FISHERY MANAGEMENT INVESTIGATIONS

FEDERAL AID IN FISH RESTORATION
2001 JOB PERFORMANCE REPORT
PROGRAM F-71-R-26

Steven M. Huffaker, Director

REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS
SOUTHWEST REGION (McCall) (Subprojects I-C, II-C, III-C, IV-C)

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Job b-1.	**McCall Subregion Lowland Lakes Investigations**
Job b-2.	**Cascade Reservoir, Yellow Perch Investigations**
Job c.	**McCall Subregion Rivers and Streams Investigations**
PROJECT II.	**TECHNICAL GUIDANCE**
PROJECT III.	**HABITAT MANAGEMENT**

By

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2001 ANNUAL PERFORMANCE REPORT

State of: Idaho | Program: Fisheries Management F-71-R-26

Project I: Surveys and Inventories | Subproject I-C: Southwest Region (McCall)

Job: a | Title: Mountain Lakes Investigation

Contract Period: July 1, 2001 to June 30, 2002

ABSTRACT

We completed Idaho Department of Fish and Game standard mountain lake surveys on four lakes in 2001 to assess physical habitat parameters and stocking strategies. We collected only rainbow trout *Oncorhynchus mykiss* from upper and lower Hornet Creek Reservoirs (08-103 and 08-104), only westslope cutthroat trout *O. clarki lewisi* from Kimberly Lake #1 (07-243), and westslope cutthroat trout and brook trout *Salvelinus fontinalis* from Kimberly Lake #2 (07-244).

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OBJECTIVES

1. Evaluate fisheries management strategies in alpine lakes.
2. Identify problems and/or opportunities in lakes that currently are not being directly managed.

INTRODUCTION

The Idaho Department of Fish and Game (IDFG) conducts standard mountain lake surveys each year to evaluate and adjust the mountain lakes fish stocking program.

We attempted to remove all brook trout *Salvelinus fontinalis* from Kimberly Lake # 2 in 1998 with gill nets to prevent their escape and establishment in Bear Creek (Janssen et al. 2000b). No brook trout were found in Bear Creek when last surveyed in 1996 (Jansen et al. 2000a). Westslope cutthroat trout *Oncorhynchus clarki lewisi* were put back on the stocking rotation with the first stocking in 1998. We surveyed the lake in 2001 to evaluate the success of the above treatment.

METHODS

We examined fish populations and habitats in upper and lower Hornet Creek reservoirs (08-103 and 104), Kimberly Lake #1 (07-243), and Kimberly Lake #2 (07-244) using IDFG standard mountain lake survey methods. We set gill nets (125-ft sinking) in the afternoon and pulled them the next morning. All fish collected were weighed to the nearest g and total length was measured to the nearest mm.

RESULTS

We completed fish population and habitat data surveys on four mountain lakes in 2001: upper and lower Hornet Creek reservoirs (08-103 and 104), Kimberly Lake #1 (07-243), and Kimberly Lake #2 (07-244). Fish were found in all four lakes. Length frequencies and average condition factors are listed in Table 1. Completed survey forms are presented in Appendices A through D.

We collected only rainbow trout *O. mykiss* from upper and lower Hornet Creek reservoirs (Table 1). Upper Hornet Creek R. was stocked annually with 3,000 rainbow trout fry and the lower reservoir was not stocked.

We collected only westslope cutthroat trout *O. clarki lewisi* from Kimberly Lake #1 and westslope cutthroat trout and one brook trout *Salvelinus fontinalis* from Kimberly Lake #2.

Table 1. Total number and average condition factors (Ktl) or relative weights (Wr) by length group of each species of fish sampled in mountain lakes in 2001.

Lake	Cat. No.	Species Ktl/ Wr	Total length (mm)													
			>100	>125	>150	>175	>200	>225	>250	>275	>300	>325	>350	>375	>400	>425
Hornet Reservoir	08-104	Rbt	0	0	2	0	0	0	3	4	1	0	0	0	0	0
		Ktl	0	0	1.78	0	0	0	1.19	0.99	0.97	0	0	0	0	0
Lower Hornet Reservoir	08-103	Rbt	0	0	2	7	4	0	0	0	0	0	0	0	0	0
		Ktl	0	0	1.12	1.27	1.36	0	0	0	0	0	0	0	0	0
Kimberly #1	07-243	Ctt	0	0	0	0	0	0	0	1	0	1	0	0	0	0
		Ktl	0	0	0	0	0	0	0	1.25	0	1.22	0	0	0	0
Kimberly #2	07-244	Ctt	0	0	0	0	0	2	0	0	10	5	0	0	0	0
		Ktl	0	0	0	0	0	1.10	0	0	0.95	1.03	0	0	0	0
		Brk	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		Wr	0	0	0	93.9	0	0	0	0	0	0	0	0	0	0

RECOMMENDATIONS

1. Continue to monitor fish populations in high mountain lakes in the region and make appropriate management changes.
2. Continue to monitor the brook trout population in Kimberly Lake #2 every three to five years.

LITERATURE CITED

Janssen, P.J., K.A. Apperson and D.R. Anderson. In review. Regional fishery management investigations. 2000 Job performance report. Program F-71-R-25, Idaho Department of Fish and Game, Boise.

Janssen, P.J., K.A. Apperson and D.R. Anderson. 2000a. Regional fishery management investigations. 1996 Job performance report. Program F-71-R-21, Idaho Department of Fish and Game, Boise.

Janssen, P.J., K.A. Apperson and D.R. Anderson. 2000b. Regional fishery management investigations. 1998 Job performance report. Program F-71-R-23, Idaho Department of Fish and Game, Boise.

APPENDICES

Appendix A.

Idaho Fish and Game
Mountain Lake Survey Form

Lake Name: Hornet Res. #1 (upper) Date: 08/13/01
IDFG Catalog #: 08-0104 EPA #:
Major Drainage: Weiser River Minor Drainage: Hornet Creek
County: Washington Region: 3M
USFS Ranger District: Council Wilderness Area:
Section: 20 Township: 17N Range: 3W Elevation: 6889 Ft.

Physical:
Lake Type: 6 1. Cirque 2. Moraine 3. Slump 4. Caldera 5. Beaver 6. Reservoir
Total Surface Area: 10.6 ha
Depth Profile: 3
1. deep (75% of lake >6m deep)
2. moderate (50% of lake >6m deep)
3. shallow (25% of lake >6m deep)
Maximum Depth: 4.6m
Average Depth: 2.6m

Aspect: 3
1. Lake has north facing exposure
2. Lake has south facing exposure
3. Lake has east facing exposure
4. Lake has west facing exposure
5. Lake is exposed on all directions

Chemical:
Alkalinity: 1 mg/l pH:
Conductivity: 40 umHOS/cm^2 Temp (surface): . F
Secchi depth: 4. m Temp (bottom): . F

Spawning Potential:
Inlet(s): 1(number) Outlet(s): 1(number)
Length accessible for spawning: 200 m
Length accessible for spawning: m
Inlet spawning suitability: 2 Outlet spawning suitability: 4
1. excellent (abundant)
2. adequate (enough to maintain suitable spawning populations)
3. fair (not enough to maintain population)
4. poor (not suitable for successful spawning)

Use:
Campsites: 7 (number) Fire Pits: 8 (number) Litter: L☐ M☐H☒
Trail around lake: ☒ complete ☐ partial ☐ none trampled: ☒Y☐N
Access: ☒ good trail ☐ poor trail ☐ cross country
Access Directions: Take road to Cuddy Mine (left just before you get to USFS, Hornet Guard Station) Take left fork in road one mile before Cuddy Mine.

Biological:
Zooplankton Composition and Density
Genera Identified % of sample Size Density(g/l)

Appendix A. Continued.

Insect Composition and Abundance:

Aquatic Genera	Relative Abundance	Terrestrial Genera	Relative Abundance
	L☐M☐H☐		L☐M☐H☐
	L☐M☐H☐		L☐M☐H☐
	L☐M☐H☐		L☐M☐H☐

Fish Survey:

Fisherman: 1 (numbers) Hours Fished: 0.5
Fish Caught: 0 Fish/hour: Abundance: L☐M☐H☐

Length Frequency:

Total Length (mm)

Species	0-49	50-99	100-149	150-199	200-249	250-299	300-349	350-399	400+
RBT				2		7	1		
Total				2		7	1		

Fish Condition:

	Total Length (mm)		Weight (g)		Condition (k or Wr)	
Species	Mean	Range	Mean	Range	Mean	Range
RBT	250.5	150-305	188	50-275	1.2	0.93-2.22

Stocking History:

Year	Species	Number	Comments
2000	T9	2000	All fry Stockings
1999	K1	3000	
1998	K1	3000	
1997	K1	3000	
1996	K1	3000	

Comments:
Res. 5 ft.-6ft. below full pool. Physical Lake Type 6 Res.

Appendix B.

Idaho Fish and Game
Mountain Lake Survey Form

Lake Name: Hornet Res. #2 (lower) Date: 08/13/01
IDFG Catalog #: 080103 EPA #:
Major Drainage: Weiser River Minor Drainage: Hornet Creek
County: Washington Region: 3M
USFS Ranger District: Council Wilderness Area:
Section: 20 Township: 17N Range: 3W Elevation: 7061 Ft.

Physical:

Lake Type: 6 1. Cirque 2. Moraine 3. Slump 4. Caldera 5. Beaver 6. Reservoir
Total Surface Area: . ha
Depth Profile: 3
1. deep (75% of lake >6m deep)
2. moderate (50% of lake >6m deep)
3. shallow (25% of lake >6m deep)
Maximum Depth: 1.6m
Average Depth: 1.0m

Aspect: 1,3
1. Lake has north facing exposure
2. Lake has south facing exposure
3. Lake has east facing exposure
4. Lake has west facing exposure
5. Lake is exposed on all directions

Chemical:

Alkalinity: 1 mg/l
Conductivity: 50 umHOS/cm^2
Secchi depth: m
pH: 7.8
Temp (surface): 22. F
Temp (bottom): F

Spawning Potential:

Inlet(s): 2(number)
Length accessible for spawning:
60 m
Inlet spawning suitability: 1

Outlet(s): 1(number)
Length accessible for spawning:
m
Outlet spawning suitability: 4

1. excellent (abundant)
2. adequate (enough to maintain suitable spawning populations)
3. fair (not enough to maintain population)
4. poor (not suitable for successful spawning)

Use:

Campsites: 0 (number) Fire Pits: 0 (number) Litter: L☒ M☐H☐
Trail around lake: ☒ complete ☐ partial ☐ none trampled: ☒Y☐N
Access: ☐ good trail ☒ poor trail ☐ cross country
Access directions:

Biological:

Zooplankton Composition and Density

Genera Identified	% of sample	Size	Density(g/l)

Appendix B. Continued.

Insect Composition and Abundance:

Aquatic Genera	Relative Abundance	Terrestrial Genera	Relative Abundance
	L☐M☐H☐		L☐M☐H☐
	L☐M☐H☐		L☐M☐H☐
	L☐M☐H☐		L☐M☐H☐

Fish Survey:

Fisherman: 0 (numbers) Hours Fished:
Fish Caught: Fish/hour: Abundance: L ☐M☐H☐

Length Frequency:

Total Length (mm)

Species	0-49	50-99	100-149	150-199	200-249	250-299	300-349	350-399	400+
RBT				9	4				
Total				9	4				

Fish Condition:

	Total Length (mm)		Weight (g)		Condition (k or Wr)	
Species	Mean	Range	Mean	Range	Mean	Range
RBT	193.5	160-220	95.3	50-175	1.28	1.01-1.89

Stocking History:

Year	Species	Number	Comments
			No stocking history

Comments:

12-15 ft. below full pool, Will drain to a channel. Lots of Tiger Salamanders. Physical Lake Type 6- Res.

Appendix C.

Idaho Fish and Game
Mountain Lake Survey Form

Lake Name: Kimberly Lake # 1 Date: 07/18/01
IDFG Catalog #: 07-0243 EPA #:
Major Drainage: Salmon River Minor Drainage: Bear Creek
County: Idaho Region: 3 M
USFS Ranger District: BLM Mining District Wilderness Area:
Section: 20 Township: 24 N Range: 5 E Elevation: 7000 Ft.

Physical:
Lake Type: 2 1. Cirque 2. Moraine 3. Slump 4. Caldera 5. Beaver
Total Surface Area: 1.296 ha
Depth Profile: 3
1. deep (75% of lake >6m deep)
2. moderate (50% of lake >6m deep)
3. shallow (25% of lake >6m deep)
Maximum Depth: 4.0m
Average Depth: 3.3m

Aspect: 1
1. Lake has north facing exposure
2. Lake has south facing exposure
3. Lake has east facing exposure
4. Lake has west facing exposure
5. Lake is exposed on all directions

Chemical:
Alkalinity: 0 mg/l
Conductivity: 70 umHOS/cm^2
Secchi depth: 4.5 m

pH: 8.7
Temp (surface): 57. F
Temp (bottom): . F

Spawning Potential:
Inlet(s): 2(number)
Length accessible for spawning:
0 m
Inlet spawning suitability: 4

Outlet(s): 1(number)
Length accessible for spawning:
10 m
Outlet spawning suitability: 2-3

1. excellent (abundant)
2. adequate (enough to maintain suitable spawning populations)
3. fair (not enough to maintain population)
4. poor (not suitable for successful spawning)

Use:
Campsites: 0 (number) Fire Pits: 0 (number) Litter: L☒ M☐H☐
Trail around lake: ☐ complete ☒ partial ☐ none trampled: ☒Y☐N
Access: ☐ good trail ☐ poor trail ☐ cross country
Access directions: Burgdorf to Marshal Mt. Road take right at second or third road (both work) after cresting Marshal Summit. Drive past Kimberly Mine and Kimberly Lake # 2.

Biological:
Zooplankton Composition and Density
Genera Identified % of sample Size Density(g/l)

Appendix C. Continued.

