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Jerry M. Conley, Director

PAHSIMEROI HATCHERY

Annual Report

1 October 1981 - 30 September 1982

by
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

A total of 995,205 7- to 14-inch A-run steelhead smolts were received from Niagara Springs Hatchery and released at the trap facility during March and April. We also received 60,784 A-run smolts and 58,281 B-run smolts from Hagerman National Hatchery. The total smolt release for 1982 amounted to 1,055,989 A-run and 58,281 B-run.

We vaccinated 39,410 steelhead smolts against vibrio disease and 39,609 unvaccinated smolts were used as a control to see if vaccine is effective and produces better returns to. the hatchery. Both groups were adipose fin-clipped and coded-wire tagged.

During the spring of 1982, a total of 3,444 steelhead, composed of 3,092 A-run and 352 B-run steelhead, were trapped at the Pahsimeroi Hatchery. From these fish we took 7,058,420 A-run eggs and 1,351,220 B-run eggs. The eye-up success was 73% for A-run and 80% for B-run.

We planted 1,231,736 A-run fry and 481,600 B-run fry in tributaries to upper Salmon River.

During summer of 1982, 274,950 A-run fingerlings were reared and then transferred to Niagara Springs Hatchery.

We trapped 20 males, 15 females and 4 jacks during the summer chinook run and took 75,402 summer chinook eggs from 13 females.

We were transferred 107 spring chinook adults from Hayden Creek Hatchery and took 107,234 spring chinook eggs from the 27 surviving females.

Several construction projects were completed during the year to help the hatchery reach the goal of producing one-million salmon smolts a year.

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OBJECTIVES

The objectives of the Pahsimeroi Hatchery are to:

1. Provide a release point for 200,000 pounds of 7- to 12-inch steelhead smolts from Niagara Springs Hatchery.

2. Collect three to six million eggs from adult steelhead when they return from the ocean two to three years later.

3. Incubate eggs until eyed and then ship the eggs to Niagara Springs Hatchery to be reared.

4. Trap returning spring and summer chinook salmon.

5. Spawn the salmon, eye and hatch the eggs, and rear the salmon fry to smolt stage.

6. Release the salmon smolts into the river and collect adults two to three years later when they return from the ocean.

INTRODUCTION

Pahsimeroi Hatchery is located near Ellis, Idaho on the Pahsimeroi River. It receives its water directly from the Pahsimeroi River and from a series of springs nearby. The incubators can be supplied with either river water or 52°F spring water.

The fish trap consists of three concrete pens measuring 15 feet by 75 feet by 3.5 feet deep. Fish are held in these pens until they are ripe and the eggs can be taken. The trap has a series of ladders into the structure and a specially built metal weir grate that keeps the fish from leaving the holding pen. A weir structure 55 feet long crosses the Pahsimeroi River to channel the arriving fish into the trap facility.

Near the trap facility are located a residence for the hatchery superintendent, two pumphouses, a 10,000 gallon water storage tank, two 10 x 50 mobile homes, a metal shop building, a cinderblock building used for an office, public restrooms, and an incubator room with capacity for 20 Heath incubation cabinets. Four concrete raceways (4' x 100') are used to start salmon and steelhead fry.

Two dirt rearing ponds (40' x 300') are located six miles above the trap at a separate facility and will be used to rear and release the chinook salmon smolts.

This facility consists of a residence, a small metal storage building, a feed bin to hold dry feed, and a walk-in freezer to hold frozen salmon feed.

WEIR COUNT INFORMATION

STEEL HEAD

Dates of Incoming Fish: February 24 - May 19, 1982 (Figure 1).

Numbers of Adult Steel head Returns....

Males	1,143	A-Run	154	B-Run	1,297	Total
Females	1,949	A-Run	198	B-Run	2,147	Total
	3,092		352		3,444	Total

Holding Pond Mortality....

Males	15
Females	172
Total	187

Fish Released to Spawn Naturally....

Pahsimeroi River	425
Yankee Fork	104
Lemhi River	173
Total	702

Size and Age Class of Fish Trapped....

