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REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS
MAGIC VALLEY REGION (Subprojects I-E, II-E, III, IV-E

PROJECT I.	SURVEYS AND INVENTORIES
Job a.	Magic Valley Region Mountain Lakes Investigations
Job b.	Magic Valley Region Lowland Lakes and Reservoirs Investigations
PROJECT II.	TECHNICAL GUIDANCE
PROJECT III.	HABITAT MANAGEMENT
PROJECT IV.	POPULATION MANAGEMENT

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1997 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-22

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: a

Title: Mountain Lakes Investigations

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ABSTRACT

Concerns about brook trout *Salvelinus fontinalis* present in lower Paradise Creek, a tributary to the South Fork Boise River, led to an investigation of Paradise Lake, a possible source of the fish within the watershed. The lake was determined to be too shallow to support any salmonid species.

Eight lakes in the Rainbow Creek basin were investigated with standardized mountain lake survey methodologies. All of the lakes were found to have either cutthroat trout *Oncorhynchus clarki* or rainbow trout *O. mykiss* present with some of them of wild origin, some of hatchery origin and others with fish of wild and hatchery origin. There were also a number of small, shallow ponds and wetlands within the basin with larval toads and frogs present.

Big Trinity Lake and Little Trinity Lake were both surveyed with standardized mountain lake survey methodologies. The fishery in both lakes was determined to be supported solely by hatchery plantings of catchable-sized rainbow trout and fingerling-sized cutthroat trout, both of which appeared to have good survival and growth rates creating a good fishery.

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OBJECTIVES

To obtain current information for fishery management decisions on mountain lakes, including angler use and success, fish population characteristics, spawning potential, stocking success, limnology, morphology and notes on other aquatic life and develop appropriate management recommendations.

METHODS

Yellowstone cutthroat trout *Oncorhynchus clarki* from Henry's Lake, rainbow trout *O. mykiss* and Arctic grayling *Thymallus arcticus* fry were stocked into alpine lakes by fishery management personnel by vehicle, by backpack or by fixed wing aircraft.

Several high mountain lakes near Trinity Peak in the South Fork Boise River drainage were investigated during the summer of 1997. Information gathered included location coordinates, biological, physical, chemical, and descriptive data. Fish populations were sampled with Swedish made Lundgrens Type A lightweight multi-filament gill nets or with monofilament experimental gill nets. The Swedish made nets were 1.5 m deep with six 7.6 m wide panels with the following bar mesh sizes: 46, 38, 33, 30, 25, and 19 mm. The monofilament nets were 1.8 m deep with six 7.6 m wide panels with the following bar mesh sizes: 64, 51, 44, 38, 25 and 19 mm. A small inflatable rubber raft was used for setting and retrieving gill nets. Fish data analysis included identification to species, total length and weight measurements of some of the fish sampled.

Limnological data including pH, total hardness, alkalinity as $CaCO_3$ and conductivity were measured by collecting surface samples in plastic bottles from the raft for some lakes. The samples were taken to the regional office within two days of collection for analysis using a HACH Water Chemistry kit, a Sulu Bridge conductivity meter and an Oakton pH meter. Ambient surface water temperatures were recorded at all lakes with a mercury thermometer and temperature and dissolved oxygen profiles were measured at lakes accessible by vehicle by using a Y.S.I. Model 57 temperature and dissolved oxygen meter. For lakes we had to hike to, we made bathymetric maps by using a nylon rope marked off in 1 m increments for depth measurements at several locations then plotting on a surface map. A Lowrance Fish Locator was used for the same purpose at lakes we could drive to.

RESULTS AND DISCUSSIONS

Alpine Lake Stocking

There were 17 alpine lakes stocked with cutthroat trout, rainbow trout or Arctic grayling fry by regional personnel on September 3, 1997. Alpine lakes were stocked by department personnel from fixed wing aircraft. Lakes in the upper South Fork Boise River were not stocked as scheduled due to clouds obscuring visibility in the vicinity of the lakes. .

Paradise Lake

Paradise Lake is an alpine cirque lake located in T5N, R13E, S25, S.E.1/4 at the headwaters of Paradise Creek, a tributary to the South Fork of the Boise River. Lake elevation is 2,740 m; it is approximately 2.5 ha in surface area when full and is the source of Paradise Creek when it spills. Paradise Creek has been documented to have brook trout *Salvelinus fontinalis* within its lower reaches (See Rivers and Streams, this report). Brook trout are suspected to adversely interact with bull trout *S. confluentus* through competition, predation and hybridization and bull trout are known to inhabit the South Fork Boise River and several of its tributaries. Paradise Lake was investigated on September 16, 1997 to determine if the lake has a self-sustaining brook trout population and if there is any potential for recruitment of those fish from the lake into Paradise Creek. It was reached by about a 4 km pack trail, which does not go all the way to the lake. There was no evidence of any previous fishing activity or visitation at the lake. The lake has an east facing exposure, the lake level was approximately 2 vertical m below full pool, maximum depth was approximately 2 m, average depth was approximately 1 m or less, there was no flowing inlet and no suitable trout spawning habitat available. The lake level appeared to be completely dependent on snowmelt. Water clarity was good with almost no plankton visible and Secchi visibility exceeding maximum depth. There was no evidence of either fish or amphibians inhabiting the lake. It was concluded that Paradise Lake is not capable of supporting any trout species throughout the year and that the brook trout in Paradise Creek did not come from Paradise Lake.

Rainbow Creek Basin Lakes

The Rainbow Creek basin lakes are a series of nine high mountain lakes and several small ponds which form the headwaters Rainbow Creek, a tributary to Trinity Creek on the east side of Trinity Mountain (Figure 1). Lake elevations range from 2,568 m (Hideaway Lake) to 2,367 m (Little Rainbow Lake). All of the lakes have mostly timbered rocky shorelines. Five of the lakes are stocked with either rainbow or cutthroat trout fry every three years and Hideaway Lake has been stocked with Arctic grayling several times within the last few years. Public access is moderately easy with good trails leading to most of the lakes from Big Trinity Lake and from the road leading up to the Trinity Mountain fire lookout. There are no developed campsites at any of the lakes. No livestock grazing or domestic pack stock is allowed within the basin. The closest lake to the Big Trinity Lake trailhead is Green Island Lake, which is about a 2.3 km hike. The furthest and most difficult lake to reach is Hideaway Lake, which has no developed trail to it. It is about 3.5 km from the Trinity Mountain trailhead, which is accessed by an additional 2.5 km hike along the Trinity Peak fire lookout road from the gate at the base of the mountain.

A fisheries survey was performed on eight of the nine lakes on September 24, 25 and 26, 1997. Previously a survey was performed there by the Boise National Forest and Idaho Department of Fish and Game in 1978, which included estimated angler use (Burmeister and Corley 1978 and Bell 1979). Only Hideaway Lake was not surveyed in 1997. A cursory amphibian survey was performed at all of the lakes and several of the ponds within the basin.

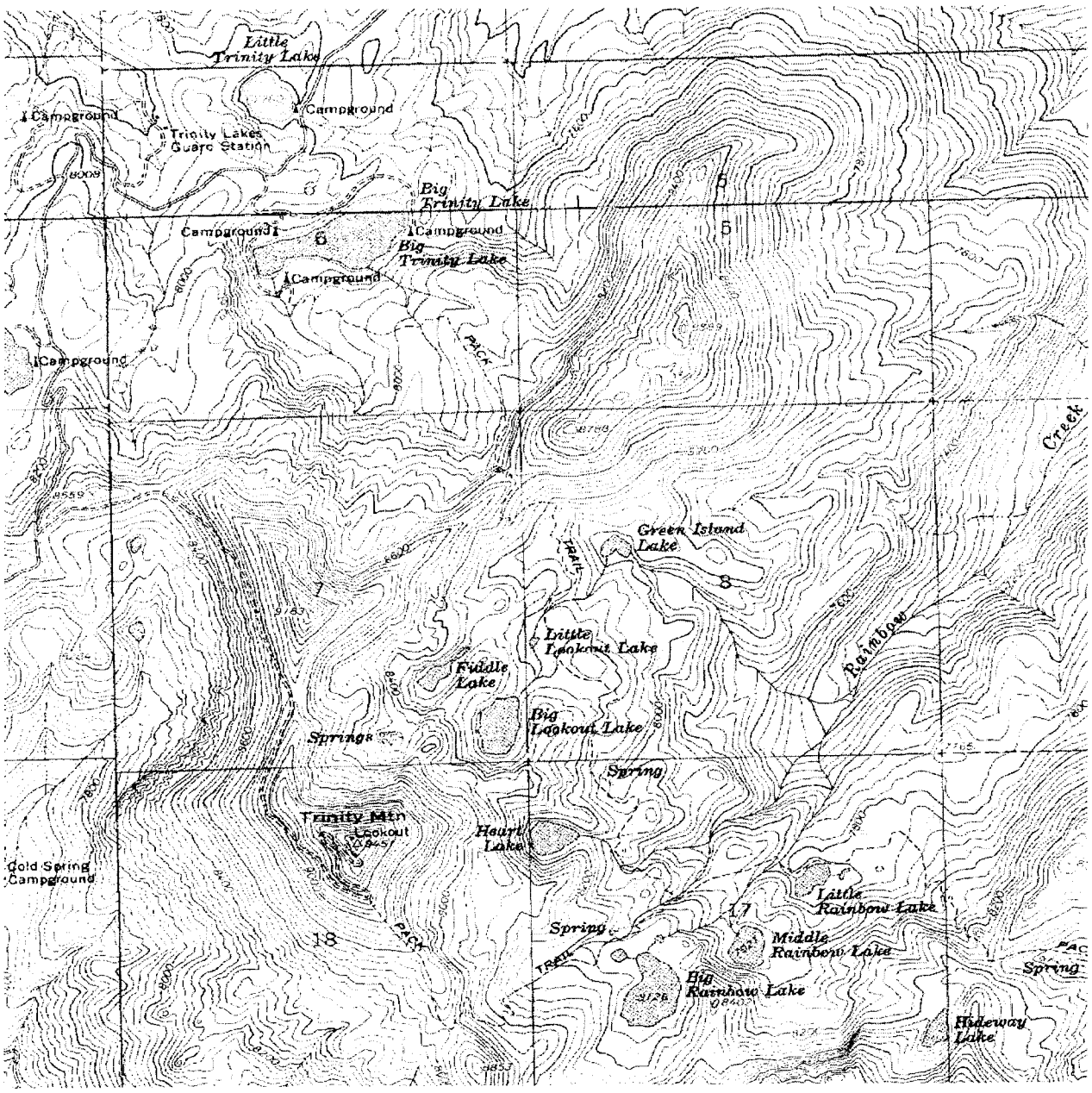


Figure 1. Locations of the lakes in the upper Rainbow and Trinity creek drainages, U.S.G.S topographic maps: Trinity Mountain, Idaho and Little Trinity Lake.

There was an abundance of large dark tadpoles, which appeared to be western toad *Bufo boreas* and some smaller tadpoles, which may have been spotted frog *Rana pretiosa* tadpoles in several of the ponds without fish. No adult or larval salamanders or reptiles were found in or near any of the lakes. Most of the morphometric data for each lake is from Burmeister and Corley (1978).

Fiddle Lake

Fiddle Lake is a shallow cirque lake with a maximum depth of 3 m, an average depth of about 2.5 m and is 0.9 ha in surface area (Figure 2). Surface elevation is 2,519 m. The lake has an east facing aspect; it is located at T3N, R9E, Sec. 7, SE1/4 and is accessed by about a 6.4 km hike from the Big Trinity Lake trailhead. There were no fire rings or other evidence of recent camping at the lake when investigated. It was stocked with 700 cutthroat trout fry on September 3, 1997 and on September 15, 1994. There were two flowing inlets and an outlet with none of them appearing to be suitable for salmonid spawning. A single experimental sinking gill net was set overnight with nine cutthroat trout sampled (Table 1). Estimated back-calculated lengths to annulus from scale samples are given in Table 2. Results of the survey indicate that there is no natural recruitment of fish into the lake. Stocked cutthroat trout fry do survive and grow to about 300 mm in three years providing a fishery to anglers who are willing to hike the short distance off the main basin trail. A surface water sample was taken for water chemistry tests with results given in Table 3.

Big Lookout Lake

Big Lookout Lake is a cirque lake at the northeast base of Trinity Mountain located at T3N, R9E, Sec. 7 SE1/4, SE1/4. Lake elevation is 2,510 m. It was reached by hiking approximately 6.5 km on a good trail from the Big Trinity Lake trailhead. There was evidence of moderate use of the lake by anglers and campers. It is 3.5 ha in surface area, has a maximum depth of 11 meters and an average depth of 6 m or greater (Figure 2). There was no flowing inlet but there was water flowing through the outlet, which did not appear to have suitable trout spawning habitat. The lake was stocked with 1,500 cutthroat trout fry in 1994 and 1,000 cutthroat fry in 1997. Two experimental gill nets set overnight during the survey caught 27 cutthroat trout (Table 1). Scale samples from six of the fish appeared to have two annuli, which puts the fish into the 1995 year-class. The fish were most likely from the 1994 stocking but did not form a well-developed first annulus (Table 2). The overall survey results indicate that there is no natural recruitment of fish into the lake but stocked fish survive and reach 255 mm in their third summer in the lake. Surface water quality results are given in Table 3.

Little Lookout Lake

Little Lookout Lake is a shallow marshy lake located at T3N, R9E, Sec. 8 SW1/4, NW1/4 and reached by about a 4.0 km hike from the Big Trinity Lake trailhead. It is about 0.2 ha in surface area with a maximum depth of 1.3 m (Figure 2). Surface elevation is 2,495 m. When

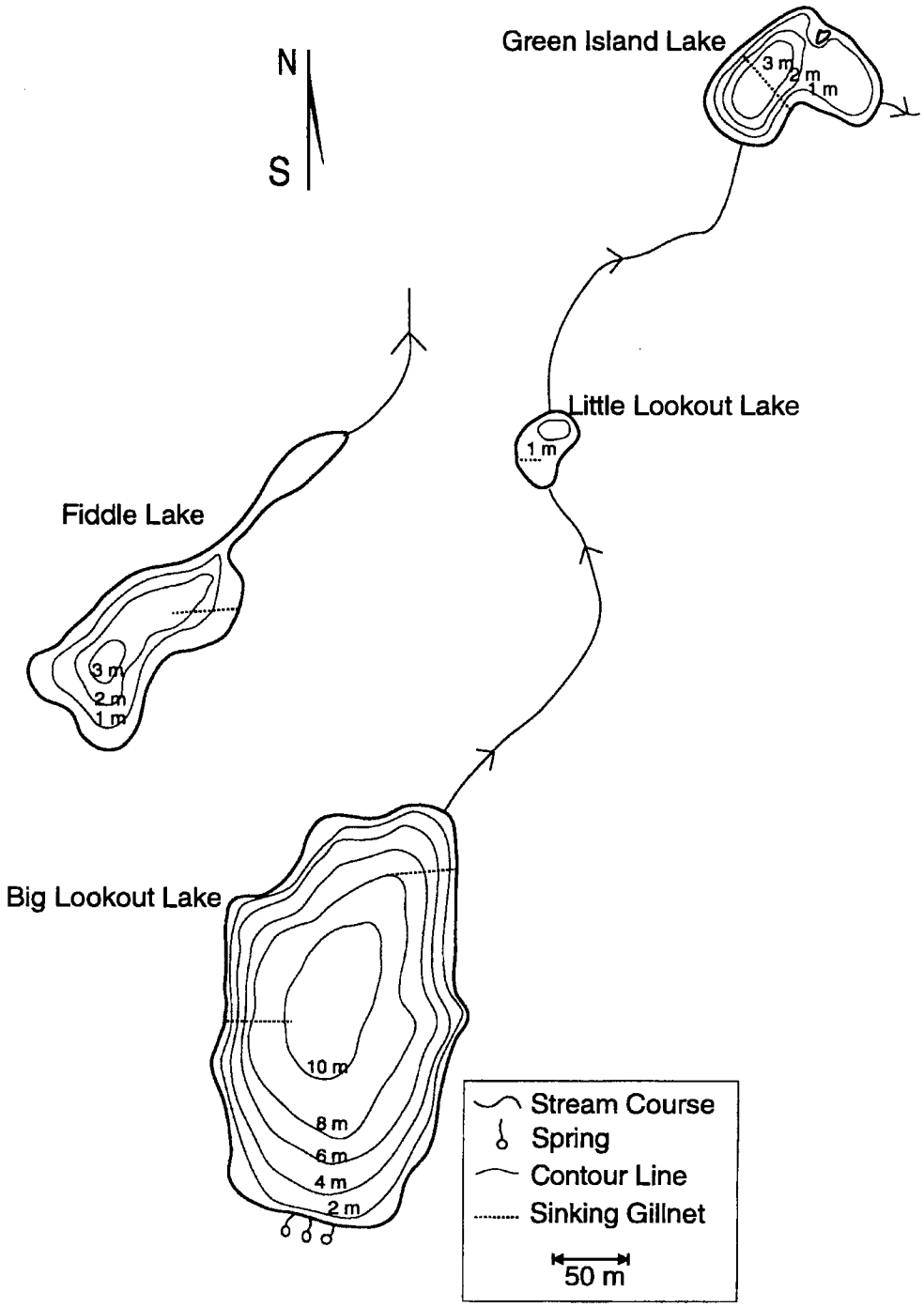


Figure 2. Bathymetric maps and location of gill net sets in Big Lookout, Little Lookout, Fiddle, and Green Island lakes on September 24, 1997.

Table 1. Number, mean weight and condition of fish sampled in Fiddle and Big Lookout lakes in 1997.

	Fiddle Lake			Big Lookout Lake		
	Cutthroat trout			Cutthroat trout		
Total length (mm)	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)
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				1	128	0.87
250-259						
260-269						
270-279	1	190	0.91	5	183	0.91
280-289				4	209	0.95
290-299				7	234	0.94
300-309	3	264	0.94	4	267	0.94
310-319	3	315	1.02	4	284	0.93
320-329	1	345	1.05	2	325	0.99
330-339	1	310	0.86			
340-349						
350-359						
360-369						
370-379						
380-389						
390-399						
400-409						
410-419						
420-429						
430-439						
440-449						
450-459						
460-469						
470-479						
480-489						
490-499						
Total sampled	9			27		
Mean length, condition	308		0.97	292		0.94

Table 2. Back-calculated length at annulus (mm) for trout sampled from the Rainbow Basin lakes in September 1997. Standard deviation is in parenthesis.

Lake	Species	Year Class	No. of Fish	Mean Length At Annulus			
				I	II	III	IV
Fiddle Lake	Cutthroat trout	1994	9	75 (22.1)	175 (290.3)	258 (18.5)	
Green Island Lake	Cutthroat x rainbow trout hybrid	1995	8	101 (15.7)	170 (25.7)		
		1994	2	97 (1.4)	178 (29.1)	233 (29.6)	
		Weighted Avg:		100	172	233	
Heart Lake	Cutthroat trout	1995	3	144 (41.9)	253 (41.9)		
		1994	1	177 (-)	369 (-)	419 (-)	
		Weighted Avg:		152	282	419	
	Rainbow trout	1994	4	70 (11.8)	156 (22.7)	228 (28.3)	
Lookout Lake, Big	Cutthroat trout	1995	6	106 (44.3)	227 (25.9)		
Lookout Lake, Little	Cutthroat x rainbow trout hybrid	1996	6	101 (12.3)			
		1994	2	106 (13.7)	152 (22.5)	192 (9.7)	
		Weighted Avg:		102	152	192	
Rainbow Lake, Big	Rainbow trout	1996	4	118 (25.7)			
		1995	6	116 (36.7)	185 (29.6)		
		1994	4	86 (20.1)	165 (18.7)	219 (28.5)	
		Weighted Avg:		108	177	216	

Table 2. Continued.

Lake	Species	Year Class	No. of Fish	Mean Length At Annulus			
				I	II	III	IV
Rainbow Lake, Little	Rainbow trout	1996	9	124 (10.7)			
		1995	6	113 (22.1)	173 (9.9)		
		Weighted Avg:		120	173		
Rainbow Lake, Middle	Rainbow trout	1996	3	113 (10.6)			
		1995	3	117 (23.7)	200 (41.8)		
		1994	4	83 (15.3)	179 (24.5)	261 (15.6)	
		1993	5	84 (11.4)	164 (36.5)	225 (32.2)	291 (15.6)
		Weighted Avg:		96	180	241	291

Table 3. Water chemistry test results from surface samples taken from several lakes in the Rainbow Creek basin in 1997.

Lake	Surface water temperature (C)	Specific conductivity (μsiemens/cm)	Total alkalinity as $CaCO_3$ (mg/l)	Total hardness (mg/l)	pH
Green Island	10	22	8	10	7.2
Fiddle	9	18	7	8	7.3
Big Lookout	-	20	7	7	7.0
Little Lookout	11	20	8	10	6.8
Heart	13	18	5	6	7.3
Big Rainbow	10	40	17	17	7.6
Middle Rainbow	9	40	17	18	7.6
Little Rainbow	11	22	11	13	7.2

investigated on September 24 and 25, 1997 there was a single flowing inlet which flows from Big Lookout Lake with approximately 200 m of adequate spawning habitat and a flowing outlet with about 50 meters of adequate spawning habitat. The lake substrate was covered with a short dense layer of an attached, bladed hydrophyte. There are no records of fish ever being stocked there. There was evidence of some camping near the lake. Three meters of a gill net set overnight caught eight rainbow trout, cutthroat trout and rainbow x cutthroat trout hybrids (Table 4). Scale samples from all eight fish pooled indicate that at least two year-classes of fish were present in the lake (Table 2). The fish population there appears to be self-sustaining and may occasionally recruit fish of hatchery origin from Big Lookout Lake. The rainbow trout are probably also from Big Lookout Lake which may have received an unrecorded stock of that species in the past. Surface water quality test results are given in Table 3.

