IDAHO

FISH & GAME DEPARTMENT

Joseph C. Greenley, Director

LAKE AND RESERVOIR INVESTIGATIONS

Job Performance Report Project

F-53-R-10

Job III-e. Survey of Fish Harvest in the South Fork of the Boise River from Anderson Ranch Dam to Arrowrock Reservoir

Job 111-f. Survey of Fish Populations in the South Fork of the Boise River from Anderson Ranch Dam to Arrowrock Reservoir

Period Covered: 1 March 1974 - 28 February 1975

by

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March 1975

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JOB PERFORMANCE REPORT

State of	Idaho	Name:	LAKE AND RESERVOIR INVESTIGATIONS
Project No.	F-53-R-10	Title:	Survey of Fish Harvest in the South Fork of the Boise River from Anderson Ranch Dam to Arrowrock Reservoir
Job No.	III-e		

Period Covered: 1 March 1974 to 28 February 1975

ABSTRACT:

The creel census on the South Fork of the Boise River from Anderson Ranch Dam to Danskin Bridge yielded estimates of 28,914 hours fished and a harvest of 25,258 fish. This included 1,869 rainbow trout that were caught and released. The total harvest consisted of 5,710 wild rainbow trout, 11,832 hatchery rainbow, 4,790 whitefish, 51 Dolly Varden, 975 kokanee, and 31 squawfish.

Tag returns from hatchery rainbow indicated that 58% of the total 1974 plant was harvested. Tagged hatchery rainbow moved very little after release.

Thermographs, located at three different points below Anderson Ranch Dam, indicated that water temperatures between 13 April and 30 November 1974 were well within the range required for good trout growth and production.

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RECOMMENDATIONS:

The maximum flow on weekends during the whitefish season should not exceed 700 cfs. Flows between 250 and 700 cfs make whitefish more available to anglers and increase catch rates greatly.

The minimum flow out of Anderson Ranch Dam should never be lower than 250 cfs. Catch rates on wild trout increase significantly below 200 cfs, indicating that trout are too vulnerable to anglers below this flow.

Hatchery trout plants below Anderson Ranch Dam should be between 14,000 and 15,000 fish each year. The wild trout populations with this supplemental release provide adequate catch rates.

Hatchery trout should not be released any farther downstream than Cow Creek bridge so that the population from Cow Creek downstream will remain predominately wild.

INTRODUCTION:

We studied the South Fork of the Boise River from Anderson Ranch Dam down-stream to the headwaters of Arrowrock Reservoir, approximately 43.4 km (27 mi).

The study was undertaken for the purpose of determining basic pressure and catch information needed for management purposes. This section of the South Fork is one of the most popular trout streams in the region and has some of the highest quality rainbow trout angling in the state.

Access is good from Anderson Ranch Dam downstream 19.3 km (12 mi) to the Danskin Bridge. A county road follows the river in this area. Private property owners limit the access along both sides of the river from Danskin Bridge down-stream about 9.7 km (6 mi) to Trail Creek. From Trail Creek to Neal Bridge (the Arrowrock Reservoir high water mark), the river enters a deep canyon. Access is limited to two "walk-in" areas and to floaters who come down from Danskin Bridge. Float trips through the canyon area are becoming more popular each year. Catch rates on wild trout from 254-432 mm (10-17 in) are high in this section of the river.

OBJECTIVES:

To survey angler use and harvest in the South Fork of the Boise River from Anderson Ranch Dam to Arrowrock Reservoir.

TECHNIQUES USED:

Creel Census

We divided the census area, from Anderson Ranch Dam to Arrowrock Reservoir, into 3 sections (Figure 1).

Area 1: Anderson Ranch Dam to Indian Rock - 9.7 km (6 mi)
Area 2: Indian Rock to Danskin Bridge - 9.7 km (6 mi)
Area 3: Danskin Bridge to Neal Bridge - 24.1 km (15 mi)

Anglers, using Areas 1 and 2, were counted from a car while Area 3 was counted by aircraft because of the limited access. We used a 28-day interval and counted anglers on 50% of the weekend days and 20% of the weekdays in Areas 1 and 2. Sample days were picked randomly. Each sample day was divided into four equal time periods so that the whole daylight period would be sampled. The starting time for the first count on each sample day was chosen randomly and each of the three counts following were an equal amount of time apart, depending on the length of the daylight period. Each count was less than an hour in length.

In Area 3, we flew the area 3 times each month, counting anglers on one Sunday, one Saturday, and one weekday. Because of the inaccessibility of the area, it was assumed that anyone using the area would be there during the middle of the day. Flights were made over the area from 1300 to 1400 hr. An estimate of man-days of use was made from these air counts.

We estimated total hours of angler use in Areas 1 and 2 by expanding the count data. We calculated total fishing hours by the following formulas:

Average anglers per count = Total anglers counted / Number of counts.

Total angler hours in interval = Anglers per count x daylight hours x days in interval.

Weekdays and weekend days were calculated separately and the total added. Holidays were included with the weekend days.

We interviewed anglers between counts and on other days throughout the interval to determine number of hours fished and fish harvested. The harvest estimates were calculated as follows:

Estimate of harvest for interval = estimated total hours fished x the average catch rate (catch/hour) for each species.

In Area 3, no estimate of harvest was made and only catch rate will be included in this report.

Hatchery Releases

During 1974, federal hatchery personnel released 14,500 catchable rain-bow trout into the South Fork of the Boise River between Anderson Ranch Dam and the Cow Creek bridge (Figure 1). Project personnel jaw tagged 5,000 of these trout; 2,500 in the 16 June release and 2,500 in the 15 July release.
Tag recoveries were made during interviews and by mail. An estimate of returns to the creel from this year's plant was made from tags collected during the creel census interviews by use of the formulas below:

Total number of tagged trout caught = estimated total hours fished x tagged trout per hour.

Total estimate of hatchery trout returned to the creel from the 1974 plant =

$$\frac{\text{Estimated number of tagged trout caught}}{\%\text{ of tagged trout in the plant}}$$

We also checked movement of hatchery trout plants from interviews and mail returns.

Water temperatures

We monitored temperatures with recording thermographs at three locations (Anderson Ranch Dam, Danskin Bridge and Neal Bridge) during the spring, summer, and fall (Figure 1). The Neal Bridge thermograph was put in later and taken out earlier because of snow conditions.

