

ANNUAL REPORT
FISCAL YEAR 1986
DWORKSHAK NATIONAL FISH HATCHERY
AHSAHKA, IDAHO
OCTOBER 1, 1985 - SEPTEMBER 30, 1986

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January 9, 1987

INDEX

	<u>PAGE</u>
INTRODUCTION	1
STATION HIGHLIGHTS	4
FISH CULTURE OPERATIONS	7
Steelhead Production	
Brood Year 1985	7
Brood Year 1986	10
Rainbow Trout Sentinel Experiments	19
Spring Chinook Salmon Production	
Spring Chinook - Brood Year 1984	20
Spring Chinook - Brood Year 1985	21
Spring Chinook - Brood Year 1986	23
RI-117 - Hatchery Production Summary	26
REPAIRS/IMPROVEMENTS/NEW EQUIPMENT	28
MEETINGS/TRAVEL/TRAINING	37
PROGRAM INFORMATION	39
STAFFING	41
COOPERATIVE PROGRAMS	44

INTRODUCTION

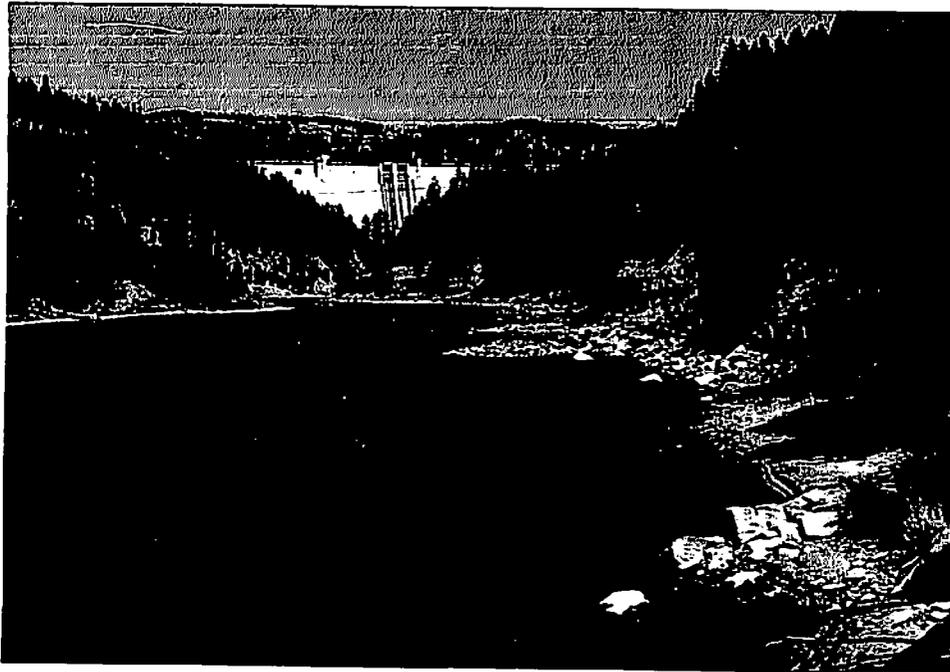
Dworshak National Fish Hatchery is located at the confluence of the North Fork of the Clearwater River and the main stem Clearwater River near the unincorporated town of Ahsahka, in north central Idaho. The site is 3 miles west of Orofino (population 3,800) on the north bank of the Clearwater River, 1 mile downstream from Dworshak Dam.

The site was purchased by the U. S. Army Corps of Engineers in 1967 from several landowners. Title remains with the Corps.

Funds for developing the hatchery were allocated through construction of Dworshak Dam under Public Law 10 U.S.C. 2304 (a), appropriation 96 x 3122, Construction, General, Corps of Engineers, Civil, Dworshak Dam and Reservoir.



Location of new 5' x 6' FWS emblem on feed building as seen from Highway 12.



North Fork River--water supply furnishing hatchery with Dworshak Dam in background.

The hatchery was designed and constructed by the U.S. Army Corps of Engineers. It is administered and operated by the U. S. Fish and Wildlife Service. Rearing facilities consist of 84 recirculating-type ponds (17' x 75') for steelhead production, 128 inside nursery tanks (3' x 16') and 30 vertical stack egg incubators. In addition, there are nine adult holding ponds (17' x 75') of which six are modified into twelve 8' x 75' raceways to hold rainbow production. Thirty 8' x 80' concrete raceways rear spring chinook salmon.

Operations began in 1969 with completion of the first phase of construction. This provided a total reuse system for 25 ponds and a single-pass system for 59 ponds. A second phase in 1972 placed all ponds on recycled flow. Subsequent construction modified some of the features. New design concepts continue to be incorporated into the hatchery.

Additional construction, completed in June 1982, expanded facilities for rearing spring chinook salmon. Authorized and funded under the U. S. Fish and Wildlife's Lower Snake River Compensation Plan (LSRCP), site selection was approved in 1981 and construction began in September.

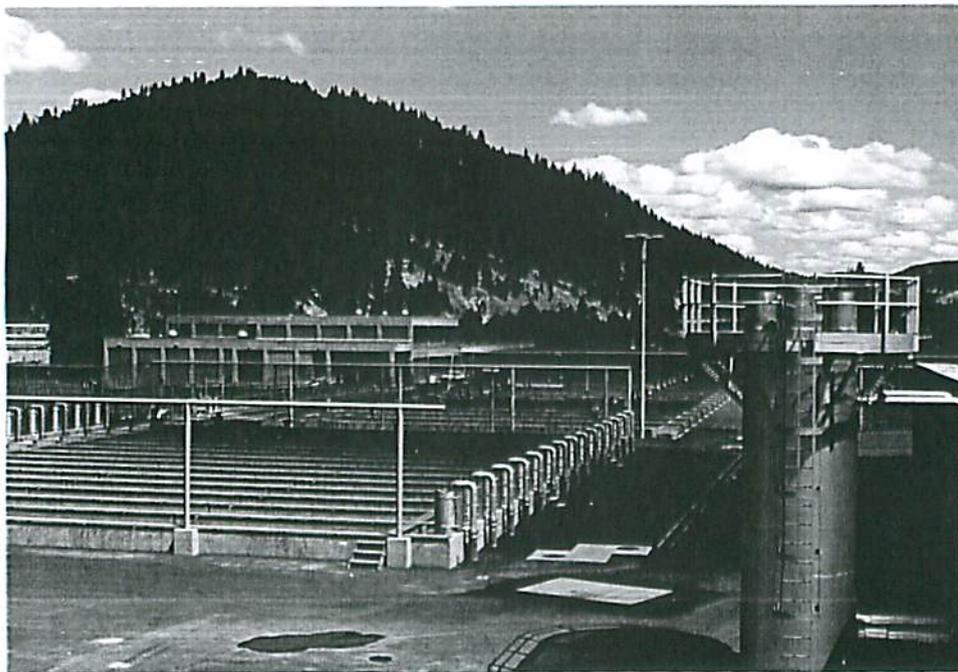
Steelhead and rainbow trout are mitigation production assigned to the hatchery with construction of Dworshak Dam. Steelhead are released into the Clearwater River drainage; rainbow into Dworshak Reservoir. Spring chinook smolts are presently being released at the hatchery site. As the result of Dworshak's Infectious Hematopoietic Necrosis Virus (IHNV) disease status, rainbow trout production has been assigned to Hagerman NFH for stocking Dworshak Reservoir. Costs for this program remain with the Dworshak hatchery. Spring chinook are presently being reared in the 12 raceways previously identified for rainbow production. This additional rearing space allows for an increased chinook production capacity of 400,000 smolts weighing 20,000 pounds.

Total production capacity appears as follows:

Steelhead	2.3 million	420,000 pounds
Spring Chinook	1.6 million	90,000 pounds

Kooskia National Fish Hatchery, located 35 miles upriver, operates as a complex with Dworshak to produce spring chinook smolts and steelhead fingerling; steelhead being returned to Dworshak at 25¢ per pound as a move to manage around IHNV.

This report covers the period of hatchery activities from October 1, 1985 to September 30, 1986



Dworshak rearing facilities.



Public entrance to station.



L.S.R.C.P. spring chinook raceways.

STATION HIGHLIGHTS

O&M funding from the Corps of Engineers (COE) was \$1,019,400 (subactivity 1935); primarily for steelhead production. In addition, \$46,000 was annual work planned to the Dworshak Fish Health Center (FHC). Funds totaling \$175,000 were provided by the Lower Snake River Compensation Plan (LSRCP) for production of spring chinook salmon. The Youth Conservation Corps (YCC) contributed towards labor costs for an 8-week summer program employing 10 enrollees and 1 crew leader. Total O&M funding, exclusive of FHC and YCC, was \$1,194,400.

Cost per pound of all fish produced was \$2.66, based upon a production gain of 448,840 pounds. This cost reflects equipment repair and maintenance, facility care, rehabilitation, travel and training, and direct production expenses. Production costs alone (labor, fish food, mineral addition, drugs and chemicals) were \$662,000 or \$1.47 per pound.

A total of 22.9 staff-years was used during the year for a 19,600 pound production gain per staff-year employed. Production each staff-year increased to 35,620 pounds when based upon direct production responsibilities.

Food conversion (pounds of food to produce 1 pound of fish) was 1.48. This figure is calculated from 664,285 pounds of fish food used to produce a gain of 448,840 pounds.

Although steelhead returns remained good for the Clearwater River during the 1985-86 season, less than ideal river conditions in the spring limited fishing success rates. Turbid water in the main stem, along with irregular river fluctuation and often high flows in the North Fork, attributed to fewer fish being caught.

Ending September 30, 1986, steelhead counts over the downriver dams set new records indicating that the Clearwater River may again expect another good season of fishing.

Spring chinook into the Clearwater River are showing an increase. Jack counts in 1986 give optimism for added numbers in 1987. The station's excellent releases (numbers and quality) in 1985 and 1986 should lead towards maintaining adequate brood stock needs and assure outplanting of smolts to other upriver sites as returns become more established.

The fish ladder operated from January 7 until May 12, 1986 for the collection of 4,462 steelhead adults. Some 7.4 million eggs were taken from 1,068 females spawned. A total of 3.2 million eyed eggs were moved to Kooskia with 2.8 million fingerling returned to Dworshak beginning in late May until completion in early July.

Operation of the ladder for spring chinook salmon (SCS) collection started May 23 and continued until spawning began on August 18.

Final count of spring chinook adult into Dworshak and Kooskia was 799 fish. Of this number, 516 were collected at Dworshak and 283 at Kooskia. Kooskia's requirement of 1.2 million eggs will be met from the combined adult return to the Clearwater. The station received 2.3 million eggs from Rapid River State Hatchery in August to meet its program of a planned 1.6 million smolt release in spring 1988.

The State of Idaho, Department of Education, through contract with USDA, received 35,951 pounds of steelhead carcasses for distribution to food bank recipients and to other commodity programs.

Steelhead smolts released in spring 1986 totaled 2.9 million weighing 439,000 pounds; a record release of recent years. Size of these fish averaged 187 mm. Of interest, was the performance of System I in which only single-pass raw water was used through the entire rearing period to produce a 177 mm smolt at release time. System II and III operated for a period of time during the winter months on heated recycled water to produce 197 mm fish. Fish health conditions at release time were excellent. Returns of these fish as 2-ocean adults can be expected during the 1988-89 season.

IHNV disease in Brood Year 1986 steelhead production caused devastating losses despite use of the Kooskia NFH facilities for early rearing. Some 1.5 million fish were lost from late July to the end of FY 1986. As the result of IHNV, station steelhead releases for spring 1987 are expected to be 1.9 million; down 400,000 from a planned program of 2.3 million.

Several studies were continued during the year in an effort to reduce the IHNV disease problem that has plagued Dworshak since 1982. However, the second year of ozone testing was nullified by the breakdown in equipment performance. A repeat of this study is planned for FY 1987. Sentinel rainbow production was onhand throughout the year to determine if IHNV was (1) seasonal or (2) if the disease was more evident at the water supply intake or on the facility after being piped to the rearing units. No determination was made in either of the above cases.