Green Island Lake

Green Island Lake is probably the easiest lake to reach within the Rainbow Creek basin by hiking approximately 2.3 km on a good trail from the Big Trinity Lake trailhead. It is about 1.6 km northeast of Trinity Mountain peak located at T3N, R9E, Sec. 8 NW1/4, SE1/4. It is at an elevation of 2,434 m. It is 0.9 ha in surface area with a maximum depth of 3.9 m and an average depth of 2.2 m (Burmeister and Corley 1978) (Figure 2). Public use appears high with a trail completely encircling the lake and at least three fire pits and two well-used undeveloped campsites. The lake has not been stocked with fish in several years. The shoreline varies with most of it marshy with tall grasses and willows and other parts dry and covered with coniferous trees. There were two inlets observed with approximately 100 m of good spawning habitat available in both streams combined and an outlet with approximately 50 m of adequate spawning habitat available. A surface water sample was taken with water chemistry test results given in Table 3. A single experimental sinking gill net set overnight sampled 11 rainbow trout, cutthroat trout and rainbow/cutthroat trout hybrids (Table 5). Scale samples from 10 of the fish indicate that multiple year classes exist in the lake and that most of the fish reach 255 mm in their third summer in the lake (Table 2). Good accessibility, angling pressure and small lake size probably reduces the number of larger older fish there. The level of natural recruitment into the lake appears to be adequate to support the existing fishery and angling pressure.

Heart Lake

Heart Lake is a deep oligotrophic cirque lake at the east base of Trinity Mountain located at T3N, R9E, Sec. 17 NW1/4 at an elevation of 2,483 m. It was stocked with 500 cutthroat trout and 500 rainbow trout fry in 1994 and 500 rainbow trout fry in 1997. The lake is reached by hiking approximately 3.8 km on a good trail from the Big Trinity Lake trailhead. There was evidence of moderate use by fishermen and campers. Most of the shoreline is steep, rocky and timbered with one inlet and an outlet, neither of which appeared to be suitable for trout spawning. Total lake surface area is 2.6 ha, maximum depth is 23.7 m and average depth is 18.4 m (Burmeister and Corley 1978) (Figure 3). A single sinking experimental gill net was set overnight on September 24, 1997. Eight rainbow and cutthroat trout combined were sampled (Table 6). Scale samples from all eight fish indicate that three of the four cutthroat trout

Table 4. Number, mean weight and condition of fish sampled in Little Lookout Lake in 1997.

Total length (mm)	Rainbow trout			Cutthroat trout			Rainbow x cutthroat hybrid		
	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)
100-109									
110-119									
120-129				1	13	0.75			
130-139									
140-149									
150-159									
160-169							1	34	0.83
170-179							2	48	0.98
180-189									
190-199	1	63	0.92						
200-209	2	100	1.04						
210-219	1	100	0.94						
220-229									
230-239									
240-249									
250-259									
260-269									
270-279									
280-289									
290-299									
300-309									
310-319									
320-329									
330-339									
340-349									
350-359									
360-369									
370-379									
380-389									
390-399									
400-409									
410-419									
420-429									
430-439									
440-449									
450-459									
460-469									
470-479									
480-489									
490-499									
Total sampled	4			1			3		
Mean length, condition	209		0.98	120		0.75	167		0.93

Table 5. Number, mean weight and condition of fish sampled in Green Island Lake in 1997.

Total length (mm)	Rainbow trout			Cutthroat trout			Rainbow x cutthroat hybrid		
	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)
100-109									
110-119									
120-129									
130-139									
140-149									
150-159									
160-169									
170-179									
180-189	1	49	0.84				1	68	1.07
190-199									
200-209	1	78	0.90						
210-219				2	80	0.80			
220-229							1	80	0.75
230-239							1	100	0.77
240-249				1	100	0.72	1	120	0.81
250-259	1	178	1.14						
260-269									
270-279									
280-289									
290-299							1	268	1.04
300-309									
310-319									
320-329									
330-339									
340-349									
350-359									
360-369									
370-379									
380-389									
390-399									
400-409									
410-419									
420-429									
430-439									
440-449									
450-459									
460-469									
470-479									
480-489									
490-499									
Total sampled	3			3			5		
Mean length, condition	212		0.96	223		0.78	236		0.89

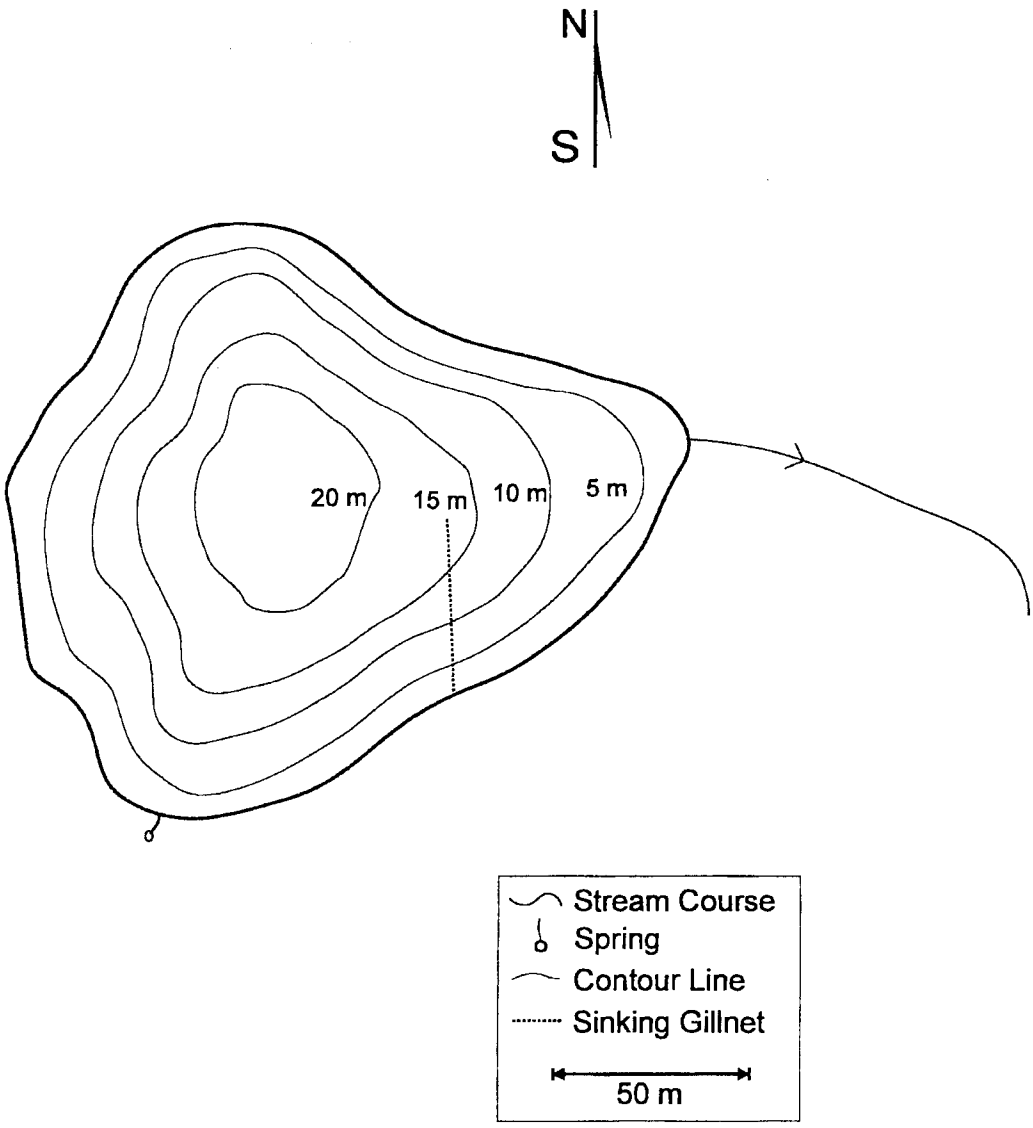


Figure 3. Bathymetric map and location of gill net set in Heart Lake on September 24, 1997.

Table 6. Number, mean weight and condition of fish sampled in Heart Lake in 1997.

Total length (mm)	Rainbow trout			Cutthroat trout			Rainbow x cutthroat hybrids		
	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)
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	1	140	0.95						
250-259									
260-269	1	180	0.97						
270-279	1	210	1.01						
280-289									
290-299				1	200	0.82			
300-309	1	300	1.11						
310-319				1	240	0.80			
320-329									
330-339									
340-349									
350-359									
360-369									
370-379									
380-389									
390-399									
400-409							1	610	0.95
410-419									
420-429									
430-439									
440-449									
450-459									
460-469									
470-479				1	880	0.85			
480-489									
490-499									
Total sampled	4			3			1		
Mean length, condition	271		1.01	357		0.82	400		0.95

sampled are age 2+ (Table 2) which would be fish of wild origin even though there did not appear to be any suitable spawning habitat available. Burmeister and Corley (1978) also state that there was no spawning habitat in either the inlet or outlet in their survey. With the lack of spawning habitat the age 2+ fish may actually be age 3+ fish of hatchery origin that did not form a well-developed annuli. Surface water chemistry test results are given in Table 3.

Big Rainbow Lake

Big Rainbow Lake is the largest lake within the Rainbow Creek lakes complex. It is 5.1 ha in surface area, has a maximum depth of at least 23.5 m and an average depth of 10.2 m (Burmeister and Corley 1978) (Figure 4). It is located at T3N, R9E, Sec. 17, SW1/4, which is 1.2 km southeast of Trinity Peak. Lake elevation is 2,478 m. It can be reached by either an 8.4 km hike from the Big Trinity Lake trailhead or by a 2.1 km hike from the Trinity Mountain trailhead. The Trinity Mountain trailhead must be reached by hiking an additional 2.4 km along the lookout road from the locked gate at the base of the mountain. The lakeshore is predominately rocky and timbered with conifer trees and a marshy area with willows and a small pond next to it on the north side. There is a trail completely around the lake although parts of it are steep and through dense timber. There was evidence of some camping and fishing activities around the lake. Four inlets were observed on the south side of the lake with two of them dry. One of the dry inlets had 8 m of marginally suitable spawning substrate, which may have flowing water in it long enough in the spring for trout to spawn, incubate and hatch. There was an inlet flowing from the pond on the northwest side of the lake but did not appear to have any spawning habitat. The outlet on the north end of the lake was flowing and had 3 m of marginally suitable spawning habitat. Burmeister and Corley (1978) report that there was no spawning habitat available at either the inlet or outlet in their survey. Big Rainbow Lake was last stocked in 1994 when it received 1,000 rainbow trout fry. It was not stocked in 1997. One experimental gill net was set overnight on September 25, 1997. There were 21 rainbow trout sampled in the net (Table 7). Scale samples from several of the fish indicate the presence of several year classes and natural recruitment of fish into the lake (Table 2). Water chemistry test results from a surface sample are given in Table 3.

Middle Rainbow Lake

Middle Rainbow Lake lies between Big Rainbow Lake and Little Rainbow Lake at T3N, R9E, Sec.17, which is 1.5 km southeast of Trinity Peak. Lake elevation is at 2,416 m. It can be reached from either the Trinity Peak trailhead or the Big Trinity Lake trailhead by hiking an additional 0.5 km past Big Rainbow Lake on a good trail. There was evidence of frequent camping and fishing activity when investigated. The lake is 2.1 ha in surface area, has a maximum depth of 11.2 m and averages 5.6 m deep (Burmeister and Corley 1978) (Figure 4). When investigated there were two flowing inlets with about 150 m of adequate spawning habitat available and a flowing outlet with no spawning habitat available. There were 1,000 rainbow trout fry stocked each year in 1994 and 1997. A single experimental sinking gill net set over night sampled 15 rainbow trout (Table 7). Scale samples from those fish indicate that natural recruitment is occurring with the presence of four year-classes (Table 2). Although natural recruitment is occurring with the hatchery supplementation, there does not appear to be an over

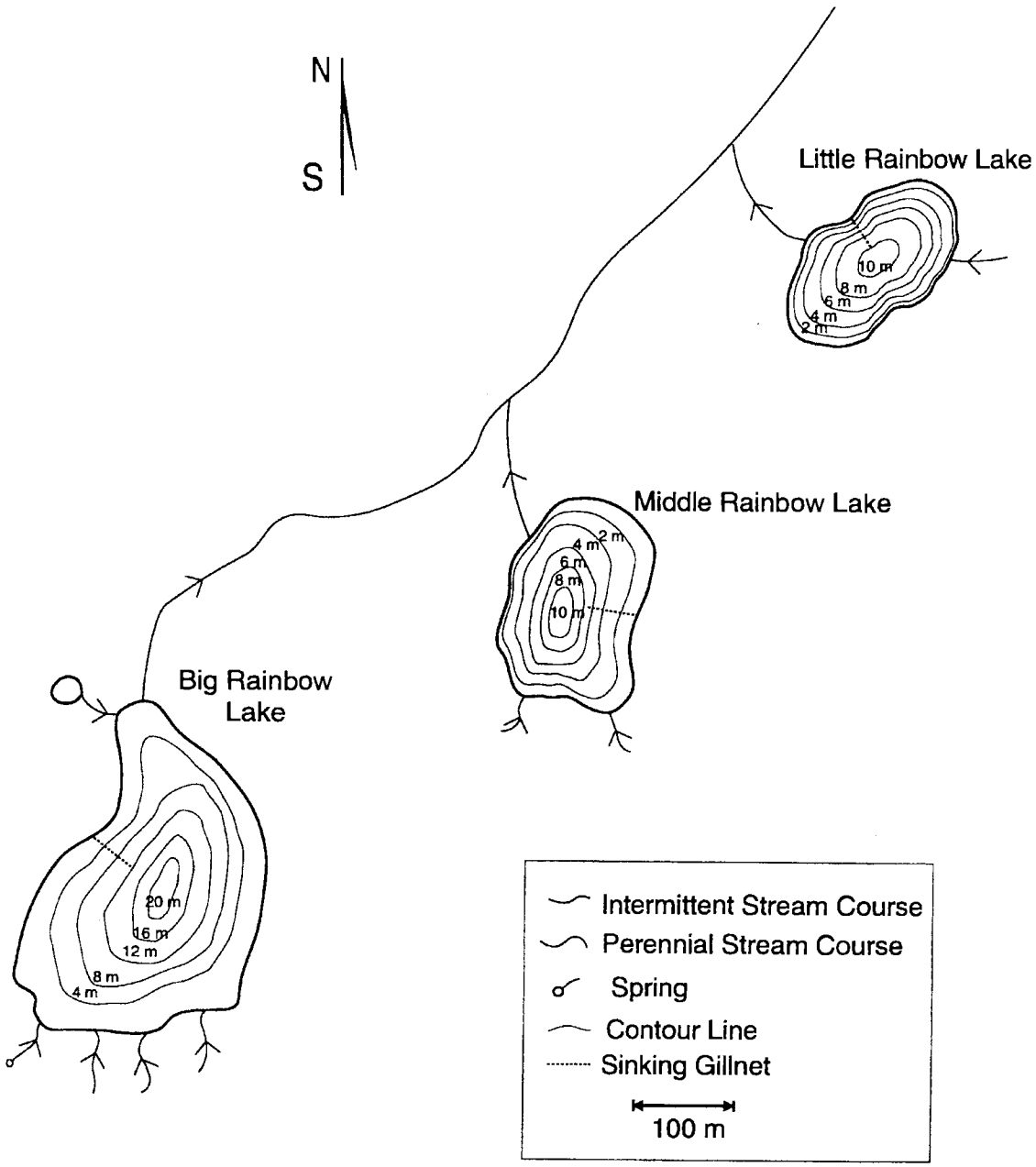


Figure 4. Bathymetric maps and location of gill net sets in the three Rainbow Lakes on September 25, 1997.

Table 7. Number, mean weight and condition of fish sampled in the Rainbow lakes in 1997.

	Big Rainbow Lake			Middle Rainbow Lake			Little Rainbow Lake		
	Rainbow trout			Rainbow trout			Rainbow trout		
Total length (mm)	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)
100-109									
110-119									
120-129									
130-139									
140-149									
150-159	1	38	1.12	1	41	1.21			
160-169				2	52	1.21	6	39	0.94
170-179	2	51	1.04				13	44	0.87
180-189	1	65	1.11				12	52	0.87
190-199							11	59	0.82
200-209	4	85	1.05				8	69	0.85
210-219	2	88	0.92	1	106	1.07	1	88	0.88
220-229	4	97	0.90				1	86	0.76
230-239	1	120	0.92				1	98	0.76
240-249	3	128	0.91						
250-259	1	100	0.64						
260-269	1	168	0.96	2	220	1.25			
270-279									
280-289	1	211	0.91	1	280	1.21			
290-299				1	270	1.11			
300-309									
310-319				1	320	1.02			
320-329				2	348	1.04			
330-339				3	325	0.90			
340-349				1	420	1.02			
350-359									
360-369									
370-379									
380-389									
390-399									
400-409									
410-419									
420-429									
430-439									
440-449									
450-459									
460-469									
470-479									
480-489									
490-499									
Total sampled	21			15			53		
Mean length, condition	216		0.96	272		1.09	185		0.86

abundance of fish in Middle Rainbow Lake. Water chemistry test results from a surface sample are given in Table 3.

Little Rainbow Lake

Little Rainbow Lake is 1.6 ha in surface area with a maximum depth of 10.7 m and an average depth of 5.5 m (Burmeister and Corley 1978) (Figure 4). It is the lowest lake in elevation within the Rainbow Creek basin at 2,375 m located at T3N, R9E, Sec. 17 NE1/4. Access is by hiking an additional 0.75 km past Middle Rainbow Lake on a good trail. It receives moderate camping and fishing pressure. The shoreline is predominated by conifer trees and willows and there was one flowing inlet and a flowing outlet when investigated. The inlet did not appear to have suitable trout spawning habitat but the outlet had about 40 m of adequate spawning habitat. There have been no stockings of trout into the lake within the last several years. A single sinking experimental gill net set overnight sampled 53 rainbow trout with none over 235 mm long (Table 7). Scale samples from several of those fish indicate the presence of age 1+ fish and age 2+ fish, although some of the fish may have been older with some annuli missed when the scales were read (Table 2). Results of the fish survey indicate that stocking is not needed to sustain a fishable population of trout in the lake. Water quality test results from a surface sample are given in Table 3.

Trinity Lakes

Big Trinity Lake

Big Trinity Lake is a 9.9 ha lake located on the north side of Trinity Mountain at T3N, R9E, Sec. 6. It is easily accessed by vehicle at several points from a good dirt road and has a developed campground administered by the Boise National Forest. The shoreline varies with most of it forested, some of it rocky and one of the inlets marshy with grasses and willows. The fishery there has been supported with stocks of hatchery cutthroat trout fingerlings and rainbow trout catchables for the past several years.

The lake was investigated on August 19 and 20, 1997. Maximum depth of the lake was 17.7 m and the average depth was approximately 9.0 m (Figure 5). Most of the visible substrate appeared to be silty with much of it covered with a dense layer of attached algae and macrophytes. There were three inlets and a single outlet with none having what appeared to be suitable spawning habitat. Water chemistry test results and Secchi depth readings are given in Table 8. A temperature and dissolved oxygen profile is given in Figure 6.

One sinking and one floating experimental gill net were set overnight on August 19, 1997. Fish sampled include 17 rainbow trout, with some of apparent hatchery origin and some with no fin erosion, and 2 cutthroat trout (Table 9). Scale samples were taken from fish without fin erosion to estimate growth rates (Table 10). Other aquatic wildlife found included spotted frogs and tadpoles and a small, unidentified pelecypod (bivalva).

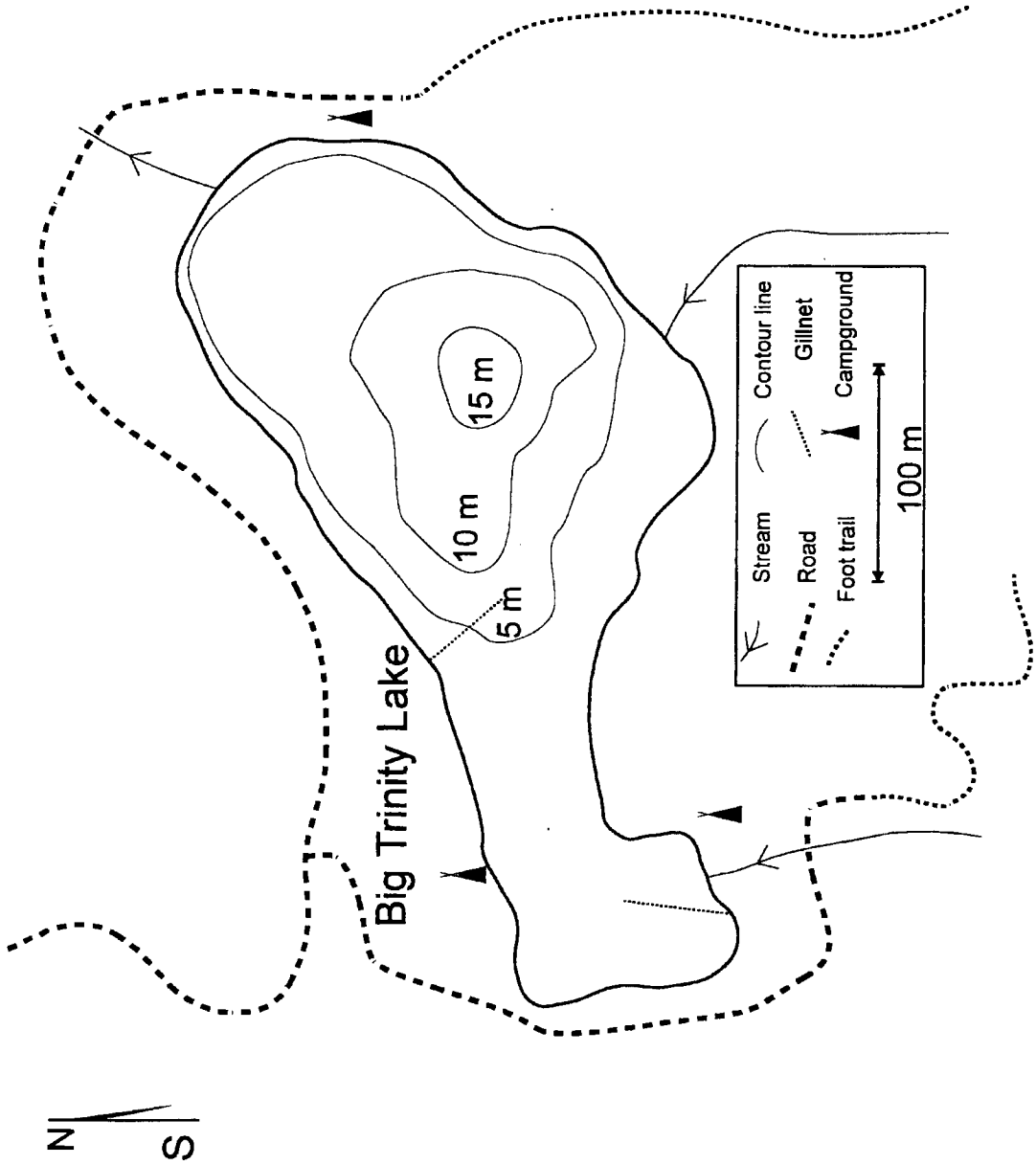
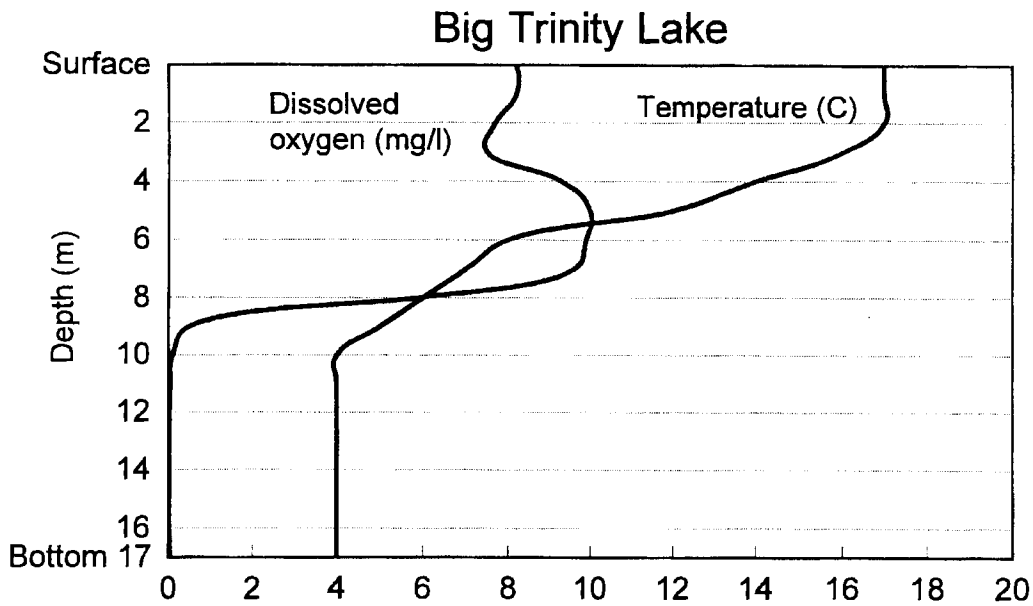


Figure 5. Bathymetric map and location of gill net sets in Big Trinity Lake on August 20, 1997.

