



Annual Report

FISCAL YEAR 1972

Dworshak National Fish Hatchery
(Hatchery)

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Date Received 08/21/72
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Date original forwarded
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Date Received
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DIVISION OF FISH HATCHERIES

INDEX

	Page No.
INTRODUCTION	1
COOPERATION WITH OTHER AGENCIES	5
FISH CULTURAL OPERATIONS	6
HATCHERY BIOLOGIST ACTIVITIES	10
SAFETY.	15
MAINTENANCE AND REPAIR.	16
CONSTRUCTION	18
ANNUAL REPORT FORMS	
Broodstock and Spawning	19
Distribution Data and Costs	20
Salmonidae Production	21
Anadromous Distribution	22
Egg Shipments Salmonidae	23
Fish Food.	24-25
Chemical Control Programs	26
Operations Cost Summary.	27
Production Costs	28
Rearing Facilities	29
Summary of Labor	30
Report of Permanent Personnel	31-33
Five Year Production & Distribution Summary	34
Analysis of Program	35
Public Relations	36

PICTURES

INTRODUCTION

This annual report for the fiscal year 1972 covers the third complete year of operation for the Dworshak National Fish Hatchery. During the 1970 fiscal year, the first phase of the construction had been substantially completed. During the period covered by this report, design was completed and construction carried out on three separate alterations to the facility. These were basically to correct errors in original design and construction which were necessary for the most efficient operation of the station. In addition, design was started and contract let for the conversion of the ponds that are now on raw water, numbering 59, to environmental controlled systems such as have been in operation at the present time for 25 ponds.

Dworshak National Fish Hatchery was designed and built to replace the spawning and nursery areas for the steelhead which have been lost for the construction of Dworshak Dam. In addition to the rearing of steelhead for release into the North Fork of the Clearwater River, this station is also participating in the management of the Dworshak pool. During the year this hatchery has supplied catchable size rainbow trout, juvenile rainbow trout, and kokanee for release into the reservoir or its tributaries.

The Dworshak National Fish Hatchery is located at the confluence of the North Fork of the Clearwater and the Middle Fork of the Clearwater River near the unincorporated town of Ahsahka, Idaho. The construction site is approximately three miles west of Orofino, Idaho on the north bank of the main stem of the Clearwater River. It is located approximately 8,000 feet downstream from the construction site of the Dworshak Dam. The Dworshak Dam is nearing completion, and it is expected that the powerhouse will be on the line sometime during the 1973 fiscal year. On September 27, 1971 the bypass tunnel which conveyed the water of the North Fork of the Clearwater River around Dworshak Dam was closed. This started the filling of the reservoir, and at the present time the reservoir level is 1,540 feet above sea level. This represents a reservoir depth of greater than 500 feet.

The Dworshak National Fish Hatchery obtains its water supply from the North Fork of the Clearwater River approximately a mile downstream from the Dworshak Dam. Changes in water

quality which occur because of the operation of the dam have a profound effect upon the operation of the hatchery. The closure of Dworshak Dam presented many problems to the successful operation of the Dworshak National Fish Hatchery. These problems added to those which had occurred previously due to the hot water of the summer, resulted in a rather disappointing production year.

During the summer of 1971, substantial losses occurred because of the extremely hot water temperatures experienced. These were not of as great a magnitude as those of the previous year, but caused a substantial reduction in the number of steelhead smolts to be released in the spring of 1972. In addition to this, an outbreak of Ichthyophthirius multifilius occurred in the reuse water system. Because of the life history of this parasite, before the epizootic could be controlled, it was necessary to remove the fish from the recirculation system and place them in raw water where temperatures inhibited the growth for the spring of 1972 release. Before this epizootic was controlled, approximately 1,300,000 steelhead from the brood year 1971 remained. The reuse system was sterilized and then used only for trout and kokanee production for the remainder of the fiscal year. Several causes for the Ichthyophthirius epizootic can be postulated. Fish may have entered the system from the raw water system bearing the infection with them. A set of circumstances which would appear to be more than coincidental appears likely. During the month of August, the Idaho Fish and Game Department poisoned the area of the North Fork of the Clearwater which would be covered by the reservoir in order to remove the scrap fish, especially the squaw fish. Thousands of dead scrap fish floated past the hatchery subsequent to this action. Ichthyophthirius was diagnosed in the reuse system and treatments were started on September 14, 1971. The occurrence of this massive epizootic within 30 days after the poisoning of the river would appear to be more than coincidental. It is possible that the tomites of the organism passed through the filtering system and the sterilization system due to built in deficiencies. Tests showed that the filters were passing particle size greater than the standards which were set up at the time of construction. Subsequently, alterations to this filtering and sterilization system have been made which are expected to correct this defect.

At the time of the closure of the bypass tunnel to the dam on September 27, 1971, a flow of only 100 second feet remained in the river. Soon thereafter, the removal of coffer dams and other earth structures below the dam took place. Varying amounts

of silt produced production problems at the hatchery. Soon water temperatures in the river dropped drastically because of the low level of discharge of the bypass water. This situation retarded growth of the fish being held at the hatchery. Water flows gradually increased to a high of just under 300 per second feet by March 11, 1972 when the flows were increased to 10,000 cubic feet per second from the low level spillway gates. Immediately, another problem presented itself. The fall of the water into the stilling basin at the dam immediately caused supersaturation of nitrogen in the river which is the water supply to the hatchery. During the period of stabilization of the aeration systems, approximately 4% of the stock on hand of all species held in the raw water was lost. The cumulative effect of all the problems encountered coincident with the closing of the dam and the filling of the reservoir resulted in lower production, higher conversions, and greatly increased unit cost.

During the fiscal year, the temporary trapping facilities at the dam were removed and the permanent facilities placed in operation. After installation, the operation of the permanent facilities were turned over to the Dworshak National Fish Hatchery. On March 11, 1972 trapping of the upstream migrants began. Concurrently with the operation of the facilities at the dam, the fish ladder and holding ponds at the Dworshak National Fish Hatchery were placed in operation. The number of adult steelhead trapped at the Dworshak Dam was rather disappointing. Only 1,148 fish were trapped at the dam. Eleven hundred seventy-six adults ascended the ladder into the holding ponds at the hatchery. Of these, approximately 20% were females. These fish averaged in the four to six pound class. This number of adults from the 1970 smolt release which amounted to 1,400,000 is very encouraging, especially when this sex ratio occurs. It is expected that this return indicates a larger migration for the following year.

Due to the unique position that this hatchery holds in design and construction facilities, visitation by interested persons as well as the general public has been very great. At times the parking facilities appear to be inadequate. During the year a large number of organized groups visited the hatchery. These consisted of schools, lodges, religious organizations, and professional organizations. The station has a program for conducted tours for organizations and groups. During the bulk of the year the lack of staffing for this purpose makes it impossible to conduct tours for the general public. However, three young lady tour guides were hired on the Youth Opportunity Program for the summer. These started their work the first part

of June of this fiscal year. So far, this program has worked out very well. During the year an electronic visitor counter was installed in the visitor access. The total count of visitors for the year as recorded on this counter was approximately 47,600. In addition, displays were made in two of the local district fairs. Both of these were held in the month of September, 1971. An estimated 22,000 visitors visited the booths during these exhibits.

The weather could be considered normal for this area. During the winter, intermittent snows and thaws occurred with some temperatures in the low teens. During the summer of 1971, the usual high summer temperatures occurred, reaching a high of 105 to 108 degrees. Water temperatures varied from a high of 76°F. during the summer before the closure of the dam to a low of approximately 37°F., the temperature of the water which was discharged from the low levels of the reservoir after closure of the bypass tunnel at the dam.

