FLAMING GORGE RESERVOIR AND GREEN RIVER

POST-IMPOUNDMENT INVESTIGATIONS

Annual Progress Report
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ANNUAL PERFORMANCE REPORT

State: U T A H

Project No: F-28-R-3

Job No: 1

Project Title: Colorado Rive Drainage and Tailwaters Fisheries Management, Investigation and Surveys

Job Title: Fish Harvest, Fish Population

Period Covered: July 1, 1973 to February 24, 1975

P. S. Objective: To determine the magnitude and nature of the harvest, the trends of the fish populations and their dynamics, food utilization by resident fishes and changes in the aquatic habitat.

FLAMING GORGE RESERVOIR

Segment Objective: 1. To determine the magnitude and nature of the annual fish harvest.

Flaming Gorge National Recreation area experienced a decrease in visitor use during 1974. Estimated visitor use for 1974 was 652,800 visitor days (one visitor day equals 12 hours), 8.7 percent below the 1973 figure (U.S. Forest Service, unpublished data). Economic instability and increases in fuel costs are believed to be the basic causes of the decline. Although the numbers of fishermen decreased, their length of stay increased creating an overall increase in angler use. The mean fisherman length of stay in the National Recreation Area increased from 1.9 days in 1973 to 2.5 days in 1974. The length of the fishing day varied between census areas but the overall mean fisherman day was 4.0 hours.

Traffic classification and use expansion factors were determined by roadblocks and traffic counters on major acess roads. Area pressure, angler days, hours and harvest were determined from data collected during angler interviews. The catch rate decreased from the 0.57 fish per hour rate recorded for 1973 to 0.49 fish per hour in 1974, but angler use increased 23.3 percent to provide an estimated harvest of 799.137 trout, a 3.0 percent increase over 1973. Creel data for the past 11 years are summarized in Table II.

Reasons for the decrease in catch rate are difficult to ascertain. The major decline in catch rate occured after the ice went out. Catch rate during the ice fishing season (January - March) was an excellent 0.96 fish per hour but decreased markedly to 0.44 fish per hour during April. Catch rate slowly increased during summer and fall. Poor spring and early summer weather conditions may have been a factor.

Table I. 1974 Flaming Gorge Reservoir creel census summary with 1973 figures in parentheses. Percentages indicate change over 1973.

Area	Angler Days	Angler Hours	Fish/Hour	Harvest
Canyon	114,483 +22.5% (93,462)	413,710 +11.6% (370,645)	0.51 (0.77)	209,833 -26.2% (284,431)
Open Hills	252,068 +27.7% (197,423)	1,049,472 +24.9% (839,924)	0.50 (0.52)	521,368 +19.9% (434,698)
Inflow	49,794 +32.2% (37,658)	205,763 +44.2% (142,658)	0.33 (0.40)	67,936 +19.6% (56,815)
Total	416,345 +26.7% (328,543)	1,668,944 +23.3% (1,353,277)	0.49 (0.57)	799,137 + 3.0% (775,944)

Boat - Shore Fishing Relationship

Boat	256,781 +25.4% (204,689)	1,060,553 +20.8% (877,764)	0.53 (0.63)	561,123 +1.2% (554,388)
Shore	159,564 +28.8% (123,854)	608,391 +28.0% (475,463)	0.39 (0.47)	238,014 +7.4% (221,556)

Fish/hour by Area and Boat - Shore

	Canyon	Open Hills	Inflow
Boat	0.55 (0.82)	0.56 (0.56)	0.32 (0.46)
Shore	0.44 (0.67)	0.38 (0.41)	0.35 (0.33)

Table II. Harvest statistics for rainbow trout, Flaming Gorge Reservoir, 1964-1974.