Incidence of bacterial kidney disease (BKD) in spring chinook production was reduced from other years. Improved diets and maintaining target smolt size at 20 per pound appeared to have lessened the problem. Although the number of SCS smolts released was down from the inavailability of eggs, smolt quality was again reported excellent.

Rainbow trout production for Dworshak Reservoir was, for the second year, furnished from another hatchery as the result of Dworshak's IHNV disease status. The 1986 stocking came from Hagerman NFH as subcatchables received in June. The cost of this production, \$11,200, was funded by Dworshak.

Notice was received from Clearwater Power Company that Dworshak's monthly charges were being increased, effective December 1985, by 52 percent. However, the increase is 90 percent when considering a rate 8 months previous. During this period, Dworshak's annual charges went from \$34,000 to \$62,000.

An 8-week Youth Conservation Corp program ended on August 1. Ten enrollees and one crew leader provided another successful program. Accomplishments included landscaping, grounds and buildings maintenance, production care, painting, and general clean up of facilities. The enrollees, assisted by several staff members, removed a spawning cabin located at Elk Creek on Dworshak Reservoir using a helicopter to transfer materials. This cabin had been constructed in the early years of hatchery operation for use in a kokanee spawning program that never materialized.

The automated trough feeders, installed over 128 rearing tanks, were removed from the nursery building and placed on surplus. The moist diet, fed young fingerling fish, prevents using this type of feed system.

Upgrading the hatchery's main pumping supply, at the North Fork River intake, was a major accomplishment during the year. A new 15,000 gpm capacity pump (No. 6) was installed while Nos. 1, 2, 3, 4 and 5 were completely rehabilitated by restoring pump assemblies and performing motor rewinds.

The Corps of Engineers estimated \$50,000 to complete header modifications at the main aeration chamber by replacing 8-inch elbows with 12-inch to furnish water through the newly-installed columns degassers. Station force account accomplished the job for \$6100. As the result of this work, it is anticipated that degassers, on 128 nursery tanks and 30 raceways, will be removed in FY 1987 if nitrogen gas removal can be accomplished at the main aeration chamber.

A total of 456 financial transactions were prepared during the year accounting for \$610,000. Of these transactions, 233 were purchase orders adding to \$480,000. The station maintained blanket purchase arrangements with 13 local vendors.

FISH CULTURE OPERATIONS
Steelhead Production
-Brood Year 1985-

Steelhead produced from this brood year performed exceptionally well throughout Fiscal Year 1986. In fact, the final production numbers (2.96 million, 439,000 pounds) represented the largest release since 1974. Relevant events during Fiscal Year 1986 are given below.

System I (Early Spectrum of the Run)

A joint decision to rear fish in this system without implementing reuse, heat, or mineralization was reached at the Coordination Meeting on November 14, 1985. This was based on the unprecedented large size of the fish on November 1 and on the need for baseline information for the proposed Clearwater State Fish Hatchery; this hatchery intends to produce steelhead smolts in 1 year using only single-pass raw water.

When released in late April and early May 1986, the average smolt was 171 mm. Fish performed marginally well during the year. Size variation within this population was more evident than in the other systems. Infestations with the ectoparasite Trichodina were more severe. Dworshak NFH has historically experienced heavy levels of Trichodina whenever steelhead or rainbow trout were reared for extended periods on cold, raw water.

During the final month of rearing, fish in one pond of this system displayed signs of osmoregulatory imbalance. Resultant mortality contributed over 50 percent of all mortality in System I. Signs of the imbalance were similar to the "Dworshak Syndrome" witnessed in the 1970's.

IHN was not confirmed in steelhead of this system during Fiscal Year 1986.

System II (Late Spectrum of the Run)

This system was originally stocked with fish derived primarily from the ozone experiments and the offsite rearing study. System II experienced substantial losses to IHNV during Fiscal Year 1985; chronic losses continued in 1986. In fact, for Brood Year 1985 steelhead, IHNV losses were generally confined to steelhead which had spent at least a portion of their early life history in the Dworshak NFH nursery. A final analysis of the mortality revealed that 50 percent of all mortality was contributed by survivors of the ozone experiments.

IHNV was confirmed in three ponds in System II during November and December 1985. The confirmations were not associated with high mortality.

Although this system used heated reuse with mineralization, the large size of the fish, and the associated biomass (up to 6,400 pounds in some ponds) evident in February, allowed a reduction in heat by early March. We did not terminate the mineralization until shortly before release in May 1986.

System III (Middle Spectrum of the Run)

Steelhead in System III performed exceptionally well during Fiscal Year 1986. Fish quality and fish health remained excellent throughout the rearing year.

Heated reuse with mineralization was initiated in November 1985. With an unprecedented large biomass (average 4,800 pounds) in most ponds by December 1985, heat was reduced and feeding restricted in early February 1986. There were no adverse affects; the fish quality at release was excellent.



Demand feeders in operation on late-rearing steelhead production.

General Information

Tagging

A summary of steelhead tagging information is given below:

Marked Fish Summary

Broodyear 1985 STT

Pond No.	System	No. Fish Tagged	Date Tagged	CWT Tag No.	Freeze Brand	Fins Clipped	Release Site	Purpose of Study
29	I	25,882	12/02/85	5/17/53	-	Adipose Left ventral	DNFH	Raw water
20	II	25,664	11/18-19/85	10/28/56	-	" "	DNFH	IHN survivors
61	III	25,008	12/05/85	5/17/54	-	" "	DNFH	Reuse
63 & 65	III	52,103	12/3-5/85	5/17/29	-	" "	S. Fork	Off-site
		<u>128,657</u>					Clearwater	

Other Experimental Groups

1. Pond 42: 40,000 were freeze-branded and 2,500 were PIT tagged prior to release.

Bird Netting

Fall 1985 was particularly harsh and resulted in huge rafts of fish-eating ducks residing on the main stem Clearwater River and feeding on production steelhead. In February 1986, additional bird netting was installed to completely enclose the area over and around the Burrows ponds. Inventory of all ponds in System I in which most of the duck feeding activity occurred revealed that 81,700 fish (8.1 percent) had been lost to the birds. The additional netting curtailed the duck feeding activity.

Inventory and Release Parameters

Inventory of Brood Year 1985 steelhead on October 1, 1985 is shown below:

<u>Location</u>	<u>Number</u>	<u>Size (#/lb.)</u>	<u>Weight (lbs.)</u>
System I	956,344	24.56	38,946
System II	795,823	40.48	19,658
System III	<u>1,306,203</u>	<u>35.85</u>	<u>36,434</u>
Total	<u>3,058,370</u>	<u>32.18</u>	<u>95,038</u>

A summary of outplanted and directly released steelhead is shown below:

TOTAL OUTPLANTS BY LOT

<u>Lot</u>	<u>Number</u>	<u>Size</u> <u>(#/lb.)</u>	<u>Weight</u> <u>(lbs.)</u>	<u>Length</u> <u>(mm)</u>
5-Ds-I-21	545,603	8.77	62,225	168
5-Ds-II-23	382,777	6.53	58,661	185
5-Ds-III-22	794,163	6.17	128,725	194

DIRECT RELEASE

<u>Lot</u>	<u>Number</u>	<u>Size</u> <u>(#/lb.)</u>	<u>Weight</u> <u>(lbs.)</u>	<u>Length</u> <u>(mm)</u>
5-Ds-I-21	352,832	8.16	43,250	174
5-Ds-II-23	394,091	6.18	63,695	193
5-Ds-III-22	492,618	5.92	83,159	200

RELEASE TOTALS

	<u>Number</u>	<u>Size</u> <u>(#/lb.)</u>	<u>Weight</u> <u>(lbs.)</u>	<u>Length</u> <u>(mm)</u>
OUTPLANT	1,722,543	6.90	249,611	184
DIRECT	1,239,541	6.52	190,104	191
TOTAL	2,962,084	6.74 Avg.	439,715	187 Avg.

-Brood Year 1986-

Spawning operations for Brood Year 1986, which began on February 4, were terminated May 6, 1986. A summary of the relevant information is shown in the following table.

LADDER OPERATION

Opened January 7, 1986
 Closed May 13, 1986

NUMBER OF FISH IN RUN	<u>Males</u>	<u>Females</u>	<u>Total</u>
I-ocean	575	125	700
II-ocean	749	2,610	3,359
III-ocean	260	143	403
Total	1,584	2,878	4,462
NUMBER SPAWNED	925	1,068	1,993
MORTALITY	83	154	237
LIVE ADULTS OUTPLANTED			515

CARCASS DISPOSAL:			
Idaho Dept. of Education			2,999
Nez Perce Tribe			260
Landfill			845
ADULTS TRANSFERRED FROM KOOSKIA	48	109	157
IHNV POSITIVE ADULTS	33 (3.6%)	28 (2.6%)	61 (3.1%)
GREEN EGGS COLLECTED	7,533,369		
EYED EGGS	6,576,750		
EYED EGG DISPOSITION:			
Kooskia NFH	3,396,000		
Ozone Study	829,300		
Production Controls	120,000		
IFG Spawning Channels	1,091,456		
FHC Experiments	42,850		
IHN POSITIVE EGGS DESTROYED	1,097,133		



Checking and sorting steelhead for spawning.

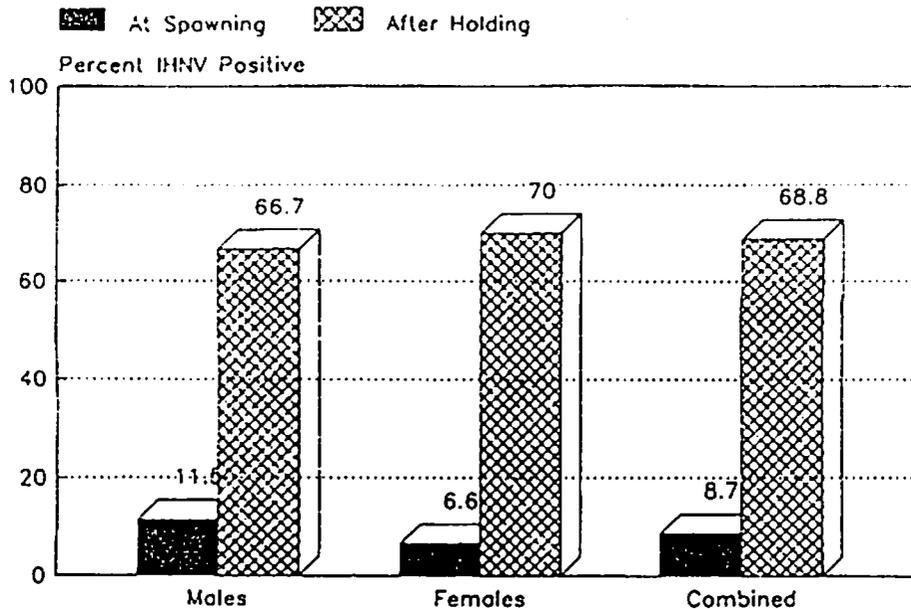
Complete brood stock culling procedures as in 1984 and 1985 were followed; all eggs, water hardened in iodophore (100 mg/l) for 1 hour, were incubated in individual colanders until eyed. Anesthetic for adults was carbon dioxide (85 mg/l) buffered with sodium bicarbonate.

Carcasses were donated to the Idaho Department of Education for distribution to area food banks and public institutions. Latham's Custom Cutting of Orofino, contracted by the Department of Education, processed the carcasses.

This year, due to the paucity of male steelhead, outplanting attempts were terminated on April 7. Adults entering the hatchery after that date and in excess of spawning requirements were kept in a holding pond for a University of Idaho research project. For that research, 30 male and 50 female steelhead were sampled for IHNV and mated according to specific genetic phenotypes (glycyl-leucine dipeptide) as determined by electrophoresis of muscle tissue.