During the fiscal year, two division inspections were made by members of the regional office staff. On September 13, 1971 this station was inspected by Mr. Paul Handy, Assistant Regional Supervisor. On May 9, 1972 the station was again inspected by Mr. Marvin Smith, Regional Supervisor, Division of Fish Hatcheries, Region I. An administration inspection was made at that time by Mr. Gibson Bassett of Personnel. The Manager of the Dworshak National Fish Hatchery served on the committee for the development of design for filters for the reuse system to be installed at Dworshak National Fish Hatchery and on several other committees. Meetings were held by personnel of the Corps of Engineers to facilitate the operation of the station. Many visits were made by Corps of Engineer personnel to finalize design for the new contract to place the entire hatchery on environmental control systems.

COOPERATION WITH OTHER AGENCIES

The staff of the Dworshak National Fish Hatchery cooperated very closely with the U.S. Corps of Army Engineers in many facets of the operation. During the year close communication was maintained in the operation of the facility in relation to the closure of the dam. Deficiencies in original design and construction of the Dworshak National Fish Hatchery were corrected by the Corps which required close timing and cooperation with the contractor hired by the Corps.

The personnel of this station cooperated very closely with personnel of the Idaho Fish and Game Department in the management of the Dworshak pool. The biologist for the Idaho Department of Fish and Game established the management program for the Dworshak Reservoir and the Dworshak National Fish Hatchery made every attempt to fill the requirements of their program.

This hatchery cooperated with the Corps of Engineers, the State of Idaho Department of Fish and Game, the University of Idaho in providing laboratory facilities and many programs having to do with testing the water quality of the river, studies on the North Fork of the Clearwater, and laboratory work having to do with the construction of Dworshak Dam.

FISH CULTURAL OPERATIONS

Production for the year was 258,000 pounds, having fed 709,000 pounds of feed for a conversion of 2.75. Many problems were expected due to a more stable water supply and fewer interruptions due to construction.

Steelhead

Mortality was high during the summer in the Brood Year 1970 steelhead, but not as high as previous years. The ponds were kept low to avoid loss from Ichthyophthirius. The majority of the mortality was due to clam glochidia and Sanguinicola.

The Brood Year 1971 steelhead were infected with gill disease and treated with 2 ppm roccal for three days. The tanks were thinned by removing half the fish from each and setting up in four ponds. Splitting started on August 24 and finished on August 31.

Furunculosis was diagnosed in the 1971 steelhead in the reuse system. They were fed TM 50D for two weeks.

Ichthyophthirius was found in the reuse system. The fish were treated with 1:6,000 formalin on September 14, 15, 20 and 23. On September 24, the reuse ponds were changed to raw water and the system dried up. Mortality for Brood Year 1971 steelhead was about 3,350,000 of the 4,530,000 which started to feed.

Having spent a year in mud, silt, and occasional cement, the survivors were only about 50 per pound on June 30 and will be held another year. One million 2 year olds about 8" long were released. They were planted in the main fork of the Clearwater, to avoid excess nitrogen, but are expected to return to the North Fork.

On March 11, the weir was removed from the river, thus allowing fish to pass to the dam. There were a few adult steelhead in the pond at this time. The next day the flow was increased to 10,000 c. f. s.

On April 24, spawning of steelhead trout started, the earliest yet for this station. On June 26, spawning ended. The remaining seven females and a few males were hauled to the river. Over five million eggs were taken. Temperature was favorable throughout the spawning season, and percent eye was better than usual. Visual checks of the returning adults showed no symptoms of

nitrogen supersaturation, but many bloody females were encountered.

It is interesting to note that the majority of the fish passing the hatchery and going to the dam were from wild stock, while the majority coming into the hatchery ladder were released from the hatchery. The trap facility at the dam yielded 1,148 adult steelhead, and 1,176 ascended the ladder at the hatchery.

On March 15, the aerators were shut off overnight. On March 16, about 4% of the fish in raw water died due to 121% nitrogen supersaturation.

In July, egg shipments were made to the State of Idaho and the University of Idaho. In April, 45,000 yearling steelhead were graded and marked to provide fish for migration studies.

Rainbow

In September, 350,000 eyed eggs were received from Ennis NFH, to be held until the Spring of 1973 for release into the reservoir.

The Idaho Fish & Game Department also requested one million small rainbow for the reservoir this spring. Five groups were received for the program:

1. 247,000 eyed eggs from Ennis NFH
2. 292,000 eyed eggs from Shasta, California hatchery
3. 610,000 eyed eggs from a private hatchery at Valley, Washington
4. 52,000 four inch fish from Ennis NFH on May 8
5. 68,000 four inch fish from Ennis NFH on May 24

The fish in groups 1, 4 and 5 above were fin clipped and released into the middle of the reservoir, at about 4 inches long. The fish in groups 2 and 3 were reared to about 1,200 per pound and flown by helicopter from the hatchery to the lower reservoir tributaries.

On May 16-19, 270,000 ten inch rainbow trout were hauled to the reservoir. Six thousand were selected from this group for broodstock.

Kokanee

Kokanee were spawned at Featherville, on the south fork of the Boise River. Between September 8 and 21, 1,712,000 eggs were taken and flown to the hatchery, which yielded 1,592,000 eyed eggs.

The last take was put out to feed on December 13. The size at feeding was about 4,000 per pound. They are very slow starters, preferring to swim head upward for about two weeks.

On February 4 and 7 they were put in ponds at 300,000 per pond. On the 13th, the oldest kokanee were sick with gill involvement. They were riding high in the water in large compact groups, but very few gill bacteria were seen. Weekly roccal treatments eliminated the problem.

One million thirteen thousand were planted in Breakfast Creek, a tributary to the Little North Fork. The fish were trucked about 60 miles and hauled by helicopter another four miles.

Cutthroat

In general, the cutthroat program this year was disappointing. In July, the incubator water shut off and all the cutthroat fry were lost. An alarm malfunction was involved.

In June, 97 percent of our two year old cutthroat were lost due to overtreatment with malachite green. Of the remaining 170 fish, half are females. Five females were spawned on June 21, but all eggs died before eye-up.

Feeding System

New buckets were installed in the feeding system but problems developed. Wismer-Becker technicians were here for about two weeks. Hand feeding was necessary for several days.

During the summer, the feeding rate was based on reuse temperature, 58^oF., the river temperature being too high for the computer program.

High winds on January 11 caused numerous shutdowns on the computer, due to voltage fluctuations. On January 23, a card in the IBM 1801 malfunctioned and was fixed by January 26. It is suspected that the numerous shutdowns caused the card failure.

During repairs to one of the refrigeration units in February, the 24 volt alarm line was crossed with 120 volts. This sent 120 volts through the power supply into the console upstairs and the computer. The system was not in the feeding process at the time and there was no damage to the diverter valve mechanisms. It was down about two weeks.

Modifications and Innovations

Plastic plates were installed above the inlets in the ponds to keep the larger fish from jumping out.

The glass in the aquaria was replaced with thicker glass to prevent bulging and another piece was added in front to act as a shield.

Small screens are necessary in the ponds, over the existing screens, until the fish are 1, 100 per pound.

Water Quality

In July, river temperatures were from 70-75°F.

On September 27, the dam was closed and the river dropped to minimum flow of 100 c. f. s.

The river was muddy most of October, due to excavation below the powerhouse.

The tunnel at the dam was closed on November 8, and the hatchery started receiving water through the low level outlet. The water was clear, with very little mud. The temperature raised about 5°F. (from 42°F. to 47°F.) and dropped slowly during the month to 44°F.

The cofferdam was removed below the dam in December. The reservoir gradually cleared during the spring, and by June 1 was very clean.

Training

In July, William Ankney went to Ennis NFH for one week to install our egg counter.

Walter Harris went to the Regional Office to check the annual reports and Defensive Driver's Training Instructors School.

Rolf Simonsen attended the school for the Egg Sorting Machine in Houston, Texas.