574 1-Ocean A-run Males 50% of Run 22-25½ inches in total length
569 2-Ocean A-run Males 50% of Run 25/-31 inches in total length

1,143 Total

437 1-Ocean A-run Females 22% of Run 21-25½ inches in total length
1,512 2-Ocean A-run Females 78% of Run 25½-31 inches in total length

1,949 Total

154 2-Ocean B-run Males 32-37 inches in total length 198
2-Ocean B-run Females 32-40 inches in total length

1,011 1-Ocean 33% of A-run
2,081 2-Ocean 67% of A-run

3,092 Total A-run

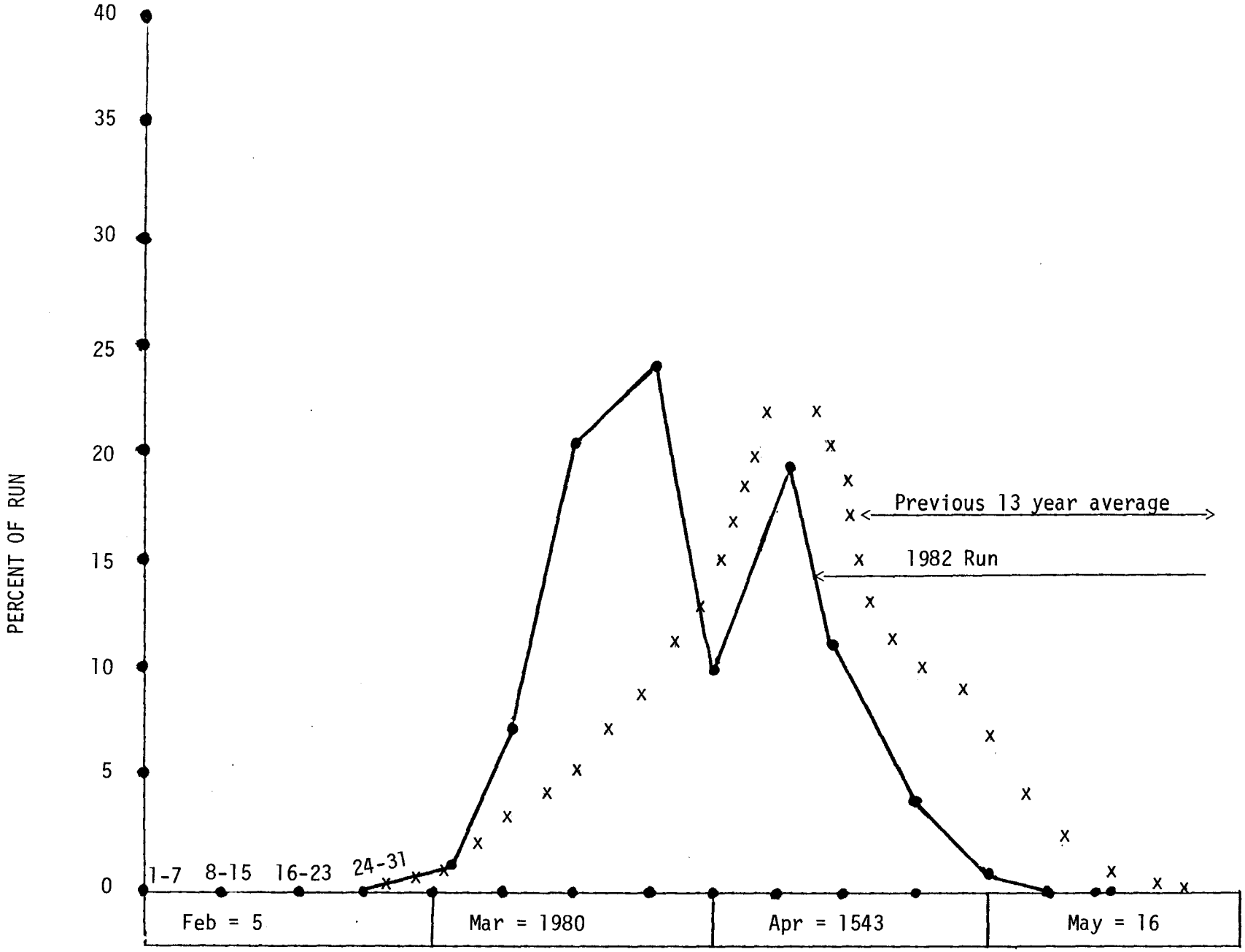

Figure 1. 1982 steelhead weir count.

SPAWNING INFORMATION

Dates of Spawning: March 12, 1982 to May 4, 1982.

Number of Females Spawned....

A-Run	1,315
B-run	187
Total	1,502

Number of Green Eggs Taken....

A-run	7,058,420
B-run	1,351,220
Total	8,409,640

Number of Blank Eggs Picked Off....

A-run	1,944,708
B-run	271,966
Total	2,216,674

Eye-up Success:

A-run	73%
B-run	80%

Average Number of Eggs Per Female....