Year	Total Harvest	Catch Rate	Total Hours	Total Anglers
1964	676,686	1.23	549,437	167,300
1965	800,657	1.28	623,761	191,619
1966	793,665	0.78	1,010,599	266,473
1967	710,000	0.62	1,151,000	306,000
1968	537,500	0.58	921,000	254,300
1969	540,000	0.56	958,000	257,900
1970	367,463	0.44	833,466	231,695
1971	282,401	0.40	714,648	190,702
1972	646,900	0.60	1,072,865	270,370
1973	775,944	0.57	1,353,227	328,453
1974	799,137	0.49	1,660,944	416,345

The reservoir (Figure 1) filled to capacity (1841 m, 6040 ft. msl) during 1974 creating expanded, productive fishing areas. Mean size of creeled fish was 323 mm (12.7 in.) and 389 gm (0.86 lb.). Trout over ten pounds were relatively common with an occasional 20 lb. trophy taken. Three "lunker" brown trout, (25 lbs., 29 lbs., 8 oz., and 31 lbs., 12 oz.) were taken from Falming Gorge during 1974 and early 1975. Rainbow trout dominated the catch comprising 97.1 percent while brown trout accounted for 1.9 percent and cutthroat, lake trout, Utah chub, carp, and a few smallmouth and largemouth bass comprised the remaining 1.0 percent. Most brown trout were taken during the fall when they represented up to 7.0 percent of the creel.

Segment Objective: 2. Determine the size, composition, and trends of fish populations and define movements and reproduction.

To continue assessment of population trends in the reservoir, experimental gill nets were set in April, August, and November of 1974. Utah chub continued to be the most numerous species netted (Table III). Catches of rainbow and brown trout were similar to previous years. White suckers appear to be increasing in all areas of the reservoir.

In addition to experimental gill nets, a purse seine, sampling about one surface acre (0.405 hectare) was used by Wyoming Game and Fish personnel in June, 1974, to sample the pelagic fish populations in all areas of the reservoir. These data confirmed that rainbow trout standing crops have declined and brown trout populations increased up-reservoir. The experimental gill netting also indicated that rainbow trout populations in the inflow area are low but are of a larger size than elsewhere in the reservoir.

The purse seine data indicated that Utah chub were the most numerous species in the inflow and open areas. Chub poundage per surface acre in these two areas was greater than for all other species combined. Rainbow trout continue to be the dominant fish in the canyon environment.

No Utah chubs under 200 mm total length were taken during the purse seine operations indicating close correlation with gill nets set in mid-reservoir. During special work in 1971 to establish the location of the larger Utah chubs, experimental gill nets were set in water 9.1 - 10.7 m (30 - 35 ft.) deep. The chub catch averaged about 230 mm in total length; average length of chubs from the purse seine was 246 mm.

Data from purse seine activities (Table IV) indicated low standing crops of brown trout in pelagic waters. Creel data and gill netting information support this observation.