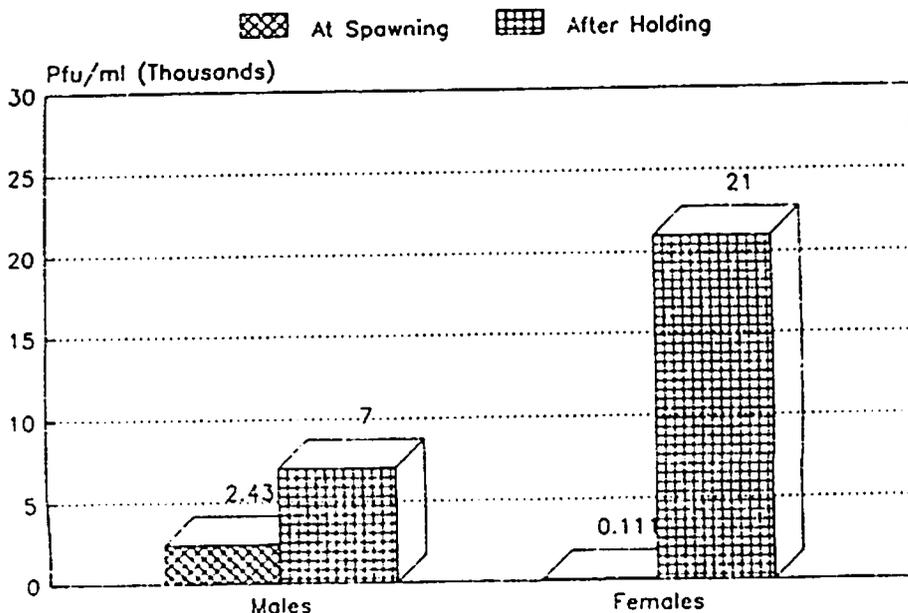
The results of the IHNV analysis revealed a nearly eightfold increase in the prevalence of the virus in adults held for 1 to nearly 4 weeks (Fig. 1 and Fig. 2). Holding adults on station for even short periods apparently increases the potential for spreading IHN.

Figure 1. The Prevalence of IHNV in Steelhead held at Dworshak NFH



April-May 1986

Figure 2. IHNV Titre in Adult Steelhead
Before and After Holding



April-May 1986

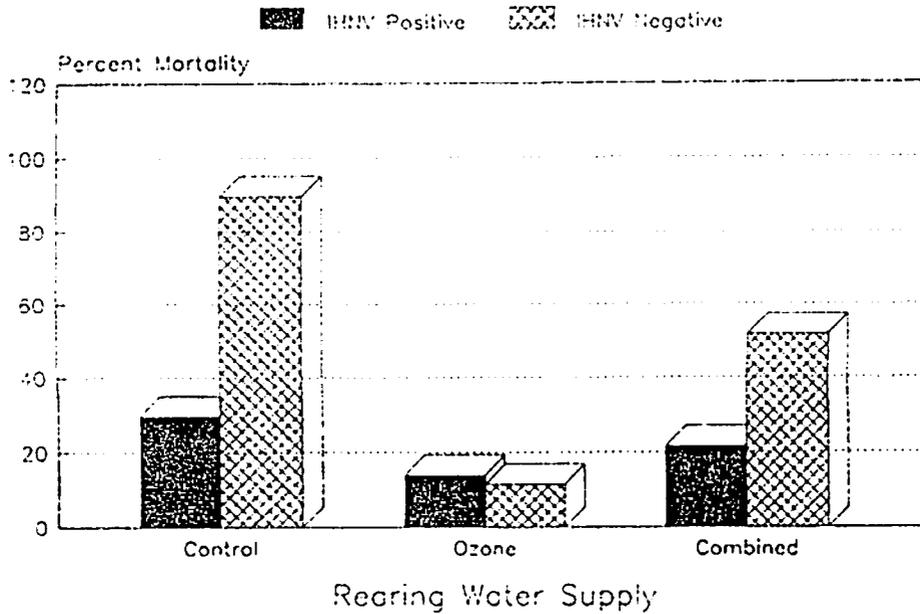
Ozone Study

A replicate of the 1985 ozone experiment was initiated in mid-April. This experiment incorporated the progeny of IHNV positive adults to further test the efficacy of ozone as a water sterilant. Equipment failures prevented the maintenance of the required amount of ozone and the experiment was invalid.

Other Nursery Studies

Steelhead siblings reared in pairs of ozonated and raw water were challenged with IHNV on July 23. Three moribund fingerlings from a System I pond with active IHN were placed in each of the four tanks. Mortality was monitored for three weeks; the results demonstrated that ozone, even for a short period of time during incubation and early rearing, effectively prevented substantial losses to IHN. The progeny of IHNV positive adults reared in raw water lost significantly fewer fish than their IHN negative counterparts (graph below).

IHN Mortality to Steelhead Fingerlings According to Parental IHNV Disposition

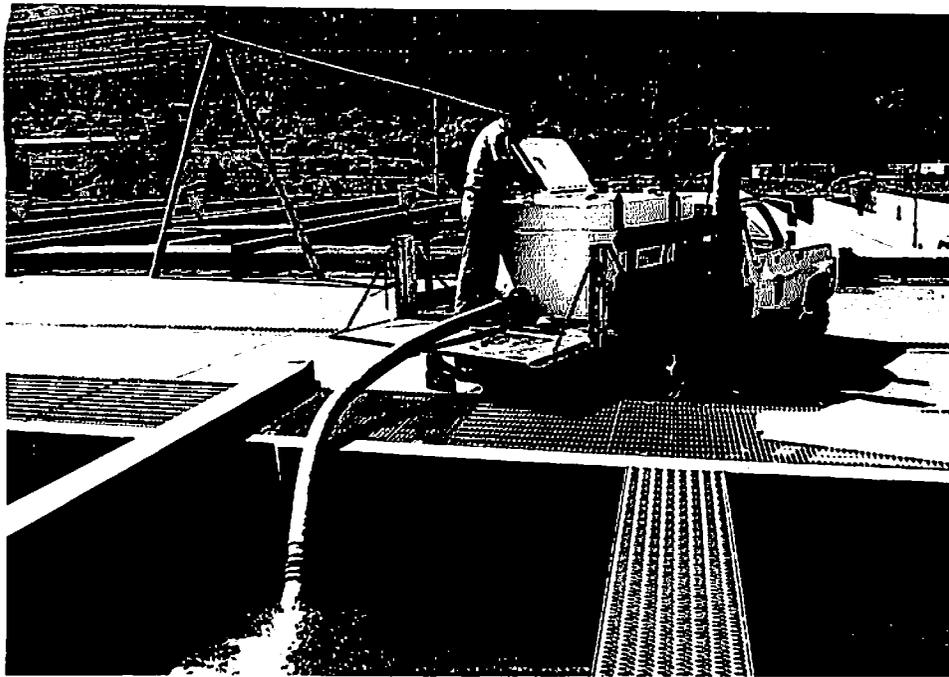


Challenged July 23, 1986

Attempts to artificially infect healthy nursery steelhead fry with contaminated fish cultural equipment and even the water from IHN-infected rearing ponds were unsuccessful.

Initial Loading of the Systems

<u>Location</u>	<u>Lot</u>	<u>Number</u>	<u>Size (#/lb.)</u>	<u>Weight (lb.)</u>
STT-Dw (H) -				
System I	8601	1,084,917	301	3,598
System II	8602	915,419	357	2,558
System III	8603	1,317,123	259	5,080
Total		3,317,459		11,236
Average			295	



Receiving steelhead fingerling from Kooskia NFH.

September 30, 1986 Inventory

The relevant parameters for steelhead on station at the end of the Fiscal Year are:

<u>Lot</u>	<u>Number</u>	<u>Size (#/lb.)</u>	<u>Weight (lb.)</u>	<u>Length (mm)</u>
STT-Dw(H)-				
8601	674,944	29.8	22,640	112
8602	806,114	39.7	20,283	104
8603	813,086	31.8	25,569	110
Total	2,294,144		68,492	
Average		33.5		

From late June until September, IHN devastated steelhead in Systems I and III Burrows ponds; steelhead in the nursery and System II were affected to a lesser degree. As of September 30, 1986, losses attributable to IHN were:

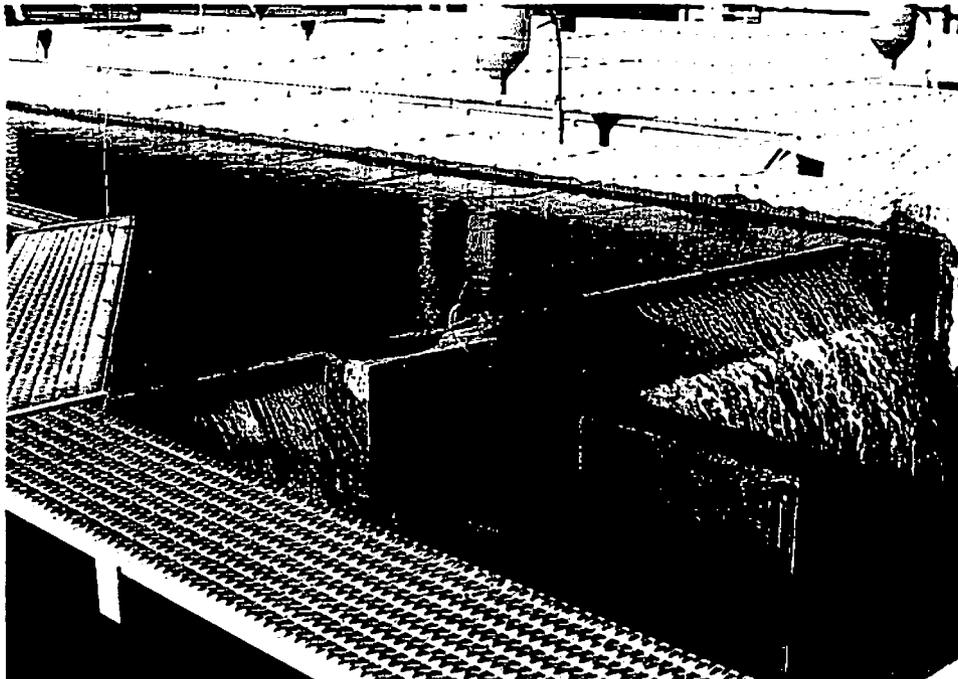
<u>Lot</u>	<u>Number Lost</u>	<u>Percent Loss</u>
8601	409,973	37.8
8602	109,305	11.9
8603	504,037	38.3
Total	1,023,315*	30.8

*Includes 346,443 fish which were destroyed when IHN was confirmed and mortality was significant.

Unlike Brood Year 1985 in which IHN affected essentially only those fish which had spent time in the Dworshak nursery, IHN this year affected primarily fish returned from the Kooskia facility.

Despite disinfection of all rearing facilities and meticulous aseptic technique, we were unable to prevent the spread of this disease. An analysis of various rearing strategies used in the past 3 years failed to reveal significant variations for Brood Year 1986. In fact, densities were lower, flow indices better, absolute numbers per pond reduced, and the size at transport from Kooskia statistically insignificant from other years.

IHN-related losses were greatly reduced by the end of the Fiscal Year; chronic losses due to associated problems continued.



Plugged floor drains from IHN mortality causes water to overflow ponds.