A-run	5,367
B-run	7,225

Number of Eyed Eggs Shipped....

A-run	Hayden Creek Hatchery	1,305,872
	Niagara Springs Hatchery	1,838,808
	Total	3,144,680
B-run	Hagerman National Hatchery	554,588
	Grand Total	3.699.268

STEELHEAD FRY PLANTS

A-run		
4-26-82	Pahsimeroi River	61,760
4-26	Pahsimeroi River	13,824
4-28	Pahsimeroi River	172,800
4-29	Pahsimeroi River	68,544
5-11	Sheep Creek	106,624
5-12	Indian Creek	118,048
5-14	Pahsimeroi River	31,104
5-14	Pine Creek	62,208
5-14	Owl Creek	31,968
5-14	Springs Creek	72,576
5-14	Squaw Creek	72,576
5-15	Panther Creek	22,848
5-15	Panther Creek	95,200
5-18	N.F. Salmon River	45,696
5-24	Pahsimeroi River	51,840
5-24	Hughes Creek	69,120
6-03	Moose Creek	24,000
6-03	N.F. Salmon River	111,000
		1,231,736
8-run		
6-07	East Fork	82,560
6-10	Pole Creek	104,576
6-11	Herd Creek	211,904
6-13	Iron Creek	82,560
		481,600

317,952 A-run fry were transferred to the Hagerman National Hatchery during May.

274,950 A-run fingerlings were transferred to Niagara Springs Hatchery in September for additional rearing.

EGG TAKE HISTORY FOR STEELHEAD 12 MARCH TO 4 MAY 1982

A-Run

Date	Egg Take Oz.	Per Oz.	No. Taken	Females
3-12	80	216	17,280	3
3-23	410	193	79,130	13
3-26	4,642	216	1,002,672	166
3-30	3,274	238	779,212	119
4-2	1,300	216	280,800	51
4-6	725	238	172,550	27
4-13	2,290	216	494,640	83
4-16	2,632	216	568,512	100
4-20	3,914	216	845,424	195
4-20	640	264	168,960	
4-23	715	216	154,440	269
4-23	5,875	216	1,269,000	
4-27	3,425	216	739,800	168
4-30	1,125	216	243,000	57
5-4	1,125	216	243,000	64
	32,172		7,058,420	1,315

B-Run

3-30	200	172	34,400	5
4-2	78	172	13,416	2
4-6	90	193	17,370	3
4-13	388	193	74,884	12
4-1.6	600	193	115,800	15
4-20	1,225	193	236,425	31
4-23	1,568	172	269,696	41
4-27	2,247	193	433,671	53
4-30	649	193	125,257	20
5-4	157	193	30,301	5
	7,202		1,351,220	187

Table 1. Steelhead smolt transfers from Niagara Springs Hatchery

Date	Pounds	Size (fish/pound)	Number
3-22	6,500	3.3	21,450
3-23	6,500	3.3	21,450
3-24	6,500	4.2	27,300
3-25	6,500	4.2	27,300
3-26	6,500	4.1	26,650
3-26	6,700	4.1	27,470
3-28	6,500	3.9	25,350
3-29	6,500	3.7	24,050
3-30	6,500	3.8	24,700
4-05	6,800	3.8	25,840
4-05	7,000	3.8	26,600
4-06	6,500	3.0	19,500
4-06	7,000	3.3	23,100
4-07	7,000	3.5	24,500
4-07	6,500	3.0	19,500
4-07	7,000	3.0	21,000
4-08	7,000	3.9	27,300
4-08	6,500	3.9	25,350
4-08	7,000	3.3	23,100
4-09	7,000	3.3	23,100
4-09	2,300	3.3	7,590
4-09	4,500	3.9	17,550
4-10	6,500	3.3	21,450
4-11	6,500	3.3	21,450
4-12	6,500	3.5	22,750
4-13	7,000	3.3	23,100
4-13	6,500	3.3	21,450
4-13	7,000	3.3	23,100
4-14	6,500	3.1	20,150
4-14	7,000	3.1	21,700
4-15	7,000	3.1	21,700
4-15	7,000	2.5	17,500
4-16	7,000	2.9	20,300
4-16	7,000	2.9	20,300
4-19	7,100	2.8	19,880
4-19	6,500	3.1	20,150
4-20	6,500	3.1	20,150
4-20	7,000	3.1	21,700
4-21	6,600	3.2	21,120
4-21	7,000	3.2	22,400
4-22	6,500	3.3	21,450
4-22	7,000	3.3	23,100
4-23	7,000	3.3	23,100
4-23	6,500	3.3	21,450
4-24	4,850	3.3	16,005
TOTALS	294,850		995,205

STEELHEAD SMOLT TRANSFERS FROM NIAGARA SPRINGS HATCHERY

Forty-four transport loads of steelhead smolts were planted at the weir site in the spring of 1982 from Niagara Springs Hatchery. The first load arrived 22 March and the last load on 24 April (Table 1.)

