

A N N U A L   R E P O R T

F I S C A L   Y E A R   1 9 8 7

H A G E R M A N ,   I D A H O   N F H

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ANNUAL REPORT

FISCAL YEAR 1987

NATIONAL FISH HATCHERY

HAGERMAN, IDAHO

INTRODUCTION

The Hagerman National Fish Hatchery produced steelhead trout for the Lower Snake River Compensation Plan (Public Law 94-587). Rainbow trout were also produced to offset lost production at the Dworshak National Fish Hatchery; due to IHN virus problems at Dworshak. However, IHN virus occurred at Hagerman NFH during the year which precluded release of affected stocks into the Dworshak Reservoir.

MAJOR ACCOMPLISHMENTS

The mitigation requirement of 340,000 pounds of steelhead for the Lower Snake River Compensation Plan was achieved. Smolt size of four to five fish per pound, as requested by Idaho Department of Fish and Game, was accomplished.

The U.S. Army Corps of Engineers conducted a Completion Contract to correct problems inherent to the first contract and to accomplish work that was not included in the earlier contract. Major items included: (1) a thirty-six inch pipeline from the Main Spring inclined screen structure; connecting to the thirty-six inch pipeline from Brailsford Ditch to the steelhead raceways headbox. (This enables additional water to be made available to the steelhead raceways); and (2) replacing of flow measuring meters in the major pipelines to more accurately measure available water and water utilization. Cost of the contract was \$259,600 with White Plumbing Company of Twin Falls being the successful bidder.

STATION OPERATIONS

Fiscal

Expenditures for Fiscal Year 1987 totaled \$543,497. Total cost to produce one pound of fish was \$1.46. Labor costs totaled \$260,163 with labor cost to produce one pound of fish totaling \$0.70. Fish transport expenses were \$41,005 resulting in a transport cost of \$0.11 per pound of fish transported and released.

Labor

Total full-time equivalents (FTE's) for Fiscal Year 1987 were 8.9. One temporary truck driver was hired for the duration of the fish transport season. An Idaho Department of Fish and Game employee was assigned to the hatchery to assist with fish production activities from October to April. The completion of Magic Valley State Fish Hatchery in 1987 will result in no further state employees being assigned to winter duty at Hagerman.

Numerous personnel changes occurred during the year:

- (1) Larry Moats retired as Maintenanceworker on a medical disability.
- (2) Larry Marchant transferred and was promoted to Assistant Manager at Hotchkiss, Colorado NFH.
- (3) Kerry Grande entered on duty as a GS-5 biologist trainee.
- (4) Steve Money transferred to Saratoga, Wyoming as Animal Caretaker.
- (5) Jim Kirsch transferred in from Forest Service as Maintenanceworker.

### Fish Cultural Operations

#### Steelhead Trout

The production goal is 340,000 lbs of smolts between 4-5/lb. 60% are to be "A" strain and 40% are to be "B" strain.

Broodyear 1986 smolt production began with 508,241 eyed "A" eggs from the Pahsimeroi SFH (Lot 21), 957,476 eyed "B" eggs from the East Fork Salmon River (Lot 22) and 975,480 eyed "A" eggs from the Sawtooth SFH (Lot 23). Lot 21 eggs were received May 2-9, Lot 22 eggs were received May 21-June 4 and Lot 23 eggs were received from June 4-11, 1986. A total of 2,441,197 eyed eggs were received. 60.8% of these were "A" strain and 39.2% were "B" strain. The eggs were shipped in "Egg" cartons and when received were immediately disinfected in 100 ppm active iodine and placed in egg hatching jars at 35-38,000 per jar. All lots hatched in the 98% range and survived to feeding in the 95-97% range.

When the fry were ready to feed 12 tanks of "A" strain fry were put on a diet test. Four tanks on each of the diets - Silver Cup Salmon Diet (Dry), BioDiet Starter (Soft-moist) and Rangen Soft-moist Salmon Diet. In previous years there had been a 10-20% loss of pinhead fry that would not eat or could not utilize the traditional Silver Cup dry diet. The results of the tests shown on graphs (Fig. 1 and 2) clearly indicate that steelhead fry start out much better on a soft-moist diet. The fry loss on a soft-moist diet was near 1% compared to 14% loss on the dry diet. This test was the guide for planning future starter diets for all production steelhead at Hagerman NFH. Fish not in the diet test were started on Silver Cup Salmon Diet (Dry) and were fed this diet until February, 1987.