Insect Composition and Abundance:

Aquatic Genera	Relative Abundance	Terrestrial Genera	Relative Abundance
	L☐M☐H☐		L☐M☐H☐
	L☐M☐H☐		L☐M☐H☐
	L☐M☐H☐		L☐M☐H☐

Fish Survey:

Fisherman: 1 (numbers) Hours Fished: 1.5
Fish Caught: Fish/hour: 0 Abundance: L☒M☐H☐

Length Frequency:

Total Length (mm)

Species	0-49	50-99	100-149	150-199	200-249	250-299	300-349	350-399	400+
CT						1	1		
Total						1	1		

Fish Condition:

	Total Length (mm)		Weight (g)		Condition (k or Wr)	
Species	Mean	Range	Mean	Range	Mean	Range
CT	319	298-340	405	330-480	1.23	1.22-1.25

Stocking History:

Year	Species	Number	Comments
1999	GR	1500	
1998	C2	750	Surveyed in 1997

Comments:

Appendix D.

Idaho Fish and Game
Mountain Lake Survey Form

Lake Name: Kimberly Lake # 2 Date: 07/18/01
IDFG Catalog #: 070244 EPA #:
Major Drainage: Salmon River Minor Drainage: Bear Creek
County: Idaho Region: 3 M
USFS Ranger District: BLM District Wilderness Area:
Section: 20 Township: 24N Range: 5 E Elevation: 7150 Ft.

Physical:
Lake Type: 2 1. Cirque 2. Moraine 3. Slump 4. Caldera 5. Beaver
Total Surface Area: 1.16 ha
Depth Profile: 1
1. deep (75% of lake >6m deep)
2. moderate (50% of lake >6m deep)
3. shallow (25% of lake >6m deep)
Maximum Depth: 11m
Average Depth: 7.3m

Aspect: 1,3
1. Lake has north facing exposure
2. Lake has south facing exposure
3. Lake has east facing exposure
4. Lake has west facing exposure
5. Lake is exposed on all directions

Chemical:
Alkalinity: 0 mg/l
Conductivity: 40 umHOS/cm^2
Secchi depth: 10.5 m

pH: 8.6
Temp (surface): 60.5 F
Temp (bottom): F

Spawning Potential:
Inlet(s): 1(number)
Length accessible for spawning:
0 m
Inlet spawning suitability: 4

Outlet(s): 1(number)
Length accessible for spawning:
0 m
Outlet spawning suitability: 4

1. excellent (abundant)
2. adequate (enough to maintain suitable spawning populations)
3. fair (not enough to maintain population)
4. poor (not suitable for successful spawning)

Use:
Campsites: 0 (number) Fire Pits: 1 (number) Litter: L☐ M☐H☒
Trail around lake: ☐ complete ☒ partial ☐ none trampled: ☐Y☐N
Access: ☐ good trail ☐ poor trail ☐ cross country
Access directions: Drive past Burgdorf.Take right on road to Marshal Lake, take second or third road on the right (both work) after cresting Marshal Summit. Buildings for Kimberly Mine are North of the Lake.

Biological:
Zooplankton Composition and Density
Genera Identified % of sample Size Density(g/l)

Appendix D. Continued.

Insect Composition and Abundance:

Aquatic Genera	Relative Abundance	Terrestrial Genera	Relative Abundance
May Flies, (hatch)	L☐M☐H☒	House Flies	L☐M☐H☐
Mosquitos	L☐M☐H☐		L☐M☐H☐
Dragon Flies	L☐M☐H☐		L☐M☐H☐

Fish Survey:

Fisherman: 1 (numbers) Hours Fished: 1.5
Fish Caught: 5 Fish/hour: 3 Abundance: L☐M☐H☒

Length Frequency:

Total Length (mm)

Species	0-49	50-99	100-149	150-199	200-249	250-299	300-349	350-399	400+
CT					2		15		
BRK				1					
Total				1	2		15		

Fish Condition:

	Total Length (mm)		Weight (g)		Condition (k or Wr)	
Species	Mean	Range	Mean	Range	Mean	Range
CT	313	244-337	310.5	155-405	0.99	0.84-1.14
BRK	199	199	90	90	(wr) 93.95	93.95

Stocking History:

Year	Species	Number	Comments
1999	C2	750	
1998	C2	500	Brook Trout eradication Fall 1998

Comments:

2001 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-26

Project I: Surveys and Inventories

Subproject I-C: Southwest Region (McCall)

Job: b

Title: Lowland Lakes Investigations

Contract Period : July 1, 2001 to June 1, 2002

ABSTRACT

We completed holiday shore angler and boat counts on Cascade Reservoir recording the lowest counts made since early 1980s.

Lost Valley and Brundage reservoirs and Little Payette Lake were gillnetted to examine species composition.

We repeated the lake trout *Salvelinus namaycush* population structure work completed in 1994 and 199595 to evaluate the current regulation of one lake trout over 914.4 mm per day. We sampled fish with short-term gill net sets. Results indicated most lake trout were being harvested soon after reaching the minimum size limit of 914.4 mm. We also found some natural recruitment of lake trout that was not observed in 1994 and 1995. However, natural recruitment appeared to be insufficient to maintain present catch and harvest rates of trophy lake trout. Current catch and harvest rates of trophy fish likely could be maintained for approximately seven years without implementing a regulation change.

We used both empirical data and the Fish Bioenergetics 3.0 model to evaluate the impacts of lake trout stocking on the kokanee *Oncorhynchus nerka kennerlyi* population in Payette Lake. Both methods suggested that lake trout stocking had minimal effects on the kokanee population.

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OBJECTIVES

To conduct investigations in lowland lakes to enhance, maintain and protect McCall area fisheries.

INTRODUCTION

Cascade Reservoir Angler Counts

Annual angler counts have been made since 1996 on Memorial Day, July 4th and Labor Day to monitor angling pressure trends (Janssen et al. *In review*). These counts were made again in 2001.

Lost Valley Reservoir

Lost Valley Reservoir was chemically treated in 2000 to remove unwanted yellow perch *Perca flavescens* (Janssen et al. *In review*). The Reservoir was gillnetted in 2001 for yellow perch presence.

Little Payette Lake

The quality rainbow trout *Oncorhynchus mykiss* fishery in Little Payette Lake has been threatened in recent years by increasing populations of northern pikeminnow *Ptychocheilus oregonensis* and largescale suckers *Catostomus macrocheilus* . We surveyed the fish population again in 2001 to monitor relative abundance of fish populations.

Payette Lake

We repeated the lake trout *Salvelinus namaycush* population structure work completed in 1995 (Janssen et al. 2000). This data was used to evaluate the lake trout daily harvest limit of one over 36 inches.

Lake trout were stocked into Payette Lake from the early 1950s through 1985 in various numbers, sizes and years. As many as 36,400 catchable size lake trout were stocked in a given year. Since 1985 only 500 lake trout have been stocked. The IDFG has considered the stocking of lake trout again in Payette Lake; therefore we evaluated the impacts of lake trout stocking on the kokanee *O. nerka kennerly* population.

Brundage Reservoir

We discontinued the rainbow trout stocking program in Brundage Reservoir after 1997 and began stocking westslope cutthroat trout *O. clarki lewisi* annually in 1999. To begin evaluating the change we gillnetted the reservoir in 2001.

METHODS

Cascade Reservoir Angler Counts

We completed angler counts on Memorial Day, July 4th and Labor Day on Cascade Reservoir. We conducted counts using a fixed wing airplane at 1000, 1400 and 1800 hrs on each day. All shore anglers and fishing boats were counted.

Lost Valley Reservoir

We set two standard lowland lake survey, sinking nets in Lost Valley Reservoir. Nets were set in the afternoon, fished all night and pulled the next morning.

Little Payette Lake

We repeated the sampling effort completed in 1998 and previous years (Janssen et al. 2001) by settingfour standard lake survey sinking gill nets. We connected two of the sinking nets end to end to fish a longer, deeper section of bottom and fished two locations with the four nets. The nets were set in the afternoon, fished all night, and pulled the next morning. All trout, tiger muskie *Esox lucius x E. Masquinongy* and smallmouth bass *Micropterus dolomieu* collected were measured to the nearest mm and weighed to the nearest 5 g. All suckers and northern pikeminnow collected were counted and a total weight was taken.

Payette Lake

We set five 45.7 m experimental gill nets in seven areas of the lake used by lake trout. These included Luck's Point, Huckleberry Bay, southeast of Cougar Island, northeast of Channel Island, the narrows area, Sheppard's Point and Duck Bay. Nets were set just before sundown, allowed to fish two to three hours and then pulled. All fish collected were measured to the nearest mm, weighed to the nearest 10 g and then released. One net night equaled five 45.7 m experimental gill nets set at dusk and fished for 2.5 hours.

We utilized empirical data and the Fish Bioenergetics 3.0 (1995) computer model to examine impacts of lake trout stocking on the Payette Lake kokanee population.

Payette Lake historical lake trout stocking records and estimated first year survival rates of 15% for fingerling stockings, 30% for catchable stockings, and a 70% survival rate after their first year in the lake were used to determine age-10 lake trout abundance by year since the early 1960s. We then superimposed annual kokanee spawner count data with lake trout abundance estimates to graphically display population trends.

The Fish Bioenergetics Model 3.0 was used to model the impacts of lake trout predation on the kokanee population. Kokanee and lake trout population data collected in 1994 and 1995 (Janssen et al. 2000) were used in the model for the lake trout and kokanee population estimates, the percent spawning lake trout, and growth rates for P-values parameters needed for the Fish Bioenergetics model. These and other parameters used in the model are presented in Tables 1 and 2. Lake trout diet composition and survival rates were best estimates from IDFG unpublished diet data and literature review. Kokanee energy values were developed by Beauchamp (1998). Temperature data used in the model came from Grunder and Anderson (1991) and IDFG unpublished data.

We used the above parameters to model the impacts to kokanee by the annual stocking of 2,000 lake trout. We ran the model with kokanee spawner counts at both thier historical high and low values.

Table 1. 1995 kokanee production in Payette Lake (Janssen et al. 2000).

	Kokanee age				
	Fry + 120	YOY-1	1-2	2-3	Spawners
Survival (%)	20	40	50	70	
Wt (g)	.03	.34	19	88	148
Abundance (K)	1,941	388	155	78	55

Table 2. 1995 lake trout modeling parameters for Payette Lake.

Lake trout population	1,500 (0.7 fish / ha) (IDFG unpublished data)
Model period	365 days
Lake trout diet	80% kokanee
Annual mortality	30% (pre-regulation change)
50% of lake trout >600 mm spawned	(Janssen et al. 2000)
Kokanee energy density	6,200 joules/g (Beauchamp 1989)
3.3% of kokanee prey indigestible	
Tag returns were used to estimate P-values	(Janssen et al. 2000)
Three age classes	(<600, 600-760, >760 mm)

Brundage Reservoir

We set one sinking and one floating standard lowland lake experimental gill net. The nets were set in the afternoon, fished all night, and pulled the next morning. All fish collected were measured to the nearest mm and weighed to the nearest 5 g.

RESULTS

Cascade Reservoir Angler Counts

The angling pressure trend on Cascade Reservoir continued to decline. Average number of fishing boats and shore anglers per count in 2001 was 11.2 and 11.7 (Table 3). Yellow perch fishing on the reservoir was virtually non-existent as the yellow perch population remained at historic low levels.

Table 3. Average boat and shore angler counts on Cascade Reservoir on three major holidays: Memorial Day, July 4th and Labor day, in 1982, 1991, 1992 and 1996 through 2001, with corresponding intensive creel survey angler hour estimates for 1982, 1991 and 1992 and angler hour trend estimates for 1996-2000.

	Holiday counts		Estimated angler hours (hours * 1000)		
Year	Ave. # boats	Ave. # shore anglers	Boat anglers	Shore anglers	Total pressure[1]
1982	154.0	85.0	255.6	129.8	385.4
1991	41.5	32.0	135.2	102.0	237.2
1992	52.5	116.0	144.2	177.3	321.5
1996	35.0	27.0	--	--	--
1997	36.5	19.0	--	--	--
1998	58.0	39.5	--	--	--
1999	27.0	31.0	--	--	--
2000	15.0	12.0	--	--	--
2001	11.0	12.0	--	--	--

[1] Does not include ice fishing hours.

Lost Valley Reservoir

No yellow perch were collected in gill nets. Newly stocked rainbow trout catchables were very abundant.

Little Payette Lake

We collected 210 fish in gill nets set on October 24, 2001. This included 111 largescale sucker, 70 northern pikeminnow, 10 rainbow trout, one rainbow trout X cutthroat trout *O. clarki* hybrid, two smallmouth bass, 10 kokanee, one mountain whitefish *Prosopium williamsoni* and three tiger muskie.

Game fish made up 16.1% of the biomass and 10% by number of all fish collected. We collected three tiger muskie with total lengths and weights of 820 mm and 2.95 kg, 975 mm and 7.75 kg, and 970 mm and 8.2 kg. Rainbow trout averaged 300 mm in total length and ranged from 222 to 330 mm. The one rainbow trout X cutthroat trout hybrid collected was 660 mm total length and 2.8 kg. Salmonids made up only 3.9% of the total biomass collected.

Payette Lake

We collected a total of 30 lake trout in 6.8 net nights for a catch rate of 4.4 fish per net night. Fish lengths ranged from 280 mm to 923 mm (Figure 1). We collected two fish larger than the minimum harvest size of 914.4 mm.

Empirical data and lake trout age-10 population modeling results are presented in Figure 2. Kokanee spawner numbers increased to historic highs in 1996 and 1997 as age-10 lake trout numbers peaked in 1995. Predatory pressure would have been at its maximum in the early to mid 1990s.

Bioenergetics modeling results revealed that kokanee production in Payette Lake was 15.7 metric tons of which lake trout consumed 8.1 metric tons or 52% in 1995 (Figure 3). Results also indicated that the impacts of an annual stocking of 2,000 lake trout with either historical high or low kokanee populations (# spawners) would change little (Figure 4). Kokanee biomass in Payette Lake appeared to be at carrying capacity. Total biomass estimates of kokanee changed little from historical high and low numbers of spawners. As spawner numbers increased, size decreased and vise versa. Therefore, the impact of the annual consumption of 8.4 metric tons by lake trout remained similar between high and low kokanee numbers.

