ANNUAL REPORT

FISCAL YEAR 1997

DWORSHAK NATIONAL FISH HATCHERY

AHSAHKA, IDAHO

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Date

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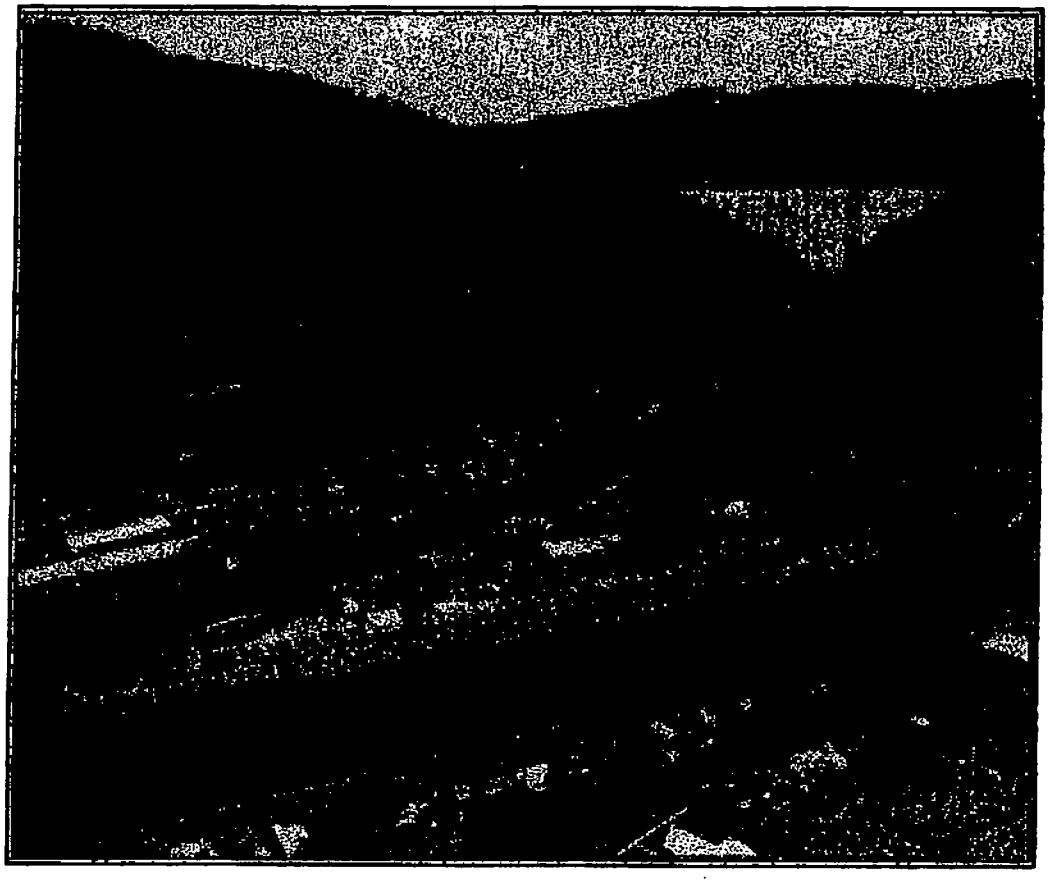
INTRODUCTION



Dworshak National Fish Hatchery (DNFH) is located in north central Idaho down river from Dworshak Dam, at the confluence of the North Fork and the main stem Clearwater River. Dworshak Dam was constructed by the Corps of Engineers (COE) in 1966-70. Operation of the hatchery by the Fish and Wildlife Service (FWS) was authorized by a 1969 COE Memorandum of Understanding. The hatchery has since served primarily as a mitigation hatchery for steelhead trout (*Oncorhynchus mykiss*); a unique run of the North Fork "B" strain threatened by the construction of Dworshak Dam. The FWS has endeavored over the past 28 years to meet the "mitigation goal" of providing 20,000 adult steelhead to the Clearwater River and maintain the unique genetics of the stock.

In June 1982, under the Lower Snake River Compensation Plan (LSRCP), Dworshak NFH was expanded from its primary function as a steelhead mitigation facility to include spring chinook (*Oncorhynchus tshawytscha*) trapping, spawning, and rearing. The new facilities were designed to rear 70,000 pounds of spring chinook to 20 fpp for a total of 1.4 million smolts. Smolt numbers have since been reduced to 1.05 million because of reduced densities and rearing to a large size. The adult return goal for Dworshak NFH is 9,135 spring chinook (calculated using the 15 fpp size, total rearing capacity, and 0.87 percent return rate guideline).