In early June, 1986 heavy mortality was noticed in pre swim-up fry in tank 60. On June 5, 1986 samples were collected from tank 60 and sent to the Dworshak Fish Health Center for examination. On June 16, 1986 IHN virus was confirmed. On June 19th, personnel from the Fish Health Center came to the hatchery and collected samples from every egg group received (10). All samples tested negative for IHN. The mortality that occurred in tank 60 pre swim-up fry was approximately 12% (4,564 morts) in four days.

Lot 22 "B's" were located in 16 tanks. 20 of these tanks had pre swim-up mortality that appeared similar to the mortality in tank 60 but to a lesser extent. When these tanks were tested the results were negative for IHN.

All Lots were moved outside as the tanks became crowded (STT were near 200/lb). The outside moves took place between July 14 and August 26, 1986.

The upper steelhead raceways received approximately 50,000 fish each from Lots 22 and 23. The upper trout raceways received approximately 35,000 fish each from Lot 21. Lot 21 was scheduled for the Little Salmon River and Lots 22 and 23 were scheduled for the East Fork Salmon River and Salmon River, respectively. The percentage survival to the outside move was 73.4% (Lot 21), 63.1% (Lot 22) and 91.8% (Lot 23). The low survival in Lot 22 was attributed mainly to the pinhead die-off that occurs with feeding the dry diet; some loss was also caused by IHN. The pinhead loss also occurred in the other two lots but to a less extent.

The annual steelhead adipose fin clipping program was accomplished by the Idaho Fish and Game Department (ID F&G) from September 29 thru October 3, 1986. Fish were clipped into alternate steelhead raceways at approximately 41,000 each and into alternate trout raceways at approximately 25,000 each. The total ad clip numbers were 4.6% less than the inventory carried on the books. Clipping mortality was very low.

Some excess "A" STT fingerling were outplanted in late October, 1986 to the Yankee Fork Salmon River (93,413) and the Little Salmon River (27,431).

Final raceway splits were made in November to get carryover for next year's smolts. On December 9th the remainder of the excess "A" STT fingerling (47,988) were hauled to the Yankee Fork as directed by Idaho Fish and Game. Reports indicated a massive mortality resulted from the December 9th outplant. The stream temperature of 32° F was too low for the fish to survive. ID F&G recognized the problem and has made subsequent changes in their excess outplanting policy.

Final raceway splits were completed by November 24th. 329,000 Lot 21 "A's" were held in the trout raceways @ 12,000 per raceway. 584,000 Lot 22 "B's" and 723,000 Lot 23 "A's" were held in the steelhead raceways @ 20,000 per raceway. A total of 1,636,000 steelhead were held for smolt production. Percent survival to final splits was as follows: Lot 21 (70.3%), Lot 22 (61.2%) and Lot 23 (88.6%).

Coded wire tagging was completed October 17, 1986 and freeze branding was completed on February 27, 1987. These items will be covered in the distribution section.

On October 22, 1986 we received instructions that we could no longer purchase Silver Cup Salmon diet as a sole source feed for smolt production. Bid solicitations were to be sent out for an open formula diet developed by Abernathy Salmon Culture Technology Center. The mechanism was put into place and bids were solicited for 150,000 pounds of 5/32" pellets for the time period of February 1 thru April 30, 1987. Rangen, Inc. got the bid for 20 cents per pound. Despite

the fact that Rangen feed was consistently below the specifications for protein the fish grew and converted very well. The Lot conversions were 1.17 (Lot 21), 1.16 (Lot 22) and 1.17 (Lot 23). The smolt goal size set by IDF&G is 4-5/lb. The average size of all smolts distributed was 4.56/lb. To reach this goal size the growth is controlled by a computerized feeding program. Production results for Fiscal Year 1987 are shown on the attached Hatchery Production Summary.

Near the end of March, mortality began to slowly increase in Lot 21 "A's" in the trout raceways (13-36). Samples were collected and sent to the Dworshak Fish Health Center on March 27, 1987. On April 22-23 mortality began to increase in raceways 2 and 5 (Lot 24, RBT). On April 24th samples of Lot 24 were sent to Dworshak FHC for IHN testing. The results were received on May 4th; Lot 21 "A" STT had a low titer infection of IHN and Lot 24 RBT had a high titer infection of IHN. The loss to IHN in Lot 21 was low and it would be difficult to separate IHN mortality from normal daily mortality.

