



Annual Report

FISCAL YEAR 1973

Dworshak National Fish Hatchery
(Hatchery)

Submitted

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DIVISION OF FISH HATCHERIES

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INTRODUCTION

The Dworshak National Fish Hatchery was designed and built to replace the spawning and nursery areas for steelhead trout which were lost by the construction of Dworshak Dam. In addition to the rearing of steelhead trout for release into the Clearwater River watershed, this station also participates in the management of the Dworshak pool. During the year catchable rainbow trout, juvenile rainbow trout, and kokanee were released into the reservoir which is 53 miles long at design high level.

The Dworshak National Fish Hatchery is located at the confluence of the North Fork and the Middle Fork of the Clearwater River near the unincorporated town of Ahsahka, Idaho. The site is approximately three miles west of Orofino, Idaho on the north bank of the Clearwater River. It is located approximately 8,000 feet downstream from Dworshak Dam.

At the beginning of the fiscal year contracts had been let by the U. S. Corps of Army Engineers for construction to convert the 59 remaining ponds which were on raw water to two additional environmental control systems at a contract cost of \$3.54 M.

During the entire year major construction was in progress. The production program had to be coordinated to facilitate the progress of construction. At times pond facilities were required for construction purposes. Critical tie-ins, both electrical and mechanical, had to be planned ahead.

The construction program will have accomplished several benefits. There should be no problem in the future to attain the program goals for the anadromous fishery and the reservoir management requirements because of plant limitations. Limitation of reservoir management requirements may result from the lack of availability of eggs.

During the summer of 1972 water releases from Dworshak Dam were cold, necessitating heating during the period in which no heating normally would be needed. In September, Ichthyophthirius was again diagnosed in the re-use system. It was controlled by removing the steelhead trout from the system, treating them for a period of six weeks and then returning them to the heated system. No recurrence was noted. The retarded growth coupled with low

egg takes the previous spring, as well as the necessity of considering construction schedules, resulted in lower total pounds of production.

The lower production in pounds for the fiscal year was the cause of the higher unit costs reflected in the analysis of data. No saving could be made in man years required to operate as large amounts of labor were necessary to accomplish the operation of the station during this period of construction.

During the period prior to placing the re-use systems in operation, systems one and two were each sterilized after complete cleaning. This action was taken to prevent disease in the systems after rearing of fish had been started.

No one system was sterilized first and placed on the line. A relatively small number of steelhead fry were placed in the system and the rainbow fingerlings intended for release in the spring of 1974 were placed therein. After a few days of 58° to 60° water Ichthyophthirius was diagnosed in the rainbow trout. All the fish in the system were released as part of the station distribution and the system was again completely sterilized. At the end of the fiscal year no indication of continuation of this problem occurred.

The egg collecting season for steelhead started approximately a month earlier than previous periods. This was possibly due to warmer temperatures resulting from the effect of the Dworshak Dam discharges. During the year a record return of adult steelhead occurred. Between 9,000 and 10,000 adults arrived. From these the egg capacity of the hatching facilities at the Dworshak National Fish Hatchery were filled. All the available Idaho Department of Fish and Game incubation space was filled. In addition, over 2,400 adults were hauled to the upper Clearwater tributaries for natural spawning. There is also some indication that Dworshak reared returning adults ascended other tributaries for spawning. An excellent steelhead fishing season was experienced on the Snake River and the Clearwater River below the hatchery.

During the first months of the fiscal year visitor load appeared to be quite large. Toward the end of the fiscal year, the beginning of the 1973 vacation period, a reduction in visitor load was apparent, due probably to the gasoline shortages experienced in

some areas. Tour guides, employed on the youth opportunity program, were quite effective in the public relations activities of this station. The Dworshak reservoir was used extensively. Excellent fishing was provided through the management program of the Idaho Fish and Game Department implemented by the Dworshak National Fish Hatchery.

Smaller than normal amounts of precipitation resulted in one of the driest years of the present decade. Extremely low snow packs occurred. Spring runoff was almost nonexistent.

One inspection by Division personnel was made on December 12, 1972 by Mr. Marvin Smith, Regional Supervisor for the Division of Hatcheries. Several foreign visitors as well as interested professional people from this country visited the station.

At the end of the fiscal year the construction contract for the revisions to the hatchery was well on its way to completion. The fish on hand were in excellent condition. After the "bugs" are removed from the new construction the program of the hatchery should proceed according to the expected norm.

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 operation. During the year close coordination was necessary to allow for limited production at the time major construction charges were made to the Dworshak National Fish Hatchery facilities.

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.

Two coordination meetings were held with members of the staffs of the Idaho Department of Fish and Game and the Bureau of Sport Fisheries and Wildlife to effect a unified program.

This hatchery cooperated with the Corps of Engineers, the State of Idaho Department of Fish and Game, and 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 operation of Dworshak Reservoir.

FISH CULTURAL OPERATIONS

Production for the year was 284,807 pounds, having fed 716,505 pounds of feed for a conversion of 2.52. This was a production increase of almost 27,000 pounds and a 0.23 conversion decrease. In general, the water quality and disease situations were improved.

It is anticipated that completion of the reuse systems for this station will increase production considerably. The addition of an alum flocculation system to the make-up water has decreased turbidity noticeably.

Steelhead

Ichthyophthirius was diagnosed in the reuse system in September, 1972, as in the previous year, but quicker action learned from experience kept the mortality rate lower. The system was sterilized with chlorine, except the ponds, and put back into service. The fish were reared to release without a recurrence.

The next cycle, in June, 1973, were found to have Ichthyophthirius. These fish were planted and the entire system sterilized.

Steelhead return and spawning this year was very successful. The first returning adult arrived on October 2, 1972. Spawning commenced on March 16, 1973, the earliest this station has ever started. The run totaled 9,938 fish, of which 2,489 were released into tributaries of the Clearwater River without being spawned.

The following is a summary of our 1973 steelhead spawning activities:

Females spawned for Dworshak NFH	2,640
Green eggs taken for Dworshak NFH	14,416,800
Green eggs given to State	12,907,000
Eyed eggs	12,366,800
% eye	85.8
Green eggs per female	5,461
Eyed eggs per female	4,684
Total females spawned	4,864
Total males spawned	2,090
Unspawned females planted	1,379
Unspawned males planted	1,110
Mortality	236
Sacrificed for biological data	259
Total in Run	9,938
Spawning Season:	3/16 - 5/29

Egg survival was high and the resulting fish are growing well.

Rainbow

There were numerous egg shipments received to meet the stocking request of the Idaho Fish and Game Department.

Very few diseases were diagnosed and these were controllable with formalin. The exception being Ichthyophthirius in June, 1973, which necessitated the early release of the rainbows designated for the reservoir in 1974.

Kokanee

No kokanee were received from the early spawning stock at Featherville on the south fork of the Boise River. The Washington Department of Game shipped 579,000 to this station in March, 1973, and these were released into the reservoir in June at a small size.

Cutthroat

There were two shipments of cutthroat trout eggs received during the year from the Washington Department of Game hatchery at Colville, Washington. One shipment in July, 1972, of 11,000; of which approximately 1,000 are left. Another shipment of 162,000 in June, 1973, are doing well.

Cutthroat spawning at Dworshak NFH was disappointing this year in that only six females were spawned and survival of the eggs to the eyed stage was very poor.

Feeding System

There have been major changes in the feeding system. The computer was reprogrammed, increasing disk and memory capacity from 8K to 16K. This has allowed greater versatility and improved functioning of the system. Electronic improvements were made for greater reliability of the feeding system and the pneumatic feed blowers were slowed down which should result in less food breakage.

Public Relations

Hatchery displays were provided and operated at the Orofino, Idaho and Lewiston, Idaho fairs.

Sportsman's Day, held September 23, 1972, was considered somewhat less than a success. Approximately 60 people toured the hatchery that day which is very low.

The system of using three girls to guide tours was well accepted for the summer of 1972 and was continued in the summer of 1973.

Training

Walter Harris attended a fish disease course at the University of Idaho in the spring.

A short training session was held by personnel from Wismer-Becker Company to familiarize the staff with the computer program changes.

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.

Hatchery Classification

Two wild brood stocks were examined prior to shipment of eggs to Dworshak. Kokanee brood stock from Anderson Reservoir in southern Idaho and Cutthroat brood stock from Kings Lake in Washington were found to be disease free. No eggs were obtained from Anderson Reservoir as only a small run materialized.

The following classification of the three federal hatcheries in Idaho based on disease examinations carried out this past year and past records of disease occurrences are as follows:

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

Adult Steelhead Evaluation

Data obtained from examining returning adult steelhead at Dworshak during the past several years and not reported in previous annual reports are listed below.

Total Age Distribution of Adult Wild Steelhead (Percent)

	1969	1970	1971	1972	1969-72
	Brood	Brood	Brood	Brood	Broods Combined
2 Years	1.65	0.0	0.0	0.0	0.53
3 Years	11.06	5.22	2.21	10.72	7.51
4 Years	49.93	38.54	33.35	32.10	36.50
5 Years	36.53	47.90	51.08	51.82	48.28
6 Years	0.83	8.37	13.37	5.36	7.18
7 Years	0.0	0.04	0.0	0.0	0.01

Freshwater Age Distribution of Adult Wild Steelhead

	1969	1970	1971	1972	1969-72
	Brood	Brood	Brood	Brood	Broods Combined
1 Year	9.95%	17.65%	2.22%	14.55%	11.69%
2 Years	82.81%	72.55%	66.67%	67.27%	76.37%
3 Years	7.24%	9.80%	31.11%	18.18%	11.93%

Ocean Age Distribution of Adult Wild Steelhead

	1969	1970	1971	1972	1969-72
	Brood	Brood	Brood	Brood	Broods Combined
1 Year	4.52%	0.0	2.22%	0.0	2.60%
2 Years	70.14%	32.35%	51.11%	54.55%	56.97%
3 Years	25.34%	61.67%	46.67%	45.45%	39.01%
4 Years	0.0	5.88%	0.0	0.0	1.42%

Age Distribution of Adult Wild Steelhead Broods:

69-72 Combined

<u>Fresh Water Age</u>	<u>Ocean Age</u>	<u>% of Total</u>
	1	0.24
1	2	7.40
1	3	4.06
2	1	2.15
2	2	41.53
2	3	31.50
2	4	1.19
3	1	0.24
3	2	8.11
3	3	3.58

<u>Fresh Water Age</u>	<u>Ocean Age</u>	<u>No. Fish</u>	<u>% of Total</u>
		49	11.69
		320	76.37
		50	11.93
	1	11	2.60
	2	239	57.04
	3	164	39.14
	4	5	1.22

During the 1973 steelhead spawning season the total run of 9,824 fish were sampled. All of the fish were air spawned and, except for 156 fish sacrificed for analysis of tetracycline marks, were released into the Clearwater River drainage, Dworshak Reservoir, and below Bonneville Dam on the Columbia River. Data regarding the fish released are listed as follows:

SPAWNED:

Dworshak Reservoir	834
Cherrylane	4,830
Bonneville Dam	156
	<u>5,820</u>

UNSPAWNED:

Lolo Creek	401
Yoosa Creek	411
Squaw Creek	207
Boulder Creek	197
White Sand Creek	202
Crooked Fork	200
Brushy Fork	388
White Sand & Crooked Fork	<u>336</u>
	2,342

T O T A L : 8,163

Twenty fish captured at the weir on Clear Creek near Kooskia National Fish Hatchery were examined for tetracycline marks. All of the fish were recovered prior to the release of unspawned fish in the upper Clearwater drainage. Three of the twenty fish were wild fish, one fish had been released from Dworshak in 1971 and the remaining fish had been released in 1970. Three of the 17 hatchery fish were females and one of the three wild fish was a female.