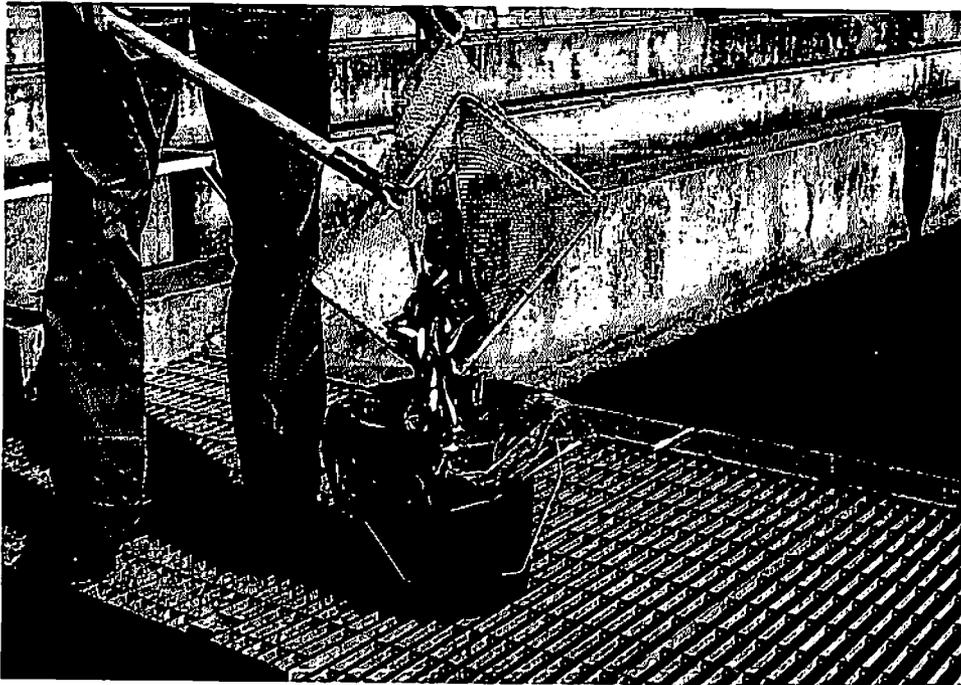
Removing IHN losses from pond.



IHN mortality.



Pond overflow resulting from IHN mortality plugging floor screens.



Netting IHN mortality.



Weighing IHN losses.

Rainbow Trout Sentinel Experiments

These experiments, conducted on individual populations divided between two rearing locations (tanks in the nursery and in the main pumphouse), were designed to test the hypothesis that the river water supply was the primary source of IHN. The experimental design further allows analysis of the timing of IHN "breaks" to evaluate a potential correlation with maturing steelhead in the North Fork.

Different strains of rainbow trout were received at approximately 2-month intervals as summarized below:

<u>Strain</u>	<u>Source</u>	<u>Received</u>	<u>Terminated</u>	<u>IHN</u>
Erwin	Ennis NFH	9/17/85	2/01/86	Negative
Mt. Lassen	Lassen SFH	9/25/85	3/31/86	Nursery +
Arlee	Ennis NFH	11/13/85	1/15/86	Negative
			3/04/86	
Shasta	Ennis NFH	1/28/86	5/27/86	Nursery +
				Pumphouse +
Eagle L.	Creston NFH	4/02/86	6/11/86	Nursery +
			6/16/86	
			6/23/86	
			9/02/86	
Redband	Ennis NFH	5/28/86	7/21/86	Negative
Erwin	Ennis NFH	7/25/86	8/18/86	Negative
Black Canyon	Black Canyon SFH	9/03/86	Ongoing	

To date, mortality has remained similar (approximately 14%) between nursery and pumphouse populations.

**Spring Chinook Salmon Production
-Brood Year 1984-**

One lot of spring chinook salmon (SCS) from Leavenworth NFH stock was on station at the beginning of the Fiscal Year; their status is summarized below:

<u>Lot</u>	<u>Number</u>	<u>Size (No./lb.)</u>	<u>Weight (lb.)</u>	<u>Length (mm)</u>
4-Le-3	883,934	39.6	22,303	109

The lot performed well throughout the rearing period with good food-to-flesh conversions and low mortality. No disease problems were encountered, although a low incidence of bacterial kidney disease (BKD) was detected prior to release.

Two groups of 40,000 fish were coded-wire tagged (CWT) by IDF&G in February 1986 for hatchery contribution studies. One 40,000 CWT group was also freeze-branded for a water budget study. An additional 2,500 fish were PIT tagged by NMFS. All groups were released directly into the North Fork Clearwater River.

A turbine passage study by NMFS transported 164,286 smolts by COE trucks to Lower Granite Dam for marking and release. The University of Idaho Cooperative Unit transported 1,000 smolts to their Marrowstone Research Lab in Washington for seawater challenge and BKD experiments.

Idaho Fish and Game biologists conducted a smolt assessment on representative samples of SCS smolts prior to release, giving them an excellent quality classification.

Release began in mid-March with outplanting; direct releases followed on April 2 and 3. Releases made were:

<u>Location</u>	<u>Number</u>	<u>Size (No./lb.)</u>	<u>Weight (lb.)</u>	<u>Date Released</u>
Lower Granite (NMFS Turbine Passage Study)	164,286	21.3	7,687	March 19-31
UI Marrowstone	1,000	23.6	42	March 27
Subtotal	165,286	21.3	7,729	
North Fork	<u>506,320</u>	<u>19.9</u>	<u>25,352</u>	April 2-3
Total Smolts	671,606	20.3 Avg.	33,081	

Fish escapement resulted in a 10 percent loss of fish through the raceway rearing cycle. Prior to loading raceways with Brood Year 1985 fingerling, aluminum angle was added to the bottom of each raceway to create a channel for the tail screen and to eliminate any gap under the screen.

-Brood Year 1985-

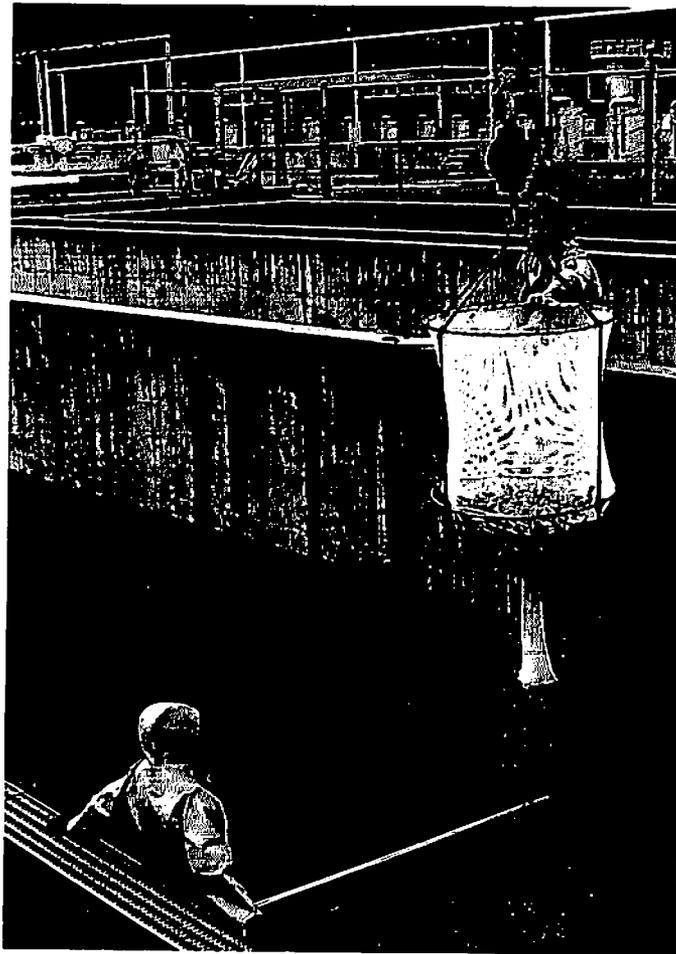
On October 1, 1985, 2.0 million eyed eggs were incubating in Heath trays on chilled water; another 0.6 million were incubating in egg jars on raw water. These green eggs were received from Rapid River SFH in August and September. Approximately 1.5 million green eggs were on hand at Kooskia NFH from adult brood stock returning to Dworshak and Kooskia during the summer.

SCS incubated in egg jars on raw water experienced a 90 percent loss due to unknown causes. Various experiments conducted at that time correlated higher mortality with egg jar incubation than with Heath tray incubation, although specific causes of mortality could not be determined. All eggs incubated on chilled water in Heath trays hatched and buttoned-up with little mortality observed. Survivors from the egg jar group were outplanted as excess fingerlings, as originally planned for the 0.6 million group. On April 25, 1986, these survivors were released into Dollar Creek as follows:

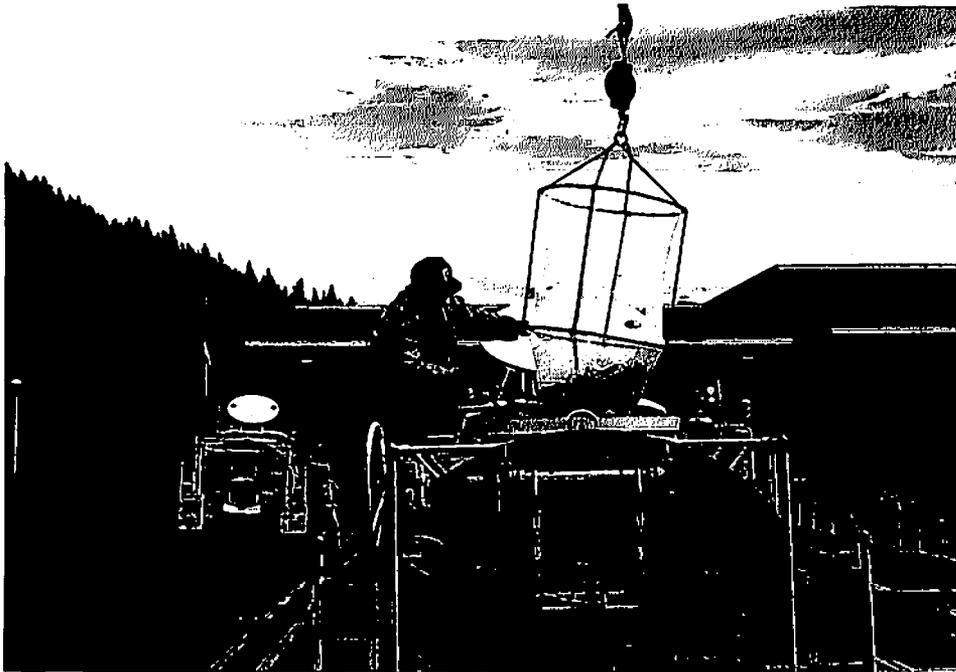
<u>Lot</u>	<u>Number</u>	<u>Size (No./lb.)</u>	<u>Weight (lbs.)</u>
5-UID(RR)-3	69,700	232	301

Approximately 1.9 million swim-up fry were started on feed during February. All fish were fed BioDiet starter until they reached 400 fish/lb., after which they were fed OMP. Fry were initially stocked at 22,500/tank in February and on single-pass raw water (38°F). By mid-June, most tanks had attained a density index of 0.38 at which time fingerlings were transferred to raceways. A final nursery inventory at transfer showed approximately 1.83 million fish remaining for a 3 percent total nursery mortality, over a 4-month period.

Initially, every third LSRCP raceway was stocked with 135,000 fingerlings while each of six holding pond raceways was loaded with 90,000 fingerlings. SCS in the LSRCP raceways were thinned when densities approached 0.30. An additional 200,000 fingerlings were transferred temporarily from Kooskia to the remaining holding pond raceways for rearing during the summer months; these were returned to Kooskia in September when their water temperature was more favorable for continued rearing. At that time, the Rapid River stock SCS in the holding pond raceways was thinned to adjacent raceways.



Netting and weighing spring chinook fingerling for transfer to Kooskia NFH.



Returning spring chinook fingerling to Kooskia NFH.

All SCS on station performed well in outdoor raceways. Fish were fed as outlined in the production plan to provide a healthy smolt of 15-20/lb. at release. BKD-related mortality was low, although one feeding of Erythromycin-treated feed was fed to all but two control raceways. Mortality declined slowly in both fed and unfed groups and averaged less than 0.2 percent per month by September 30, 1986. An excellent 95 percent survival was noted from swim-up to the end of Fiscal Year 1986.