FINDINGS:

Whitefish Angler Pressure

Anglers spent an estimated 2,471 hours fishing for whitefish on the South Fork of the Boise River between Anderson Ranch Dam and Danskin Bridge during the whitefish season, 1 December 1973 to 31 March 1974 (Table 1). Pressure was highest in Area 1 during late February and March and in Area 2 during late January and February (Tables 2 and 3). The majority of the anglers turned out on weekends with very few anglers fishing during the week.

Whitefish Angler Harvest Composition

During the 1973-1974 whitefish season, anglers harvested 3,063 whitefish and caught and released 139 rainbow trout. The area was closed to trout angling from 1 December 1973 through 31 March 1974 (Table 1). There was no significant difference in the total whitefish harvested in the two areas. Anglers harvested 1,514 whitefish in Area 1 and 1,549 whitefish in Area 2 (Tables 2 and 3).

Trout Angler Pressure

From 25 May to 30 November 1974 anglers spent an estimated 26,443 hours fishing the South Fork of the Boise River between Anderson Ranch Dam and Dan-skin Bridge (Table 1). Pressure was highest during the last 2 weeks in July and the first 2 weeks of August. Anglers spent an estimated 15,931 hours in Area 1 and 10,512 hours in Area 2 (Tables 1 and 2). Better than 60% of the total angling activity is spent in Area 1. In addition, an estimated 397 man-days were spent angling in Area 3 between 25 May and 13 September 1974 (Table 4). Float boat anglers made up 35.4% of the total man-days' use in Area 3.

Trout Angler Harvest Composition

During the 1974 trout season, anglers harvested an estimated 5,710 wild rainbow trout, 11,832 hatchery catchable trout, 1,727 whitefish, 975 kokanee, 51 Dolly Varden and 31 squawfish from the South Fork of the Boise River between Anderson Ranch Dam and Danskin Bridge (Table 1).

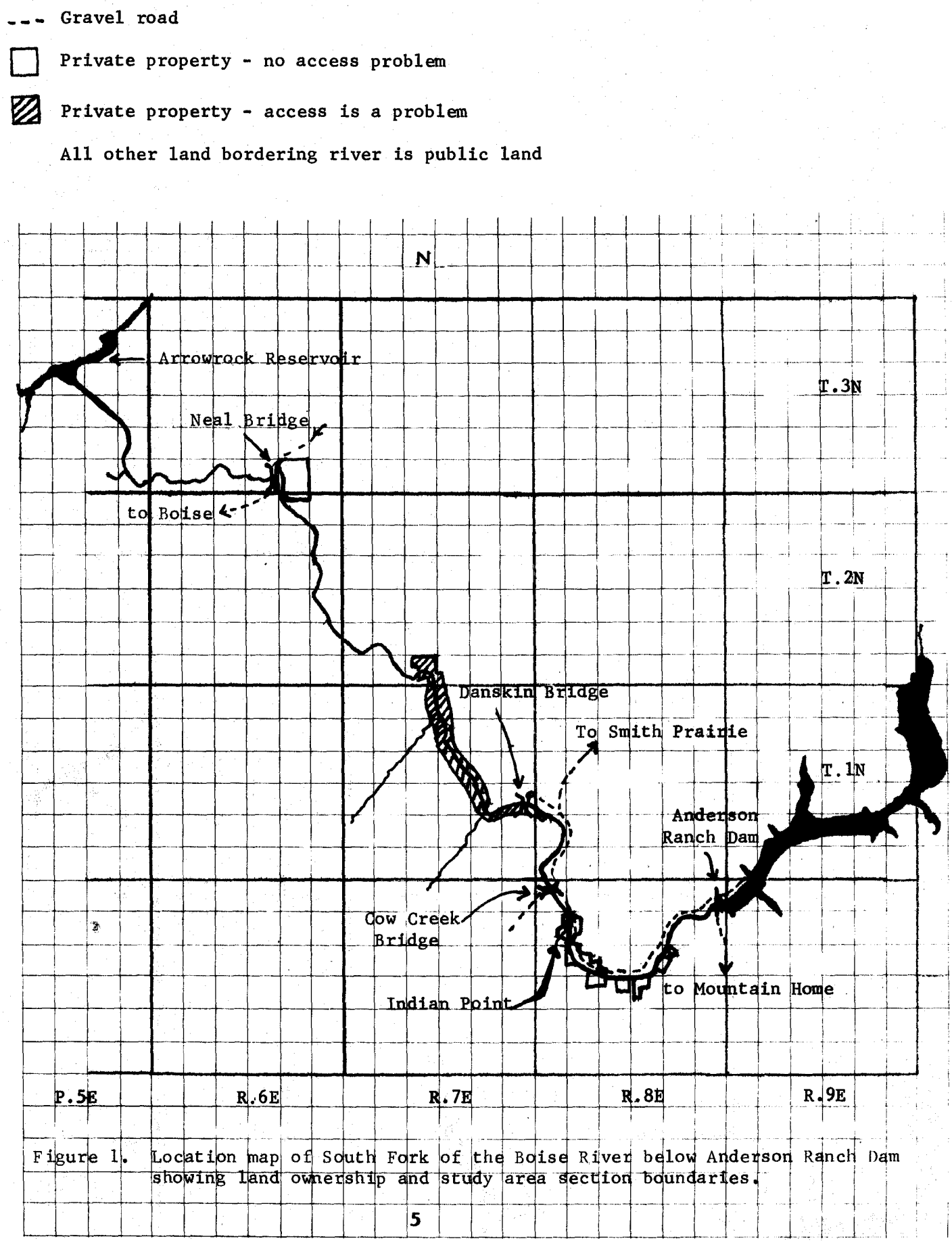

Figure 1. Location map of South Fork of the Boise River below Anderson Ranch Dam showing land ownership and study area section boundaries.

Table 1. Estimates of total hours fished and catch from the South Fork of the Boise River (Anderson Ranch to Danskin Bridge) by 28-day intervals for the period 1 December 1973 to 30 November 1974.