All steelhead fingerlings released from Dworshak have been marked with tetracycline. Each release of fish has had a distinguishable mark to provide a means to identify and evaluate the return of adults. The number of fish that returned to the hatchery for spawning in 1973 are listed below.

1969 Brood- 1970 Release	8,263 Fish (84.11%)
1969 Brood- 1970 Release- 1971 Migration	279 Fish (2.84%)
1969 Brood- 1971 Release	419 Fish (4.26%)
1970 Brood- 1971 Early Release (March 15)	97 Fish (0.99%)
1970 Brood- 1971 Late Release (April 15)	390 Fish (3.97%)
Wild Fish	<u>376</u> Fish (3.83%)

Total Fish - - - 9,824

During the spawning season of 1972, 813 steelhead of the 1969 Brood- 1970 Release group of fish returned to the hatchery. Those fish had returned to spawn after only one year in the ocean.

Number of fingerlings released to produce above returns:

		<u>Ave. Fork Lg.</u>
1969 Brood- 1970 Release	1, 371, 543	196 mm.
1969 Brood- 1971 Release	1, 351, 175	205 mm.
1970 Brood- 1971 Early	453, 549	174 mm.
1970 Brood- 1971 Late	1, 019, 009	167 mm.

All of the returning steelhead were checked for dorsal erosion this past spawning season. The proportion of hatchery and wild fish with dorsal erosion is listed below:

Total Fish With Dorsal Erosion	7, 372	(75.04%)
Total Fish Without Dorsal Erosion	<u>2, 452</u>	(24.96%)
	9, 824	

Hatchery Fish With Dorsal Erosion	7, 372	(78.03%)
Hatchery Fish Without Dorsal Erosion	<u>2, 076</u>	(21.97%)
	9, 448	

Total Fish Without Dorsal Erosion but with tetracycline mark (Hatchery Fish).	2, 076	(84.67%)
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Total Fish Without Dorsal Erosion but without tetracycline mark (Wild Fish).	<u>376</u>	(15.33%)
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Total Fish Without Dorsal Erosion:	2, 452	
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Fish Cultural Management

At Dworshak National Fish Hatchery the pre-treatment of supplemental water includes an electric grid, pressure sand filters, and ultraviolet lights. River water is pumped to a reservoir facility and travels by gravity flow to an electric grid where voltage (480 volts) is applied to stainless steel plates arranged in parallel. Water from the electric grid is then treated with alum for coagulation before reaching pressure sand filters. After filtration, the water passes through a series of ultraviolet lamps for the final treatment of supplemental water.

In order to determine the efficiency of the pre-treatment facility, procedures to bio-assay the effluent from each unit were established. Disease-free fish were placed in hatching jars supplied with untreated water; effluent water from the electric grid; effluent water from the electric grid and the sand filters; and effluent water from the electric grid, sand filters, and ultraviolet lights (supplemental water for reconditioning system). Two hatching jars were used for each station. This allowed for testing of fish over a long period of time (nine months) in one jar and short time exposures (two and four weeks) in the other. All jars were loaded with 100 fish at the start of each test and supplied with a flow of one-half gallon per minute. Examinations of fish reared in each water supply for bacteria and parasites were made at two week intervals. Total bacteria counts from each water supply using the standard plate count method were made at two week intervals.

Results:

1. Counts of bacteria in the effluent from the ultraviolet light increased with the age of the bulbs and as the quartz protective shield became dirty. The ultraviolet unit was made more effective when the quartz tubes were cleaned every two months with a hot (65° C.) citric acid bath. Annual replacement of ultraviolet bulbs is necessary to maintain adequate purification.
2. High counts of bacteria from the effluent of the sand filters indicated a high biota load. Bacteria in the sand filters can be reduced by a 24-hour 200 ppm chlorine bath.
3. Ichthyophthirius was diagnosed on fish reared in untreated river water and in effluent water from the electric grid. This indicates that the sand filter is the effective pre-treatment unit for controlling "Ich."
4. Eggs and miricidia of the blood fluke, Sanguinicola, were found in fish reared in untreated river water but not in fish reared in any of the other effluents indicating that the electric grid is effective in controlling the blood fluke.
5. Furunculosis, Aeromonas salmonicida was diagnosed from fish reared in the supplemental water. This water had been exposed to the electric grid, sand filters, and ultraviolet light. The infection occurred after the turbidity of the effluent from the sand filter increased to 70 Jackson turbidity units and the efficiency of the ultraviolet unit dropped to sixty percent.

6. The infective agent of Epistylis was not killed by the water disinfection unit.

Since water reconditioning systems are extremely vulnerable to disease epizootics, supplemental water must be treated to reduce the numbers of fish pathogens. Pre-treatment of supplemental water with electric grids, sand filters, and ultraviolet lights can be successful in reducing the numbers of fish pathogens.

Bio-assay of the effluent from each unit of a disinfecting system is an effective method for determining the efficiency of each unit and to reveal the deficiencies in such a system. It is an excellent method to test a new system and to monitor any system in production.

Laboratory studies were performed to determine suspended solids on 20-minute sedimentation samples. Tests included coagulant-treated and untreated pond effluent and filter backwash water. Coagulants tested included alum, Dow Chemical A-23 (a polyelectrolyte) and an acetylated glucose-amine polymer, "Chitosan". Coagulant dosages used in tests were those recommended by Dr. A. T. Wallace in his study on coagulation-flocculation of rearing pond effluents. Chemicals were added and allowed to mix for two minutes at approximately 200 rpm. When the synergistic effect of alum and a polyelectrolyte or chitosan was tested, alum was always added first and allowed to mix before the second chemical was added.

Procedures for determining suspended solids on 20-minute sedimentation samples were as follows:

1. One liter sample allowed to settle in Imhof cone for 20 minutes.
2. Upper one-half and lower one-half of supernatant siphoned from cone. Sludge and last 40 mls. of supernatant siphoned from cone.
3. Suspended solids and pH determined for each layer of sedimentation.

All suspended solids determinations on sludge were diluted to 300 milliliters with distilled water. This was done to allow enough solution for adequate mixing in the blender. The

dilution factor of settleable solids to distilled water was then used for final suspended solid determinations of the sludge.

Conclusions:

From the results of these tests run at Dworshak it would seem that the use of coagulants on pond effluent would be a questionable process. Certainly, the effect of various coagulants on nitrifying bacteria must be determined.

Observations of steelhead trout reared in hatcheries have indicated a high percentage of sexually precocious male fingerlings. Since precocious fingerlings do not migrate seaward, a means to alter this physiological development and produce a migratory fish would be of great importance. In a study completed at Dworshak the effects of feeding Diethylstilbestrol on gonad development, fish growth, and liver histology were determined. DES fed at 800 mg. per pound of food for 75 days showed a definite effect on the maturation characteristics. Condition factors decreased and a color change from dark to silver occurred. However, feeding DES at this level resulted in severe degenerative changes in liver tissue.

Tests were made to determine if semen (sperm and spermatic fluid) would transmit kidney disease from the adult male to their progeny. Adult spring chinook salmon were used for the test. Three females free of kidney disease were selected for the study. Eggs from each female were divided into two groups; one group was fertilized with sperm from a male infected with kidney disease, while the second group of eggs was fertilized by sperm from a non-infected male.

During the 18 month test while rearing the progeny, water temperatures were controlled over a range of 2 to 21 C. to match natural seasonal variations. Also during this time, dissolved oxygen content was reduced to a minimum of 4 ppm and ionized ammonia allowed to increase to a maximum of 1.27 ppm to provide stress conditions to lower the resistance of the fish to disease organisms.

The results of this test suggests that kidney disease is not transmitted via salmonid semen. None of the progeny became infected with kidney disease.

SAFETY

Monthly staff safety meetings were held during the year. Movies, slides and guest speakers covered a wide range of safety oriented topics. Three movies were shown covering defensive driving subjects which counted toward the required eight hours of defensive driving training for all staff members.

Six DI-134's were forwarded to the Regional Office covering accidents which occurred during the year.

Staff members were cautioned throughout the year to be on the alert against construction related safety hazards.

Four fire drills were held, three of which were unscheduled when fire alarms were set off accidentally.

There have been 5, 843 man days of lost-time accident free operation.

MAINTENANCE AND REPAIR

Preventive maintenance and repair accounted for the most of the maintenance costs during 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 reuse pump and three system aerators.

Six Eimco aerators broke down during the year. Repair costs to return a unit to operation are about \$3,500.00. Design deficiencies appear to be the main cause of failure. The Corps of Engineers is currently negotiating a contract to correct the problem, and the work should begin in the near future.

There were 105 system alarms during off duty hours. Standby personnel answering the alarms prevented serious harm to equipment and fish.

CONSTRUCTION

The following construction contract was in progress during the fiscal year and is nearing completion:

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.