Table 8. Water quality test results for Big Trinity Lake and Little Trinity Lake from samples taken on August 20, 1997.

Lake	Specific conductivity (μsiemens/cm)	Total alkalinity as $CaCO_3$ (mg/l)	Total hardness (mg/l)	pH	Secchi visibility (m)
Big Trinity	20	15	75	8.1	5.0-5.5
Little Trinity	20	10	10	8.1	5.0-5.5



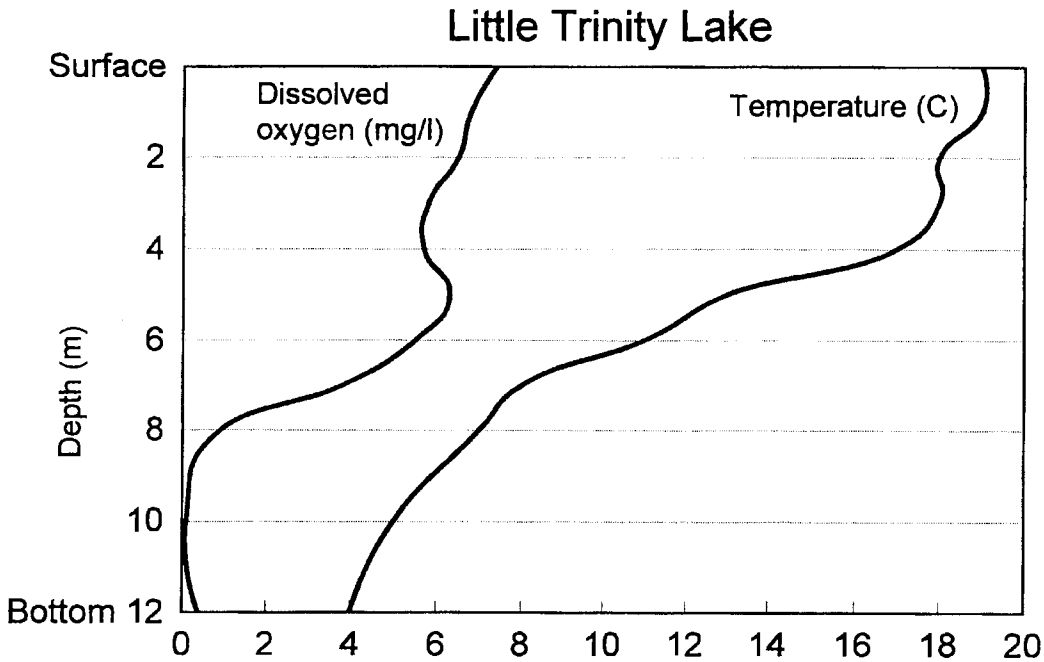


Figure 6. Daytime temperature and dissolved oxygen profiles for Big Trinity and Little Trinity lakes on August 20, 1997.

Table 9. Number, mean weight and condition of fish sampled in Big Trinity Lake in 1997.

Total length (mm)	Rainbow trout			Hatchery rainbow trout			Cutthroat trout		
	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)	Number	Mean weight (g)	Mean condition (K)
100-109									
110-119									
120-129									
130-139							1	--	--
140-149									
150-159									
160-169							1	35	0.85
170-179									
180-189									
190-199									
200-209									
210-219									
220-229				1	140	1.23			
230-239	1	127	0.98						
240-249	6	148	1.05						
250-259									
260-269				1	155	0.88			
270-279	1	220	1.06	1	--	--			
280-289				1	185	0.84			
290-299				3	232	0.93			
300-309									
310-319				2	274	0.92			
320-329									
330-339									
340-349									
350-359									
360-369									
370-379									
380-389									
390-399									
400-409									
410-419									
420-429									
430-439									
440-449									
450-459									
460-469									
470-479									
480-489									
490-499									
Total sampled	8			9			2		
Mean length, condition	245		1.04	281		0.95	145		0.85

Table 10. Back-calculated length at annulus (mm) for trout without fin erosion sampled from the Trinity Lakes complex in August 1997. Standard deviation is in parentheses.

Lake	Species	Year class	No. of fish	Mean length at annulus		
				I	II	III
Big Trinity Lake	Cutthroat trout	1996	2	87 (13.8)		
Big Trinity Lake	Rainbow trout	1995	6	104 (23.0)	187 (16.9)	
		1994	1	80 (-)	171 (-)	236 (-)
		Weighted avg:		100	185	236
Little Trinity Lake	Cutthroat trout	1996	2	123 (9.7)		
		1995	1	115 (-)	197 (-)	
		Weighted avg:		120	197	

Little Trinity Lake

Little Trinity Lake is a 2.3 ha lake located on the north side of Trinity Mountain at T3N, R9E, Sec. 6, NW1/4. It is easily accessed by vehicle over a good dirt road and has a trail that completely encircles the lake. The shoreline is mostly timbered with some of it rocky and steep. The fishery there has been supported with stocks of hatchery cutthroat trout fingerlings and catchable sized rainbow trout for the past several years. The lake was investigated on August 19 and 20, 1997. Maximum depth of the lake was 11.6 m and average depth was approximately 8.0 m (Figure 7). Most of the visible substrate was silty with some attached algae or macrophytes. There was no flowing surface inlet but there was an outlet with a trickle of water flowing. There is no trout-spawning habitat available. Water chemistry test results and Secchi depth readings are given in Table 8. A temperature and dissolved oxygen profile is given in Figure 6.

One floating experimental gill net was set overnight on August 19, 1997. Fish sampled include 17 rainbow trout of hatchery origin and 3 cutthroat trout (Table 11). One of the rainbow trout had an infestation of a parasitic copepod on the gills. Scale samples were taken from fish without fin erosion to estimate growth rates (Table 10). Other aquatic wildlife found included an unidentified species of tadpoles present which were actually sighted the previous year in a cursory investigation August of 1996.

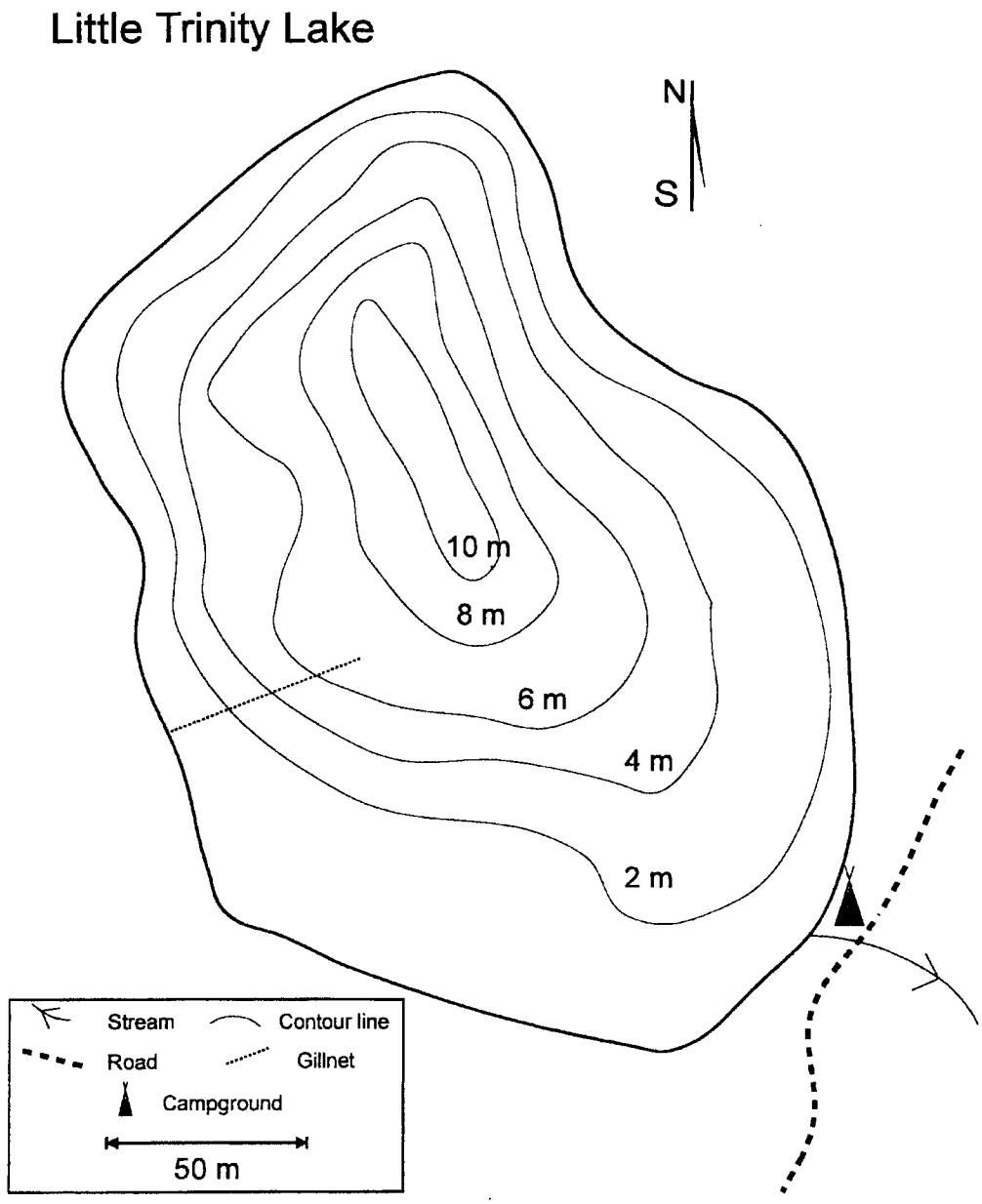


Figure 7. Bathymetric map and location of gill net set in Little Trinity Lake on August 20, 1997

Table 11. Number, mean weight and condition of fish sampled in Little Trinity Lake in 1997.

Total length (mm)	Hatchery rainbow trout Number	Mean weight (g)	Mean condition (K)	Cutthroat trout Number	Mean weight (g)	Mean condition (K)
100-109						
110-119						
120-129	1	--	--			
130-139						
140-149						
150-159						
160-169						
170-179						
180-189						
190-199						
200-209				2	78	0.97
210-219						
220-229						
230-239						
240-249						
250-259	1	176	1.13	1	190	1.22
260-269	1	174	0.99			
270-279	1	209	1.06			
280-289						
290-299	2	234	0.91			
300-309	3	285	1.00			
310-319						
320-329						
330-339						
340-349						
350-359						
360-369						
370-379						
380-389						
390-399						
400-409						
410-419						
420-429						
430-439						
440-449						
450-459						
460-469						
470-479						
480-489						
490-499						
Total sampled	9			3		
Mean length, condition	266		1.02	217		1.05

ACKNOWLEDGMENTS

We acknowledge John DerHovanisian and Shannon Peterson for their assistance with mountain lake surveys this year.

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1997 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-22

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1997 to June 30, 1998

ABSTRACT

Anderson Ranch Reservoir fisheries were intensively investigated in 1997. During the spring three bull trout *Salvelinus confluentus* were gillnetted to test the feasibility of sampling them near the mouth of the South Fork Boise River with that method. A creel survey with 522 angler contacts estimated total angler effort to be approximately 79,800 hours between May 12 and September 28, 1997. We also sampled utilizing overnight gill and trap net sets along with nighttime electrofishing. There were 11 species of fish sampled including smallmouth bass *Micropterus dolomieu* that had a Proportional Stock Density (PSD) of 18%. Kokanee *Oncorhynchus nerka* sampled by night time midwater trawling indicating good numbers of fish in the 0+ to 2+ age range and spawning adult kokanee surveys in the South Fork Boise River indicated good survival and escapement for the year.

Dierkes Lake was electrofished for transporting bluegill *Lepomis macrochirus* to the North Bruneau Sand Dunes Pond. Average total length of the bluegill was 112 mm, which is slightly larger than bluegill sampled in 1991 (90 mm) and 1993 (98 mm). This is speculated to be due to the more restrictive two bass, none less than 20-inch (508 mm) harvest limit imposed at Dierkes Lake in 1994.

Lower Salmon Falls Reservoir game fish were sampled by electrofishing to determine if there were many marked largemouth bass *Micropterus salmoides* left in the reservoir from a release in 1995 and to determine what effect more restrictive bass harvest rules imposed in 1996 were having on the population structure. None of the largemouth bass sampled were from the 1995 stocking and the average total length of fish in the sample increased from 218 mm in 1995 to 243 mm in 1997. The PSD went from 14% in 1995 to 71% in 1997, however numbers decreased 36%.

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OBJECTIVES

To obtain current information for fishery management decisions on lowland lakes and reservoirs, including angler use, success, harvest and opinions, fish population characteristics, stocking success, return-to-the-creel for hatchery trout, limnology and develop appropriate management recommendations.

METHODS

Kokanee *Oncorhynchus nerka* abundance and age structure were estimated in Anderson Ranch Reservoir and Salmon Falls Creek Reservoir using nighttime midwater trawl. Methods used for the trawling and data analysis followed those described by Rieman (1992).

General fishery data in lakes and reservoirs were collected and analyzed utilizing standardized fish sampling gear and methodologies. Electrofishing sampling gear included a Smith-Root Model SR-18 electrofishing boat with a Model 5.0 pulsator and a drift boat equipped with a Coffelt VVP-15 electrofisher powered by a Honda 5000 generator. Nets included variable (19 to 64 mm) bar mesh 38 x 1.8 m gill nets, a 15.2 x 1.4 m long with 6.2 mm bar mesh beach seine, and 2 cm bar mesh size trap (frame) nets with a 1.8 x 0.9 m box and five 76 cm diameter hoops. Beach seine samples were taken by holding one end of the seine stationary at the water edge while the other end was taken straight out into the water perpendicular to the shoreline. With the shore end remaining stationary, the other end was swept shoreward with the lead line held near the bottom. Data analysis included total length frequencies, estimated length at annulus back calculated from scale measurements and trend data used to compare with similarly acquired data from previous years. A single unit of standardized lowland lake sampling protocols included one sinking variable mesh gill net, one floating variable mesh gill net, and one trap net set overnight with one hour of nighttime electrofishing. Data analysis included total length frequencies of all fish sampled and an estimate of total biomass of all fish sampled broken down by species. Growth analysis was done by back calculations to annulus and using a Walford Line as described by Ricker (1958). Proportional Stock Densities were calculated by methods described by Anderson and Gutreuter (1983).

Limnological samples were taken by sampling surface waters for specific conductivity, pH, total hardness, and alkalinity. A Hach Kit was used for the total hardness and alkalinity measurements, a Solu Bridge conductivity meter was used for measuring specific conductivity and an Oakton PhTestr2 was used for measuring pH. Temperature and dissolved oxygen profiles were measured in-situ using a Y.S.I. model 57 temperature/dissolved oxygen meter from a boat. A Secchi disk was used from a boat. An Onset StowAway water temperature data logger set to record temperature every 48 minutes was used for continuously recorded temperature information over a period of several weeks.

Intensive creel census and angler survey methodologies followed those given by McArthur (1993). Surveys covering an extended time period were broken down into 28-day intervals, which were in turn broken down into weekend-holiday and weekday day types to reduce total angler effort estimate variability. A total of three weekend-holiday day types and

three weekday day types were randomly selected for angler count days within each 28-day interval. A starting time was also randomly selected to begin the first angler count on each of the count days with a second count made two to three hours after the first one began. Counted anglers were classified as either a boat, bank or float tube angler. After the initial count anglers were interviewed to determine number hours fished that day, gear type used, and numbers of fish caught, kept and released. Subsamples of fish harvested were taken for total length and weight measurements.

RESULTS AND DISCUSSION

Anderson Ranch Reservoir

Water levels in Anderson Ranch Reservoir nearly reached or attained full capacity in 1995, 1996 and 1997 after an extended drought cycle from the late 1980s through the early 1990s. Fish species sought after by anglers at Anderson Ranch Reservoir include kokanee, rainbow trout *Oncorhynchus mykiss*, smallmouth bass *Micropterus dolomieu*, and yellow perch *Perca flavescens*. Fall spawning chinook salmon *O. tshawytscha* were stocked in the early 1980's but are suspected to no longer be present. Bull trout *Salvelinus confluentus* are known to be present but there is a current statewide restriction on harvesting them. Kokanee were initially introduced into the reservoir in the early 1950's and have been stocked on an intermittent basis ever since. Kokanee stocking is usually dependent on wild fish year class strength expectations. Kokanee were last stocked in the reservoir in 1994 (Table 1).

Anderson Ranch Reservoir kokanee were sampled with a midwater trawl using methods described by Rieman (1992). The reservoir was partitioned into three strata and trawled on the nights of July 10 and 11, 1997. A total of 14 transects ranging from 7 to 22 m deep were trawled in four steps in the three strata. All kokanee sampled were classified into three age class groups; fish up to 99 mm in total length were classified as age-0+ fish, fish from 100 to 239 mm were classified as age-1+ fish, and fish 240 mm or greater were classified as age-2+ fish. The kokanee population was estimated to be 890,000 fish with a density of 524 fish/ha (Table 2). The four previous year's population estimates ranged from a low of 57,000 fish to 836,000. Total length frequencies for each age class with weights of fish sampled are given in Table 3. Daytime temperature and dissolved oxygen profiles were taken at three locations on July 10. 1997. Results indicate strong temperature stratification with the thermocline beginning at about 4 m in depth (Figure 1).

Kokanee spawning was monitored with counts of adult fish observed at 13 sites on the South Fork Boise River and Trinity Creek between August 15 and September 27, 1997. These are the same sites that counts have been made since 1989 for spawner trend information except for the trap site, which was added to the survey in 1990 (Partridge and Corsi 1993). A total of 2,745 spawners were counted this year (Table 4, Figure 2).

Fish in Anderson Ranch Reservoir were sampled with six units of standardized lowland lakes sampling protocols in August 1997 (Figure 3). Equal effort was made to net all fish stunned while electrofishing at all sites regardless of species. Fish sampled include rainbow

Table 1. Anderson Ranch Reservoir fish stocking history, 1994-1997.

Month/Year	Species (Strain)	Number	Average length (mm)
April/1994	Rainbow trout (kamloop x steelhead)	15,035	226
May/1994	Kokanee (early spawner)	161,200	76
Sept./1994	Rainbow trout (Hayspur)	100,100	99
April/1995	Rainbow trout (Hayspur)	15,400	208
Sept./1995	Rainbow trout (Mt. Lassen)	146,223	99
Sept./1995	Rainbow trout (steelhead)	85,616	64
April/1996	Rainbow trout (domestic kamloops)	15,200	216
July/1996	Rainbow trout (Mt. Shasta)	38,000	185
Sept./1996	Rainbow trout (steelhead)	171,010	48
Sept./1996	Rainbow Trout (Hayspur)	96,000	124
March/1997	Rainbow trout (domestic kamloops)	7,522	236
April/1997	Rainbow trout (Hayspur)	101,575	77

Table 2. Anderson Ranch Reservoir kokanee population and density estimates based on night time midwater trawling results in July 1997 and four previous year's total population estimates for comparison.