Interval starting date	Estimated total hours fished	Estimated catch [1]/							
		Wrb	Hrb	Wf	DV	Sq	Kok	Released rb	Total
1 December [2]/	46			63				0	63
29 December	36			0				0	0
26 January	1,072			1,172				55	1,227
24 February	852			1,590				70	1,660
24 March	465			238				14	252
Subtotal	2,471			3,063				139	3,202
Season closed 1 April 1974 to 24 May 1974									
25 May	2,920	986	772	193	0	0	6	0	1,957
22 June	5,463	765	2,841	273	16	16	35	164	4,110
20 July	5,800	986	3,306	521	6	11	102	117	5,049
17 August	5,370	1,021	2,525	160	0	0	606	322	4,634
14 September	4,136	1,075	1,240	330	16	4	160	869	3,694
12 October	1,812	472	507	109	9	0	59	127	1,283
9 November [3]/	942	405	641	141	4	0	7	131	1,329
Subtotal	26,443	5,710	11,832	1,727	51	31	975	1,730	22,056
Total	28,914	5,710	11,832	4,790	51	31	975	1,869	25,258
% composition		22.6	46.8	19.0	0.2	0.1	3.9	7.4	100.0

[1]/ Abbreviations utilized in this and following tables:
Wrb -- wild rainbow trout
Hrb -- hatchery rainbow trout
Wf -- whitefish
DV -- Dolly Varden
Kok -- kokanee
Sq -- squawfish
Released Rb -- rainbow trout that have been caught and released

[2]/ Area open to whitefish only 1 December 1973 to 31 March 1974

[3]/ Trout season ended 30 November 1974

Table 2. Estimates of total hours fished and catch from Area 1 (Anderson Ranch Dam to Indian Rock) by 28-day intervals for the period 1 December 1973 to 30 November 1974.

Interval starting date	Estimated total hours fished	Estimated catch							
		Wrb	Hrb	Wf	DV	Sq	Kok	Released Rb	Total
1 December 1/	18							--	0
29 December	12							--	0
26 January	503			336				26	362
24 February	558			1,049				45	1,094
24 March	252			129				8	137
Subtotal	1,343			1,514				79	1,593
Season closed 1 April 1974 to 24 May 1974									
25 May	1,166	257	513	128	--	--	6	--	904
22 June	3,529	494	1,835	176	11	11	35	106	2,668
20 July	3,393	577	1,934	305	3	7	102	68	2,996
17 August	3,365	640	1,582	100	--	--	606	202	3,130
14 September	2,658	691	797	212	11	--	160	558	2,429
12 October	1,176	306	329	71	6	--	59	82	853
9 November 2/	644	277	438	96	3	--	7	90	911
Subtotal	15,931	3,242	7,428	1,088	34	18	975	1,106	13,891
Total	17,274	3,242	7,428	2,602	34	18	975	1,185	15,484
% composition		20.9	48.0	16.8	0.2	0.1	6.3	7.7	100

1/ Area open to whitefish only 1 December 1973 to 31 March 1974

2/ Trout season ended 30 November 1974.

Table 3. Estimates of total hours fished and catch from Area 2 (Indian Rock to Danskin Bridge) by 28-day intervals for the period 1 December 1973 to 30 November 1974.

Interval starting date	Estimated total hours fished	Estimated catch							
		Wrb	Hrb	Wf	DV	Sq	Kok	Released Rb	Total
1 December 1/	28			63					63
29 December	24			--					0
26 January	569			836				29	865
24 February	294			541				25	566
24 March	213			109				6	115
Subtotal	1,128			1,549				60	1,609
Season closed 1 April 1974 to 24 May 1974									
25 May	1,754	729	259	65	--	--	0	--	1,053
22 June	1,934	271	1,006	97	5	5	0	58	1,442
20 July	2,407	409	1,372	216	3	4	0	49	2,053
17 August	2,005	381	943	60	--	--	0	120	1,504
14 September	1,478	384	443	118	5	4	0	311	1,265
12 October	636	166	178	38	3	--	0	45	430
9 November 2/	298	128	203	45	1	--	0	41	418
Subtotal	10,512	2,468	4,404	639	17	13	0	624	8,165
Total	11,640	2,468	4,404	2,188	17	13	0	684	9,774
% composition		25.2	45.1	22.4	0.2	0.1	0.0	7.0	100.0

1/ Area open to whitefish only 1 December 1973 to 31 March 1974

Table 4. Estimates of total man-days fished and catch rates in Area 3 (Dan-skin Bridge to Neal Bridge) by 28-day intervals for the period 25 May to 30 September 1974.

Interval starting date	Estimated man-days fished	Catch rate - fish per hour				
		Wrb	Hrb	Wf	DV	Rb released
25 May	36	.44	.08 1/	.08	0.0	0.0
22 June	137	1.18	0.0	0.0	.04	0.0
20 July	152	1.18	0.0	0.0	0.0	.42
17 August	72	.36	0.0	.06	.04	.34
14 September	No estimate	.55	0.0	.09	0.0	1.64
Total	397	.64	.01	.05	.03	.28

1/ Four hatchery trout were seen in the canyon during Interval I and are assumed to have washed down in the high water. All four looked like recent plants.

Hatchery rainbow trout made up 46.8% of the total harvest while wild rain-bow trout, whitefish, kokanee, and Dolly Varden made up 22.6%, 19.0%, 3.9%, and 0.2% of the catch, respectively (Table 5). Rainbow trout that were caught and released made up an additional 7.4% of the catch. Catch and release fishing is fairly popular with large numbers of fly fishermen in the area. Squawfish, the only rough fish checked in the catch, made up only 0.1% of the catch.

Catch Rates

Catch rates for whitefish were best during February and March (Table 6). During the first two intervals of the whitefish season, the South Fork, below Anderson Ranch Dam, had relatively high flows, making it harder to catch white-fish. From late January through the remainder of the season, the Bureau of Reclamation in cooperation with the Department of Fish and Game request, lowered the flows below Anderson Ranch Dam on weekends and the catch rate increased greatly.

During the trout season census period, catch rates were highest on wild rainbow during the first and last intervals (Table 6). The overall catch rate on all species was highest during November. This can be partially attributed to consistent low flows during the period and that most anglers that fish at this time of year are the better fishermen.

Wild Trout Catch Rates

The catch rate on wild rainbow trout was the highest at flows below 200 cfs (Table 7). When the flow is at this low level, trout are concentrated in the pool areas and are extremely vulnerable to the angler.