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			Rainbow		
1.	NUMBER OF FEMALES STRIPPED	4,864			* 0		
2.	TOTAL WEIGHT OF FEMALES						
3.	NUMBER OF MALES STRIPPED	2,090			0		
4.	TOTAL WEIGHT OF MALES						
5.	NUMBER OF GREEN EGGS TAKEN	26,561,861			* 0		
6.	EGGS TAKEN PER POUND OF FEMALES						
7.	EGGS TAKEN PER FEMALE	5,461			0		
8.	NUMBER OF EYED EGGS PRODUCED	12,37 14,416,800			0		
9.	EGG SURVIVAL: PERCENT TO EYED STAGE	85.8 %	%	%	0 %	%	%
	PERCENT TO HATCHING	83.2 %	%	%	0 %	%	%
	PERCENT TO FEEDING	82.0 %	%	%	0 %	%	%
10.	LABOR COST	7,689			3,357		
11.	NON-LABOR COST	1,984			2,586		
12.	TOTAL COST	9,673			5,943		
13.	CREDIT CURRENT YEAR WEIGHT GAIN OF LOT (5011 lbs. @ \$ 1.13)				5,662		
14.	ADJUSTED TOTAL COST (Rem 12 minus Item 13)				281		
15.	DEBIT CURRENT YEAR WEIGHT LOSS OF LOT (lbs. @ \$)				--		
16.	ADJUSTED TOTAL COST (Item 12 plus Item 15)				--		
17.	COST PER THOUSAND EYED EGGS	0.67			N/A		

DISTRIBUTION DATA AND COSTS

(See Fish Hatchery Manual Section 4438b for Instructions)

PART 1 - COSTS

SPECIES	DISTRIBUTION COSTS			FISH DISTRIBUTED		AVERAGE COSTS
	Labor (1)	Non-Labor (2)	Total (3)	Pounds (4)	Number (5)	
PONDFISH	-----	-----	-----	-----	-----	Per M. --
TROUT	2, 858	22, 045	24, 903	133, 840	3, 147, 131	Per lb. . 19
ANADRO- MOUS	3, 016	24, 333	27, 349	204, 795	17, 397, 143	Per lb. . 13
TOTALS	5, 874	46, 378	52, 252	338, 635	20, 544, 274	

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	--	--	--	--	133, 840	3, 147, 131
ANADRO- MOUS	--	--	--	--	204, 795	17, 397, 143
TOTALS	--	--	--	--	338, 635	20, 544, 274

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	--	60	60	--	2,231	2,231	--	52,452	52,452
ANADRO- MOUS	--	20	20	--	* 948	948	--	89,532	89,532
TOTALS	--	80	80						
AVERAGE					1,910	1,910		61,722	61,722

PART 4 - MILEAGE AND SPECIES DELIVERIES

ITEM	PONDFISH	TROUT	ANADROMOUS	TOTAL
MILES TRAVELED	3,247	1,140	3,707	4,847
AVERAGE NUMBER OF MILES PER TRIP				61
NUMBER APPLICATIONS (species delivered) THIS YEAR	22	7	18	25
NUMBER FARM POND DELIVERIES				--
NUMBER INDIVIDUAL FARM PONDS INVOLVED				--

PONDFISH DISTRIBUTED, 5" and larger: ----- POUNDS ----- NUMBER

* 18, 972 lbs. (1, 790, 647) hauled, remainder at Hatchery.

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 1-D	1,170,183	24,380	--	--	1,271,977	89,810	--	--	65,430
Steelhead 2-D	4,288,770	1,558	--	--	2,425,779	109,872	--	--	108,314
Steelhead 3-D	--	--	26,561,861	--	*12,951,000 **748,390	4,764 349	13,668,410	5,025	10,138
Subtotal:	5,458,953	25,938	26,561,861	--	17,397,146	204,795	13,668,410	5,025	183,882
Cutts 2-U-Wa-26	--	--	11,000	5	821	27	--	--	22
Cutts O-C-6X	176	85	821	27	--	--	930	158	46
Cutts 3-U-Wa-36	--	--	161,912	21	--	--	161,912	21	--
Subtotal:	176	85	173,733	53	821	27	162,842	179	68
Rbt. 3-U- Cal-37	--	--	1,269,000	330	501,840	532	--	--	202
Rbt. 3-W- 30X	--	--	282,000	55	142,606	222	--	--	167
Rbt. 2-E- 29	--	--	1,800,000	445	1,442,106	6,381	--	--	5,936
Rbt. 2-E- 27	--	--	283,471	98	238,300	6,528	--	--	6,430
Rbt. O-U- Wsh10x8	6,052	3,286	1,540	1,000	--	--	6,721	8,297	4,011
Rbt. E-17	211,688	35,879	--	--	230,266	119,757	--	--	83,878
Subtotal:	217,740	39,165	3,636,011	1,928	2,555,118	133,420	6,721	8,297	100,624
Kokane 3-U-Wash- 35	--	--	555,000	160	591,192	393	--	--	233
Subtotal:	--	--	555,000	160	591,192	393	--	--	233
TOTALS	5,676,869	5,188	30,926,505	2,141	20,514,277	368,635	13,837,973	13,501	284,807

ANADROMOUS DISTRIBUTION

Species

Steelhead Trout

Source (parent waters)

North Fork of 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
1969	11,472,500	--	1,200,000		eggs	7/69	1,583,066	2,500	633	North Fork, Clearwater River
						4/70	1,248,227	7.10	175,766	
						5/70	123,316	9.15	13,472	
						4/71	1,341,366	5.63	238,209	
1970	11,627,946	--	2,795,500	--	eggs	4/71	1,802,205	10.19	176,837	NMFS, Little Goose U of Idaho NMFS, Columbia River Clearwater River Station NMFS, Columbia River
						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	
1971	6,448,600	--	401,159	--	eggs	7/72	480	46	10	Univ. Idaho
						9/72	200	25	8	Univ. Idaho
						10/72	500	20	25	NMFS, Little Goose
						1/73	6,000	20	300	Willard Nutrition Lab
						4/73	1,270,197	14.2	89,373	North Fork, Clearwater River

ANADROMOUS DISTRIBUTION

Species
Steelhead
Source (parent waters)

(See Fish Hatchery Manual Section 4438d for Instructions)

North Fork Clearwater River

URCOD 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	
1972	5,244,697	--	10,000		Eggs	8/72	15,000	2,500	6	University of Idaho	
						3/73	77,903	13.0	6,077	N-Fork Clearwater	
						4/73	1,280,619	15.0	85,162	" "	
						4/73	841,377	54.7	15,383	S-Fork Clearwater	
						5/73	200,880	62.0	3,240	" "	
1973	26,561,861	--	12,951,000		Eggs	6/73	748,390	2,144	349	S-Fork Clearwater	
					Eggs						
					Eggs						
					Eggs						

EGG SHIPMENTS - SALMONIDAE

(See Fish Hatchery Manual Section 4438e for Instructions)

SPECIES	NAME AND ADDRESS OF APPLICANT	EGGS SHIPPED		DATE SHIPPED
		NUMBER	WEIGHT	
Steelhead 3-D-31	Idaho Department of Fish and Game, Boise, Idaho	12,951,000	4,764	5/1-11/73
	University of Idaho Moscow, Idaho	2,000	1	4/2/73
	Earl Dahlin Circuits Automation, Inc. Arvada, Colorado	42,000	18	5/14/73
TOTAL NUMBER SHIPPED		12,995,000	4,783	

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	131,509		13,851.61
2.	FISH FOOD RECEIVED BY DONATION	---		----
3.	FISH FOOD RECEIVED BY TRANSFER	---		----
4.	SUB-TOTAL RECEIVED AND ON HAND	131,509		13,851.61
5.	LIST TYPE PURCHASED DURING YEAR	Cost Per Pound		
	PR 6 1/8	.1125	377,250	42,429.72
	PR 6 #4	.1109	134,200	14,882.77
	PR 6 #3	.1109	30,100	3,338.09
	Silver Cup Starter	.1911	9,800	1,872.90
	Silver Cup #1	.1793	11,700	2,098.28
	Silver Cup #2	.2044	33,125	6,770.77
6.	SUB-TOTAL PURCHASED	Average: .1198	596,175	71,392.53
7.	TOTAL RECEIVED AND PURCHASED (Item 4 + 6)		727,684	85,244.14
8.	LESS FISH FOOD TRANSFERRED TO OTHER HATCHERIES		----	----
9.	LESS FISH FOOD ON HAND JUNE 30		179,300	23,887.01
10.	TOTAL FISH FOOD EXPENDED		548,384	61,357.13
11.	COST PER POUND OF FISH FOOD EXPENDED (Line 10, col. (b) \div col. (a))			0.1119
12.	GAIN IN WEIGHT OF FEEDING FISH PRODUCED DURING YEAR			183,882
13.	FOOD CONVERSION (Line 10, col. (a) \div line 12)			2.982
14.	FOOD COST PER POUND OF FISH PRODUCED (Line 10, col. (b) \div line 12)			0.3337
15.	GIVE DETAILS ON REVERSE SIDE FOR ENTRIES ON LINES 2, 3, and 8			

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		5,496	2,057.45
2.	FISH FOOD RECEIVED BY DONATION		----	----
3.	FISH FOOD RECEIVED BY TRANSFER		----	----
4.	SUB-TOTAL RECEIVED AND ON HAND		5,496	2,057.45
5.	LIST TYPE PURCHASED DURING YEAR	Cost Per Pound		
	PR 6 1/8	.1125	123,290	13,865.57
	PR 6 #4	.1109	43,840	4,861.86
	PR 6 #3	.1109	9,900	1,097.91
	Silver Cup Starter	.1913	3,200	612.10
	Silver Cup #1	.1794	3,800	681.72
	Silver Cup #2	.2044	10,825	2,212.73
	Silver Cup Brood	.1435	12,000	1,721.50
6.	SUB-TOTAL PURCHASED	Average: .1211	206,855	25,053.39
7.	TOTAL RECEIVED AND PURCHASED (Item 4 + 6)		212,351	27,110.84
8.	LESS FISH FOOD TRANSFERRED TO OTHER HATCHERIES		----	----
9.	LESS FISH FOOD ON HAND JUNE 30		58,600	7,806.93
10.	TOTAL FISH FOOD EXPENDED		153,751	19,303.91
11.	COST PER POUND OF FISH FOOD EXPENDED (Line 10, col.(b) \div col.(a))			0.1256
12.	GAIN IN WEIGHT OF FEEDING FISH PRODUCED DURING YEAR			100,925
13.	FOOD CONVERSION (Line 10, col.(a) \div line 12)			1.523
14.	FOOD COST PER POUND OF FISH PRODUCED (Line 10, col.(b) \div line 12)			0.1913
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 4381 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		1,860	L	2,244 gal.
				W X	\$2,285.00
Sodium thiosulfate	Chlorine neutralizer	2,875		L	19,060 lbs.
				W X	\$2,135.20
Calcium Hypochlorite	Pond disinfectant	13,600		L	20,950 lbs.
				W X	\$2,952.00
Wescodyne	Egg disinfectant		2	L	12 gal.
				W X	\$ 65.63
Roccal	Disinfectant Bactericide		90	L	100 gal.
				W X	\$ 586.85
Aluminum Sulfate	Water Flocculent	48,210		L	48,210 lb.
				W X	\$ 989.38
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
				L	
				W	
TOTAL		64,685	1,952	L	\$9,014.11
				W	