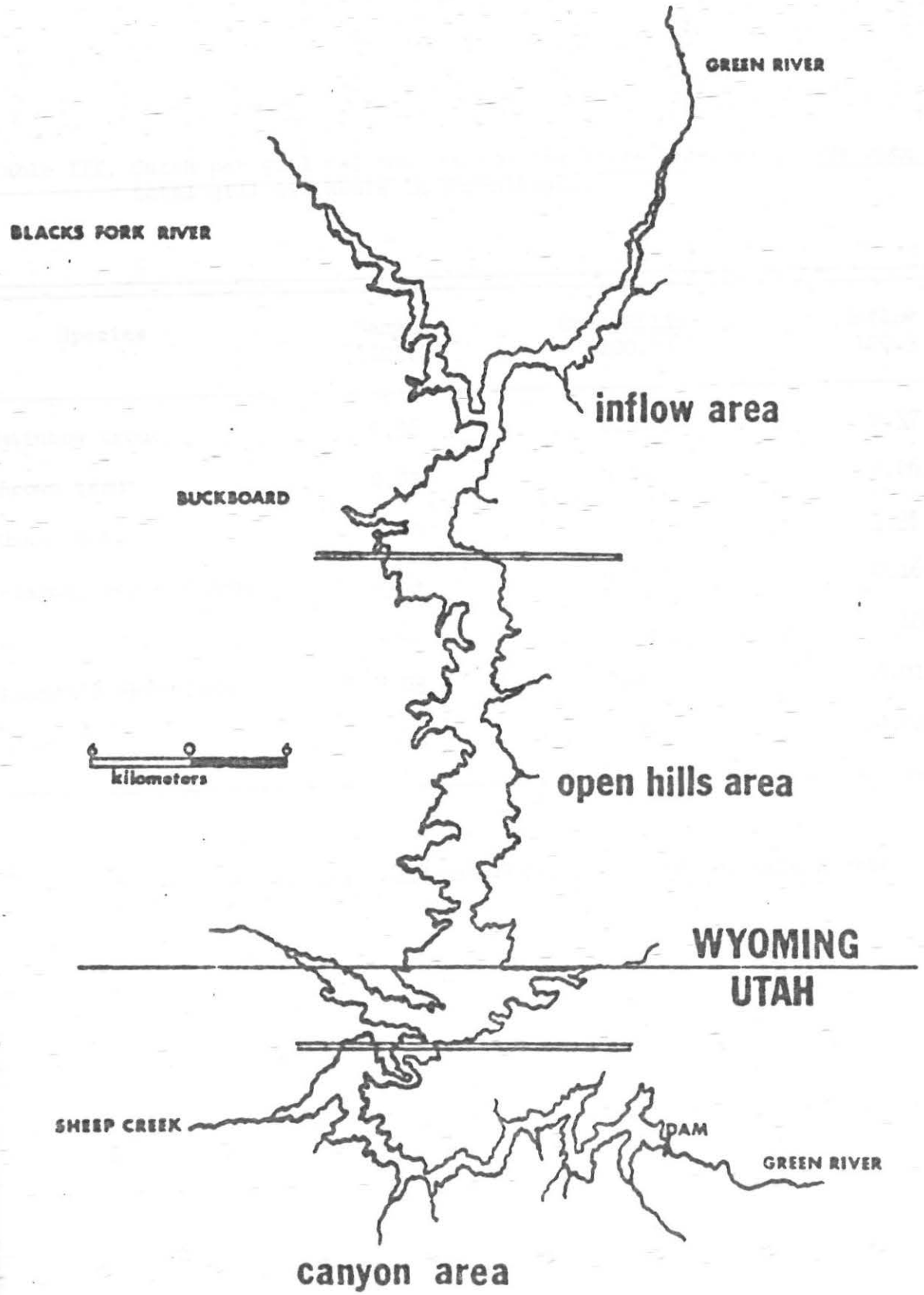

FIGURE 1 FLAMING GORGE RESERVOIR

Table III. Catch per gill net hour at Flaming Gorge Reservoir, 1974 with total gill net hours in parentheses.

Species	Canyon (123.0)	Open Hills (100.8)	Inflow (120.3)
Rainbow trout	0.56	0.37	0.37
Brown trout	0.03	0.09	0.26
Utah chub	3.20	2.42	3.35
Flannel mouth sucker	0.24	0.31	0.16
White sucker	0.65	0.39	1.18
Mountain whitefish	0.03	0.08	0.01
Other [1]	0.01	0.02	0.01

[1] Includes cutthroat trout, roundtail chub, carp, and mountain sucker.

Table IV. Summary of purse seining statistics, Flaming Gorge Reservoir, 1974.

Species	Number per surface acre				Average length of fish(mm)				Pounds per surface acre			
	Canyon	Open	Inflow	Total	Canyon	Open	Inflow	Mean	Canyon	Open	Inflow	Mean
Rainbow	28.1	12.0	2.3	12.2	282	334	370	330	13.8	10.3	2.7	8.3
Brown		0.3	0.8	0.4		379	297	274		0.6	0.5	0.3
Cutthroat	0.1	0.1		0.1	317	331		324	0.1	0.1		t
Mackinaw		0.1		t		443				0.2		t
Whitefish	0.1			t	362			362				t
Utah chub	14.1	46.1	14.4	27.1	237	243	262	246	5.9	18.1	7.5	11.1
Flannelmouth			0.1	t			450	450			0.2	0.1

t - Represents figures less than 0.1.

Most of the brown trout harvested are apparently taken in near-shore waters. Gill netting in 1973 in deep waters in the inflow area indicated that brown trout could be taken by fishing deeply during the summer. One net set at Sage Creek took 30 brown trout ranging in weight from 2.3 to 5.5 kg (5 to 12 pounds).

Stocking of Flaming Gorge Reservoir contined during 1974 (Table V.). Advanced fingerling trout (127 mm TL) stocked from March through June comprised virtually all of the 2,717,249 fishes planted. Stocking rates were 60 rainbow and 13 brown trout per acre. Rainbow trout were stocked primarily in the canyon and open hills areas while brown trout were stocked in the inflow area. Stocking methods included planting barges to facilitate dispersal and direct plants at boat ramps and other access points. Distribution rates by area were canyon, 13.8 percent; open hills, 66.0 percent; and inflow, 20.2 percent. A total of 104,779 pounds of trout were stocked during 1974.