DNFH consists of a mechanical, electrical, water reuse and reconditioning system employing filtration, biological nitrification, pollution control and monitoring facilities, alarm system, water chillers, heaters, and numerous pumps. Initial construction at DNFH included 84 Burrows ponds, 64 nursery tanks, and 9 adult holding ponds. Twenty-five Burrows ponds (System I) were operated on a heated recycled water flow, for rearing steelhead smolts to the initial target size of 180 mm in only one year. In 1973, System II (25 ponds) and System III (34 ponds) were converted from single-pass, 2-year rearing cycle, to water reuse and heating for accelerated production growth. This second phase construction, with added mechanical systems (biological filters, electric grid, sand filters, U.V. lamps, chillers, and boilers), increased production capacity and allowed all three water systems to be environmentally controlled. In the late 1980's the target size for steelhead smolts was changed to 200 mm, based on data developed by the Fish and Wildlife Service.

During the mid-1970's, with DNFH not meeting production goals nor meeting mitigation goals, major operational changes were made. Review and studies of the reuse systems, water temperature regime, water quality, and fish culture techniques were done by hatchery staff and university scientists. Corrective measures followed which removed the computerized pneumatic feed system, eliminated the ultra violet treatment of water reuse, redesigned the water flows to maximize single-pass use and a return to a more hands on basic fish culture. Selecting cooler water temperatures from Dworshak Reservoir during the summer, adding minerals (sodium chloride and potassium chloride) to a soft water supply, removing supersaturated nitrogen gas, along with other designed mechanical changes, and more involvement of hatchery staff in monitoring fish culture, all contributed positively towards improving the hatchery's program.

Further construction in the 1980's added 18,000 square feet of nursery building, doubling the number of inside rearing tanks to 128. A new concept of biological filtration, known as a fluidized sand filter, replaced the oyster shell media in System I. This filtration system has proven to be unworkable and the ability to operate reuse in System I is no longer possible. We are presently working with COE to rehab this system. Also in the 1980's, an additional thirty 8'x80' raceways were constructed under the LSRCP to provide production facilities for spring chinook salmon.

The uniqueness of DNFH's water systems provides several options for egg incubation and rearing. Three temperature options are available for egg development through the incubators. Three different temperature regimes are also available to the nursery tanks with ozone treated water to 32 of the 128 inside tanks. The outside steelhead ponds are furnished single-pass river water from May through November when desired temperatures can be obtained through selector gates at Dworshak Dam. A pump station on the North Fork, one mile down river from the Dam, is capable of providing 92,500 gpm of water. In Systems II and III, water reuse and heating is used during the colder months of November through March enabling the hatchery to get the desired fish growth. During reuse 10 percent new water enters the system to make up for loss. Each of the three outside ponding systems is independent of each other for temperatures when reuse and heated water are available. Beginning in 1992, the hatchery was supplied with an additional 6400 gpm of gravity flow Dworshak Reservoir water directly by pipeline. This "clean" water furnishing egg incubators and nursery rearing has afforded disease protection from Infectious Hematopoietic Necrosis (IHN) virus in the early production stages. Limitations still

remain on the amount of water which can be heated in the nursery for early rearing of steelhead. This has caused some problems in the past couple of years with different reservoir operations. We are now working with the COE and Bonneville Power Administration (BPA) to increase heated water to the nursery.

A Dworshak National Fish Hatchery Rehab Plan was prepared in 1990-91 by the Corps of Engineers (COE). This rehab plan detailed major upgrades and needs of the 28+ year old hatchery. It seems that the status of this Dworshak rehab plan now is no longer active. The hatchery continues to work with the COE on line items identified in the rehab plan. We are trying to accomplish some of the re-hab projects items through O&M funding. Larger items will need to be funded directly by the COE.

Future projects we are asking the COE to undertake include converting Burrows ponds to raceways, System I reuse modifications, structural work on the main hatchery building, replacing nursery building roof, and getting additional heated water to the nursery building. Getting additional heated water to the nursery building is top priority. Heating nursery water is important because of the current operation of Dworshak Reservoir and the effects of cold water releases on the steelhead program. The COE is scheduled to start pipeline construction for heated nursery water this calendar year.

The Kooskia hatchery, 35 miles upriver from Dworshak on the Clearwater River, has operated as a Complex with Dworshak since 1978 to restore the spring chinook fishery in the Clearwater. The administrative headquarters for the Dworshak-Kooskia Complex is located at the Dworshak hatchery. The Dworshak Fish Health Center and the Idaho Fishery Resource Office are also included in the Dworshak Complex.

