



I N D E X

	<u>Page</u>
INTRODUCTION . . . . .	1
STATION OPERATIONS . . . . .	2
Fish Culture . . . . .	
Steelhead Trout . . . . .	2
Rainbow Trout . . . . .	3
Experiments/Studies . . . . .	3
Official Visitors. . . . .	4
STATION CYCLICAL MAINTENANCE/CONSTRUCTION. . . . .	5
FUTURE OUTLOOK . . . . .	6
Hatchery Production Summary (Form 3-103a). . . . .	7
F. Y. '88 Lot Distribution Summary . . . . .	8
F. Y. '88 Distribution Summary . . . . .	9
Five Year Hatchery Production Summary. . . . .	10
Fish Health Activities Summary (Form 3-108). . . . .	11
Operations/Maintenance Cost Data (Form 3-110). . . . .	12
Report of Station Personnel (Form 3-114). . . . .	16
Public Relations . . . . .	18

## INTRODUCTION

The Hagerman National Fish Hatchery produces steelhead trout for the Lower Snake River Compensation Plan (Public Law 94-587). Rainbow trout are also produced for the Dworshak Reservoir, Idaho to offset lost production at the Dworshak National Fish Hatchery; due to IHN virus problems at the Dworshak hatchery.

Hagerman National Fish Hatchery is located along the Snake River in southern Idaho; three miles south and two miles east of the town of Hagerman.

The hatchery was authorized by 46 Stat. 371 on May 21, 1930 and was established in 1931. Construction of physical facilities commenced in 1932 and fish production began in 1933. Expansion and modernization of the facility occurred in 1951, 1963 and 1983.

Major facilities include 102 raceways, two hatchery-rearing buildings with a total of 66 rearing tanks, administration-visitor facility building, combination shop-4 stall garage, four residences, oil-paint building, and two general storage buildings.

The hatchery water supplies are spring-fed at a constant 59 degree F. temperature; flowing at approximately 60 cubic feet per second. Water rights, under Idaho law, are both statutory and constitutional. The State of Idaho is going through a complete adjudication of water rights in the Snake River basin which will further refine the hatchery's water rights within a few years.

## STATION OPERATIONS

Item II of the Service's Fishery Statement of Responsibilities and Roles is "to seek and provide for mitigation of fishery resources adversely impacted by federal water development projects." The two production programs at Hagerman during Fiscal Year 1988; namely, steelhead for the Lower Snake River Compensation Plan and rainbow trout for the Dworshak Reservoir, are directly associated with such water development mitigation.

### Fish Culture Operations Steelhead Trout

The steelhead production goal of Hagerman NFH is 340,000 lbs. of smolts between 4-5/lb. Idaho Fish and Game Department established that 60% are to be "A" strain and 40% are to be "B" strain.

Hagerman NFH received 2,145,000 eyed steelhead eggs from the State of Idaho during May-June, 1987 (Broodyear '87) for smolt distribution in April, 1988. 82.7% were "A" strain and 17.3% were "B" strain. There were insufficient numbers of "B" eggs available to meet the 40% production goal. The production of smolts was highly successful. The survival rate of "A" strain steelhead was 89.7% from egg to distribution; the survival rate of "B" strain steelhead was 81.7%. The feed conversion for steelhead smolt production was 1.23 at a feed cost/lb. of gain of \$0.296. The average cost for a pound of feed was \$0.241.

Fish health was very good throughout the year as there were no disease problems.

Fiscal Year 1988 was the first year the entire steelhead production was raised in the new 66 Lower Snake River Compensation Plan raceways.

Broodyear 1988 eggs were received during May-June, 1988. 1,192,000 "A" strain eggs were received from Idaho Department of Fish and Game Sawtooth State Fish Hatchery and 1,172,000 "B" strain eggs were received from Dworshak NFH. 50.4% of the total eggs received were "A" strain and 49.6% were "B" strain. The increase in "B" strain production was requested by the State of Idaho. There was an estimated 10-15% loss of "A" strain eggs due to premature hatch and soft egg disease. At the end of Fiscal Year 1988 the survival rate of "A" strain STT was 76.0% and 91.4% for the "B" strain. At this time there are no disease problems and the fingerlings are doing well.

### Distribution Steelhead Trout

The distribution of Broodyear '87 smolts went very well. Distribution started on April 4th and ended on April 25th. A total of 1,550,031 smolts @ 4.66/lb. and 332,325 lbs. were distributed. The distribution required 63 trips and 23,956 miles of driving. (this includes two trips by State personnel). There were no problems during smolt distribution and only 315 transportation mortalities were reported. The smolt distribution was 97.7% of the production goal by weight and 101.3% of the goal by numbers.