	Age 0+	Age 1+	Age 2+	Age 3+
Strata 1 (5 Trawls)				
Pop. Est.	799,648	6,235	0	0
Density Est. (Fish/ha)	1,290	10	0	0
Variance of Density Est.	4.26×10^{-5}	6.32	-	-
Strata 2 (5 Trawls)				
Pop. Est.	39,372	14,582	5,831	0
Density Est. (Fish/ha)	68	25	10	0
Variance of Density Est.	5.15×10^{-2}	31.60	6.32	-
Strata 3 (4 Trawls)				
Pop. Est.	14,912	13,765	0	0
Density Est. (Fish/ha)	41	38	0	0
Variance of Density Est.	1.15×10^{-2}	2.37×10^{-2}	-	-
Reservoir				
Pop. Est.	853,932	34,582	5,831	0
Variance of Pop. Est.	7.0×10^{8}	5.0×10^{7}	2.1×10^{6}	-
Mean Density (Fish/ha) [a]	496.7	23.3	3.6	0
Previous year's population estimates				
1996				
Pop. Est.	109,400 [b]	7,733	0	3,551
Variance of Pop. Est.	2×10^{8}	4×10^{7}	-	7×10^{6}
1995				
Pop. Est.	3,134 [b]	15,995	38,364	0
Variance of Pop. Est.	3×10^{6}	3×10^{7}	5×10^{7}	-
1994				
Pop. Est.	230,411 (wild)	444,791 [b]	33,709 [b]	0
Variance of Pop. Est.	2×10^{10}	1×10^{11}	5×10^{8}	-
Pop. Est.	126,916 (hatchery)			
Variance of Pop. Est.	6×10^{8}			
1993				
Pop. Est.	212,788 (wild)	2,380	1,427	660
Variance of Pop. Est.	5×10^{9}	6×10^{6}	2×10^{6}	4×10^{5}
Pop. Est.	33,564 (hatchery)			
Variance of Pop. Est.	4×10^{8}			
1992	No trawl performed due to low water			

[a] Weighted average based on number of transects in strata.
[b] Estimate of wild and hatchery fish combined for year.

Table 3. Total length frequency and mean weight of kokanee sampled by night time midwater trawling in Anderson Ranch Reservoir, July 1997.

Total length (mm)	Age 0+ Number	Age 0+ Mean weight (g)	Age 1+ Number	Age 1+ Mean weight (g)	Age 2+ Number	Age 2+ Mean weight (g)
0-9						
10-19						
20-29						
30-39	3	<1				
40-49	68	1				
50-59	305	1				
60-69	150	3				
70-79	26	3				
80-89	1	6				
90-99						
100-109						
110-119						
120-129						
130-139						
140-149						
150-159						
160-169						
170-179			1	50		
180-189			2	60		
190-199			1	71		
200-209			9	79		
210-219			6	92		
220-229			3	108		
230-239			4	124		
240-249					1	132
250-259					1	166
260-269					2	179
270-279						
280-289						
290-299						
Total sampled	553		26		4	

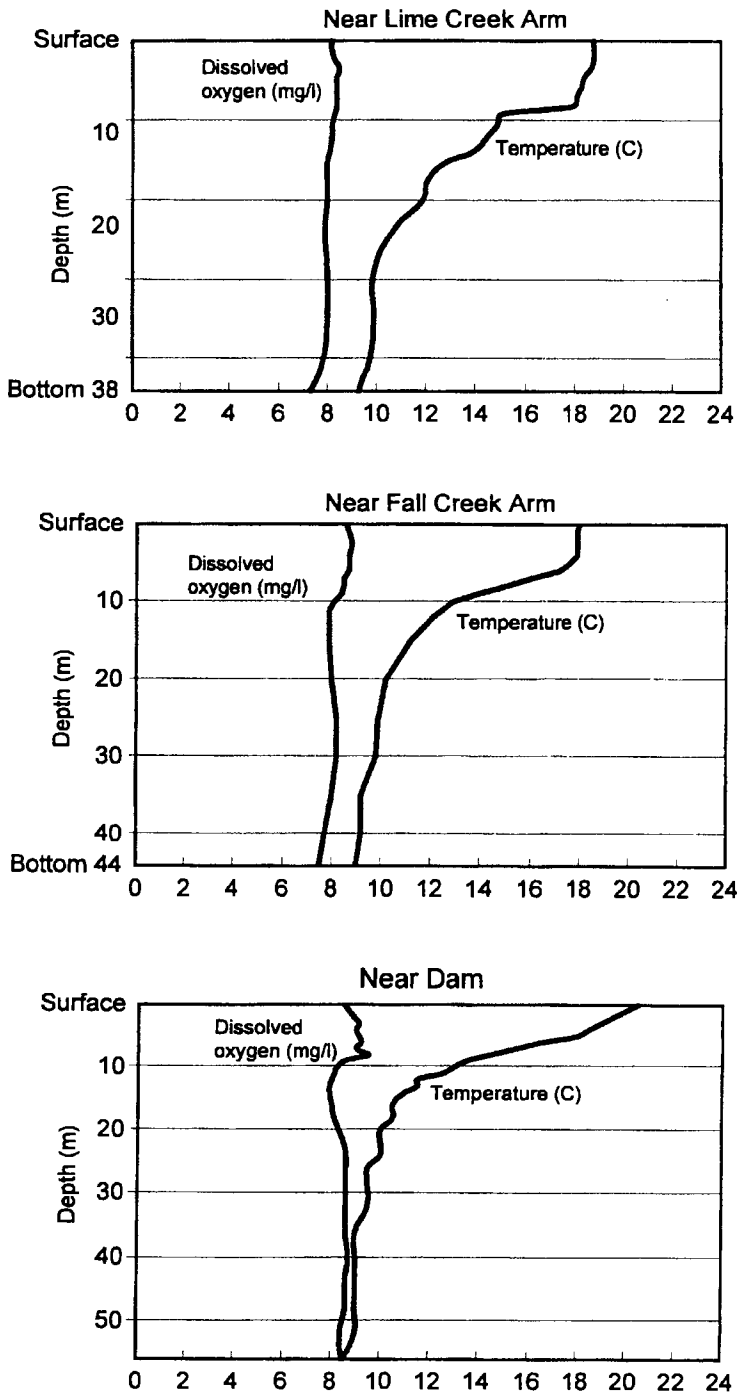

Figure 1. Daytime temperature and dissolved oxygen profiles for Anderson Ranch Reservoir on July 10, 1997.

Table 4. Number of kokanee observed at selected sites on the South Fork Boise River during spawning ground surveys in 1997.

Location[a]	8/15	8/21	8/29	9/5	9/10	9/19	9/27
1	50	25	250	75	55	0	0
2	20	12	12	4	2	0	0
3	1	4	15	25	0	0	0
4	14	5	13	14	75	20	40
5	0	0	0	0	0	0	0
6	60	21	75	150	40	78	40
7	0	18	6	8	0	4	0
8	0	6	11	8	6	2	0
9	0	18	45	50	3	0	0
10	5	18	30	300	275	75	0
11	0	7	90	150	150	110	75
12	0	10	30	30	2	2	1
13	0	2	0	1	2	0	0
Total:	150	146	577	815	610	291	156

[a.] Site descriptions:
1 - Trap site: NW1/4, NE1/4, Sec 30, T2N, R10E
2 - Prospect hole: NW1/4, NE1/4, Sec 18, T2N, R10E
3 - Johnson hole: SW1/4, NE1/4, Sec 5, T2N, R10E
4 - Paradise hole: SW1/4, NW1/4, Sec 33, T3N, R10E
5 - Trinity Creek: SE1/4, SW1/4, Sec 9, T3N, R10E
6 - Section 10 hole: SE1/4, NE1/4, Sec 10, T3N, R10E
7 - Chaparrel hole: NE1/4, NE1/4, Sec 12, T3N, R10E
8 - Ranger station hole: NE1/4, NE1/4, Sec 8, T3N, R11E
9 - Virginia Gulch Bridge: SE1/4, SE1/4, Sec 9, T3N, R11E
10 - Baumgartner hole: SE1/4, SE1/4, Sec 7, T3N, R12E
11 - Deadwood hole: NE1/4, NE1/4, Sec 22, T3N, R12E
12 - Big hole: SE1/4, SW1/4, Sec 18, T3N, R13E
13 - Smokey Creek hole: SE1/4, SW1/4, Sec 9, T3N, R13E

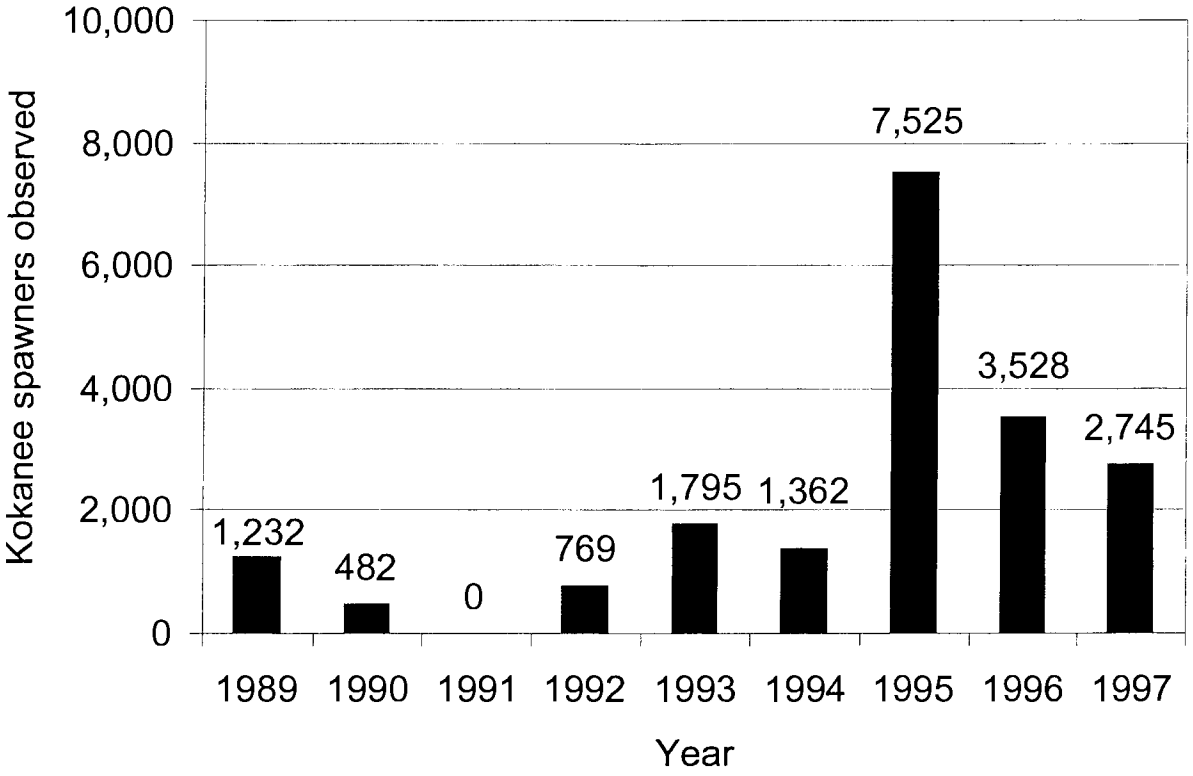

Figure 2. Total number of spawning kokanee observed at 13 trend monitoring sites on the South Fork Boise River on a weekly basis during August, September and October from 1989 through 1997.

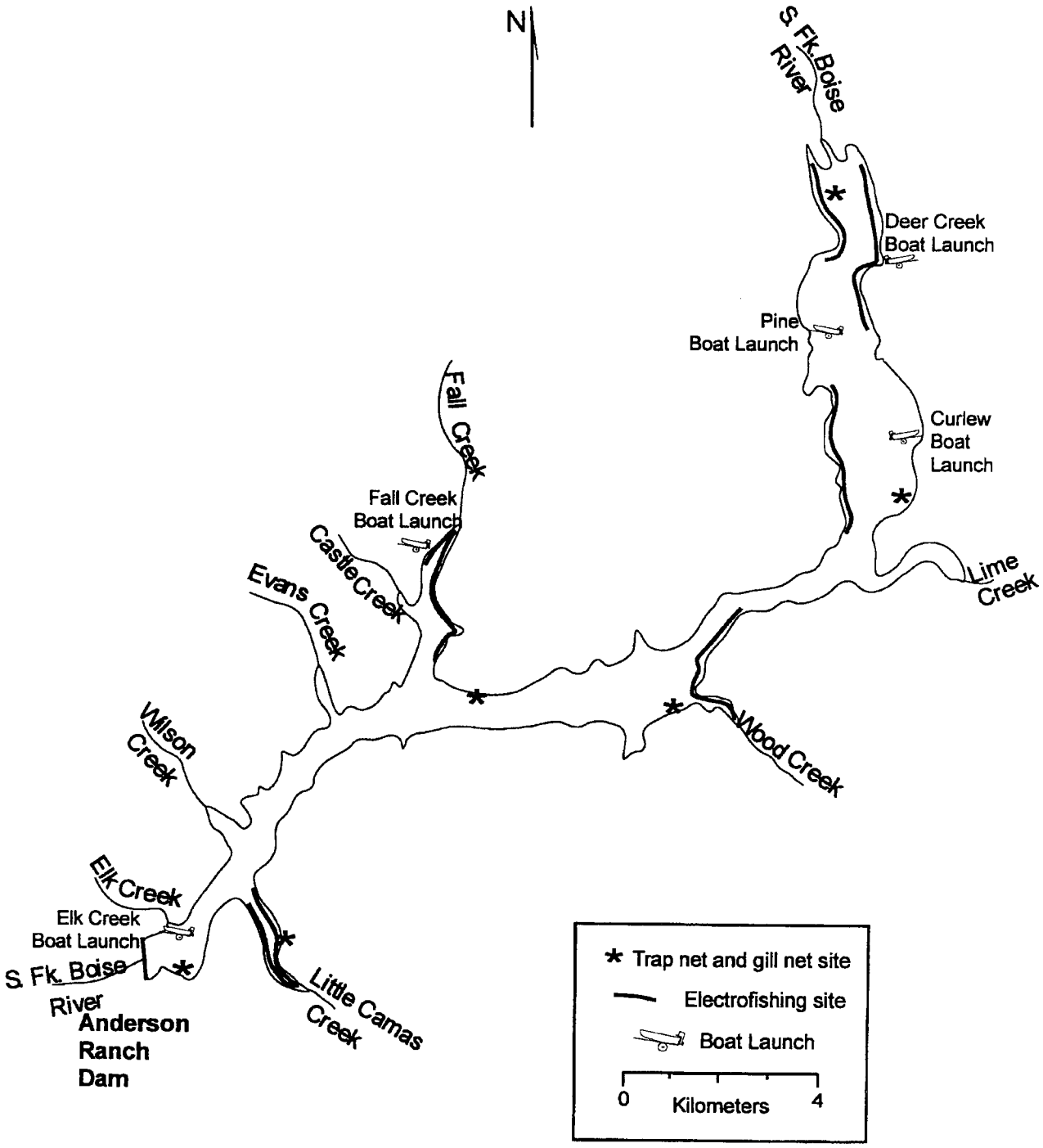

Figure 3. Map of Anderson Ranch Reservoir and location of fish sampling sites in 1997.

trout of wild and hatchery origin, kokanee, mountain whitefish *Prosopium williamsoni*, yellow perch, smallmouth bass, bridgelip sucker *Catostomus columbianus*, largescale sucker *C. macrocheilus*, northern squawfish *Ptychocheilus oregonensis*, redside shiner *Richardsonius balteatus*, chiselmouth chub *Acrocheilus alutaceus*, and sculpin *Cottus* sp. which were too small and immature to be positively identified to species. Mean total length for all rainbow trout sampled was 281 mm with wild and unidentifiable hatchery rainbow trout having a mean length of 255 mm (Table 5). Mean size of kokanee was 303 mm. Over 90% of the smallmouth bass were sampled by electrofishing, although the largest bass was caught in a gill net (Table 6). Lengths and weights of nongame fish sampled are summarized in Table 7. Northern squawfish and yellow perch accounted for nearly half the fish sampled in the reservoir with kokanee having the most biomass of the game species (Table 8). Based on smallmouth bass scale samples, bass reach legal size of 12 inches (305 mm) at 4+ years of age (Table 9). High variations between cohort's back calculated lengths to annulus might be a result of highly fluctuating water years affecting growth rates. These variations make it impossible to estimate ultimate (asymptotic) length from a Walford Line as described by Ricker (1958). The Proportional Stock Density (PSD) of smallmouth bass sampled from the combined gear types was 18%.

Surface water samples were taken for pH, alkalinity and total hardness tests. For a sample taken near the dam total alkalinity as $CaCO_3$ was 27 mg/l, total hardness was 33 mg/l and pH was 8.0. For a sample taken near the Lime Creek arm total alkalinity, as $CaCO_3$ was 30 mg/l, total hardness was 30 mg/l and pH was 8.1.

On April 18, 1997, six sinking gill nets were set in Anderson Ranch Reservoir near the mouth of the South Fork in an attempt to sample bull trout. This sampling was not part of the standardized lowland lakes sampling, which was done in August 1997. These nets were set for approximately one hour each in two sets, for a total of 12 net hours. All fish sampled were released alive and all bull trout were marked with a left maxillary clip prior to releasing. Fish netted include 56 mountain whitefish, 106 largescale sucker, 11 rainbow trout, 10 yellow perch, 1 smallmouth bass and 3 bull trout. Total lengths and weights of bull trout sampled were 345 mm at 395 g, 430 mm at 785 g, and 480 mm at 1,100 g.

An intensive creel survey was performed on Anderson Ranch Reservoir from May 12 to September 28, 1997. Approximately 498 Idaho resident angler and 24 nonresident angler contacts were made within the creel survey time period. Nearly 80,000 hours of anger effort was estimated for the period on the reservoir (Table 10). Effort in 1997 was similar to angler effort for the time period between May 18 and October 4, 1985, which was estimated to be approximately 79,000 hours (Partridge 1987). Kokanee (29,000) and yellow perch (20,000) accounted for nearly 90% of the fish harvested (Table 11). In 1985, kokanee (34,000) accounted for nearly 80% of the harvest (Partridge 1987). Fall spawning chinook salmon were stocked into the reservoir in the early 1980s and subsequently show up in the creel in 1985 but are probably no longer present in the reservoir.

Organized fishing tournaments are required to be registered by the Idaho Department of Fish and Game with all tournament results reported to the Department. Anderson Ranch Reservoir has had numerous smallmouth bass tournaments over the last several years. Average number of bass caught per tournament angler hour has ranged from 0.17 to 0.35 (Table 12).

Table 5. Total length frequencies of coldwater game fish sampled in Anderson Ranch Reservoir in August 1997. Fish listed by gear type with mean weights[a] by size class.

Total length (mm)	Rainbow trout[b]					Hatchery rainbow trout				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
100-109										
110-119										
120-129				1	22					
130-139										
140-149										
150-159				1	38					
160-169										
170-179										
180-189				1					1	60
190-199				2	85					
200-209										
210-219				1	91					
220-229				1	107					
230-239									1	120
240-249										
250-259									1	163
260-269				1	194				1	
270-279				2	191					
280-289										
290-299									2	225
300-309									1	270
310-319									1	275
320-329							1		1	330
330-339									1	300
340-349									2	318
350-359										
360-369										
370-379										
380-389						2				638
390-399										
400-409				2	605					
410-419										
420-429				1	650					
430-439										
440-449										
450-459										
460-469										
470-479										
480-489										
490-499										
Total sampled	0	0	0	13		2	1	0	12	

Mean total length of rainbow trout sampled = 255 mm

Mean total length of hatchery rainbow trout sampled = 303 mm

Table 5. Continued.

Total length (mm)	Kokanee					Mountain whitefish				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
100-109										
110-119										
120-129										
130-139										
140-149										
150-159										
160-169										
170-179										
180-189										
190-199									1	58
200-209										
210-219										
220-229	1				98					
230-239										
240-249										
250-259		3								
260-269		4			219					
270-279	6	3		2	195					
280-289	5	10		3	216					
290-299	13	28		4	239	1				260
300-309	17	23		6	265	1				260
310-319	20	25		3	287				2	335
320-329	8	7		1	334					
330-339	4	5			343					
340-349	3	2			373					
350-359										
360-369										
370-379									1	500
380-389										
390-399		1								
400-409										
410-419	1	1			565					
420-429										
430-439										
440-449										
450-459		1			750					
460-469										
470-479										
480-489										
490-499										
Total sampled	78	113	0	19		2	0	0	4	
Mean total length of kokanee = 303 mm						Mean total length of mountain whitefish sampled = 299 mm				

[a] Not all fish were weighed.
[b] Rainbow trout of wild or unidentifiable hatchery origin.

Table 6. Total length frequencies of warmwater game fish sampled in Anderson Ranch Reservoir in August 1997. Fish listed by gear type with mean weights[a] by size class.

Total length (mm)	Smallmouth bass					Yellow perch				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
0-9										
10-19										
20-29										
30-39				3					3	
40-49				14					12	
50-59				6					10	
60-69				5					2	
70-79				3	4				2	4
80-89				1	8				28	7
90-99				2	11			3	30	9
100-109				3	20			2	17	12
110-119				6	21				9	18
120-129				13					4	22
130-139				11		2		1	5	29
140-149				13	41	8			9	35
150-159				21	51	5			8	40
160-169				18	64	3	2		11	50
170-179	1			24	73	3			2	60
180-189		1		16	95	1	1		6	73
190-199		2		13	107	7	7		9	83
200-209				13	129	21	12		18	95
210-219	3			10	138	56	25	1	21	138
220-229	1			2	165	48	9		10	122
230-239	1			4	187	7	2		1	140
240-249	2				200					
250-259				3	230					
260-269		1		3	249					
270-279				4	300					
280-289				3	330					
290-299				2	388					
300-309				3	408					
310-319										
320-329										
330-339	2				515					
340-349										
350-359										
360-369										
370-379										
380-389										
390-399										
400-409										
410-419										
420-429										
430-439										
440-449										
450-459										
460-469										
470-479										
480-489										
490-499										

Table 6. Continued.

Total length (mm)	Smallmouth bass					Yellow perch				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
500-509										
510-519	1				2150					
520-529										
530-539										
540-549										
Total sampled	11	4	0	225		161	58	7	218	
Mean total length of smallmouth bass = 169 mm						Mean total length of yellow perch sampled = 168 mm				

[a] Not all fish were weighed.

Table 7. Total length frequencies of nongame fish sampled in Anderson Ranch Reservoir in August 1997. Fish listed by gear type with mean weights[a] by size class.

Total length (mm)	Largescale sucker					Bridgelip sucker				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
50-59										
60-69										
70-79										
80-89				1						
90-99				2	6					
100-109				3					4	7
110-119									1	
120-129									4	
130-139				2	26				8	24
140-149				2					6	26
150-159				1	40				6	
160-169									6	39
170-179	2			2	50	2			14	48
180-189				1	50	1	2		7	53
190-199				4	76	1			8	64
200-209		1		1					11	80
210-219				3	89				2	
220-229		2		1	104		1		4	122
230-239				1	122				4	120
240-249		1		3	149				1	
250-259	1			1	150	2	2			154
260-269	1			2	176	1	1		1	
270-279	1				230				2	
280-289						2			1	
290-299	1			2		1			3	261
300-309				1	275					
310-319	2			2		1				290
320-329				4	387	1			1	330
330-339	3			3	341				2	
340-349				4	350	1			2	375
350-359	2			2	400				1	
360-369	2			5	473				3	500
370-379				1						
380-389				2	560	1			1	558
390-399	1									
400-409	4			4	600					
410-419	1			9	679				2	410
420-429	3			6	795					
430-439	1			9	767				1	650
440-449	2			10	861					
450-459	5			18	874				1	870
460-469	3	2		19	933				1	850
470-479	3			21	966					
480-489	3			16						
490-499	2			15	1185					
500-509	3			9	1233					
510-519	3			6	1192					
520-529	1			6	1213					
530-539				8	1383					
540-549	3			5	1498					

Table 7. Continued.