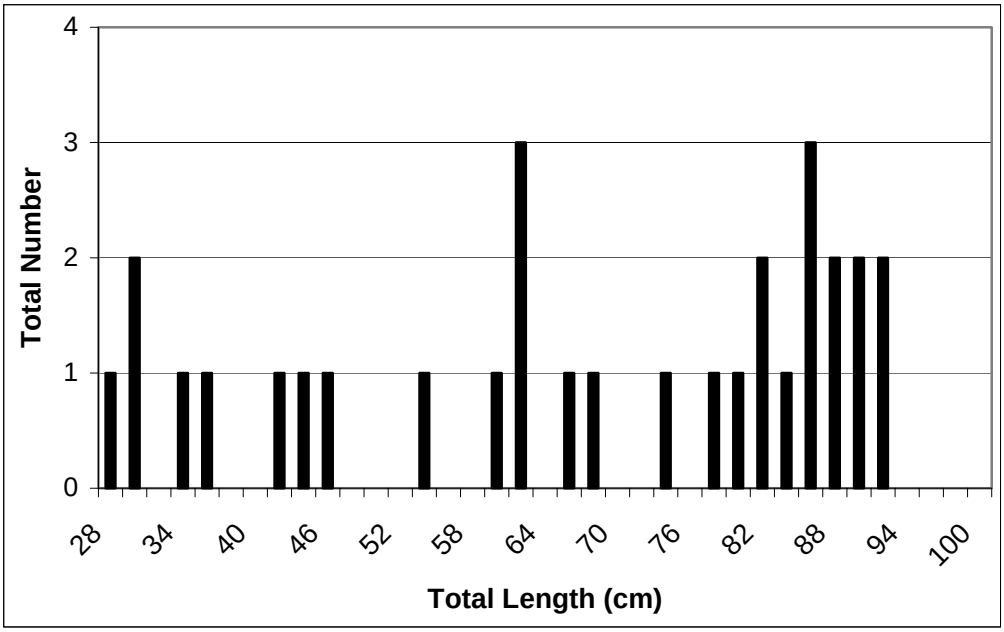

Figure 1. Length frequencies of lake trout collected in Payette Lake in July 2001.

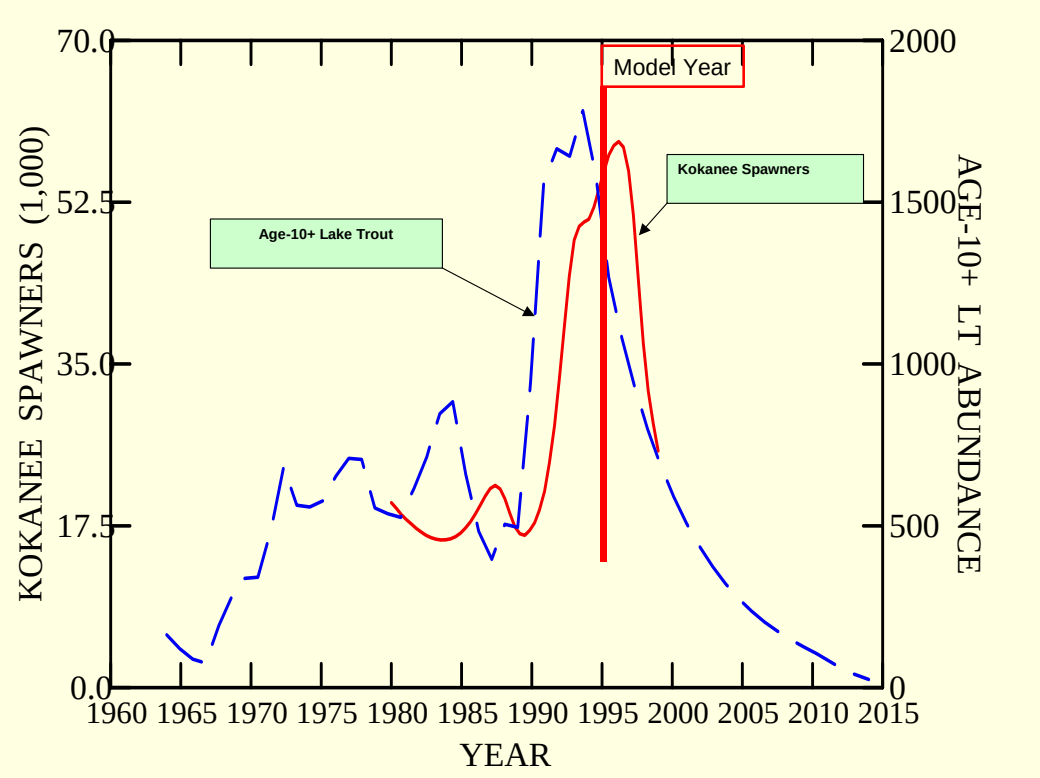

Figure 2. Annual kokanee spawner counts and estimated annual population size of age-10 lake trout.

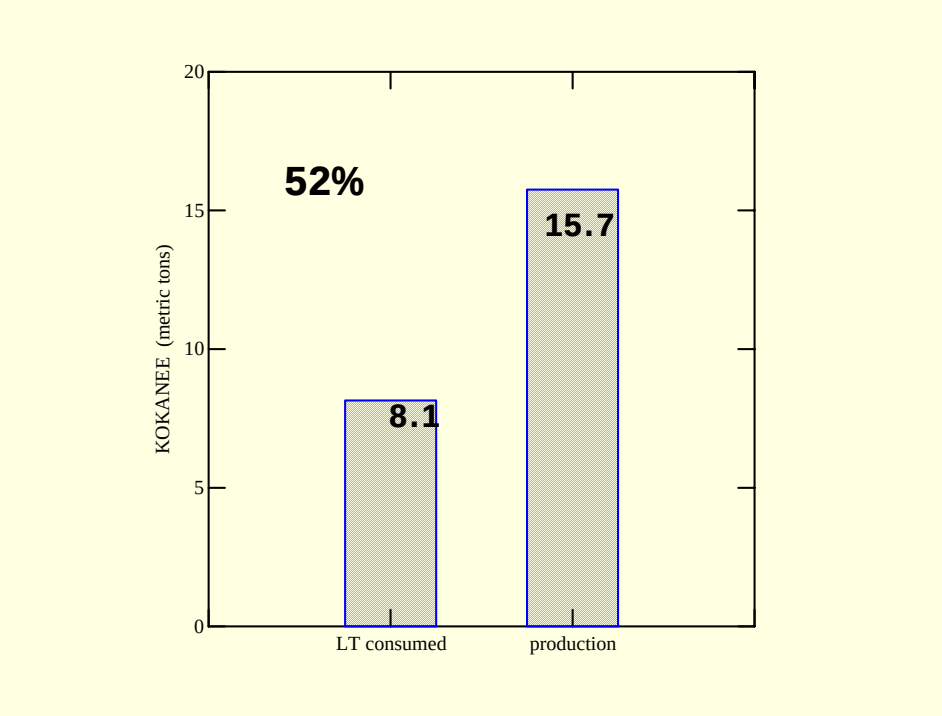

Figure 3. Modeling estimates of annual kokanee production and kokanee consumption by lake trout predation in 1995.

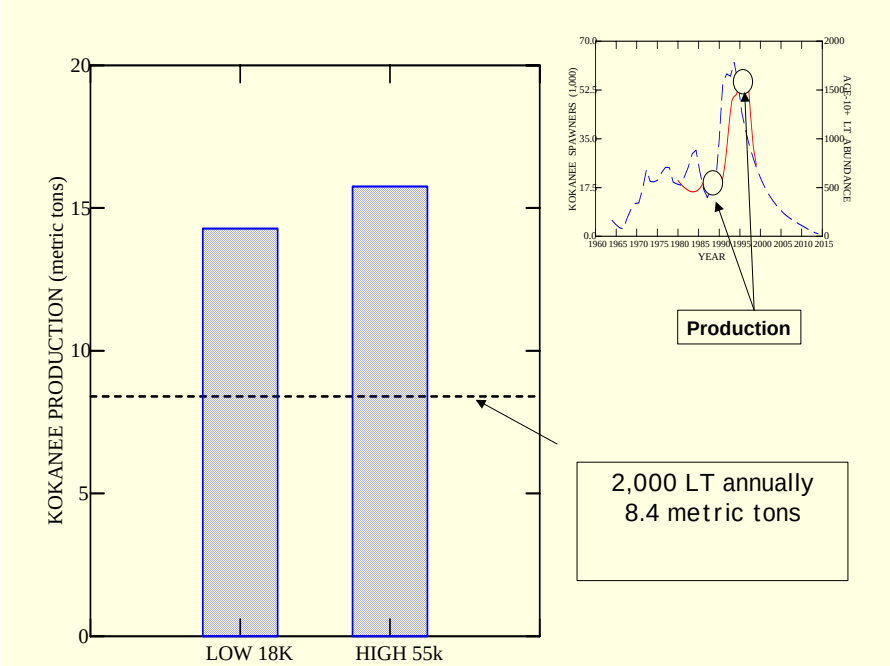

Figure 4. Estimated kokanee production and predicted lake trout consumption with 18,000 and 55,000 spawners with annual stocking of 2,000 lake trout.

Brundage Reservoir

We set nets on July 12, 2001 and collected 38 fish, all of which were trout. We collected 13 westslope cutthroat trout, 23 rainbow trout and two cutthroat x rainbow trout hybrids. The westslope cutthroat trout ranged in length from 185 mm to 260 mm and averaged 237 mm and 131 g. We collected rainbow trout ranging in size from 145 mm to 420 mm indicating natural reproduction. Rainbow trout averaged 262 mm and 170 g.

DISCUSSION

Little Payette Lake

Nongame fish species continue to dominate the fishery while rainbow trout catch rates continue to decline. Salmonid biomass has dropped from 32.5% of the gillnetted fish biomass in 1995 (Janssen et al. 2000) to only 3.9% in 2001. Largescale sucker and northern pikeminnow biomass has increased from 65.8% of the catch in 1995 to 83.9% in 2001. Scully and Anderson (1989) reported a species composition of 45% largescale sucker, 25% mountain whitefish, 15% northern pikeminnow, 13% kokanee and 2% redside shiner *Richardsonius balteatus* in shoreline windrowed fish after the rotenone treatment in 1987.

The tiger muskie introduction has been very successful. These fish have exhibited exceptional growth rates. Some tiger muskie stocked in 1998 at an average of 279 mm now exceed 1,067 mm.

Payette Lake

We found significant changes in the lake trout population structure this year compared to that found in 1994-1995 even though catch rates remained similar (4.41 in 2001, 4.27 in 1994-1995). Only 10% of the fish collected were greater than 914.4 mm compared to 19% in 1994-1995, suggesting that anglers have cropped off lake trout over 914 mm. We also noted a significant increase in the number of lake trout under 520 mm in 2001 suggesting that the decrease in numbers of large fish has allowed for greater survival of younger age fish possibly due to reduced predation. We collected 16 lake trout under 520 mm compared to 0 in 1994-1995 (Figure 5).

The primary objective of lake trout management for Payette Lake is the protection of the trophy fish component (>914.4 mm). Lake trout stocking in Payette Lake was suspended in 1986. Population work in 1994-1995 suggested that recruitment of wild fish to the fishery was virtually non-existent. Growth data indicate it takes 23 years to produce a 914 mm lake trout (Janssen et al. 2000).

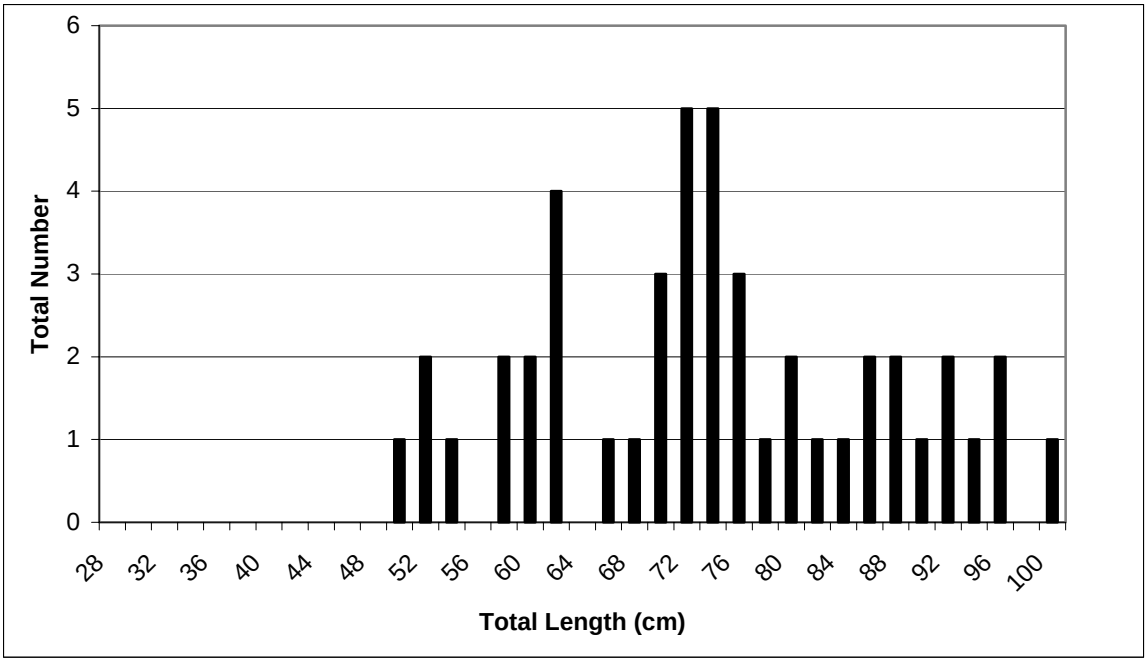

Figure 5. Length frequencies of lake trout collected in 1994-1995 from Payette Lake.