Broodyear 1987 steelhead eggs were received in late May and early June, 1987. This was the first year all eggs were shipped in cold water in plastic ice chests. The choice was made by ID F&G so they could disinfect the ice chests and use them repeatedly, thereby reducing the chance of spreading disease and avoiding the high cost of disposable egg cartons. The shipping, disinfecting, tempering and placing of the eggs in hatchery jars went well, but disinfecting and tempering was more time-consuming than with egg cartons.

Broodyear 1987 eyed eggs consisted of 1,772,926 "A's" (Lot 27) from the Salmon River at Sawtooth SFH and 371,762 "B's" (Lot 28) from the East Fork Salmon River via Sawtooth SFH. Survival from eyed eggs to the end of Fiscal Year 1987 was very good. Lot 27 (98.7%) and Lot 28 (90.8%). This reflects the change in starter feed discussed earlier. We received 82.7% "A's" and 17.3% "B's" for broodyear 1987. The "B's" were very short of the production goal.

Plans are to produce all 340,000 lbs of STT in the steelhead raceways (No. 37-102) during Fiscal Year 1988. Consequently, as the hatchery tanks became crowded all fingerlings were moved outside to the 1st and 2nd decks at approximately 60,000 per raceway.

Several studies were performed during the year. These are discussed briefly below.

#### 1. Menhaden vs. Herring Oil in Fish Feed

Hagerman NFH cooperated with Bozeman Fish Technology Center on a sunburn/soreback investigation. In the past, some steelhead have developed dorsal lesions within a month of being moved outside. Bozeman wanted to know if the oil used in top-dressing the dry feed had any influence on the development of the dorsal lesions.

The study started on July 24, 1987 when the fish were on #2 crumbles and ended December 9, 1987. One group of "A" STT was fed Silver Cup dry Salmon Diet, top-dressed with herring oil (the old oil commonly used) and the other group was fed the same diet, top-dressed with menhaden oil (the new commonly used oil).

During the entire test period no lesions developed in either test group. It was felt that because the test fish were started on Rangen soft-moist diet the test may have been biased and will be repeated in 1988.

## 2. Fin Erosion - Steelhead Trout

The data indicates that fin erosion is very serious on dorsal and pectoral fins. Dorsal fin erosion begins in the hatchery building when the fingerlings are approximately 50 days old and near 300/lb. The dorsal fin continues to erode and by 85 days (130-100/lb) it is well established. Pectoral fins remain in better condition until about 200-250 days of age or larger than 10/lb. The pectorals then deteriorate rapidly. As the steelhead near 6-7/lb in early March the dorsal fins show signs of healing. The pectorals continue to deteriorate.

Several hours of underwater video taping failed to show any fin nipping (one fish biting the dorsal or pectoral fin of another fish). Film was taken while the fish were being fed and when no feeding was occurring.

Reducing the density of fish in a hatchery tank by half appears to reduce dorsal erosion somewhat but production goals could not be met if all tanks were reduced in numbers. Reducing the number of fish in the raceway does not significantly help. Raceways with 11,000 vs. 20,000 fish had similar dorsal erosion.

## 3. Soft-Moist Starter Diet

In past years Hagerman NFH experienced a substantial pinhead die-off within 25 days of initial feeding. After testing Rangen Soft-Moist, BioDiet Starter and Silver Cup Salmon Diet it was decided to put all broodyear 1987 production fish on Rangen soft-moist diet for 25-30 days, then switch to Silver Cup Salmon Diet near 500/lb. The mortality for the first 40 days on feed was used to compare Broodyear 1986 (fed mostly Silver Cup Salmon Diet) with Broodyear 1987 (fed Rangen soft-moist diet). The difference in mortality was substantial.

<u>Broodyear 1986</u>	<u>Feeding Fry</u>	<u>Mortality</u>	<u>% Mortality</u>
Lot 21 - A	492,083	71,602	14.6
Lot 22 - B	914,761	164,050	17.9
Lot 23 - A	944,240	73,186	7.8
	2,351,084	308,838	13.1
<u>Broodyear 1987</u>	<u>Feeding Fry</u>	<u>Mortality</u>	<u>% Mortality</u>
Lot 27 - A	1,718,776	16,878	1.0
Lot 28 - B	344,223	16,204	4.7
	2,062,999	33,082	1.6

When Broodyear 1987 STT were started on feed some fry were fed soft-moist diets for testing (Lot 23); otherwise there would have been a greater difference in the mortality between the two years.