Total length (mm)	Largescale sucker					Bridgelip sucker				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
550-559	1			5	1367					
560-569				4	1533					
570-579	1			2	1800					
580-589	1				1600					
590-599										
Total sampled	56	6		228		14	6	0	108	
Mean total length of largescale sucker sampled = 420 mm						Mean total length of bridgelip sucker sampled = 215 mm				

Total length (mm)	Redside shiner					Sculpin sp.				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
0-9										
10-19										
20-29										
30-39										
40-49										
50-59				1	3					
60-69				3					1	
70-79				4					1	4
80-89				6	5					
90-99				3	8					
100-109				6	8					
110-119										
120-129										
130-139										
140-149										
150-159										
160-169										
170-179				1						
180-189										
190-199										
Total sampled	0	0	0	24		0	0	0	2	
Mean total length of redside shiner sampled = 87 mm						Mean total length of sculpin sp. sampled = 68 mm				

Total length (mm)	Northern squawfish					Chiselmouth chub				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
50-59										
60-69									1	
70-79				7	2				2	4
80-89				19	4				1	4
90-99				19	5				1	
100-109				9	8					
110-119				3	12				3	12
120-129				6	17				2	
130-139				11	20				2	16
140-149				16	23					

Table 7. Continued.

Total length (mm)	Northern squawfish					Chiselmouth chub				
	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)	Sinking gill net	Floating gill net	Frame net	Electro-fishing	Mean weight (g)
150-159				20	29				3	32
160-169	1			25	37				5	
170-179	3	5		19	44				3	46
180-189	7	5	1	19	52		1		2	55
190-199	2	2	2	11	61					
200-209	1	5		16	76					
210-219		4	1	16	76	1			1	86
220-229	3	7		18	92		1		1	83
230-239	7	12		16	105	1	2		1	118
240-249	4	6		7	300	1	5		7	126
250-259	3	4		8	131		13		3	142
260-269	5	4		4	158	1	12		1	149
270-279		1		6	157	1	8		3	165
280-289	1	1		4	173		4		1	215
290-299	2	2	1	7	190		3			214
300-309	7	3		1	233					
310-319	8	1		4	246					
320-329	8	1	1	3	285					
330-339	8	4		2	307					
340-349	6	2		4	324	1				
350-359	3	5		2	376					
360-369	2	1			405					
370-379										
380-389	1			1	420					
390-399										
400-409	1				585					
410-419										
420-429	1			1	550					
430-439	1				850					
440-449	1									
450-459	2				725					
460-469	1	1		2	930					
470-479	1									
480-489	1				850					
490-499		1			1200					
500-509										
510-519	2				1100					
520-529				1						
530-539	2				1525					
540-549										
550-559				2						
560-569					1500					
570-579	1				1800					
580-589					1650					
590-599										
Total sampled	96	77	6	309		6	49	0	43	
Mean total length of northern squawfish sampled = 223 mm						Mean total length of chiselmouth chub sampled = 226 mm				

[a] Not all fish were weighed.

Table 8. Anderson Ranch Reservoir standardized lowland lake sampling results, August 1997.

	Catch per unit of standardized lowland lakes sampling effort[a]				
Species	Length-range (mm)	Number per unit of effort	Percent by number	Weight (kg) per unit of effort	Percent by weight
Rainbow trout[b]	125-420	2.2	1	0.5	1
Hatchery rainbow trout	180-385	2.5	1	0.7	1
Kokanee	220-455	32.3	11	9.4	12
Mountain whitefish	190-375	1.0	<1	0.3	<1
Smallmouth bass	35-515	40.0	12	4.8	6
Yellow perch	30-235	74.0	23	5.4	7
Northern squawfish	70-580	81.3	25	12.1	15
Chiselmouth chub	65-345	16.3	5	1.9	2
Redside shiner	55-170	4.0	1	<0.1	<1
Bridgelip sucker	100-460	21.3	6	2.8	4
Largescale sucker	85-580	48.3	15	40.2	51
Sculpin species	65-70	0.3	<1	<0.1	<1
All species total		323.5	-	78.2	-

[a] One unit of sampling effort is equal to one floating gill net, one sinking gill net and one trap net set overnight and one hour of electrofishing.
[b] Rainbow trout not identifiable as fish of hatchery origin.

Table 9. Back-calculated length at annulus (mm) for smallmouth bass sampled at Anderson Ranch Reservoir in August 1997. Standard deviation is in parentheses.

Year class	Number of fish	**Mean length at annulus**					
		I	II	III	IV	V	VI
1996	4	67 (6.7)					
1995	47	71 (8.3)	143 (23.0)				
1994	4	67 (5.7)	126 (29.3)	217 (18.6)			
1993	10	64 (10.6)	124 (25.6)	182 (27.9)	263 (26.2)		
1992	4	70 (6.4)	140 (15.4)	208 (11.3)	296 (18.6)	351 (15.1)	
1991	2	65 (8.6)	155 (14.2)	233 (44.2)	321 (37.0)	388 (14.0)	439 (23.9)
Weighted average length		69	139	199	278	363	439

Table 10. Estimated total angler effort with 95% confidence intervals for each 28-day interval between May 12 and September 28, 1997 at Anderson Ranch Reservoir.

Interval	Angler effort (hours)			
	Bank	Boat	Float tube	Total
May 12 - June 8	8,111 ± 5,383	11,098 ± 3,716	169 ± 129	19,378 ± 6,542
June 9 - July 6	4,499 ± 1,760	16,598 ± 5,807	182 ±135	21,280 ± 6,070
July 7 - Aug. 3	4,860 ± 2,575	15,920 ± 7,108	60 ± 120	20,840 ± 7,561
Aug. 4 - Aug. 31	2,863 ± 1,424	8,952 ± 3,966	269 ± 466	12,084 ± 4,240
Sept. 1 - Sept. 28	2,023 ± 727	4,171 ±1,729	19 ± 38	6,212 ±1,876
Season totals:	22,356 ± 6,424	56,739 ± 10,806	699 ± 517	79,794 ± 12,582

Table 11. Estimated catch rates (C/R) and numbers of fish caught within each 28-day interval between May 12 and September 28, 1997 at Anderson Ranch Reservoir with results from the 1985 angler survey included (Partridge 1987).

Interval	Rainbow trout	Kokanee[a]	Smallmouth bass[b]	Yellow perch	All species
			1997 Season		
May 12 - June 8					
Number kept	2,940 ± 1,908	1,428 ± 889	0 ± 0	4,775 ± 6,692	9,650 ± 7,291
(Catch rate)	0.15	0.13	0.00	0.25	0.50
Number caught					12,353 ± 7,838
(Catch rate)					0.64
June 9 - July 6					
Number kept	1,045 ± 670	4,574 ± 2,636	62 ± 22	5,450 ± 7,896	10,870 ± 7,721
(Catch rate)	0.05	0.27	0.03	0.26	0.51
Number caught					12,839 ± 7,834
(Catch rate)					0.60
July 7 - Aug. 3					
Number kept	486 ± 393	13,589 ± 8,065	34 ± 18	3,591 ± 3,960	17,700 ± 9,583
(Catch rate)	0.02	0.85	0.10	0.17	0.85
Number caught					19,842 ± 9,912
(Catch rate)					0.95
Aug. 4 - Aug. 31					
Number kept	336 ± 625	7,090 ± 4,817	108 ± 220	4,027 ± 2,482	11,573 ± 5,294
(Catch rate)	0.03	0.79	0.08	0.33	0.96
Number caught					11,864 ± 5,270
(Catch rate)					0.98
Sept. 1 - Sept. 28					
Number kept	163 ± 163	1,902 ± 1,192	108 ± 189	1,851 ± 1,602	4,023 ± 1,924
(Catch rate)	0.03	0.45	0.17	0.30	0.65
Number caught					4,940 ± 2,175
(Catch rate)					0.79
Entire season					
Number kept	4,970 ± 2,159	28,583 ± 9,870	312 ± 292	19,694 ± 11,469	53,816 ± 15,373
(Catch rate)	0.06	0.41	0.07	0.25	0.73
Number caught					61,820 ± 15,923
(Catch rate)					0.82
			1985 Season[c]		
Entire season					
Number kept	3,718	33,554	1,140	3,958	42,370
(Catch rate)					
Boat anglers	0.03	0.52	0.01	0.02	<0.01
Bank anglers	0.18	<0.01	<0.01	0.39	0.04

[a] Catch rates for kokanee were calculated only from boat angler hours.
[b] Catch rates for smallmouth bass were calculated only from anglers who were targeting smallmouth bass as their preferred species.
[c] An estimated 731 fall chinook salmon were also harvested in 1985.

Table 12. Results of all organized bass fishing tournaments registered with the Idaho Department of Fish and Game at Anderson Ranch Reservoir from 1990 through 1997

Year	No. of tournaments	No. of anglers	No. of bass reported	No. of hours fished	No. of fish/angler hour
1990	8	148	339	1619	0.21
1991	5	91	149	855	0.17
1992	2	15	50	143	0.35
1993	3	102	170	869	0.20
1994	5	138	244	1287	0.19
1995	7	150	247	1384	0.18
1996	6	116	170	1019	0.17
1997	5	160	406	1420	0.29

Dierkes Lake

Dierkes Lake in Twin Falls County is managed as an urban fishery for both warm and cold-water fish species. It is stocked in the spring and fall with catchable sized rainbow trout and has a good population of largemouth bass *Micropterus salmoides* and bluegill *Lepomis macrochirus* and has also been stocked with channel catfish *Ictalurus punctatus* fingerlings for the last few years. Fishing rules at Dierkes Lake went from a five bass limit with none under 12 inches long (305 mm) to a two bass limit with none under 20 inches long (508 mm) in 1994. This rule was implemented after surveys in 1991 and 1993 indicated that there was a dense population of stunted bluegill (Partridge and Warren 1994 and Partridge and Warren 1995). Fish were again sampled on the evening of April 29, 1997 with the Smith-Root electrofishing boat to determine if the rule change had shifted the size structure of the bluegill population and to capture bluegill for relocating to the North Bruneau Sand Dunes Pond. Water temperature at time of electrofishing was 11°C. Total time electrofished with power on was 60 minutes with an attempt to net all bluegill stunned. Other species sampled were netted incidental to netting bluegill. Mean length for sampled bluegill was 112 mm (Table 13). Bluegill sampled by electrofishing in 1991 averaged 90 mm and in 1993, 98 mm (Figure 4). Since largemouth bass were not a targeted species in the 1997 sample no length frequency comparisons were made from previous year's samples. A total of 341 bluegill were transported from Dierkes Lake into the North Bruneau Sand Dunes Pond.

Emerald Lake

Emerald Lake fishing is managed primarily as a put-and-take trout fishery and warm water fishery. Catchable sized rainbow trout are generally stocked at least four times each year with all of the plantings occurring in the spring and fall because of high midsummer water temperatures. There has been some concern that most of the fish are being consumed by piscivorous birds soon after they are stocked. An instantaneous piscivorous bird count was made on a daily basis for two weeks in two separate time intervals with both time intervals commencing one day prior to trout being stocked. The first count began on March 3, 1997 and the second count began on April 3, 1997. Results indicate the possibility that some birds are targeting the stocked trout and may be staying at the lake until they have depleted the trout population. This was especially evident in April (Figure 5).

In a study done on Springfield Reservoir near American Falls Reservoir, Region 5 personnel concluded that most of the catchable sized rainbow trout were consumed by double-breasted cormorants *Phalacrocorax auritus* within the first week of stocking (Jim Mende, ID. Dept. Fish and Game, personal communication). Fisheries management strategies have since been changed on Springfield Reservoir by stocking rainbow trout between 400 and 450 mm long and rules changed to a two trout limit with none under 508 mm long, and fishing gear restricted to artificial flies and lures with a single barbless hook.

Table 13. Total length frequencies (mm) of fish sampled by nighttime electrofishing at Dierkes Lake on April 29, 1997.

Total length (mm)	Hatchery rainbow trout		Largemouth bass		Bluegill	
	Number	Percent	**Number**	Percent	**Number**	Percent
0-9						
10-19						
20-29						
30-39						
40-49			1	2.4	1	1.3
50-59						
60-69					6	7.6
70-79			1	2.4	6	7.6
80-89					10	12.7
90-99			2	4.8	8	10.1
100-109			1	2.4	10	12.7
110-119					5	6.3
120-129			1	2.4	7	8.9
130-139			1	2.4	8	10.1
140-149					2	2.5
150-159			2	4.8	5	6.3
160-169					8	10.1
170-179			2	4.8	2	2.5
180-189			1	2.4		
190-199	1	7.7	1	2.4		
200-209			1	2.4		
210-219						
220-229	5	38.5			1	1.3
230-239						
240-249	3	23.1	1	2.4		
250-259	2	15.4	2	4.8		
260-269	1	7.7	3	7.1		
270-279	1	7.7	2	4.8		
280-289			2	4.8		
290-299			2	4.8		
300-309			4	9.5		
310-319			4	9.5		
320-329			1	2.4		
330-339			1	2.4		
340-349			3	7.1		
350-359			1	2.4		
360-369			1	2.4		
370-379			1	2.4		
380-389						
390-399						
Number	13		42		79	
Mean length	237		246		112	
Total sampled	13		42		341	

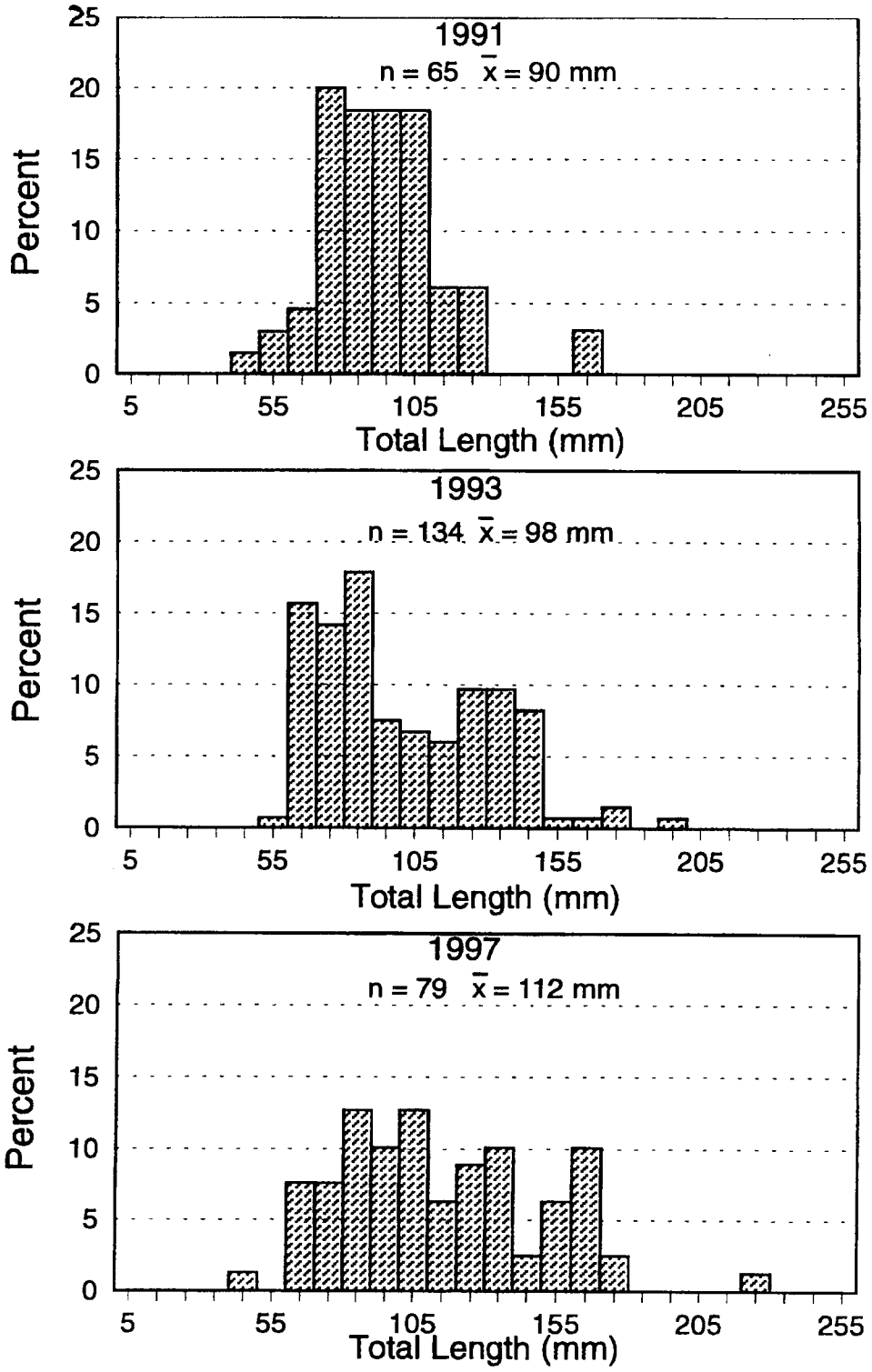

Figure 4. Total length frequencies of bluegill sampled by electrofishing at Dierkes Lake in 1991, 1993 and 1997.

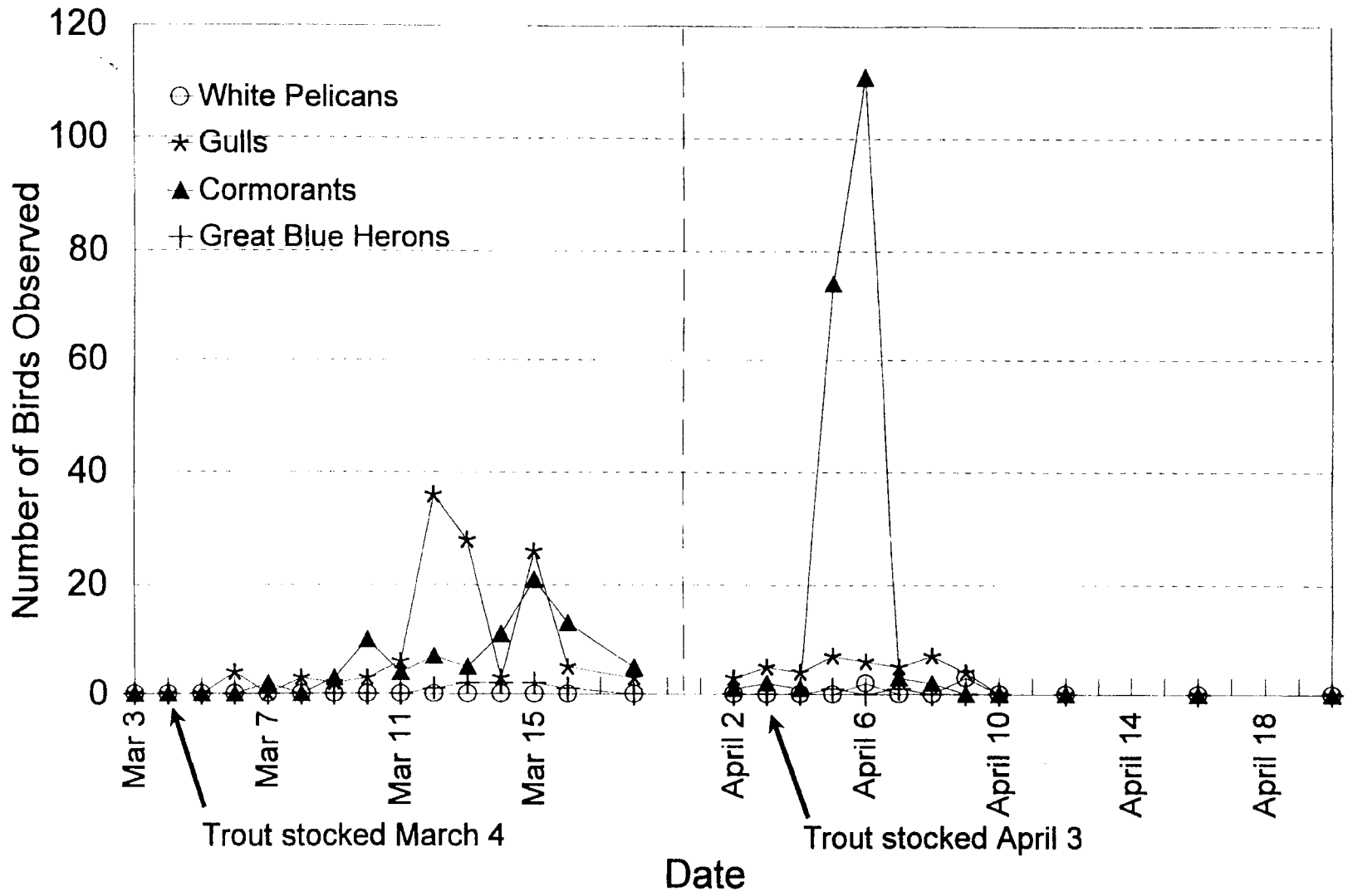

Figure 5. Number of piscivorous birds counted at Emerald Lake on a daily basis commencing one day before then for two weeks after trout were stocked on two seperate occasions in the spring of 1997.

Hagerman Wildlife Management Area West Pond

The West Pond at Hagerman Wildlife Management Area was electrofished for bluegill on June 2, 1997 for restocking into the North Bruneau Sand Dunes Pond since it was treated with rotenone in the fall of 1996. A total of 209 bluegill averaging 165 mm in total length were relocated.

Lower Salmon Falls Reservoir

Lower Salmon Falls Reservoir has gone through fishing rules changes that have become more restrictive on trout and bass harvest in the last several years. In 1992 the trout limit went from a general six trout limit to a two trout limit. Prior to 1996, the bass limit was the general five bass limit with none under 12 in (305 mm). In 1996 it changed to a no harvest of bass allowed from January 1 through June 30 then a two bass limit with none between 12 and 16 in (406 mm) between July 1 and December 31.