Hatchery Trout Releases and Returns

We estimated, from tagged trout seen in the creel, that 8,448 rainbow catchables or 58% of the 1974 plant were harvested during the census period (Table 8). Interview data showed that a significant number of hatchery originated trout were caught from the South Fork Boise River in Areas 1 and 2 before the first release of trout on 17 June 1974. These fish are assumed to be hatchery drift-outs from releases in Anderson Ranch Reservoir or holdover rainbow from previous years' plantings. A holdover percentage should be realized from tag returns during the 1975 trout season. Of the 422 tagged trout checked in the creel, 203 were from the 17 June plant and 219 were from the 15 July plant. This indicates that there is no significant difference in the survival of these trout planted at significantly different flows in the South Fork of the Boise River. The flows during the June plant averaged 2,500 cfs from 17 June to 15 July 1974 while the first 29 days after the 15 July planting averaged 1,375 cfs.

Hatchery Trout Movement

The hatchery trout released in the South Fork of the Boise River between Anderson Ranch Dam and the Cow Creek bridge (approximately 14.5 km (9 mi) down-stream from the dam) moved very little. Tag returns showed no trout movement over . 8 km (.5 mi) below the downstream planting site at Cow Creek.

Table 5. Percent composition of angler catch from the South Fork of the Boise River (Anderson Ranch Dam to Danskin Bridge) by 28-day intervals for the period 1 December 1973 to 30 November 1974.

Interval starting date	Wrb	Hrb	Wf	DV	Sq	Kok	Released Rb
1 December			100.0				0
29 December			0				0
26 January			95.5				4.5
24 February			95.8				4.2
24 March			94.4				5.6
25 May	50.4	39.4	9.9	0.0	0.0	0.3	0.0
22 June	18.6	69.1	6.6	0.4	0.4	0.9	4.0
20 July	19.5	65.6	10.3	0.1	0.2	2.0	2.3
17 August	22.0	54.5	3.5	0.0	0.0	13.1	6.9
14 September	29.2	33.6	8.9	0.4	0.1	4.3	23.5
12 October	36.8	39.5	8.5	0.7	0.0	4.6	9.9
9 November	30.5	48.2	10.6	0.3	0.0	0.5	9.9
Total	22.6	46.8	19.0	0.2	0.1	3.9	7.4

Table 6. Angler catch rates by 28-day intervals in Areas 1 and 2 (Anderson Ranch Dam to Danskin Bridge) 1 December 1973 to 30 November 1974.

Interval starting date	Wrb	Hrb	Wf	DV	Sq	Released Rb	Total
1 December			.38			--	
29 December			--			--	
26 January			1.47			.05	1.52
24 February			1.92			.08	2.00
24 March			.51			.03	.54
25 May	.42	.15	.04				.61
22 June	.14	.52	.05	<.01	<.01	.03	.74
20 July	.17	.57	.09	<.0l	< .01	.02	.85
17 August	.19	.47	.03	--	--	.06	.75
14 September	.26	.30	.08	<.01	<.01	.21	.85
12 October	.26	.28	.06	<.01	--	.07	.67
9 November	.43	.68	.15	<.01		.14	1.40
Total	.21	.38	.19	<.01	<.01	.06	.84

Table 7. Estimated hatchery rainbow trout returns from a plant of 14,500 in the South Fork of the Boise River (Anderson Ranch Dam to Danskin Bridge) by 28-day intervals, 25 May to 30 November 1974.

Interval starting date	Estimated total hours fished	Tagged trout catch rate	Estimated tagged Hrb caught	Estimated 2/ total Hrb caught
25 May	1,754	.05 1/	88	255 4/
22 June	5,463	.15	819	2,374
20 July	5,800	.16 3/	928	2,690
17 August	5,370	.10	537	1,557
14 September	4,136	.06	248	719
12 October	1,812	.10	181	525
9 November	942	.12	113	328
Total	25,277	.12	2,914	8,448 5/

1/ First planting on 17 June 1974 of 7,500 trout
2/ Estimate of hatchery trout caught from those planted in 1974
3/ Second planting on 15 July 1974 of 7,000 trout
4/ Interview catch data showed that 517 hatchery originated rainbow trout were caught before the first 1974 plant during this interval. Hatchery rainbow, either hold overs from previous years plants or drift-outs from plants made in Anderson Ranch Reservoir in early May 1974, made up 30% of the total trout catch before any trout were planted in the South Fork.
5/ Of the 14,500 trout planted in the South Fork of the Boise River during 1974, a return of 58% was realized.

Table 8. Comparison of catch rates at different flows during the trout season (25 May - 30 November 1974) on the South Fork of the Boise River, (Anderson Ranch Dam to Danskin Bridge).

Flow range 1/	Number of days during season at flow	Number of days interviewed at flow	Angler interviews No. hours fished	Catch rate - fish per hour Wrb	Hrb	Released	Rb
1660-4554	42	17	437	.15	.56	0.0	.71
1000-1659	57	21	1,530	.17	.53	.04	.74
700-999	16	6	394.5	.20	.46	.04	.70
400-699	11	5	194	.25	.54	.15	.75
200-399	55	18	791	.28	.34 1/	.11	.73
93-199	9	1	111.5	.41	.23 1/	.61	1.25
Total	190	68	3,458				

1/ Catch rates on hatchery rainbow were lower during low flows because the low flows came late in the summer, more than a month after the last planting.

Water Temperatures

Very little temperature difference was noted immediately below the dam (Figure 2). The largest fluctuation occurred during late September when the flow from the dam was cut down to an average of 96 cfs for 7 days. Water is drawn from approximately 48.8 m (160 ft) below the surface of the reservoir, depending on how full the reservoir is, therefore, giving temperatures during the summer that rarely exceed 10 C (50 F).

Water temperatures fluctuate more during the summer months at Danskin Bridge, 19.3 km (12 mi) below Anderson Ranch, and at Neal Bridge, 43.5 km (27 mi) below Anderson Ranch, than at the area immediately below the dam. During the week starting 22 June, the maximum average temperature for the week was 16 C (60.8 F) at Neal Bridge. This temperature is far below the stress limit on rainbow trout. The temperature range from 7C (44.6 F) to 16 C (60.8 F) during the summer and early fall is well within the extremes for good trout growth and production (Lagler 1952).