STEELHEAD SMOLT TRANSFERS FROM HAGERMAN NATIONAL HATCHERY

During early April, 60,784 A-run smolts reared at Hagerman National Hatchery were released at Pahsimeroi Hatchery. They averaged 2.465 per pound and 24,660 pounds were planted. These smolts were all adipose fin-clipped and wire tag encoded with the number 5-10-20 inserted in their snouts. Hagerman National Hatchery also released 58,281 B-run smolts which averaged 4.213 per pound and weighed 13,832 pounds. They were adipose fin-clipped and a coded wire tag (number 5-10-21) was inserted in their snouts. A total of 1,114,270 A- and B-run steelhead smolts were planted at Pahsimeroi Hatchery in 1982.

Table 2. Total Steelhead Smolts Planted in 1982

Number		Source
		A-Run
995,205		Niagara Springs Hatchery
60,784		Hagerman National Hatchery
1,055,989	Total	
		B-Run
58,281		
1,114,270	Grand Total	

CARCASS DISPOSITION

After spawning them, we gave about 2,500 steelhead, weighing approximately 20,000 pounds, to the public. The majority of the recipients were retired people from this area and they made good use of the fish. They started lining up at our hatchery gate the evening before to get a low number and be first in line.

SUMMER CHINOOK WEIR COUNT

Dates of Incoming Fish....

July 6 through September 23, 1982.

Number of Summer Chinook Returns....

Males	20
Females	15
Jacks	4
Total	39

Holding Pond Mortality....

Males	3
Females	1
Total	4

Size of Fish Trapped....

Fork Length (inches)	Males	Females
0-22	4	0
29	1	0
30	4	0
31	0	2
32	4	6
33	2	4
34	3	1
35	1	1
36	3	1
37	1	0
38	1	0
	24	15

SUMMER CHINOOK SPAWNING INFORMATION

Dates of Spawning....

August 27 through October 3, 1982

Number of Females Spawned... .13.

Number of Green Eggs Taken....75,402.

Number of Blank Eggs Picked Off....5,115.

Eye-up Success....94.3%.

Average Number of Eggs Per Female....5,800.

Egg Take History for Summer Chinook....

Date	Females	Ounces	No. Per Oz.	Eggs Taken
8-27	1	59	90	5,310
9-08	2	107	104	11,128
9-11	3	208	78	16,224
9-14	1	67	78	5,226
9-20	1	69	90	6,210
9-23	3	175	104	18,200
10-1	1	61	104	6,344
10-3	1	65	104	6,760
	13	811		75,402

SPRING CHINOOK RECEIVED FROM HAYDEN CREEK TRAP

The spring chinook spawned at Pahsimeroi Trap were transported from Hayden Creek Trap on Hayden Creek near Lemhi, Idaho.

Dates of Incoming Fish....

The first load of 11 fish was hauled to Pahsimeroi Hatchery on July 16 and the last load was received September 10, 1982.

Number of Spring Chinook Received....

Males	60
Females	34
Jacks	13
Total	107

Holding Pond Mortality....

Males	10
Females	7
Total	17

Size of Fish Trapped....

Fork Length (inches)	Males	Females
0-22	13	0
23	0	0
24	1	1
25	0	2
26	5	4
27	8	4
28	8	6
29	8	4
30	8	2
31	1	1
32	5	4
33	3	2
34	4	2
35	1	1
36	5	0
37	2	1
38	1	0
	73	34

SPRING CHINOOK SPAWNING INFORMATION

Dates of Spawning....

August 18 through September 20, 1982.

Number of Females Spawned....27.

Number of Green Eggs Taken....107,234.

Number of Blank Eggs Picked Off....9,086.

Eye-up Success.... 92.6%.

Average Number of Eggs Per Female....3,971.

Egg Take History for Spring Chinook....