Dworshak Hatchery has the capacity to produce 2.3 million steelhead smolts at 6 fish per pound (200 mm in length); 1.05 million yearling chinook salmon smolts at 18 to 20 fish per pound (140 to 145 mm in length); and 200,000 sub-catchable rainbow trout for stocking Dworshak Reservoir. The hatchery's annual production capacity exceeds 550,000 pounds. Mitigation adult fish goals to the Clearwater River are 20,000 returning steelhead and 9,135 spring chinook. Steelhead goals are being satisfied in some years but were not in 1996. Spring chinook adult returns remain well below mitigation levels.

This report covers the period of hatchery activities from October 1, 1996 to September 30, 1997.

PROGRAM HIGHLIGHTS

Fish Production

Brood Year 1996 Steelhead
Brood Year 1996 (BY96) steelhead (SST) performed well as mortality between October 1, 1996, and release in April, 1997, was less than two percent. There were 2.488 million steelhead smolts released in April/May, 1997, averaging 196 mm in total length. Fish in System I averaged only 188 mm, primarily due to cold water releases from Dworshak Dam in the summer of 1996 and spring of 1997. During the rearing of BY96 SST and only two Burrows ponds and four raceways were confirmed with the IHN virus. Feed conversion for BY96 SST was 1.50. This was the first year Dworshak used heat-extruded floating feed for final rearing. There were 398,461 pounds of steelhead produced in 1997, as compared to 392,845 pounds in 1996 and 332,000 pounds in 1995.

Brood Year 1997 Steelhead
There were 2980 adult steelhead that returned to Dworshak NFH in the fall of 1996 and spring of 1997. A total of 2.88 million eyed eggs went into Dworshak's production program. Dworshak provided 805,100 eyed eggs for the Clearwater Hatchery. Also, 1.5 million green eggs were air-shipped to Sawtooth Hatchery for later transfer to Magic Valley Hatchery. At the end of FY97, there were 2.32 million BY97 SST on station, averaging 121 mm total length. Projected release is 2.2 - 2.3 million smolts in the spring of 1998.

Brood Year 1995 Chinook Salmon
Dworshak NFH released 53,078 BY95 spring chinook salmon (SCS) on April 7 and 11, 1997, averaging 104 mm in total length. This was below the 1.05 million target mainly due to low number of adult returns (165 to Dworshak and Kooskia combined) and low egg survival (62 percent green egg to smolt). Feed conversion for BY95 SCS was 1.17 and reflects a feeding/fasting regime to limit overall size at release. There were 4,187 pounds of BY95 SCS released in FY97.

Brood Year 1996 Chinook Salmon
Adult returns of BY96 SCS produced 963 fish to Dworshak and 202 fish to Kooskia. These adults produced approximately 1.1 million eyed eggs. At the end of FY97 there were 787,000 BY96 SCS fingerlings at Dworshak, averaging 103 mm total length. With the addition of 195,000 Dworshak stock fingerlings to be transferred from Kooskia to Dworshak in the spring of 1998, the projected Dworshak release is 965,000 BY96 SCS in 1998.

Brood Year 1997 Chinook Salmon
Adult returns of BY97 SCS was the largest in recent history and produced 3,150 fish to Dworshak and 1,657 fish to Kooskia. These adults produced about 2.3 million eyed eggs after culling for BKD. These SCS eggs were still being incubated at both Dworshak and Kooskia at

the end of FY 97.

Brood Year 1996 Coho Salmon
Coho salmon (COS) are being reared at Dworshak in a cooperative agreement with the Nez Perce Tribe (NPT). These fish were transferred from Kooskia to Dworshak in April, 1997. At the end of FY97, there were 220,000 coho on station averaging 104 mm total length. The NPT is developing a Production Plan for the COS.

Brood Year 1995, 1996 Rainbow Trout - Open House
Approximately 6,000 BY95 and 6,000 BY96 rainbow trout (RBT) were stocked into Dworshak's settling pond for the Open House 1997. The BY96 RBT were supplied by the Idaho Fish and Game. The BY95 RBT were reared at Dworshak and averaged about 1 fpp and 15 inches total length. The food conversion was approximately 1.0 and reflected a feeding/fasting regime to limit overall size. Approximately 10,000 of these fish not caught at Open House were stocked to various Tribal waters in Idaho.