The 2001 data (Figure 1) indicate there is a relatively large group of fish, which are the last of the remaining stocked fish, from 780 to 920 mm that would enter the trophy size class in the next seven years given present growth rates. Virtually all of these fish would be harvested shortly after reaching 914.4 mm given the present harvest rates. Even though we have seen an increase in numbers of naturally produced fish there are insufficient numbers to replace the trophy component and maintain the present trophy fish catch rates.

With the protection of the relatively strong group of fish from 780 to 920 mm we can extend the trophy fishery well beyond seven years while we wait 20+ years for stocked fish to become trophy size. Therefore, to protect and maintain a trophy lake trout fishery, all harvest should be suspended. A stocking program should be initiated to augment natural recruitment.

Lake trout stocking and its impact on the kokanee population are a concern, however both empirical data and the bioenergetics modeling suggest that it is safe to begin stocking again. Historically large lake trout stockings in Payette Lake have had little impact on the kokanee population. Even as age-10 lake trout numbers peaked in the mid-1990s kokanee numbers showed no adverse effects and remained at carrying capacity (Figure 2). Lake trout consumption of 52% of the annual Payette Lake kokanee production generated by the bioenergetics model is low when compared to other waters. Flaming Gorge Reservoir lake trout were reported to consume 90% of annual production (Yule and Luecke 1993) while Lake Superior lake trout consumed about 20 times the estimated available forage fish production (Negus 1995). Lake trout consumption exceeded prey production in four Colorado waters (Johnson and Martinez 2000).

RECOMMENDATIONS

1. Continue Cascade Reservoir angler counts to monitor angler use trends.
2. Stock additional tiger muskie into Little Payette Lake utilizing more nongame fish as prey.
3. Investigate costs of another rotenone treatment of Little Payette Lake.
4. Investigate logistics and costs of tributary rotenone treatments during sucker and northern pikeminnow spawning runs.
5. Continue annual stocking of adult smallmouth bass into Little Payette Lake.
6. Continue Little Payette Lake annual gillnetting survey to monitor fish community.
7. Change lake trout regulation for Payette Lake to no harvest.
8. Repeat lake trout survey for Payette Lake in 2003.

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2001 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-26

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: b

Title: Lowland Lakes Investigations: Cascade Reservoir, Yellow Perch Investigations

Contract Period: July 1, 2001 to June 1,2002

ABSTRACT

A picket weir trap was constructed on the North Fork Payette River and Lake Fork Creek to intercept northern pikeminnow *Ptychocheilus oregonensis* in the spring of 2001. The trapping efforts were focused on reducing predation on yellow perch *Perca flavescens*. We collected an estimated 14,208 northern pikeminnow and 33,988 adult spawning largescale suckers *Catostomus macrocheilus* using a picket weir and V-entrance trap. Low stream flows and warm water temperatures in 2001prevented large runs of spawning northern pikeminnow up the tributaries.

We continued yellow perch population monitoring in Cascade Reservoir. The sampling indicated that the population continues to be depressed. We could not document any changes in yellow perch survival. Yellow perch continued to disappear by August of their second year.

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INTRODUCTION

The yellow perch *Perca flavescens* fishery in Lake Cascade was described and its decline documented by Janssen et al. (2001). Reasons for the decline were investigated in 1998 through 2000, and results were presented in Janssen et al (2001, In review-a, and In review-b). The investigations were unable to determine the exact cause of the dramatic decline but did not rule out predation and/or disease. The studies determined, however, that northern pikeminnow *Ptychocheilus oregonensis* predation on yellow perch was likely preventing yellow perch recovery. Therefore, work in 2001 shifted from investigative to implementing solutions to northern pikeminnow predation and monitoring effects of the solutions on northern pikeminnow and yellow perch populations.

OBJECTIVES

1. Reduce the adult northern pikeminnow population in Cascade Reservoir.
2. Monitor the effects of the northern pikeminnow reduction on the yellow perch population.

METHODS

Objective 1

Adult Fish Trapping

We installed two adult fish traps in 2001, one on the North Fork Payette River and one on Lake Fork Creek. The North Fork Payette River trap was located just downstream of the Hartsell Bridge on Smylie Lane. The Lake Fork Creek trap was located just below the bridge on Scheline Lane. Both traps were constructed using angle iron frames with 12.7 mm electrical conduit pickets. Pickets were 1.52 m tall, and the weirs spanned the entire widths of both streams. Holding pens made from angle iron frames and 12.7 mm pickets were also constructed on the upstream side of the weir. Fish entered the holding pens via a V-shaped entrance.

Two electric fish barriers were purchased in February 2001 from Smith-Root, Inc. These barriers consisted of two plastic canvas sheets, one 6.1 m x 9.1 m and one 6.1 m x 15.2 m. The sheets had a wire array on them that was powered by a series of pulsators located in trailers on the stream shore. The arrays were designed to lie flat on the stream bottom. One sheet was to be placed in each stream at the trap site, taking the place of frames and pickets. The electric barrier was to be placed in the thalweg of the stream. The barrier would block one-third to one-half of the width of the stream to fish migration and force the fish over to one side of the stream where the conventional fish trap was constructed. The electric barrier would continue to block fish at high flows and allow large debris carried during high flows to harmlessly go by the trap.

We awarded a contract to Rob Cortz to provide a crew to man and operate the traps during the spawning runs of northern pikeminnow and largescale sucker *Catostomus*

macrocheilus. As compensation for his work, all collected fish were given to him to sell on the open market. All northern pikeminnow and largescale sucker collected were held in the holding pens. When the pens were full a 48-ft. refrigerated semi trailer and truck unit was employed to haul fish to the fish buyer. To determine total number of largescale sucker and northern pikeminnow removed we used the fish buyer's fish weights of each shipment. A random sample of total lengths and weights was taken from fish as they were loaded into the truck. The contractor estimated the percent of largescale sucker and northern pikeminnow in each shipment to determine the number of each species.

Objective 2

Northern Pikeminnow Population Estimates

We utilized the IDFG hyrdroacoustics fish survey crew to estimate northern pikeminnow numbers in the lake. Butts and Teuscher (2002) gives a description of the equipment and methodology used. We completed two hydroacoustic surveys in 2001.

We used IDFG standard, lowland lake survey experimental gill nets to determine percent occurrence and size of each fish species present. This data was used to determine species composition of fish observed in the hydroacoustic survey. Gill nets were set within two weeks of the hydroacoustic surveys. We set one floating and a series of suspended, sinking nets to sample down to within approximately six feet of the bottom. Nets were set in the afternoon of the first day, fished overnight, pulled the next day and then reset in a different area. We conducted one vertical depth series in three different areas of the lake (north, midlake and south).

Yellow Perch Population Monitoring

We repeated the trawling effort and methodology developed in 1998 and 1999 and described by Janssen et al. (2001 and In press-a). All yellow perch collected were counted and a representative sample of yellow perch from each sample area was measured in total length and weighed to the nearest 0.1 g.

RESULTS

Adult Fish Trapping

We installed traps on both Lake Fork Creek and the North Fork Payette River during the week of May 7, 2001. We found that many if not most of the largescale sucker run had already gone past the trap site on Lake Fork Creek when it was installed. By May 12, 2001 it was apparent that the largescale sucker run was virtually over in Lake Fork Creek. Largescale sucker were first observed below the North Fork Payette River trap on May 9.

High water flows on the North Fork Payette River hindered trapping success especially during the peak flow periods when the trap was inoperable and fish moved freely up the river. River flows began rising before the North Fork Payette River trap was completed and were approximately 600 cfs when the trap installation was completed on May 10 (Figure 1). Water flows peaked May 16 at 2,550 cfs which put the top of the weir under approximately 152 mm of water. Water flows dropped rapidly around the last week of June when the water storage gates on Payette Lake were closed.

. Flows on Lake Fork Creek peaked May 13 at depths 203–254 mm higher than when the trap was installed (There are no staff gages in trap vicinity). These flows lasted only one day due to the closure of the Little Payette Lake Dam and the opening of water diversion structures upstream of the trap.

A large percentage of the largescale sucker run was trapped on its descent down the creek towards the reservoir on both Lake Fork Creek and North Fork Payette River. The traps on both streams were altered to allow fish moving downstream to be funneled into the holding pens.

Run timing for northern pikeminnow was approximately two weeks apart between Lake Fork Creek and the North Fork Payette River. The first northern pikeminnow arrived at the Lake Fork Creek weir on approximately May 18. However a large northern pikeminnow spawning run never materialized in Lake Fork Creek presumably due to low flows and high water temperatures. The first significant numbers of northern pikeminnow appeared at the North Fork Payette River trap around June 1. As in Lake Fork Creek a large northern pikeminnow spawning run never materialized in the North Fork Payette River, again presumably due to rapid drops in water flows and high water temperatures during the day (Figure 2).

The electric barriers were not delivered until both spawning runs were virtually over. However, one was installed in the North Fork Payette River for testing and to block downstream fish migration of northern pikeminnow and largescale sucker. Due to the very low conductivity of the water (approximately 15 umHOS), the barriers were less than 100% effective. Many fish were observed moving across the barrier in both upstream and downstream movements,, especially small fish under 300 mm. After consulting with the manufacturer, the pulsators were returned to be rebuilt to double their output voltage.

A combined total of 139,967 lbs of northern pikeminnow and largescale sucker was loaded and transported by the contractor. Six shipments of fish (both largescale sucker and northern pikeminnow) were sent to Stoller Fisheries of Spirit Lake, Iowa where they were processed into human food products. Fish total lengths and weights for largescale sucker and northern pikeminnow averaged 531 mm, 1449 g and 470 mm, 1009 g respectively. We estimated that 14,208 northern pikeminnow and 33,988 largescale sucker were trapped in 2001. northern pikeminnow made up 0% of the first shipment on May 19, 25% of the third shipment on June 6 and 50% of the sixth and last shipment on June 18.

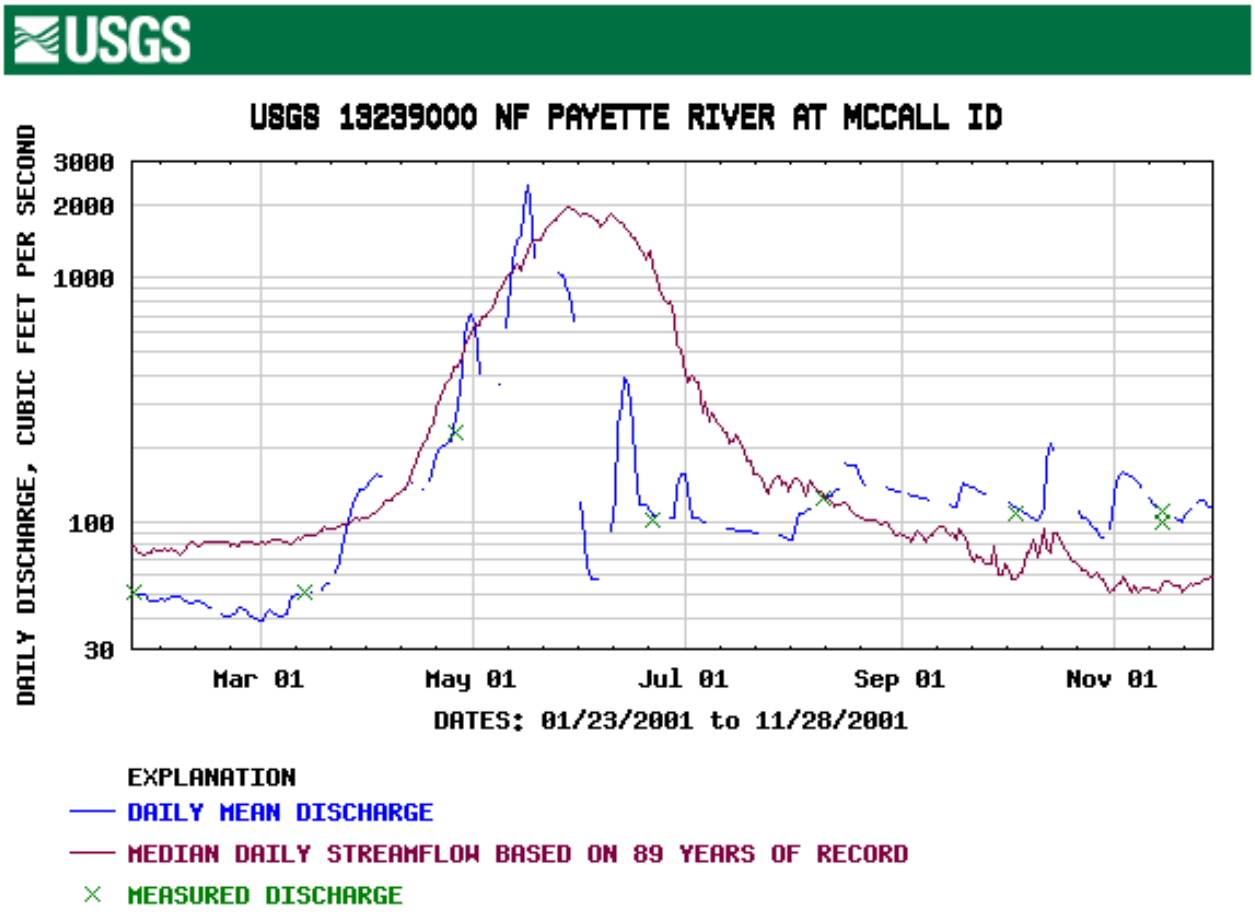

Figure 1. North Fork Payette River 2001 stream flows at Lardo Dam, McCall Idaho.