During Oct. 22-Nov. 11, 1987 344,049 excess "A" strain steelhead @ 26 per pound were distributed to the Hell's Canyon of the Snake River.

Computer distribution summaries for Fiscal Year 1988 are attached.

### Fish Culture Operations Rainbow Trout

Dworshak NFH contracts with Hagerman NFH to produce about 300,000 RBT @ 5-6 inches in length for the Dworshak Reservoir. Dworshak FAO arranged for Arlee and Shasta strain rainbow trout eggs to be shipped to Hagerman NFH from Ennis NFH. 170,500 Arlee eggs were received on Dec. 22nd and 188,400 Shasta eggs were received on Jan. 5th. All rainbows were produced in the Fish and Wildlife Service raceway section of the hatchery. Rainbow production was highly successful and there were no disease problems during the year. The Arlee rainbows had a survival rate of 82.6% from "Egg to Distribution". The Shasta rainbows had an 81.7% survival rate. The rainbow feed conversion was 1.09 at a feed cost/lb. of gain of \$0.284. The average cost for a pound of rainbow feed was \$0.26.

### Distribution Rainbow Trout

Rainbow trout distribution took place from May 31st thru June 8th. A total of 294,906 rainbow trout at 10.49/lb. and 28,120 lbs. were distributed. The distribution required 8 trips and 5,301 miles of driving. The rainbow were stocked from a Corps of Engineer's barge into Dworshak Reservoir. The distribution numbers were 98.3% of the goal and the size was 5.8 inches in length.

### Experiments/Studies

#### Fin Erosion Study

The Tunison Research Lab and Hagerman NFH are conducting a cooperative study on steelhead dorsal fin erosion. The object is to test the effects of an antibiotic (Romet-B) and a bactericide (Chloramine-T) on dorsal fin erosion. Romet-B is top dressed onto feed at 23mg active per pound of body weight and is fed seven days on and seven days off. Chloramine-T is dripped into the tanks of fish at 7ppm for 1 hour, 2-3 times a week. At the Lab there are three control tanks, three Romet-B tanks and three Chloramine-T tanks. Once per month the dorsal fin and total fish length of 90 fish from each group are measured to establish a "fin percent" (The higher the "fin percent" the better). As of Oct. 19, 1988 the fin percents were as follows: Control Tanks = 4.42%, Romet-B Tanks = 4.63%, Chloramine-T Tanks = 5.04% and a "Hatchery Production Raceway" = 3.68%. At this time the fin percent of 5.04 for the Chloramine-T treatment indicates that the bactericide is helpful. The study will continue until December, 1988.

#### Baffles in Rearing Tanks and Fin Erosion

This study is in conjunction with the Bozeman Fish Technology Center. The purpose of the study is to see if baffles installed in hatchery nursery tanks have any effect on dorsal fin erosion. Three tanks were used as controls (normal flow), three tanks with baffles installed and three tanks with a fixed rate of flow of 4 turnovers/hr. The baffle tanks were siphoned for cleaning while the others were dewatered for

cleaning daily. Fish samples were collected twice a week and are being evaluated for erosion microscopically at Bozeman FTC. The results will be reported in 1989 by Bozeman FTC.

Soreback/Sunburn and Diet Formulation

This study is being done in conjunction with the Bozeman Fish Technology Center. Steelhead experience dorsal fin erosion and sunburn lesions in July-August after being moved to the outside raceways. Most of the fish have 70% or more dorsal fin erosion and about 1% suffer from dorsal lesions or soreback/sunburn. This diet trial is designed to determine if steelhead started on Rangen's Soft Moist Diet followed by Silver Cup Salmon Diet (with menhaden oil) prevents soreback/sunburn lesions when compared to steelhead fed Silver Cup Salmon Diet (with menhaden oil) only. Comparisons will also be made on fin erosion based on a fin percent. At the end of Fiscal Year 1988 soreback/sunburn lesions had not developed in either test group. Final measurements and observations will be made in November, 1988 and the results will be reported in 1989 by Bozeman FTC.

