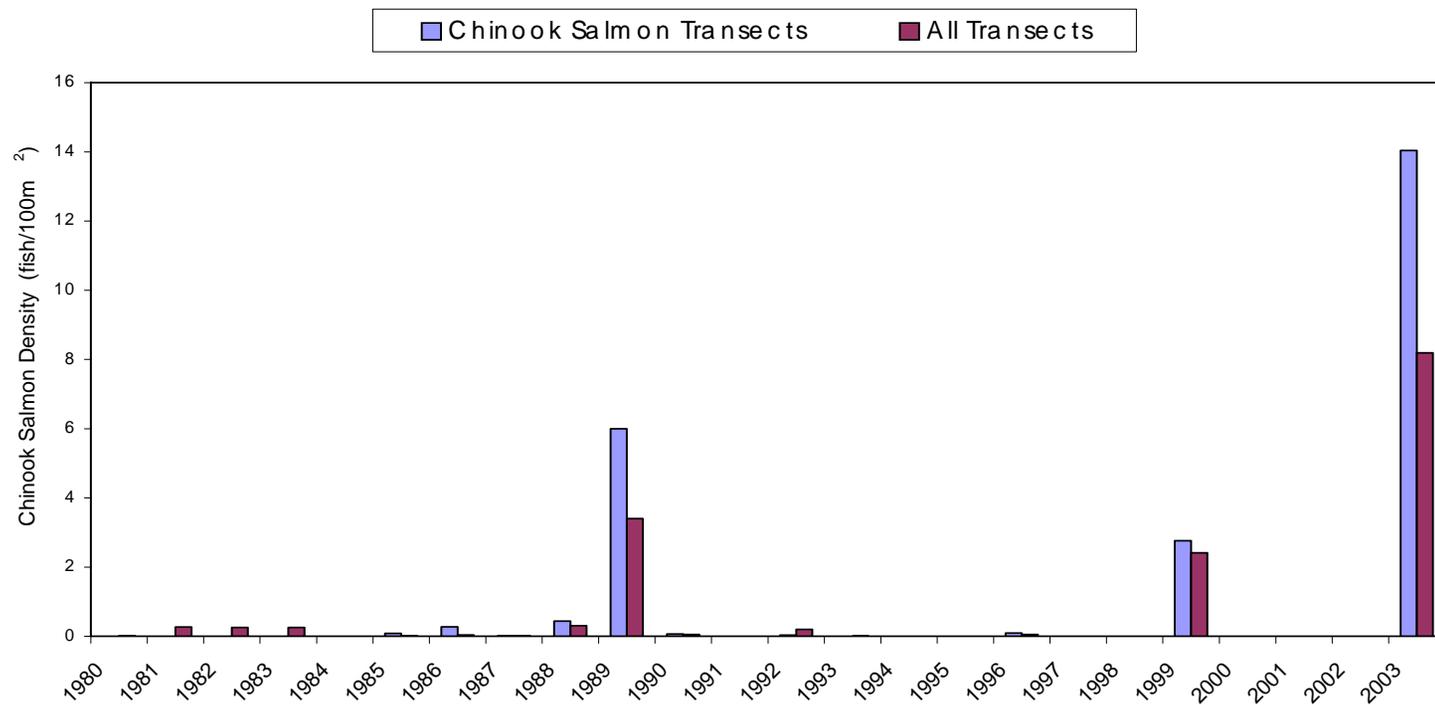


Figure 3. Densities of Chinook salmon in all transects and in Chinook salmon/westslope cutthroat trout-only transects (see Table 1) for Middle Fork Salmon River snorkeling surveys in 1981-1983, 1985-1993, 1996, 1999, and 2003. Data for 1981-1983 from Thurow (1982, 1983, 1985). Not all transects were sampled in all years.

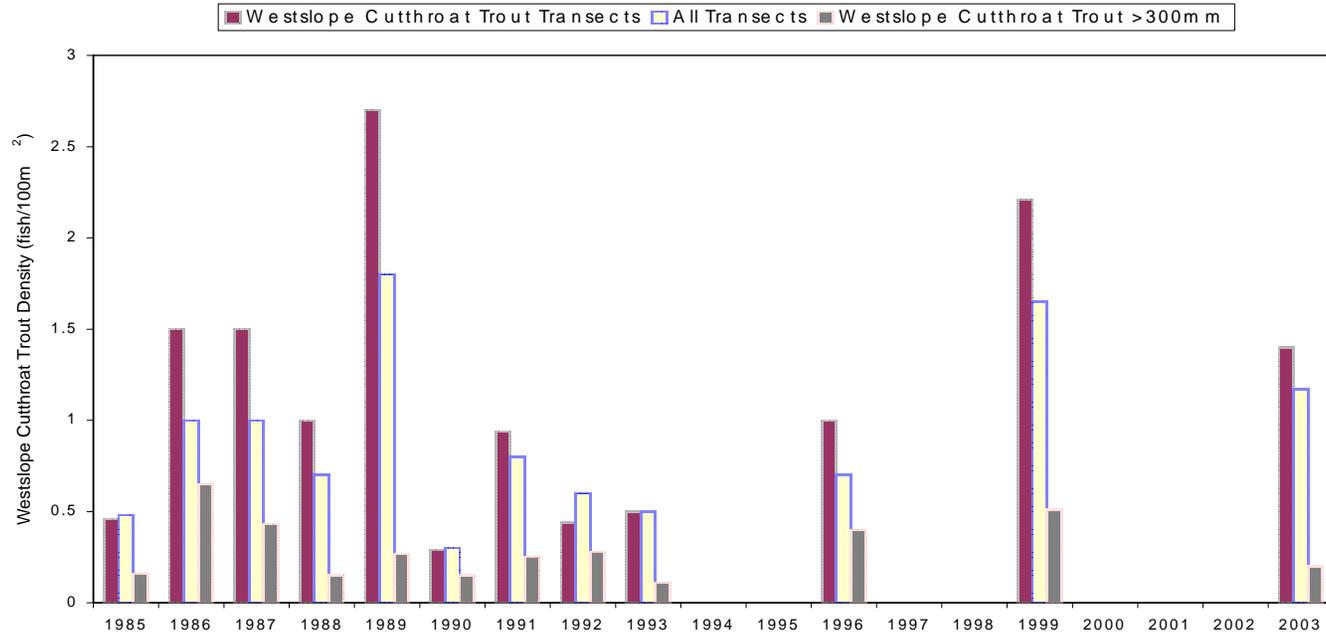


Figure 4. Densities of westslope cutthroat trout in all transects and in Chinook salmon/westslope cutthroat trout-only transects (see Table 1) for Middle Fork Salmon River snorkeling surveys in 1981-1983, 1985-1993, 1996, 1999, and 2003. Data for 1981-1983 from Thurow (1982, 1983, 1985). Not all transects were sampled in all years.