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		3,357	7,689	11,046		2,586	1,984	4,570	15,616
2 Rearing	07 12		27,736	92,068	119,804		55,263	163,601	218,864	338,668
3 Distribution	13 18		2,858	3,016	5,874		22,045	24,333	46,378	52,252
4 PRODUCTION Sub-total			33,951	102,773	136,724		79,894	189,918	269,812	406,536
5 Fish production facilities	21 22				45,060				84,617	129,677
6 Buildings	23 24				28,082				23,342	51,424
7 Other physical facilities	25 26				20,489				22,488	42,977
8 MAINTENANCE Sub-total					93,631				130,447	224,078
9 Public use	27 28				8,578				1,117	9,695
10 Training	29 32				5,976				2,708	8,684
11 Opr. fish passage facilities	41 42				1,124					1,124
12 OPERATIONS & MAINTENANCE TOTAL					246,033				404,084	650,117
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					246,033				404,084	650,117
19 O & M Expenditures - Percent for Fish Production		Column (d): Line 4 ÷ Line 12			56	Column (i): Line 4 ÷ Line 12			63	
20 TOTAL EXPENDITURES - Percent for Fish Production		Column (d): Line 4 ÷ Line 18			56	Column (i): Line 4 ÷ Line 18			63	

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		100, 925	183, 882	284, 807
3	Labor Expenditures		33, 951	102, 773	136, 724
4	Non-Labor Expenditures		79, 894	189, 918	269, 812
5	TOTAL EXPENDITURES		113, 845	292, 691	406, 536

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	1.13	
LABOR COST PER POUND	.34	
LABOR COST PERCENT OF PRODUCTION COST		30
ANADROMOUS		
PRODUCTION COST PER POUND	1.59	
LABOR COST PER POUND	.56	
LABOR COST PERCENT OF PRODUCTION COST		35
AVERAGE PRODUCTION COST PER POUND OF ALL FISH PRODUCED	1.43	

REARING FACILITIES AND WATER SUPPLY

(See 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.)
TANKS	64	120 each Cu.Ft.	5	38,400
RACEWAYS	84	2,525 each Cu.Ft.	9	1,908,900
OTHER POOLS AND PONDS - Concrete		Cu.Ft.		
OTHER POOLS AND PONDS - Earthen		Cu.Ft.		
TOTAL				1,947,300
TOTAL CUBIC FEET IN USE ON YEARLY BASIS (Divide Total by 12)				162,275

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 FLOW OF WATER - g.p.m. (Give in parenthesis, if not in parenthesis)	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	ANNUAL AVERAGE
Supply No. 1	36,000	43,000	42,600	4,870	31,617
Supply No. 2	15,000	15,000	15,000	3,700	12,175
Supply No. 3					
4. AVERAGE WATER TEMPERATURE - F°	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	ANNUAL AVERAGE
Supply No. 1	48.0	47.2	42.3	42.1	44.9
Supply No. 2	55.2	59.9	55.3	53.6	55.8
Supply No. 3					

5. TOTAL POUNDS OF TROUT OR ANADROMOUS SPECIES PRODUCED: 284,807

6. TOTAL POUNDS OF TROUT OR ANADROMOUS SPECIES PRODUCED per g.p.m. AVERAGE FLOW USED: 6.504

7. TOTAL POUNDS OF TROUT OR ANADROMOUS SPECIES PRODUCED per Cu. Ft. (annual) FLOW: 1.76

8. 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.)

* 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.

All water is pumped. Costs are as follows:

Main Supply Pumps	\$21,369.33
Reuse System Pumps	16,385.67
Cooling of Incubator and Reuse' Water	0.00
Heating of Reuse Water	<u>60,390.68</u>

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	16.17
2	ALL OTHER LABOR	5.06
3	OVERTIME FOR WORK PERFORMED AT STATION BY ABOVE EMPLOYEES	.12
4	DETAIL OF PERSONNEL TO STATION	
5	OVERTIME OF DETAILED PERSONNEL AT STATION	
6	TOTAL LABOR - ALL PERSONNEL	21.35

PART 2 - LABOR UTILIZATION

No.	ITEM	Permanent	Other
7	PRODUCTION	8.90	1.30
	PONDFISH (Cost Codes 01, 07)		
	TROUT (Cost Codes 03, 09)	(2.44)	(.13)
	SALMON (Cost Codes 05, 11)	(6.46)	(1.17)
8	DISTRIBUTION (Cost Codes 13, 15, 17)	.66	
9	MAINTENANCE		
	MAINTENANCE (Cost Codes 21, 23, 25)	5.93	2.60
	REHABILITATION (Cost Codes 51, 53, 55, 57)		
10	PUBLIC USE (Cost Code 27)	.24	1.16
11	TRAINING (Cost Code 31)	.56	
12	SUB TOTAL	16.29	5.06
13	TOTAL PERMANENT AND OTHER (Equals Item 6)	* 21.35	

REPORT OF PERMANENT PERSONNEL

(See Fish Regulatory Manual Section 44380 for Instructions)

PART 1 - STATION PERSONNEL

NAME OF EMPLOYEE	Age	Grade	Marital Status	Children Under 18	Period Worked	COMPENSATION PAID			Total Compensation
	(1)	(2)	(3)	(4)		Total Regular Salary	Uniform Allowance	Paid Overtime	
Ankney, William G.	39	06	M	2	7/1/72-6/30/73	10,394	125	406	10,925
Hill, James L.	34	11	M	2	7/1/72-6/30/73	14,092	125	--	14,217
Brainard, Lila N.	55	06	M	0	7/1/72-6/30/73	9,243	125	--	9,368
Carlson, Dwain A.	38	06	M	5	7/1/72-6/30/73	10,230	125	279	10,634
Halfmoon, Frank L.	44	07	M	0	7/1/72-3/4/73	5,991	125	26	6,142
Harris, Walter G.	39	09	M	3	7/1/72-6/30/73	14,726	125	--	14,851
Haves, Charles H.	36	04	S	0	7/1/72-6/30/73	8,722	125	53	8,900
1. TOTAL - STATION PERSONNEL									

PART 2 - PERSONNEL DETAILED TO STATION

NAME OF EMPLOYEE	From Station	Period of Detail	COMPENSATION PAID			Total Compensation
			Regular Salary	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						

Frank L. Halfmoon -- Transferred March 4, 1974 into the Division of Fisheries Services at
Vancouver, Washington.

REPORT OF PERMANENT PERSONNEL

(See Fish Hatchery Manual Section 4438a 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.	49	WG 07	M	1	7/1/72-6/30/73	9,714	125	25	9,864
Parvin, John R.	59	13	M	0	7/1/72-6/30/73	21,777	125	--	21,902
Reynolds, LaVerne W.	38	04	S	0	7/1/72-6/30/73	6,025	125	57	6,207
Sanders, Boyce O.	57	09	M	0	7/1/72-6/30/73	13,395	125	--	13,520
Simonsen, Rolph W.	51	07	M	1	7/1/72-6/30/73	11,494	125	188	11,807
Taggart, Thomas M.	39	06	M	1	7/1/72-6/30/73	9,475	125	112	9,712
Thornton, Warren L.	44	WG 11	M	0	7/1/72-6/30/73	11,342	125	372	11,839
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						

IaVerne W. Reynolds -- On Leave Without Pay (LWOP) status from 11/17/72 through 2/17/73 because of serious illness.

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)	
Williams, George L.	44	11	M	3	7/1/72-6/30/73	15,220	125	--	15,345
Wold, Einar	41	12	M	2	7/1/72-6/30/73	17,899	125	--	18,024
Wurth, Richard L.	40	WG 10	M	2	7/1/72-6/30/73	10,920	125	--	11,045
1. TOTAL - STATION PERSONNEL						*213,123	2,125	1,518	*216,766

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						

Standby Pay:

John R. Parvin	\$ 3116.00
George L. Williams	3116.00
Boyce O. Sanders	3116.00
James L. Billi	<u>3116.00</u>

Total Standby Pay FY73 - \$ 12,464.00

FIVE YEAR PRODUCTION AND DISTRIBUTION SUMMARY

(See Fish Hatchery Manual Section 4438p for Instructions)

PART 1 - PRODUCTION

YEAR	TOTAL POUNDS (All Species)	NUMBER of PONDFISH	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	404,911	--	22,850	--	44,350	--
1972	212,111	--	13,863	--	30,305	--
1973	284,807	--	13,340	--	27,922	--
1974	489,075	---	22,961	--	50,472	--

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	20	38	1.06	.37	.246	1.94
1971	66	33	.89	.31	.26	2.00
1972	57	47	1.05	.42	.32	2.73
1973	63	38	1.43	.48	.28	2.47
1974	64	38	.98	.30	.39	1.82

PART 3 - DISTRIBUTION

YEAR	TOTAL Pounds	DISTRIBUTION Number	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		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970	189,871	2,954,609	---	Not Applicable					
1971	415,116	1,143,571	---	Not Applicable					
1972	278,131	1,335,149	73	3,602	49.3	1,509	28,172	109.79	.032
1973	382,111	1,544,274	80	4,847	61	1,910	61,772	653.15	.543
1974	522,908	5,535,384	76	3,950	52	1,148	21,985	147.87	.0215

Bureau of Sport Fisheries and Wildlife
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	100.0	4,300.0	100.9	3,147.1	.9	1	-1,152.9	-27
2	Warmwater								
3	Anadromous	385.0	2,700.0	183.9	4,446.1	-201.1	-52	+1,746.1	-72
4	TOTALS	485.0	7,000.0	284.8	7,593.2	-200.2	-41.3	+593.2	8.5