Official visitors to the station included:

Bill Shake, Ass't. Regional Director, Fisheries, Portland, Oregon  
John Miller, Division Manager, Portland, Oregon  
Ed Crateau, Lower Snake River Compensation Office, Boise, Idaho  
Dan Herrig, Lower Snake River Compensation Office, Boise, Idaho  
Dave Hansen, Chief of Fisheries, Idaho Fish & Game, Boise, Idaho  
Steve Huffaker, Hatchery Chief, Idaho Fish & Game, Boise, Idaho  
Charlie Smith, Fish Technology Center, Bozeman, Montana  
Greg Kindschi, Fish Technology Center, Bozeman, Montana  
Joe Lientz, Fish Health Center, Ahasahka, Idaho  
Wayne Olson, Dworshak NFH, Ahsahka, Idaho  
Bill Miller, Dworshak FAO, Ahsahka, Idaho  
Travis Coley, Dworshak FAO, Ahsahka, Idaho  
Ron Morinaka, Bonneville Power Administration, Portland, Oregon  
Bill Striplin, Engineering, FWS, Portland, Oregon  
Rich Johnson, Engineering, FWS, Portland, Oregon  
Chuck Wietz, Engineering, FWS, Portland, Oregon  
Paul Kucera, Nez Perce Indian Tribe, Lapwai, Idaho  
Joe McMichel, Corps of Engineers, Walla Walla, Washington

The Hagerman hatchery actively participated in the Region One Fishery Employee Development Program. Fiscal Year 1988 participants were Larry Telles, Jan Rowan and Kerry Grande.

STATION CYCLICAL MAINTENANCE/CONSTRUCTION

Cyclical Maintenance/Rehabilitation

<u>Item</u>	<u>Cost</u>
Fish feed fines collector for bulk storage tanks	\$18,475
Grouting and crack sealing - Raceways 13-36	29,000
Replace pump & air compressor - Water Service Building	10,000
Replace double doors - Hatchery Building # 1	1,313
Convert overhead sprinklers to soaker irrigation at Administration Building	795
Electric garage door openers at quarters	1,200
Painted interior of Quarters # 5	970

Equipment Purchases

<u>Item</u>	<u>Cost</u>
Pickup truck w/extended cab	9,000
Computer system w/o printer	3,856
Videocipher units for quarters satellite tv systems	4,000
Air compressor replacement for shop	1,050

## FUTURE OUTLOOK

Only minor problems, of a rehabilitation/cyclical maintenance aspect, require remedial action at Hagerman. The Corps of Engineers, in 1983, addressed and corrected all major facility needs.

Excess rearing facilities due exist, raceways 13-24, but due to water constraints any future rearing programs in these raceways will require careful planning to incorporate new programs into the existing steel-head and rainbow trout programs.

No further expansion of the station is advocated at this time. Perhaps oxygen supplementation will play a part in future development as this new technology is developed.



Run date 11/12/88

Hagerman National Fish Hatchery  
 FY 88 Lot Distribution Summary  
 Marked and Unmarked Fish  
 10/22 thru 11/05

Lot	Water	Location	Number	No./Lb	Weight
STTA27	SNAKE RIVER	HELL'S CANYON	344,049	26.48	12,995
		Subtotal:	344,049	26.48	12,995
Total:			<u>344,049</u>	<u>26.48</u>	<u>12,995</u>

Run date 11/12/88

Hagerman National Fish Hatchery  
 FY 88 Lot Distribution Summary  
 Marked and Unmarked Fish  
 04/04 thru 04/25

Lot	Water	Location	Number	No./Lb	Weight
STTA27	SALMON RIVER	SAWTOOTH SFH	1,195,745	4.62	258,810
STTA27	SLATE CREEK	GUARD STATION	50,722	4.81	10,550
		Subtotal:	1,246,467	4.63	269,360
STTB28	EAST FK SALMON RIVER	FISH TRAP	303,564	4.82	62,965
		Subtotal:	303,564	4.82	62,965
Total:			<u>1,550,031</u>	<u>4.66</u>	<u>332,325</u>

Run date 11/12/88

Hagerman National Fish Hatchery  
 FY 88 Lot Distribution Summary  
 Marked and Unmarked Fish  
 05/31 thru 06/08

Lot	Water	Location	Number	No./Lb	Weight
RBT29	DWORSHAK RESERVOIR	BARGE PLANT	140,909	10.67	13,200
		Subtotal:	140,909	10.67	13,200
RBT30	DWORSHAK RESERVOIR	BARGE PLANT	153,997	10.32	14,920
		Subtotal:	153,997	10.32	14,920
Total:			<u>294,906</u>	<u>10.49</u>	<u>28,120</u>