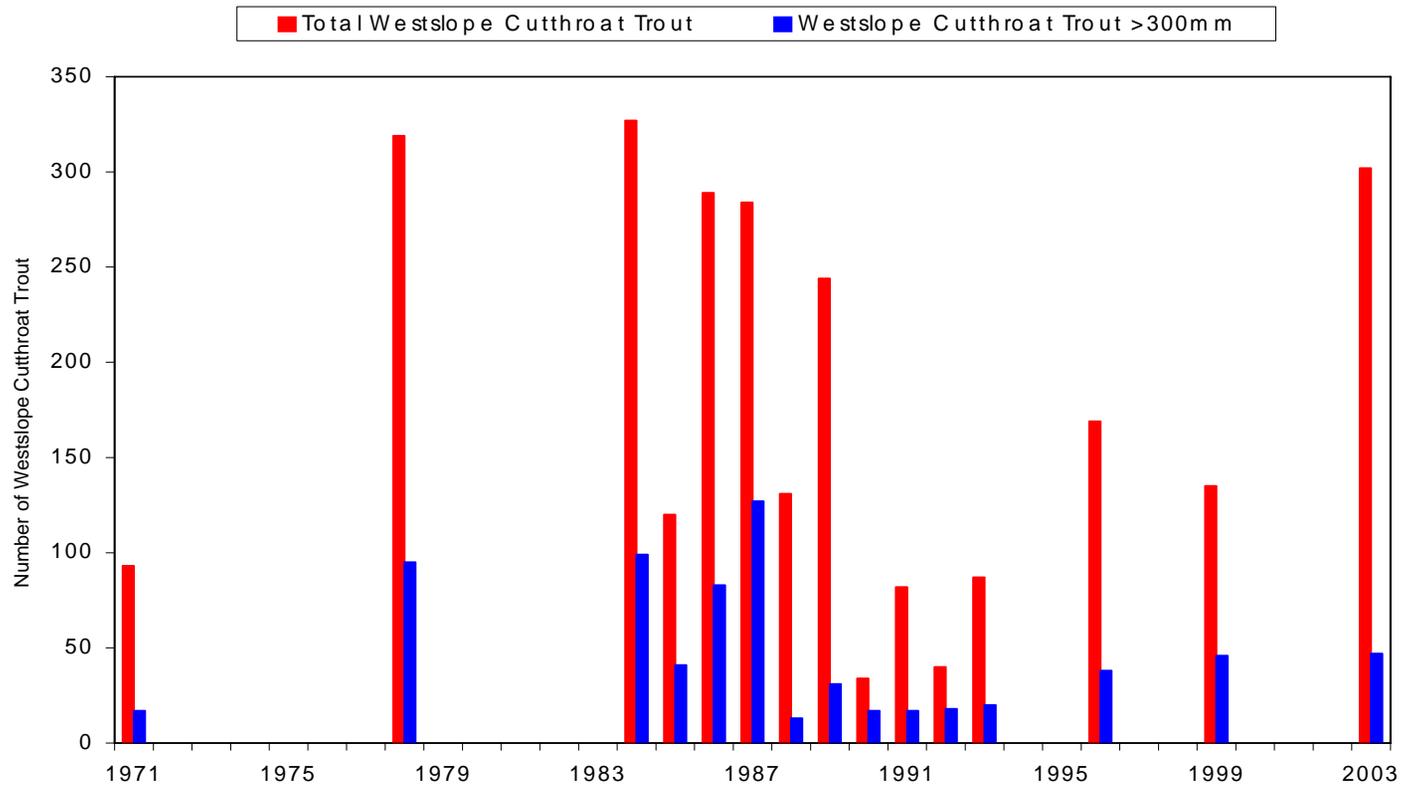


Figure 5. Number of westslope cutthroat trout counted in traditional Middle Fork Salmon River snorkeling transects (Pungo, Marble Pool, Lower Jackass, Whitey Cox, Hospital Pool, Tappan Pool, Flying B, Big Creek Bridge, Ship Island, Otter Bar, and Goat Creek Pool), 1971-2003.

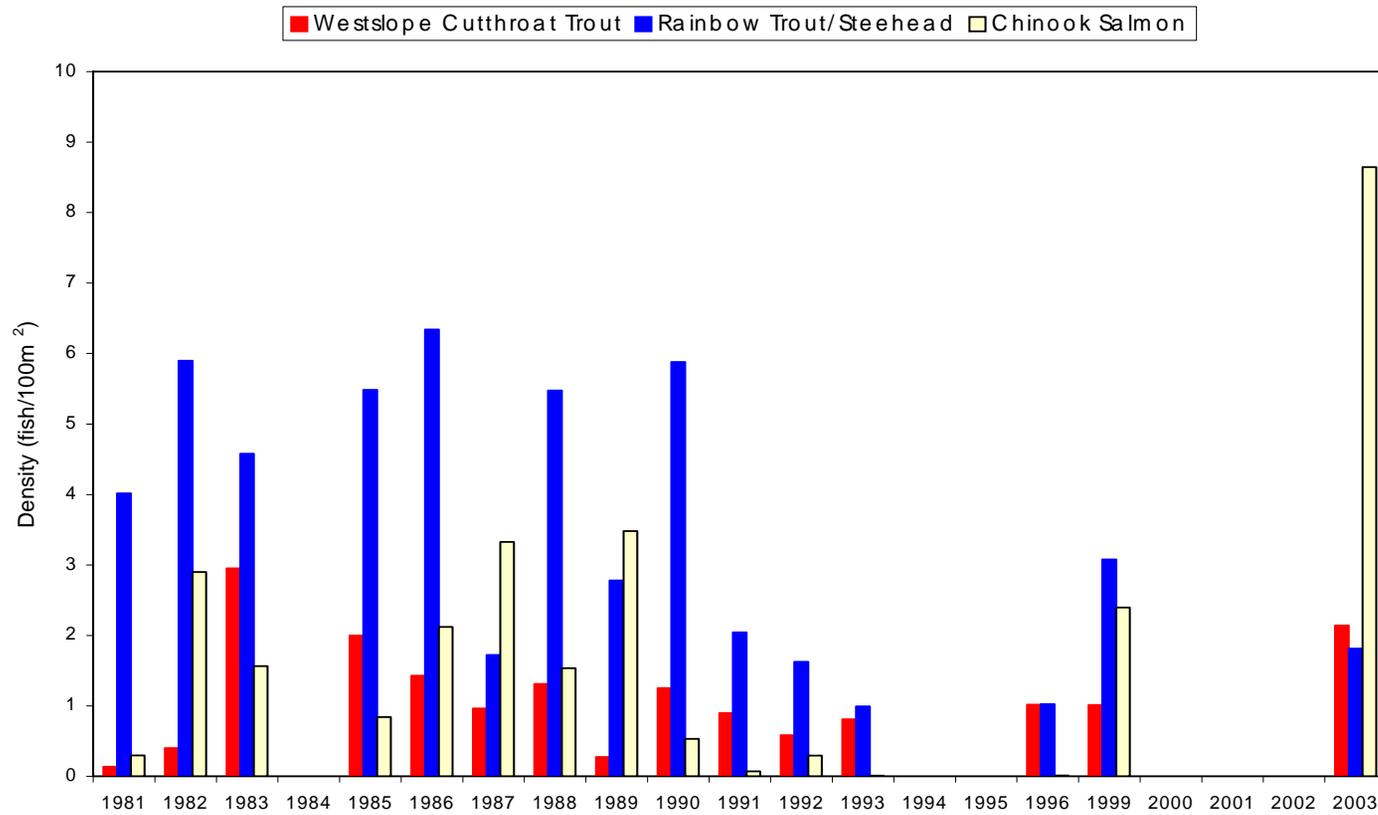


Figure 6. Mean densities of westslope cutthroat trout, Chinook salmon, and rainbow trout/steelhead counted in Middle Fork Salmon River tributary transects, 1981-1983, 1985-1993, 1996, 1999 and 2003 (Big Creek, Loon Creek, Pistol Creek, Marble Creek, Camas Creek).

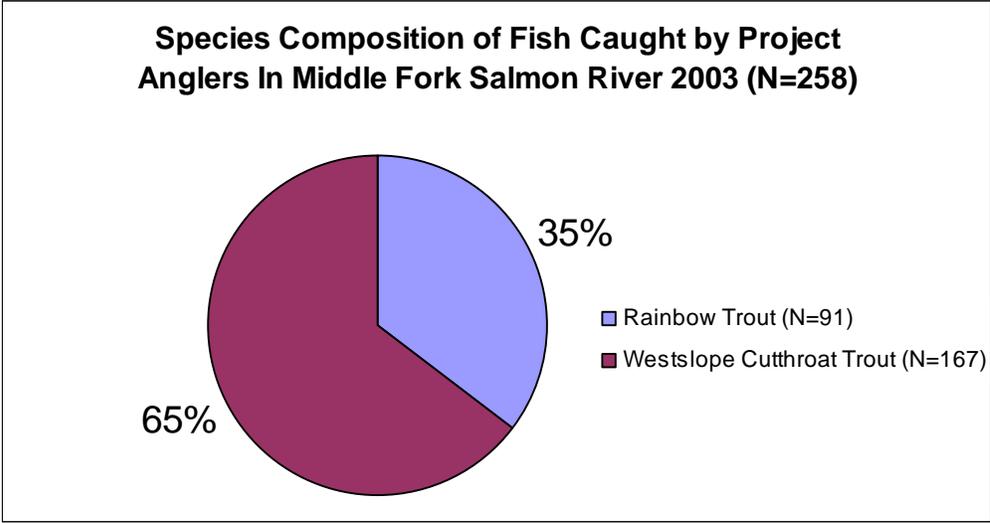


Figure 7. Species composition of fish caught by Department project anglers In Middle Fork Salmon River Project Angling, July 2003.

