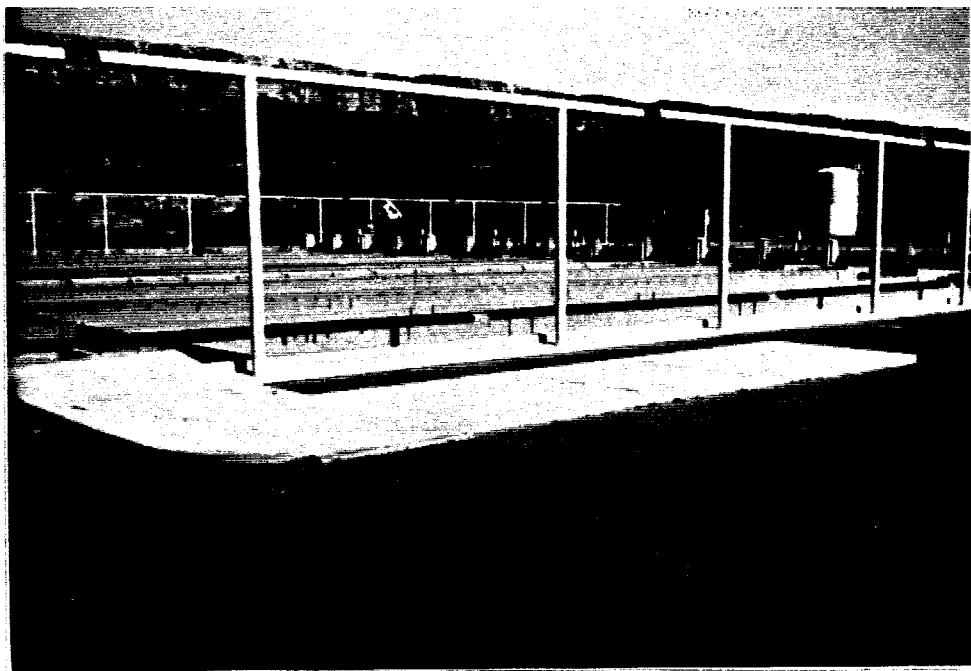




MAGIC VALLEY HATCHERY

1989 Brood Year Report



by

Bud Ainsworth Jr., Fish Hatchery Superintendent 111

Douglas Engemann, Fish Culturist

November 1991

TABLE OF CONTENTS

Page

ABSTRACT 1

INTRODUCTION 2

OBJECTIVES 2

LOCATION 2

FACILITIES 2

FISH PRODUCTION 3

FISH DISEASE 3

FISH MARKING 7

 Fin Clipping 7

 Coded Wire Tagging 7

STOCKING 7

HATCHERY MAINTENANCE 7

STAFFING 9

LITERATURE CITED 10

LIST OF TABLES

Table 1. Final raceway inventory and indices for Magic Valley Hatchery "A" strain and "B" strain steelhead trout . . . 5

Table 2. Steelhead smolt distribution in the Salmon River and tributaries 8

LIST OF FIGURES

Figure 1. Magic Valley Hatchery 1989 Brood Year monthly growth plotted for East Fork, Pahsimeroi, and Dworshak stocks . 4

Figure 2. Magic Valley Hatchery monthly flows in cfs from Crystal Springs 6

CONTENTS

ABSTRACT

The third year of steelhead production at Magic Valley Hatchery was completed with 1,306,674 "A" strain, (Pahsimeroi stock) steelhead eggs received and 1,198,700 smolts were stocked in the Salmon River at Sawtooth Hatchery. The hatchery received 333,537 "B" strain (East Fork stock) steelhead eggs and returned 326,600 smolts to the East Fork Salmon River. In addition, the hatchery received 1,212,066 "B" strain (Dworshak, Clearwater stock) steelhead eggs and planted 162,900 pre-smolts in Slate Creek near Riggins and 597,600 smolts in the East Fork Salmon River.

A total of 2,285,800 "A" and "B" steelhead smolts were stocked weighing 489,430 pounds and were fed 687,077 pounds of feed for a conversion of 1.4.