Frank Halfmoon spent several days on reservoir studies with biologists. The biologists are working under a contract from the Corps of Engineers to study the river and reservoir conditions.

HATCHERY BIOLOGIST ACTIVITIES

Diagnostic Services

The hatchery biologist is responsible for disease diagnosis at three federal hatcheries -- Dworshak, Kooskia and Hagerman. In addition to the federal hatcheries, assistance is provided to the Idaho Fish and Game Department and commercial hatcheries when requested.

Bacterial gill disease continues to cause problems with fish reared in the reconditioned water system. Weekly Roccal treatments at 2 ppm for one hour are necessary to control the bacteria. Prophylactic treatments will be administered to all groups of fish reared in the reclaimed system until they reach 3.5 inches.

Several hundred marked spring chinook smolts released from Kooskia NFH were examined at the holding facilities at Little Goose Dam -- 150 river miles below Kooskia. All mortalities (35 fish) were infected with kidney disease. Most of the dead fish had no external symptoms, but many had lesions in the kidney. Approximately two percent of the smolts released from Kooskia this spring had external symptoms for kidney disease. It is apparent that kidney disease infected smolts are more susceptible to the stress factors related to downstream migration and survive at a lesser rate.

During September, 1971 an Ichthyophthirius epizootic required a complete disinfection of the reconditioned water system. After the fish were removed from the reconditioned water system, the system was sterilized. The procedure for sterilization was as follows:

1. Removed all fish from system.
2. Drained and/or pumped all water from filter bed, pipe lines and sumps.
3. Heated water in filter beds at 90°F. for 12 hours, cooled to 75°F. for 12 hours, heated again at 90°F. for 12 hours and allowed to cool.
4. Put HTH in reuse standpipes, return channel and lines, aeration tank, rearing tanks, and ponds. Chlorine neutralized with sodium thiosulfate.

5. Flushed system with sterile water.
6. Added fish.

Care was taken to allow no chlorinated water to enter the filter beds during the treatment as the chlorine would kill the nitrifying bacteria.

In June, 1972, eight months after the disinfection, "Ich" was again diagnosed on rainbow trout reared in the water reconditioning system. The system was disinfected again following the same procedures listed above.

The possible causes for reinfestation in the system were (1) breakdown of the water treatment units (sand filters or electric grid), and/or (2) contamination of the system from fish from the raw water ponds.

Bioassays using water from each segment of the sterilizing unit (electric grid, sand filter, ultraviolet light) have shown no breakdowns of the system to date. Procedures have been initiated to reduce possible contamination of the reconditioning system from the raw water ponds.

Kokanee brood stock from Anderson Reservoir in southern Idaho was examined and found to be disease free. Two million eggs were obtained from this source. The fish from this egg take will be planted in Dworshak Reservoir.

Hatchery Classification

The following classifications of the three federal hatcheries are based on disease examinations carried out this past year and past records of disease occurrences.

<u>Hatchery</u>	<u>Classification</u>
Dworshak	B-BF (BK)
Kooskia	B-BK (BF-SC)
Hagerman	B (BK-BF)

Fish Marking

A study was continued for the second year by the National Marine Fisheries Service to determine the effect of transporting steelhead smolts from Dworshak NFH to the Columbia River at Bonneville Dam. A total of 24,672 smolts were

hauled directly to Bonneville Dam (400 river miles) while 8,192 were hauled to Lewiston, Idaho and placed in the Clearwater River for two days and then hauled to Bonneville Dam. All of the fish were marked with a magnetic nose tag.

Environment

On March 12, 1972 the Corps of Engineers opened the gate at Dworshak Dam and started releasing water down the spillway. Since the initial spilling, nitrogen gas in the North Fork of the Clearwater River (Hatchery Water Supply) has ranged from 117 to 130 percent saturation, and dissolved oxygen has ranged from 115 to 122 percent.

Analyses of dissolved nitrogen and oxygen at several locations below Dworshak Dam indicate a rapid deaeration when the water from the North Fork mixes with the Clearwater River. The table below lists the levels of nitrogen and oxygen in the river on March 27, 1972.

	°C. Temp.	PPM Nitrogen	% Saturation Nitrogen	PPM Oxygen	% Saturation Oxygen
Station 1	3.0	20.7	118.0	15.5	115.3
Station 2	3.0	20.5	117.0	15.5	115.3
Station 3	3.3	16.4	94.5	12.7	93.0
Station 4	3.0	20.3	115.9	15.6	116.1
Station 5	3.3	16.4	94.0	12.8	96.0
Station 6	3.3	18.0	104.0	13.7	102.7
Station 7	3.3	17.1	98.3	13.2	99.0

Description of Stations:

- Station 1 - 300 yards below Dworshak Dam (North Fork)
- Station 2 - Hatchery Intake (North Fork)
- Station 3 - Main Fork Clearwater River 300 yards above confluence with North Fork.
- Station 4 - 1.0 mile below confluence of North Fork and Main Fork North Side of river.
- Station 5 - 1.0 mile below confluence of North Fork and Main Fork South Side of river.

Station 6 - 2.5 miles below confluence - North Side.

Station 7 - 2.5 miles below confluence - South Side.

The amount of dissolved nitrogen and oxygen was determined by the modified Van Slyke Method.

Twelve Eimco-Simcar 30 HP aerators are available to deaerate the hatchery supply. Tests were run to determine the number of aerators required to efficiently reduce the nitrogen gas.

The test was run with flows of 19,500 and 37,000 gpm. Data regarding the test are listed below.

Flow(gpm)	No. of Aerators	Nitrogen	Nitrogen	Oxygen	Oxygen	Temp. °C.
		Saturation In	Saturation Out	Saturation In	Saturation Out	
37,000	12	127.0	97.0	122.0	96.6	4.9
37,000	8	127.0	96.2	122.0	96.6	4.9
37,000	8	116.9	104.0	114.8	103.5	5.5
37,000	8	118.5	104.3	117.0	102.8	5.5
37,000	6	118.5	102.8	117.0	99.8	5.5
37,000	4	116.9	102.8	114.8	103.4	6.0
37,000	2	116.9	110.4	114.8	108.4	6.0
19,500	6	117.3	102.8	121.9	103.9	9.2
19,500	4	114.5	104.1	114.4	104.7	8.6

The amount of dissolved nitrogen and oxygen was determined by the modified Van Slyke method.

Hatchery Evaluation

A program for evaluating the contribution of steelhead reared at Dworshak was initiated with the release of 69 brood smolts in the spring of 1970. The first adult fish from this release were recovered at Dworshak in the spring of 1972. The fish had been marked with an adipose clip, a cold brand (liquid nitrogen) and a tetracycline mark. One thousand nine hundred ninety-seven fish were examined this spring and 187 fish had adipose clips. Of the 187 fish with adipose clips, 54 (28 percent) had a visible brand. All of the fish with the adipose mark had a tetracycline mark.

The largest returning marked steelhead was 28.2 inches.

Ten percent of the returning steelhead were checked for tetracycline marks. Seventy percent of the adults under 28.5 inches had a tetracycline mark. This indicates that the major portion

of the adults returning this year under 28.5 inches in fork lengths were released from Dworshak in 1970.

Five spring chinook jacks recovered at Kooskia NFH in July, 1972 were examined for tetracycline marks. All five fish had marks similar to those 69 brood smolts released in the spring of 1971.

Fish Cultural Management

A study to determine the amount of Gill Adenosine triphosphatase (ATPase) of steelhead smolts released at Dworshak NFH was completed this spring. Analysis was made from five groups of fish by Dr. W. S. Zaugg of the Western Fish Nutrition Laboratory. The five groups were: (1) precocious males, (2) smolts held in tanks in hatchery for three weeks, (3) smolts held in outside raceways, (4) wild steelhead smolts captured at Little Goose Dam, and (5) migrating Dworshak smolts captured at Little Goose Dam.