## Distribution

### Steelhead Trout

The distribution of steelhead smolts went extremely well. Distribution started on March 24th and ended on April 30th. The total smolt distribution was 1,535,351 @ 4.56/lb = 336,604 lbs. There was a difference of only -1.2% in numbers and -2.5% in weight from the planned distribution established at the February, 1987 coordination meeting. 65.2% of the smolts were "A's" and 34.8% were "B's". The overall feed conversion for Broodyear 1986 STT was 1.17. Feed cost per pound of gain was 25.9 cents. Survival from eyed eggs to distribution was 68.5% (Lot 21), 55.9% (Lot 22) and 83.2% (Lot 23). Low survivals in Lots 21 and 22 are attributed to pinhead loss, and IHN virus in Lot 22. A total of 28,964 miles was covered in 21 working days for all trucks involved. 70 trips were made and the average round trip was 413 miles.

A computer summary of total smolt releases by lot, water and location is attached. Also attached is a computer summary of marked smolt releases. The coded wire tag smolt releases are based on the total number of fish tagged minus the mortality. Tag retention data was not applied. The purpose of the coded wire tag releases was for evaluation and contribution. The purpose of the RD "R" freeze brands was for migrational timing and the purpose of the LD "K" brand releases was to evaluate the Whitebird fish trap (operated by Idaho F&G) recovery efficiency.

Lot 21 "A" steelhead were distributed to the Little Salmon River at Hazard Creek and the Salmon River at Sawtooth SFH before IHN was confirmed.

## Fish Cultural Operations

### Rainbow Trout

The purpose of the rainbow trout program is to produce 300,000+ RBT @ 5-6 inches for Dworshak Reservoir as mitigation for Dworshak Dam. Three strains of rainbow trout were to be stocked and evaluated; and all production and distribution costs were paid for by Dworshak NFH.

The three Lots of rainbow trout eggs were received from Ennis NFH - Lot 24, Arlee strain, 177,100 eyed eggs, received 12/19/86; Lot 25, Shasta strain, 166,666 eyed eggs, received 1/13/87; Lot 26, Kamloops strain, 173,088 eyed eggs, received 2/10/87.

All eggs were disinfected, placed into Heath Incubators until swim-up. They were then transferred to the hatchery tanks at 20-35,000 fish per tank. All rainbow trout were started on Silver Cup Salmon Diet and then switched to Silver Cup Trout Diet at approximately 500/lb. They were inventoried to the outside trout raceways (1-12) @ approximately 20,000 per raceway. Survival to this inventory was 75.5% (Lot 24), 83.8% (Lot 25) and 65.4% (Lot 26).

The plan was to "mark" and release 100,000+ of each strain into Dworshak Reservoir about June 1st. However, Lots 24 and 25 became

infected with IHN virus and were distributed to Cascade Reservoir as directed by Idaho F&G. Before Lot 26 could be moved outside, the top deck of the trout raceways had to be disinfected with chlorine. This was accomplished on May 29th with 200 ppm active chlorine. The Kamloops (Lot 26) were moved outside on June 2nd. Repeated testing of Lot 26 was negative for IHN.

On July 14th all rainbow trout in Lot 26 were adipose fin-clipped and were distributed to Dworshak Reservoir July 21-23, 1987.

The gain, conversion and feed costs for the rainbow trout program are shown on the attached Hatchery Production Summary. The conversions on Lots 24 and 25 were good even though they were infected with IHN. Lot 26 (Kamloops) were slow growers and converted poorly. This was one of the reasons for not stocking them in June as originally planned.

The survival rates of rainbow trout to distribution were not good for two of the Lots. This seems to be the tradition for Hagerman NFH rainbows. Survival for Lot 24 was 66.0%, Lot 25 was 82.1% and Lot 26 was 60.0%. As a general rule, survival rates below 70% are considered poor. The loss to IHN in Lot 24 was approximately 16% (12,000+ fish). The loss to IHN in Lot 25 was much lower and would be difficult to separate from normal daily mortality.