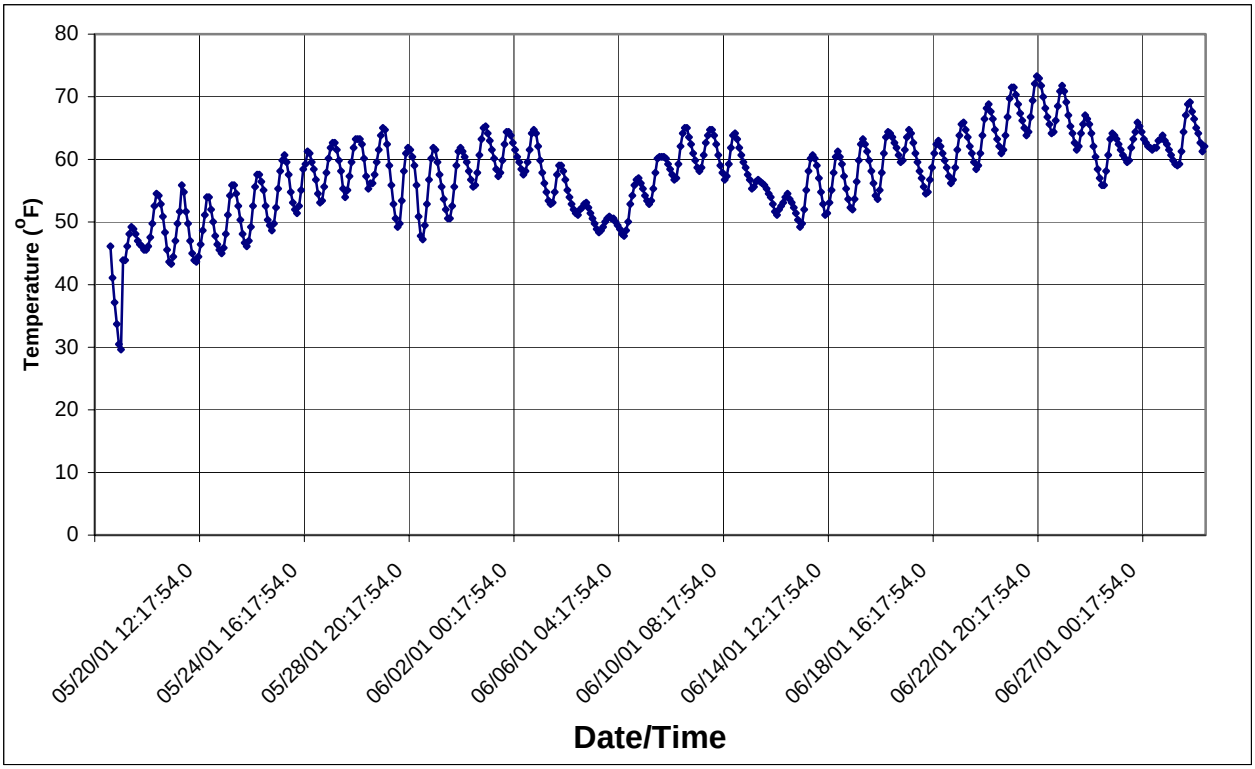

Figure 2. 2001 North Fork Payette River trap site water temperatures by day and time.

Northern Pikeminnow Population Estimates

We completed a hydroacoustic estimate May 3, 2001 presumably before any adult northern pikeminnow were near shore or spawning up tributaries. We completed another estimate on October 16, 2001. The northern pikeminnow population estimates were 6,043 +/-4,150 and 118,091 +/-71,551 in May and October respectively (Butts and Teuscher 2002). It was evident that during the May estimate northern pikeminnow were located in the reservoir somewhere other than where the hydroacoustic gear could sample them. Very few northern pikeminnow were observed during this survey. The estimates did not include any fish in the bottom 1.83 m of the reservoir, where gill net sampling in 2000 (Janssen et al. *In review-b*) showed that approximately one-half of the northern pikeminnow population was located. These estimates were conservative, as we did not sample any of the bays or shallow areas due to depth restrictions of the gear. An in depth report of Cascade Reservoir fish population estimates is presented by Butts and Teuscher (2002).

We set gill nets from April 30 through May 2, 2001 and from September 24 through September 26, 2001 to determine length frequencies and species presence for hydroacoustic target calibration. In May we collected 26 northern pikeminnow, 40 largescale sucker, 24 rainbow trout *Oncorhynchus mykiss*, 8 kokanee *O. nerka kennerlyi*, 2 coho salmon *O. kisutch*, and 6 yellow perch. In September we collected 29 northern pikeminnow, 11 largescale sucker, 15 rainbow trout, 18 kokanee, 20 coho, 1 tiger muskie *Esox lucius x E. masquinongy* and 1 yellow perch. Length frequencies are presented in Figures 2 and 3.

Yellow Perch Population Monitoring

We completed 68 trawling transects in 2001, fishing the trawl for 340 minutes collecting 1,246 yellow perch. We averaged 1.5, 6.2 and 50.7 yellow perch per five minute transect in June, August and October respectively. Trawling transect locations in 2001 were established in 1998 and 1999 and are presented in Janssen et al. In review-a. Catch rates in June were very low and dominated by Age-1 yellow perch. Age-0 yellow perch dominated trawl catches in August and October 2000 (Figures 5, 6, and 7). As in the past three years age-1 yellow perch (2000 cohort) had virtually disappeared by the August trawling sample.

Yellow perch catch rates were highest in October and all but six were age-0 fish. We collected more fish in the East and South sections during October than in the other areas and months sampled. However due to large variability in catch per trawl transect none of the values were significantly different (95% CI) (Table 1). Catches/trawl transect were widely variable in all months and areas. Trawling in the north area was difficult due to the large number of submerged stumps and low water conditions which resulted in fewer transects being completed.

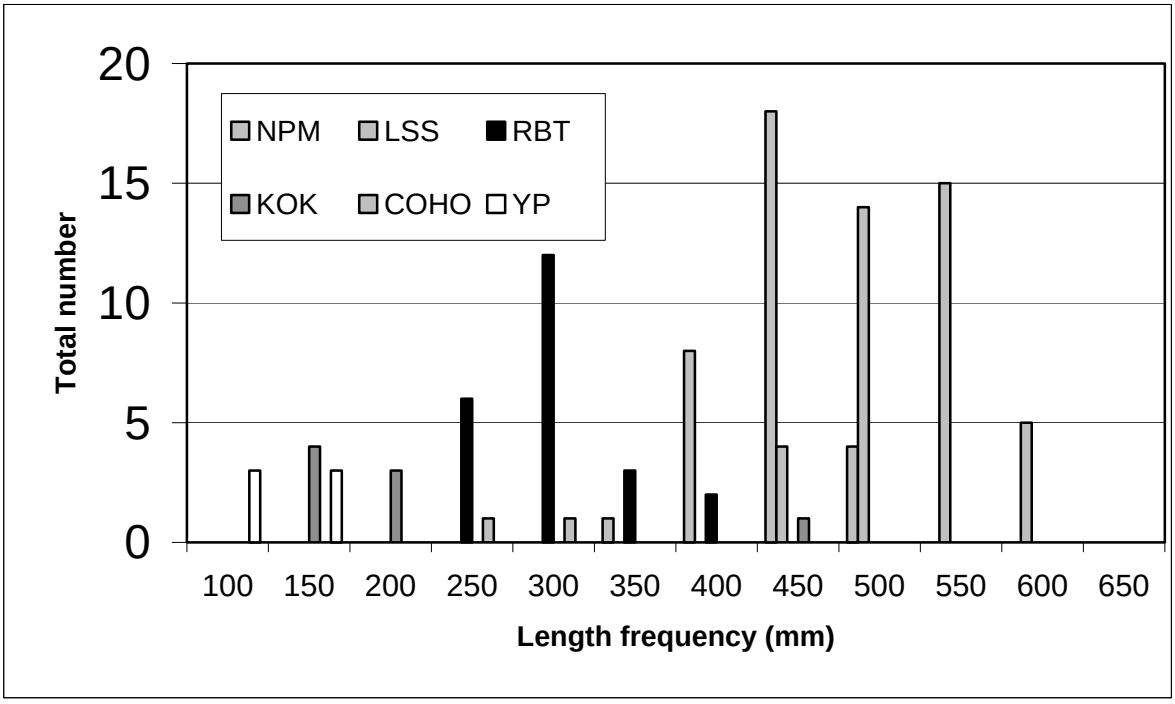

Figure 3. Length frequencies of fish by species collected with gill nets in May 2001.

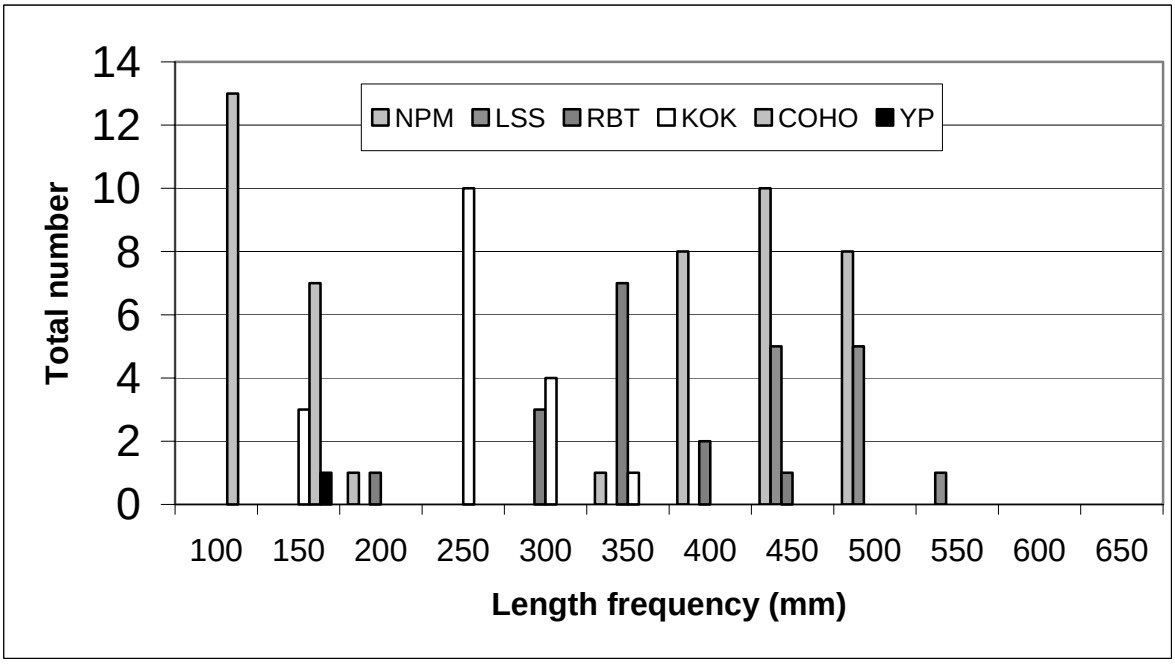

Figure 4. Length frequencies of fish by species collected with gill nets in October 2001.

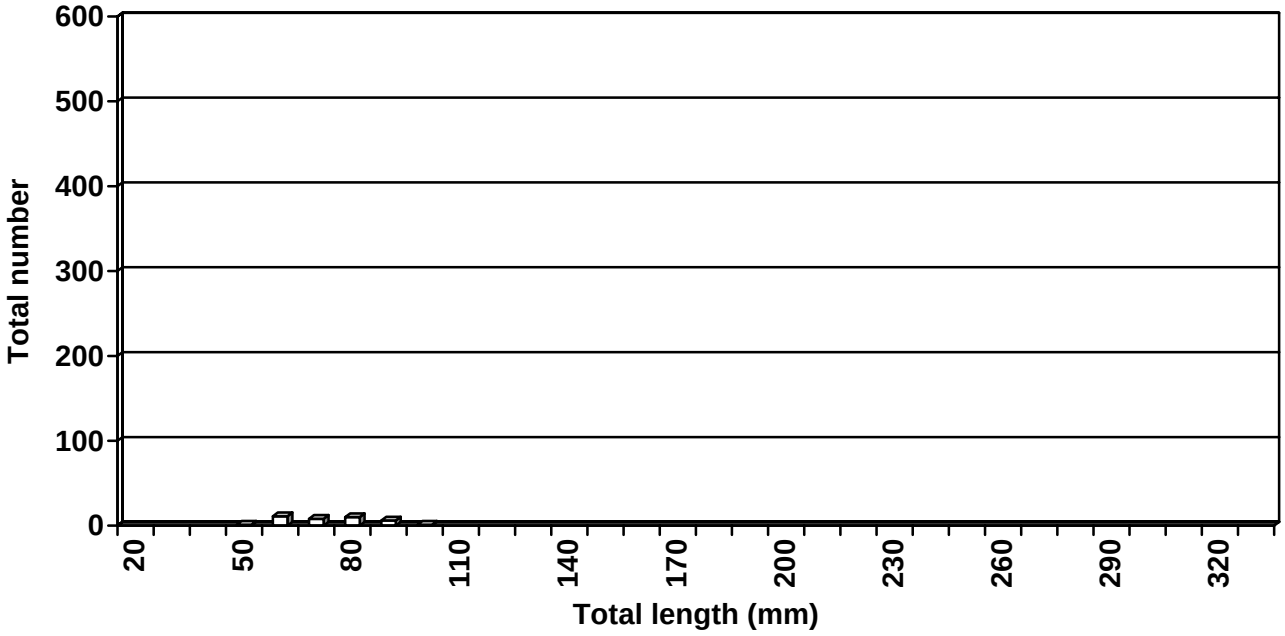

Figure 5. Length frequencies (catch/370 minutes of effort) of yellow perch collected with a bottom trawl from Cascade Reservoir, June 2001.