Threadfin shad were stocked as eggs during 1974 in a manner similar to past years (Starostka, Nielson, and Stone, 1974). Approximately nine million eggs were transferred from Lake Powell to Flaming Gorge. Water temperatures at Flaming Gorge were much cooler (10° C, 49° F) than optimum (21° C, 70° F). Survival of these eggs was doubtful.

No largemouth bass were stocked in 1974.

Segment Objective:

3. Determine the status of fish food supplies and their utilization by fish.

Rainbow and brown trout continue to exhibit similar feeding preferences to those described in previous years (Wiley, 1969). Primary foods of smaller rainbow trout are zooplankton and aquatic insects (Table VI). Fish are utilized extensively by rainbow trout over 330 mm (13 in.). Utah chub and mottled sculpin were the dominant fish identified in rainbow stomachs.

Fish continued to be the primary food item of brown trout over 203 mm (8 in.) TL (Table VII). Of the identifiable fish remains, Utah chub were most common but trout remains were more prevalent in stomachs after stocking. Aquatic insects and zooplankton followed fish in frequency of occurrence in the stomachs of brown trout.

Growth of rainbow trout randomly sampled from the creel continues to be excellent (Table VIII). Rainbow trout growth during the period 1969 through 1973 is very similar to the 1963 - 1969 period (Varley, 1971). Growth continues to be most rapid in the shallow, relatively eutrophic, inflow area and slowest in the deep, oligotrophic canyon area. Mean condition factors (total length) ranged from 1.01 in the canyon to 1.03 in the inflow.

Table V. Fish stocking summary by species and agency for Flaming Gorge Reservoir, 1974.

Agency	Species	No. Planted	Lbs. Planted	No./lb.
F & WS[1]	RBT[2]	1,150,088	39,946	25.9
Utah	RBT	521,854	24,819	21.0
Wyoming	RBT	495,326	16,868	29.4
Total	RBT	2,167,268	81,633	25.1
F & WS	BNT[3]	262,381	12,494	21.0
Wyoming	BNT	287,600	10,652	27.0
Total	BNT	549,981	23,146	23.8
Utah	TFS[4]	Estimated nine million eggs		

1. Fish and Wildlife Service, Jones Hole National Fish Hatchery
2. Rainbow trout.
3. Brown trout.
4. Threadfin shad.

Table VI. Percent occurrence of food items by size group in the stomachs of rainbow trout in Flaming Gorge Reservoir, 1974.

Food Item	Total Length 200	201-250	251-300	301-350	351-400	401-450	451-500	501-550	551-600	601-650	700
Organic debris	60.0	50.0	52.9	81.0	50.0	25.0	50.0				
Zooplankton	80.0	77.8	70.6	42.9	41.7	25.0					
Aquatic Insects	20.0	9.7	11.8	33.3	16.7			100.0			
Fish		11.8	9.5	8.3	50.0	50.0			100.0	100.0	100.0
Mollusc		1.4	5.9	4.8							
Sample Size	5	72	17	21	12	4	2	1	1	1	1

Table VII. Percent occurrence of food items by size group in the stomachs of brown trout, Flaming Gorge Reservoir, 1974.

Item	Total Length 251-300	301-350	351-400	401-450	451-500	501-550	551-600	601-650	700
Organic debris	42.9	26.7				9.1			
Zooplankton	28.6	20.0	50.0						
Aquatic Insects	14.3	33.3							
Terrestrial Insects	14.3								
Fish	28.6		50.0	100.0	100.0	100.0	100.0	100.0	100.0
Molluscs		33.3							
Sample Size	7	15	2	3	4	11	4	4	3

Table VIII. Mean back-calculated total length of rainbow trout by area, Flaming Gorge Reservoir.