Lower Salmon Falls Reservoir was stocked from a local pond with largemouth bass averaging 158 mm long that were marked with a left maxillary clip on July 12 and August 10, 1995. The PSD of largemouth bass in the 1995 sample was 14% (Warren and Partridge In Press). The reservoir was again electrofished on the evening of July 16, 1997 to determine if the stocked fish were still present as a significant proportion of the largemouth bass population. We also looked at what influence bass fishing rules that were imposed on the reservoir in 1996 were having on the population. The same six sites that were electrofished in 1995 were sampled in 1997 (Figure 6) and only game fish were netted. Fish sampled include hatchery rainbow trout, largemouth bass, smallmouth bass, bluegill and an unidentified species of tilapia *Tilapia* sp. (Table 14). There were no largemouth bass sampled that were identified as fish stocked in 1995. Mean length for largemouth bass sampled by electrofishing in 1997 was 243 mm compared to 218 mm in 1995 (Figure 7). The PSD of largemouth bass in the 1997 sample was 71%, however numbers sampled decreased 36%.

Milner Reservoir

Milner Reservoir water management has changed in the last few years to more stabilized levels, which has benefited aquatic species that depend on the littoral zone for part of their life cycle including smallmouth bass and forage fish species that they feed on. This appears to have increased the smallmouth bass population and has resulted in the reservoir becoming more popular for smallmouth bass fishermen and bass tournament events. Catch per angler hour in tournaments for smallmouth bass has increased from 0.06 in 1990 to 0.20 in 1997 (Table 15). Scale samples taken from smallmouth bass at a tournament on May 17, 1997 were used to calculate growth rates and length at annulus of fish in the reservoir. Results indicate that smallmouth bass reach 12 in (305 mm) at approximately 4 years of age (Table 16). The maximum size (asymptotic length) a fish is likely to achieve in its lifetime in the reservoir, based on the Walford Line (Ricker, 1958) is 430 mm (Figure 8).

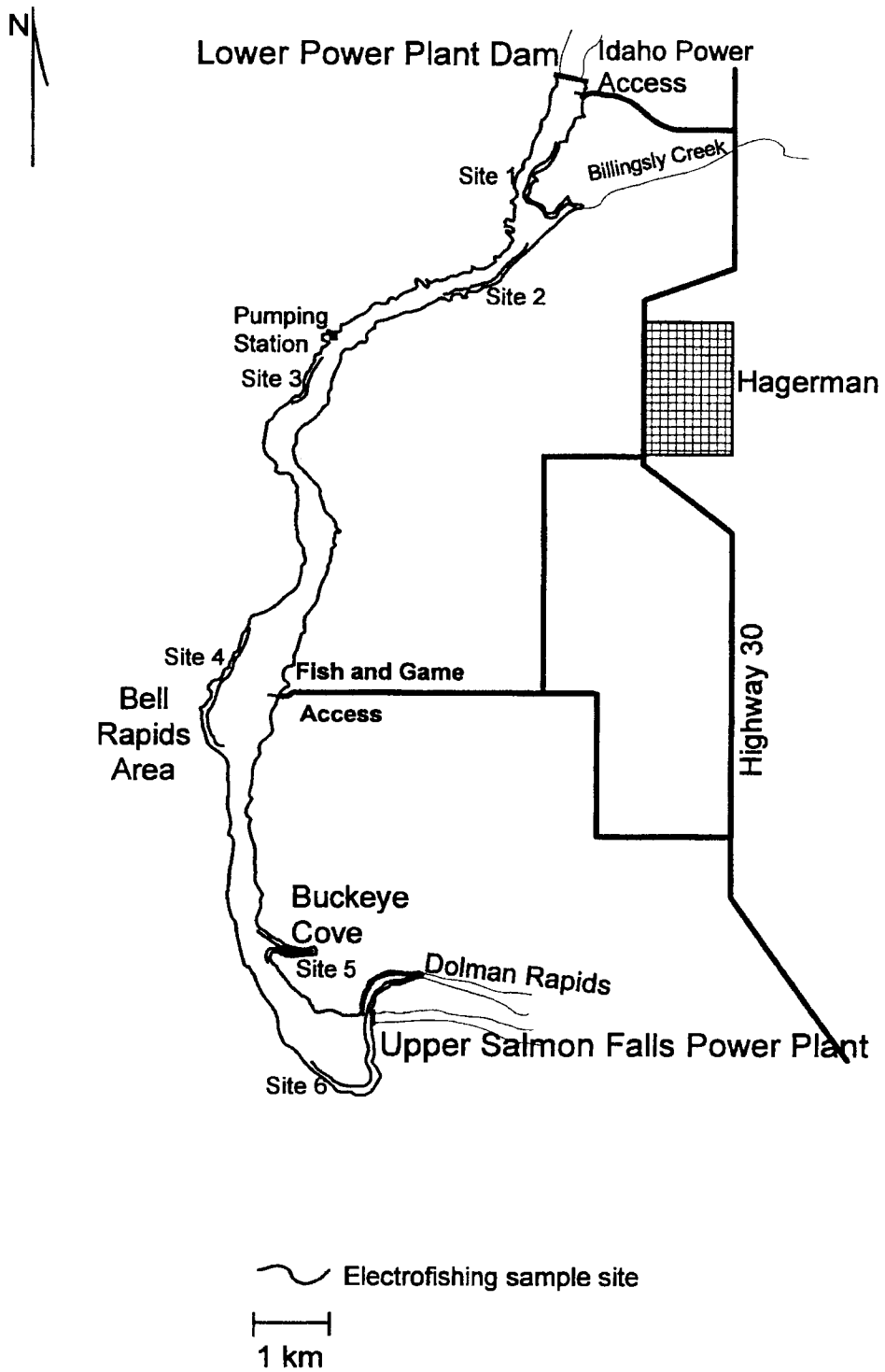

Figure 6. Map of Lower Salmon Falls Reservoir depicting electrofishing sampling sites in 1997.

Table 14. Total length frequencies (mm) of all game fish[a] and average weights (g) of some game fish sampled by nighttime electrofishing at six sites on Lower Salmon Falls Reservoir on July 15, 1997.

Total length (mm)	Largemouth bass							
	Number							Mean weight (g)
	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Percent	
30-39								
40-49					2		8.0	
50-59					1		4.0	
60-69					2		8.0	
70-79					1		4.0	
80-89								
90-99								
100-109					1		4.0	
110-119								
120-129			1				4.0	20
130-139								
140-149					1		4.0	
150-159					1		4.0	46
160-169					1		4.0	
170-179								
180-189								
190-199								
200-209								
210-219								
220-229								
230-239								
240-249								
250-259								
260-269					1		4.0	270
270-279					2		8.0	345
280-289					1		4.0	390
290-299								
300-309					1		4.0	520
310-319								
320-329								
330-339		1					4.0	600
340-349		1					4.0	620
350-359								
360-369								
370-379								
380-389					1	1	8.0	1025
390-399								
400-409				2			8.0	1250
410-419								
420-429								
430-439					1		4.0	1450
440-449								
450-459								
460-469								
470-479								
480-489								
490-499					2		8.0	1975
Total sampled	0	2	1	2	19	1		

Mean total length for all sites = 243 mm

Table 14. Continued.

Total length (mm)	Bluegill							
	Number							Mean weight (g)
	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Percent	
50-59								
60-69								
70-79								
80-89					1		5.0	
90-99								
100-109					4		20.0	
110-119					3		15.0	
120-129								
130-139					7		35.0	
140-149					3		15.0	
150-159					1		5.0	
160-169								
170-179					1		5.0	
180-189								
190-199								
Total sampled	0	0	0	0	20	0		
Mean total length for all sites = 125 mm								

Total length (mm)	Rainbow trout							
	Number							Mean weight (g)
	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Percent	
250-259								
260-269								
270-279	1					1	40.0	200
280-289								
290-299								
300-309								
310-319								
320-329	1			1			40.0	328
330-339								
340-349								
350-359								
360-369								
370-379								
380-389								
390-399								
400-409								
410-419		1					20.0	800
420-429								
430-439								
440-449								
Total sampled	0	0	0	0	0	0		
Mean total length for all sites = 321 mm								

[a] One smallmouth bass measured at 360 mm and 1800 g was sampled in Site 6. Two Tilapia measured at 160 and 220 mm were sampled at Site 5.

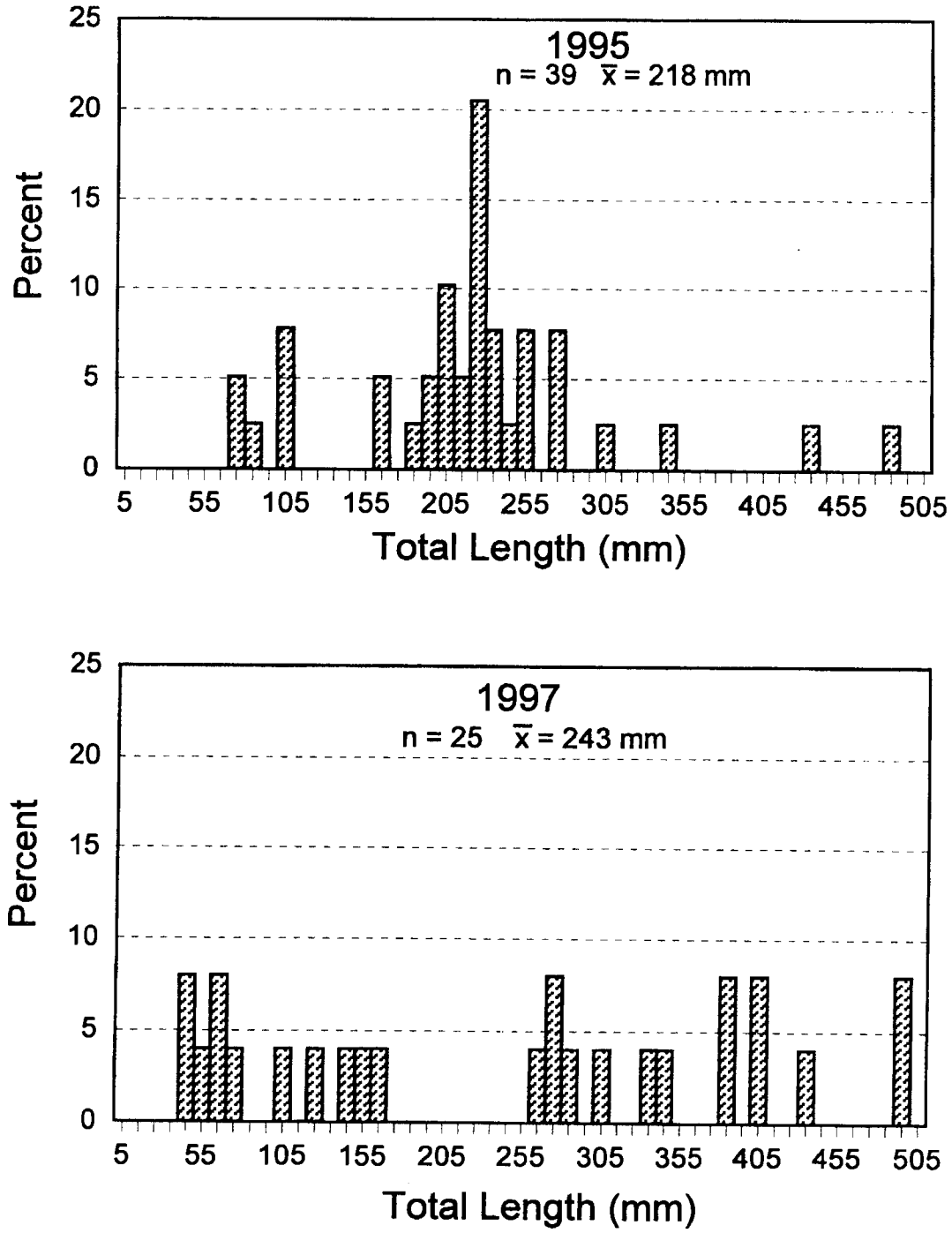

Figure 7. Total length frequencies of largemouth bass sampled by electrofishing at Lower Salmon Falls Reservoir in 1995 and 1997.

Table 15. Results of organized bass fishing tournaments registered with the Idaho Department of Fish and Game at Milner Reservoir from 1992 through 1997.

Year	No. of tournaments	No. of anglers	No. of bass reported	No. of hours fished	No. of fish/angler hour
1992	1	21	12	189	0.06
1993	2	40	57	365	0.16
1994	3	66	87	902	0.10
1995	2	32	56	378	0.15
1996	6	197	375	2014	0.19
1997	8	312	560	2931	0.20

Table 16. Back-calculated length at annulus (mm) for smallmouth bass sampled from tournament caught fish at Milner Reservoir on May 17, 1997. Standard deviation is in parentheses.

Year class	Number of fish	**Mean length at annulus**						
		I	II	III	IV	V	VI	VII
1993	10	80 (9.30)	159 (18.69)	232 (23.24)	293 (20.49)			
1992	20	79 (11.14)	151 (27.19)	220 (32.60)	296 (27.42)	350 (18.78)		
1991	14	77 (7.60)	152 (22.40)	230 (35.53)	287 (42.70)	343 (35.58)	381 (37.09)	
1990	1	74 (-)	158 (-)	187 (-)	219 (-)	294 (-)	364 (-)	397 (-)
Weighted average length		78	153	225	291	346	380	397

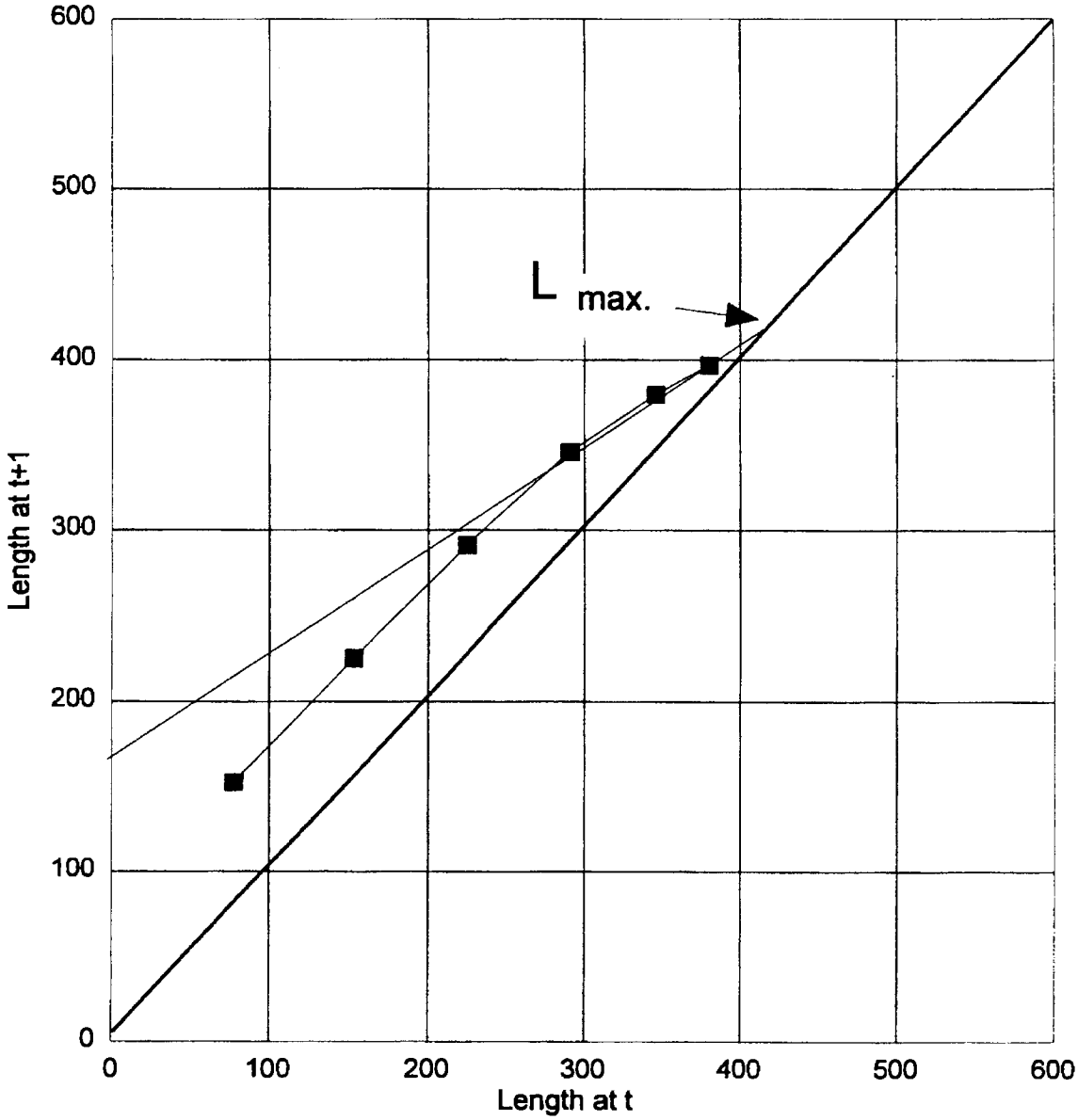

Figure 8. Walford Line for smallmouth bass sampled by anglers at Milner Reservoir on May 17, 1997.

Oakley Reservoir

Forage fish presence and relative abundances have been measured annually in Oakley Reservoir utilizing a 15.2 m long, 6.2 mm bar mesh beach seine at five sites along the west side of the reservoir during daylight hours in August, September or October since 1989. In 1997 the sampling was done on October 10, which is later in the fall and with a cooler water temperature (13°C) than when any beach seining samples were taken in previous years. Only one spottail shiner *Notropis hudsonius* and six mottled sculpin *Cottus bairdi* were sampled this year, which is the lowest number of fish ever seined since monitoring began in 1989. The low number of fish in the sample may be a result of the low water temperature, possibly causing the fish to move away from the shoreline and into deeper water.

Salmon Falls Creek Reservoir

Forage fish presence and relative abundances have been measured at Salmon Falls Creek Reservoir utilizing a 15.2 m long, 6.2 mm bar mesh beach seine annually at five sites during daylight hours since 1990. This year the seining was done on October 21, which is later in the year and colder (14°C) than when beach seining has been done in previous years. One mottled sculpin was the only fish sampled from this year's beach seining efforts, possibly as a result of the low water temperature causing the fish to move away from the shoreline into deeper water.

Miscellaneous Regional Creel Surveys

A region-wide creel survey was made on Saturday May 24, 1997 (Memorial Day Weekend) and on the first day of fishing season at the ponds on the north and west side of the Hagerman Wildlife Management Area (July 1, 1997) by conservation officers and other Magic Valley Region personnel. This survey included streams open during the general fishing season as well as waters which were already open to fishing. There were 16 waters surveyed with a total of 610 anglers interviewed with 1,671 hours of effort for an overall catch rate of 0.6 fish per hour (Table 17). Spot creel checks performed mostly by conservation officers and regional fishery personnel on days other than on Memorial Day weekend were also reported (Table 18). A total of 854 anglers with 2,086 hours of effort and an overall catch rate of 0.6 fish per hour were reported on 24 waters throughout the region.

Table 17. Results of spot creel checks performed on Magic Valley Region waters on opening weekend (May 24 and 25) of the general fishing season, 1997.

Lake, River, Stream	Anglers	Hours fished	Species[a]	Kept	Released	Catch
Anderson Ranch Reservoir	50	126	ALL	65	17	82
			RBH	19		19
			RBW	1		1
			RBT		1	1
			KOK	7	5	12
			YP	36	10	46
			SMB		1	1
			CHM	2		2
Billingsly Creek (Fly fishing reach)	12	24	ALL		31	31
			RBT		31	31
Billingsly Creek (WMA reach)	6	12	ALL	9	1	10
			RBT	4	1	5
			RBH	3		3
			RBW	1		1
			BRN	1		1
Fish Creek Reservoir	42	88	ALL	22		22
			RBH	22		22
Hagerman WMA (July 1 Opener)	36	145	ALL	183	27	210
			RBH	1	12	13
			LMB	9	2	11
			BG	139	13	152
			YP	34		34
Little Camas Reservoir	74	210	ALL	63	31	94
			RBH	63	31	94
Little Wood River Reservoir	28	39	ALL	23	1	24
			RBH	12	1	13
			RBT	11		11
Magic Reservoir	69	192	ALL	56		56
			RBH	35		35
			BRN	3		3
			YP	18		18
Mormon Reservoir	18	52	ALL	4		4
			RBH	4		4
Oakley Reservoir	25	36	ALL	23		23
			RBT	23		23
Roseworth Reservoir	14	29	ALL	11	1	12
			RBH	11	1	12
Salmon Falls Creek Reservoir	90	230	ALL	21		21
			RBH	11		11
			SQF	1		1
			RBW	3		3
			YP	6		6

Table 17. Continued.

Lake, River, Stream	Anglers	Hours fished	Species[a]	Kept	Released	Catch
Silver Creek[b] (Slot limit reach)	46	128	ALL	16	196	212
			RBT	11		11
			BRN	5		5
Silver Creek[b] (Catch and release reach)	28	187	ALL		212	212
			RBT		212	212
Sublett Reservoir	63	180	ALL	12	20	144
			RBH	99	20	119
			KOK	2		2
			CT	22		22
			BRN	1		1
Thorn Creek Reservoir	24	42	ALL	1	2	3
			RBH	1	2	3

[a] BG - bluegill, BRN - brown trout, CHM - chislemouth chub, CT - cutthroat trout, KOK - kokanee, LMB - largemouth bass, RBH - hatchery rainbow trout, RBT - rainbow trout, RBW - wild rainbow trout, SMB - smallmouth bass, SQF – northern squawfish, YP - yellow perch.

[b] Includes May 26 creel data.

Table 18. Results of spot creel checks performed on Magic Valley Region waters in 1997, excluding opening day.