PART 2 - COSTS									
Category	PROGRAM SCHEDULE		ANNUAL REPORT		DIFFERENCE				
	Dollars	Man Years	Dollars	Man Years	Dollars	%	Man Years	%	
5	Production	388.0	7.5	354.3	10.20	-33.7	-8.7	+2.7	36
6	Distribution	19.0	.7	52.3	.66	33.3	175.3	-.04	-5.7
7	Maintenance	195.4	7.3	224.0	8.53	28.6	14.6	+1.23	16.8
8	Rehabilitation								
9	Public Use	12.0	1.0	9.7	1.40	-2.3	-18.6	.4	+10
10	Training	15.8	1.5	8.7	.56	-7.1	-44.9	.94	-62.6
11	TOTALS	630.2	18.0	649.0	21.35	18.8	3.0	3.35	18.6

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	1.33	90.03	2.28	85.47	.95	71.4	-4.56	-5.1
13	Production Cost	.84	55.43	1.43	46.66	.59	70	-8.77	-18.8
Pounds/ Man Years	PROGRAM SCHEDULE		ANNUAL REPORT		DIFFERENCE				
14	Total Man Years	25,526		13,340		-12,186			
15	Prod. Man Years	59,146		27,922		-31,224			

PUBLIC RELATIONS

TOTAL PUBLIC VISITORS^{1/}

(See Fish Hatchery Manual section 4438q for instructions)

54, 073

A - INTERPRETATIVE PRESENTATIONS

TYPE OF GROUPS	ON HATCHERY		OFF HATCHERY	
	Number of Groups	Number in Group	Number of Groups	Number in Group
Sportsman Clubs	1	11		
Schools	26	1, 207		
Service Clubs	4	37	2	38
Professional-Scientific	20	292		
Religious Groups	6	78		
Camp Groups				
Youth Groups	23	727		
State or Federal Government	6	285		
Other	7	77		
TOTALS	95	2, 714	2	38

B - OTHER PUBLIC RELATIONS ACTIVITIES

TYPE OF ACTIVITY	NUMBER	TYPE OF ACTIVITY	NUMBER
Press Releases (field level)	7 5	Hatchery Exhibits	6 7
Number of newspapers (receiving releases)	2 3	Off Hatchery Exhibits	2
TV Presentations	1 2	Estimate number of exhibit viewers	80, 000
Radio Presentations	4 8	Other (Explain in remarks - i. e., open house, participation in local events, etc.)	

REMARKS Three young ladies worked as tour guides during summer vacation last year and this to explain and show the hatchery to the visiting public. Many groups of Senior Citizens and Job Corps do not schedule tours in advance and having tour guides is helpful to them.

The hatchery exhibit was shown at the Clearwater County and Nez Perce County fairs last September to an estimated 30, 000 visitors.

Dworshak Nat'l Fish Hatchery's Open House was 9/23/72.

Among the foreign visitors were two groups of Russian scientists and Red China diplomat. Mr. Parvin attended Kiwanis Club all year as part of his public relations activities.



Annual Report

FISCAL YEAR 1974

Dworshak National Fish Hatchery
(Hatchery)

Submitted By: John P. Brown Title Hatchery Manager Date 8/27/74

Date Received Regional Office Aug 29, 1974 Reviewed By: Robert Miller Date 9/1/74

Date original forwarded to Washington Office: SEP 20 1974

Date Received Washington Office _____ Reviewed By: _____ Date _____

DIVISION OF FISH HATCHERIES

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INTRODUCTION

The Dworshak National Fish Hatchery was designed and built to replace the spawning and nursery area denied to the North Fork steelhead trout by the construction of the Dworshak Dam. During the year rainbow trout, kokanee, and cutthroat trout were released into the 53 mile long Dworshak Reservoir. This fiscal year included the initial release of cutthroat trout as part of the reservoir mitigation requirement.

The Dworshak National Fish Hatchery is located on the point of land at the confluence of the North Fork and the Middle Fork of the Clearwater River near the unincorporated town of Ahsahka, Idaho. The hatchery site is approximately three miles west of Orofino, Idaho, on State highway 7 on the north bank of the Clearwater River, approximately 8,000 feet downstream from Dworshak Dam.

The distribution area of this station includes the Dworshak reservoir and its tributaries as mitigation for fisheries under Inland Fisheries, Federal Reservoirs. The anadromous fisheries program distribution area includes the Clearwater River watershed and to lesser degree the Salmon River watershed.

During the year because of the large egg take it was possible to contribute to anadromous management programs which would have otherwise been seriously curtailed. The Niagara Springs Hatchery which was built by Idaho Power and operated by Idaho Department of Fish and Game experienced an IPN epizootic. The stock on hand was killed and the hatchery disinfected. Stock from the Dworshak National Fish Hatchery was transferred to this hatchery so that the Salmon River steelhead management program would not be too adversely affected.

At the beginning of the fiscal year contracts were in force which had converted the fifty-six ponds which were on raw water to reuse systems at a cost of 3.54 million dollars. The completion of this alteration resulted in three reuse systems for the rearing programs instead of one which was originally constructed. These were placed in operation during the fiscal year.

Even though construction was in progress a total of over 3.75 million smolts were released. Approximately 300,000 smolts were hauled by National Marine Fisheries Services for testing the slotted gates on the dams of the lower Snake River. There appeared to be very little difference between the fish reared in the three systems.

The latest systems are upflow filter design with plastic media. The original system was downflow with gravel and oystershell media.

As with any new construction many system malfunctions occurred. One of the more serious results occurred after the pressure sand filters for systems II and III failed allowing raw water and filter media to enter the systems. Shortly thereafter, Ichthyophthirius was again diagnosed in the hatchery, first in systems II and III and then in system I. It is thought that the infection entered through the malfunction of the pressure sand filters into systems II and III and thence by birds to system I.

The ponds of systems II and III were carried at a low level for flushing action. Ponds in system III were treated semiweekly with formaldehyde but system II was not treated. There appears to be little reinfection in systems II and III. Satisfactory control was experienced in both systems. System I was placed on raw water, was treated semiweekly with formaldehyde and control was achieved in the affected stock. However, the introduction of rainbow trout into system I at a later date resulted in a high incident of infection.

Egg collections from steelhead trout started in late March and ended the first week of May. Approximately 7,900 adults were handled. Of these, over 2,000 were transported to the upper tributaries for natural spawning. There are indications that steelhead of Dworshak National Fish Hatchery origin ascended many of the other tributaries for spawning. An excellent steelhead fishing season was experienced on the Snake River and the Clearwater River below the hatchery.

The now record steelhead for Washington was caught near Steptoe Canyon on the Snake River. This fish weighed 35 pounds 1 ounce. Tetracycline mark analysis showed that this fish originated at the Dworshak National Fish Hatchery.

During the fiscal year the visitor load was somewhat less than the previous year. This reduction is probably attributable to the gasoline shortage accompanied by higher prices. Tour guides were available during the summer season to assist with the public relations program.

Higher than normal precipitation occurred during the winter and spring. In some areas runoff reached a high of record due to the larger than

normal snowpack.

Two inspections were made by Fish Hatchery Division personnel. December 20-21, 1973, Mr. Paul Handy, Assistant Regional Supervisor, Division of Fish Hatcheries, inspected the station. The spring inspection was made by Mr. Marvin Smith, Regional Supervisor, Division of Fish Hatcheries, on May 1-2, 1974. On April 22, 1974, Mr. Jack Ford, Assistant Secretary of the Army, accompanied by Colonel Conover, Walla Walla District Engineer, and Colonel Marshall of the Portland Division of the Corps of Engineers visited the Dworshak National Fish Hatchery. Several foreign visitors as well as interested professional people visited the station.

At the end of the year almost all current construction contracts were substantially completed. Certain future contracts are yet to be let. The completion contract will include facilities for effluent treatment as well as visitor facilities and correction of problems encountered in the makeup water supply to the incubators and system No. 1 is expected to be in operation during the next fiscal year. A smaller contract to correct deficiencies in the aeration system of the water treatment facility is to be let in the very near future.

COOPERATION WITH OTHER AGENCIES

The staff of the Dworshak National Fish Hatchery cooperated with the U. S. Army Corps of Engineers in many relationships. During the completion of the phase II contract placing all the ponds into three reuse systems coordination was necessary so that full production could be carried on during this period. The spawn taking of kokanee at Breakfast Creek was assisted by the use of Corps facilities. Stocking of some areas in the Dworshak Reservoir was achieved through use of Corps barge and tug. Distribution trucks were loaded onto the barge and stocking was accomplished at the mouths of several streams flowing into the reservoir.

Personnel of the Fish and Wildlife Service cooperated closely with the personnel of the Idaho Department of Fish and Game in the management of the Dworshak Reservoir. The biologist for Idaho Department of Fish and Game established the management program and the Dworshak National Fish Hatchery made every attempt to fill the requirements of this program. Two coordination meetings were held during the year. The first was held November 29, 1973 and May 1, 1974 was the second.

The Dworshak National Fish Hatchery made its new laboratory facilities available for use by the Corps of Engineers, Idaho Department of Fish and Game, the University of Idaho, and the U. S. Forest Service. Studies of interest to all agencies have been carried on including water quality, limnology, and sedimentation.

FISH CULTURAL OPERATIONS

Fiscal year 1974 was one of the most productive years this station has experienced, partially due to completion of Phase II construction, which allowed environmental control of all ponds, and partially due to experience gained from past years on methods of disease control.

Over 883,000 pounds of fish food was fed during the year for an overall conversion of 1.84, considerably better than previous years.

Steelhead

Spawning began on February 20, one month earlier than in 1973 which in turn was earlier than in 1972. A summary of brood year 1974 steelhead is as follows:

Spawned females	4,164
Spawned males	980
Unspawned adults planted	2,204
Mortality	<u>562</u>
Total fish in run	7,910

Total eggs taken 26,047,748

An aeration tank was installed in the incubator room to alleviate nitrogen saturation in the egg trays.

A fungus problem occurred in the latter part of the incubation period in which trays of eggs would be almost completely smothered in two or three days. There did not seem to be any pattern to the affected trays but more of a random selection. White spot was the major cause of fry mortality.