CANYON AREA

Year Class	Sample Size	Mean calculated T.L. (mm) at each annulus 1	2	3	4
1972	198	246			
1971	305	233	347		
1970	331	241	323	540	
1969	366	246	333	394*	
Mean calculated total length		242	334	467	
No. of trout		997	392	10	

OPEN HILLS

1972	186	264			
1971	139	278	350		
1970	220	272	373	392	
1969	423	273	356	466	484
Mean calculated total length		272	360	429	484
No. of trout		1898	545	33	2

INFLOW

1972	179	281			
1971	113	263	364		
1970	92	280	402	399	
1969	251	276	407	433	
Mean calculated total length		275	391	416	
No. of trout		518	121	6	

Table IX. Mean back-calculated total length of brown trout, Flaming Gorge Reservoir.

Year Class	Sample Size	Mean calculated T.L. (mm) at each annulus 1	2	3	4
1972	22	206			
1971	15	302	346		
1970	29	281	398	453	
1969	118	284	336	458	563
Mean calculated total length		268	360	456	563
No. of trout		184	52	20	6

Brown trout continued to exhibit rapid growth through 1972 (Table IX), similar to the 1964 - 1971 mean reported by Varley (1971). Condition factors (total length) ranged from 1.00 to 1.02 reservoir wide.

GREEN RIVER

Segment Objective: 4. Determine the magnitude and nature of the annual fish havest.

During 1974 creel clerks censused 8.2 percent of the estimated use and examined 5.9 percent of the estimated harvest. Analysis of these data indicates that angler use and effort decreased below 1973 levels by 5.0 percent and 19.6 percent, respectively, to the lowest levels since 1966 (Table X). An estimated total of 16,731 angler days and 56,757 angler hours were expended in harvesting 36,117 trout. The creel rate increased substantially from 0.39 to 0.64 fish per hour, resulting in a 23.4 percent increase in the total harvest over 1973 (Table X). This improved creel rate appeared to be due, in part, to both lower daily flows on the river and a reduced sediment discharge from Red Creek during the fishing season. Concurrently the catch rate, which includes both trout returned to the water and those creeled, increased from 0.81 to 0.96 fish per hour (Table XII). During 1974 the average angler released one trout for every two creeled.

The average size trout harvested decreased from 356 mm (14.0 in.) and 499 g (1.1 lbs.) in 1973 to 284 mm (11.2 in.) in 1974, the smallest average size since 1965 (Table X). To compare annual trends, measurements of rainbow trout harvested since 1967 were arbitrarily grouped into three size classes: less than 12 inches, 12 to 16 inches, and over 16 inches (Table XIII). During 1974 fish larger than 16 inches constituted only 4.9 percent of the harvest, while fish less than 12 inches comprised 70.8 percent. Such a substantial reduction in average size may have been related to a significant population change, or a reduction in the acceptable size of fish harvested by the average angler.

Angler use by raft and combination raft-shore fishermen has increased substantially since 1967. During 1974, 3.0 percent of the total angler days were expended by raft-associated anglers (Table XIV). Use by non-angling rafts has also increased since 1967. During 1974 56.1 percent of the rafts included floaters seeking other recreational activities besides angling. The demands for raft-associated recreation has increased yearly since 1970. During 1974 total raft traffic increased 32.1 percent over the 1973 level, to an estimated 9,014 rafts (Table XV).

Table X. Summary of fishery statistics for the Green River, 1964-1974.

Category	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Total											
Angler Days	2,900	8,200	11,900	27,800	34,900	25,600	29,450	16,867	23,866	17,609	16,731
Angler Hours	8,900	21,300	39,400	124,400	124,500	79,300	109,630	59,302	92,150	70,565	56,757
Trout Harvest	8,100	17,000	39,200	71,200	62,400	21,300	43,400	22,420	50,365	27,671	36,117
Creel Rate	0.91	0.79	0.74	0.57	0.50	0.27	0.39	0.38	0.55	0.39	0.64
Catch Rate	--	--	--	--	--	0.32	0.58	0.59	0.99	0.81	0.96
Ave. Size Trout Creeled (inches)	10.2	10.7	12.5	13.4	13.6	15.2	11.6	12.3	12.6	14.0	11.2
Ave. Wt. Trout Creeled (Lbs.)	0.50	0.57	0.84	1.01	1.07	1.40	0.70	0.81	0.92	1.11	0.67
Total Lbs. Yield	4,050	9,690	32,928	71,912	66,768	29,820	30,380	18,160	46,336	30,715	24,198
Lbs. Yield/S. A.*	5.5	13.2	44.8	97.8	90.8	40.6	41.3	24.7	62.9	41.8	32.9
No. Yield/S. A.	11	24	53	97	85	29	59	30	69	37	49
Angler Hrs./S. A.	13	29	53	169	169	108	149	81	125	97	77
Angler Days/S. A.	4	11	16	38	47	35	41	23	32	24	23