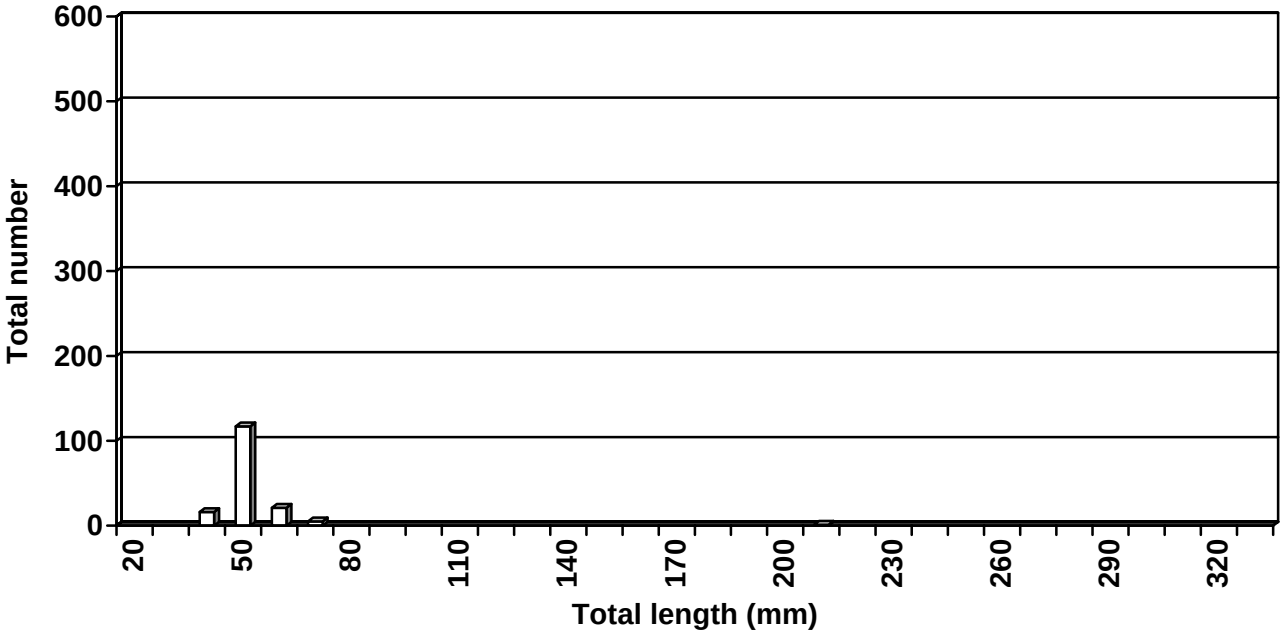

Figure 6. Length frequencies (catch/370 minutes of effort) of yellow perch collected with a bottom trawl from Cascade Reservoir, August 2001.

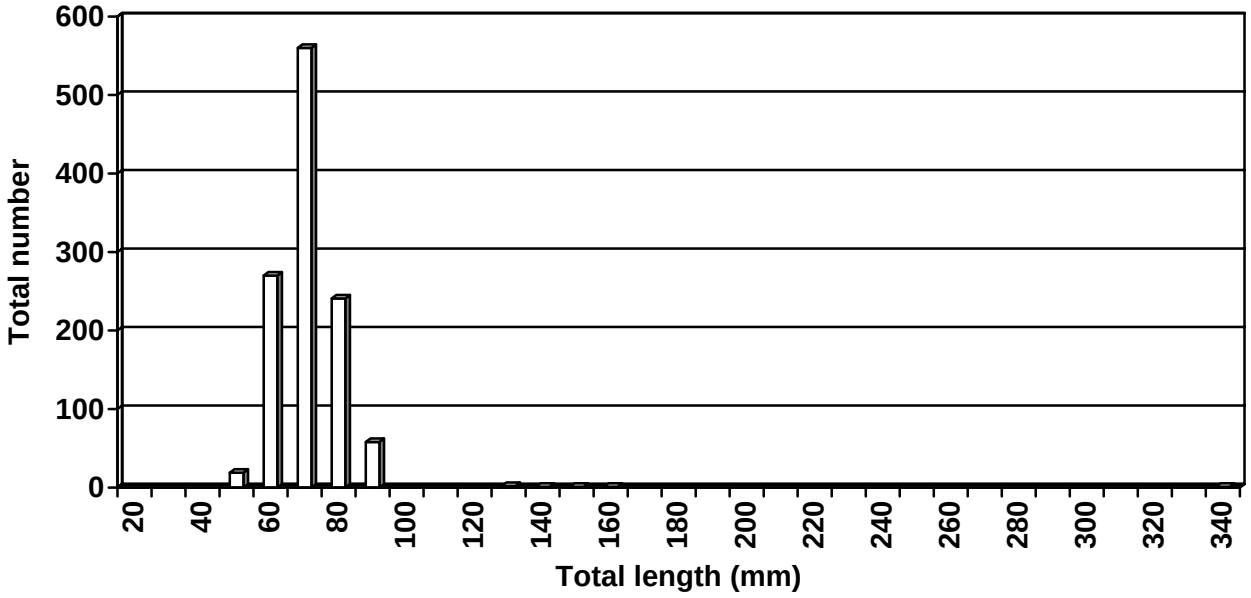

Figure 7. Length frequencies (catch/370 minutes of effort) of yellow perch collected with a bottom trawl from Cascade Reservoir in October 2001.

Table 1. Total and mean catch of yellow perch with 95% confidence intervals (+/-) by area in June, August and October, 2001.

Sample month	Area							
	South		East		West		North	
	N	Average catch (+/-95%CI)	N	Average catch (+/-95%CI)	N	Average catch (+/-95%CI)	N	Average catch (+/-95%CI)
June	22	3.14(6.1)	10	1.43(3.96)	0	0	2	1(8.4)
August	13	1.8 (5.2)	66	9.4 (30.3)	26	3.7 (11.6)	43	14.3 (121.5)
October	857	122.4 (578)	158	22.6 (75)	47	6.7 (15.7)	2	2 (n/a)

DISCUSSION

The yellow perch population size and structure remain similar to that found annually since 1998. Only yearling yellow perch are found in June and by August these fish have virtually disappeared and only age-0 remain in the lake. October trawling samples have remained fairly constant from 1998 to present suggesting that we have sufficient although very limited adult recruitment of yellow perch to rebuild the population if we can resolve the predation issue.

Although we removed a large number of spawning largescale sucker with the tributary fish traps we did not remove sufficient numbers of northern pikeminnow to reduce their predation on yellow perch. As noted above yearling yellow perch disappeared by August 2001. Changes are necessary in the tributary fish traps to allow them to fish during high flow periods, greatly increasing their efficiency. Also, we suspect that the short duration of snow runoff flows from the low snow pack in the North Fork Payette River decreased the numbers of northern pikeminnow spawners migrating out of Cascade Reservoir.

RECOMMENDATIONS

1. Continue adult northern pikeminnow and largescale sucker removal efforts. Redesign the weirs to enable them to operate at higher stream flows and utilize the electric fish barriers.
2. Continue yellow perch population monitoring via the trawl sampling.
3. Continue adult northern pikeminnow population monitoring in the fall with hydroacoustic gear and discontinue the spring estimate.

LITERATURE CITED

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2001 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management

Project I: Surveys and Inventories

Subproject I-C: Southwest Region (McCall)

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 2001 to June 30, 2002

ABSTRACT

The 2001 kokanee *Oncorhynchus nerka kennerlyi* spawning run in the North Fork Payette River above Payette Lake was estimated to be 30,144 fish with a total biomass of 7,551kg.

We completed standard Idaho Department of Fish and Game stream surveys on seven streams, five in the Weiser River drainage and two in the Big Creek drainage (Salmon River). Specifically we surveyed Beaver Creek, Brush Creek, Dewey Creek, East Fork Weiser River and East Fork Pine Creek in the Weiser River drainage; and Cabin Creek and Rush Creek in the Big Creek drainage. We found salmonids in all streams surveyed. Bull trout *Salvelinus confluentus* were collected from Dewey Creek and the upper section of the East Fork Weiser River.

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OBJECTIVE

To conduct investigations in rivers and streams to enhance, maintain, and protect McCall area fisheries.

INTRODUCTION

North Fork Payette River above Payette Lake

The spawning run of kokanee *Oncorhynchus nerka kennerlyi* in the North Fork Payette River (NFPR) from Payette Lake has been enumerated since 1988 to assess spawning escapement and to serve as a method of validating kokanee population/density estimates and survival estimates from in-lake population work (Janssen et al. *In review*). This estimate was completed again in 2001.

Standard Stream Surveys

We completed Idaho Department of Fish and Game (IDFG) standard stream surveys to document habitat conditions and fish species presence.

METHODS

North Fork Payette River above Payette Lake

We completed kokanee spawner counts by walking the entire stretch of river utilized by spawning kokanee and counting all live spawners. The total spawning run estimate was made by multiplying the largest daily count by 1.73 (Frost and Bennett 1994).

Standard Stream Surveys

We used the IDFG standard stream survey methodology to complete the surveys. We made two passes with a backpack electroshocker to collect all fish and make a population estimate. Fish collected were identified and total length was measured to the nearest mm.

RESULTS

North Fork Payette River above Payette Lake

Kokanee spawners were counted a total of four times from September 6 through September 24, 2001. The peak count of 15,690 live fish was made on September 18, 2001 (Table 1). The Nampa fish hatchery also operated a kokanee trap on the North Fork Payette River for egg collection. They reported spawning and killing 1,500 females and 1,500 males. Therefore the total spawning run estimate was 27,144 (15,690*1.73) + 3,000 = 30,144 fish. Average fork length of post-spawned fish was 309 mm and 293 mm for males and females. The average weight of mature, green fish was 250.5 g (males 270 g, females 231 g).

Table 1. Estimated total kokanee spawning run size and biomass from Payette Lake, 1988 through 2001.

Year	Peak count	Estimated # spawners	KG/lake ha	Number/lake ha	Average weight (g)
1988	13,200	22,800	4.6	13.3	346.0
1989	8,400	14,500	2.9	8.4	349.0
1990	9,642	16,700	3.5	9.7	358.0
1991	10,400	18,000	5.3	10.5	505.0
1992	16,945	29,300	6.4	17.1	377.0
1993	34,994	59,310[a]	8.5	34.6	245.0
1994	25,550	44,200	5.5	25.8	214.0[b]
1995	32,050	55,450	4.8	32.3	147.0
1996	35,090	60,707	5.7	35.4	162.0[c]
1997	36,300[e]	64,891[d]	5.6	37.8	148.0
1998	14,585	25,232	2.1	14.7	143.0
1999	15,590	26,971	2.9	15.7	184.0
2000	15,520	26,850	2.9	15.6	188.5
2001	15,690[e]	30,144[f]	4.4	17.6	250.5

[a] Estimate made from stream and weir counts (Frost and Bennett 1994)
[b] From gill net data of captured spawners in Payette Lake during lake survey.
[c] From trawling collections made in September 1996.
[d] Includes 2,092 fish spawned and killed by Nampa Fish Hatchery.
[e] Does not include 3,000 fish spawned and killed by Nampa Fish Hatchery.
[f] Includes 3,000 fish spawned and killed by Nampa Fish Hatchery.

Standard Stream Surveys

We completed standard IDFG stream surveys on seven streams in 2001. Specifically we surveyed Beaver Creek, Dewey Creek, East Fork Weiser River (EFWR) and East Fork Pine Creek (EFPC) in the Weiser River drainage; Cabin Creek and Rush Creek in the Big Creek drainage; and Brush Creek in the North Fork Payette River drainage. Habitat data was collected and is presented in Appendices A through J.

We found salmonids in all streams surveyed, collecting only brook trout *Salvelinus fontinalis* from EFPC and only rainbow trout *Oncorhynchus mykiss* from the lower EFWR transect and Brush Creek. (Table 2). All other streams were found to have a combination of salmonids species. Bull trout *S. confluentus* were found in Dewey Creek and the upper EFWR transect. We also collected one rainbow trout in Dewey Creek and rainbow trout, brook trout, and brook trout x bull trout hybrids in the upper EFWR transect. Length frequencies of all salmonids collected for each stream are presented in Table 3. We did not sample fish in the East Fork Pine Creek # 11 transect due to equipment problems.

We collected westslope cutthroat trout *O. clarki lewisi,* and rainbow trout in Rush and Cabin creeks. We also collected two chinook salmon *O. tshawytscha* parr in Rush Creek.

Table 2. Population estimates by species in Beaver Creek, Brush Creek, Cabin Creek, Dewey Creek, East Fork Pine Creek, East Fork Weiser River, and Rush Creek transects in 2001.

Transect site	Transect length (m)	Fish species	Estimated #/transect +/-95% CI	Estimated #/m^2
Beaver Cr. #1	112.0	Rainbow	41 +/- 2.4	.0007
Beaver Cr. #2	73.5	Rainbow	36.5 +/- 5.4	.16
Beaver Cr. #2	73.5	Brook	18 +/- 5.6	.08
Brush Cr.	78.0	Rainbow	11[a]	.02[a]
Cabin Cr.	61.0	Rainbow	12.5 +/- 20.8	.04
Cabin Cr.	61.0	Cutthroat	32 +/- 19.2	.11
Dewey Cr.	51.0	Bull	7 +/-1.2	.06
Dewey Cr.	51.0	Rainbow	1	.008
E.F. Pine Cr. #10	100.0	Brook	26 +/- 2.8	.09
E.F. Weiser R. (upper)	74.0	Rainbow	4 +/- 0	.015
E.F. Weiser R. (upper)	74.0	Bull	2 +/- 0	.008
E.F. Weiser R. (upper)	74.0	Bull x brook	2 +/- 0	.008
E.F. Weiser R. (upper)	74.0	Brook	2	.008
E.F. Weiser R. (lower)	58.1	Rainbow	38 +/- 6.9	.15
Rush Cr.	60.0	Cutthroat	18 +/- 37.2	.036
Rush Cr.	60.0	Rainbow	84 +/- 343	.17
Rush Cr.	60.0	Chinook parr	2	.004

[a] One pass

Table 3. Length frequencies of salmonids collected from streams surveyed in 2001.

Stream	Species	Number of fish collected per length group (mm)																					
		30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150-159	160-169	170-179	180-189	190-199	200-209	210-219	220-229	230-239	240-249
Beaver Cr. #1	RBT	0	0	5	2	0	0	2	3	6	6	2	2	0	2	2	2	0	0	1	0	0	0
	BRK	0	0	1	1	0	0	0	1	0	0	1		0	0	0	0	0	0	0	0	0	0
Beaver #2	RBT	0	0	0	0	0	2	6	6	7	2	2	2	0	1	1	2	1	1	1	0	0	0
	BRK	0	0	0	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
Brush Cr.	RBT	0	0	0	0	0	0	2	2	0	1	1	0	2	0	1	0	1	0	0	1	0	0
Cabin Cr.	RBT	0	0	0	2	0	1	0	0	0	2		1	2	0	0	0	0	0	0	0	0	0
	CTT	0	0	0	11	7	0	0	2	1	1	0	0	0	0	0	1	0	1	0	0	0	0
Dewey Cr.	RBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	BLT	0	0	0	0	0	0	0	1	2		1	0	2	0	0	0	0	0	0	1	0	0
E.F. Pine Cr. #10(USFS)																				0	0	0	0
	BRK	0	0	0	0	0	0	0	2	0	4	3	0	2	0	2	0	0	4	1	1	0	15>
E.F. Weiser R. (upper)	BLT	0	0	0	1	0	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0
	BRK	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
	BRKX BLT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
	RBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	1			1	1	0
E.F. Weiser R. (lower)	RBT	0	1	0	0	0	0	4	6	1	2	1	1	4	0	0	1	3	1	1	1	0	0
Rush Cr.	CTT	0	0	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1[a]
	RBT	0	0	1	3	8	2	0	2	4	1	3		1	0	0	0	0	0	0	0	0	0
	Chin	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[a] 320 CTT.