All three of the reuse water systems were used this year, but not without problems. System I was temporarily changed to single pass river water in November because of a greater incidence of Ichthyophthirius than the other systems. In March, it was necessary to put untreated river water in systems II and III because of an electrical failure.

Apparently with the raw water in November, Sanguinicola was introduced. Infected fish showed gill hemorrhage and subsequent fungus infection. This made handling difficult and increased mortality.

A summary of steelhead distribution is as follows:

<u>Number</u>	<u>Weight</u>	<u>Release Sight</u>
3,864,000	457,000	Dworshak National Fish Hatchery
4,241,000	15,500	Idaho Fish and Game Department
302,000	135	University of Idaho
230,000	3,000	Lolo Creek
400	47	Oregon Game Commission

The steelhead planted in Lolo Creek in December suffered a high mortality due to cold shock.

Rainbow

Rainbow spawning at Dworshak National Fish Hatchery was delayed from September 13 to September 28 while the brood fish were being treated with sulfamerazine and furoxone for redmouth. The quality of the eggs was extremely poor and their diet was changed to Oregon Moist Pellet.

There were several shipments of eggs received:

2,752,000 from Ennis National Fish Hatchery
500,000 from California Fish and Game Department

Distribution into Dworshak reservoir is summarized below:

<u>Number</u>	<u>Size</u>	<u>Weight</u>
1,894	0.5/16	3,720
141,000	29	4,879
928,558	103	9,028

Cutthroat

Cutthroat trout brood stock at Dworshak produced approximately 4,000 green eggs of which about 100 hatched. Washington State Game Department shipped 162,000 eyed eggs, out of which 2,000 fish were held for future brood stock and 45,463 were planted into Dworshak reservoir.

A problem occurred in these fish with Sanguinicola and fungus, similar to the steelhead as already mentioned.

Kokanee

The Dworshak spawning crew was at Anderson Ranch Reservoir from October 1 to October 9 and took 130,000 eggs. A hastily conceived trap was set up on September 14 on Breakfast Creek and was operated until removed by a flood, on October 3. During this time 500,000 eggs were taken. A small number of kokanee entered the holding

ponds at the hatchery and these were also spawned. From the total number of eggs taken, 217,288 fish survived to release in June, 1974 into Breakfast Creek.

111,000 late kokanee eggs were received from the Washington Game Department but all were lost to Ichthyophthirius.

Small Mouth Bass

105,000 small mouth bass were received and planted into Dworshak reservoir.

Public Relations

Walter Harris attended the Boy Scout Jamboree at Farragut State Park, Idaho. Displays were set up at the Orofino and Lewiston fairs, as usual, except that adult kokanee were added.

The system of using three tour guides for the summer months is still working out very well, but the visitor load was less than previous years.

Feed System

The computer program was updated again by John Schultz and is operating with more flexibility. The growth and feed formulas can be adjusted as the requirements of the fish change.

A problem occurred when the water in the return channel in System III got into the valve diverter relays and froze the relays.

Computer Election Service, of Berkeley, California, were here to program the computer for vote counting, as a service to Clearwater County.

Hatchery Biologist Activities

Diagnostic Services

The hatchery biologist's staff is responsible for disease diagnosis at three federal hatcheries--Dworshak, Kooskia and Hagerman. Assistance is also provided to other federal hatcheries, the Idaho Fish and Game Department and commercial hatcheries when requested.

Hatchery Classification

Two wild brood stocks were examined prior to shipment of eggs to Dworshak. Kokanee brood stock from Dworshak Reservoir in Northern Idaho and Cutthroat brood stock from Kings Lake in Washington were found to be disease-free.

The classification of the three federal hatcheries in Idaho is as follows:

<u>Hatchery</u>	<u>Classification</u>	<u>Date</u>
Dworshak	B-BK-BR	1-1-74
Kooskia	B-BK	1-1-74
Hagerman	B-SB-BR	1-1-74

Adult Steelhead Evaluation

The 1974 steelhead spawning season totalled 7,910 adult steelhead. Bone and scale samples were taken from 130 marked fish and 412 unmarked fish. Marks, sex and lengths were recorded on all marked fish with weights also being recorded for every tenth fish. All unmarked fish were recorded by sex. Also, every tenth unmarked fish was measured for length and weight.

There were 17 marked fish under 28 inches in length out of 1105 total fish. The majority of marked fish returning would be two- and three-ocean fish.

Prior to the 1974 release, 108,000 steelhead were marked by the use of liquid nitrogen to apply a cold brand.

Fish Cultural Management

The separate reconditioning systems are now being operated at Dworshak National Fish Hatchery. System I is made up of 25 ponds and eight downflow rock and oyster shell biological filters. Systems II and III are made up of 25 and 34 ponds with upflow filters containing plastic medium (Norton rings). All three systems are provided with pre-treatment facilities that include electric grids, sand filters and ultraviolet radiation.

A monitoring program was initiated to determine the degree of Ichthyophthirius, a parasite common to the Dworshak reconditioning systems. Some degree of control of "Ich" has been apparent through the use of the upflow biological filter system due to its settling capacities.

Environment

Monitoring of all systems and effluents has been continued for the following water analysis parameters:

- Oxygen
- Temperature
- pH
- Ammonia
- Nitrite
- Nitrate
- Suspended Solids
- Settleable Solids

Monitoring was initiated to determine the effectiveness of biological filtration on fish hatchery effluents with regards to pollution abatement.

SAFETY

Monthly Staff Safety Meetings were held during the year covering a wide range of Safety oriented topics. In addition to the monthly meetings, tailgate sessions were held as needed to orient new employees and cover new job situations. Two movies were shown and discussions were held covering defensive driving subjects.

Four DI-134s were filed covering accidents which occurred during the year.

Five unscheduled fire drills were held during the year.

There have been 363 man days of lost time accident free operation through June 30, 1974.

MAINTENANCE AND REPAIR

Preventive maintenance and repairs accounted for most maintenance costs during 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 five aerators and one reuse pump.

After many delays the Corps of Engineers has completed specifications for modifying the aerators and contract work should begin in the near future.

Major breakdown of the new electrode boilers occurred and repairs were made under warranty provisions by the supplier.

There were 195 system alarms outside of normal working hours. Many of the faults initiating the alarms would have resulted in serious harm to the equipment or fish if standby personnel had not corrected the problems promptly.

CONSTRUCTION

The U. S. Corps of Army Engineers contract DACW68-72-7-0179 was substantially completed during the fiscal year. The object of this construction was to place the remaining ponds on reuse. Two additional reuse systems were involved. The items listed in the contract are as follows:

Mechanical Building No. II, 67'6" x 81'	
Reinforced concrete covered with troweled marble---	\$553, 000. 00
Laboratory Building, 42' x 60'	
Reinforced concrete and concrete block, covered with troweled marble ---	\$128, 800. 00
Generator Building, 27' x 27'	
Reinforced concrete covered with troweled marble--	\$ 63, 700. 00
Reuse facilities, pumping plant, aeration and sludge disposal building, reinforced concrete fillers 88' x 309' with additional pond structure, 26' x 194' x 17' high ---	\$1, 749, 000. 00
Piping, paving	<u>\$1, 045, 100. 00</u>
Total ---	\$3, 540, 000. 00

The above figures do not reflect all the change orders and contractor claims which may alter the amounts somewhat.

Bureau of Sport Fisheries and Wildlife
BROODSTOCK AND SPANNING OPERATIONS

(See Fish Hatchery Manual Section 4438a for Instructions)

No.	ITEM	ANADROMOUS OR WILD TROUT - Indicate Species			DOMESTICATED TROUT - Indicate Species		
		3-D-STT	3-D-KOE		3-D-Rbt		
1.	NUMBER OF FEMALES STRIPPED	4,164			799		
2.	TOTAL WEIGHT OF FEMALES				1,598		
3.	NUMBER OF MALES STRIPPED	980			391		
4.	TOTAL WEIGHT OF MALES				704		
5.	NUMBER OF GREEN EGGS TAKEN	26,047,748	629,252		1,034,864		
6.	EGGS TAKEN PER POUND OF FEMALES				648		
7.	EGGS TAKEN PER FEMALE	6,255	700		1,295		
8.	NUMBER OF EYED EGGS PRODUCED	14,558,080	387,750		364,755		
9.	EGG SURVIVAL: PERCENT TO EYED STAGE	75.2 %	61.6 %	%	35.2 %	%	%
	PERCENT TO HATCHING	60.5 %	58.1 %	%	24.2 %	%	%
	PERCENT TO FEEDING	55.8 %	49.3 %	%	21.3 %	%	%
10.	LABOR COST	6,795	1,944		7,778		
11.	NON-LABOR COST	1,292	1,174		2,738		
12.	TOTAL COST	8,087	3,118		10,516		
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	.56	8.04		28.83		

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	999	160	1,159	596	105,000	Per M. 11.04
TROUT	1,138	2,746	3,884	21,910	1,334,203	Per lb. .177
ANADROMOUS	4,047	2,148	6,195	*481,199	*3,808,656	Per lb. .0129
TOTALS	6,184	5,054	11,238	*503,705	*5,247,859	

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					596	105,000
TROUT					21,910	1,334,203
ANADROMOUS					*481,199	*3,808,656
TOTALS					503,705	5,247,859

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		2	2		298	298		52,500	52,500
TROUT		28	28		783	783		47,655	47,655
ANADROMOUS		48	48		**1361	**1361		**7,010	**7,010
TOTALS		78	78						
AVERAGE					**1126	**1126		**22,765	**22,765

PART 4 - MILEAGE AND SPECIES DELIVERIES

ITEM	PONDFISH	TROUT	ANADROMOUS	TOTAL
MILES TRAVELED	540	508	3,442	4,490
AVERAGE NUMBER OF MILES PER TRIP				58
NUMBER APPLICATIONS (species delivered) THIS YEAR	1	3	1	5
NUMBER FARM POND DELIVERIES				
NUMBER INDIVIDUAL FARM PONDS INVOLVED				

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

**Includes only those fish distributed by truck.

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	
	Cutthroats:								
O-C-S-6X	930	158	---	---	---	---	2,500	420	262
3-UWA-36	161,912	21	---	---	45,463	2,285	---	---	2,264
Sub Total	162,842	179	---	---	45,463	2,285	2,500	420	2,526
Rainbow:									
O-E-F-10X	6,721	8,297	---	---	1,897	3,720	2,700	8,100	3,523
3-E-37X	---	---	250,000	72	16,000	2,441	---	---	2,369
3-D-38X	---	---	1,034,868	---	52,376	1,526	---	---	1,526
4-E-47	---	---	2,501,906	307	915,179	9,182	---	---	8,875
4-YCA-48	---	---	500,000	85	86,000	757	---	---	672
Sub Total	6,721	8,297	4,286,774	464	1,071,452	17,626	2,700	8,100	16,965
Kokanee:									
3-UID-35X	---	---	629,252	---	217,288	1,999	---	---	1,999
4-UWA-45	---	---	111,000	24	---	---	---	---	-24
Sub Total	---	---	740,252	24	217,288	1,999	---	---	1,975
Steelhead:	13,668,410	5,025	14,558,080	---	16,097,312	528,354	---	---	*523,329
Sub Total	13,668,410	5,025	14,558,080	---	16,097,312	528,354	---	---	*523,329
									(473,607)
(Bass not included here.)									
									(495,073)
TOTALS	13,837,973	13,501	19,585,106	488	17,431,515	550,264	5,200	8,520	544,795

*Includes unspawned steelhead adults trucked from the Station - actual SIT production 16,093,162 @ 478,632.