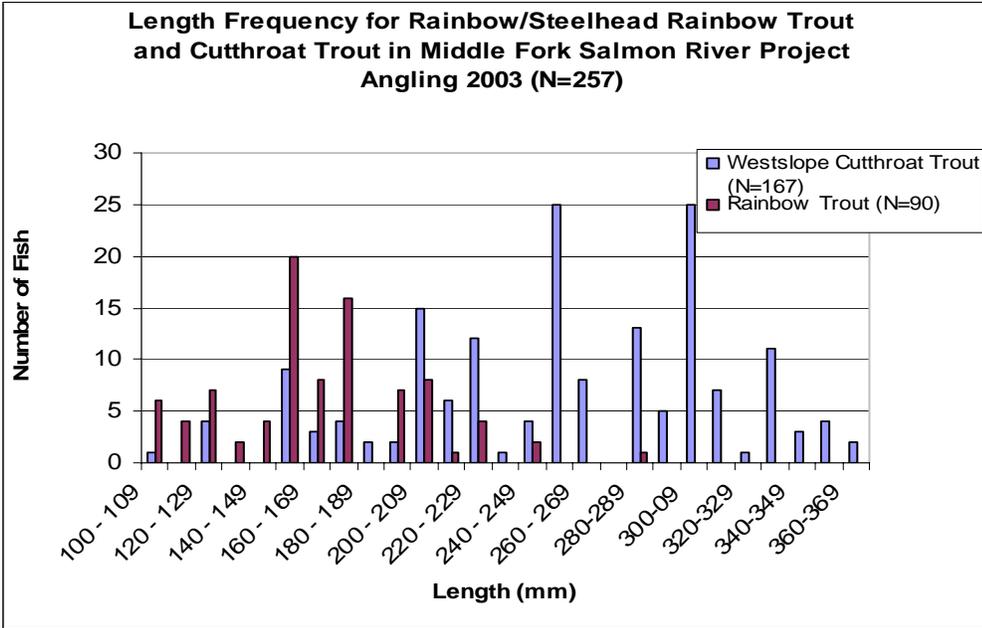


Figure 8. Length frequency of rainbow trout/steelhead and westslope cutthroat trout caught by Project Anglers in Middle Fork Salmon River Project Angling, July 2003.

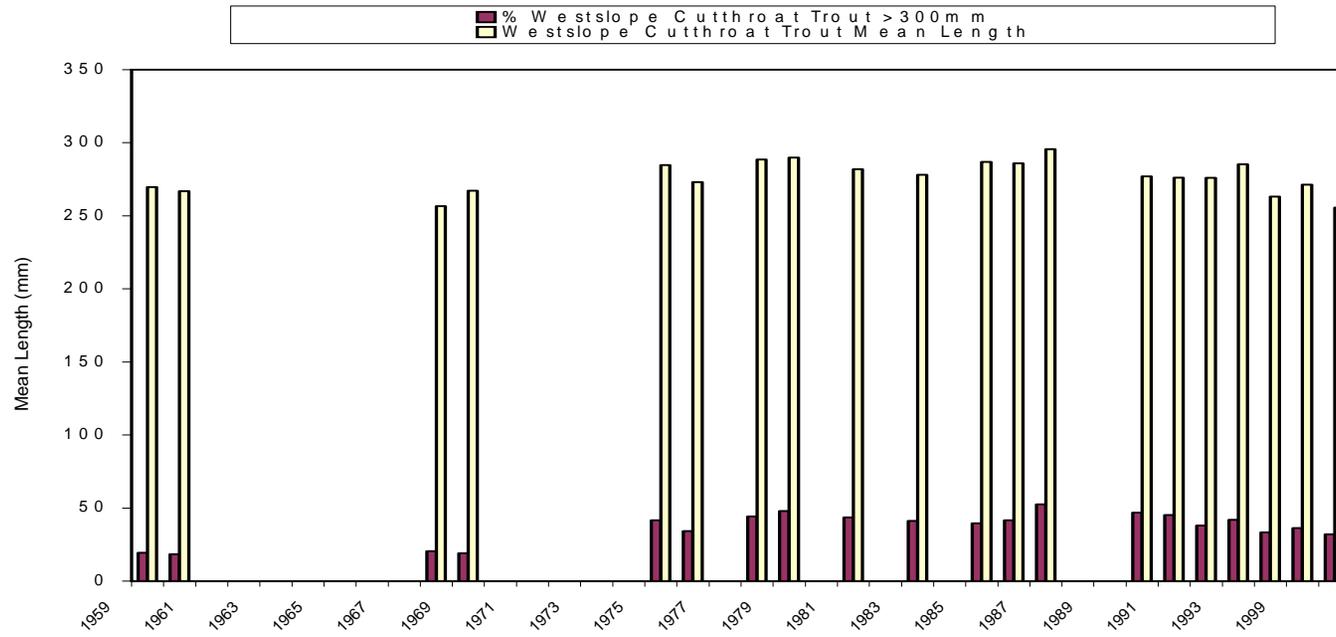


Figure 9. Mean length of all westslope cutthroat trout and proportion of westslope cutthroat trout larger than 300 mm sampled by project angling in the Middle Fork Salmon River, 1959-2003.