Precocious males had uniformly low activities. No precocious males have been observed at the fish collection facilities at the downstream dams. Elevated activities were found in the hatchery migrants captured at Little Goose Dam. Highest levels were obtained in wild steelhead migrants. It is anticipated that the analysis of ATPase activities will be used in the future for determining the exact time for release of anadromous species.

Fish Hatchery Water Treatment

A cooperative study with Kramer, Chin and Mayo, consulting engineers, regarding the development of fish hatchery water treatment was completed. The findings were published under the title, "A Study for Development of Fish Hatchery Water Treatment Systems".

A study testing the effect of ultraviolet disinfection on Aeromonas salmonicida and some of the factors in treatment efficiency was completed. Factors checked were turbidity, color, voltage, iron, intensities of ultraviolet tubes, voltage, condition of quartz tubes, flow rates, and density of bacteria. Turbidity, reduction in voltage, iron content, and dirty quartz tubes all decreased the efficiency of the ultraviolet unit tested.

The cost of the operation of the Dworshak National Fish Hatchery Laboratory was as follows:

<u>Salaries(cost code 19)</u>	<u>Non-Labor Items (cost code 20)</u>	
\$17,678	\$8,977	
		Total---\$26,655.00

S A F E T Y

Monthly staff safety meetings and monthly safety committee meetings were held during the year.

One lost time accident occurred as a result of a heart attack.

Ten DI-134's were forwarded to the Regional Office covering accidents which occurred during the year. Three of the ten accidents occurred to temporary employees who lacked work experience, and two accidents were recurrences of former injuries.

Four fire drills were held.

There have been 93 days since the last lost time accident.

MAINTENANCE AND REPAIR

Preventive maintenance and repair work proceeded at an even pace throughout the year. Charges to maintenance cost codes, with a few exceptions, were for personnel costs and for acquisition of materials and equipment necessary in conducting the maintenance program.

Breakdown repair work included major overhaul of one 200 horsepower main pump motor, and repair and replacement of worn parts on two of the main pumps.

Installation of the reuse system filterbed backwash pump was completed and the system will now pass the design flow of 15,000 gpm without difficulty.

Additional alarm points were installed in critical areas and the Dworshak plant appears to be protected from any possible failure. There were 110 alarms during off duty hours, many of which could have resulted in fish losses.

The instrumentation system performed quite satisfactorily with maintenance accomplished by staff technicians.

During the year the Corps of Engineers completed design and testing of the filtration system for the reuse and incubator water supply. As a result, additional sand filters and an alum flocculation system were installed under a Corps of Engineer contract. The installed system is now performing quite well with crystal clear water supplied to both the reuse and incubator water systems.

Training

In January Mr. Sanders completed a correspondence course presented by the National Safety Council on "Supervising for Safety".

Mr. Williams completed the Civil Service Commission course "Introduction to Supervision" in January.

In February Mr. Sanders and Mr. Williams attended the Cla Val Company's course on installation, operation and maintenance of Cla Val automatic valves.

Mr. Wurth attended the Johnson Service Company's Air Conditioning

Maintenance Specialist Course on automatic regulation of heating, ventilating and air conditioning.

In August, 1971 Mr. Thornton attended a Honeywell, Inc. class on potentiometers.

CONSTRUCTION

The following construction contracts were completed or in progress during the fiscal year:

Contract No. 71-c-0206 \$234,420

This contract was for the correction of design deficiencies in the original contract. It included many separate items for more efficient and safe operation.

Contract No. 72-c-022 \$ 46,843

This contract was for alterations of the biological filters and the addition of a backwash pump to the reuse system.

Contract No. 72-c-0205 \$ 38,675

This contract was for the correction of deficiencies in the filter system to the reuse and incubator water supply. It consisted of installing additional sand filters to achieve two stage filtration and to provide for automatically controlled flocculation.

Contract No. 72-c-0179 \$3,544,245

This contract places all the remaining ponds (59) into two additional environmentally controlled systems, including the construction of a mechanical building, biological filters, necessary piping and controls.

Bureau of Sport Fisheries and Wildlife
BROODSTOCK AND SPAWNING OPERATIONS

(See Fish Hatchery Manual Section 4438a for Instructions)

No.	ITEM	ANADROMOUS OR WILD TROUT - Indicate Species			DOMESTICATED TROUT - Indicate Species		
		Steelhead			CTT	Kokanee	
1.	NUMBER OF FEMALES STRIPPED	961			5	2,554	
2.	TOTAL WEIGHT OF FEMALES				3		
3.	NUMBER OF MALES STRIPPED	230			5	2,550	
4.	TOTAL WEIGHT OF MALES				3		
5.	NUMBER OF GREEN EGGS TAKEN	5,244,697			750	1,711,074	
6.	EGGS TAKEN PER POUND OF FEMALES				250		
7.	EGGS TAKEN PER FEMALE	5,458			150	670	
8.	NUMBER OF EYED EGGS PRODUCED	4,288,770			0	1,605,533	
9.	EGG SURVIVAL: PERCENT TO EYED STAGE	81.8 %	%	%	0 %	93.8 %	%
	PERCENT TO HATCHING	79.8 %	%	%	0 %	92.6 %	%
	PERCENT TO FEEDING	78.0 %	%	%	0 %	91.6 %	%
10.	LABOR COST	7,323.79				1,242.87	
11.	NON-LABOR COST	1,243.73				1,302.36	
12.	TOTAL COST	8,567.52				2,545.23	
13.	CREDIT CURRENT YEAR WEIGHT GAIN OF LOT (lbs. @ \$)						
14.	ADJUSTED TOTAL COST (Item 12 minus Item 13)						
15.	DEBIT CURRENT YEAR WEIGHT LOSS OF LOT (lbs. @ \$)						
16.	ADJUSTED TOTAL COST (Item 12 plus Item 15)						
17.	COST PER THOUSAND EYED EGGS	2.00				1.59	

DISTRIBUTION DATA AND COSTS

(See Fish Hatchery Manual Section 4438b for Instructions)

PART 1 - COSTS

SPECIES	DISTRIBUTION COSTS			FISH DISTRIBUTED		AVERAGE COSTS (6)
	Labor (1)	Non-Labor (2)	Total (3)	Pounds (4)	Number (5)	
PONDFISH	--	--	--	--	--	Per M.
TROUT	4,556	3,459	8,014	110,117	2,056,545	Per lb. .073
ANADROMOUS	651	339	991	162,313	943,635	Per lb. .006
TOTALS	5,207	3,798	9,005	272,430	3,000,180	

PART 2 - DISTRIBUTIONS

SPECIES	TRANSFERS TO OTHER NFH's		TRANSFERS TO STATES		OTHER DISTRIBUTION	
	Pounds (1)	Number (2)	Pounds (3)	Number (4)	Pounds (5)	Number (6)
PONDFISH	--	--	--	--	--	--
TROUT	--	--	--	--	110,117	2,056,545
ANADROMOUS	--	--	--	--	162,313	943,635
TOTALS	--	--	--	--	272,430	3,000,180

PART 3 - TRIP DATA

SPECIES	NUMBER OF TRIPS			POUNDS PER TRIP			NUMBER PER TRIP		
	Transfers (1)	Other (2)	Total (3)	Transfers (4)	Other (5)	Total (6)	Transfers (7)	Other (8)	Total (9)
PONDFISH	--	--	--	--	--	--	--	--	--
TROUT	--	*73	73	--	1,509	1,509	--	28,172	28,172
ANADROMOUS	Fish stocked directly into Clearwater River								
TOTALS	--	73	73						
AVERAGE				--	1,509	1,509	--	28,172	28,172