Brood Year 1996, 1997 Rainbow Trout-Dworshak Reservoir Mitigation
Due to concerns about stocking RBT in Dworshak Reservoir, the following fish exchange is planned: Hagerman NFH will raise 90,000 5" fish, stocked in May at L. Camas Reservoir, 20,000 9" fish, stocked in October at Oxbow Reservoir, and 20,000 9" fish, stocked in October at Hells Canyon Reservoir. Nampa FH will raise 30,000 10-12" fish stocked in May at Dworshak Reservoir.

Cost
Dworshak's FY97 total funding package from the COE, including overhead costs, was $1,952,000. Operating funds, not including support costs, were $1,484,175 (1935 account). Another $9,000 was received from quarters rental reimbursements (8610 account) for a total of $1,493,175 funding. Included in this figure was $50,000 budgeted to the Dworshak Fish Health Center (FHC) for their assistance on steelhead fish health issues and $50,000 to Idaho Fishery Resource Office (FRO) for continuation of their monitoring/evaluation of Dworshak's steelhead smolt production.

LSRCP provided $314,000 (4710 account) for production of spring chinook salmon.

Fish marking costs included $6,147 to ad-clip 2.49 million steelhead October 1 through December 1, 1997 for release in spring of 1997. Marking for 1998 began in August of 1997, with $50,000 obligated. Fin clipping (690K) and coded wire tagging (278K) of spring chinook costing $23,310 was completed in August.

Major expenditures included $12,600 for installation of a Local Area Network (LAN) with costs also shared by the Regional Office, Idaho Fishery Resource Office and Dworshak Fish Health Center. Total cost of the Complex LAN system was $37,500.

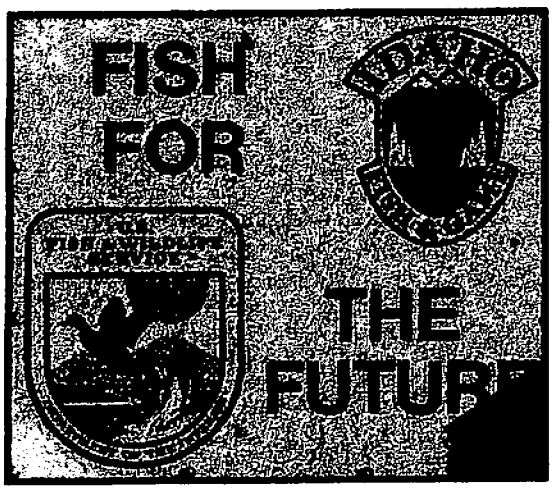
Staffing and Other

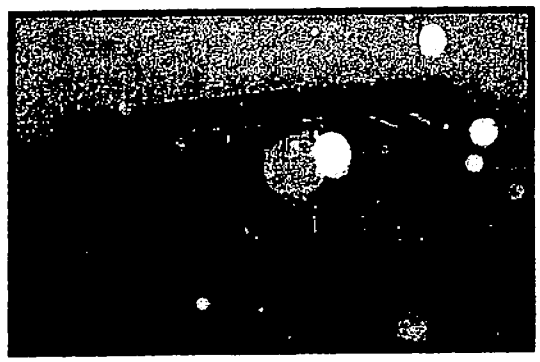
Full-time staff years employed by Dworshak NFH were 22.6; permanent employees 21.5 and term/temporaries 1.1 years. Twenty-six employees were represented in the staffing during the year. This number does not include seven temporary service employees for 2118 hours.

An eight-week Youth Program ended on August 1. The program, staffed with five enrollees and one crew leader, performed numerous work projects with special attention to buildings and grounds maintenance. Dworshak had participated in the YCC program through 1994, but because of its discontinuance, an agreement was set up with Joint School District #171 to administer the youth program in 1995 and 1996 with funding provided by LSRCP. This year the youth work was funded by JTPA, a state of Idaho work program.

The seventh Annual Open House, again highly successful, was held on June 14, 1997. The highlight was a free fishing pond attracting 831 children to register and catch two rainbow trout each. Another 1200 adults attended the popular activities in conjunction with National Fishing Week. Activities included the Japanese art of fish painting, a fish cleaning station and a maze loaned from Leavenworth NFH was added.

PROGRAM HIGHLIGHTS - PHOTOS AND HEADLINES
DWORSHAK FISHERIES COMPLEX
Fiscal Year 1997





Scenes from the past year include, from above right: pair of spawning adult steelhead trout; winter scene of the main hatchery building; a classroom incubation project; another successful Open House and Kid's Fishing Day; a catch and keep salmon season on the Clearwater; a record spring chinook salmon return to the hatcheries.