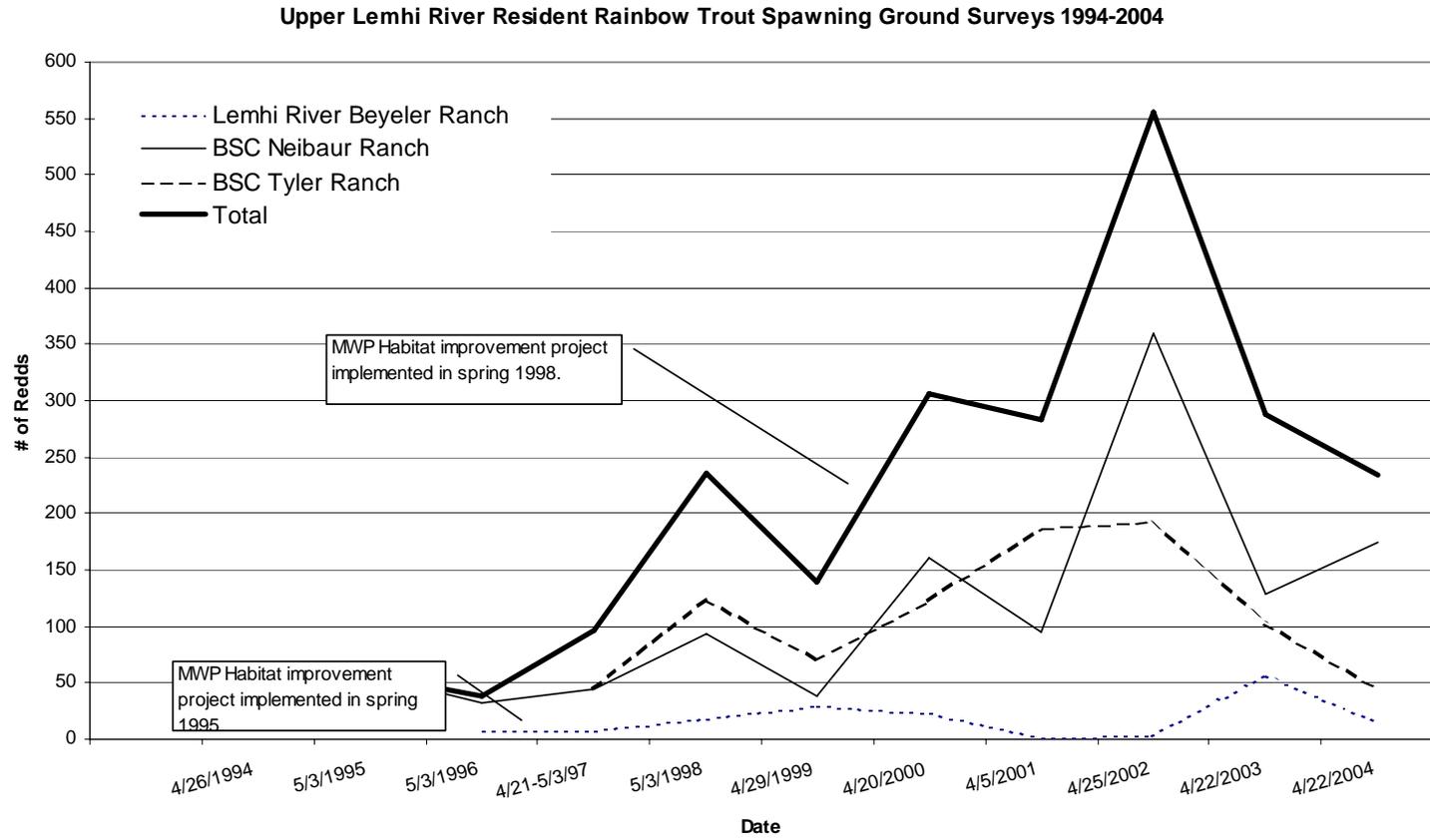


Figure 10. Upper Lemhi Resident Rainbow Trout Spawning Ground Surveys 1994 – 2004.

Bull Trout, Westslope Cutthroat Trout, and Steelhead Trout Combined Densities

Upper Valley Creek
 Middle Valley Creek
 Lower Valley Creek
 Stanley Lake Creek

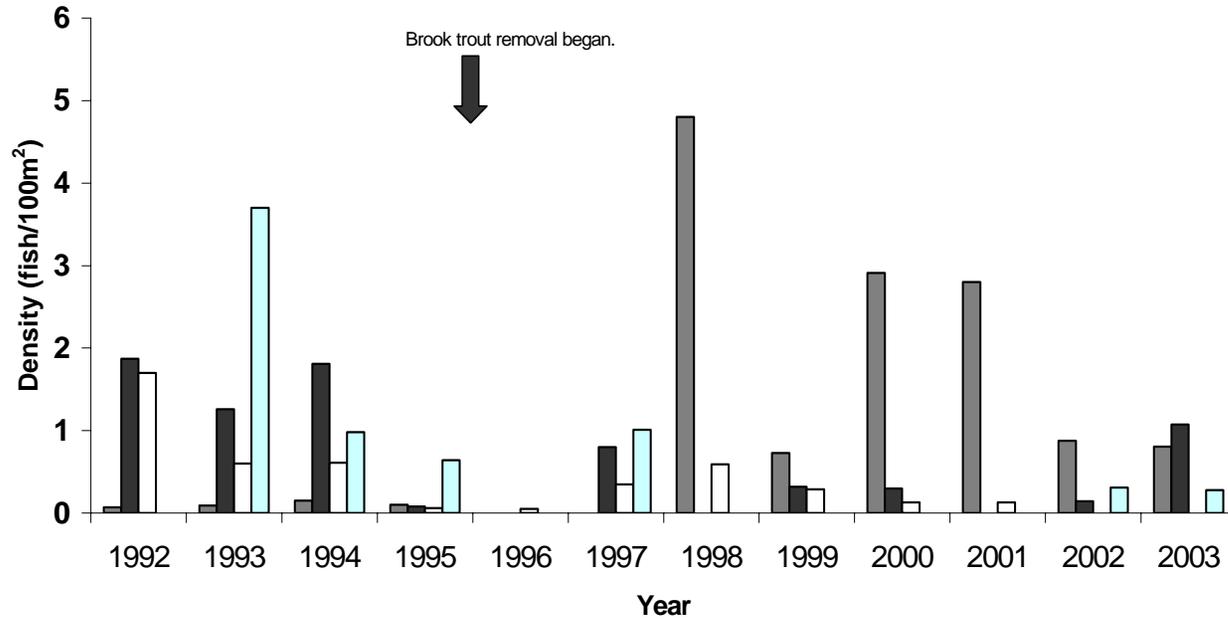


Figure 11. Population densities of bull trout, westslope cutthroat trout and steelhead in Valley Creek, 1992-2003 (data provided by Shoshone-Bannock Indian Tribes, Idaho Supplementation and General Parr Monitoring studies).

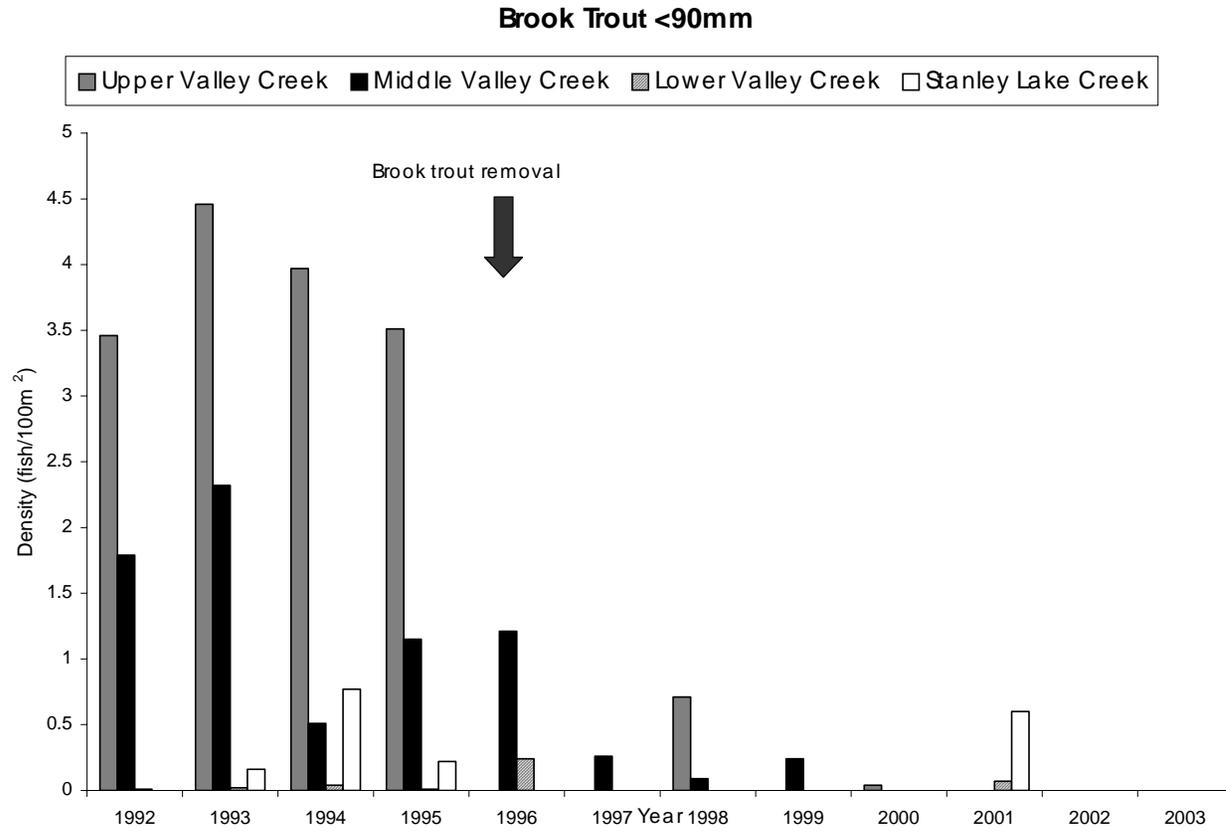


Figure 12. Density of brook trout < 90 mm total length in Valley Creek, 1992 – 2003 (Data provided by Shoshone-Bannock Indian Tribes, Idaho Supplementation and General Parr Monitoring studies).