FISH AND FISH EGG DISTRIBUTION SUMMARY

Fiscal Year 88

Station: HAGERMAN NFH, ID Species	Fish or Fish Egg Number	Fish		Management Area	State	Agency
		Total Weight (Pounds)	Size (Inches)			
STEELHEAD	344,049	12,995	4.7	WALLOWA NAT'L FOREST	OR	LOWER SNAKE RIVER COMPENSATION PL
STEELHEAD	1,195,745	258,810	8.4	SAWTOOTH NATL. FOREST	ID	LOWER SNAKE RIVER COMPENSATION PL
STEELHEAD	303,564	62,965	8.2	CHALLIS NATL. FOREST	ID	LOWER SNAKE RIVER COMPENSATION PL
STEELHEAD	50,722	10,550	8.3	NEZPERCE NATL. FOREST	ID	LOWER SNAKE RIVER COMPENSATION PL
RAINBOW TROUT	140,909	13,200	5.7	NEZPERCE NATL. FOREST	ID	CORPS OF ENGINEERS
RAINBOW TROUT	153,997	14,920	5.8	NEZPERCE NATL. FOREST	ID	CORPS OF ENGINEERS
TOTAL DISTRIBUTION	2,188,986	373,440				

Run date 11/12/88

Hagerman National Fish Hatchery  
FY 88 Distribution Summary  
Totals by Lot

Lot	Number	Weight	No./Lb	Miles	Morts
RBT29	140,909	13,200	10.67	3.043	9
RBT30	153,997	14,920	10.32	2.258	13
STTA27	1,590,516	282,355	5.63	16.744	261
STTB28	303,564	62,965	4.82	6.032	54
Total:	<u>2,188,986</u>	<u>373,440</u>	<u>5.86</u>	<u>28.077</u>	<u>337</u>

FIVE YEAR HATCHERY PRODUCTION SUMMARY

Station Hagerman NFH

	Fiscal Year				
	1988	1987	1986	1985	1984
<b>I. Fish Production Data</b>					
<b>Intensive Culture:</b>					
Fish Weight Gain (pounds)	375,297	371,107	378,949	326,869	357,039
Fish Numbers	1,976,914	2,087,080	1,835,768	1,868,700	1,450,300
Percent Survival	94.7	94.1	87.3	82.1	83.3
Feed Conversion	1.22	1.15	1.19	1.31	1.56
<b>Extensive Culture:</b>					
Fish Weight Gain (pounds)					
Fish Numbers					
Phase I					
Phase II					
Percent Survival					
Phase I					
Phase II					
Pounds per Acre					
Phase I					
Phase II					
<b>II. Broodstock Production Data:</b>					
Number of Females Spawned					
Number of Eggs					
Number of Fish					
<b>III. Management Data:</b>					
Full-Time Equivalent	8.6	8.9	9.3	9.3	9.1
Operational Costs	449,250	506,540	441,819	400,507	408,200
Maintenance Costs	76,186	36,957	48,540	46,800	31,000

FISH HEALTH ACTIVITIES SUMMARY -  
NATIONAL FISH HATCHERY

Station Hagerman NFH Fiscal Year 88

Problem/Incident/Activity	Species	Therapeutic Treatment	Results/Comments
1	2	3	4
Negative			

Chemical Summary:

Chemical: Argentynine	Purpose: Egg Disinfection	Total Amount Used: 1.3 gallon	Total Cost: \$ 25.56
HTH	Fish Removal-Riley Lake	15 lbs.	24.00
Sodium Thiosulfate	Neutralize Riley Lake HTH	150 lbs.	90.47
HTH	Disinfect Trucks	30 lbs.	48.00
Sodium Thiosulfate	Neutralize	140 lbs.	84.43
			<u>\$272.46</u>

OPERATIONS/MAINTENANCE COST DATA

Cost				
Operations (Fisheries) (4710) 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4	
256,044				
7,276				
3,069				
5,984				
240				
-0-				
-0-				
8,000				

1. Salaries, Permanent (Including Benefits):

2. Salaries, Temporary (Including Benefits):

3. Operating Costs:

A. Utilities

- 1. Telephone \_\_\_\_\_
- 2. Electricity 143,568 KWH
- 3. Heating Oil 300 Gal
- 4. Natural Gas --- Cu Ft
- 5. Other ---

B. Vehicle Maintenance

- 1. Distribution Vehicles # 4
- Total Mileage 29,257

Station Hagerman NFH

OPERATIONS/MAINTENANCE COST DATA

Fiscal Year 88

Cost				
Operations (Fisheries) (4710) 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4	
3,500				
3,462				
2,526				
112,738				
272				
100				