LITERATURE CITED:

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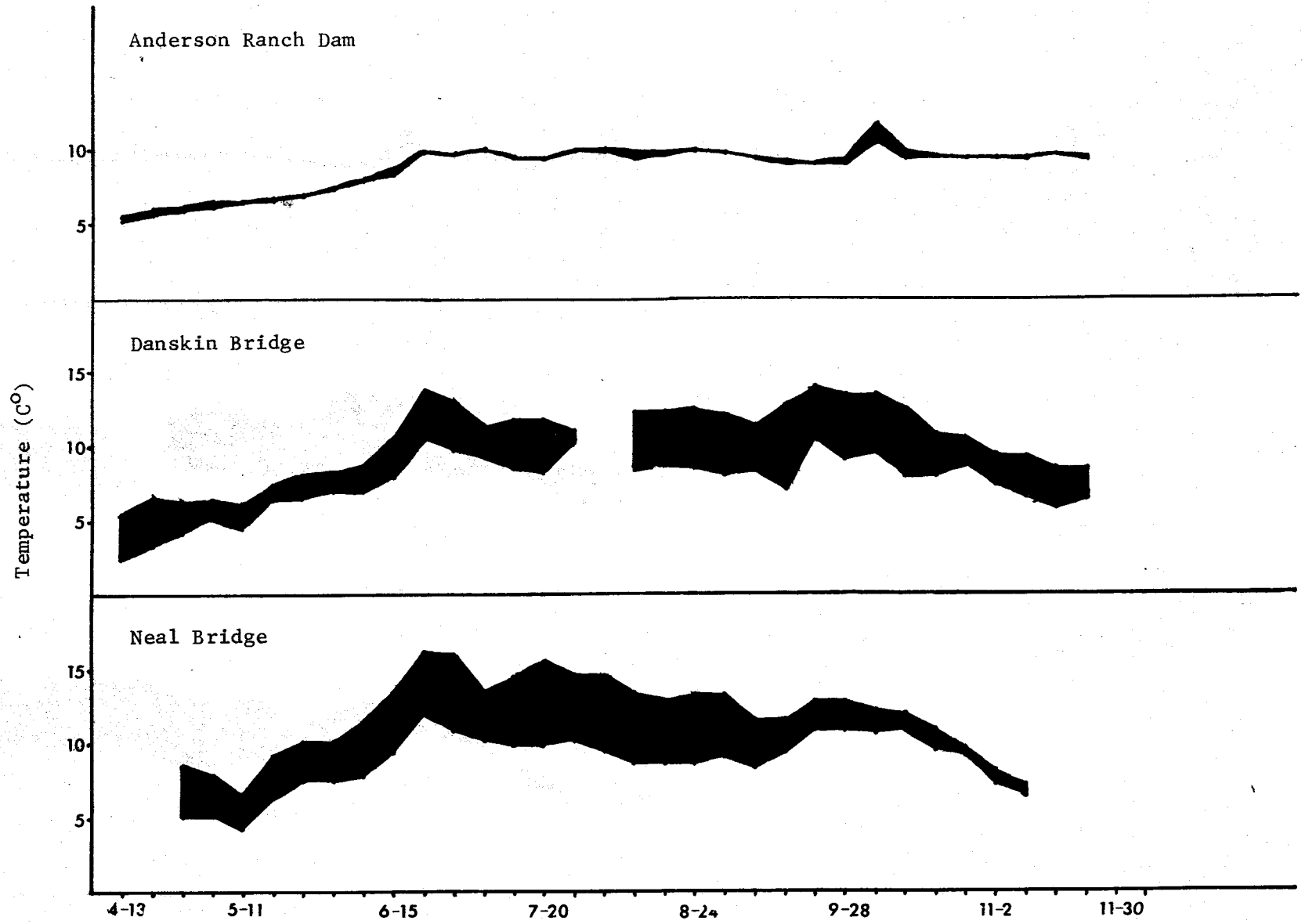

Figure 2. Mean weekly maximum and minimum temperatures on the South Fork of the Boise River at three locations, 13 April to 30 November 1974.

JOB PERFORMANCE REPORT

State of	Idaho	Name:	LAKE AND RESERVOIR INVESTIGATIONS
Project No.	F-53-R-10	Title:	Survey of Fish Populations in the South Fork of the Boise River from Anderson Ranch Dam to Arrowrock Reservoir
Job No.	III-f		

Period Covered: 1 March 1974 to 28 February 1975

ABSTRACT:

Limited age and growth studies on the South Fork of the Boise River below Anderson Ranch Dam indicate acceptable growth for both whitefish and rainbow trout. Whitefish grow from 85.4 mm (3.4 in) at the end of their first year of life to 387 mm (15.2 in) average at age 5. Wild rainbow grow from 88.7 mm (3.5 in) at the end of their first year of life to 383 mm (15.1 in) average at age 4.

Over 387 of the total wild trout catch below Anderson Ranch Dam are over. 300 mm (11.8 in) in length.

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RECOMMENDATIONS:

Minimum flows should never go below 250 cfs in order to keep major insect production areas covered at all times.

OBJECTIVES:

To survey fish populations in the South Fork of the Boise River from Anderson Ranch Dam to Arrowrock Reservoir.

TECHNIQUES USED:

Age and Growth

We measured angler-caught whitefish and wild rainbow trout to get length frequencies of each species and collected scales from them for growth and age structure determinations.

Electrofishing

Unsuccessful attempts were made to electrofish during periods when the flow would allow it.

Scale Analysis

Scales taken from a limited number of wild rainbow trout and whitefish were analyzed by the use of a Ken-A-Vision micro-projector. Scales were measured from the focus to each annulus so lengths at each age could be back-calculated by a direct-proportion method, where the length at each year of life is directly proportional to the distance from the focus to each annulus on the scale. A percentage of the distance measured to each annulus divided by the total distance from the focus to the anterior edge of the scale was calculated. The percentage figure for each annulus on a particular scale was multiplied by the total length of that fish to get the length at the end of each year.

FINDINGS :

Whitefish Age and Growth

Length frequencies taken during January, February, and March indicated that whitefish taken in the creel averaged 21.4 mm (.8 in) longer in total length in March than in January (Figure 1). This also indicates a slow growth rate during the winter months which is to be expected. Back calculation of length from scales of 17 selected whitefish taken in the catch indicate good whitefish growth each year on the South Fork of the Boise River between Anderson Ranch Dam and Danskin Bridge (Table 1). The whitefish in this section average 85.4 mm (3.4 in), 202.8 mm (8.0 in), 263.0 (10.4 in), 338.3 mm (13.3 in) and 387.0 mm (15.2 in) at ages one through five, respectively.