Authors:

Bud Ainsworth Jr.
Fish Hatchery Superintendent III

Douglas Engemann
Fish Culturist

BY89

INTRODUCTION

Magic Valley Steelhead Hatchery completed its third year of production as the latest steelhead hatchery constructed by the U.S. Army Corps of Engineers in Idaho. The hatchery is part of the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP) compensating for losses of anadromous fish caused by the Lower Snake River dams. The hatchery was constructed by the Corps of Engineers, is funded by the U.S. Fish and Wildlife Service, and operated by the Idaho Department of Fish and Game.

OBJECTIVES

1. To hatch and rear two million "A" and "B" strain steelhead smolts for stocking in the Salmon River and its tributaries.
2. Evaluate fish rearing capabilities of Magic Valley Hatchery.

LOCATION

The hatchery is located in Twin Falls County, seven miles northwest of Filer in the Snake River Canyon. The hatchery's 125 cfs of 58°F water is piped from Crystal Springs on the north shore of the Snake River across to the hatchery site.

FACILITIES

The hatchery building houses the incubation early rearing room with 40 upwelling incubators, 20 concrete tanks (4 ft x 3 ft x 40 ft), 2 fiberglass troughs (2 ft x 1 ft x 12 ft), and 60 automatic fry feeders. The building contains an office, laboratory, wet laboratory, shop, dormitory, enclosed storage room, covered vehicle storage area, feed storage room, walk-in freezer and mechanical room for water pumps, water chiller, and domestic water supply system.

There are 32 outdoor rearing raceways (10 ft x 3 ft x 200 ft) spanned by a moveable bridge equipped with 16 automatic Neilsen fish feeders. There are two 30,000-pound bulk feed bins, two fish feed fines shakers, and a fish feed conveyor which comprises the remainder of the feeding system.

The hatchery effluent water is treated using two waste water settling ponds, a cleaning waste pond, and a hatchery flow-through waste water pond.

The spring collection facility is located on the north shore of the Snake River, collects the spring water in a concrete channel system, and delivers the water to a central collection tank. A 42-inch pipeline carries the water across the river to the hatchery site.

There are four residences on the hatchery which house the permanent personnel.

FISH PRODUCTION

The hatchery received 1,306,674 "A" strain (Pahsimeroi stock) steelhead eggs and planted 1,198,700 smolts (8.3% rearing loss). Also received were 333,537 "B" strain (East Fork Salmon River stock) eggs, and 326,600 smolts (2.1% rearing loss) were returned to the East Fork Salmon River. The hatchery received 1,212,066 "B" strain (Dworshak, Clearwater stock) eggs, and stocked 162,900 pre-smolts in September 1989 in Slate Creek near Riggins and 597,600 smolts in the East Fork Salmon River (37.3% rearing loss).

The fish that emerged from the upwelling incubators were started on Rangen's soft moist fry feed. They were fed on the soft moist diet for three weeks and then changed to Rangen's dry trout production diet for the remainder of the rearing cycle.

Haskell's (1967) feeding rate formula was used to calculate the daily feed ration. The feeding rate was calculated using a growth rate of .027 inches per day, starting with 1-inch fish (swim-up fry) and ending with an 8.3-inch smolt. Fish responded well to this feeding schedule and maintained the .8 inch per month growth throughout the rearing period (Figure 1). A total of 687,077 pounds of feed were fed to produce 489,430 pounds of fish; a feed conversion of 1.4.

Piper's (1970) formulas for density index and flow index were used to calculate the densities and flows for each tank or raceway. Raceways did not exceed the desired .25 density index or 1.25 flow index until the month prior to release, when some of the raceways reached a .36 density and a 1.4 flow index without any detrimental effect on the fish (Table 1). The water flows from the springs were slightly lower this year than the previous year, with the low for Brood Year 1988 at 103 cfs and this year 102 cfs (Figure 2).

The fish in the hatchery tanks were transferred to the outside raceways when they reached a density of .25 and attained a 2.0-inch (330/lb) size.

FISH DISEASE

Fish pathologists sampled fish monthly and found disease pathogens of IPN and Soreback. Very little mortality could be attributed to these pathogens. Soreback was present in the fish in the outside raceways but caused negligible loss, and an increase in feed eliminated the problem.