Status of the lot ending September 30, 1986 was as follows:

<u>Lot</u>	<u>Number</u>	<u>Size</u> <u>(No./lb.)</u>	<u>Weight</u> <u>(lbs.)</u>	<u>Length</u> <u>(mm)</u>
5-UID(RR)-3	1,799,556	34.5	5,218	110.3

-Brood Year 1986-

Numbers of adult SCS returning to Dworshak increased over last brood year. Spring chinook returning to both Kooskia (283) and Dworshak (516) were held and spawned at Dworshak in August and September. Prespawning mortality, 89 fish (11%), was extremely low as compared to last year (31% in 1985). Egg survival and incubation location is summarized below:

<u>Date</u>	<u>Egg</u> <u>Take</u>	<u>Green</u> <u>Eggs</u>	<u>Eyed</u> <u>Eggs</u>	<u>Percent</u> <u>Eye-up</u>	<u>Eyed Egg</u> <u>Location</u>
8-18	1	117,307	83,787	71.43	Kooskia
8-21	2	85,060	58,266	68.50	Kooskia
8-25	3	99,648	51,756	51.94	Kooskia
8-28	4	289,508	249,020	86.01	Kooskia
9-02	5	359,976	232,896	64.70	Kooskia
9-05	6	128,384	110,440	86.02	Dworshak
9-09	7	124,355	111,455	89.63	Dworshak
9-12	8	36,938	34,610	93.70	Dworshak
Total		1,241,176	932,230	75.11	

Fish health samples taken from spawned fish showed few obvious signs of BKD; however, the overall incidence of BKD as determined by F.A.T. analysis was 41 percent. Fish showing obvious signs of BKD were not used during spawning; egg lots resulting from BKD+ disposition parents were segregated during incubation at both Kooskia and Dworshak. IHN incidence in returning adults was extremely low at 2.5 percent (17 fish).

The 256,505 eyed eggs currently at Dworshak will be transferred as fingerlings to Kooskia in September 1987 when cooler Clear Creek water temperatures prevail. All Kooskia-Dworshak stock smolts will be released at Kooskia in spring 1988.

The Rapid River SFH supplied 2.9 million green eggs for Dworshak's production program. These eggs have been incubating on chilled water, in Heath trays, and will be on feed in late January 1987. Egg survival to eye-up is summarized below:

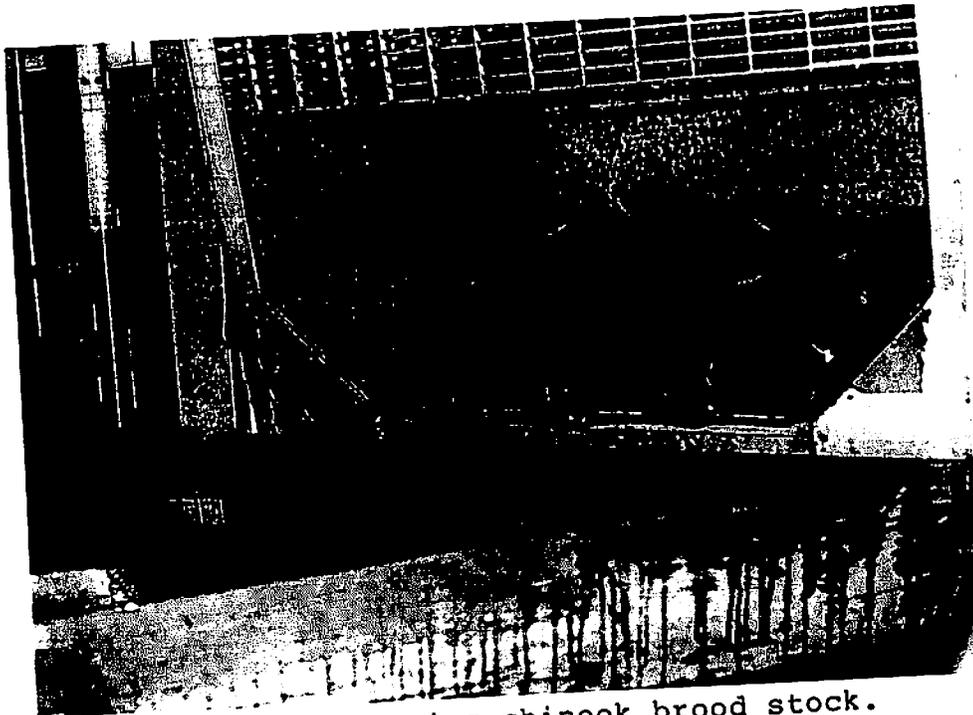
<u>Date</u>	<u>Egg Take</u>	<u>Green Eggs</u>	<u>Eyed Eggs</u>	<u>Percent Eye-up</u>	<u>Females Spawned</u>
8-26	1	2,093,336	1,516,240	72.4	432
8-29	2	828,672	525,824	63.5	208
Total		2,922,008	2,042,064	69.9	640



Sorting spring chinook brood stock and injecting with Erythromycin.



Adult spring chinook salmon at spawning time.



A basket of spring chinook brood stock.

Dworshak releases young steelhead as Operation Fish Run accelerates

By Bill Loftus
of the Tribune

Dworshak National Fish Hatchery at Ahsahka has finished emptying its raceways of nearly 3 million young steelhead.

This year's release is the best in the hatchery's history, said Wayne Olson, Dworshak manager at Ahsahka.

The hatchery released about 2,960,000 steelhead smolts and cleared the last pond out Monday, Olson said.

The hatchery had not released that many fish since 1974, he said, adding that this year's fish were of better quality.

Of the fish released from Dworshak, 1.7 million were taken to the South Fork of the Clearwater River and 1.2 million were released in the main river just off the hatchery grounds, Olson said.

For fishermen, the large release of fish is good news. "We should expect to have some ex-

cellent returns because we had some good reports from downstream about the fish," Olson said.

At Lower Granite Dam near Almota, Wash., the U.S. Army Corps of Engineers Operation Fish Run is at the peak of its season for hauling young steelhead downstream. About 200,000 smolts are being collected daily.

Chinook salmon smolts migrate downstream before the young steelhead. The peak of the chinook migration passed Lower Granite in late April.

More than 2.3 million young chinook and steelhead had already been hauled downstream from the dam on the Snake by Wednesday, said Sarah Willis, corps fishery biologist at Lower Granite.

Little Goose Dam downstream near Starbuck is also collecting the young fish, bringing the total transported to about 3 million so far.

About 6.3 million young salmon and steelhead were hauled

downstream from the two dams last year.

Nearly 15 million smolts from both the Columbia and Snake rivers were hauled by barge or truck downstream last year.

The fish hauled downstream are released below Bonneville Dam on the Columbia, the last dam before the ocean.

Operation Fish Run is credited by biologists with boosting dramatically the numbers of adult steelhead returning to the Snake River in recent years.

Bypassing as many of the eight dams on the Snake and Columbia rivers allows more of the young fish to survive. Without transport, 15 percent or more of the young fish die at each dam, biologists estimate.

The Snake's flow has also helped move the young fish downstream in good time this year, said Steve Pettit of the Idaho Fish and Game Department at Lewiston.

Willis said the number of fish

See **Fish**, Page 2E

hauled this year is expected to top the 14.8 million hauled last year.

Corps officials have also announced that they are seeking more specially designed barges to handle the load in the future. Operation Fish Run first began in 1977.

Jim Athearn of the corps said it should be clear by mid-month

whether the fish hauling will set a new record this year.

Hatcheries produced about 12 million steelhead and chinook smolts for release in the Snake River drainage this year. Another 1 million wild steelhead and half-million wild chinook smolts also migrate downstream.

This year's total is 3 million more than last year, Athearn said in a news release.

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

U.S. Fish and Wildlife Service
RECEIVED
OCT 27 1986
Dworshak-Koonkia NFH Complex

Station:

DWORSHAK NFH

HATCHERY PRODUCTION SUMMARY

Period Covered:

October 1, 1985

through

September 30, 1986

Density Index: 0.128				Flow Index: 0.559				Total Flow: 45,947					
Species and Lot	Fish on hand End of Month			Fish shipped this F.Y. Number	Gain this F.Y. Weight	Fish Feed Expended		Con- ver- sion	Unit Feed Cost		T.U. per Inch	T.U. to Date	Length increase 30-day Month Inches
	Number	Weight	Length			Pounds	Cost		Per lb.	Per 1000			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
SCS 4-LE-3	0.0	0.0	5.357	671.6	10,777	23,682	8,862.15	2.20	0.82	20.43	146.16	104.26	0.000
STT 5-DS-I-21	0.0	0.0	6.731	898.4	66,529	106,060	21,129.45	1.59	0.32	24.35	18.28	81.62	0.000
STT -DS-III-22	0.0	0.0	7.969	1,286.8	175,450	226,997	45,267.37	1.29	0.26	36.36	16.61	96.36	0.000
STT -DS-II-23	0.0	0.0	7.196	776.9	102,697	146,028	30,495.18	1.42	0.30	30.64	20.06	99.42	0.000
SCS -UID(RR)-3	1,802.2	37,421	3.938	69.5	36,132	46,909	23,141.79	1.30	0.64	12.78	24.91	65.07	0.347
STT W(H)-8601	675.0	22,640	4.422	0.0	19,041	42,012	13,587.36	2.21	0.71	21.83	20.53	48.98	0.711
STT W(H)-8603	813.1	25,569	4.328	0.0	20,489	38,734	12,124.75	1.89	0.59	16.97	18.76	43.81	0.446
TOTALS													
AVERAGES													

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

Station: DWORSHAK NFH (Page 2 of 2)

HATCHERY PRODUCTION SUMMARY

Period Covered: October 1, 1985 through September 30, 1986

Density Index:				Flow Index:				Total Flow:					
Species and Lot	Fish on hand End of Month			Fish shipped this F.Y. Number	Gain this F.Y. Weight	Fish Feed Expended		Con- ver- sion	Unit Feed Cost		T.U. per Inch	T.U. to Date	Length increase 30-day Month Inches
	Number	Weight	Length			Pounds	Cost		Per lb.	Per 1000			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
STT W(H)-8602	806.1	20,283	4.093	0.0	17,725	33,922	11,394.85	1.91	0.64	14.35	17.81	37.14	0.440
TOTALS	4,096.4	105,913		3,703.2	448,840	664,344	166,002.90						
AVERAGES			4.125					1.48	0.37	21.28	35.39	72.08	0.486

REPAIRS/IMPROVEMENTS/NEW EQUIPMENT

A number of work projects was initiated and completed during the year. These accomplishments, to name a few, included: Major overhaul of the main pumping station leading towards increasing capacity of the water system to 81,000 gpm; modifications of the main aeration system at a fraction of COE cost estimates; extensive blacktopping including overlay and seal coating of service areas (COE), completing a part of this work on an \$85,000 contract with station funds of \$21,000 used for additional paving; began cedar paneling of tiled walls in hatchery building; additional displays in the Visitor Center; full carpeting of Quarters No. 2 and partial to Quarters No. 4; landscaping and grounds maintenance with assistance from YCC enrollees to improve station appearance; repair of 42 steps at visitors' entrance with metal cover plates (YCC assistance); and maintenance rehab of electrical breakers in main pump building (a beginning to update and rehab all main breakers on station).

Funding of major special projects at a cost of \$124,000 is shown as follows:

Completion of electric cart shed enclosure	\$ 2,754
Electric breaker (main pumphouse)	9,937
Visitor displays and cedar paneling of walls in hatchery building	3,470
Repairs to 12 raceways for holding spring chinook production--aluminum plates, with slide gates for waste discharge, fabricated and installed	1,641
Paving overlay of station service road	21,000
Major pump repairs to System I	8,760
Quarter No. 2, and 4 carpeting	3,027
Rehab of main pumps	8,313
Modifications to the main aeration chamber	6,100
30' x 100' metal storage building with concrete slab and footing	40,280
Roofing of station residences	9,900
Recarpeting of conference room	580
Window covering for conference room	1,312
Rebuilding channel pond crowder	2,542

Landscaping including shrubs, plants, decorative bark and bench replacement	2,810
Bird netting repairs over production ponds	3,723
Sign (FWS emblem) and lighting on feed building . .	1,129
Step toe replacements at main visitor walkway . . .	4,034
Aeration manifold modifications at main aeration chamber	5,414
Helicopter service to remove spawning cabin on Elk Creek	659
Coded-wire tags for marking steelhead production . .	12,118
Ozone equipment repairs	3,993
Rainbow trout sentinel study	721

Major equipment, etc., costing \$30,000, was:

1986 Dodge 3/4 ton, 4x4, pickup truck--received in October 1985 (FY 1984 funding)	
Snow blade and dump bed for 1986 Dodge pickup . . .	2,590
Electric gate operators	5,110
ADP, plotter	2,720
Appliance, air cleaner for computer room	444
Photo, slide projector	235
Riding John Deere lawn tractor	3,760
Radios (2) for on-station communication	913
Card reader for displaying design specifications . .	780
Paper shredder for office use	680
Office filing cabinet	323
Office desk for computer	739
Fish pump (Magic Valley) received in FY 1986 from FY 1985 funding	
Weighing scale (digital) for production	1,561
Miscellaneous shop equipment and tools	4,343

Temperature controllers for mechanical systems . . .	3,906
Trash receptacles for six outside locations	1,719

1986 Plymouth Reliant, 4-door sedan, received in February from FY 1985 funding.

A 30' x 100' metal storage building, complete with concrete work and erection of structure, was awarded by contract for \$40,280. The building, to be located on the west side of the facility, is expected to be completed in FY 1987. Storage space for vehicles and trailers has been highly needed. The 3-sided building will provide eight stalls for storage.