Date	Ounces	Size Per Oz.	Number	Females
8-18	152	104	15,808	4
8-20	42	104	4,368	2
8-24	40	119	4,760	1
8-27	55	119	6,545	2
9-01	303	119	36,057	9
9-05	150	119	17,850	4
9-08	86	104	8,944	2
9-11	73	104	7,592	2
9-20	59	90	5,310	1
	960		107,234	27

RESEARCH PROJECTS

A total of 39,410 adipose-clipped, coded-wire tagged steelhead were vaccinated against vibrio disease and released on April 7, 8 and 9. At the same time, 39,609 adipose-clipped, coded-wire tagged steelhead smolts that were not vaccinated were released as a control group so that a comparison can be made of the effectiveness of the vibrio disease vaccination.

Also, 58,281 B-run steelhead smolts were adipose fin-clipped, coded-wire tagged and released at the trap site. These fish are second generation progeny of B-run steelhead that returned to Pahsimeroi Hatchery. This experiment is designed to determine if second generation smolts will return in greater numbers than the original smolts.

FISH HEALTH

During egg taking, green eggs are flushed with a malachite green solution to prevent fungus infection on the blank eggs.

Salmon and steelhead fry kept in the raceways are treated periodically with Purina 4X with concentrations to 6 ppm over one hour. This treatment keeps bacterial gill disease under control.

Salmon adults are treated with malachite green for one hour at 1 ppm to prevent fungus infection on abrasions of their skin.

Salmon eggs are incubated with Pahsimeroi River water during the winter to slow development and enable us to move the fry from the incubators to the raceways with no thermal shock. The river water contains sediment and a high bacteria content; however, the bacteria content doesn't seem to bother us- during the salmon incubation period due to the low water temperatures. In March, the incubation system is switched to spring water for steel head egg taking. The warmer spring water enhanced the growth of bacteria in the water storage tank and incubators, consequently, this next spring, the water storage tank will be flushed free of sediment and disinfected with Purina 4X. The water lines to the incubators will also be disinfected as will the incubators: between each batch of steelhead eggs. The egg load per tray will also be reduced to help eliminate the problem.

During steelhead egg taking, the air temperatures got very cold during the first two weeks of April. Water temperatures dropped from 48 to 38^{0}E and the females stopped ripening. Our egg taking equipment was covered with ice. Our holding pens were full of fish and we had to hold them until they started ripening again. Many of them had their slime rubbed off due to the mass of fish in each pen. The females seemed to have trouble regulating the amount of water in their bodies and had water in their body cavities. This caused water hardening of the green eggs and lowered the fertilization percentage when they were taken. Next season, we will release surplus adults as

we are taking eggs to prevent a buildup of excess numbers of fish on hand. Soft shell developed in the steelhead eggs during the last two weeks of spawning.

During April, the salmon fry were being held in the raceways. At this time, they started developing a condition where they would suddenly go into convulsions and quiver a few times and then die. The loss rate was steady but did not increase or decrease as is usually the case with a disease. Terramycin was fed and 60 minute drips of Purina 4X were used to try to stop the condition but to no avail. We then prepared the rearing pond and moved the fry to the pond and the condition ended immediately with no further loss. It appears the cause of the losses was a vitamin B shortage in the food and when ponded, the salmon picked up a lot of natural feed and supplemented their diet. It could also be caused by the stress of raceway living and the constant current in the raceway as opposed to a lot of space and a deep, quiet pond environment.

NEW PROJECTS

During the summer, the second rearing pond was prepared for salmon rearing by the construction of five metal automatic feeder ramps.. The work was done by a local contractor and entailed pouring 15 cement blocks, setting up ramps, and running electrical wire to each ramp.

A 40,000-pound capacity freezer was installed at the pond site to hold frozen Oregon Moist feed.

A mound leach field was installed for the pond residence septic tank due to the high water level in the soil. This involved putting in a metal catch basin next to the septic tank and installing a sump pump in it to pump the effluent up to a drain field at ground level. The drain field was covered with gravel and dirt. A special grass will be planted on it to help evaporate water.

During the year, 22 wooden screens were built to use on the rearing ponds or the raceways.

ACKNOWLEDGEMENTS

Hatchery staffing during the fish year included:

Bob Moore, Fish Hatchery Superintendent II; Brad Christensen, Fish Culturist; Arnie Miller, temporary Laborer (4 months); Jeannie Ellis, temporary Laborer (1 month); Julie Christensen, temporary Laborer (1 month); and Melodie Richman, CETA employee (3 months).

Butch Welch, Mark Armbruster, Al Tetz, Kent Ball, and Mel Reingold helped on spawning days. (Idaho Fish and Game Department employees)

In addition, many interested sportsmen helped out when we were short of help.