ANADROMOUS DISTRIBUTION

Species

Steelhead Trout

Source (parent waters)

North Fork of 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
1969	11,472,500	--	1,200,000		eggs	7/69	1,583,066	2,500	633	North Fork, Clearwater River
						4/70	1,248,227	7.10	175,766	
						5/70	123,316	9.15	13,472	
						4/71	1,341,366	5.63	238,209	
1970	11,627,946	--	2,795,500	--	eggs	4/71	1,802,205	10.19	175,837	NMFS, Little Coose University of Idaho NMFS, Columbia River Clearwater River Station NMFS, Columbia River
						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	
1971	6,448,600	--	401,159	--	eggs	7/72	480	46	10	University of Idaho University of Idaho NMFS, Little Coose Willard Nutrition Lab. North Fork, Clearwater River
						9/72	200	25	8	
						10/72	500	20	25	
						1/73	6,000	20	300	
						4/73	1,270,197	14.2	89,373	
1972	5,244,698	--	10,000		eggs	8/72	15,000	2,500	6	University of Idaho N-Fork Clearwater " S-Fork Clearwater " "
						3/73	77,903	13.0	6,077	
						4/73	1,280,619	15.0	85,162	
						4/73	841,377	54.7	15,383	
						5/73	200,880	62.0	3,240	
1973	26,561,861	--	12,951,000		eggs	6/73	748,300	2,144	349	S-Fork Clearwater University of Idaho Lolo Creek N-Fork Clearwater University of Idaho N-Fork Clearwater Oregon Game Commission N.M.F.S. Lolo Creek Clearwater River
						10/73	1,800	225	8	
						12/73	230,335	76	3,012	
						3/74	492,827	9.7	50,627	
						2/74	2,781	9.3	300	
						4/74	2,907,031	8.1	357,378	
						4/74	400	8.5	47	
						5/74	287,530	10.2	28,429	
						5/74	101,995	8.1	12,594	
						5/74	72,318	8.6	7,866	

ANADROMOUS DISTRIBUTION

(See Fish Hatchery Manual Section 4436d for Instructions)

Species
Steelhead Trout
Source (parent waters)
North Fork Clearwater River

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
1974	26,047,748	---	2,000 5,342,000 1,350,000 550,000 210,000 300,000	eggs eggs eggs eggs eggs fry	1 2058 551 225 86 123					

Bureau of Sport Fisheries and Wildlife

EGG SHIPMENTS - SALMONIDAE

(See Fish Hatchery Manual Section 4438e for Instructions)

SPECIES	NAME AND ADDRESS OF APPLICANT	EGGS SHIPPED		DATE SHIPPED
		NUMBER	WEIGHT	
Steelhead 4-D-41	Idaho Fish and Game Department Boise, Idaho	7,242,000	2957	4/15, 22, 29 5/1 & 8, 1974
	University of Idaho Co-op Fishery Unit Moscow, Idaho	212,000	87	5/31/74
TOTAL NUMBER SHIPPED		7,454,000	3,044	

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	179,300		23,887.01
2.	FISH FOOD RECEIVED BY DONATION	-----		-----
3.	FISH FOOD RECEIVED BY TRANSFER	-----		-----
4.	SUB-TOTAL RECEIVED AND ON HAND		179,300	23,887.01
5.	LIST TYPE PURCHASED DURING YEAR	Cost Per Pound		
	Silver Cup	.2590	23,200	5,998.95
	SD 5-25	.2110	6,300	1,328.68
	PR 9	.2210	5,350	1,180.74
	PR 9-25	.1990	386,270	76,758.47
	PR 10	.1880	331,180	62,261.84
	PR 10-25	.1650	146,300	24,197.41
6.	SUB-TOTAL PURCHASED		Average: .1911	898,600
				171,726.09
7.	TOTAL RECEIVED AND PURCHASED (Item 4 + 6)		1,077,900	195,613.10
8.	LESS FISH FOOD TRANSFERRED TO OTHER HATCHERIES		-----	-----
9.	LESS FISH FOOD ON HAND JUNE 30		296,837	54,923.03
10.	TOTAL FISH FOOD EXPENDED		781,063	140,690.07
11.	COST PER POUND OF FISH FOOD EXPENDED (Line 10, col. (b) \div col. (a))			.1801
12.	GAIN IN WEIGHT OF FEEDING FISH PRODUCED DURING YEAR			475,588
13.	FOOD CONVERSION (Line 10, col. (a) \div line 12)			1.64
	FOOD COST PER POUND OF FISH PRODUCED (Line 10, col. (b) \div line 12)			.296
15.	GIVE DETAILS ON REVERSE SIDE FOR ENTRIES ON LINES 2, 3, and 8			

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	58,600		7806.93
2.	FISH FOOD RECEIVED BY DONATION	----		-----
3.	FISH FOOD RECEIVED BY TRANSFER	----		-----
4.	SUB-TOTAL RECEIVED AND ON HAND		58,600	7,806.93
5.	LIST TYPE PURCHASED DURING YEAR	Cost Per Pound		
	O.M.P.	.2480	24,800	6,150.40
	O.M.P. (Sulmet)	.2550	1,000	255.00
	Silver Cup	.2580	27,400	7,069.20
	PR 9	.2207	4,650	1,026.26
	PR 9-25	.1990	8,450	1,681.55
6.	SUB-TOTAL PURCHASED	Average: .2441	66,300	16,182.41
7.	TOTAL RECEIVED AND PURCHASED (Item 4 + 6)		124,900	23,989.34
8.	LESS FISH FOOD TRANSFERRED TO OTHER HATCHERIES		---	---
9.	LESS FISH FOOD ON HAND JUNE 30		15,623	2,890.65
10.	TOTAL FISH FOOD EXPENDED		109,277	21,098.69
11.	COST PER POUND OF FISH FOOD EXPENDED (Line 10, col. (b) ÷ col. (a))			.1930
12.	GAIN IN WEIGHT OF FEEDING FISH PRODUCED DURING YEAR			21,911
13.	FOOD CONVERSION (Line 10, col. (a) ÷ line 12)			4.99
14.	FOOD COST PER POUND OF FISH PRODUCED (Line 10, col. (b) ÷ line 12)			.96
15.	GIVE DETAILS ON REVERSE SIDE FOR ENTRIES ON LINES 2, 3, and 8			

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		9,722	6,795	16,517		3,912	1,292	5,204	21,721
2	Rearing	07 12		18,503	104,650	123,153		25,363	300,000	325,363	448,516
3	Distribution	13 18	999	1,138	4,047	6,184	160	2,746	2,148	5,054	11,238
4	PRODUCTION Sub-total		999	29,363	115,492	145,854	160	32,021	303,440	335,621	481,475
5	Fish production facilities	21 22				63,821				100,096	163,917
6	Buildings	23 24				33,129				13,582	46,711
7	Other physical facilities	25 26				24,860				19,802	44,662
8	MAINTENANCE Sub-total					121,810				133,480	255,290
9	Public use	27 28				9,831				324	10,155
10	Training	31 32				859				779	1,638
11	Opr. fish passage facilities	41 42				9,231					9,231
12	OPERATIONS & MAINTENANCE TOTAL					287,585				470,204	757,789
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					287,585				470,204	757,789
19	O & M Expenditures - Percent for Fish Production		Column (d): Line 4 ÷ Line 12			.51	Column (i): Line 4 ÷ Line 12				.64
20	TOTAL EXPENDITURES - Percent for Fish Production		Column (d): Line 4 ÷ Line 18			.51	Column (i): Line 4 ÷ Line 18				.64

OPERATIONS COST SUMMARY

Form 3-71
 (Revised 10-1967)
 Fish Production and Wildlife
 Research Administration

(See Fish Laboratory Manual (S-43) for instructions.)

ITEM	LABOR EXPENDITURES *			NON-LABOR EXPENDITURES *			Total Expenditures (f)
	Wages (a)	Total (b)	Agreements (c)	Wages (d)	Total (e)	Agreements (f)	
1							
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If any totals include contributed funds, show source and breakdown on reverse!

Form 3-71
 (Revised 10-1967)

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		21,466	473,607	495,073
3	Labor Expenditures	999	29,363	115,492	145,854
4	Non-Labor Expenditures	160	32,021	303,440	335,621
5	TOTAL EXPENDITURES	*1,159	61,384	418,932	481,475

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	2.86	
LABOR COST PER POUND	1.37	
LABOR COST PERCENT OF PRODUCTION COST		48
ANADROMOUS		
PRODUCTION COST PER POUND	.88	
LABOR COST PER POUND	.25	
LABOR COST PERCENT OF PRODUCTION COST		28
AVERAGE PRODUCTION COST PER POUND OF ALL FISH PRODUCED	.97	

Form 3-111

(Revised June 1968)

*Cost of transporting and releasing small mouth bass in Dworshak reservoir.