Funding of \$35,000 was received from the COE District office to purchase two air compressors for Dworshak's ozone system. Also included was an ozone gas destructor. A requisition was prepared to emergency purchase the equipment to assure operation in time for the spring steelhead production.

The COE installed a debris barrier in front of the main water intake on the North Fork. Soon after installation, in December, the barrier broke loose from an upstream anchor and remained inoperative during the remaining year.

Draft correspondence was prepared for Regional Office signature to COE Walla Walla regarding a new water supply from Dworshak Reservoir. It is our intention that this water, proposed for the new Clearwater Hatchery, also be made available to Dworshak.

Efforts were underway at the end of FY 1986 to improve the station's maintenance management system. A more efficient and better organized preventive maintenance program is being developed which will lead towards computer storage and application.

Memorandum

TO : Regional Director (AFR)
Attn: John Miller

DATE: September 2, 1986

FROM : Manager
Dworshak-Kooskia NFH Complex

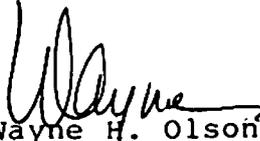
SUBJECT: Pump Rehabilitation and Main Aeration Changes - Dworshak NFH

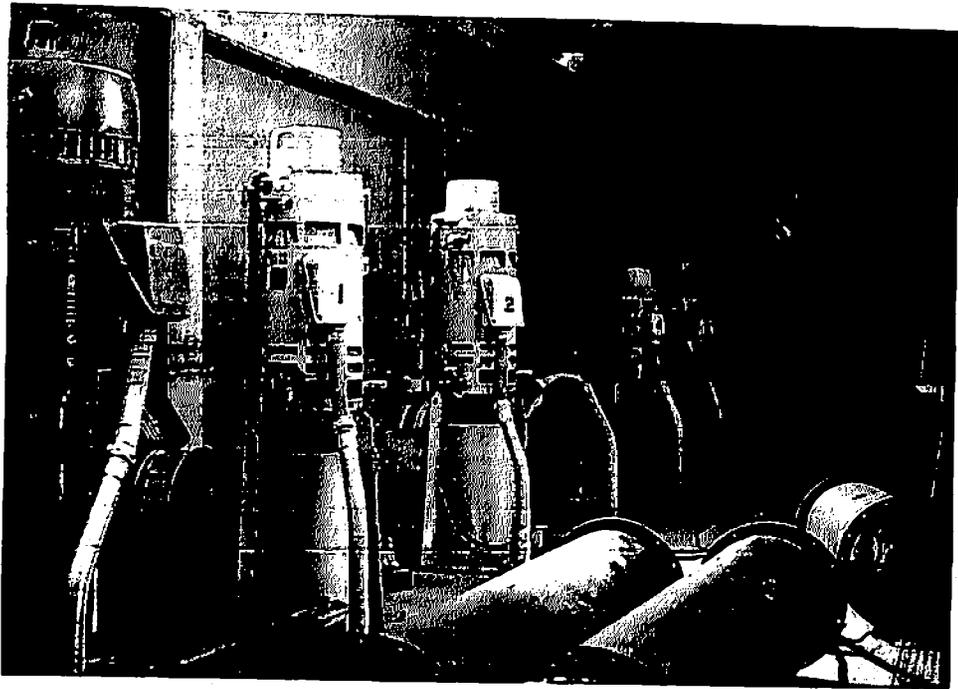
The Dworshak hatchery is undergoing major improvements this year to their river intake pumping system and to the water treatment system at the main aeration chamber. These improvements include:

1. Installation of a new No. 6 pump (15,000 gpm capacity) by the Corps of Engineers (COE) completed on August 20.
2. Emergency repair of No. 2 pump resulting from a burned out motor - complete motor rewind and restoring of pump assembly to like-new condition - cost \$6863 - completed June 24.
3. Scheduled work (similar to No. 2 pump) completed on No. 3 - cost \$3950 - in service on August 28.
4. Maintenance rehab of No. 1 pump, scheduled for September 4, to be completed in like condition as No. 2 pump - cost \$3950.
5. Header modifications at the aeration chamber replaces 8-inch pipe elbows with 12-inch size for operating the packed columns. Each of the six main pumps discharge water into the aeration chamber through 24-inch headers; each of the six headers have six 12-inch elbows directing water through column degassers. The COE estimated \$50,000 cost -- station force account is accomplishing the job for \$6100. Completion date is early October.
6. Bid opening on pumps No. 4 and No. 5 by the COE is scheduled for October 16. These two pumps, with a present capacity of 7500 gpm each, will be upgraded to 15,000 gpm. Delivery and installation is expected in spring 1987.

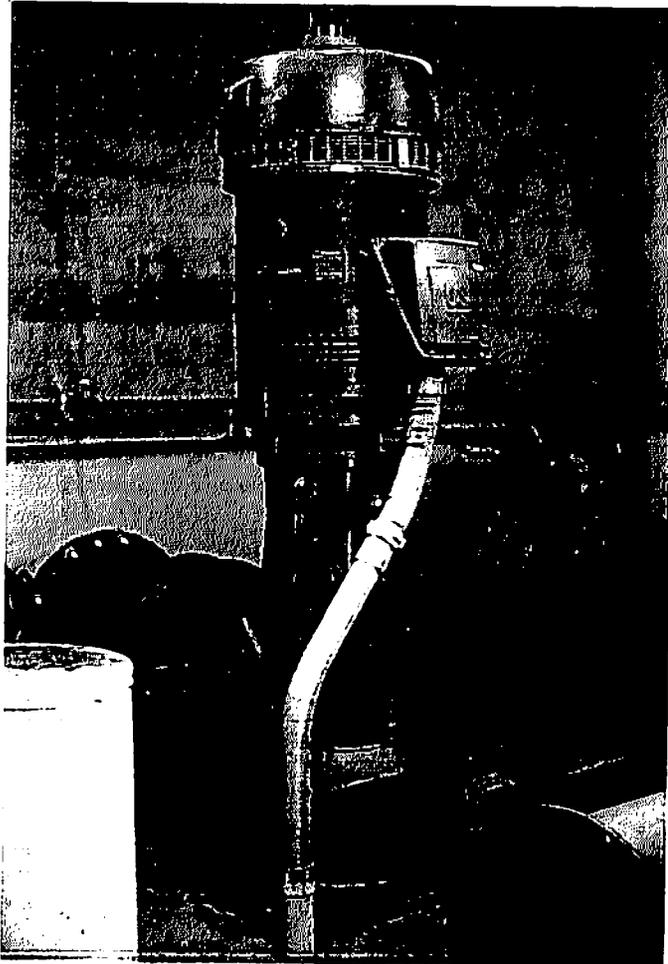
Upon completion of the above work (rehab and new pump replacement), the hatchery will have a pumping capacity of 81,000 gpm. In addition, modifications to the aeration system should protect fish on single-pass raw water from high N₂ gas. Monitoring of the water system over the next year can determine if column degassers on 128 nursery tanks and 30 chinook raceways can be removed.

Dworshak's O&M contribution for this year's work is \$20,863.

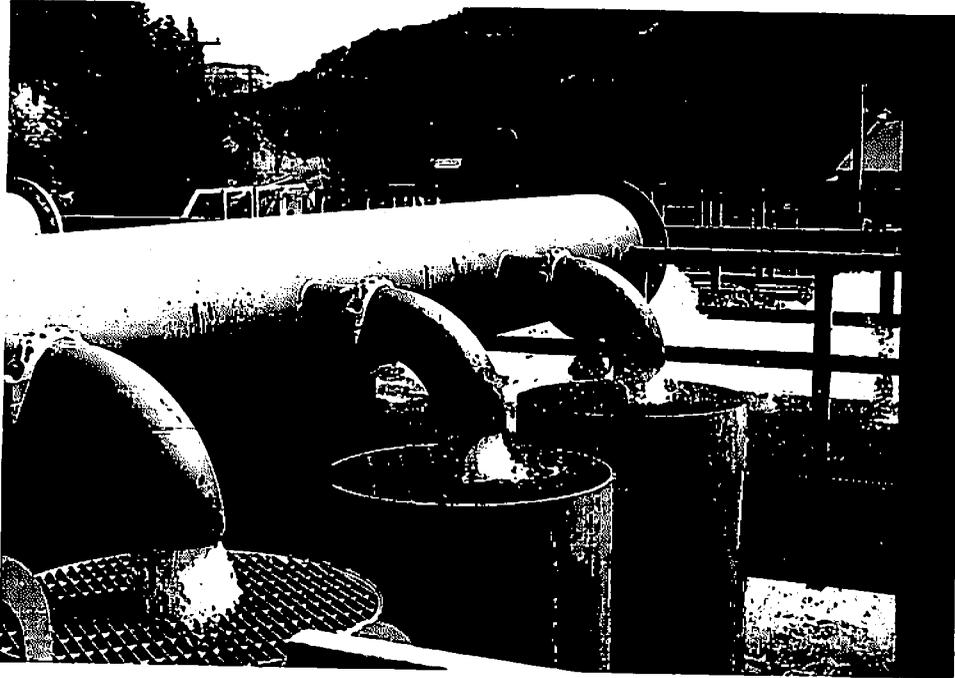

Wayne H. Olson



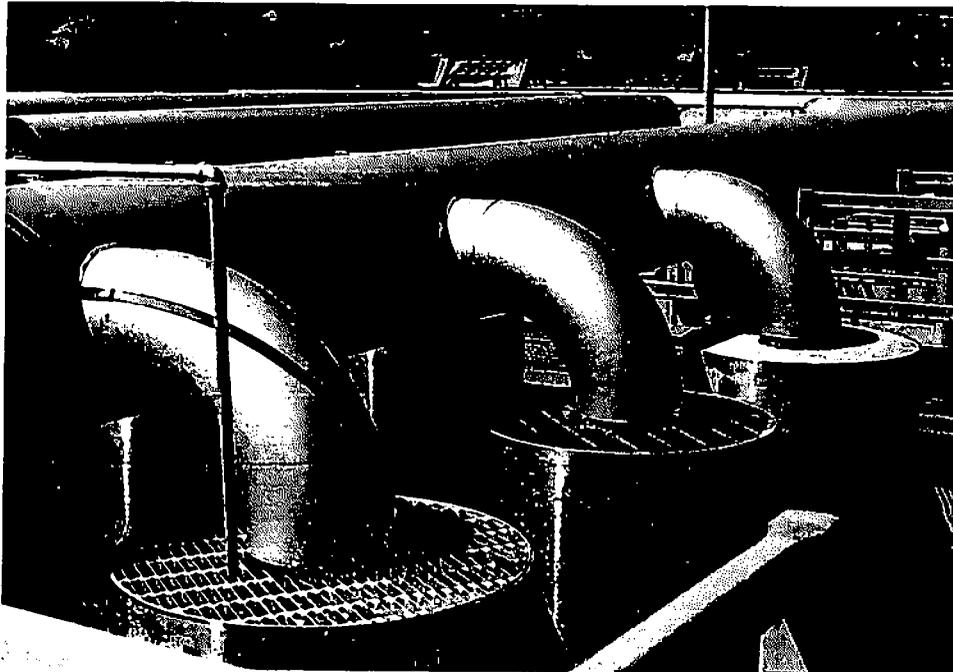
Major pump overhaul and rehab in main pumping station.