LITERATURE CITED

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APPENDICES

Appendix A.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - Beaver Cr. #1 Date - 07/27/01 Survey Crew - TW & LH

Agency: Idaho Department of Fish and Game

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - # 1

Channel Type: ☒B, ☐C, ☐Other Section Type: ☐Evaluation ☐Monitoring

Quad Map - New Meadows UTM x/y - 549474 E/ 4975131 N

EPA Reach # - 17050124.045

Length - 12.2 m Transect Widths - 2.95 m, 5.2 m, 6.87 m, 7.1 m

H_2O Temp - 19^{o} C Time - 1:30 p.m. Mean Width - 5.5 m

Conductivity - 110$_M$S Transect Area - 617.1 M^2 Flows: 0.09m^3/sec

Corridor Visibility - m pH: 7.2

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish, 2 pass
☐Other

Habitat Type: ☒Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water 130.0 M^2

Appendix A. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - Beaver Creek #1 DATE - 07/27/01 COLLECTORS - TW & LH

EPA REACH - 17050124.045 LENGTH - 112.2M STRATUM -

TRANSECT - #1 GRADIENT % / VERTICAL DROP - 2.6% / 2.96 M

CHANNEL TYPES: ☐ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - 21.1% Riffle - % Run/Glide - %
Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) - Spruce, Tag Alder, Willow along banks. Stream banks very eroded.

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
22.2	2.95	1/4	.32	0.09	10	20	70		
		1/2	.24			10	90		
		3/4	.18		5	5	92		
52.2	5.2	1/4	0.20		75	5	20		
		1/2	0.22		25		75		
		3/4	0.12		5	5	90		
82.2	6.87	1/4	0.10		10	15	75		
		1/2	0.075		10	80	10		
		3/4	0.15		70	20	10		
112.2	7.1	1/4	0.25		20	30	50		
		1/2	0.07			60	40		
		3/4	0.09			10	90		

Appendix A. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - Beaver Creek #1 Date - 07/27/01
EPA Reach Number - 17050124.045 IDFG Region 3M
Survey Crew - LH & TW Transect Number - Beaver Creek # 1
Transect location - From spruce fallen perpendicular across streams flow to plunge pool where dry channel meets the creek. GPS coordinate of top= 549474 E/ 4975131 N

Place Transect Photograph Here

Map Reference - New Meadows Quad

Vehicle Access - Hwy 95 South of Tamrack, left on FS Rd. 171, right on FS Rd. 169 go 0.5 miles up the road.

Photo Point -

Comments - Shorthead Sculpin present

Appendix B.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - Beaver Cr. #2 Date - 07/30/01 Survey Crew - LH,JR,TW

Agency: Idaho Department of Fish and Game

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - # 2

Channel Type: ☒B, ☐C, ☐Other Section Type: ☐Evaluation ☐Monitoring

Quad Map - Cold Springs Summit UTM x/y - 552564 E/ 4969949 N

EPA Reach # - 1705124.045

Length - 73.5 m Transect Widths - 2.9 m, 3.1 m, 2.5 m, 3.7 m

H_2O Temp - 11^{o}C Time - 1:30 p.m. Mean Width - 3.05 m

Conductivity - 130$_{M}$S Transect Area - 224.2 M^2 Flows: 0.05m^3/sec

Corridor Visibility - m

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish
☐Other 2 pass

Habitat Type: ☒Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water 41.57 M^2

Appendix B. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - Beaver Creek #2 DATE - 07/30/01 COLLECTORS - LH,TW,JR

EPA REACH - 17050124.045 LENGTH - 73.5M STRATUM -

TRANSECT - # 2 GRADIENT % / VERTICAL DROP - 3.1% / 2.3 M

CHANNEL TYPES: ☒ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - 18.5% Riffle - % Run/Glide - %
Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) - Dogwood Banks, Open canopybanks trampled but not eroding. Large log in midway.

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
1	2.9	1/4	.16	0.05		40	60		
		1/2	.11			20	80		
		3/4	.07		50	10	40		
16	3.1	1/4	.14			70	30		
		1/2	.105			20	80		
		3/4	.08			10	40		
45	2.5	1/4	.21				100		
		1/2	.95			5	95		
		3/4	.10			15	85		
72	3.7	1/4	.18			65	35		
		1/2	.095			50	50		
		3/4	.04			10	90		

Appendix B. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - Beaver Creek Date - 07/30/01
EPA Reach Number - 17050124.045 IDFG Region 3M
Survey Crew - LH,JR,TW Transect Number - # 2
Transect location - Spruce Tree down river, past log jam to top of pool (rock bar/ ledge)

Place Transect Photograph Here

Map Reference - Cold Springs Summit

Vehicle Access - Beaver Creek Road upstream of Fire Gulch (below Dry Creek) (FS Rd. # 169)

Photo Point -

Comments - Tailed Frogs and shorthead sculpin present.

Appendix C.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - Brush Creek Date - 07/25/01 Survey Crew - Josh, Tyler, Lauri

Agency: Idaho Department of Fish and Game

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - Brush Creek # 1

Channel Type: ☒B, ☐C, ☐Other Section Type: ☒Evaluation ☐Monitoring

Quad Map - Granite Lake UTM x/y - 575461 E 4990441 N (bottom of transect)

EPA Reach # - 17050123.038

Length - 78 m Transect Widths - 4.05 m, 4.6 m, 6.5 m, 8.3 m

H_2O Temp - 18^{o} C Time - 1:30 p.m. Mean Width - 5.9 m

Conductivity - 10$_{M}$S Transect Area - 460.2 M^2 Flows: 0.13m^3/sec.

Corridor Visibility - m pH: 8.0

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish
☐Other

Habitat Type: ☒Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water 224.46 M^2

Appendix C. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - Brush Creek DATE - 07/25/01 COLLECTORS - Josh, Tyler, Lauri

EPA REACH - 17050123.038 LENGTH - 78M STRATUM -

TRANSECT - #1 GRADIENT % / VERTICAL DROP - 4.4% / 76 M

CHANNEL TYPES: ☒ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - 48.3% Riffle - % Run/Glide - %
Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) -
Spruce/Lodge pole forest alders along banks, Stable banks, Boulders, relatively open canopy. Stream has 30% shade in midafternoon.

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
0	4.05	1/4	0.05	0.13		50	50		
		1/2	0.35			20	40	40	
		3/4	0.225			15	40	45	
28	4.60	1/4	0.17			15	35	50	
		1/2	0.25			10	55	35	
		3/4	0.10			5	95		
48	6.50	1/4	0.08					100	
		1/2	0.15				50	50	
		3/4	0.25			25	25	50	
78	8.30	1/4	0.55				180	20	
		1/2	0.95					100	
		3/4	0.35			75	15	10	

Appendix C. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - Brush Ck Date - 07/25/01
EPA Reach Number - 17050123.038 IDFG Region 3M
Survey Crew - TW,JR, LH Transect Number - # 1
Transect location - From bridge at gate on Brush Creek Road to falls (10-12 ft. barrier)

Place Transect Photograph Here

Map Reference -

Vehicle Access - Pearl Creek Road. Right on Brush Creek Road (1st road on the right)
Transect begins at bridge over brush Ck.

Photo Point -

Comments - Columbia Spotted Frog and Idaho Giant Salamanders Present.

Appendix D.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - Cabin Creek Date - 10/04/01 Survey Crew - Janssen, Allen

Agency: Idaho Department of Fish and Game

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - 1

Channel Type: ☒B, ☐C, ☐Other Section Type: ☒Evaluation ☐Monitoring

Quad Map - Vinegar Hill UTM x/y - 662752E/5000739N

EPA Reach # - 17060206.014

Length - 61 m Transect Widths - 4.8 m, 4.5 m, 5.9 m, 3.5 m

H_2O Temp - ^{o}C Time - 1200 Mean Width - 4.7 m

Conductivity - 85$_M$STransect Area - 285 M^2

Corridor Visibility - m pH: 9.3

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish, 2 passes
☐Other

Habitat Type: ☐Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water
NA M^2

Appendix D. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - Cabin Creek DATE - 10/04/01 COLLECTORS - 302,335

EPA REACH - 17060206.014 LENGTH - 70.5M STRATUM - At Airstrip

TRANSECT - 1 GRADIENT % / VERTICAL DROP - NA% M

CHANNEL TYPES: ☐ B – confined, flushing X
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - 15% Riffle - % Run/Glide - % Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) - Heavy silt load coming out of Cow Cr. from 2000 fire. Very little silt in Cabin Cr. above Cow Cr. Cottonwood canopy.

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
0	4.8	1/4	0.05		50		50		
		1/2	1.15		20	10	70		
		3/4	0.14		30	20	50		
15.0	4.5	1/4	0.19		20	30	50		
		1/2	0.10		50	20	30		
		3/4	0.15		80	20			
35.0	5.9	1/4	0.10		50		50		
		1/2	0.10		20	20	60		
		3/4	0.15		50	50			
61.0	3.5	1/4	0.22		80		20		
		1/2	0.31		10	20	70		
		3/4	0.09		90	10			

Appendix D. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - Cabin Creek Date - 10/04/01
EPA Reach Number - 17060206.014 IDFG Region 3M
Survey Crew - 302,335 Transect Number - 1
Transect location - Transect begins 61m below confluence of Cow Creek and ended at confluence.

Place Transect Photograph Here

Map Reference - Vinegar Hill

Vehicle Access - Fly into Cabin Cr. airstrip

Photo Point -

Comments -

Appendix E.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - Dewey Creek Date - 08/08/01 Survey Crew - LH & TW

Agency: Idaho Department of Fish and Game

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - # 1

Channel Type: ☒B, ☐C, ☐Other Section Type: ☐Evaluation ☐Monitoring

Quad Map - Cold Springs Summit UTM x/y - 557678 E/ 4960464 N

EPA Reach # - 170501243.044

Length - 51.3 m Transect Widths - 2.2 m, 2.7 m, 2.45 m, 2.1 m

H_2O Temp - 9° C Time - 1:00p.m. Mean Width - 2.4 m

Conductivity - 70$_M$STransect Area - 123.1 M^2 Flows: 0.13m^3/sec

Corridor Visibility - m pH: 7.3

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish, 2 passes
☐Other

Habitat Type: ☒Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water 16.24 M^2

Appendix E. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - Dewey Creek DATE - 08/08/01 COLLECTORS - LH & TW

EPA REACH - 17050124.044 LENGTH - 51.3M STRATUM -

TRANSECT - # 1 GRADIENT % / VERTICAL DROP - 3.6% / 1.86 M

CHANNEL TYPES: ☒ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - 13.2% Riffle - % Run/Glide - %
Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) - 80% spruce canopy, very stable banks!

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
	2.20	1/4	.12	0.13		5	95		
		1/2	.09		5	5	90		
		3/4	.05			5	95		
20.0	2.70	1/4	.08		10	15	75		
		1/2	.1		10	50	40		
		3/4	.04		5	20		75	
40.0	2.45	1/4	.09			10	90		
		1/2	.11			5	95		
		3/4	.1			80	20		
51.3	2.10	1/4	.23			15	25	60	
		1/2	.22			5	95		
		3/4	.2		40		25	35	

Appendix E. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - Dewey Creek Date - 08/08/01
EPA Reach Number - 17050124.044 IDFG Region 3M
Survey Crew - LH & TW Transect Number - Dewey Creek # 1
Transect location - Start at large spruce fallen over creek at 557678 E 4960464 N, 51.3 M. upstream to log over creek at stream level.

Place Transect Photograph Here

Map Reference - Cold Springs Summit Quad

Vehicle Access - E. Fk. weiser River Rd. (FS 172) to Dewey Creek Road (FS Rd.487) park at intersection with FS Rd. 902

Photo Point -

Comments -

Appendix F.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - East Fork Pine Creek #10 Date - 08/02/01 Survey Crew - Allen, Josh, Mayer

Agency: Idaho Department of Fish and Game/USFS

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - USFS # 10

Channel Type: ☒B, ☐C, ☐Other Section Type: ☐Evaluation ☒Monitoring

Quad Map - Rush Peak UTM x/y - 4,954,210,77N 519,874,68 E

EPA Reach # - 17050124.059

Length - 100 m Transect Widths - 2.1 m, 2.1 m, 3.8 m, 3.3 m

H_2O Temp - 16^{o}C Time - 2:30 p.m. Mean Width - 2.8 m

Conductivity - 40$_M$S Transect Area - 280 M^2

Corridor Visibility - m pH: 7.9

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish, 2 passes
☐Other

Habitat Type: ☒Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water 20 M^2

Appendix F. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - E. F. Pine Creek #10 DATE - 08/02/01 COLLECTORS - Royse, Allen

EPA REACH - 17050124.059 LENGTH - 100M STRATUM -

TRANSECT - USFS # 10 GRADIENT % / VERTICAL DROP - 3.5% / .7 m in 20 m.