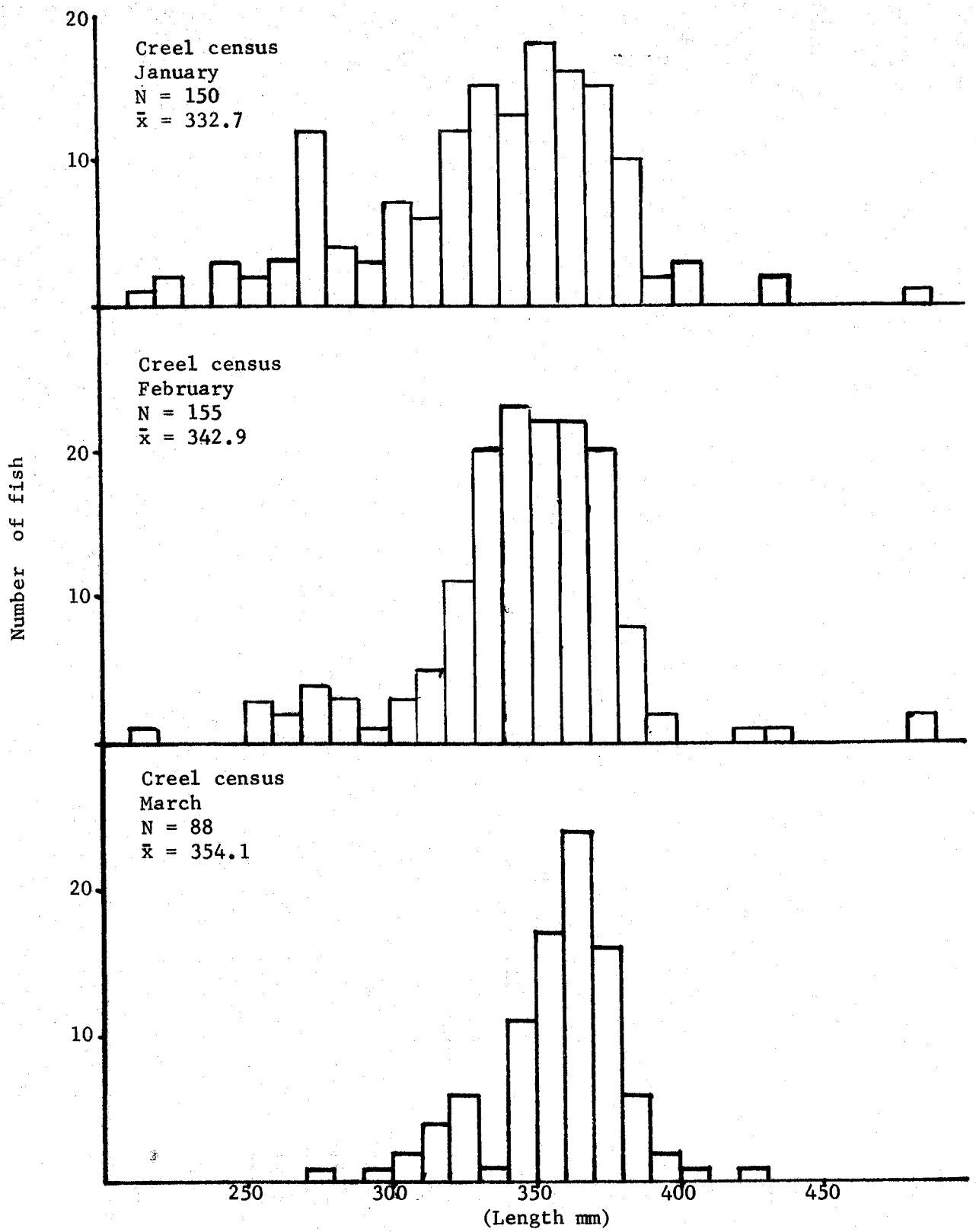

Figure 1. Length frequencies of whitefish caught by anglers from the South Fork of the Boise River (Anderson Ranch Dam to Danskin Bridge) January to March, 1974.

Table 1. Summary of the mean calculated total length and increments of growth for mountain white-fish collected from the South Fork of the Boise River below Anderson Ranch Dam, February 1974.

Age groups	Number	Calculated total length (mm) at each year of life					Mean length at capture (mm)
		1	2	3	4	5	
0	0						
I	0						
II	8	92	211				265
III	6	71	219	253			338
IV	2	109	220	290	338		363
V	1	89	196	281	340	387	425
Mean	17	85.4	202.8	263.0	338.3	387	
Increment of growth		85.4 3.4	117.4 8.0	60.2 10.5	75.3 13.3	48.7	
Equivalent total length in inches						15.2	

Wild Rainbow Trout Age and Growth

Length frequencies taken throughout the trout season from creel checks show no definite growth patterns (Figure 2). Average lengths of trout caught each month only vary 50 mm (2.0 in) throughout the season.

A total length frequency for the season is described in Figure 3. Over 38% of the wild trout caught in the South Fork, between Anderson Ranch Dam and Danskin Bridge, are over 300.0 mm (11.8 in) and 16% are over 350.0 mm (13.8 in). This is a good indication of the high quality trout angling found in the accessible section of the river.

Back calculation of length from scales of 39 selected wild rainbow taken from the South Fork below Anderson Ranch Dam indicates acceptable growth through 4 years of life (Table 2). Very little difference in growth rate is shown between the in-accessible canyon section and the accessible roaded section between the dam and Danskin Bridge (Tables 2 and 3). In the first 4 years of life, trout in the accessible section averaged 88.7 mm (3.5 in), 185.6 mm (7.3 in), 281.8 mm (11.1 in), and 383.0 mm (15. 1 in), respectively. Trout caught from the canyon sections averaged 96.3 mm (3.8 in), 189.0 mm (7.4 in) , 286.5 mm (11.3 in), and 356.0 mm (14.0 in) for ages one through four, respectively. It is my opinion that trout growth is adequate in the South Fork below Anderson Ranch Dam, but could be improved with higher minimum flows to increase wetted bottom areas for food production.