BY89

1989 BROOD YEAR LENGTH INCREASES

EAST FORK, PAHSIMEROI, AND DWORSHAK

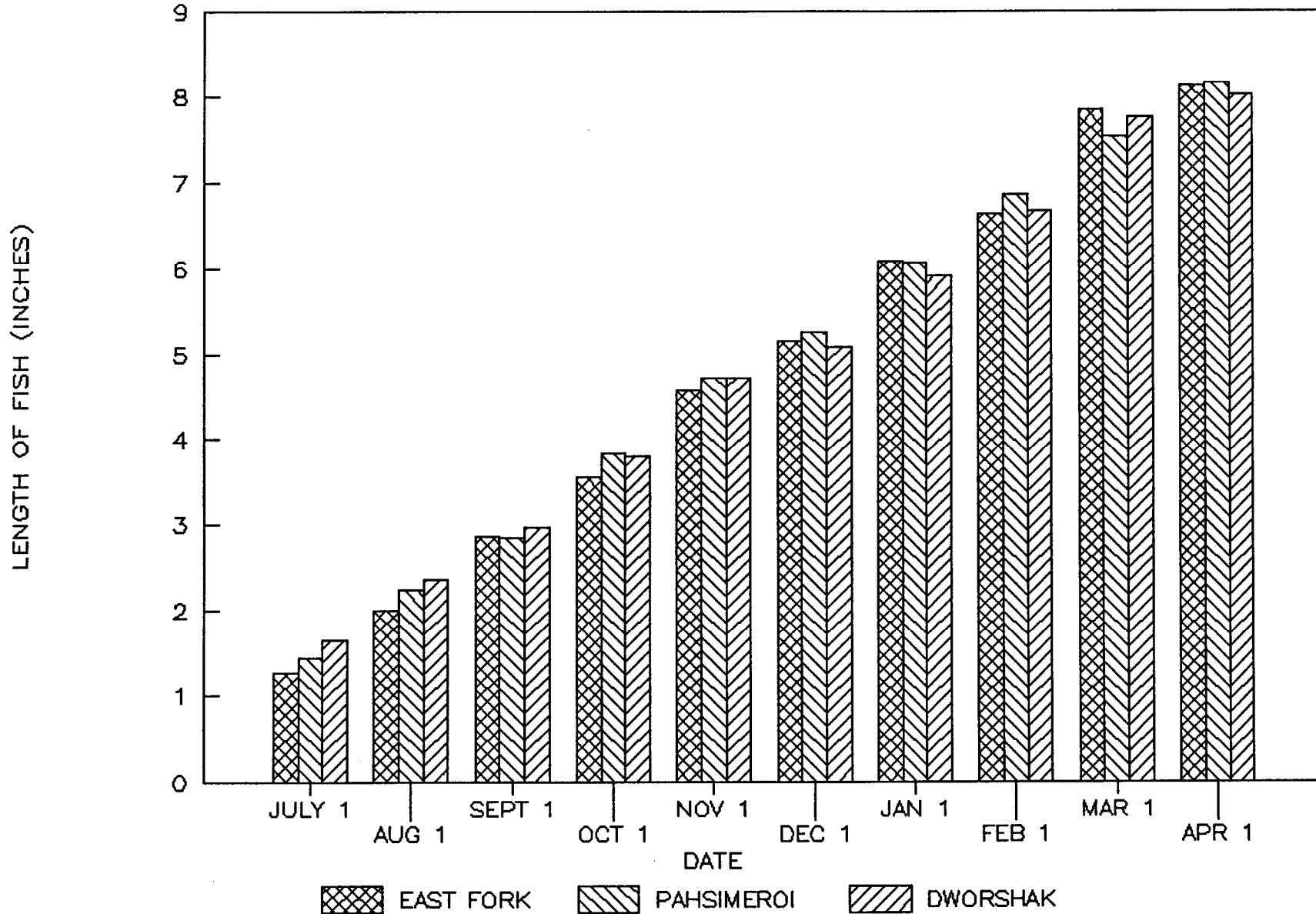


Figure 1. Magic Valley Hatchery 1989 Brood Year monthly growth plotted for East Fork, Pahsimeroi, and Dworshak stocks.

Table 1. Final raceway inventory and indices for Magic Valley Hatchery "A" strain and "B" strain steelhead trout.