*Based on an estimated 735 acres in the Utah portion of the Tailwaters.

able XI. A history of the stocking and marking of fishes in the Flaming Gorge-Green River Tailwaters, 1963-1974.

ecies Stocked	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
inbow Fingerlings	42,961	134,518	423,341	99,200	161,000	503,000	586,000	851,977	--	--	--	--
inbow Adv. Fingerlings	--	--	--	--	--	--	--	--	--	244,680	375,305[10]	313,628[10]
inbow Subcatchable		--	--	--	--	--	--	--	301,295	--	--	--
inbow Catchable	18,900	7,530	18,800	--	800[4]	--	--	28,162	19,834[7]	22,970	34,997	25,923
own Fingerling	--	--	19,000	--	18,800	--	--	--	--	--	--	--
tthroat Fingerling[1]	--	--	--	--	--	--	--	76,000	--	--	--	--
tthroat Fingerling[3]	--	--	--	--	--	--	--	--	10,000[6]	40,267	79,058	249,782
tthroat Brood Stock[1]	--	--	--	--	1,479[2]	5,135[2]	4,595[2]	1,812	1,580	--	--	--
ook Fingerling	--	--	--	--	--	--	--	23,000	64,566[9]	--	--	--
ook Catchable	--	--	--	--	--	--	--	--	288	--	--	--
ayling Fingerling	--	--	--	--	--	--	--	46,700	37,100	--	--	--
ayling Catchables	--	--	--	--	--	--	--	--	955	--	--	--
ocking Density:[11]												
ngerling/Acre(lbs./acre)	58.4	183.0 (3.6)	601.8 (5.9)	134.9 (1.4)	244.6 (2.4)	684.6 (17.1)	797.2 (17.6)	1357.4 (29.6)	151.9 (2.5)	54.7 (2.1)	107.6 (5.3)	339.8 16.6)
lvance Fingerling/Acre	--	--	--	--	--	--	--	--	--	332.9 (17.3)	510.6 (30.4)	426.7 (32.4)
ibcatchables/Acre	--	--	--	--	--	--	--	--	409.9 (27.3)	--	--	--
tchables/Acre	25.7	10.2 (5.3)	25.6 (8.0)	--	3.1 (2.4)	7.0 (7.0)	6.2 (6.2)	40.6 (10.8)	30.8 (13.4)	31.2 (9.2)	47.6 (16.4)	35.2 (10.8)
s. Stocked (total)	--	6,532	10,221	1,033	3,527	17,698	17,067	29,067	29,707	31,767	21,011	38,322
s. Stocked/S. A.	--	8.8	13.9	1.4	4.8	23.8	23.2	39.5	40.4	43.2	28.6	52.1
s. Yield/S. A.	--	5.5	13.2	44.8	97.8	90.8	40.6	41.3	24.7	62.9	41.8	32.9

. Yellowstone (Sheep Creek-Strawberry) Strain
. Yellowstone (Sheep Creek-Strawberry) Strain
. Snake River Cutthroat
. Spaghetti Tag (numbered, yellow)
. 15,150 Adipose Clip
. 11,500 Right Pelvic Clip

7. 812 Yellow Dart Tagged, 590 Anal Clip
8. 5,000 Adipose Clip
9. 15,000 Adipose Clip, 12,200 Double Pelvic Clip
10. Fluorescent-Dye Marked
11. Based on the estimated 735 acres in the Utah portion of the Tailwaters.

During 1974, 87.4 percent of the angler use and 85.4 percent of the harvest occurred during the summer months (June through August) while 12.6 percent of the use and 14.6 percent of the harvest occurred during the fall months (September through November). Since 1968, the seasonal distribution of angler use and harvest has remained relatively constant.