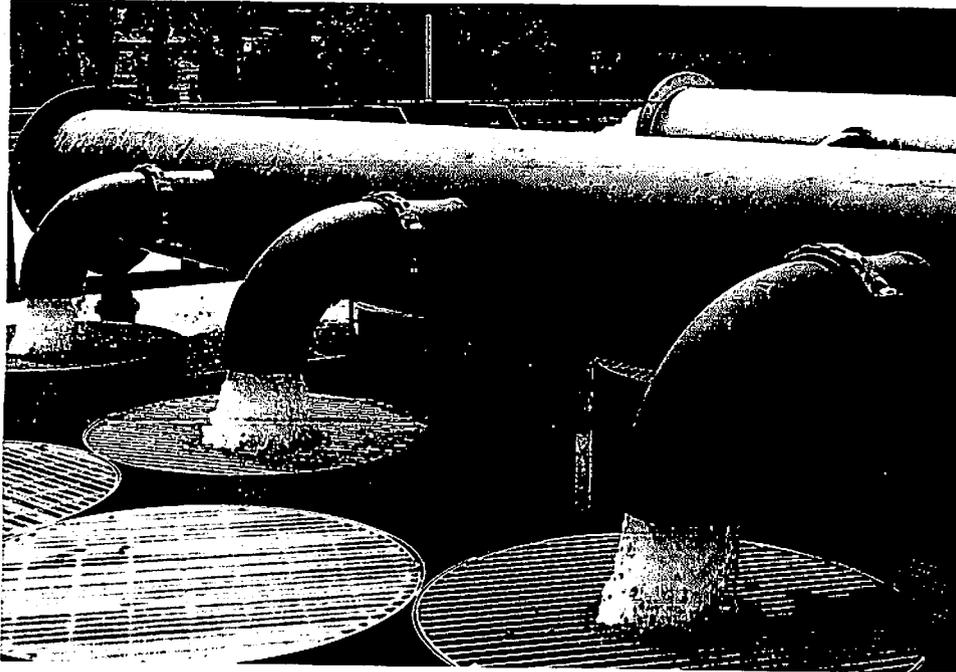
New 225 H.P. No. 6 pump installed in main pumping station.



Eight-inch header modification on main water aeration system.



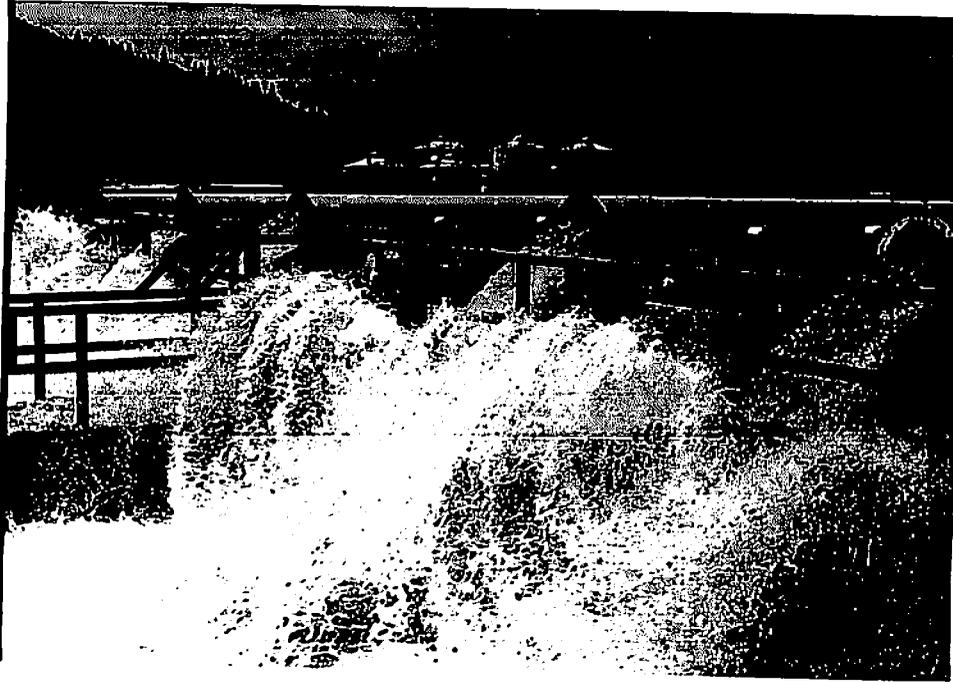
Twelve-inch head modification at main aeration system completed by force account.



Eight-inch header modification employing packed column degassers.



Replacing 8-inch elbows with 12-inch at main aeration chamber--a force account project.



Water spillage at aeration chamber resulting from inadequate sizing of the elbows--corrected by station personnel with fabricating and installing 12-inch elbows.



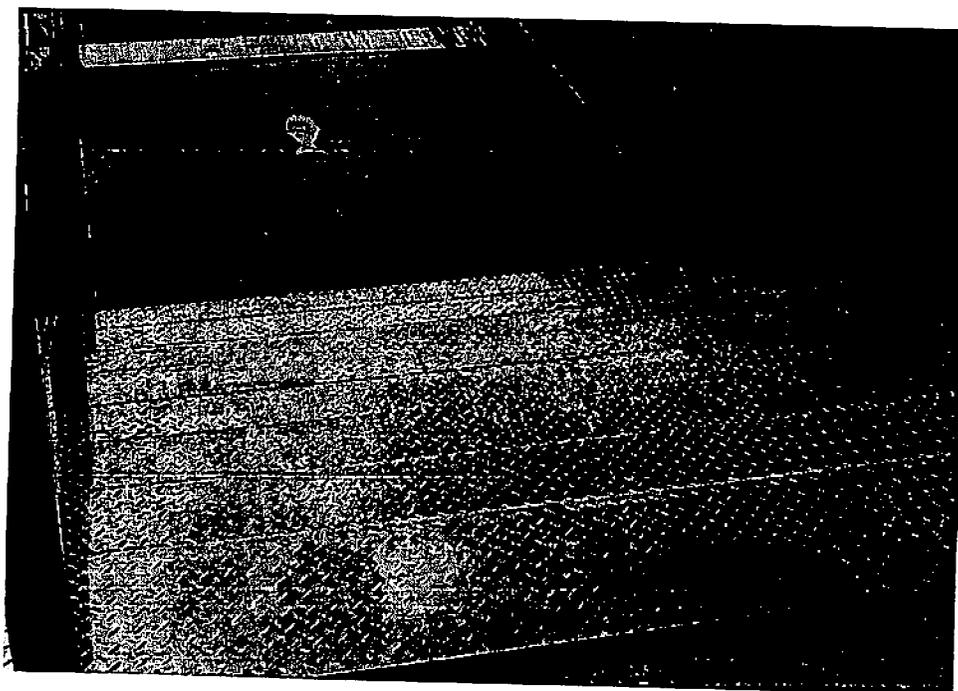
Location of new 30' x 100' metal storage building.



Grounds cleanup and landscaping--a major YCC project.



Installing metal step-toes at public walkway near station entrance.



Installation of metal plates on 42 steps at public walkway.

MEETINGS/TRAVEL/TRAINING

Several meetings were held to review the IHNV disease problem; a problem that has existed at Dworshak since 1982. A workshop, to discuss IHNV, was hosted by the station on May 14-15. Thirty-four people attended representing FWS, IDF&G, Washington fisheries, California F&G and commercial hatchery interests. A meeting of the Fish Health Protection Committee, at Dworshak, was attended by Regional Fish Health Biologists and Division Managers. On September 25, FWS representatives met to implement action for next year's steelhead program centering on steps to be taken to address the IHNV problem. Several station personnel visited the Seattle National Fisheries Research Center, in December, to review future IHN studies.

The 36th Annual N. W. Fish Culture Conference was held in Tacoma, Washington, December 3-5. Attending and participating in the program were Wayne Olson, Session Leader, Hatchery Management; Greg Pratschner, paper-"Control of IHNV Using O₃ Water Treatment"; Bob Austin, paper-"Steelhead Brood Stock Culling Techniques at Dworshak NFH"; and Dave Owsley, paper-"Operation of an Ozone Treatment System at Dworshak NFH".

Semi-annual coordination meetings were held at Dworshak on November 14 and March 13. Representatives from IDF&G, Nez Perce Tribe, Corps of Engineers and FWS reviewed Clearwater fishery activities.

Manager Olson attended a noon luncheon on December 19 with Colonel James Royce, COE District Engineer; Marv Brammer, Chief of Engineering, COE District; Paul Winberg, Chief of Operations, COE District, and Rodger Colgan, COE Project Engineer, Dworshak Dam.

Olson visited the Portland Regional Office, in November, to attend a meeting on fish allocation and steelhead outplanting.

Olson continued as a member of the Steelhead Impact Committee by taking an active part in meetings in Orofino during the year.

A Regional Division 2 fisheries meeting was held in Reno, Nevada, in June, with Olson, Dave Owsley, Greg Pratschner and Bruce McLeod attending.

Manager Olson travelled to California the week of June 3 to visit Coleman NFH and Tehama-Colusa Fish Facility. Dave Owsley, Engineer, accompanied Olson to assist Coleman on their newly-installed ozone system.

Formal training was offered to the following employees:

- Ron Oatman
Coldwater Fish Culture, Sacramento, California, December 2-13.

-Diane Praest

Temporary Duty Travel, Portland, Oregon, January 27-31.
Federal Travel Regulations, U. S. Forest Service, Orofino,
Idaho, February 24-25.

-Mary Lou Galloway

Federal Travel Regulations, U. S. Forest Service, Orofino,
Idaho, February 24-25.

-John Vargas

Pacific Salmon Culture, Bellingham, Washington, August 18-29.

-Sharon Russell

Supervision and Group Performance, Seattle, Washington, June
16-20.

PROGRAM INFORMATION/VISITORS

Among the many visitors to the hatchery during the year included:

- Bill Striplin, Supervisory Civil Engineer, Portland Regional Office, visited on October 28.
- Dick Myshak, Regional Director; Wally Steucke, ARD Fisheries; and Bill Shake, ARD Federal Assistance visited the Clearwater area on October 29-31. Manager Olson was given an Outstanding Performance Award at a presentation held on October 30.
- Visitors to Dworshak on October 23 included Russ George, Reservoir Control Center, COE Portland; John Halquist, Hydrologist, N.W. River Forecast Center, Portland; Jim Cain, Hydrologist, Walla Walla District COE; and Allan Schuff, Power Operations Specialist, BPA Portland.
- On October 15, a visiting Chinese professor from Nanjung Hydraulic Research Institute, presently at Washington State University, and a WSU engineering graduate student toured Dworshak.
- A Lower Snake River Hatcheries tour group of 12 people included Dworshak on their itinerary October 10.
- On December 12, Earl Prentice, Larry Basham, and Scott McCutcheon of NMFS, along with Steve Olhousen, FWS, visited Dworshak to discuss procedures and techniques of using a "pit" tag in fish marking studies planned later in the year.
- Jim Litzinger, Regional Office, Denver, was at Dworshak on December 16-17 to discuss the station's use of PFMIS. Mr. Litzinger was part of a task force team to review and recommend changes in the system.
- Jim Overbay, U. S. F. S. Regional Forester, Missoula and Jim Bates, Clearwater National Forest Supervisor, toured Dworshak on March 13.
- "Forestry Tour" of 100 local 6th grade students in June.
- A group of 42 engineer trainees, recently hired by the Corps of Engineers, visited Dworshak on June 6 for a tour and familiarization of the facility. A number of others were given formal tours during June. An increase in visitors has been seen for this time of year at both stations.
- A group of Japanese veterinary science students visited Dworshak on July 26. Their primary interests focused on fish health and fish pathology.

In addition to the above, station personnel entertained numerous school groups on formal guided tours during the steelhead spawning seasons.

