

**TRAPPING, SPAWNING, AND TREND SURVEYS OF BONNEVILLE CUTTHROAT
TROUT AT MANNING MEADOW RESERVOIR DURING 2001**

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Introduction

This report covers activities for the year 2001, the tenth consecutive year Bonneville cutthroat trout were trapped and spawned at Manning Meadow Reservoir. Bonneville cutthroat trout were introduced into the reservoir with transplants from Pine Creek in 1990 and 1991. Eggs were collected for the first time in 1992. Spawning trout are trapped at either the reservoir inflow or at the spillway. Eggs are taken manually from wild trout and incubated, hatched, and reared at state facilities.

Methods

The inflow trap was set on 12 June and operated until 20 June, 2001, slightly earlier in the year than usual. Utah Division of Wildlife Resources personnel were stationed at the reservoir 24 hours per day while the trap was in operation. Most fish were trapped in the inlet, but with a brief period of high water, some fish were trapped at the spillway (12 %).

Spawning was conducted on June 14 and 20. The overall project was supervised by Glenwood Fish Hatchery personnel. Spawning was conducted by personnel from Egan Fish Hatchery. All fish were sorted and ripe fish were spawned using standard state methods. Females were spawned 10 fish at a time, with enough fish spawned to easily exceed 20 paired matings. Females and males were spawned at a ratio of 2 : 1. Five males were deemed sufficient to fertilize eggs taken from 10 females. Eggs were water hardened for at least an hour, and then transported to the Fish Lake isolation station for incubation. Loa Hatchery personnel were responsible for egg care during incubation, until the eggs were fully eyed and then moved to the Glenwood Fish Hatchery.

Disease certification was completed as required by standard protocol, including 60 lethal samples and ovarian fluids from 60 different females. Disease work was conducted by personnel from the Fisheries Experiment Station. Lethal samples for disease certification were obtained from gill-net surveys conducted on 12 June in coordination with the spawning operation. Gill-net surveys are used to compare population data and fish condition among years.

Values and measurements are partially presented in English units to facilitate comparisons with other fish culture work. Trend data is reported in metric units, allowing consistency in comparisons for this type of data.

Results and Discussion

Spawning during 2001 occurred during mid-June somewhat earlier than average (Table 1). As expected, first spawning occurred when lake water temperature reached 58 degrees Fahrenheit.

Numbers of fish spawned and eggs taken by date during 2001 are given in Table 2. Total number of fish trapped and eggs taken was an all time high (Table 3). Collection of eggs was discontinued after the second egg-take. This exceeded the hatchery quota for planned stocking, but it was decided that all eggs available on that day should be taken. More eggs could likely have been taken a week later. Size of trout spawned and number of eggs produced per female was about the same as the previous year.

Gill-net results are presented in Table 4. The overall catch remained high but was slightly reduced from last year (64 versus 83 trout per net-night). In most situations, a catch of 40 trout per net-night is considered good. Growth, average size, and condition of fish remained satisfactory and was slightly improved from a year ago. Hold-overs (fish stocked at a mean size of 6 inches) represented 34 % of the total catch compared to fingerlings (stocked at a mean size of 2 inches) which made up the remaining 66 %. Since stocking of hold-overs was discontinued, they have declined in the overall catch. As was hoped, average fish size and condition showed an increase following reduced stocking. This should continue to change for several more years and start to be reflected by larger fish entering the spawning trap.

The 2001 spawning season at Manning Meadow Reservoir was another highly successful year. Few problems were encountered. Previous experience and good planning helped produce all time highs in egg production. Past problems with vandalism, trap designs, water management, scheduling, and reservoir fish population dynamics are being better managed and improving the spawning program.

Table 1. Bonneville cutthroat trout spawning times at Manning Meadow Reservoir, Utah, 1992 - 2000.

Year	Trap operation dates		Dates spawned		Number days spawned	Lake water temperature (Fahrenheit)	
	Begin	End	First	Last		First spawn	Last spawn
1992	2 June	30 June	16 June	30 June	3	55	62
1993	21 June	6 July	22 June	6 July	3	62	62
1994	14 June	22 June	16 June	22 June	2	56	60
1995	3 July	11 July	5 July	11 July	2	60	62
1996	24 June	2 July	26 June	2 July	2	58	60
1997	23 June	1 July	25 June	8 July	3	59	62
1998	29 June	13 July	1 July	13 July	3	58	63
1999	18 June	6 July	22 June	6 July	3	58	62
2000	5 June	13 June	6 June	13 June	3	58	59
2001	12 June	20 June	14 June	20 June	2	58	61

Table 2. Spawning totals at Manning Meadow Reservoir during 2001.

Date	Lake water temperature	Number females spawned	Number males spawned	Total eggs	Eggs per ounce	Mean number of eggs per female
14 June	58	245	125	170,109	369	694
20 June	61	271	135	160,020	381	591

Table 3. Bonneville cutthroat trout spawning totals at Manning Meadow Reservoir for 1992 - 2001.

Year	Number of females spawned	Mean length (inches)		Total eggs	Eggs per fluid ounce	Mean number of eggs per female	Total number of trout in trap
		Female	Male				
1992	27	13.4	--	19,218	361	712	--
1993	61	15.2	--	61,148	328	1002	--
1994	45	15.8	--	57,000	345	1267	--
1995	218	13.5	14.4	176,896	383	811	--
1996	198	13.5	14.2	136,980	283	691	485
1997	141	14.4	14.8	92,603	368	657	271
1998	116	14.3	12.7	80,514	359	694	330
1999	296	12.4	13.1	198,895	420	672	744
2000	265	12.7	13.2	173,484	377	655	1,099
2001	516	12.9	13.5	330,129	375	640	1,809

Table 4. Trend gill-net results, 2000 through 2001. CTSB = Southern Bonneville cutthroat trout.

Year	Number nets set overnight and (total CTSB caught)		Number CTSB caught per net-night	Mean total length (mm) (range)	Mean weight (g) (range)	Mean K_{TL}	Number CTSB from "fingerling" stocking (%)	Number CTSB from "hold-over" stocking (%)
	Floaters	Divers						
2000	1 (79)	1 (86)	83	296 (187 - 391)	280 (67 - 596)	1.05	74 (45%)	91 (55%)
2001	1 (38)	1 (90)	64	310 (213 - 397)	320 (79 - 597)	1.07	84 (66%)	44 (34%)