Raceway	Strain	Fish numbers	Weight (lbs)	Number per lb	Flow index	Density index
1	A	141,300	32,150	4.40	1.25	0.35
2	A	126,300	29,550	4.27	1.10	0.32
3	A	138,700	31,200	4.45	1.20	0.34
4	A	130,400	30,500	4.28	1.17	0.33
5	A	129,300	30,950	4.18	1.18	0.33
6	A	143,900	34,050	4.23	1.30	0.37
7	A	135,400	32,250	4.20	1.23	0.35
8	A	117,100	31,050	3.77	1.14	0.32
9	A	136,300	34,550	3.95	1.29	0.36
10	B	104,400	25,750	4.05	0.97	0.27
11	B	143,000	31,800	4.50	1.24	0.35
12E	B	59,700	14,200	4.20	1.08	0.31
12W	B	81,300	19,300	4.21	1.50	0.41
13	B	140,600	28,400	4.95	1.14	0.32
14	B	113,100	23,900	4.73	0.95	0.27
15	B	147,100	30,050	4.90	1.20	0.34
16	B	135,000	27,100	4.98	1.1	0.31
Total A's		1,198,700	286,250	4.19	1.21	0.34
Total B's		924,200	200,500	4.61	1.15	0.32
Grand Totals		2,122,900	486,750	4.36	1.18	0.33