3. B.(cont) Vehicle Maintenance

2. Non-Distribution Vehicles # 6

Total Mileage 23,463

C. Fuel for Vehicles

1. Fuel (Dist.) 4,616 Gal

2. Fuel (Non-Dist) 2,578 Gal

D. Supplies

1. Fish Food

2. Chemicals

a. Fish Related

b. Non-Fish Related

OPERATIONS/MAINTENANCE COST DATA

Station Hagerman NFH

Cost				
Operations (Fisheries) (4710) 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4	
-0-				
-0-				
1,000				
4,000				
9,749				
6,267				
5,583				
19,440				

- 3. D.(cont) Supplies \_\_\_\_\_
- 3. Fertilizer \_\_\_\_\_
- 4. Tags and Tagging Supplies \_\_\_\_\_
- 5. Office Supplies \_\_\_\_\_
- 6. Custodial Maintenance Supplies \_\_\_\_\_
- 7. Other Supplies \_\_\_\_\_
- E. Travel \_\_\_\_\_
- F. Moving Expenses \_\_\_\_\_
- G. Miscellaneous (List): \_\_\_\_\_  
 Leased trucks, small \_\_\_\_\_  
 equipment, station brochure \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Station Hagerman NFH

OPERATIONS/MAINTENANCE COST DATA

Fiscal Year 88

Cost				
Operations (Fisheries) (4710) 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4	
449,250				
9,500				
9,500				
4,735				
4,735				
55,100				
55,100				
6,851		2,851		
6,851		2,851		
76,186		2,851		

4. Total Operations (Total: Lines 1, 2, and 3 A-G)

5. Vehicles Purchased (List) ½-Ton Pickup

6. Total Vehicles Purchased (Total: Line 5)

7. Equipment Purchased (over \$500)(List) Computer, Air Compressor

8. Total Equipment (Total: Line 7)

9. Cyclical Maintenance (List) Domestic pump, raceway sealing, hatchery door, feed fines collector

10. Total Cyclical Maintenance (Total: Line 9)

11. Quarters Maintenance (List) Painting, garage door openers, TV deciphers, garbage disposals

12. Total Quarters Maintenance (Total: Line 11)

13. Total Maintenance (Total: Lines 6, 8, 10, 12)

14. Grand Total (Total: Lines 4 and 13) \$ 528,287

**REPORT OF STATION PERSONNEL**

Fiscal Year 1988

Station Hagerman, Idaho NFH

Part I - Permanent Personnel (FTE's <u>8.1</u> )					
Name Of Employee 1	Functional Title 2	Grade 3	Period Worked 4	Remarks 5	
David S. Bruhn	Supv. Fishery Biologist	12	10/1/87-9/30/88		
Harry T. Shaw	Supv. Fishery Biologist	11	10/1/87-9/30/88		
Janice N. Rowan	Fishery Biologist (Mgmt.)	9	1/3 - 9/30/88		
Kerry W. Grande	Fishery Biologist (Mgmt.)	5	10/1/87-9/30/88		
Beatrice M. Martindale	Hatchery Asst. (Clerical)	5	10/1/87-9/30/88		
M. J. Kirsch, Jr.	Maintenance Worker	8	10/1/87-9/30/88		
Part II - Temporary Personnel (FTE's <u>.5</u> )					
Name Of Employee 1	Functional Title 2	Grade 3	Period Worked 4	Remarks 5	
Michael T. Casten	Animal Caretaker	2	10/1/87-4/23/88 7/17 - 9/30/88		
Clayton Anderson	Motor Vehicle Operator	8	3/27 - 4/23/88		
Part III - Other Personnel (FTE's _____)					
Name Of Employee 1	Functional Title 2	Grade 3	Period Worked 4	Remarks 5	

REPORT OF STATION PERSONNEL

NAME OF EMPLOYEE 1	PART I - Permanent Personnel (FTE's) FUNCTIONAL TITLE 2	GRADE 3	PERIOD WORKED 4	REMARKS 5
Michael G. Jacobson	Motor Vehicle Operator	8	10/1/87-9/30/88	
Samuel D. Martindale	Motor Vehicle Operator	8	10/1/87-9/30/88	
Brian P. Clifford	Animal Caretaker	5	10/1/87-5/7/88 7/31 - 9/30/88	Career Seasonal
Lawrence J. Telles	Fishery Biologist (Mgmt.)	9	10/1 - 10/10/87	