Estimated number of public visitors to the hatchery, during FY 1986, was 30,000.

Reports on Dworshak's steelhead and spring chinook spawning programs were provided routinely to KLER and KOZE radio, the Lewiston Tribune, and the Clearwater Tribune.

A number of news stories on Dworshak's IHN problem was carried by local and area newspapers, radio and television. Of special interest, KTVB-TV, Channel 7, Boise, at the station August 13 for a 2-hour taping of the IHN steelhead losses. In turn, the video tape was provided to a number of major cities in the Northwest. An article, appearing in the Lewiston Tribune on September 14, was also picked up by Associated Press for broader coverage.

Off-site programs presented were as follows:

-A slide show on hatchery operations to 92 second grade students at the Orofino Elementary School on October 17.

-A program to the North Idaho Chamber of Commerce fall meeting held in Kamiah on November 17.

-Guest speaker at an evening meeting of the Lewiston Lions Club on January 21.

-A program on ozone operation to a noon luncheon of the Orofino Kiwanis Club at a noon meeting on March 4.

-A slide presentation to evening visitors at Dent Acres campground, on Dworshak Reservoir, July 10.

Several attractive improvements were made to the visitor lobby in the main hatchery building. A number of 17" x 20" framed pictures of hatchery activities are on display. A wood cabinet, holding various displays, also has a slide projector which visitors can operate to view a variety of hatchery scenes and activities. New window coverings and carpeting add to the appearance of the conference room. Wood paneling of the tiled walls was completed near the building entrance and adjacent lobby area.

STAFFING

The year began with recruiting action initiated to replace an earlier abolished Maintenance Supervisor WS-9 position with a Maintenance Work Leader, WL-8. Later in the year, action was approved to proceed with rotational moves between Dworshak, Kooskia and Hagerman NFH's involving three Fishery Biologists, GS-7, training positions. A resignation from John Arevalo on his proposed lateral transfer to Kooskia resulted in a vacancy. During this same period, an Electrical Equipment Repairer WG-10, became vacant by resignation. Announcements were issued for both positions with expected filling of their vacancies in early FY 1987.

Permanent staffing actions included:

McCall, James A., Maintenance Foreman, WS-9, Transfer to GSA Anchorage, Alaska, effective 10-13-85.

Praest, Diane E., Clerk-Typist, GS-3, Promotion to GS-4, effective 10-27-85.

Clifford, David E., Expiration of temporary promotion, from Maintenance Work Leader (WL-8) to Maintenance Mechanic (WG-10), effective 11-04-85.

Clifford, David E., Promotion from Maintenance Mechanic (WG-10) to Maintenance Work Leader (WL-8), effective 12-22-85.

Oatman, Ronald W., Animal Caretaker, Promotion, WG-2 to WG-3, effective 1-19-86.

Sims, Hubert M., Maintenance Worker, WG-8, Conversion to Career Condition Appointment, effective 5-13-86.

Jenks, Alfred H., Animal Caretaker, Promotion, from WG-2 to WG-3, effective 7-20-86.

Parks, Richard J., Animal Caretaker, Promotion, from WG-2 to WG-3, effective 7-20-86.

Hand, Leon V., Electrical Equipment Repairer, WG-10, Resignation, effective 8-16-86.

Arevalo, John A., Fishery Biologist, GS-7, Resignation, effective 8-02-86.

Rockowski, James J., Fishery Biologist, GS-7, transfer from Hagerman NFH, effective 9-14-86.

Dworshak initiated a 3-month training program (June-August 1986) which offered hands-on experience to three University of Idaho fishery students. The three Biological Aids, hired at a GS-4 level, were provided work opportunities with the hatchery, Dworshak FAO and Dworshak FHC. The program was highly successful and especially meaningful to the students.

Johnson, Deborah L., Biological Aid (Fisheries), GS-4,
Temporary Appointment, effective 5-9-86 through 8-23-86.

Levanduski, Michael J., Biological Aid (Fisheries), GS-4,
Temporary Appointment, effective 5-9-86 through 8-23-86.

Pence, Brent E., Biological Aid (Fisheries), GS-4, Temporary
Appointment, effective 5-9-86 through 8-23-86.

The hatchery's practice of employing high school students (15-20 hour work week) was limited due to restrictive ceilings on hiring. We foresee the continuation of this program in FY 1987.

Ponozzo, Mark L., Student Aid, YW-00, Temporary Appointment,
effective 4-14-86 through 6-14-86.

Other temporary hiring:

Wilson, Wade W., Biological Aid, GS-2, Full-time Temporary,
effective 10-23-85 through 1-12-86.

Kaemmerling, Bernice M., Clerk-Typist, GS-2, Temporary
Appointment, effective 11-05-85 to present.

Jefferson, Gary E., Laborer, WG-2, Temporary Appointment,
effective 5-03-86 through 8-30-86.

Johnson, Barbara L., Clerk, GS-1, Temporary Appointment,
effective 5-25-86 through 8-23-86.

Special Achievement Awards were presented at a potluck luncheon, on February 12 to the following employees: Mary Lou Galloway (\$500), Dave Clifford (\$600), Dave Owsley (\$1100), Greg Pratschner (\$800), Tom Taggart (\$200), Rocky McCleary (\$200), Bob Austin (\$200), and Sharon Russell (\$525).

A YCC program was active for an 8-week period beginning June 9, and ending August 1. The group consisted of 10 enrollees and one crew leader.



YCC group--Crew Leader Chad Easterbrook with enrollees, left to right, back row--Jeffrey Farley, Tim Joersz, Brent Clark, and Scott Morgan; front row--Jennifer Midstokke, Becky Coffland, Tanya Bush, Kim McGee, Steve Brown and Juli Adams-Slover.



Presentation of certificates to YCC enrollees upon completion of the program.

Dworshak Employees - FY-86 -

<u>Name</u>	<u>Position Title</u>	<u>Period of Employment</u>	<u>Status</u>
Adams-Slover, Juli	YCC Enrollee	6/09/86 - 8/01/86	YCC Program
Austin, Robert J.	Fishery Biologist	10/01/85 - 9/30/86	Permanent
Brown, Steven D.	YCC Enrollee	6/09/86 - 8/01/86	YCC Program
Bush, Tanya L.	YCC Enrollee	6/09/86 - 8/01/86	YCC Program
Clark, Brent D.	YCC Enrollee	6/09/86 - 8/01/86	YCC Program
Clifford, David E.	Maintenance Work Leader	10/01/85 - 8/01/86	Permanent
Coffland, Becky R.	YCC Enrollee	6/09/86 - 9/30/86	YCC Program
Easterbrook Chad	Crew Leader (YCC)	6/09/86 - 8/01/86	YCC Program
Farley, Jeffrey B.	YCC Enrollee	6/01/86 - 8/01/86	YCC Program
Galloway, Mary Lou	Clerk-Typist	10/01/85 - 9/30/86	Permanent
Hand, Leon V.	Electrician	10/01/85 - 8/16/86	Permanent
Jefferson, Gary E.	Laborer	5/03/86 - 8/29/86	Temporary
Jenks, Alfred H.	Animal Caretaker	10/01/85 - 9/30/86	Permanent
Joersz, Tim D.	YCC Enrollee	6/09/86 - 8/01/86	YCC Program
Johnson, Barbara L.	Clerk	4/28/86 - 8/23/86	Temporary
Johnson, Debra L.	Biological Aid (Trainee)	5/09/86 - 8/23/86	Temporary
Kaemmerling, Bernice	Clerk-Typist	11/05/85 - 8/23/86	Temporary
Lawson, Douglas L.	Fishery Biologist	10/01/85 - 9/30/86	Permanent
Levanduski, Michael J.	Biological Aid (Trainee)	5/09/86 - 8/21/86	Temporary
McCleary, Hamilton R.	Animal Caretaker	10/01/85 - 9/30/86	Permanent
McGee, Kim D.	YCC Enrollee	6/09/86 - 9/30/86	YCC Program
Midstokke, Jennifer M.	YCC Enrollee	6/09/86 - 8/01/86	YCC Program
Moffett, Clarence P.	Maintenance Worker	10/01/85 - 8/01/86	Permanent
Morgan, Scott, D.	YCC Enrollee	6/09/86 - 9/30/86	YCC Program

Mueller, Richard A.	Fishery Biologist	10/01/85 - 9/30/86	Permanent
Oatman, Ronald W.	Animal Caretaker	10/01/85 - 9/30/86	Permanent
Olson, Wayne H.	Hatchery Manager	10/01/85 - 9/30/86	Permanent
Owsley, David E.	Environmental Engineer	10/01/85 - 9/30/86	Permanent
Parks, Richard J.	Animal Caretaker	10/01/85 - 9/30/86	Permanent
Pence, Brent E.	Biological Aid (Trainee)	5/09/86 - 8/15/86	Temporary
Ponozzo, Mark L.	Student Aid	4/14/86 - 6/14/86	Temporary
Praest, Diane E.	Clerk-Typist	10/01/85 - 9/30/86	Permanent
Pratschner, Gregory A.	Assist. Hatchery Manager	10/01/85 - 9/30/86	Permanent
Rockowski, James J.	Fishery Biologist	9/14/86 - 9/30/86	Permanent
Rosales, Raymundo A.	Maintenance Worker	10/01/85 - 9/30/86	Permanent
Russell, Sharon H.	Budget Assistant	10/01/85 - 9/30/86	Permanent
Sims, Hubert M.	Maintenance Worker	10/01/85 - 9/30/86	Permanent
Taggart, Thomas M.	Animal Caretaker Leader	10/01/85 - 9/30/86	Permanent
Vargas, John J.	Animal Caretaker	10/01/85 - 9/30/86	Permanent

COOPERATIVE PROGRAMS

The hatchery continued to work closely with the following agencies and groups in the accomplishment of various activities:

- Idaho Department of Fish and Game:
 - Boise Office
 - Nampa Office
 - Lewiston Office
- Seattle National Fishery Research Center (NFR)
- Corps of Engineers
 - Walla Walla District
 - Dworshak Dam and Reservoir Project
- Cooperative Fishery Research Unit (CFRU) - University of Idaho
- Nez Perce Tribal Executive Committee:
 - Fish and Wildlife
 - Enforcement
- National Marine Fisheries Service (NMFS)
- University of Idaho
- Washington State University
- Clearwater National Forest
- Clearwater County Sheriff

Dworshak Fish Health Center and Dworshak Fisheries Assistance Office share facilities with the hatchery. Training assignments for personnel include various work with the two offices. The three service groups are highly involved, together, in FWS activities on the Clearwater River.

The hatchery distribution truck was again made available in September to the Cooperative Fisheries Research Unit, in Moscow, for hauling fall chinook brood stock to the Lyons Ferry State Hatchery, in Washington, from the Ice Harbor Dam collecting site.

Steelhead carcasses, received by a local processor on spawning days processed and frozen, were made available to several commodity programs administered under the Idaho Department of Education. The hatchery provided cold storage space for 35,000 pounds of processed fish until distribution could be made.

Eggs and small fish were again furnished other agencies and university groups for study programs, i.e., environmental testing and genetic experiments.

Dave Owsley presented a course, "Effects and Removal of N₂ Gas Supersaturation", to 40 participants attending the annual U. S. Trout Growers Convention, Sun Valley, Idaho, on October 9.

In cooperation with Leetown Fisheries Academy, employees Greg Pratschner and Bob Austin instructed at the Coldwater Fish Culture Course in Sacramento, California, December 9-13.

Dworshak engaged in a program with the Clearwater County District Clerk's Office to employ a 15-year-old male in a 60-hour volunteer work program. By court order, the young man satisfied the 60-hour commitment during a 2-week period in December.

Dave Owsley, as part of a study group with Regional Office engineers and other fishery representatives, made several trips to Coleman NFH to assist the station on their ozone study and to consult on a water supply study.

A \$1500 security contract was again made with the Clearwater County Sheriff's Office for additional enforcement coverage during a period when adult steelhead and spring chinook are being held.

Excellent cooperation continued between the Corps of Engineers (Dworshak Dam) and hatchery in equipment exchange, use of facilities, and services.