Lake, River, Stream	Anglers	Hours fished	Species[a]	Kept	Released	Catch
Anderson Ranch Reservoir	2	3	ALL	7		7
			RBH	7		7
Big Wood River	85	172	ALL	42	59	101
			BRN	2		2
			MWF		2	2
			RBH	40		40
			RBT		57	57
Carey Lake	3	3		NO FISH		
Crystal Lake	33	60	ALL	30	56	86
			RBH	30	56	86
Dog Creek Reservoir	28	82	ALL	39	1	40
			BBH	25		25
			BG	1		1
			CC	1		1
			RBH	12		12
			TM		1	1
East Fk. Jarbidge River	3	3	ALL		1	1
			RBT		1	1
Emerald Lake	4	6		NO FISH		
Fairfield Kid's Pond	4	4		NO FISH		
Fish Creek Reservoir	37	88	ALL	55		55
			RBH	55		55
Hagerman WMA	29	33	ALL	30		30
			RBH	24		24
			BG	6		6
Lake Cleveland	16	38	ALL	29		29
			RBH	29		29
Little Wood River Reservoir	18	23	ALL	19		19
			RBH	18		18
			EB	1		1
Magic Reservoir	372	1045	ALL	798	48	846
			RBH	198	20	218
			YP	460	28	488
			BRN	5		5
			RBT	135		135
Milner Reservoir	3	4		NO FISH		

ACKNOWLEDGMENTS

We would like to thank the following individuals for their assistance in either sampling, report writing, insightful information, or other input which made 1997 a successful year for many of the Region's fisheries: All of the regional Conservation Officers particularly Jim Collom and Greg Wooten, Steve Elle and his fisheries research crew, Reservists Gene Wright, Bob Hall and Craig Riddle, and Sue Coughlin.

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1997 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-22

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job No. c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1997 to June 30, 1998

ABSTRACT

Basalt, Paradise and Worswick creeks, tributaries of the upper South Fork Boise River, were electrofished to determine if brook trout *Salvelinus fontinalis* are present in those streams. Only lower Paradise Creek was found to have brook trout, which have some potential to hybridize with native bull trout *Salvelinus confluentus*.

A total of 120 brown trout *Salmo trutta* redds were counted in November on the Big Wood River upstream of Magic Reservoir. This is the highest number recorded since 1988.

Both forks of the Jarbidge River in Idaho were sampled with downstream migrant fish traps and electrofishing for bull trout during the fall. One bull trout was sampled in the West Fork Jarbidge River and none in the East Fork Jarbidge River. Good numbers of resident rainbow/redband trout *Oncorhynchus mykiss* and other native fish were sampled.

Four white sturgeon *Acipenser transmontanus* egg collection mats were set downstream of Auger Falls on the Snake River from May 19 through June 6, 1997. Water flows were extremely high making weekly checking sporadic and causing us to lose one mat. No eggs were found on any of the mats this year. Regional personnel spent 24 angler days fishing for white sturgeon brood stock in the Snake River. A total of nine white sturgeon were landed but none were either mature or in prespawning condition to be retained as brood fish at the College of Southern Idaho fish hatchery.

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Regional Fishery Biologist

OBJECTIVES

To obtain current information for fishery management decisions on rivers and streams, including angler use, success, harvest and opinions, fish population characteristics, spawning success, habitat characteristics, return-to-the-creel for hatchery trout and develop appropriate management recommendations.

METHODS

Stream habitat data was collected using ocular and measurement techniques described by Idaho Department of Fish and Game (Department) (1992). Fish sampling gear included a Smith-Root Model 15-A backpack shocker. The backpack shocker was used with one shocker operator and one or two people netting. Sampled fish were identified, total lengths recorded in 10 mm length groups and subsamples were weighed in grams.

Redd counts were made by walking upstream through the prescribed reach within a week or two after the end of the spawning season.

Water temperature was monitored with continuously recording HOBO Boxcar recording thermographs. The thermographs were programmed to record temperatures every 48 minutes for a 60-day duration then replaced for additional data. Daily mean, maximum and minimum temperatures were calculated from the daily measurements.

White sturgeon *Acipenser transmontanus* were sampled by angling utilizing heavy duty rods and reels equipped with a minimum of 23 kg test line, barbless hooks, and small hatchery trout or nongame fish for bait. Fish that were at least 150 cm in total length were considered old enough to be mature and checked for sex and gonadal development. White sturgeon spawning activities were monitored by submerging sturgeon egg collection mats immediately downstream of potential spawning areas. The mats were constructed of 90 x 75 x 2.5 cm fibrous air filter material held rigid by a metal frame that was lowered into the river channel and anchored to the shoreline with a rope. Mats were pulled and inspected for eggs adhering to them once a week. The filter material was replaced every few weeks when it became heavily clogged with debris or when large holes formed.

RESULTS AND DISCUSSION

Basalt Creek

Basalt Creek is a tributary to Little Smoky Creek within the South Fork Boise River drainage. One reach of Basalt Creek was investigated on August 21, 1997 to determine if brook trout *Salvelinus fontinalis* were present there. Since brook trout have been known to compete and hybridize with bull trout *S. confluentus*, we have some concerns that they may be

expanding their range within the South Fork Boise River drainage from their known presence in Paradise Creek (this report). A 53 m reach of Basalt Creek was electrofished with a single upstream pass with a backpack shocker. Results are given in the following stream survey summary.

Stream name: Basalt Creek
Watershed: Little Smoky Creek of South Fork Boise River
Date of survey: August 21, 1997.
Location:
Physical description: Approximately 3.5 km upstream of confluence with Little Smoky Creek.
Legal description: T2N, R14E, Sec13, SE1/4.
U.S.G.S. topographic map: Dollarhide Mountain, Idaho.
E.P.A. Reach No.: 17050113055.
Water Temperature: 19° C at 1600 hours.
Fish Survey:
Fish Sampling Method: One upstream pass made with backpack shocker.
Distance electrofished: 53 m.
Population estimate model: Not applicable.
Sampling Results: Table 1.
Species: Mottled sculpin *Cottus bairdi.*
Total sampled: 35.
Total length range: 50-85 mm.
Species: Rainbow trout *Oncorhynchus mykiss* (wild origin).
Total sampled: 6.
Total length range: 50-190 mm.
Species: Bridgelip sucker *Catostomus columbianus.*
Total sampled: 17.
Total length range: 40-70 mm.
Habitat survey: Average stream width was 2.6 m, approximately 75% pool habitat and low gradient.

Big Wood River

A spawning ground survey was performed on the Big Wood River upstream of Magic Reservoir to monitor spawning activities of brown trout *Salmo trutta* that had moved upstream from the reservoir to spawn. The survey was done by walking upstream looking for redds from Sheep Bridge to the outflow of a private pond on the east side of the Big Wood River approximately 1.5 km upstream of the Stanton Crossing bridge on November 25, 1997. A total of 120 redds were counted (Table 2), which is up 25% from counts made in 1996 and is the highest number recorded since 1988. Water temperature at the time the survey was done was 7°C at 1130 hours.

Table 1. Total length frequencies of all fish sampled and mean weights of some fish sampled by electrofishing at Basalt Creek on August 21, 1997.

Total length (mm)	Rainbow trout				Bridgelip sucker		Mottled sculpin	
	Length (mm)		Weight (g)		Length (mm)		Length (mm)	
	Number	Percent	Number	Mean weight	Number	Percent	Number	Percent
0-9								
10-19								
20-29								
30-39								
40-49					1	5.9		
50-59	1	16.7			8	47.1	1	2.9
60-69					6	35.3	15	42.9
70-79					2	11.8	12	34.3
80-89							7	20.0
90-99								
100-109								
110-119								
120-129								
130-139								
140-149	3	50.0	2	27				
150-159								
160-169								
170-179								
180-189	1	16.7	1	50				
190-199	1	16.7	1	65				
200-209								
210-219								
220-229								
230-239								
240-249								
Total sampled	6				17		35	
Mean length	142				59		70	

Table 2. Brown trout redd counts and spawning activity on the Big Wood River and Rock Creek upstream of Magic Reservoir monitored since 1986.

	Big Wood River[a]					Rock
Date	Reach 1	Reach 2	Reach 3	Reach 4	Total	Creek
Nov. 19, 1986	--[d]	26	--[b]	96	122	--[d]
Nov. 19, 1987	104	62[c]	--[b]	30	196	--[d]
Nov. 15, 1988	13	75	31	39	158	--[d]
Nov. 18, 1989	6	20	33	8	67	1
Nov. 20, 1990	1	25	30	14	70	0
Nov. 15, 1991	3	30	38	15	86	0
Nov. 19, 1992	5	14	9	15	43	0
Nov. 24, 1993	1	28	--[b]	15	43	0
Nov. 16, 1994	9	27	56	5	97	0
Nov. 16, 1995	2	29	54	32	117	0
Nov. 11, 1996	--[d]	8	37	51	96	--[d]
Nov. 25, 1997	--[d]	44	53	23	120	--[d]

[a] Reach 1 - Rock Creek to Sheep Bridge.
Reach 2 - Sheep Bridge to fence at U.S.G.S. station.
Reach 3 - Fence to Stanton Crossing.
Reach 4 - Stanton Crossing to Davis Pond.
Rock Creek - Highway 20 to mouth.
[b] Combined with previous reach.
[c] A total of 42 female brown trout were trapped and spawned from this reach by Hayspur Hatchery in 1987.
[d] Not surveyed.

Jarbidge River

A project to study the downstream migration of bull trout on the Jarbidge River system in Idaho was conducted with the assistance of a Bureau of Land Management Challenge Cost Share grant in the fall of 1997 (Partridge and Warren 1998). Migrating fish were sampled with stationary weirs set up to capture fish moving downstream from August 26 through October 17, 1997 on the East Fork and from August 27 through October 17, 1997 on the West Fork.

The only bull trout captured was sampled on the West Fork Jarbidge River on the day after the trap was installed. This fish was 141 mm long and weighted 13 g. Additional species trapped included rainbow trout, mountain whitefish *Prosopium williamsoni*, dace *Rhinichthys* sp., redside shiner *Richardsonius balteatus*, sucker *Catostomus* sp., and sculpin *Cottus* sp. (Tables 3 and 4). Small similar nongame species were not delineated due to their size and experience of trap personnel. Lengths and weights were taken on most of the game species and lengths on some of the nongame species (Tables 5 and 6).

Paradise Creek

Paradise Creek flows south out of the Smoky Mountains before entering Big Smoky Creek, a tributary to the South Fork Boise River, at T3N, 13E, Sec 2, SE1/4. Brook trout have been reported to be present in Paradise Creek, which have the potential to adversely compete with bull trout and hybridize with them. There is concern that the presence of the non-native brook trout may have a detrimental effect on the existing bull trout population. In light of this we did a preliminary investigation of Paradise Creek at two locations within the watershed. The lowermost reach surveyed was at a trail head at the end of a road near its confluence with Big Smoky Creek and the second survey was at a U.S. Forest Service road bridge about half way up the drainage. A third site investigated was Paradise Lake, which forms the headwaters of the stream (See Job a, Mountain Lakes Investigations, this report). Results of the two stream surveys are given in the following stream survey summary.

Stream name: Paradise Creek
Watershed: Big Smoky Creek of South Fork Boise River
Reach: Lower.
- Date of survey: August 21, 1997.
- Location:
  - Physical description: At the trailhead at the lower end of Paradise Creek.
  - Legal description: T3N, R13E, Sec2, NE1/4.
  - U.S.G.S topographic map: Paradise Peak, Idaho.
  - E.P.A. Reach No.: 17050113065.
- Water temperature: 15° C at 1200 hours.
- Fish survey:
  - Fish sampling method: One upstream pass made with backpack shocker.
  - Distance electrofished: 58 m.
  - Population estimate model: Not applicable.
  - Sampling results: Table 7.
    - Species: Brook trout.
      - Total sampled: 4.

Table 3. Number of fish sampled at the East Fork Jarbidge River trap by date in 1997.

Date	Rainbow trout	Mountain whitefish	Dace species	Redside shiner	Sucker species	Total
08/27/97			30		1	31
08/28/97			113		4	117
08/29/97	1		108	2	2	113
08/30/97			92	2	2	96
08/31/97	1		68		3	72
09/01/97			56		2	58
09/02/97			39		2	41
09/03/97	1		74		4	79
09/04/97	2		42			44
09/05/97	1		69			70
09/06/97	2		29			31
09/07/97		3	29			32
09/08/97	3	1	48	1	2	55
09/09/97		2	27		3	32
09/10/97	1		36		1	38
09/11/97			3			3
09/12/97	3		6		4	13
09/13/97	1		1			2
09/14/97			7			7
09/15/97			4			4
09/16/97						0
09/17/97						0
09/18/97	1		9			10
09/19/97		2	5		2	9
09/20/97	10	5	1		4	20
09/21/97	6	1			1	8
09/22/97	10	4	13		7	34
09/23/97	3	2	5		3	13
09/24/97	2	10	4		4	20
09/25/97	6	6	7		3	22
09/26/97	3	19	4		4	30
09/27/97	1	9	5		5	20
09/28/97	6	1	3		1	11
09/29/97	12		2		1	15
09/30/97	9	31		1	7	48
10/01/97	3				1	4
10/02/97	1	1	16			18
10/03/97	2		8			10
10/04/97	6	4	15	1	2	28
10/05/97	24	20	9			53
10/06/97	6	5	3		1	15
10/07/97	7	6		1	1	15
10/08/97	4		3		1	8
10/09/97	6		2			8
10/10/97	24	31				55
10/11/97	29	3	3			35
10/12/97	6	1	1	1		9
10/13/97	1	1				2
10/14/97	2					2
10/15/97	2	17	2		3	24
10/16/97		4	2			6
10/17/97	3	3			1	7
Total:	211	192	1,003	9	82	1,497

Table 4. Number of fish sampled at the West Fork Jarbidge River trap by date in 1997.

Date	Bull trout	Rainbow trout	Mountain whitefish	Dace species	Redside shiner	Sculpin species	Sucker species	Total
08/28/97	1	2		3			3	9
08/29/97		2		11				13
08/30/97				9				9
08/31/97		2		8			3	13
09/01/97		5	4	29	2		4	44
09/02/97		4		13	1		1	19
09/03/97		2		23				25
09/04/97			1					1
09/05/97			1	1				2
09/06/97				3				3
09/07/97			2	2				4
09/08/97		1	1	3			1	6
09/09/97		1		5			1	7
09/10/97			2					2
09/11/97			1					1
09/12/97		1		1				2
09/13/97		1						1
09/14/97			1				1	2
09/15/97								0
09/16/97			3				1	4
09/17/97		1					1	2
09/18/97			5					5
09/19/97			15				2	17
09/20/97		1	15					16
09/21/97		1	15	1				17
09/22/97		1	12				2	15
09/23/97		3	4	1			1	9
09/24/97			9				3	12
09/25/97							1	1
09/26/97							1	1
09/27/97			1	5			1	7
09/28/97			7					7
09/29/97							1	1
09/30/97							1	1
10/01/97								0
10/02/97			4	4				8
10/03/97				1				1
10/04/97								0
10/05/97								0
10/06/97								0
10/07/97		3						3
10/08/97			1					1
10/09/97								0
10/10/97		5	9					14
10/11/97		4	1				1	6
10/12/97		4						4
10/13/97		1						1
10/14/97								0
10/15/97			2					2
10/16/97		3	8					11
10/17/97				2		3		5
Total:	1	48	124	124	3	3	30	333

Table 5. Total length frequencies and mean weights of samples of fish trapped in the East Fork Jarbidge River in 1997.

Total length (mm)	Rainbow trout Number	Rainbow trout Mean weight (g)	Mountain whitefish Number	Mountain whitefish Mean weight (g)	Bridgelip sucker Number	Dace species Number	Redside shiner Number
0-9							
10-19						1	1
20-29							
30-39							
40-49	3						
50-59	13					1	
60-69	9					7	
70-79	7					19	
80-89	6	6				17	2
90-99					1	6	1
100-109						4	1
110-119	1	10				9	2
120-129	14	11			4	1	1
130-139	18	18	1		9		
140-149	15	20			15		
150-159	24	26			10		
160-169	12	31			9		
170-179	12	43	2	50	9		
180-189	11	53			2		
190-199	14	53	3	76	10		
200-209	2	63	7	89	4		
210-219	4	74	2	93	1		
220-229	12	84	3	95	1		
230-239	6	92	2	140	1		
240-249	7	103	2	152			
250-259	6	132	7	165			
260-269	4	100	4	167			
270-279	1		4	220			
280-289	1	130	3	225			
290-299	3	185	1	250			
300-309	1	215	4	303			
310-319	1	250	3	322			
320-329	1	210	1	380			
330-339							
340-349							
Total measured	208		49		76	65	8
Total not measured	3		143		6	938	1
Total sampled	211		192		82	1,003	9

Table 6. Total length frequencies and mean weights of samples of fish[a] trapped in the West Fork Jarbidge River in 1997.

Total length (mm)	Rainbow trout		Mountain whitefish		Bridgelip sucker	Dace species	Redside shiner
	Number	Mean weight (g)	Number	Mean weight (g)	Number	Number	Number
0-9							
10-19							
20-29							
30-39							
40-49	5						
50-59	6						
60-69	4						1
70-79						3	1
80-89						11	1
90-99						13	
100-109						7	
110-119	3	14				13	
120-129	4	11				2	
130-139	4	11			3		
140-149	3	25			3	1	
150-159	4	23			2		
160-169	1	21			2		
170-179	1	30			7		
180-189			2	39	5		
190-199	3	51			5		
200-209	2	48	6	73	2		
210-219			6	83	1		
220-229	1	105	4	79			
230-239			6	114			
240-249			4	153			
250-259	1	130	2	120			
260-269	2	118	7	203			
270-279	2	158	3	185			
280-289			3				
290-299			4	285			
300-309			5	305			
310-319	1	200	4				
320-329			2	310			
330-339	1	220					
340-349							
Total measured	48		58		30	50	3
Total not measured	0		66		0	74	0
Total sampled	48		124		30	124	3

[a] One bull trout was trapped which was measured at 140 mm and 13 g. Three sculpin sp. were also trapped.

Table 7. Total length frequencies of all fish sampled and mean weights of some fish sampled by electrofishing the lower reach of Paradise Creek on August 21, 1997 and the upper reach on September 17, 1997.

Total length (mm)	Rainbow trout		Brook trout		Sculpin sp.
	Number	Mean weight (g)	Number	Mean weight (g)	Number
Lower reach					
50-59					4
60-69					1
70-79					4
80-89					3
90-99					2
100-109					2
110-119	1		1	10	1
120-129					
130-139			1	20	
140-149					
150-159	1	35			
160-169					
170-179			2	50	
180-189					
190-199					
200-209	1	102			
210-219	1	120			
220-229					
230-239					
240-249					
Total sampled	4		4		17
Mean length	170		148		77
Upper reach					
50-59					
60-69					
70-79	1				
80-89					
90-99					1
100-109					1
110-119					1
120-129					
130-139					
140-149					
150-159					
160-169					
170-179					
180-189					
190-199					
200-209	1	97			
210-219					
220-229					
230-239					
240-249					
Total sampled	2				3
Mean length	143				104

Total length range: 110-175 mm.
Species: Rainbow trout (wild origin).
Total sampled: 4.
Total length range: 110-215 mm.
Species: Mottled sculpin.
Total sampled: 17.
Total length range: 50-115 mm.
Species: Kokanee *Oncorhynchus nerka* (spawning).
Total sampled: 0 (Seen but not sampled).
Comments: One tailed-frog *Ascaphus truei* tadpole was sampled by electrofishing.
Habitat survey: (Table 8).

Reach: Upper
Date of survey: September 17, 1997.
Location:
Physical description: Upstream boundary was about 30 m upstream of bridge near Paradise Creek trailhead.
Legal description: T4N, R13E, Sec11, SE1/4.
U.S.G.S. topographic map: Paradise Creek, Idaho.
E.P.A. Reach No.: 17050113065.
Water temperature: 6°C at 1200 hours.
Fish survey.
Fish sampling method: One upstream pass made with backpack shocker.
Distance electrofished: 56 m.
Population estimate model: Not applicable.
Sampling results: Table 7.
Species: Rainbow trout (wild origin).
Total sampled: 2.
Total lengths: 75 and 208 mm.
Species: Mottled sculpin.
Total sampled: 3.
Total length range: 90-115 mm.
Comments: One partially metamorphosed tailed-frog tadpole was also sampled by electrofishing.
Habitat survey: Table 8.

Snake River

We set four white sturgeon egg collection mats in the large deep pool and back eddy area downstream of Auger Falls between May 19, 1997 and June 6, 1997 to document sturgeon spawning activity within that reach. The mats were lifted out of the water and checked for sturgeon eggs every two weeks since high water prevented us from checking them every week. Due to extremely high water one mat broke off of its tether and could not be checked for eggs when they were removed from the river on June 6, 1997. No eggs were found on any of the mats this year.

Table 8. Habitat survey results for Paradise Creek, 1997.

Lower Reach - At the trailhead at the lower end of Paradise Creek.
Legal description: T3N, R13E, SEC2, NE1/4
Date: 8/21/97
Channel type: Moderately confined (B)
Transect cross section interval: 20 m
Number of cross sections: 6
Elevation: 1,700 m

Total distance electrofished: 58 m
Mean width: 3.9 m
Area: 226 m^2
Mean depth: 0.21 m
Gradient: 1.8 %

Habitat type:	Pool	Riffle	Run	Pocket	Backwater	
Percent of transect:	0	39	50	11	0	
Mean depth by habitat type (m):	-	0.16	0.25	0.21	-	
Substrate by habitat type						Entire Reach
Silt/Sand (%):	-	18	18	40	-	20
Gravel (%):	-	25	27	45	-	28
Rubble (%):	-	41	50	15	-	43
Boulder (%):	-	16	5	0	-	9
Bedrock (%):	-	0	0	0	-	0

Upper Reach - Upstream boundary was approximately 30 m upstream of wooden bridge near upper Paradise Creek trailhead.
Legal description: T4N, R13E, Sec11, SE1/4
Date of survey: 9/17/97
Channel type: Confined (B)
Transect cross section Interval: 10
Number of cross sections: 5
Elevation: 2,010

Total distance electrofished: 56 m
Mean width: 3.3 m
Area: 185 m^2

Gradient: 5.2 %

Habitat type was dominated by high gradient, high riffle to pool ratios with some bank undercutting. Substrate was over 90% boulders with the rest cobble. Some overhead cover provided by dense stands of willows and large woody debris.

The Idaho Department of Fish and Game has an agreement with the College of Southern Idaho to assist with acquiring wild white sturgeon brood stock from the Snake River for artificial propagation. In 1997, we spent 24 angler days fishing for sturgeon using conventional sturgeon angling gear. A total of nine white sturgeon were landed. None of the fish landed were either large enough to be checked or appeared to be have sufficient gonadal development to be suitable for brood stock thus were released back into the river at time of capture.