Non-resident use comprised 22.0 percent of the total on the tailwaters in 1974 (Table XVI). Dispite fluctuations in total use on the tailwaters, non-resident use has remained relatively constant since 1969, constituting approximately 25.0 percent. Since 1968 the bulk of the non-resident use has shifted from the upper to lower section of the river. Use on the lower section has fluctuated between 17.8 and 28.3 percent of the total tailwater use; while use by non-residents has increased to 39.8 percent, showing that non-resident use has increased faster than overall use in the area. Angling use in the upper section has remained more constant, varying from 71.6 to 82.2 percent of the whole tailwater use; while non-resident use dropped from 31.3 percent in 1971 to 15.7 percent in 1974. During 1974 non-resident use consituted 33.8 percent of the total use on the lower section from Little Hole to the Colorado border and only 15.7 percent of the total use on the upper section.

Creel census data collected along the entire tailwaters were projected for an estimated harvest of 36,117 trout consisting of 34,564 rainbow (95.7 percent), 1,264 cutthroat (3.5 percent, 188 brown (0.5 percent and 101 brook trout (0.3 percent). No catches of grayling were reported during 1974. On an area basis, the highest percent of rainbow trout and brown trout harvest occurred in Brown's Park, while proportionately more cutthroat and brook trout were harvested between the tailrace and Little Hole. Species composition of the harvest from 1965 - 1974 is summarized in Table XVII.

An estimated 24,198 pounds (10,886 kg) of trout were harvested during 1974, yielding 32.9 pounds per surface acre (Table X), a 27.4 percent decrease from the 11 year average of 45.0 pounds (20.4 kg). The tailwater fishery has been maintained by stocking several trout species at varying densities and size combinations (Tables XI and XII). Since 1963 fingerling trout have been stocked at densities ranging from 55 to 1,357 per surface acre, advanced fingerling trout have been stocked at densities ranging from 55 to 1,357 per surface acre, advanced fingerlings from 333 to 511, subcatchables at 410, and catchables from 6 to 48 (Table XI). Comparing the total weight stocked with the estimated weight harvested shows a net loss for two years following the initial stocking. From 1966 through 1970 there was a yearly net gain ranging from 93.0 lbs. in 1967 to 1.1 lbs. per acre in 1970. Since 1971 (except for 1972 and 1973) there has been a yearly deficit ranging from 10.3 to 26.9 lbs. per acre.

Table XII. A comparison of catch and creel rates (fish per hour), Green River Tailwaters, 1969-1974.

Category	1969	1970	1971	1972	1973	1974
Catch Rate	0.32	0.58	0.59	0.99	0.81	0.96
Creel Rate	0.27	0.39	0.38	0.55	0.39	0.64
Percent Difference	15.6	32.8	35.6	44.5	51.9	44.4

Table XIII. Size group composition in percent of the rainbow trout harvest, Green River Tailwaters, 1967-1974.

Category	1967	1968	1969	1970	1971	1972	1973	1974
Less Than 12"	25.4	28.8	17.8	51.2	50.9	34.5	45.6	70.8
12" to 16"	54.1	48.0	51.1	27.0	33.3	43.4	24.8	24.3
Greater Than 16"	20.5	23.2	31.1	21.8	15.8	22.1	29.6	4.9
Sample Size	268	125	225	326	375	113	145	568

Table XIV. Comparison of raft and shore angling use, effort and harvest, Green River Tailwaters, (%), 1967-1974.

Category	1967		1968		1969		1970		1971		1972		1973		1974	
	RFT	SHR	RFT	SHR	RFT	SHR	RFT	SHR	RFT	SHR	RFT	SHR	RFT	SHR	RFT	SHR
Angler Days	36	64	42	58	41	59	60	40	44	56	41	59	51	49	68	32
Angler Hours	45	55	43	57	44	56	62	38	49	51	41	59	53	47	69	31
Harvest	61	39	47	53	46	54	61	39	45	55	42	58	57	43	66	34

ble XVIII. Percent distribution of use (angler days) on the Green River Tailwaters, (angler days in parenthesis), 1967-1974.

tegory	1967	1968	1969	1970	1971	1972	1973	1974
per ection	(25,826) 92.9	(27,313) 78.2	(21,021) 82.1	(23,031) 78.2	(13,048) 77.4	(17,116) 71.6	(12,891) 73.2	(12,736) 76.1
wer ection	(1,974) 7.1	(7,587) 21.8	(4,579) 17.8	(6,419) 21.8	(3,819) 22.6	(6,750 28.3	(4,718) 26.8	(3,995) 23.9
tal Angler Days	27,800	34,900	25,600	29,450	16,867	23,866	17,609	16,731

Table XV. Comparison of fishing and non-fishing raft classification, Green River Tailwaters, 1967-1974.