#### Distribution

##### Rainbow Trout

Because of the IHN infection in Lots 24 and 25, the distribution plans had to be changed. The Idaho F&G Department chose Cascade Reservoir for the infected fish and they were distributed May 15-21, 1987. The Kamloops (Lot 26) were distributed to Dworshak Reservoir on July 21-23, 1987. 10,000 rainbow trout were off-loaded to an Idaho F&G truck for transport to Elk River Pond. These fish were part of a study conducted by Idaho F&G and were later released to Dworshak Reservoir. A computer summary of the rainbow trout distribution program is attached.

#### COOPERATION WITH OTHER AGENCIES

Two coordination meetings were held during the year with Idaho Fish and Game Department to facilitate hatchery operations. Close cooperation with Idaho Fish and Game occurred during the numerous activities associated with adipose fin clipping, nose tagging and freeze branding. Successful accomplishment of the Corps of Engineers hatchery completion contract necessitated numerous cooperative actions.

CYCLICAL MAINTENANCE AND REHABILITATION

<u>Description</u>	<u>Cost</u>
Replacement of 6,000 gallon chilled water storage tank with 15,000 gallon tank	\$24,400
Electric garage door openers for shop and stalls	1,891
Additional lighting in Hatchery II tank room	1,338
Replaced fire hose hydrants at residences	2,615
Replaced roof over Spring 17 structure	1,100
Steel siding and exterior insulation at old office	4,779
Insulated windows at old office	834

EQUIPMENT PURCHASES

<u>Description</u>	<u>Cost</u>
Micro-computer system	\$ 4,381
Lawn tractor w/mower	4,550
Electric pressure washer	1,340
VCR player and camera	1,845
Fifty gallon capacity gas-powered sprayer for herbicides, etc.	680
Twenty screens (1/8") for steelhead raceways	4,800
Pickup truck - 1/2 ton, Dodge	7,027
Truck cab and chassis - 1 ton, Dodge	8,865
Electroshocking unit	1,940

HATCHERY PRODUCTION SUMMARY

Period covered  
10/1/86 through 9/30/87

Species and Lot	Density Index		FISH ON HAND END OF MONTH		FISH SHIPPED THIS F.Y.		GAIN THIS F.Y.		FISH FEED EXPENDED		Conversion	UNIT FEED COST		T.U. per Inch	T.U. to Date	Length Increase 30 day month Inches	
	Number	Weight	Number	Length	Number	Weight	Pounds	Cost	Per Lb.	Per 1000							
											2	3	4	5	6	7	8
1																	
STT-A																	
6-UID-21					348.2	59,815	72,326	15,463.57	1.21	.26	48.49						
STT-B																	
6-UID-22					534.8	104,751	122,669	26,250.24	1.17	.25	49.40						
STT-A																	
6-UID-23					821.1	137,314	166,016	35,789.17	1.21	.26	52.21						
RBT																	
7-En-24					116.8	7,480	7,784	1,779.99	1.04	.24	15.25						
RBT																	
7-En-25					136.9	7,898	7,950	1,824.35	1.00	.23	13.26						
RBT																	
7-En-26					103.9	4,108	6,901	1,604.64	1.68	.39	15.46						
STT-A																	
7-UID-27	1,749.5	43,465	4.065			42,855	37,908	11,970.27	.88	.28	6.84	17.32	16.56				.866
STT-B																	
7-UID-28	337.7	7,027	3.831			6,886	6,621	2,130.06	.96	.31	6.31	18.18	18.06				.825
TOTALS	2,087.2	50,492		2,061.7	371,107	428,175	96,812.29										
AVERAGES			4.027						1.15	.26	23.33	17.75	17.31				.846