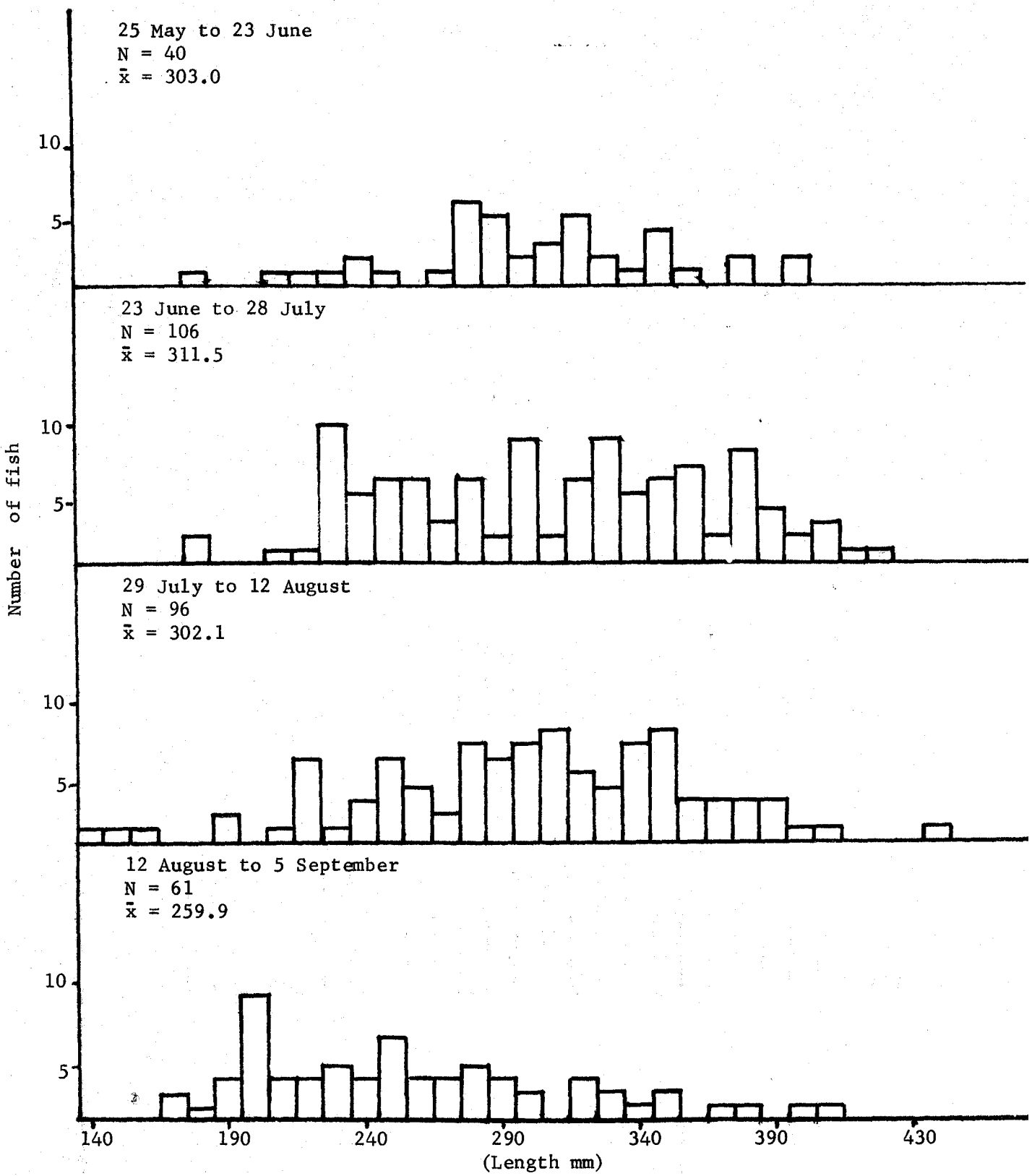

Figure 2. Length frequencies of wild rainbow trout caught by anglers from the South Fork of the Boise River (Anderson Ranch Dam to Danskin Bridge) by interval, May to November, 1974.