Bureau of Sport Fisheries and Wildlife

REARING FACILITIES AND WATER SUPPLY

(See Fish Hatchery Manual Section 4438m for Instructions)

PART 1 REARING FACILITIES

1. TYPES OF FACILITIES IN USE	NUMBER IN USE	CAPACITY (Calculated at normal water level)	MONTHS IN USE	TOTAL (Months x Cu.Ft.)
TROUGHS	8	88 Cu.Ft.	2	176
TANKS	64	6,144 Cu.Ft.	6	36,864
RACEWAYS	84	214,200 Cu.Ft.	8	1,713,600
OTHER POOLS AND PONDS - Concrete		Cu.Ft.		
OTHER POOLS AND PONDS - Earthen		Cu.Ft.		
TOTAL				1,750,640
TOTAL CUBIC FEET IN USE ON YEARLY BASIS (Divide Total by 12)				145,887

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					
Supply No. 2					
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	33,000	42,700	55,000	24,000	38,800*
Supply No. 2					
Supply No. 3					
4. AVERAGE WATER TEMPERATURE-F°	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	ANNUAL AVERAGE
*** Supply No. 1 River	49	48.6	39.0	43.5	45
Incubater	50.8	47.7	42.2	46.1	46.7
Supply No. 2 Reuse I	54.4	52.1	55.6	50.3	54.0
Reuse II	57.6	54.6	56.9	54	55.8
Supply No. 3 Reuse III	56.3	55.2	57.2	53.9	56

5. TOTAL POUNDS OF TROUT^{and}/OR ANADROMOUS SPECIES PRODUCED: 495,073

6. TOTAL POUNDS OF TROUT^{and}/OR ANADROMOUS SPECIES PRODUCED per g.p.m. AVERAGE FLOW USED: 12.8*

7. TOTAL POUNDS OF TROUT^{and}/OR ANADROMOUS SPECIES PRODUCED per Cu. Ft. (annual) FLOW: 3.39

8. 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.)

WATER REUSE SYSTEMS FOR COMMERCIAL BUILDINGS

** Three reuse systems are now in use. Reuse system I is designed to circulate up to 15,000 g.p.m. and use about 1,200 g.p.m. of new water. Reuse system II can circulate about 22,000 g.p.m. Reuse system III can circulate approximately 30,000 g.p.m. Makeup or new water can be added to systems II and III at varying amounts but the usual amount of new water would be 1,500 g.p.m. in system II and 2,300 g.p.m. in system III.

*** Water temperatures are controlled within the respective reuse systems and the incubator system. The temperatures are monitored in those systems and also on the incoming river water.

Estimated cost involved to pump, cool, and heat water:

Electrical for pumping, cooling	
and heating	= \$37,551.96
#5 fuel oil for heating	= 48,264.19
Total	<u>85,816.15</u>

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	18.0
2	ALL OTHER LABOR	3.1
3	OVERTIME FOR WORK PERFORMED AT STATION BY ABOVE EMPLOYEES	.2
4	DETAIL OF PERSONNEL TO STATION	
5	OVERTIME OF DETAILED PERSONNEL AT STATION	
6	TOTAL LABOR - ALL PERSONNEL	21.3

PART 2 - LABOR UTILIZATION

No.	ITEM	Permanent	Other
7	PRODUCTION	8.51	1.18
	PONDFISH (Cost Codes 01, 07)		
	TROUT (Cost Codes 03, 09)	(1.90)	(.24)
	SALMON (Cost Codes 05, 11)	(6.61)	(.94)
8	op. Fish passage facilities DISTRIBUTION (Cost Codes 13, 15, 17)	1.00 .38	
9	MAINTENANCE	7.59	1.16
	MAINTENANCE (Cost Codes 21, 23, 25)	(7.59)	(1.16)
	REHABILITATION (Cost Codes 51, 53, 55, 57)		
10	PUBLIC USE (Cost Code 27)	.63	.76
11	TRAINING (Cost Code 31)	.09	
12	SUB TOTAL	18.20	3.1
13	TOTAL PERMANENT AND OTHER (Equals Item 6)		21.3

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)	
Ankney, William G.	40	6	S	2	7/1/73-6/30/74	12,249	125	774	13,148
Billi, James L.	35	11	M	2	7/1/73-6/30/74	15,438	125	--	15,563
Brainard, Lila N.	56	6	M	0	7/1/73-6/30/74	10,039	125	--	10,164
Carlson, Dwain A.	39	6	M	5	7/1/73-6/30/74	10,924	125	542	11,591
Espinosa, Susan D.	25	5	M	1	4/28/74-6/30/74	1,219	125	--	1,344
Harris, Walter G.	40	9	M	3	7/1/73-6/30/74	15,837	125	--	15,962
Hayes, Charles H.	37	5	S	0	7/1/73-6/30/74	9,640	125	348	10,113
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						

DATE	TIME	LOCATION	ACTIVITY	REMARKS
APR 28	08:00	OFFICE	WORK	
APR 29	08:00	OFFICE	WORK	
APR 30	08:00	OFFICE	WORK	
MAY 01	08:00	OFFICE	WORK	
MAY 02	08:00	OFFICE	WORK	
MAY 03	08:00	OFFICE	WORK	
MAY 04	08:00	OFFICE	WORK	
MAY 05	08:00	OFFICE	WORK	
MAY 06	08:00	OFFICE	WORK	
MAY 07	08:00	OFFICE	WORK	
MAY 08	08:00	OFFICE	WORK	
MAY 09	08:00	OFFICE	WORK	
MAY 10	08:00	OFFICE	WORK	
MAY 11	08:00	OFFICE	WORK	
MAY 12	08:00	OFFICE	WORK	
MAY 13	08:00	OFFICE	WORK	
MAY 14	08:00	OFFICE	WORK	
MAY 15	08:00	OFFICE	WORK	
MAY 16	08:00	OFFICE	WORK	
MAY 17	08:00	OFFICE	WORK	
MAY 18	08:00	OFFICE	WORK	
MAY 19	08:00	OFFICE	WORK	
MAY 20	08:00	OFFICE	WORK	
MAY 21	08:00	OFFICE	WORK	
MAY 22	08:00	OFFICE	WORK	
MAY 23	08:00	OFFICE	WORK	
MAY 24	08:00	OFFICE	WORK	
MAY 25	08:00	OFFICE	WORK	
MAY 26	08:00	OFFICE	WORK	
MAY 27	08:00	OFFICE	WORK	
MAY 28	08:00	OFFICE	WORK	
MAY 29	08:00	OFFICE	WORK	
MAY 30	08:00	OFFICE	WORK	
MAY 31	08:00	OFFICE	WORK	

APR 28 1974

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)	
Heathco, Merle S.	50	WG 07	M	0	7/1/73-6/30/74	10,604	125	13	10,742
Lientz, Joseph C.	35	11	M	2	6/23/74-6/30/74	282	--	--	282
Olney, Fred E.	26	07	M	0	9/30/73-4/27/74	5,910	125	--	6,035
Parvin, John R.	60	13	M	0	7/1/73-6/30/74	23,118	125	--	23,243
Reynolds, LaVerne W.	39	04	S	0	7/1/73-6/30/74	8,571	125	170	8,866
Sanders, Boyce O.	58	09	M	0	7/1/73-6/30/74	14,410	125	--	14,535
Simonsen, Rolf W.	52	07	M	0	7/1/73-6/30/74	12,399	125	372	12,896
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	
(1)	(2)	(3)	(4)	(5)	(6)	
2. TOTAL - DETAILED TO STATION						
3. TOTAL COMPENSATION PAID TO PERMANENT PERSONNEL ON DUTY AT STATION						

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)	
Taggart, Thomas M.	40	06	M	0	7/1/73-6/30/74	10,137	125	125	10,387
Thornton, Warren L.	45	11	M	0	7/1/73-6/30/74	11,982	125	333	12,440
Williams, George L.	45	11	M	3	7/1/73-6/30/74	16,403	125	--	16,528
Wold, Einar	42	12	M	2	7/1/73-4/13/74	15,234	125	--	15,359
Wurth, Richard L.	41	10	M	2	7/1/73-6/30/74	11,658	125	49	11,832
1. TOTAL - STATION PERSONNEL						216,054	2,250	2,726	221,030

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)				
2. TOTAL - DETAILED TO STATION						
3. TOTAL COMPENSATION PAID TO PERMANENT PERSONNEL ON DUTY AT STATION						221,030

FIVE YEAR PRODUCTION AND DISTRIBUTION SUMMARY

(See Fish Hatchery Manual Section 4438p for Instructions)

PART 1 - PRODUCTION

YEAR	TOTAL POUNDS (All Species)	NUMBER of PONDFISH	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	--	30,305	--
1973	284,807	--	13,340	--	27,922	--
1974	495,073	--	23,243	--	51,091	--

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	47	1.05	.42	.32	2.73
1973	63	38	1.43	.48	.28	2.47
1974	64	38	.97	.29	.39	1.82

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	278,933	3,035,149	73	3,602	49.3	1,509	28,172	109.79	.032
1973	338,635	20,544,274	80	4,847	61	1,910	61,722	653.15	.1543
1974	503,705	5,247,859	76	3,950	52	1,148	21,985	147.87	.022

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	18,512	1,072,000	-81,488	81	-3,408,000	76
2	Warmwater								
3	Anadromous	480,000	3,360,000	470,563	8,905,515	-9,437	2	+5,545,515	165
4	TOTALS	580,000	7,840,000	489,075	9,977,515	-90,925	16	+2,137,515	27

PART 2 - COSTS

Category	PROGRAM SCHEDULE		ANNUAL REPORT		DIFFERENCE			
	Dollars	Man Years	Dollars	Man Years	Dollars	%	Man Years	%
5 Production	417,200	7.5	470,237	9.69	53,037	13	2.19	29
6 Distribution	20,400	.7	11,238	.38	-9,162	46	-.32	46
Maintenance	210,100	7.3	255,290	8.75	45,190	22	1.45	20
8 operation fish passage facilities	16,100	1.0	9,231	1.00	-6,869	37	---	---
9 Public Use	12,900	1	10,155	1.39	-2,745	21	.39	39
10 Training	17,000	1.5	1,638	.09	-15,362	90	-1.41	99
11 TOTALS	693,700	19.0	757,789	21.3	64,089	9	2.3	12

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	1.20	88.40	1.55	75.95	.35	29	-12.45	14
13 Production Cost	.75	53.2.	.98	48.26	.23	31	-4.95	9
Pounds/Man Years	PROGRAM SCHEDULE		ANNUAL REPORT		DIFFERENCE			
	Total Man Years		22.961		7.565		25	
Prod. Man Years		45.836		24.895		35		