Total Flow  
18,524

Flow Index  
.677

Density Index  
.121

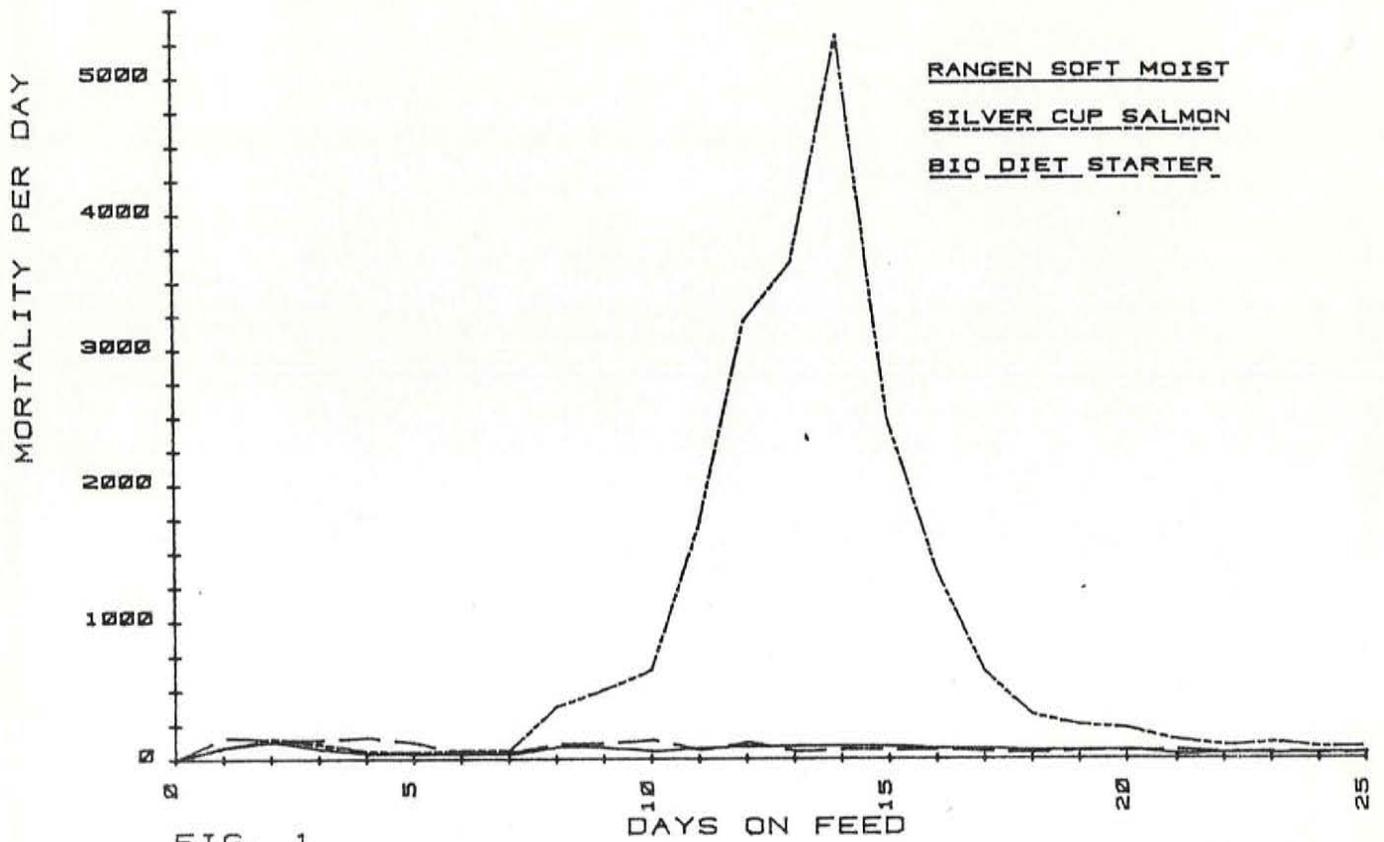


FIG. 1

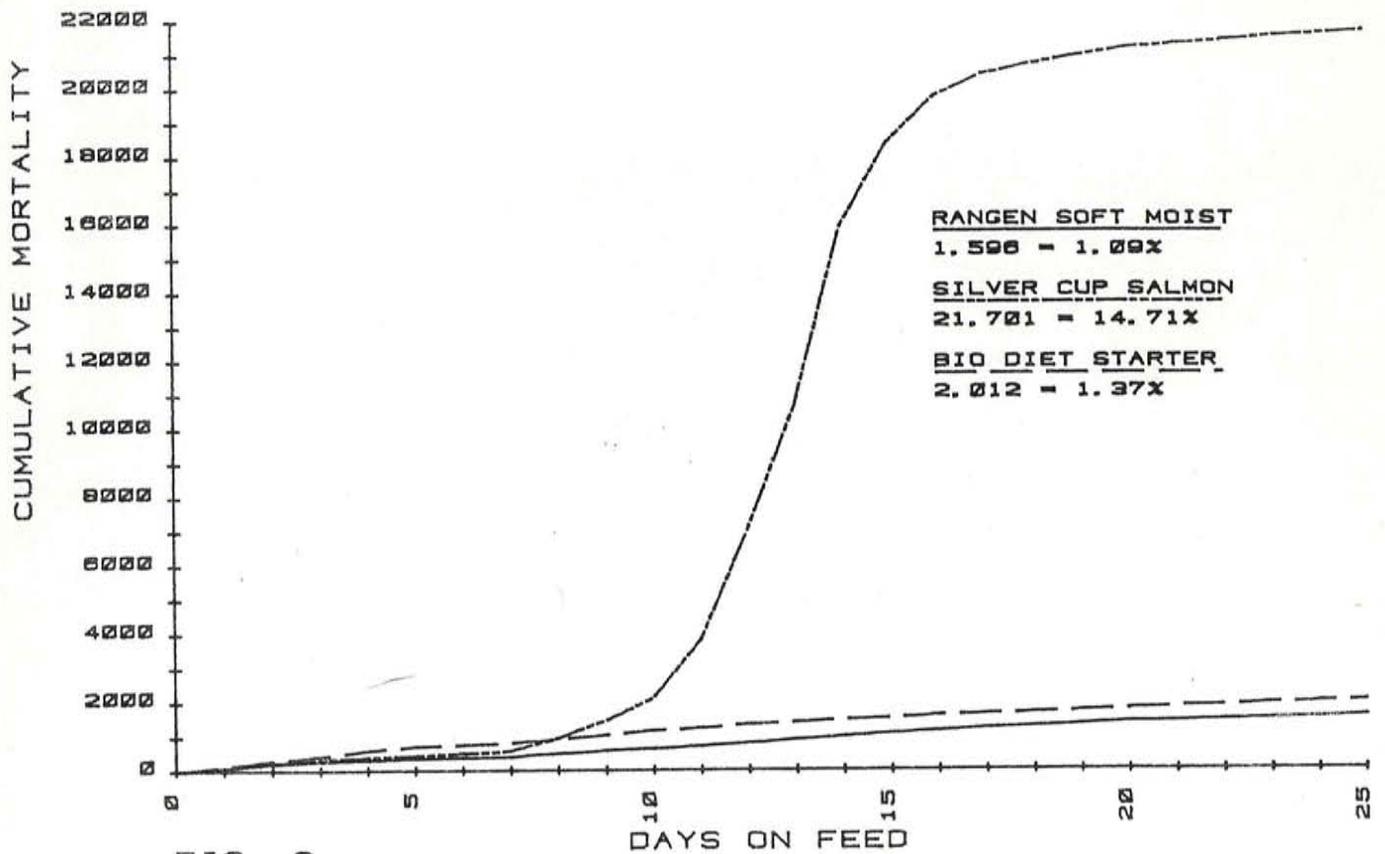


FIG. 2

Run date 03/10/88

Hagerman National Fish Hatchery  
FY 87 Lot Distribution Summary  
Marked and Unmarked Fish  
03/24 thru 04/30

Lot	Water	Location	Number	No./Lb	Weight
STTA21	LITTLE SALMON RIVER	HAZARD CREEK	269,585	4.65	57,985
STTA21	SALMON RIVER	SAWTOOTH SFH	26,234	4.58	5,725
		Subtotal:	295,819	4.64	63,710
STTA23	LITTLE SALMON RIVER	HAZARD CREEK	29,513	4.48	6,590
STTA23	SALMON RIVER	DEER CR BRIDGE	13,801	4.19	3,294
STTA23	SALMON RIVER	SAWTOOTH SFH	661,400	4.58	144,305
		Subtotal:	704,714	4.57	154,189
STTB22	EAST FK SALMON RIVER	FISH TRAP	485,078	4.51	107,630
STTB22	SLATE CREEK	GUARD STATION	49,740	4.49	11,075
		Subtotal:	534,818	4.51	118,705
		Total:	<u>1,535,351</u>	<u>4.56</u>	<u>336,604</u>

Run date 03/10/88

Hagerman National Fish Hatchery  
 FY 87 Marked Fish Distribution Summary  
 03/24 thru 04/30