Brook Trout 90-170mm

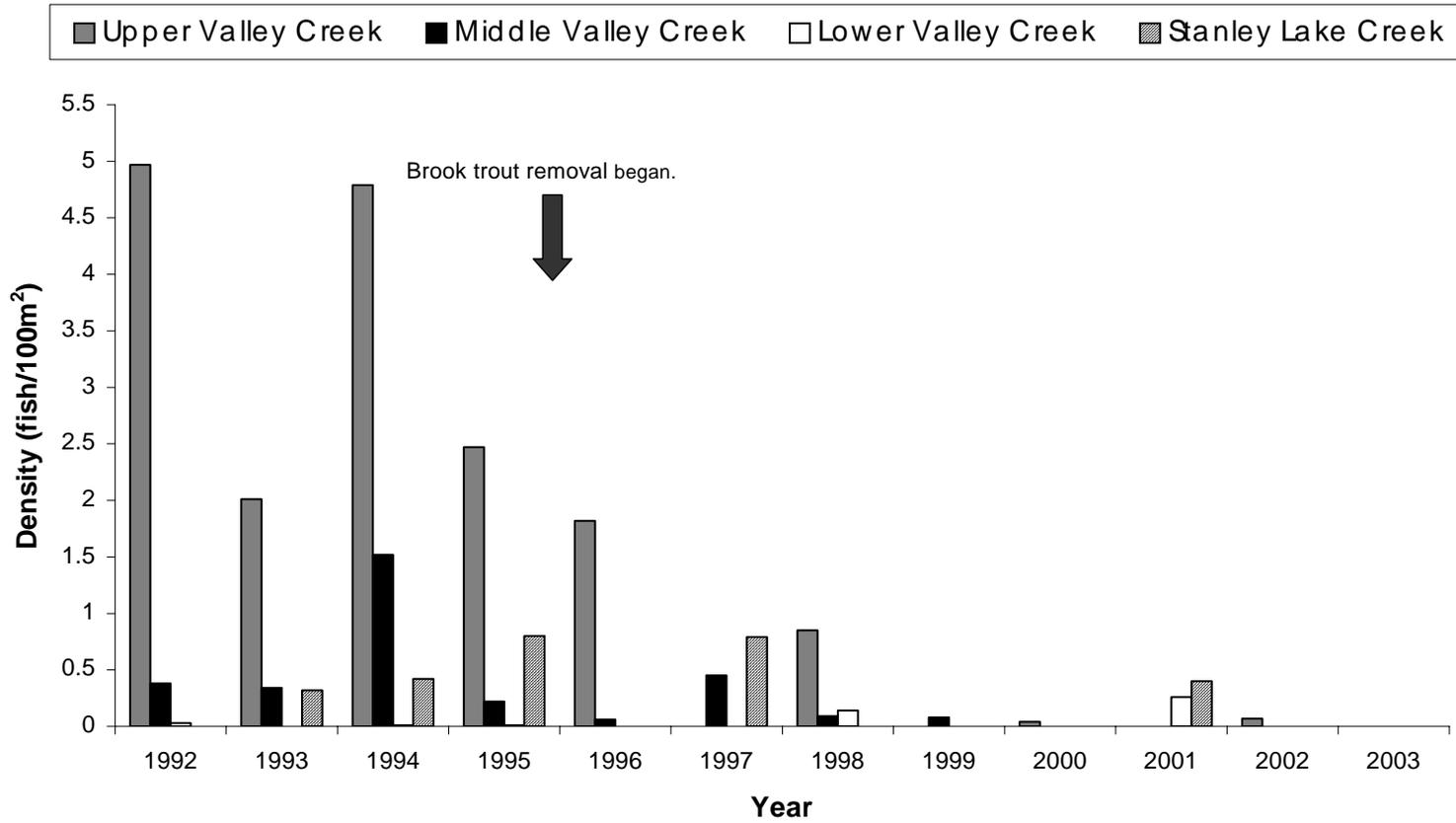


Figure 13. Density of brook trout 90 – 170 mm total length in Valley Creek, 1992 – 2003 (Data provided by Shoshone-Bannock Indian tribes, Idaho Supplementation and General Parr Monitoring studies).

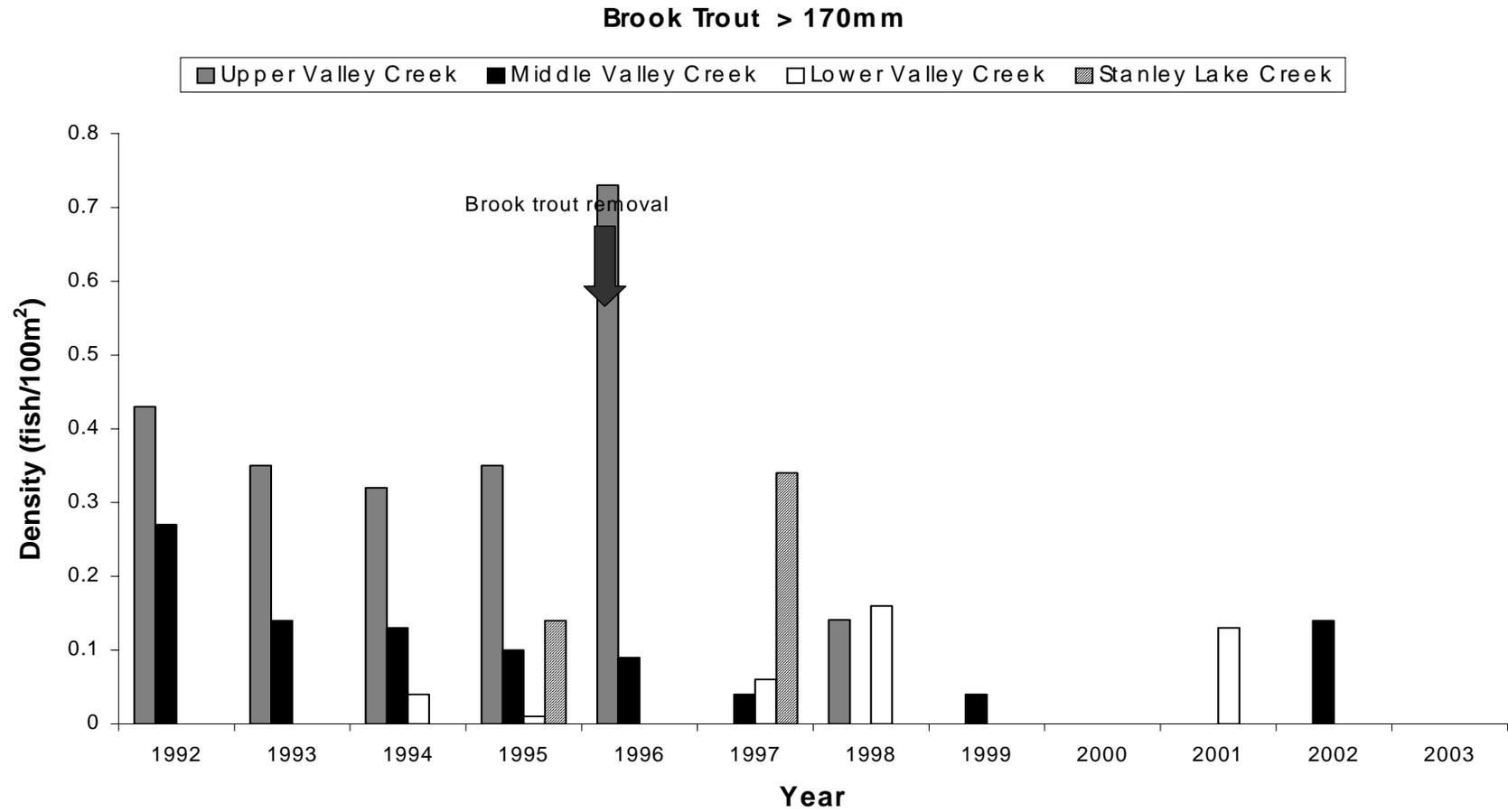


Figure 14. Density of brook trout 170 mm total length in Valley Creek, 1992-2003 (Data supplied by Shoshone-Bannock Indian tribes, Idaho Supplementation and General Parr Monitoring studies).