PART 4 - MILEAGE AND SPECIES DELIVERIES

ITEM	PONDFISH	TROUT	ANADROMOUS	TOTAL
MILES TRAVELED	--	3,602	--	3,602
AVERAGE NUMBER OF MILES PER TRIP				49.3
NUMBER APPLICATIONS (species delivered) THIS YEAR				
NUMBER FARM POND DELIVERIES				
NUMBER INDIVIDUAL FARM PONDS INVOLVED				

PONDFISH DISTRIBUTED, 6" and larger: _____ POUNDS _____ NUMBER

Bureau of Sport Fisheries and Wildlife

SALMONIDAE PRODUCTION

(Fish and Eggs)

(See Fish Hatchery Manual Section 4438c for Instructions)

(1) Species	(2) ON HAND JULY 1		(3) Received During Year		(4) Total Distribution		(5) ON HAND JUNE 30		(6) Total Production in Pounds
	Number	Weight	Number	Weight	Number	Weight	Number	Weight	
Steelhead (0-D)	1,149,985	60,742	--	--	978,604	168,816	--	--	108,074
Steelhead (I-D)	*5,016,000	2,150	--	--	401,159	167	1,170,183	24,380	22,397
Steelhead (2-D)	--	--	5,244,697	--	--	--	4,288,770	1,558	1,558
	6,165,985	62,892	5,244,697	--	1,379,763	168,983	5,458,953	25,938	132,029
Cutthroat (0-C-6)	5,277	517	--	--	--	--	176	85	-432
	*12,672	3	--	--	--	--	--	--	-3
	17,949	520	--	--	--	--	176	85	-435
Rainbow (0-E-7)	138,983	10,634	--	--					-10,634
(0-U Wash 8)	121,737	5,850	--	--	270,120	94,754	6,052	3,286	92,190
(0-E-9)	31,431	1,146	--	--					-1,146
(E-17)	--	--	*295,222	101	--	--	211,688	35,879	35,778
(1-E-18)	--	--	(*163,117 (120,000)*	56 *1,860)	268,060	4,776	--	--	4,720
(2-U-Calif-19)	--	--	*650,000	186	505,620	411	--	--	-1,860
	292,151	17,630	1,228,339	2,203	1,043,800	99,941	217,740	39,165	225
Kokanee (1-U-10)	--	--	*1,605,533	418	1,012,745	10,176	--	--	
	--	--	1,605,533	418	1,012,745	10,176	--	--	9,758
TOTALS	6,476,085	81,042	8,078,569	2,621	3,436,308	279,100	5,676,869	65,188	260,625

ANADROMOUS DISTRIBUTION

Species

Steelhead Trout

Source (parent waters)

North Fork, Clearwater River

(See Fish Hatchery Manual Section 4438d for Instructions)

BROOD YEAR	NUMBER OF EGGS		EGGS AND FISH SHIPPED to another Hatchery			FISH PLANTED				
	Collected	Received	Number	Number per pound	Weight	Date Mo./Yr.	Number	Number per pound	Weight	Waters
1970	11,627,946		2,795,500		Eggs	7/69	1,583,066	2,500	633	North Fork of Clearwater River
						4/70	1,248,227	7.10	175,766	
1971	6,448,600		401,159		Eggs	5/70	123,316	9.15	13,472	NMFS, Little Goose U. of Idaho Columbia River, NMFS Clearwater River Station Columbia River, NMFS
						4/71	1,802,205	10.19	176,837	
1972	5,244,697		--		--	4/71	1,341,366	5.63	238,209	
						10/71	1,500	7.5	200	
						10/71	50	7.5	7	
						4/72	17,669	5.7	3,117	
						4/72	943,659	5.8	162,319	
						4/72	500	5.9	85	
						5/72	15,226	4.9	3,088	
1969	11,472,500		1,200,000	3000	EGGS					

Bureau of Sport Fisheries and Wildlife

EGG SHIPMENTS - SALMONIDAE

(See Fish Hatchery Manual Section 4438e for Instructions)

SPECIES	NAME AND ADDRESS OF APPLICANT	NUMBER SHIPPED (Also subtotal each species)	DATE SHIPPED
Steelhead	University of Idaho	144,838	07/09
Steelhead	University of Idaho	256,321	07/13
TOTAL NUMBER SHIPPED		401,159	

Bureau of Sport Fisheries and Wildlife

FISH FOOD

SPECIES

Trout

Anadromous

Salmon

Other

(See Fish Hatchery Manual Section 4438f for Instructions)

NO	ITEM	POUNDS		TOTAL COST or VALUE
		(a)	(b)	(b)
1.	FISH FOOD ON HAND JULY 1		157,657	18,035.76
2.	FISH FOOD RECEIVED BY DONATION		--	--
3.	FISH FOOD RECEIVED BY TRANSFER		--	--
4.	SUB-TOTAL RECEIVED AND ON HAND		157,657	18,035.76
5.	LIST TYPE PURCHASED DURING YEAR	Cost Per Pound		
	Abernathy 3/64	.1400	24,500	3,430.00
	Abernathy Medicated 6/64	.1260	41,400	5,216.60
	Abernathy 6/64	.1260	93,915	11,833.29
	PR-6 #4	.1064	51,278	5,455.98
	PR-6 1/8	.1064	165,418	17,600.49
	PR-6 Medicated 1/8	.1064	18,850	2,005.64
	Silver Cup Starter	.1575	6,000	945.00
	Clark Chinook Mash	.1685	600	101.00
	Clark Fry Fine	.1485	3,700	549.40
	Clark Grower Crumbles	.1290	10,000	1,290.00
6.	SUB-TOTAL PURCHASED		Average: .1165	415,661
				48,427.40
7.	TOTAL RECEIVED AND PURCHASED (Item 4 + 6)		573,318	66,463.16
8.	LESS FISH FOOD TRANSFERRED TO OTHER HATCHERIES		--	--
9.	LESS FISH FOOD ON HAND JUNE 30		131,509	13,851.61
10.	TOTAL FISH FOOD EXPENDED		441,809	52,611.55
11.	COST PER POUND OF FISH FOOD EXPENDED (Line 10, col. (b) ÷ col. (a))			.119
12.	GAIN IN WEIGHT OF FEEDING FISH PRODUCED DURING YEAR			132,029
13.	FOOD CONVERSION (Line 10, col. (a) ÷ line 12)			3.35
	FOOD COST PER POUND OF FISH PRODUCED (Line 10, col. (b) ÷ line 12)			.40
15.	GIVE DETAILS ON REVERSE SIDE FOR ENTRIES ON LINES 2, 3, and 8			

Bureau of Sport Fisheries and Wildlife

FISH FOOD

SPECIES
 Trout
 Anadromous
 Salmon
 Other

(See Fish Hatchery Manual Section 4438f for Instructions)