Date	Lot	Water	Location	CWT	Number Tagged	Fin Clip	Number Clipped	Brand	Number Branded	No./Lb
04/21	STTA21	LITTLE SALMON RIVER	HAZARD CREEK	10-26-25	21,276	LV	21,276		0	4.52
04/21	STTA21	LITTLE SALMON RIVER	HAZARD CREEK	10-26-25	15,360	LV	15,360		0	5.07
04/23	STTA21	LITTLE SALMON RIVER	HAZARD CREEK	10-26-25	14,730	LV	14,730		0	4.64
			Subtotal:		51,366		51,366		0	4.74
04/30	STTA23	LITTLE SALMON RIVER	HAZARD CREEK			0	0	LDK2	4,522	4.30
			Subtotal:			0	0		4,522	4.30
04/08	STTA23	SALMON RIVER	DEER CR BRIDGE			0	0	LDK1	4,703	4.34
			Subtotal:			0	0		4,703	4.34
04/22	STTA23	SALMON RIVER	DEER CR BRIDGE			0	0	LDK3	4,690	3.98
			Subtotal:			0	0		4,690	3.98
04/15	STTA23	SALMON RIVER	DEER CR BRIDGE			0	0	LDK4	4,408	4.27
			Subtotal:			0	0		4,408	4.27
04/09	STTA23	SALMON RIVER	SAWTOOTH SFH			0	0	RDR2	12,612	4.80
04/14	STTA23	SALMON RIVER	SAWTOOTH SFH			0	0	RDR2	23,729	4.82
04/14	STTA23	SALMON RIVER	SAWTOOTH SFH			0	0	RDR2	10,616	4.78
04/15	STTA23	SALMON RIVER	SAWTOOTH SFH			0	0	RDR2	4,930	4.48
			Subtotal:			0	0		51,887	4.72
04/07	STTA23	SALMON RIVER	SAWTOOTH SFH	10-29-48	2,617	LV	2,617		0	4.43
04/07	STTA23	SALMON RIVER	SAWTOOTH SFH	10-29-48	7,112	LV	7,112		0	4.50
04/09	STTA23	SALMON RIVER	SAWTOOTH SFH	10-29-48	11,061	LV	11,061		0	4.62
04/09	STTA23	SALMON RIVER	SAWTOOTH SFH	10-29-48	4,789	LV	4,789		0	4.81
			Subtotal:		25,579		25,579		0	4.59
04/06	STTB22	EAST FK SALMON RIVER	FISH TRAP			0	0	RDR4	9,198	5.01
04/08	STTB22	EAST FK SALMON RIVER	FISH TRAP			0	0	RDR4	26,444	5.08
04/08	STTB22	EAST FK SALMON RIVER	FISH TRAP			0	0	RDR4	11,520	5.05
04/10	STTB22	EAST FK SALMON RIVER	FISH TRAP			0	0	RDR4	5,649	4.59
			Subtotal:			0	0		52,811	4.93
04/03	STTB22	EAST FK SALMON RIVER	FISH TRAP	10-29-49	4,066	LV	4,066		0	4.61
04/03	STTB22	EAST FK SALMON RIVER	FISH TRAP	10-29-49	7,853	LV	7,853		0	4.36
04/06	STTB22	EAST FK SALMON RIVER	FISH TRAP	10-29-49	12,850	LV	12,850		0	4.90
			Subtotal:		24,769		24,769		0	4.62
03/24	STTB22	SLATE CREEK	GUARD STATION	10-29-26	24,533	LV	24,533		0	4.46
03/24	STTB22	SLATE CREEK	GUARD STATION	10-29-26	25,207	LV	25,207		0	4.52
			Subtotal:		49,740		49,740		0	4.49
Report Total:					151,454		151,454		123,021	

Run date 03/10/88

Hagerman National Fish Hatchery  
FY 87 Lot Distribution Summary  
Marked and Unmarked Fish  
05/15 thru 07/23

Lot	Water	Location	Number	No./Lb	Weight
RBT24	CASCADE RESERVOIR	TAMARACK BRIDGE	116,812	15.52	7,525
		Subtotal:	116,812	15.52	7,525
RBT25	CASCADE RESERVOIR	TAMARACK BRIDGE	136,862	17.24	7,940
		Subtotal:	136,862	17.24	7,940
RBT26	DWORSHAK RESERVOIR	DENT BOAT RAMP	93,856	24.99	3,755
RBT26	ELK RIVER POND	POND	10,035	25.73	390
		Subtotal:	103,891	25.06	4,145
		Total:	<u>357,565</u>	<u>18.23</u>	<u>19,610</u>