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APPENDICES

Appendix A. Site characteristics of streams surveyed in the Upper Salmon River Basin during the summer of 2003.

Stream	Transect ^a	Sample date	Channel type	Water temperature (°C)	Transect length (m)	Transect mean width (m)	Transect area (m)
Allan	L	10/21/2003	B	3.8	44	1.30	57.2
Basin	U	8/27/2003		21.1	100	1.44	144.0
Basin	L	8/28/2003		11.1	100	1.55	155.0
Basin	U	8/27/2003		10.6	100	1.42	142.0
Beaver	U	7/17/2003		14.0	100	4.31	431.0
Beaver	U	7/16/2003		17.0	100	3.37	337.0
Beaver	M	7/17/2003		14.0	100	3.83	383.0
Beaver	M	7/17/2003		16.5	100	4.90	490.0
Beaver	L	7/17/2003		17.5	100	4.86	486.0
Beaver	L	8/3/2003		14.4	100	4.72	472.0
Beaver	L	8/3/2003		18.3	100	4.52	452.0
Big Eightmile	U	7/23/2003		8.0	100	4.50	450.0
Big Eightmile	M	8/18/2003		18.9	100	3.56	356.0
Big Eightmile	M	8/18/2003		14.4	100	4.16	416.0
Big Eightmile	M	8/18/2003		10.6	100	6.32	632.0
Big Eightmile	U	7/23/2003		13.3	100	4.26	426.0
Big Eightmile	L	8/19/2003		15.6	100	4.79	479.0
Big Eightmile	M	8/6/2003		12.8	100	3.75	375.0
Big Hat	L	6/25/2003		11.0	75	2.17	162.0
Big Hat	M	6/12/2003		13.0	100	3.26	326.0
Big Hat	U	6/12/2003		11.0	100	1.56	156.0
Big Timber	M	10/2/2003		9.4	121	5.14	621.0
Big Timber	U	9/4/2003		10.0	100	2.08	208.0
Big Timber	M	10/2/2003		8.9	100	6.98	698.0
Big Timber	L	8/29/2003		15.6	100	5.78	578.0
Big Timber	L	8/29/2003		13.9	100	4.91	491.0
Big Timber	U	9/10/2003		6.7	100	4.42	442.0
Big Timber	U	9/11/2003		8.9	100	3.36	336.0
Big Timber	L	9/25/2003		6.1	100	6.18	618.0
Big Timber	M	9/25/2003		12.8	100	5.90	590.0
Big Timber	U	9/11/2003		11.1	100	6.00	600.0
Bruno	M	7/11/2003		16.0	30	15.00	450.0
Bruno	M	7/11/2003		15.0	50	1.05	52.5
Bruno	L	7/11/2003		16.0	100	0.00	0.0
Bruno	U	7/11/2003		9.0	50	0.00	0.0
Cabin	M	9/3/2003		11.1	100	1.99	199.0

Appendix A. Continued.

Canyon	U	6/23/2003		10.6	119	3.12	371.0
Canyon	M	6/23/2003			91	3.76	342.1
Canyon	L	6/23/2003		15.6	61.4	1.44	88.4
Carmen	M	10/27/2003		8.3	47.5	7.30	346.7
Cash	L	6/30/2003		12.0	100	2.28	228.0
Challis	U	6/23/2003		5.3	53	2.72	144.1
Cinnabar	M	6/29/2003		9.0	100	2.82	282.0
Climb	L	9/4/2003		10.0	100	1.40	140.0
Dairy	U	7/19/2003		16.0	100	2.70	270.0
Dairy	M	7/19/2003		17.0	100	2.22	222.0
Darling	U	6/26/2003		7.5	56.3	1.93	108.6
Ditch	L	10/23/2003	B	5.0	100	2.36	236.0
East Fork Kenney	L	7/30/2003		13.3	60	2.50	150.0
East Fork Pahsimeroi	M	9/2/2003		6.9	100	2.50	250.0
Falls	L	9/5/2003		7.8	100	2.44	244.0
Fourth of July	M	10/27/2003		8.9	50	8.94	447.0
Hat	L	8/5/2003		16.7	100	3.65	365.0
Hat	U	6/19/2003		11.0	100	4.88	488.0
Hat	U	6/19/2003		10.0	95	4.28	406.6
Hat	U	6/26/2003		10.0	100	3.32	332.0
Hat	L	7/9/2003		17.0	100	4.77	477.0
Hoodoo	L	9/10/2003		15.2	100	2.00	200.0
Hughes	L	8/12/2003	B	15.6	100	24.80	2,480.0
Hull	L	10/23/2003	B	7.0	60	1.42	85.2
Inyo	L	6/18/2003		7.1	48	2.43	116.6
Inyo	L	6/18/2003		6.1	28	1.52	42.56
Jordan	L	8/19/2003			108	3.10	334.8
Jordan	M	8/19/2003			81	4.10	332.1
Kenney	U	7/30/2003		12.2	100	3.59	359.0
Kenney	L	8/2/2003		17.2	100	1.79	179.0
Kenney	L	8/2/2003		13.3	100	1.70	170.0
Kenney	L	8/1/2003		15.0	100	3.22	322.0
Kenney	M	8/1/2003		12.2	100	3.10	310.0
Kenney	M	7/30/2003		11.7	100	2.91	291.0
Kenney	M	7/31/2003		13.3	100	3.33	333.0
Kinnikinic	L	9/9/2003		9.8	100	1.00	100.0
Lake	L	6/24/2003			100	1.72	172.0
Lake	U	6/24/2003			91	2.74	249.0
Little Beaver	M	7/18/2003			100	0.00	0.0
Little Hat	L	6/26/2003		18.0	100	2.15	215.0
Little Hat	M	6/25/2003		13.0	70	1.75	122.5
Little Timber	U	8/15/2003		18.3	100	4.15	415.0
Mahogany	U	6/12/2003		6.0	97	2.02	195.94

Appendix A. Continued.

Martin	M	6/27/2003	11.0	100	3.50	350.0	
Middle Fork Hat	M	6/18/2003	10.0	100	3.07	307.0	
Middle Fork Little Timber	U	8/13/2003	10.0	100	1.74	174.0	
Middle Fork Little Timber	L	8/15/2003	16.7	100	2.76	276.0	
Middle Fork Little Timber	M	8/13/2003	10.6	100	2.19	219.0	
Middle Fork Little Timber	M	8/15/2003	9.4	100	3.44	344.0	
Morgan	U	7/30/2003	13.0	49.1	1.29	63.3	
Negro Green	M	10/20/2003		958	1.22	1168.8	
North Fork Hat	M	6/18/2003	8.0	100	3.46	346.0	
North Fork Hat	L	6/20/2003	7.0	0	4.44	0.0	
North Fork Little Timber	M	8/20/2003	11.1	100	3.24	324.0	
North Fork Little Timber	U	8/14/2003	12.2	65	2.44	158.6	
North Fork Little Timber	U	8/14/2003	10.6	100	2.16	216.0	
North Fork Little Timber	L	8/20/2003	14.4	100	3.46	346.0	
Prospect	L	9/4/2003	7.8	100	2.19	219.0	
Rocky	L	9/12/2003	8.3	70	2.94	205.8	
Sage	U	10/20/2003	3.9	100	3.32	332.0	
Squaw	M	7/1/2003	8.0	100	5.65	565.0	
Squaw	L	8/4/2003	18.9	100	4.47	447.0	
Squaw	U	6/28/2003	13.0	100	4.70	470.0	
Squaw	M	7/10/2003	12.0	100	5.89	589.0	
Squaw	L	7/11/2003	10.0	100	6.06	606.0	
Squaw	L	7/12/2003	15.0	100	6.41	641.0	
Squaw	U	6/28/2003	9.0	100	2.67	267.0	
Squaw	L	8/4/2003	15.0	100	5.58	558.0	
Squaw	M	7/10/2003	17.0	100	6.99	699.0	
Squirrel	L	9/11/2003	5.6	100	1.96	196.0	
Sulphur	M	6/26/2003	18.0	59.9	1.01	60.5	
Thompson	M	8/20/2003		1	0.00	0.0	
Thompson	M	8/21/2003		89	3.79	337.3	
Thompson	M	4/24/2003	6.0	102.1	4.70	479.8	
Thompson	M	8/19/2003		102.1	4.70	479.8	
Thompson	M	8/20/2003		89	3.79	337.3	
Thompson	M	4/24/2003	6.0	89	3.70	329.3	
Threemile	L	8/19/2003	B	13.3	100	9.20	920.0
Trail	M	6/29/2003	10.0	100	3.25	325.0	
Trail	M	9/12/2003	5.0	100	1.41	141.0	
Twin	L	6/23/2003	5.1	54.2	4.30	233.1	
Van Horn	M	6/30/2003		66.7	2.64	176.1	
Wagonhammer	M	10/16/2003	4.0	100	1.78	178.0	
Wagonhammer	M	10/16/2003	4.4	100	2.00	200.0	
Wallace	L	8/18/2003		85	1.12	95.2	
Wallace	U	7/2/2003		87	2.06	179.2	