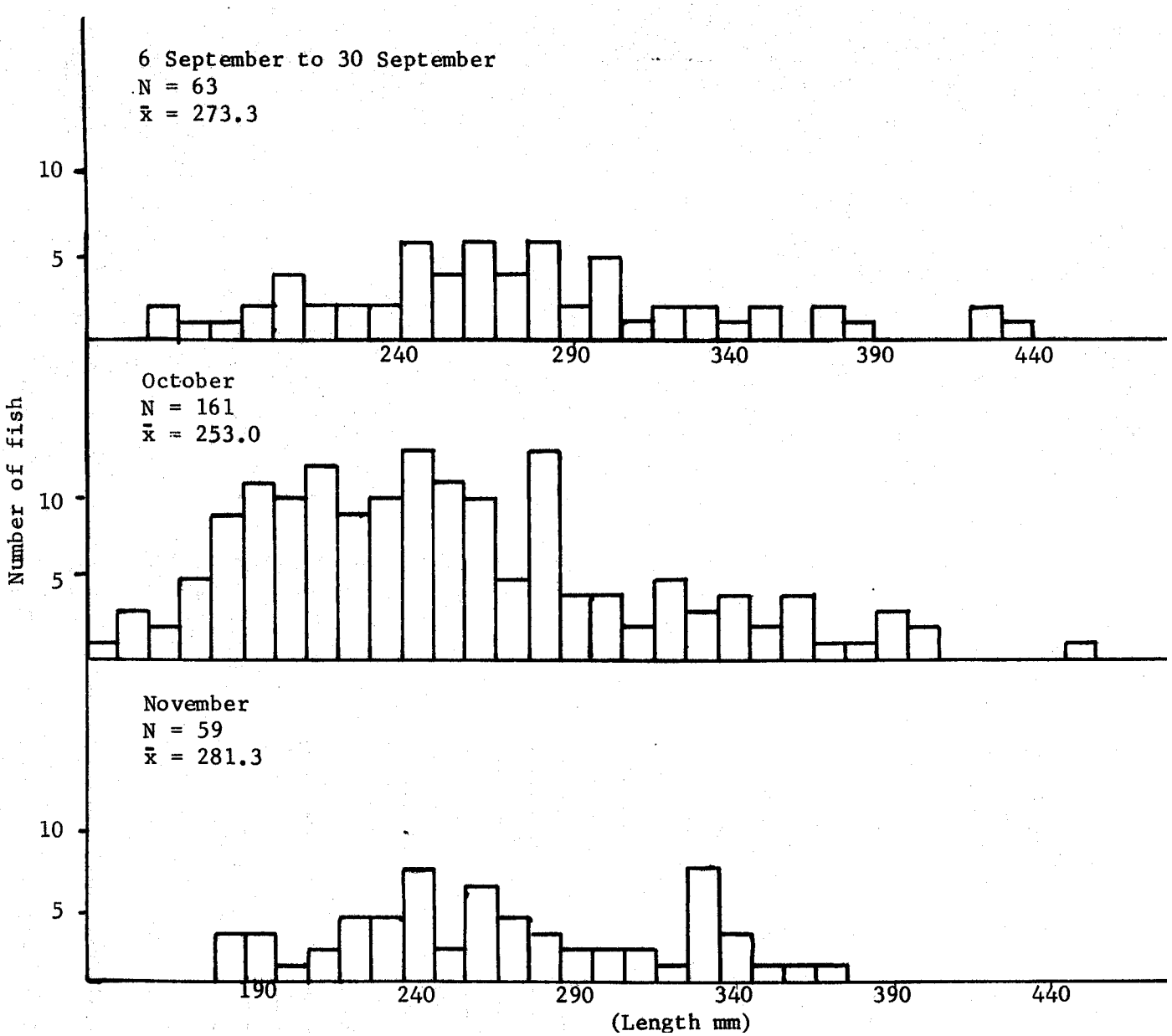

Figure 2 (Continued). Length frequencies of wild rainbow trout caught by anglers from the South Fork of the Boise River (Anderson Ranch Dam to Danskin Bridge) by interval, May to November, 1974.

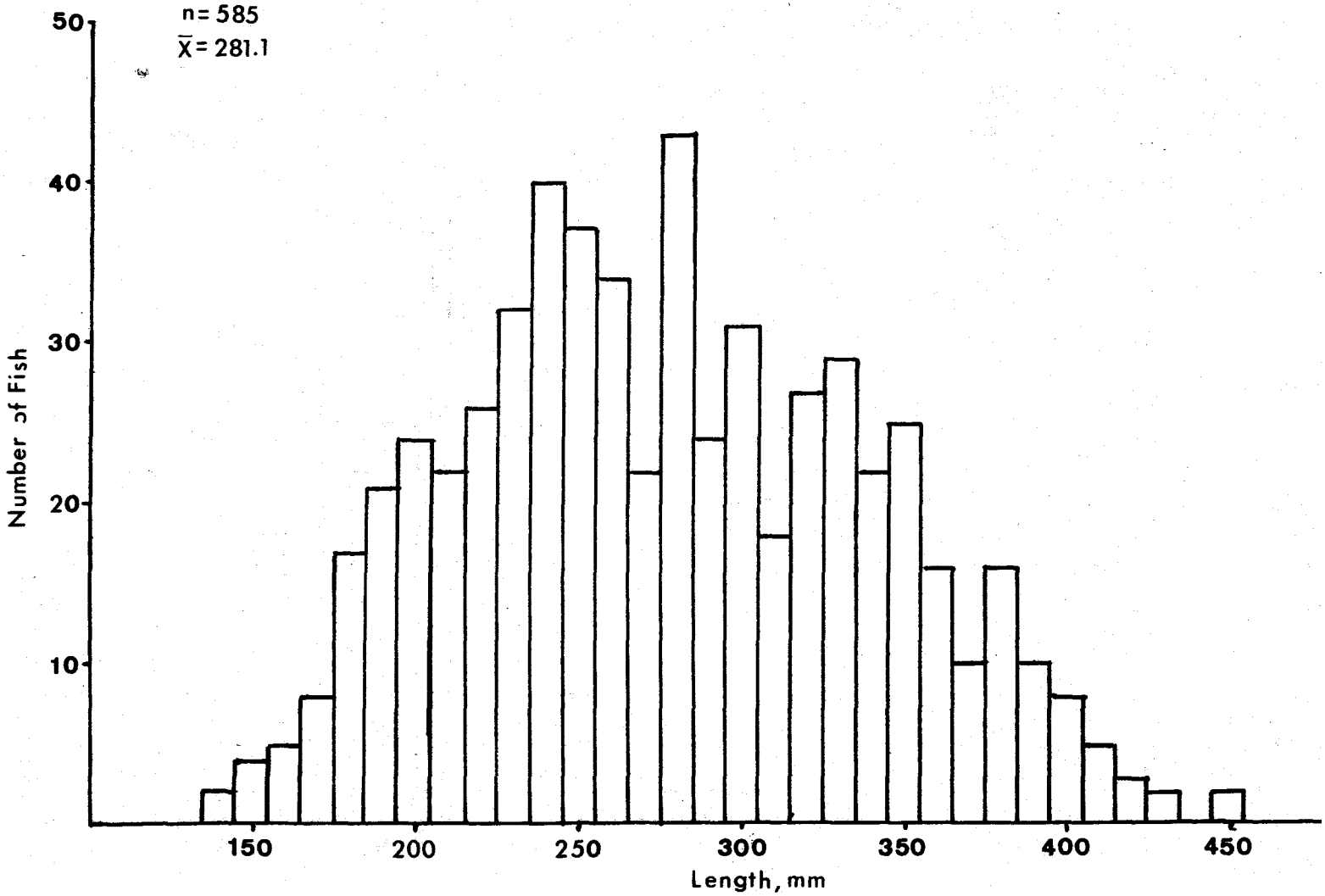

Figure 3. Length frequency of all wild rainbow trout measured from the South Fork of the Boise River (Anderson Ranch Dam to Danskin Bridge) May to November, 1974.

Table 2. Summary of the mean calculated total lengths and increments of growth for wild rain-bow trout collected from the South Fork of the Boise River below Anderson Ranch Dam, 1974 (Anderson Ranch Dam to Danskin Bridge).

Age groups	Number 1/	Calculated total lengths (mm) at each year of life				Mean length at capture (mm)
		1	2	3	4	
0	0					
I	6	89				211
II	6	95	190			258
III	7	83	177	303		337
IV	7	89	171	260	383	409
Mean	26	88.7	185.6	281.8	383.0	
Increment of growth		88.7	96.9	96.2	101.2	
		3.5	7.3	11.1	15.1	
Equivalent total length in inches						

1/ Trout scales were collected at different times of the summer and fall, June through October.

Table 3. Summary of the mean calculated total lengths and increments of growth for wild rain-bow trout collected from the South Fork of the Boise River below Anderson Ranch Dam, 1974 (Danskin Bridge to Neal Bridge).

Age groups	Number	Calculated total lengths (mm) at each year of life				Mean length at capture (mm)
		1	2	3	4	
0	0					
I	0					
II	7	91	199			251
III	4	111	200	283		316
IV	2	86	181	293	356	373
Mean	13	96.3	189.0	286.5	356.0	
Increment of growth		96.3	92.7	97.5	69.5	
		3.8	7.4	11.3	14.0	
Equivalent total length in inches						

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