Worswick Creek

Worswick Creek is a small stream in a 4.8 km long drainage with a south facing aspect entering Little Smoky Creek at T3N, R14E, Sec 28. There is a small hot spring at the lower end of the drainage near its confluence. Fish were sampled with a single upstream pass of electrofishing with a backpack shocker on a 30 m reach of stream approximately 0.3 km upstream of Worswick Hot Spring on August 29,1997. Average width of the stream was approximately 1 m. Electrofishing efficiency appeared to be low because of the dense stand of willows in the riparian zone overhanging the stream. Species sampled include rainbow trout of wild origin, longnose dace *Rhinichthys cataractae*, and mottled sculpin (Table 9).

D.E.Q. Stream Survey Results

The Idaho Division of Environmental Quality (D.E.Q.) performed numerous stream surveys for their Beneficial Use Reconnaissance Project (BURP) in 1997. Methods used included sampling fish with a backpack electroshocker then preserving fish specimens for later identification by Dr. Richard Wallace of EcoAnalysis, Inc.. Streams surveyed, specific locations, survey dates, reach length and average width, fish species sampled, average total length of each species sampled and number of fish sampled are given in Table 10 as provided by D.E.Q.

Table 9. Total length frequencies of all fish sampled and mean weights of some fish sampled by electrofishing at Worswick Creek on August 29, 1997.

Total length (mm)	Rainbow trout				Longnose dace		Mottled sculpin	
	Length (mm)		Weight (g)		Length (mm)		Length (mm)	
	Number	Percent	Number	Mean weight	Number	Percent	Number	Percent
0-9								
10-19								
20-29								
30-39								
40-49	1	11						
50-59								
60-69							1	14
70-79					2	100	2	29
80-89								
90-99	1	11	1	10			2	29
100-109	2	22	2	11			2	29
110-119	2	22	2	13				
120-129	1	11	1	18				
130-139	1	11	1	22				
140-149								
150-159	1	11	1	45				
160-169								
170-179								
180-189								
190-199								
200-209								
210-219								
220-229								
230-239								
240-249								
Total sampled	9				2		7	
Mean length	108				72		85	

Table 10. Streams surveyed and fish sampled by the Department of Environmental Quality for Beneficial Use Reconnaissance Project surveys in 1997.

Stream name	Drainage	Legal description	Date surveyed	Reach length (m)	Avg. stream width (m)	Fish species sampled	Avg. fish length (mm)	No. of fish sampled
Bruneau River	Snake River	T7S,R6E,S1,SE	07/31/97	100	25	Redside shiner	73	2
						Leopard dace *Rhinichthys falcatus*	61	3
						Longnose dace	57	1
						Sculpin sp.	32	1
Clover Creek	Bruneau River	T9S,R7E,S9,SW (8E?)	07/29/97	100	8.3	Redside shiner	65	4
						Northern squawfish *Ptychocheilus oregonensis*	94	2
						Chiselmouth chub *Acrocheilus alutaceus*	119	3
						Leopard dace	80	3
Deer Creek	East Fk. Bruneau River	T16S,R11E,S1,SE	07/30/97	100	2.7	Trout sp.	32	1
						Rainbow trout	119	2
Jarbidge River	Bruneau River	T15S,R9E,S10,SE	07/31/97	100	15	Rainbow trout	148	3
						Mountain whitefish	186	1
						Mountain sucker *Catastomus platyrhynchus*	183	2
						Leopard dace	79	2
						Shorthead sculpin *Cottus confusus*	71	4
East Fork Jarbidge River	Jarbidge River	T16S,R9E,S10,NE	07/31/97	100	10.4	Rainbow rrout	198	1
						Mountain sucker	212	1
						Speckled dace *Rhinichthys osculus*	108	2
						Shorthead sculpin	70	2
Buck Creek	Jarbidge River	T16S,R9E,S28,NE	07/30/97	100	3.7	Rainbow rrout	134	9
						Speckled dace	63	2
						Shorthead sculpin	76	9
Clover Creek	Snake River	T4S,R12E,S35,SE	08/07/97	100	-	Bridgelip sucker	188	4
						Chub sp.		
						Smallmouth bass *Micropterus dolomieu*	48	1
						Yellow perch *Perca flavescens*	100	5
							167	3

Table 10. Continued.

Stream name	Drainage	Legal description	Date surveyed	Reach length (m)	Avg. stream width (m)	Fish species sampled	Avg. fish length (mm)	No. of fish sampled
Thorn Creek	Clover Creek/ Snake River	T3S,R11E,S21,NE	07/24/97	100	1.97	Speckled dace	64	1
						Bridgelip sucker	50	5
						Sucker sp.	22	1
						Salamander (larva) *Dicamptodon* sp.	-	1
Cottonwood Creek	Clover Creek/ Snake River	T4S,R13E,S12,NW,SW,NW	07/23/97	100	2.5	Speckled dace	49	6
						Redside shiner	96	6
						Bridgelip sucker	86	5
						Sucker sp.	165	1
Deer Creek	Clover Creek/ Snake River	T3S,R12E,S13,SW	07/29/97	100	2.6	Rainbow trout	177	1
						Speckled dace	63	6
Dry Creek	Malad River	T4S,R14E,S17,SW	07/23/97	100	1.12	Rainbow trout	104	6
						Bridgelip sucker	113	6
						Speckled dace	44	12
Shoshone Creek	Salmon Falls Creek	T14S,R17E,S24,NW,SE,SE	07/28/97	100	3.0	Redside shiner	70	7
						Longnose sucker	76	1
						Speckled dace	58	6
Pole Camp Creek	Shoshone Creek/ Salmon Falls Creek	T14S,R17E,S12,SE,NW,NE	07/28/97	100	1.0	Trout species	39	3
						Speckled dace	38	3
						Sucker sp.	26	6
So. Fork Shoshone Creek	Shoshone Creek/ Salmon Falls Creek	T13S,R17E,S9,SW	09/18/97	100	1.0	Rainbow trout	108	2
						Speckled dace	58	2
						Redside shiner	68	4
						Bridgelip sucker	96	2
						Paiute sculpin *Cottus beldingi*	50	5
So. Fork Shoshone Creek	Shoshone Creek/ Salmon Falls Creek	T13S,R17E,S21,NW	09/18/97	100	3.0	Rainbow trout	116	3
						Speckled dace	50	4
Mud Creek	Snake River	T9S,R14E,S11,NE,NW,SW	07/17/97	100	100	Rainbow trout	112	2
						Chiselmouth chub	240	1
						Speckled dace	86	5
						Bridgelip sucker	236	2
						Mottled sculpin	91	6

Table 10. Continued.

Stream name	Drainage	Legal description	Date surveyed	Reach length (m)	Avg. stream width (m)	Fish species sampled	Avg. fish length (mm)	No. of fish sampled
Cedar Draw Creek	Snake River	T8S,R15E,S11,NE	07/17/97	100	10	Peamouth chub *Mylocheilus caurinus*	266	1
						Redside shiner	106	2
						Mottled sculpin	72	4
						Sculpin sp.	25	1
						Chiselmouth chub	227	1
						Northern squawfish	233	1
Rock Creek (lower)	Snake River	T09S,R29E,S12,NW	09/03/97	100	3.0	Rainbow trout	101	2
						Mountain whitefish	116	1
						Longnose dace	72	1
						Redside shiner	48	2
						Utah sucker *Catastomus ardens*	61	2
						Mottled sculpin	66	2
McMullen Creek	Rock Creek	T12S,R17E,S13,SW,NW,NE	07/14/97	100	2.25	Rainbow trout	156	6
						Trout sp.	38	2
North Cottonwood Creek	Rock Creek	T12S,R17E,S2,NE	07/16/97	100	3.37	Rainbow trout	120	4
						Speckled dace	63	6
Fifth Fork Rock Creek	Rock Creek	T13S,R18E,S16,NW,SE,SE	07/14/97	100	100	Rainbow trout	94	2
Harrington Fork	Rock Creek	T13S,R19E,S17,NW,NW,NE	07/28/97	100	3.0	Trout sp.	25	2
						Rainbow trout	102	1
Fourth Fork Rock Creek	Rock Creek	T14S,R18E,S24,SE,NE,SE	07/14/97	100	1.3	Brook trout	118	5
						Trout sp.	45	1
Third Fork Rock Creek	Rock Creek	T12S,R6E,S32,SE,SW,NE	07/28/97	100	4.0	Rainbow trout	148	5
						Speckled dace	80	2
Thompson Creek	Rock Creek	T14S,R18E,S12,SW,SW,SE	08/27/97	100	1.4	Rainbow trout	98	2
Big Cottonwood Creek	Dry Creek	T14S,R20E,S30,NW	09/02/97	100	1.4	Cutthroat trout *Oncorhynchus clarki*	92	3
						Trout sp.	40	2
Coal Pit Creek	Dry Creek/ Snake River	T13S,R20E,S31,SW,SW,NW	09/02/97	100	2.0	Cutthroat trout	102	2
						Trout sp.	44	4

Table 10. Continued.

Stream name	Drainage	Legal description	Date surveyed	Reach length (m)	Avg. stream width (m)	Fish species sampled	Avg. fish length (mm)	No. of fish sampled
Goose Creek (lower)	Snake River	T14S,R21E,S12,SW,SE,SE	09/16/97	100	7.5	Rainbow trout	190	2
						Longnose dace	88	2
						Speckled dace	72	1
						Redside shiner	75	2
						Bluehead sucker	146	3
						Catastomus discobolus		
						Mottled sculpin	66	2
Trapper Creek (lower)	Goose Creek	T14S,R21E,S26,NW,NE,SE	09/16/97	100	2.0	Rainbow trout	204	1
						Longnose dace	59	3
						Bluehead sucker	114	3
						Mottled sculpin	57	4
Trapper Creek	Goose Creek	T14S,R19E,S9,NW,NE,SE (15S?, 20E?)	09/04/97	100	3.0	Rainbow trout	145	3
						Brook trout	103	2
						Trout sp.	46	1
						Longnose dace	112	1
						Bluehead sucker	224	1
						Paiute sculpin	61	7
Little Squaw Creek	Trapper Creek/ Goose Creek	T15S,R20E,S11,NW,NE,NW	09/04/97	100	1.0	Trout sp.	75	1
Cold Creek	Goose Creek	T15S,R22E,S30,NE,NW,NW	09/02/97	100	2.0	Cutthroat trout	158	1
						Brook trout	134	2
Trout Creek	Goose Creek	T16S,R19E,S12,SE,SW,SE	09/04/97	100	3.0	Cutthroat trout	140	2
						Speckled dace	72	4
Piney Creek	Goose Creek	T16S,R19E,S27,SW,SE,NE	09/09/97	100	3.0	Brook trout	114	4
						Mottled sculpin	71	3
Goose Creek	Snake River	T16S,R19E,S32,NE,NE,NE	09/17/97	100	4.0	Cutthroat trout	148	2
						Trout sp.	58	1
						Longnose dace	77	1
						Speckled dace	81	1
						Redside shiner	76	2
						Mottled sculpin	46	6
Thoroughbred Creek	Goose Creek	T16S,R19E,S32,NE	09/17/97	100	1.0	Cutthroat throat	103	3
						Speckled dace	53	4
						Mottled sculpin	58	4
Howell Creek (mid)	Marsh Creek	T12S,R25E,S31,SW,NW,SE	07/22/97	100	4.8	Brook trout	157	5

Table 10. Continued.

Stream name	Drainage	Legal description	Date surveyed	Reach length (m)	Avg. stream width (m)	Fish species sampled	Avg. fish length (mm)	No. of fish sampled
Sublett Creek	Raft River	T13S,R29E,S1,NE,NE,NE	09/03/97	100	1.5	Rainbow trout Brown trout Mottled sculpin	90 131 53	4 4 1
East Fork Rock Creek	Rock Creek	T10S,R31E,S13,NW,NE,NE	09/03/97	100	6	Rainbow trout Paiute sculpin	109 50	6 3
Cottonwood Creek	Seeps into lava flows near Craters of the Moon Natl. Monument	T2N,R24E,S31,NE,NE,SE	07/21/97	100	1.70	Rainbow trout	166	6

ACKNOWLEDGMENTS

We acknowledge Karen Frank and Shannon Peterson for their assistance with stream surveys and data entry this year.

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1997 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-22

Project II: Technical Guidance

Subproject II-E: Magic Valley Region

Contract Period: July 1, 1997 to June 30, 1998

ABSTRACT

Magic Valley Region fishery management personnel furnished verbal and written comments of technical guidance to other agencies, consultants, and private individuals and organizations. Fishing information was provided to anglers in the forms of brochures, angler guides, public meetings, news releases, telephone and in person.

Many miscellaneous activities were commented on, participated on, or otherwise addressed, and numerous meetings regarding fisheries were attended.

Author:

Fred E. Partridge
Regional Fishery Manager

OBJECTIVES

To provide current fisheries and habitat information, concerns, and recommendations as needed to Department habitat specialists or directly to state, federal, and private parties contemplating projects with the potential to affect fish.

To provide technical fish and habitat management advise to public and private landowners and other agencies in order to sustain or enhance fish resources.

METHODS

Reviews, field inspections, comments, expertise, and recommendations were furnished to all governmental agencies, private organizations, consultants and individuals upon request. We participated in meetings, tours, and gave presentations where requested or necessary. Expertise on regional fisheries was provided to the regional environmental coordinator to assist him in commenting on the numerous habitat related projects in the region.

FINDINGS

Magic Valley regional fishery management personnel collected data, inspected, commented on and\or provided advice on the following major projects in 1997:

Public information - Prepared and provided input on regional fishing, recreation and access to the public in various forms including 1-800 ASKFISH service and as requested by public, students, media, organized fishing clubs and at the Twin Falls County Fair. Provided information to local fishing clubs and elementary school classes on regional fisheries and basic habitat needs of fish in the Magic Valley Region.

Threatened and species of concern – Collected data (See Rivers and Streams, this report), summarized collecting permit reports and provided information to the US Forest Service, Bureau of Land Management, Bureau of Reclamation, US Fish and Wildlife Service, Idaho Division of Environmental Quality, and Nevada Department of Wildlife on bull trout *Salvelinus confluentus* in the South Fork Boise and Jarbidge river drainages.

Agency assistance - Regional fishery personnel provided equipment and assistance to US Geological Service, Idaho Division of Environmental Quality, US Forest Service and Bureau of Land Management in the collection of fish to provide long term monitoring of water quality conditions in rivers and streams and to document the presence or absence of fish species. Several meetings were attended and comments provided to various agencies regarding potential impacts from flooding and flood control on regional fisheries in the Wood River, Salmon Falls Creek, Goose Creek drainages and along the main Snake River.

Comments were provided to the Regional Environmental Coordinator and to Idaho Department of Water Resources on stream alterations in the Wood River drainage and concerning an illegal fill project at the mouth of Deep Creek on the Snake River.

Assistance was provided to irrigators in the Indian Cove District on experimenting with grass carp to control aquatic vegetation in their canal system. Success of the project was minimal due to relative cool water temperatures.

1997 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-22

Project III: Habitat Management

Subproject III-E: Magic Valley Region

Contract Period: July 1, 1997 to June 30, 1998

ABSTRACT

Trout and bass ponds at the Hagerman Wildlife Management were measured to calculate water volumes to justify and maintain water rights for the ponds.

A rain on snow event in early 1997 resulted in substantial erosion along the spillway at Dog Creek Reservoir requiring lowering the reservoir to repair the dam. High water also caused increased spill from Mormon and Little Camas reservoirs. Lost of fish from the reservoirs was reduced with the installation of temporary fish weirs in the spillways.

Preliminary survey information and grant proposals were prepared to install a culvert passage structure on the Feather River, tributary to the South Fork Boise River, for bull trout *Salvelinus confluentus* passage.

Fence repairs were completed at the "Bear Track Williams" access area on the Little Wood River with the help of the Magic Valley FlyFishers club.

Author:

Fred E. Partridge
Regional Fishery Manager

OBJECTIVES

Construct riparian or improved pasture fencing on degraded streams on private property with good potential to enhance wild trout recruitment.

Provide up and downstream fish passage in key wild trout spawning and recruitment streams.

Create improved and additional small pond fishing opportunities in areas of easy access.

METHODS

Work with federal, state and private land management groups to select sites and acquire funds to improve fish habitat and provide additional fishing opportunity.

RESULTS AND DISCUSSION

Dog Creek Reservoir

A rain on snow event on New Year's Day resulted in a wash out on a portion of the Department owned dam at Dog Creek Reservoir. Following the notification of the wash out, we lowered the water level in the reservoir by about 50 % until dam repairs could be completed. The Department's Engineering Crew reconstructed the dam in March and we conducted a fish salvage in the channel below the dam on March 25. We captured 143 rainbow trout *Oncorhynchus mykiss,* 6 channel catfish *Ictalurus punctatus*, 1 largemouth bass *Micropterus salmoides* and 1 bluegill *Lepomis macrochirus*, which were moved back into the reservoir.

Feather River

The Feather River is a perennial stream flowing southward towards its confluence with South Fork Boise River at Featherville, Idaho. It is within the range of bull trout *Salvelinus confluentus,* which migrate throughout the South Fork Boise River basin from Anderson Ranch Reservoir to upstream tributaries where they are known to spawn. The main South Fork Boise River road crosses over the Feather River 0.5 km upstream of its confluence with the South Fork Boise River. The road crossing has been considered a potential barrier to the upstream migration of bull trout and other species because of the drop of water from the culvert unto a concrete apron and because of the velocity of water flowing through the three culverts under the road. This barrier reduces access to more than 32 km of streams above 1,500 m elevation. There is also a head cut moving upstream below the culvert, which will increase the downstream drop significantly when it reaches the culvert.

In 1997, the site was surveyed and dropped structures designed to stabilize the stream channel below the culvert and to reduce to drop from the culvert into the channel. The actual project is scheduled for 1998.

Hagerman Ponds Water Rights

Volumes of the Anderson Ponds at the Hagerman Wildlife Management Area were needed to justify their water rights. Depth measurements were made from a boat with a stadia rod to determine mean depths, which were then multiplied by area to determine volume. The mean depth of Anderson Pond #1 was calculated to be 0.76 m resulting in a volume of 26,000 m^3 (21.2 ac-ft). Mean depth of Anderson Pond #2 was calculated to be 1.1 m and volume was 50,600 m^3 (41.0 ac-ft). Mean depth of Anderson Pond #4 was calculated to be 1.1 m and the volume was 19,000 m^3 (15.4 ac-ft). Depths could not be measured on Anderson Pond #3 due to the amount of large floating vegetation mats.

Additional Activities

Recommendations and design assistance was given to the Wood River RCD to improve water quality in the Little Wood River below the Dietrich Diversion. Historically, at the crossing of the canal and river, canal water entered the river from the north and displaced river water which was diverted into the canal on the south side of the river. A pipe was installed under the diversion to allow more river water of a better water quality to remain in the river.

A good water year resulted in some spill from Mormon and Little Camas reservoirs. Loss of fish from the reservoir was reduced with the installation of a temporary fish weir in the spillways in late April and early May. Weirs were removed after the reservoirs ceased to spill.

The Anderson Ponds at the Hagerman Wildlife Management Area were surveyed to calculate the water volumes. This was necessary to provide beneficial use information for maintain water rights for the ponds.

Fence repairs were completed at the "Bear Track Williams" access area on the Little Wood River with the help of the Magic Valley FlyFishers club.

Assistance was provided to the Department's water rights specialist in determining minimum flows needed for fish in lower Billingsley Creek.

1997 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-22

Project IV: Population Management

Subproject IV-E: Magic Valley Region

Contract Period: July 1, 1997 to June 30, 1998

ABSTRACT

Fish populations and fishing in the Magic Valley Region was enhanced by stocking approximately 2.44 million put-and-grow and 0.39 million put-and-take size rainbow trout *Oncorhynchus mykiss*, brown trout *Salmo trutta*, and kokanee *O. nerka*, into lakes, reservoirs, rivers and streams accessible by vehicle. High mountain lakes were stocked with Yellowstone cutthroat trout *O. clarki bouvieri* from Henry's Lake, rainbow trout and Arctic grayling *Thymallus arcticus* fingerlings.

A 11 ha pond at Bruneau Dunes State Park, which was successfully treated with rotenone to eradicate a large population of common carp *Cyprinus carpio* in September 1996, was restocked with 547 bluegill *Lepomis macrochirus*.

Other species released in the region for angler enjoyment and population enhancement included one million walleye *Stizostedion vitreum* fry in Salmon Falls Creek Reservoir, 30,600 channel catfish *Ictalurus punctatus* in ponds and reservoirs and 151 white sturgeon *Acipenser transmontanus* in the Snake River.

Author:

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OBJECTIVES

To maintain and restore fisheries in streams, lakes and reservoirs as appropriate.

METHODS

Regional fisheries with low natural recruitment are maintained with recommended stocking levels of trout and warmwater fish. Illegally introduced and over abundant undesirable species are controlled or eradicated using standard physical and chemical methods (Horton 1991).

RESULTS AND DISCUSSION

Fish populations and fishing in the Magic Valley Region was enhanced by stocking approximately 2.44 million put-and-grow and 0.39 million put-and-take size rainbow trout *Oncorhynchus mykiss*, brown trout *Salmo trutta*, and kokanee *O. nerka*, into lakes, reservoirs, rivers and streams accessible by vehicle (IDFG 1998). Hatchery or regional personnel stocked waters accessible by road from fish transport trucks.

A 11 ha pond at Bruneau Dunes State Park, was restocked with 547 bluegill *Lepomis macrochirus* from Dierke's Lake and the West Highway Pond at the Hagerman WMA (See Lakes and Reservoirs, this report). The pond was successfully treated with rotenone to eradicate a large population of common carp *Cyprinus carpio* in September 1996 (Warren and Partridge In Press).

High mountain lakes were stocked with Yellowstone cutthroat trout *O. clarkii*from Henry's Lake, rainbow trout and Arctic grayling *Thymallus arcticus* fingerlings. Department personnel dropping fingerling fish from airplanes on September 3, 1997 to stock mountain lakes. Lakes in the upper South Fork Boise River were not stocked as scheduled due to clouds obscuring visibility in the vicinity of the lakes. Fish scheduled for these waters were released into the Big Wood River below Magic Dam.

Other species released in the region for angler enjoyment and population enhancement included one million walleye *Stizostedion vitreum* fry in Salmon Falls Creek Reservoir, 30,600 channel catfish *Ictalurus punctatus* in ponds and reservoirs and 151 white sturgeon *Acipenser transmontanus* in the Snake River.

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