Appendix A. Continued.

Wallace	L	7/2/2003		96.2	2.02	194.3
Wallace	M	7/2/2003		98.3	2.00	196.6
West Fork	M	6/23/2003	4.1	53.8	2.65	142.5
West Fork Hughes	L	10/21/2003	B 3.0	100	1.88	188.0
Yankee Fork	M	8/20/2003		1	0.00	0.0
Yankee Fork	L	8/20/2003		1	0.00	0.0

^a L= lower reach, M= middle reach, and U= upper reach.

Appendix B. Upper Salmon River Basin (Idaho) tributary streams surveyed during the summer of 2003.

Stream	SUBBASIN	UTM		
		Zone	Easting	Northing
Allan	North Fork Salmon	11	731810	5044892
Basin	Lemhi River	12	307323	4939904
Basin	Lemhi River	12	309713	4942105
Basin	Lemhi River	12	306081	4938150
Beaver	Salmon-North Fork to headwaters	11	671036	4858651
Beaver	Salmon-North Fork to headwaters	11	669817	4856870
Beaver	Salmon-North Fork to headwaters	11	671848	4860318
Beaver	Salmon-North Fork to headwaters	11	673093	4861933
Beaver	Salmon-North Fork to headwaters	11	674783	4863159
Beaver	Salmon-North Fork to headwaters	11	675426	4863997
Beaver	Salmon-North Fork to headwaters	11	675687	4865357
Big Eightmile	Lemhi River	12	296022	4942815
Big Eightmile	Lemhi River	12	302149	4949232
Big Eightmile	Lemhi River	12	301267	4947623
Big Eightmile	Lemhi River	12	299776	4946494
Big Eightmile	Lemhi River	12	296962	4944593
Big Eightmile	Lemhi River	12	303096	4950775
Big Eightmile	Lemhi River	12	298307	4946062
Big Hat	Salmon-North Fork to headwaters	11	729182	4966872
Big Hat	Salmon-North Fork to headwaters	11	727472	4966372
Big Hat	Salmon-North Fork to headwaters	11	724081	4966479
Big Timber	Lemhi River	12	307947	4934300
Big Timber	Lemhi River	12	299622	4931099
Big Timber	Lemhi River	12	309332	4936757
Big Timber	Lemhi River	12	310499	4944928
Big Timber	Lemhi River	12	311683	4947883
Big Timber	Lemhi River	12	304110	4929968
Big Timber	Lemhi River	12	301805	4929336
Big Timber	Lemhi River	12	309880	4942643
Big Timber	Lemhi River	12	309880	4939471
Big Timber	Lemhi River	12	305441	4931572
Bruno	Salmon-North Fork to headwaters	11	699816	4909495
Bruno	Salmon-North Fork to headwaters	11	699567	4909662
Bruno	Salmon-North Fork to headwaters	11	700513	4907540
Bruno	Salmon-North Fork to headwaters	11	697203	4912459
Cabin	Lemhi River	12	303388	4927950
Canyon	Lemhi River	12	321103	4958336
Canyon	Lemhi River	12	319986	4956170
Canyon	Lemhi River	12	312909	4951114

Appendix B. Continued.

Stream	SUBBASIN	UTM		
		Zone	Easting	Northing
Carmen	Salmon-North Fork to headwaters	12	278261	5016520
Cash	Salmon-North Fork to headwaters	11	702189	4914456
Challis	Salmon-North Fork to headwaters	11	698563	4932745
Cinnabar	Salmon-North Fork to headwaters	11	698461	4914890
Climb	Lemhi River	12	300020	4930212
Dairy	Salmon-North Fork to headwaters	12	295173	4944163
Dairy	Salmon-North Fork to headwaters	12	296464	4945557
Darling	Salmon-North Fork to headwaters	11	713617	4948096
Ditch	North Fork Salmon	11	266080	5044052
East Fork Kenney	Lemhi River	12	297717	4993283
East Fork Pahsimeroi	Salmon-North Fork to headwaters	12	284669	4889695
Falls	Lemhi River	12	300899	4929422
Fourth of July	Salmon-North Fork to headwaters	12	276432	5032797
Hat	Salmon-North Fork to headwaters	11	736633	4964062
Hat	Salmon-North Fork to headwaters	11	727319	4971291
Hat	Salmon-North Fork to headwaters	11	728903	4970982
Hat	Salmon-North Fork to headwaters	11	730079	4967554
Hat	Salmon-North Fork to headwaters	11	735036	4963426
Hoodoo	Salmon-North Fork to headwaters	11	690767	4980381
Hughes	North Fork Salmon	11	732179	5039858
Hull	North Fork Salmon	12	265603	5039314
Inyo	Pahsimeroi River	12	287288	4934271
Inyo	Salmon-North Fork to headwaters	12	287420	4934142
Jordan	Salmon-North Fork to headwaters	11	680326	4923406
Jordan	Salmon-North Fork to headwaters	11	680463	4920610
Kenney	Lemhi River	12	4993658	297530
Kenney	Lemhi River	12	290996	4989187
Kenney	Lemhi River	12	291784	4989612
Kenney	Lemhi River	12	291925	4989800
Kenney	Lemhi River	12	294172	4991146
Kenney	Lemhi River	12	297248	4993220
Kenney	Lemhi River	12	295315	4991850
Kinnikinic	Salmon-North Fork to headwaters	11	706941	4905403
Lake	East Fork Salmon	11	720750	4887146
Lake	East Fork Salmon	11	725669	4886056
Little Beaver	Salmon-North Fork to headwaters	11	674638	4862094
Little Hat	Salmon-North Fork to headwaters	11	4962742	733365
Little Hat	Salmon-North Fork to headwaters	11	730436	4961108
Little Timber	Lemhi River	12	306086	4941787
Mahogany	Pahsimeroi River	12	280373	4895894
Martin	Salmon-North Fork to headwaters	11	697975	4918978

Appendix B. Continued.