Category	1967	1968	1969	1970	1971	1972	1973	1974
Fishing Rafts (percent)	95.2	85.4	68.8	62.7	52.4	49.3	56.0	43.9
Non-Fishing Rafts (percent)	4.8	24.6	31.2	37.2	47.6	50.7	44.0	56.1
Estimated Total Rafts	3,084	5,030	4,519	6,331	4,184	4,818	6,200	9,014

Table XVI. Percent distribution of resident and non-resident fisherman use (angler days), on the Green River Tailwaters, 1968-1974.

Category	1968	1969	1970	1971	1972*	1973	1974
Upper Section							
Res.	79.3	82.6	71.1	68.9	--	71.7	84.3
Non-Res.	20.7	17.4	28.9	31.1	--	28.3	15.7
Lower Section							
Res.	97.0	88.9	86.6	87.2	--	60.2	66.2
Non-Res.	3.0	11.1	13.4	12.8	--	39.8	33.8
Total River							
Res.	75.2	74.0	72.0	76.0	--	75.2	88.0
Non-Res.	14.8	26.0	28.0	24.0	--	24.8	22.0

*No Data Collected.

Table XVII. Percent species composition of the harvest, Green River Tailwaters, 1965-1974.

Category	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Trailrace										
RBT	100.0	100.0	100.0	99.6	94.7	95.9	89.6	99.0	97.3	94.6
CTT	-0-	-0-	-0-	0.3	4.6	4.1	5.8	0.7	1.6	5.4
BNT	-0-	-0-	-0-	0.1	0.7	-0-	-0-	0.2	-0-	-0-
BKT	-0-	-0-	-0-	-0-	-0-	-0-	4.6	0.1	1.1	T
Little Hole										
RBT	100.0	100.0	98.6	97.0	87.5	96.0	92.4	98.8	97.2	95.5
CTT	-0-	-0-	1.2	2.8	11.6	3.8	4.6	0.6	1.8	3.1
BNT	-0-	-0-	0.2	0.2	0.2	0.2	0.4	0.5	-0-	-0-
BKT	-0-	-0-	T	-0-	-0-	-0-	2.6	0.1	1.0	1.4
Brown's Park										
RBT	100.0	99.1	95.0	87.6	90.4	95.1	97.6	99.7	90.7	97.2
CTT	-0-	-0-	4.4	10.0	8.8	2.7	1.2	-0-	5.5	2.0
BNT	-0-	0.9	0.6	2.4	1.1	2.2	1.2	0.3	1.9	0.8
BKT	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	1.9	T
Total Harvest										
RBT	100.0	100.0	98.9	96.0	91.0	97.5	92.4	99.0	97.0	95.7
CTT	-0-	-0-	0.9	3.8	7.9	2.1	4.1	0.5	2.0	3.5
BNT	-0-	0.1	0.1	0.2	1.1	0.4	0.4	0.1	0.2	0.5
BKT	-0-	-0-	T	-0-	-0-	-0-	2.7	0.3	0.8	0.3

T: Trace - Less than 0.1 percent.

Segment Objective: 5. Determine size, composition, and trends of the fish populations and define movements and reproduction.

During 1974 a preliminary survey of the movement of fluorescent-dyed rainbow trout fingerlings was initiated to evaluate the duration and extent of down-river movement. All 313,628 rainbow trout fingerlings (ave. 13.2/lb.) stocked in the Green River during the fall of 1973 were mass marked with blue fluorescent dye and distributed by truck dumps at the tailrace and Little Hole.

Movement of fish was monitored by electroshocking and examination of angler creels along the tailwaters from the tailrace to the Gates of Ladore, Dinosaur National Monument, Colorado. Preliminary data indicate that the fingerlings had dispersed appreciable distances down-river by the beginning of the fishing season. Percent of marked fish examined in angler creels decreased proportionately to the distance down-river. Several marked fish were examined near Brown's Park National Wildlife Refuge, Colorado, a distance of between 28 to 35 miles down-river from their initial stocking site. Work will continue in 1975 to collect additional information on movement, and a summary of these findings will be submitted as part of a later report.

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