CHANNEL TYPES: ☒ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - % Riffle - % Run/Glide - %
Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) -

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
25	2.10	1/4	.1			10	90		
		1/2	.2		20	10	70		
		3/4	.2		30	10	60		
50	2.10	1/4	.1		20			80	
		1/2	.2		26	10	30	40	
		3/4	.15		10		40	50	
75	3.80	1/4	.1					100	
		1/2	.15			10	40	50	
		3/4	.01				100		
100	3.30	1/4	.2				100		
		1/2	.2		10	10		80	
		3/4	.1		30	20	50		

Appendix F. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - E. F. Pine Cr. #10 Date - 08/02/01
EPA Reach Number - 17050124.059 IDFG Region 3M
Survey Crew - DA,JR,USFS Transect Number - USFS #10
Transect location - GPS 519874.68 E/ 4954210.77 N. Aprox. 3/4 mile below 1st stream (E Fork) Crossing of trail just past 2nd water drainage on right.

Place Transect Photograph Here

Map Reference - Rush Peak

Vehicle Access - Before second crossing of pack trail from buck park to East Fork take FS Rd. 055 from Bear Cuprum HWY (FS Rd.002). Park at Trail Head at Buck Park on Cuddy Mtn.

Photo Point -

Comments -

Appendix G.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - East Fork Pine Cr. # 11 Date - 08/02/01 Survey Crew - Allen, Royse/ USFS

Agency: Idaho Department of Fish and Game/USFS

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - USFS #11

Channel Type: ☒B, ☐C, ☐Other Section Type: ☐Evaluation ☒Monitoring

Quad Map - Cuddy Mtn. UTM x/y - 4,955,658,57 N 519,752,76 E

EPA Reach # - 17050124.059

Length - 100 m Transect Widths - 3.1 m, 2.4 m, 3.5 m, 2.1 m

H_2O Temp - 15^{o} C Time - 4:30 p.m. Mean Width - 2.8 m

Conductivity - 40$_{M}$S Transect Area - 280 M^2

Corridor Visibility - m pH:7.3

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish
☐Other E-Fisher broken Just Habitat Survey

Habitat Type: ☒Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water NA M^2

Appendix G. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - East Fork Pine Ck. DATE - 08/02/01 COLLECTORS - Allen, Royse, USFS

EPA REACH - 17050124.059 LENGTH - 100M STRATUM -

TRANSECT - USFS # 11 GRADIENT % / VERTICAL DROP - NA % M

CHANNEL TYPES: ☐ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - NA % Riffle - % Run/Glide - %
Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) -

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
25	3.10	1/4	.12				100		
		1/2	.02		40	20	40		
		3/4	.01		30	30	40		
50	2.40	1/4	.15		30	20	50		
		1/2	.05				100		
		3/4	.10		40	20	40		
75	3.50	1/4	.05			20	80		
		1/2	.10			10	40	50	
		3/4	.02		20	30	50		
100	2.10	1/4	.12					100	
		1/2	.40				100		
		3/4	.01						100

Appendix G. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - East Fork Pine Ck Date - 08/02/01
EPA Reach Number - 17050124.059 IDFG Region 3M
Survey Crew - Allen, Royse, USFS Transect Number - USFS # 11
Transect location -

Place Transect Photograph Here

Map Reference -

Vehicle Access - 1st Crossing of pack trail form Buck Park along East Fork Pine Ck. USFS Rd. 055 from Bear/Cuprum highway to Buck Park. Park at the Trail head

Photo Point -

Comments -

Appendix H.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - E. F. Weiser R. (lower) Date - 08/08/01 Survey Crew - Lauri & Tyler

Agency: Idaho Department of Fish and Game

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - Lower (K. Meyers, IDFG)

Channel Type: ☒B, ☐C, ☐Other Section Type: ☐Evaluation ☐Monitoring

Quad Map - Cold Spring Summit UTM x/y - 49,649,758 N 550,081 E

EPA Reach # - 17050124.044

Length - 58.1 m Transect Widths - 4.7 m, 4.1 m, 4.6 m, 4.2 m

H_2O Temp - 24^{o} C Time - 4:10 p.m. Mean Width - 4.4 m

Conductivity - 130$_{M}$S Transect Area - 255.6 M^2

Corridor Visibility - m pH: 7.2

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish, 2 passes
☐Other

Habitat Type: ☒Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water 68.72 M^2

Appendix H. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - E. F. Weiser R. (lower) DATE - 08/08/01 COLLECTORS - Lauri & Tyler

EPA REACH - 17050124.044 LENGTH - 58.1M STRATUM -

TRANSECT - Lower (K. Meyers, IDFG) GRADIENT % / VERTICAL DROP - 2.7%/1.58 M

CHANNEL TYPES: ☒ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - 26.9% Riffle - % Run/Glide - %
Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) - Stream bed greatly eroded in 1997 flood, mostly open Spruce Canopy in spots.

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
0	4.7	1/4	.17	0.14	5	10	85		
		1/2	.195		5	50	45		
		3/4	.25			5	30	65	
20	4.1	1/4	.22			5	95		
		1/2	.2			15	65	20	
		3/4	.09		50	10	25	15	
45	4.6	1/4	.28		25	25	50		
		1/2	.12		10	15	35	40	
		3/4	.1		15	5	45	35	
58.10	4.2	1/4	.16		5		15	80	
		1/2	.21			10	40	50	
		3/4	.2			15	25	60	

Appendix H. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - E. F. Weiser R. (lower) Date - 08/08/01
EPA Reach Number - 17050124.044 IDFG Region 3M
Survey Crew - LH & TW Transect Number - Lower (K. Meyers, IDFG)
Transect location - Bridge over stream to tree across stream.

Place Transect Photograph Here

Map Reference - Cold Spring Summit Quad

Vehicle Access - At first bridge over East Fork on East Fork Weiser Road (FS 172)

Photo Point -

Comments -

Appendix I.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - E. F. Weiser R. (upper) Date - 08/08/01 Survey Crew - LH,TW

Agency: Idaho Department of Fish and Game

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - Upper (K. Meyers, IDFG)

Channel Type: ☒B, ☐C, ☐Other Section Type: ☐Evaluation ☐Monitoring

Quad Map - Cold Springs Summit UTM x/y - 55850 E 4957630 N

EPA Reach # - 17050124.044

Length - 73.9 m Transect Widths - 3.1 m, 2.6 m, 5.2 m, 3.2 m

H_2O Temp - 10^{o}C Time - 10:30p.m. Mean Width - 3.5 m

Conductivity - 50$_{M}$STransect Area - 260.5 M^2

Corridor Visibility - m pH: 7.2

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish, 2 passes
☐Other

Habitat Type: ☒Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water 23.74 M^2

Appendix I. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - E. F. Weiser R. (upper) DATE - 08/08/01 COLLECTORS - LH & TW

EPA REACH - 17050124.044 LENGTH - 73.9M STRATUM -

TRANSECT - Upper (K. Meyers, IDFG) GRADIENT % / VERTICAL DROP - 3.2% / 2.4 M

CHANNEL TYPES: ☒ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - 9.1% Riffle - % Run/Glide - % Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) - Cattle erosion on banks apparent. 80% closed canopy(Shrubs & Spruce)

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
	3.1	1/4	.6	0.06	5	95			
		1/2	.7		10	90			
		3/4	.3		40	40			
27.0	2.6	1/4	.8		65	10	25		
		1/2	.15		60		40		
		3/4	.9		95	5			
60.0	5.2	1/4	.29		20	10	70		
		1/2	.03		10	50	40		
		3/4	.05		10	70	20		
73.9	3.2	1/4	0.09			40	60		
		1/2	.2		30		10	60	
		3/4	.22		10	10	80		

Appendix I. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - E. F. Weiser R. (upper) Date - 08/08/01
EPA Reach Number - 17050124.044 IDFG Region 3M
Survey Crew - LH&TW Transect Number - Upper East Fork
Transect location - GPS Location 558505E /4957630 N East Fork Weiser River Road, At Road Jct. Harrpen Corner. Approx. 3 miles above Dewey Cr.

Place Transect Photograph Here

Map Reference - Cold Springs Summit Quad

Vehicle Access - East Fork Weiser RD. 3 miles above Dewey Ck Rd. (#487)

Photo Point -

Comments -

Appendix J.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEYS

FISH SURVEY DATA

Stream - Rush Cr Date - 10/05/01 Survey Crew - 302,335

Agency: Idaho Department of Fish and Game

IDFG Region: ☐R –1, ☐R –2, ☐R – 3, ☒R – M, ☐R – 4, ☐R – 5, ☐R –6, ☐R - 7

Stratum - Transect - 1

Channel Type: ☒B, ☐C, ☐Other Section Type: ☐Evaluation ☐Monitoring

Quad Map - Dave Lewis Peak UTM x/y - 668299E/4996441E

EPA Reach # - 17060206.041

Length - 60 m Transect Widths - 7.9 m, 6.6 m, 10.5 m, 8.5 m

H_2O Temp - ^{o}C Time - 0900 Mean Width - 8.4 m

Conductivity - 120$_M$S Transect Area - 504 M^2

Corridor Visibility - m pH: 7.4 Flow: 5.35m^3/sec

Methods: ☐Snorkle (☐ Circle, ☐ corridor, or ☐ entire stream width)
☒Electrofish, 2 passes
☐Other

Habitat Type: ☐Pool, ☐Riffle, ☐Run/Glide, ☐Pocket Water NA M^2

Appendix J. Continued.

STREAM PHYSICAL HABITAT DATA

STREAM - Rush Ck DATE - 10/05/01 COLLECTORS - 302,335

EPA REACH - 17060206.041 LENGTH - 99.5M STRATUM - Tributary to Big Ck

TRANSECT - 1 GRADIENT % / VERTICAL DROP - NA % M

CHANNEL TYPES: ☒ B – confined, flushing
☐ C – meandered, depositional

PERCENT HABITAT TYPE: Pool - 10% Riffle - % Run/Glide - % Pocket Water - %

COMMENTS (About anything instructive…vegetative cover, bank stability, etc.) - Fish moved out of Trib.? Found Holubetz's old weir site just move old diversion for Taylor Ranch.

Transect length from bottom (m)	Width (m)	Location on transect (l to r)	Depth (m)	Stream flow (ft^3/s	Percent substrate class by area				
					Sand	Gravel	Rubble	Boulder	Bedrock
	7.9	1/4	0.21	5.4		70	30		
		1/2	0.31			50	50		
		3/4	0.19			20	80		
20	6.6	1/4	0.35				100		
		1/2	0.28			20	80		
		3/4	0.09			50	50		
40	10.5	1/4	0.06			50	50		
		1/2	0.18			10	90		
		3/4	0.24			10	90		
60	8.5	1/4	0.10		10	30	60		
		1/2	0.27			30	70		
		3/4	0.22		30	20	50		

Appendix J. Continued.

IDAHO DEPARTMENT OF FISH AND GAME
STANDARD STREAM SURVEY

TRANSECT DESCRIPTION SHEET

Stream - Rush Cr. Date - 10/5/01
EPA Reach Number - 17060206.041 IDFG Region 3M
Survey Crew - 302/335 Transect Number - 1
Transect location - 125 m upstream from mouth of Rush Cr.

Place Transect Photograph Here

Map Reference - Dave Lewis Peak Quad Map.

Vehicle Access - Fly into Taylor Ranch.

Photo Point -

Comments -

2001 ANNUAL PERFORMANCE REPORT

State of: Idaho | Program: Fisheries Management F-71-R-26

Project II: Technical Guidance | Subproject II-C: Southwest Region (McCall)

Contract Period: July 1, 2001 to June 30, 2002

ABSTRACT

McCall Subregion fishery management personnel responded to requests and opportunities for technical input. Comments were provided to state and federal agencies on proposed activities for which they have regulatory authority. Advice and technical assistance were provided to private businesses and the public on activities associated with fish or having impacts on fish populations or fish habitat. The major topics of involvement included stream channel alterations, Idaho Outfitters and Guides licensing, private pond permits, and land management planning. We provided data and technical advice to an increased number of fisheries consultants.

Regional fishery personnel continued participation on a technical advisory committee (TAC) for the Big Payette Lake Water Quality Council and the Cascade Reservoir TAC. We bega working with the Weiser River Watershed Advisory Group on the TMDL process.

Fishery staff devoted several man-months to drafting the Salmon and Boise-Payette-Weiser Subbasin Summaries for the Northwest Power Planning Council. Staff developed two funding proposals in the Salmon Subbasin and one in the Boise-Payette-Weiser Subbasin.

WestRock Resort is proposed for the west side of Cascade Reservoir and could potentially have large fish and wildlife impacts in Valley County. We provided technical review on several components of the proposal.

We gave numerous presentations to schools, sportsperson groups, and civic organizations. We answered many questions from the angling public on fishing opportunities, regulations, techniques, and specific waters. We maintained fishing reports for the IDFG Internet homepage.

Authors:

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Paul Janssen
Regional Fishery Biologist

2001 ANNUAL PERFORMANCE REPORT

State of: Idaho | Program: Fisheries Management F-71-R-26

Project III: Habitat Management | Subproject III-C: Southwest Region (McCall)

Contract Period: July 1, 2001 to June 30, 2002

ABSTRACT

McCall area fishery personnel participated in restoration, maintenance, and enhancement of fish habitat and water quality studies. This participation included membership on several technical advisory committees for state and federal planning efforts. Many proposed land management activities required Idaho Department of Fish and Game (IDFG) review to assure fish habitat consideration. Other natural resource agencies requested contributions to planning documents regarding fishery resources and habitat.

The development of community fishing ponds increases fish habitat, angler opportunity, and overall participation in the sport. The IDFG continued development of fishing ponds in the communities of Council and Cascade. Both ponds were constructed within city parks and have strong community support. Landscaping and final construction cleanup was completed spring 2001 in Cascade at Fischer Pond. In Council, the constructed pond had a water seepage problem. Construction of a bentonite-lined trench downstream of the seep will hopefully remedy the problem. No final landscape work was accomplished at Council because of lack of funds.

Work continued on riparian and instream habitat improvement projects on private lands within the Little Salmon River drainage. McCall fishery personnel cooperated with USFWS, NRCS, and BLM to administer one Wetland Restoration Project that will recover 250 acres of wetland and five miles of stream. Department volunteers and reservists joined with landowners, students from New Meadows and Boise high schools, and the local Trout Unlimited chapter to revegetate the streambanks on three separate ranches, for a total contribution of 567 volunteer hours.

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_____

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