No quick fix for the fish

■ Power Planning Council member tells LCSC exchange conference au...
what restoration of salmon runs can be achieved must first pas...

By BILL LOFTUS
OF THE TRIBUNE

...of what salmon runs need ...ut the economic ... ...he cleare ...proc

Council memb... and Ken Casavant or... biologist Richard N. Willia... an at Lewis-Clark State College's ... nual International Exchange Conferen... Williams is the leader of the Independent Science Group hired by the council to sort through the often conflicting studies focusing on how best to restore salmon runs.

The group's report, "Return to the River," says in short that technology can't fix the changes decades of development have made in the Columbia and Snake Rive...

With reports fr...

Steelhead listing has anglers worried

...ut that re... ...long the

...ore if ... But issue... ...ility T... sio... the

...ional Academy ...est effort ...ncil's

showed ... fish and wildl... The agency's cu... passed in December 1... downs of lower Snake River ... may be part of a salmon rec... The Indep...

Corps: Dam removal must come from Congre...

Mealey wir... some point... at Orofino

...officials appreciate

Acclimation facility bei... installed at Peck ramp

Feds say tribe can't take over fish hatchery

Steelhead a success story of sorts

High wate... shuts U.S. 12

■ Noseeum Creek, source of so much trouble in 1995, is undercutting the highwav

Dammed-up opinions flow free

...Corps of Engineers meeting at Lewiston draws big crowd with advice on what to do about salmon runs

Can the run keep up its pace?

One of the biggest on record, but only time will tell its final standing

...L LOFTUS
...INE

...ad run has legs. ...formance at ...d mi-

...ast ... ...ear's run. ...ler percentag... ...30,000 fish, de... ...g station.

...his year's count of ...ead, particularly wild fish, ...ile is far from a winner ...e prospects for the later-migrating ...ish, which home in on the Clearwater ...fair to mediocre at best.

Idaho Steelhead and Salmon Unlimited and Idaho Rivers United sound the alarm about the B run.

Both groups denounced Indian commercial fishing seasons on the lower Columbia and Lewiston Chamber of Commerce plans for its Thanksgiving week fishing derby.

...Huffaker, Fish and Game's fish... ...eau chief, said the fall fishing ...or the Clearwater will continue ...ned.

...derby's fate remains unclear. Huf... suggested the department might ...ire the chamber to use a system sim... to 1994, when new entries had to top ...weight of fish previously entered.

Chamber president Dan Schenkein said he'd recommend against holding the derby under those circumstances because anglers rebelled against that system.

The question about the Clearwater run ...

expected.

The Bonneville count suggests it's early; the counts at upriver dams suggest it's stronger.

There are doubts about its strength, however. The Columbia River Inter-tribal Fish Commission decided against proposing any additional gillnet seasons at the end of September because of worries about catches of wild Bs.

The tribes' commercial fisheries between Bonneville and McNary dams netted an estimated 19,100 steelhead. Depending on how the catch is measured, it varies from 2,280 to 2,100 wild Bs or from 27.8 percent to 40 percent of the entire run.

"Both methods have their problems. I think everybody recognizes that there are a bunch of fish coming over in the B-run time period that aren't B-run fish. I suspect the true harvest impact may be somewhere in between," said Gregg

Steelhead Spawning begins at Dworshak Fish Hatchery

Owsley named Hunter Education ...tor of Year

...all sockeye populati... raises concern

...hold action'

...n nee...

FISH CULTURE OPERATIONS

Steelhead Trout

Brood Year 1996

At the beginning of October 1996, all of the summer steelhead trout (SST) from brood year 1996 (BY96) were outside in Burrows ponds (BPs), totaling 2.53 million fish. Mortality was less than two percent from October 1,1996 through April 1997 and the final release number was 2.48 million fish with an average total length of 196 mm (Table 1).

Table 1. Fish inventory summary for BY96 SST on September 30, 1996 and final release summary in May, 1997.

	September 30, 1996			Sept-May % Loss	Final Release April 22- May 3, 1997		
Location	Number	Length in	Length mm		Number	Length in.	Length mm
Syst I	1,032,583	5.54	141	3.0	1,001,963	7.34	186
Syst II	555,634	4.16	106	-1.3*	562,985*	8.04	204
SystIII	940,678	4.53	115	1.9	923,226	7.87	200
Tot/Ave	2,528,895	4.86	123	1.6	2,488,174	7.71	196

*Adjusted number after marking trailer inventory.