Stream	SUBBASIN	UTM		
		Zone	Easting	Northing
Middle Fork Hat	Salmon-North Fork to headwaters	11	724514	4972152
Middle Fork Little Timber	Lemhi River	12	300636	4936504
Middle Fork Little Timber	Lemhi River	12	304895	4940040
Middle Fork Little Timber	Lemhi River	12	302105	4937382
Middle Fork Little Timber	Lemhi River	12	303601	4938378
Morgan	Salmon-North Fork to headwaters	11	717036	4967829
Negro Green	Lemhi River	11	790682	4934912
North Fork Hat	Salmon-North Fork to headwaters	11	725035	4974116
North Fork Hat	Salmon-North Fork to headwaters	11	726342	4973270
North Fork Little Timber	Lemhi River	12	303668	4940370
North Fork Little Timber	Lemhi River	12	302104	4939754
North Fork Little Timber	Lemhi River	12	300037	4939251
North Fork Little Timber	Lemhi River	12	305135	4941159
Prospect	Lemhi River	12	300377	4929657
Rocky	Lemhi River	12	306142	4932744
Sage	Salmon-Horse ck to North Fork	11	727720	5032614
Squaw	Salmon-North Fork to headwaters	11	699610	4917800
Squaw	Salmon-North Fork to headwaters	11	703163	4902898
Squaw	Salmon-North Fork to headwaters	11	699948	4920073
Squaw	Salmon-North Fork to headwaters	11	700083	4915308
Squaw	Salmon-North Fork to headwaters	11	701511	4909715
Squaw	Salmon-North Fork to headwaters	11	702143	4905946
Squaw	Salmon-North Fork to headwaters	11	699687	4922652
Squaw	Salmon-North Fork to headwaters	11	702935	4903817
Squaw	Salmon-North Fork to headwaters	11	701565	4911727
Squirrel	Lemhi River	12	302449	4928641
Sulphur	Pahsimeroi river	12	265199	4932098
Thompson	Salmon-North Fork to headwaters	11	692454	4911296
Thompson	Salmon-North Fork to headwaters	11	694230	4907158
Thompson	Salmon-North Fork to headwaters	11	692936	4908741
Thompson	Salmon-North Fork to headwaters	11	695725	4906578
Thompson	Salmon-North Fork to headwaters	11	695725	4906578
Thompson	Salmon-North Fork to headwaters	11	692936	4908741
Threemile	North Fork Salmon	12	276493	5050577
Trail	Salmon-North Fork to headwaters	11	701612	4918819
Trail	Lemhi River	12	305390	4929608
Twin	Salmon-North Fork to headwaters	11	704506	4939335
Van Horn	Salmon-North Fork to headwaters	11	713655	4962020
Wagonhammer	Salmon-North Fork to headwaters	12	270661	5032146
Wagonhammer	Salmon-North Fork to headwaters	12	271230	5032797
Wallace	Salmon-North Fork to headwaters	12	272238	5016159
Wallace	Salmon-North Fork to headwaters	12	265728	5014652

Appendix B. Continued.

Stream	SUBBASIN	UTM		
		Zone	Easting	Northing
Wallace	Salmon-North Fork to headwaters	12	270430	5016379
Wallace	Salmon-North Fork to headwaters	12	267975	5015493
West Fork	Salmon-North Fork to headwaters	11	702087	4938247
West Fork Hughes	North Fork Salmon	11	731114	5039827
Yankee Fork	Salmon-North Fork to headwaters	11	681803	4916429
Yankee Fork	Salmon-North Fork to headwaters	11	681108	4914716

2003 ANNUAL MANAGEMENT REPORT

Technical Assistance

ABSTRACT

As time allowed during 2003, project staff provided technical assistance to private landowners, irrigation districts, and all requesting state, federal and tribal agencies. We submitted comments to agencies and private entities concerning outfitter/guide special use permits, inquiries regarding stream habitat conditions on private lands, private pond permits, grazing allotments, applications for installation of instream structures, bank stabilization, stabilization and treatment of mine tailings, fish screening, prescribed burns, walk and wade fishing permits, applications for irrigation diversions, permits for discharging materials into streams, consultations concerning Endangered Species Act (ESA) issues, bridge construction, applications for stream restoration projects and water right applications. Department staff also spent considerable time assisting with the development of the Lemhi Habitat Conservation Plan, the Upper Salmon Basin Conservation Plan, Upper Salmon sub-basin assessment planning, and the update of a region wide tributary prioritization plan.

Regional personnel were an integral part of the collaboration effort with the Upper Salmon Basin Watershed Project to implement on the ground habitat improvement measures, potential stream reconnects and fish migration flows. We also conducted on-site inspections of proposed, on-going and completed projects.

Department personnel participated in angler informational meetings, school presentations, multi-agency and private landowner collaborative groups, and the ASKFISH program. Of the estimated 45,000 anglers that fish in the Salmon Region, approximately 90% live outside the area. Because these anglers are not familiar with regional waters, we respond to over 500 requests for basic information on fishing opportunities, techniques, regulations and area specifics.

Authors:

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Bob Esselman - Regional Fishery Biologist

Arnie Brimmer - Regional Fishery Biologist

Kimberly Andrews - Regional Fishery Technician

OBJECTIVES

1. Assist the Idaho Department of Water Resources, the Idaho Department of Lands, the US Army Corps of Engineers, and other state, federal, local and private entities in evaluating the effects of habitat manipulation on fish and fish habitat.
2. Recommend procedures that minimize adverse effects on aquatic habitat and fish, caused by stream course alterations, and when possible work with all entities to restore functional river systems.
3. Provide information on all aspects of fisheries and aquatic habitat as requested.

METHODS

We responded to most requests for data, expertise, and recommendations from individuals, government agencies, corporations and private consultants. Project staff attended meetings, conducted field inspections, and generated responses as appropriate.

RESULTS

During 2003, we responded via letters, e-mail, telephone, field inspections, meetings, and reports to requests for technical assistance or comments on water and fishery-related matters (Table 1.).

Table 1. Responses to request for technical assistance or comments on water and fishery related matters.

Entity	Number of Requests
US Army Corps of Engineers	43
Idaho Department of Water Resources	37
Idaho Department of Lands	2
USDA Forest Service	28
Idaho Division of Environmental Quality	26
US Fish and Wildlife Service	68
Governor's Office of Species Conservation	40
NOAA Fisheries	210
Shoshone-Bannock Indian Tribes	12
US Bureau of Reclamation	21
Private consultants	19
Idaho Outfitters and Guides Licensing Board	3
Mining Companies	5
Department of Transportation	2
Pond permitting	23
Attorney General's Office	20
Custer County	1
Bureau of Land Management	26
General Public	117
Upper Salmon Basin Model Watershed Project	29
Lemhi Agreement	13
Private Landowners	41
Adjudication	13
Environmental Protection Agency	3
Law Offices	1
Upper Salmon Basin Habitat Conservation Plan	8
Blackbird/Panther Creek Reclamation Project	20
Total	831

Project personnel usually contacted agencies and private landowners by telephone. Commonly, we responded to stream alteration proposals by meeting with the applicant on-site, determining the nature of the situation, and sending written or verbal comments to the appropriate agency.

We responded to numerous inquiries from the public (via telephone, letter, email and in person) about when, where, and how to participate in regional fisheries activities, ranging from steelhead angling to alpine lake fishing.

We reported weekly steelhead fishing results on the local radio station, in area newspapers and ASKFISH throughout the season.

Combined efforts of fisheries staff with affiliated personnel of the Upper Salmon Basin Watershed Project pursued possible stream reconnection projects on Hawley, Falls, Little Morgan, Twelve Mile, Big Eightmile, Big Timber, and Kenney creeks. Department staff also collaborated with this group to acquire water savings through diversion consolidations and water conveyance improvements. Currently, the Department is working collaboratively with the Upper

Salmon Basin Watershed Project to pursue the transfer of water from L6 diversion to S12 diversion. Upon completion, this transfer will provide additional flows to the Lemhi River to improve the lower river fish migration corridor.

Because the Salmon Region has no full-time Information and Education personnel, we respond to numerous requests by local schools and the general public for fish and wildlife related programs. During 2003, Salmon Region fisheries personnel held 11 aquatic education programs with approximately 832 students. Salmon Region Fish and Game personnel also held 29 wildlife education programs with approximately 1,658 participants.

RECOMMENDATIONS

1. Technical guidance in the Salmon Region should be continued to assist in maintaining fishery resources in the region.
2. Because of the number of requests for technical guidance and the potential funding for improving fishery resources in the Salmon Region, consideration should be given to adding fisheries staff to administer aquatic habitat issues and to assist in the various planning and habitat improvement measures being pursued in the Region.

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