NO	ITEM	POUNDS		TOTAL COST or VALUE
		(a)	(b)	(b)
1.	FISH FOOD ON HAND JULY 1	5,093		580.79
2.	FISH FOOD RECEIVED BY DONATION	--		--
3.	FISH FOOD RECEIVED BY TRANSFER	--		--
4.	SUB-TOTAL RECEIVED AND ON HAND	5,093		580.79
5.	LIST TYPE PURCHASED DURING YEAR	Cost Per Pound		
	Abernathy Medicated 3/64	.1400	14,850	2,079.00
	Abernathy 4/64	.1375	17,500	2,406.25
	Abernathy 6/64	.1260	57,365	7,227.99
	PR-6 #4	.1064	31,322	3,332.66
	PR-6 # 1/8	.1064	101,042	10,750.86
	Silvercup # 1 fry fine	.1575	20,000	3,150.00
	Silvercup # 2 fry	.1400	15,000	2,100.00
	Clark Brood 5/32	.1140	4,200	478.75
	Clark Chinook Mash	.1760	3,000	520.50
	Clark Swim Up	.1604	6,500	1,042.50
6.	SUB-TOTAL PURCHASED	Average: .1222	270,779	33,088.51
7.	TOTAL RECEIVED AND PURCHASED (Item 4 + 6)		275,872	33,669.30
8.	LESS FISH FOOD TRANSFERRED TO OTHER HATCHERIES		--	--
9.	LESS FISH FOOD ON HAND JUNE 30		5,496	2,057.45
10.	TOTAL FISH FOOD EXPENDED		270,376	31,611.85
11.	COST PER POUND OF FISH FOOD EXPENDED (Line 10, col. (b) ÷ col. (a))			.117
12.	GAIN IN WEIGHT OF FEEDING FISH PRODUCED DURING YEAR			128,596
13.	FOOD CONVERSION (Line 10, col. (a) ÷ line 12)			2.10
14.	FOOD COST PER POUND OF FISH PRODUCED (Line 10, col. (b) ÷ line 12)			.25
15.	GIVE DETAILS ON REVERSE SIDE FOR ENTRIES ON LINES 2, 3, and 8			

Bureau of Sport Fisheries and Wildlife

CHEMICAL CONTROL PROGRAM

(See Fish Hatchery Manual Section 4438i for Instructions)

CONTROL CHEMICAL USED	ORGANISM TREATED	AMOUNT USED		No. Acres Treated (Indicate Land or Water)	TOTAL PURCHASE PRICE
		Lbs.	Gals.		
Formalin	Fungus Protozoan Parasites		396	L	503.04 (550 gal)
				W .01	
Calcium Hypochlorite	Pond Disinfection Parasites	500		L	252.60 (600 lbs.)
				W .03	
Wescodyne	Egg Treatment		6	L	54.00 (12 gal.)
				W .01	
Roccal	General Disinfectant Parasites		25	L	514.50 (75 gals.)
				W .03	
Malachite Green	Fungus	30		L	
				W .03	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
TOTAL		530	427	L	1,324.14
				W .11	

OPERATIONS COST SUMMARY

(See Fish Hatchery Manual Section 4438j for instructions.)

ITEM	Cost Code	LABOR EXPENDITURES *				NON-LABOR EXPENDITURES *				Total Expenditures (i)	
		Warmwater	Trout	Anadromous	Total	Warmwater	Trout	Anadromous	Total		
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)		
1	Broodstock and spawning	01 06		1,243	7,324	8,567		1,302	1,244	2,546	11,113
2	Rearing	07 12		30,743	65,760	96,503		59,318	98,864	158,182	254,685
3	Distribution	13 18		4,556	651	5,207		3,459	339	3,798	9,005
4	PRODUCTION Sub-total			36,542	73,735	110,277		64,079	100,447	164,526	274,803
5	Fish production facilities	21 22				31,768				47,640	79,408
6	Buildings	23 24				29,043				16,770	45,813
7	Other physical facilities	25 26				32,474				16,456	48,930
8	MAINTENANCE Sub-total					93,285				80,866	174,151
9	Public use	27 28				5,817				2,198	8,015
10	Training	31 32				14,764				724	15,488
11	Opr. fish passage facilities	41 42				6,950				250	7,200
12	OPERATIONS & MAINTENANCE TOTAL					231,093				248,564	479,657
13	Fish production facilities	51 52									
14	Buildings	53 54									
15	Other physical facilities	55 56									
16	Public use facilities	57 58									
17	REHABILITATION TOTAL										
18	GRAND TOTALS					231,093				248,564	479,657
19	O & M Expenditures - Percent for Fish Production		Column (d): Line 4 + Line 12			48	Column (i): Line 4 + Line 12			57	
20	TOTAL EXPENDITURES - Percent for Fish Production		Column (d): Line 4 + Line 18			48	Column (i): Line 4 + Line 18			57	

Bureau of Sport Fisheries and Wildlife

PRODUCTION COSTS

(See Fish Hatchery Manual Section 4438k for Instructions)

PART 1 - PRODUCTION and EXPENDITURES

No.	ITEM	PONDFISH	TROUT	ANADROMOUS	TOTAL
1	Number Produced	--			
2	Pounds Produced	--	128,596	132,029	260,625
3	Labor Expenditures	--	36,542	73,735	110,277
4	Non-Labor Expenditures	--	64,079	100,447	164,526
5	TOTAL EXPENDITURES	--	100,621	174,182	274,803

PART 2 - ANALYSIS OF PRODUCTION COST

ITEM	COST	PERCENTAGE
PONDFISH	--	
PRODUCTION COST PER POUND	--	
LABOR COST PER POUND	--	
LABOR COST PERCENT OF PRODUCTION COST		--
PRODUCTION COST PER THOUSAND FISH	--	
LABOR COST PER THOUSAND FISH	--	
TROUT		
PRODUCTION COST PER POUND	.78	
LABOR COST PER POUND	.28	
LABOR COST PERCENT OF PRODUCTION COST		36
ANADROMOUS		
PRODUCTION COST PER POUND	1.32	
LABOR COST PER POUND	.55	
LABOR COST PERCENT OF PRODUCTION COST		42
AVERAGE PRODUCTION COST PER POUND OF ALL FISH PRODUCED	1.05	

Bureau of Sport Fisheries and Wildlife
REARING FACILITIES AND WATER SUPPLY

(Fish Hatchery Manual Section 4438m for Instructions)

PART 1 - REARING FACILITIES

1. TYPES OF FACILITIES IN USE	NUMBER IN USE	CAPACITY (Calculate at normal water level)	MONTHS IN USE	TOTAL (Months x Cu.Ft.)
TROUGHS	--	-- Cu.Ft.	--	--
TANKS	64	5,120 Cu.Ft.	6	30,720
RACEWAYS	84	267,800 Cu.Ft.	12	3,213,600
OTHER POOLS AND PONDS - Concrete	5	6,375 Cu.Ft.	6	38,250
OTHER POOLS AND PONDS - Earthen	--	-- Cu.Ft.	--	--
TOTAL				3,282,570
TOTAL CUBIC FEET IN USE ON YEARLY BASIS (Divide Total by 12)				273,548

PART 2 - WATER SUPPLY

2. SOURCE OF SUPPLY	Check appropriate source for each supply				OTHER (Explain on reverse)
	SPRING	WELL	LAKE	STREAM	
Supply No. 1	--	--	--	X	--
Supply No. 2	--	--	--	--	*reuse system
Supply No. 3	--	--	--	--	--
3. AVERAGE VOLUME OF WATER-g.p.m. (Give total flow in parenthesis, if not all used)	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	ANNUAL AVERAGE
Supply No. 1 raw	27,300	31,300	48,300	41,000	37,000
Supply No. 2 reuse	15,000	15,000	3,300	12,300	11,400
Supply No. 3					
4. AVERAGE WATER TEMPERATURE-F°	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	ANNUAL AVERAGE
Supply No. 1	64.1	44.4	39.2	44.5	48.1
Supply No. 2	56.1	50.3	52.0	50.9	52.3
Supply No. 3	--	--	--	--	--

5. TOTAL POUNDS OF TROUT OR ANADROMOUS SPECIES PRODUCED: See 3-103 260,625

6. TOTAL POUNDS OF TROUT OR ANADROMOUS SPECIES PRODUCED per g.p.m. AVERAGE FLOW USED: 5.38

7. TOTAL POUNDS OF TROUT OR ANADROMOUS SPECIES PRODUCED per Cu. Ft. (annual) FLOW: ,95

IS ANY WATER PUMPED FOR FISH PRODUCTION? YES NO HEATED? YES NO

(If YES in either case, give details as to flow involved, estimated cost, etc. on reverse.)