MAGIC VALLEY HATCHERY

FLOW IN CFS FROM CRYSTAL SPRINGS

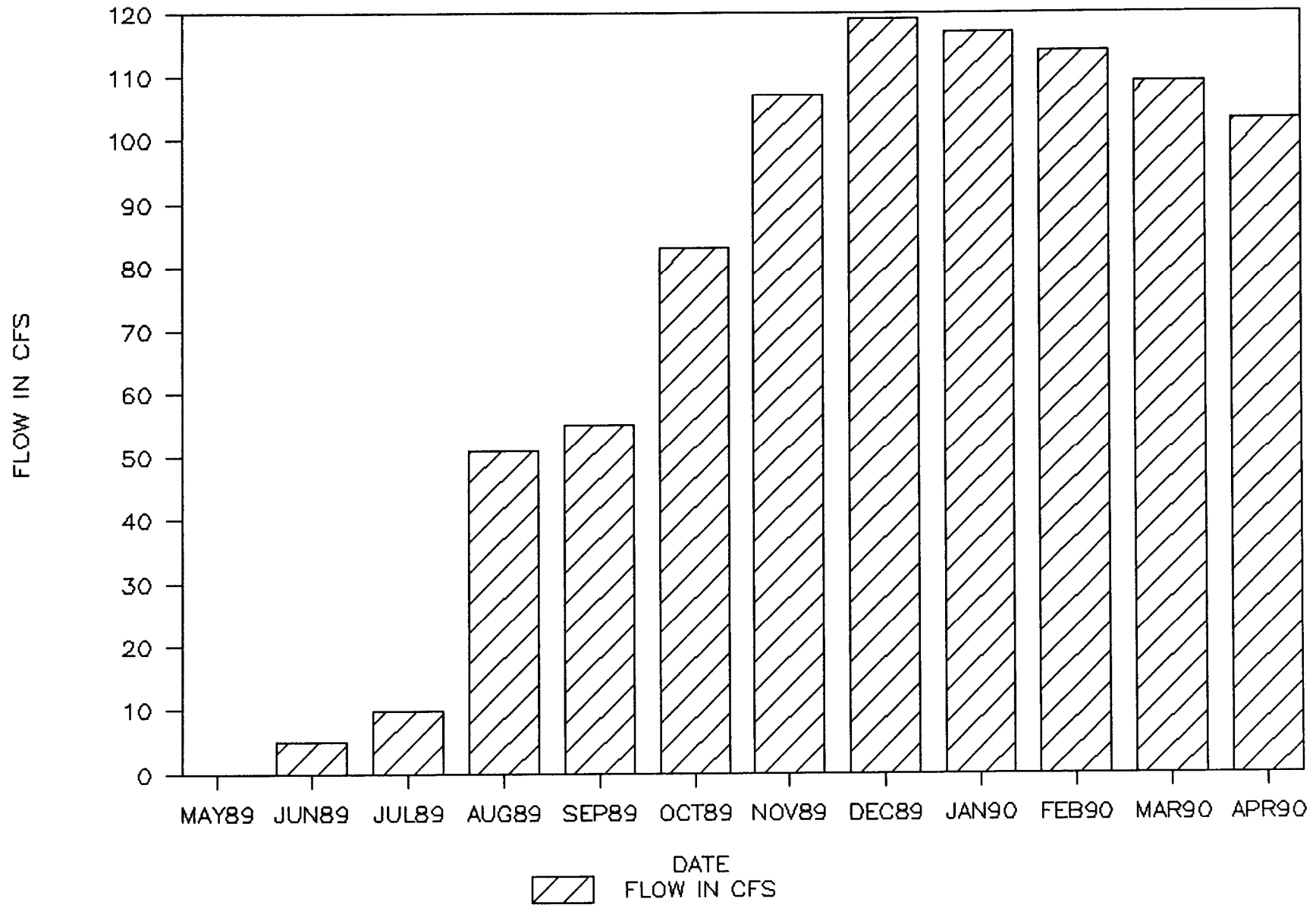


Figure 2. Magic Valley Hatchery monthly flows in cfs from Crystal Springs.

FISH MARKING

Fin Clipping

All of Idaho's hatchery steelhead are required to have an adipose fin clip identifying them from wild steelhead. At Magic Valley Hatchery, the fin-clipping crews clipped 2,327,157 fish during September, October, and November. Fin clipping attributed to a .10% mortality rate. Personnel randomly sampled the population of fish prior to stocking and found 97.6% had an acceptable fin clip.

Coded Wire Tagging

Four groups of steelhead were coded wire tagged this year. The first group of 44,763 "B" strain steelhead (Dworshak stock) were tagged in December and released into the East Fork Salmon River in April. The second group of 46,403 "B" strain steelhead (East Fork stock) were tagged in December and released into the East Fork Salmon River in April. The third group of 40,905 "B" strain steelhead (East Fork stock) were coded wire tagged and freeze branded in January and released into the East Fork Salmon River in April. The fourth group of 39,620 "A" strain steelhead (Pahsimeroi stock) were coded wire tagged and freeze branded in January and released into the Salmon River at Sawtooth Hatchery in April (Table 2).

STOCKING

The 1989 brood year steelhead smolts were truck transported to the Salmon River drainage in April of 1990 (Table 2). A total of 2,285,600 fish were released, which averaged 4.67 fish per pound for a total of 489,450 pounds of fish.

HATCHERY MAINTENANCE

Maintenance continued on some of the equipment, and the moveable feeding bridge had guide wheel bearings replaced and electrical circuit boards replaced. The water chiller system had two valves rebuilt for the April fish transportation.

Some of the maintenance included the lawn sprinkling system, minor repair on the electrical systems, fish feeder repairs, and domestic portable water system repair.

Table 2. Steelhead smolt distribution in the Salmon River and tributaries.

<u>Destination</u>	<u>Weight</u>	<u>Number/pound</u>	<u>Number released</u>
East Fork Salmon	200,500	4.61	924,200
Sawtooth Hatchery	286,250	4.19	1,198,700
Slate Creek	2,700	60.20	162,700
Grand Total	489,450	4.67	2,285,600

STAFFING

The hatchery is staffed with four permanent employees: Hatchery Superintendent III, Hatchery Superintendent II, Fish Culturist, and Roving Fish Culturist. Several temporary positions of bio-aides and laborers are employed at various times of the year to assist with fish cultural duties during peak production, transportation, and in the absence of the Roving Fish Culturist.

LITERATURE CITED

Haskell, D.C. 1967. Calculations of amounts to feed trout in hatcheries. Progressive Fish Culturist 29 (4):194 pp.

Piper, R.G. 1970a. Know the proper carrying capacities of your farm. American Fishes and U.S. Trout News 15(1):4 pp.

BY89

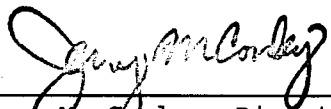
Submitted by:

Bud Ainsworth Jr.
Fish Hatchery Superintendent III


Douglas Engemann
Fish Culturist

Approved by:


IDAHO DEPARTMENT OF FISH AND GAME



Jerry M. Conley, Director



Steven M. Huffaker, Chief
Bureau of Fisheries



Bill Hutchinson
Hatcheries Manager