REPAIRS TO THE WATER SYSTEM

* Reuse system is designed to recirculate up to 15,000 g. p. m. The maximum makeup water for the reuse system is about 1,800 g. p. m. The usual amount of makeup water is about 1,200 g. p. m.

Item	Quantity	Unit Price	Total Price	Description
Other Tools and Equipment <td>1</td> <td>100.00</td> <td>100.00</td> <td>Other Tools and Equipment</td>	1	100.00	100.00	Other Tools and Equipment
Other Tools and Equipment <td>1</td> <td>100.00</td> <td>100.00</td> <td>Other Tools and Equipment</td>	1	100.00	100.00	Other Tools and Equipment
Other Tools and Equipment <td>1</td> <td>100.00</td> <td>100.00</td> <td>Other Tools and Equipment</td>	1	100.00	100.00	Other Tools and Equipment
Other Tools and Equipment <td>1</td> <td>100.00</td> <td>100.00</td> <td>Other Tools and Equipment</td>	1	100.00	100.00	Other Tools and Equipment

All water is pumped. Costs are as follows:

- Main Supply Pumps \$25,035.48
- Reuse System Pumps 11,532.29
- Cooling of Incubator and Reuse Water 8,102.73
- Heating of Reuse Water 30,030.24

Item	Quantity	Unit Price	Total Price	Description
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water
Water	100.00	1.00	100.00	Water

Additional notes and details regarding the water system repairs, including references to specific equipment and materials used.

Bureau of Sport Fisheries and Wildlife

SUMMARY OF LABOR EXPENDED AND UTILIZATION

(See Fish Hatchery Manual Section 4438n for Instructions)

PART 1 - STATION LABOR ANALYSIS

No.	ITEM	Man-Years of Labor
1	PERMANENT PERSONNEL	15.76
2	ALL OTHER LABOR	2.91
3	OVERTIME FOR WORK PERFORMED AT STATION BY ABOVE EMPLOYEES	.13
4	DETAIL OF PERSONNEL TO STATION	
5	OVERTIME OF DETAILED PERSONNEL AT STATION	
6	TOTAL LABOR - ALL PERSONNEL	*18.80

PART 2 - LABOR UTILIZATION

No.	ITEM	Permanent	Other
7	PRODUCTION	8.60	.26
	PONDFISH (Cost Codes 01, 07)		
	TROUT (Cost Codes 03, 09)	(2.96)	
	SALMON (Cost Codes 05, 11)	(5.64)	(.26)
8	DISTRIBUTION (Cost Codes 13, 15, 17)	.48	
9	MAINTENANCE	5.11	2.22
	MAINTENANCE (Cost Codes 21, 23, 25)	(5.11)	(2.22)
	REHABILITATION (Cost Codes 51, 53, 55, 57)		
10	PUBLIC USE (Cost Code 27)	.23	.24
11	TRAINING (Cost Code 31)	.97	.19
12	SUB TOTAL	15.39	2.91
13	TOTAL PERMANENT AND OTHER (Equals Item 6)		*18.80

Bureau of Sport Fisheries and Wildlife

REPORT OF PERMANENT PERSONNEL

(See Fish Hatchery Manual Section 4438o for Instructions)

PART 1 - STATION PERSONNEL

NAME OF EMPLOYEE	Age	Grade	Marital Status	Children Under 18	Period Worked	COMPENSATION PAID			Total Compensation
						Total Regular Salary	Uniform Allowance	Paid Overtime	
						(6)	(7)	(8)	
Ankney, William G.	38	06	M	2	7/1/71-6/30/72	9,811.36	125.00	211.50	10,147.86
Billi, James L.	33	11	M	2	7/1/71-6/30/72	12,702.40	125.00	---	12,827.40
Brainard, Lila N.	54	06	M	0	7/1/71-6/30/72	8,792.64	125.00	---	8,917.64
Carlson, Dwain A.	37	06	M	5	7/1/71-6/30/72	9,267.88	125.00	19.98	9,412.86
Halfmoon, Frank L.	43	07	M	0	7/1/71-6/30/72	7,389.28	125.00	181.14	7,695.42
Harris, Walter G.	38	09	M	3	7/1/71-6/30/72	14,067.84	125.00	10.35	14,203.19
Hayes, Charles H.	35	04	S	0	7/1/71-6/30/72	7,814.72	125.00	120.25	8,059.97
1. TOTAL - STATION PERSONNEL									

PART 2 - PERSONNEL DETAILED TO STATION

NAME OF EMPLOYEE	From Station	Period of Detail	COMPENSATION PAID			Total Compensation
			Regular Salary Costs	Per Diem and Expenses	Paid Overtime	
			(3)	(4)	(5)	
	(1)	(2)	(3)	(4)	(5)	(6)
2. TOTAL - DETAILED TO STATION						

3. TOTAL COMPENSATION PAID TO PERMANENT PERSONNEL ON DUTY AT STATION

Mr. Billi entered on duty 7/11/71.

DATE	TIME	LOCATION	STATUS	REMARKS
7/11/71	08:00	AM/10-2/100/100	1	Mr. Billi entered on duty
7/11/71	08:00	AM/10-2/100/100	1	
7/11/71	08:00	AM/10-2/100/100	4	
7/11/71	08:00	AM/10-2/100/100	1	
7/11/71	08:00	AM/10-2/100/100	1	
7/11/71	08:00	AM/10-2/100/100	2	
7/11/71	08:00	AM/10-2/100/100	1	

Bureau of Sport Fisheries and Wildlife

REPORT OF PERMANENT PERSONNEL

See Fish Hatchery Manual Section 4438o for Instructions)

PART 1 - STATION PERSONNEL

NAME OF EMPLOYEE	Age	Grade	Marital Status	Children Under 18	Period Worked	COMPENSATION PAID			Total Compensation
						Total Regular Salary	Uniform Allowance	Paid Overtime	
						(6)	(7)	(8)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Heathco, Merle S.	48	WG 07	M	1	7/11/71-6/30/72	9,074.00	125.00	59.76	9,258.76
Jacobs, Peter E.	38	WG 05	M	4	12/26/71-6/30/72	3,348.75	125.00	197.05	3,670.80
Parvin, John R.	58	13	M	0	7/1/71-6/30/72	20,079.84	125.00	---	20,204.84
Reynolds, LaVerne W.	37	04	S	0	7/1/71-6/30/72	5,480.66	125.00	119.40	5,725.06
Sanders, Boyce O.	56	09	M	0	7/1/71-6/30/72	12,633.52	125.00	---	12,758.52
Simonsen, Rolph W.	50	07	M	1	7/1/71-6/30/72	10,645.20	125.00	118.88	10,889.08
Taggart, Thomas M.	38	06	M	1	7/1/71-6/30/72	8,813.06	125.00	386.38	9,324.44
1. TOTAL - STATION PERSONNEL									

PART 2 - PERSONNEL DETAILED TO STATION

NAME OF EMPLOYEE	From Station	Period of Detail	COMPENSATION PAID			Total Compensation
			Regular Salary Costs	Per Diem and Expenses	Paid Overtime	
			(3)	(4)	(5)	
(1)	(2)	(3)	(4)	(5)	(6)	
2. TOTAL - DETAILED TO STATION						

3. TOTAL COMPENSATION PAID TO PERMANENT PERSONNEL ON DUTY AT STATION

Bureau of Sport Fisheries and Wildlife

REPORT OF PERMANENT PERSONNEL

(See Fish Hatchery Manual Section 4438o for Instructions)

PART 1 - STATION PERSONNEL

NAME OF EMPLOYEE	Age	Grade	Marital Status	Children Under 18	Period Worked	COMPENSATION PAID			Total Compensation
						Total Regular Salary	Uniform Allowance	Paid Overtime	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Thornton, Warren L.	43	WG 11	M	0	7/1/71-6/30/72	10,916.24	125.00	292.54	11,333.78
Williams, George L.	43	11	M	3	7/1/71-6/30/72	14,350.32	125.00	---	14,475.32
Wold, Einar	40	12	M	1	7/1/71-6/30/72	16,740.16	125.00	---	16,865.16
Wurth, Richard L.	39	WG 10	M	2	7/1/71-6/30/72	10,570.24	125.00	150.30	10,845.54
1. TOTAL - STATION PERSONNEL						* 204,131.71	2,250.00	1,867.53	* 208,249.24

PART 2 - PERSONNEL DETAILED TO STATION

NAME OF EMPLOYEE	From Station	Period of Detail	COMPENSATION PAID			Total Compensation
			Regular Salary Costs	Per Diem and Expenses	Paid Overtime	
(1)	(2)	(3)	(4)	(5)	(6)	
2. TOTAL - DETAILED TO STATION						

3. TOTAL COMPENSATION PAID TO PERMANENT PERSONNEL ON DUTY AT STATION	208,249.24
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Standby Pay

John R. Parvin	2,964.00
George L. Williams	2,964.00
Boyce O. Sanders	2,964.00
James L. Billi	2,741.60
	<u>11,633.60</u>

NAME	DATE	AMOUNT	REMARKS
John R. Parvin	11-1-58	2,964.00	Standby Pay
George L. Williams	11-1-58	2,964.00	Standby Pay
Boyce O. Sanders	11-1-58	2,964.00	Standby Pay
James L. Billi	11-1-58	2,741.60	Standby Pay

11-1-58 11-1-58 11-1-58 11-1-58

2,964.00 2,964.00 2,964.00 2,741.60

11,633.60

FIVE YEAR PRODUCTION AND DISTRIBUTION SUMMARY

(See Fish Hatchery Manual Section 4438b for Instructions)

PART 1 - PRODUCTION

YEAR	TOTAL POUNDS (All Species)	NUMBER of POND FISH	PER TOTAL MAN YEARS		PER PRODUCTION MAN YEARS	
			Pounds (All Species)	Number (Pondfish)	Pounds (All Species)	Number (Pondfish)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1970	279,291	--	18,290	--	30,031	
1971	404,917	--	22,850	--	44,350	
1972	260,625	--	13,863	--	29,416	

PART 2 - COST ANALYSIS

YEAR	Percent Production Cost of Total	Percent Labor Cost of Total	Production Cost per Pound of Fish	Labor Cost per Pound of Fish	Food Cost per Pound of Fish	Food Conversion
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1970	70	38	1.06	.37	.246	1.94
1971	66	33	.89	.31	.26	2.00
1972	57	48	1.05	.42	.32	2.73

PART 3 - DISTRIBUTION

YEAR	TOTAL DISTRIBUTION		Number of Truck Trips	Miles Traveled in Fish Distribution	Average Miles per Trip	AVERAGE DISTRIBUTION PER TRIP		Average Cost per Trip	Dist. Cost per Pound of Fish
	Pounds	Number				Pounds	Number		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970	189,871	2,954,609	--	not applicable	---				
1971	415,046	3,143,571	--	not applicable	---				
1972	272,430	3,000,180	73	3,602	49.3	1,509	28,172	109.79	*.033

ANALYSIS OF PROGRAM

(See Fish Hatchery Manual 4438r for instructions)

PART 1- PRODUCTION

Line Number	Species	PROGRAM SCHEDULE		ANNUAL REPORT		DIFFERENCE			
		Pounds	Numbers	Pounds	Numbers	Pounds	%	Numbers	%
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	Trout	100,000	4,480,000	128,596	2,056,545	+28,596	+29	-2,423,455	54
2	Warmwater								
3	Anadromous	480,000	3,360,000	132,029	978,604	-347,971	-73	-2,381,396	71
4	TOTALS	580,000	7,840,000	260,625	3,035,149	-319,375	-55	-4,804,851	61

PART 2 - COSTS

Category	PROGRAM SCHEDULE		ANNUAL REPORT		DIFFERENCE			
	Dollars	Man Years	Dollars	Man Years	Dollars	%	Man Years	%
5 Production	353,600	7.5	265,798	8.86	-87,802	25	+1.36	18
6 Distribution	17,400	.7	9,005	.48	-8,395	48	-.22	31
7 Maintenance	179,250	6.5	174,151	7.33	-5,099	3	+.83	13
8 Rehabilitation								
9 Public Use	9,300	.8	8,015	.47	-1,285	14	-.33	41
10 Training	14,400	1.5	15,488	1.16	+1,088	8	-.34	23
11 TOTALS *	588,400	18.0	479,657	18.80	-108,743	19	+.80	4

* See reverse.

PART 3 - INDEXES

Costs Lb/M	PROGRAM SCHEDULE		ANNUAL REPORT		DIFFERENCE				
	Per. Lb.	Per M	Per. Lb.	Per M	Per. Lb.	%	Per M	%	
12 Total Cost	1.01	75.05	1.84	158.04	+.83	82	+82.99	111	
13 Production Cost	.61	45.10	1.05	90.54	+.44	72	+45.44	101	
Pounds/Man Years	PROGRAM SCHEDULE		ANNUAL REPORT		DIFFERENCE				
14 Total Man Years	32,222		13,863		-18,359				57
15 Prod. Man Years	77,330		27,904		-49,426				64

* The Program Schedule amounts for fish passage and counting are included in the totals shown on this form.

Fish Passage and Counting - On Program Schedule On Annual Report

1 Man Year - \$14,450 .5 Man Year - \$7,200

Explanation for the extreme variations between the program schedule and the actual performance of the Dworshak National Fish Hatchery during fiscal year 1972---
The Program year 1972 fiscal and production estimates were predicated upon the assumption that full production would occur. This is a new hatchery with no historical data. Fiscal year 1972 was the year of closure of the Dworshak Dam and many unpredictable variables occurred in connection with this so that production was less than half that expected, as explained in the Introduction to this document. An analysis of this form will show that the cause of all the variables was less than expected production.

Bureau of Sport Fisheries and Wildlife

PUBLIC RELATIONS

TOTAL PUBLIC VISITORS^{1/}
47,600

(See Fish Hatchery Manual section 4438q for instructions)

A - INTERPRETATIVE PRESENTATIONS

TYPE OF GROUPS	ON HATCHERY		OFF HATCHERY	
	Number of Groups	Number in Group	Number of Groups	Number in Group
Sportsman Clubs	2	70	4	69
Schools	28	1,506	2	430
Service Clubs	4	110	1	16
Professional-Scientific	11	245	--	--
Religious Groups	4	193	--	--
Camp Groups	--	--	--	--
Youth Groups	8	291	1	60
State or Federal Government	17	280	--	--
Other				
TOTALS	74	2,695	8	575

B - OTHER PUBLIC RELATIONS ACTIVITIES

TYPE OF ACTIVITY	NUMBER	TYPE OF ACTIVITY	NUMBER
Press Releases (field level)	12	Hatchery Exhibits	3
Number of newspapers (receiving releases)	3	Off Hatchery Exhibits	2
TV Presentations	2	Estimate number of exhibit viewers	22,000
Radio Presentations		Other (Explain in remarks - i.e., open house, participation in local events, etc.)	*

REMARKS *Open House, 9/18/71, Centennial celebration - 300 visitors. Boy Scouts and Jobs Daughters were tour guides.

Foreign visitors were: Suck Cho Chyung of Seoul, Korea on 8/6/71; Mr. and Mrs. Bob Preston of Scotland, 4/14/72; His Excellency Motusi T. Mashologu, Ambassador to the U. S. and High Commissioner to Canada, from Africa on 4/12/72.

Dean Conger of National Geographic Magazine interviewed Mr. Parvin and took pictures of the hatchery in August, 1971.

Mr. Parvin attended Kiwanis Club all during the year as part of local public relations.