Source: Production- Final Release Summary, May 1997.

Production- Monthly Inventory Summary (MIS), October 1, 1996.

Steelhead from BY96 was the second consecutive year Dworshak attempted to raise a large number of SST in raceways (RWs) for an entire rearing cycle. The release discharge for SST reared in RWs is on the North Fork of the Clearwater River near the entrance to the fish ladder. Shortly after the SST smolts were released from the RWs, the ladder was opened for collection of BY97 chinook salmon adults. Numerous BY96 SST smolts returned to the hatchery via the ladder during this time. All of BY97 SST will be reared in BPs. The release discharge from BPs is on the main stem of the Clearwater River, several hundred yards from the entrance to the fish ladder.

Table 2 illustrates the survival rates of various stages of development for BY96 SST along with a five-year comparison. During FY91, the first year that a direct line from Dworshak Dam to the nursery was available, health problems in the early rearing stages of SST were reduced. High flows in the North Fork of the Clearwater River also diluted the concentration of IHN virus and contributed to high overall survival from ponded fry to smolt.

Table 2. Survival summary from green eggs to released smolts, BY91 through BY96, for SST reared at Dworshak NFH.

	% Surviving from previous stage				Cumulative % Survival		
Brood Year	(Green to)Eyed Egg*	Tanked Fry	Ponded Finger lings	Smolt Release	Green Egg to Smolt**	Eyed Egg to Smolt	Tanked Fry to Smolt
1991	80.3	87.5	58.5	92.0	37.8	47.1	53.8
1992	81.0	90.9	82.2	81.2	49.1	60.7	66.7
1993	90.6	92.6	87.2	68.9	50.4	55.6	60.1
1994	91.5	89.5	87.4	87.4	62.6	68.4	76.4
1995	90.7	89.5	95.4	90.1	60.0	74.9	85.9
5yr Ave	**86.8**	**90.0**	**82.1**	**83.9**	**52.0**	**61.3**	**68.6**
1996	88.5	91.1	86.3	97.2	51.0	75.2	83.5
1997 YTD	88.6	91.7	92.3				

Note: Data are only for SST reared entirely at Dworshak NFH.
* Data does not include eggs deliberately culled before eye-up.
** Data includes eggs deliberately culled before eye-up.
Source: Steelhead Spawning Report 1996, 1997
Nursery Lose-nrlo97st.wpd

System I

For BY96 SST, System I's production included 24 BPs and 14 RWs. This System had 1,032,583 SST in it at the start of the fiscal year (Tables 3,4). Usually only one or two RWs were used to rear excess SST because the RWs are used for chinook salmon. Due to low chinook returns in 1995, RWs were available for rearing of SST. During the rearing of BY96 SST, 328,000 SST were stocked into the RW system to ease crowding in the BPs.

Not included in the final release numbers are 1,300 SST from BP43 which were PIT tagged and transported to down-river dams to test for low-frequency reception of the tags. Also not included in the final release numbers are 2,005 SST from BP23 which were transported to Lower Granite Dam for fish passage studies.

Table 3. System I BP production, BY96 SST, FY97.

Month	Year	1st of Month			Growth		% Mortality	Ave Temp °F for month
		Number	fpp	L (mm)	in	mm		
October	96	705,008	15.91	143	0.81	21	0.30	53.6
November	96	696,935	12.61	155	0.45	12	1.15	48.5
December	96	694,722	10.70	164	0.3	9	0.32	44.1
January	97	691,931	9.73	169	0.21	5	0.40	42.0
February	97	689,728	8.84	174	0.22	5	0.32	39.8
March	97	687,540	8.07	180	0.21	5	0.32	39.5
April	97	685,268	7.67	183	0.12	3	0.33	40.8
Release Apr/May	97	**680,658**	7.06	**188**				

Source: MIS, Sept 1996-May 1997
Daily Water Temperature Records, Oct-April, 1996-97. Final Release summary, BY96 SST

Table 4. System I RW production, BY96 SST, FY97.

Month	Year	1st of Month			Growth		% Mortality	Ave Temp °F for month
		Number	fpp	L (mm)	in	mm		
October	96	327,575	18.94	135	0.25	6	0.91	53.6
November	96	325,273	12.36	156	0.81	21	0.70	48.5
December	96	325,983	10.14	167	0.42	11	0.74	43.8
January	97	324,136	9.62	169	0.12	3	0.57	41.1
February	97	323,138	9.21	172	0.10	2	0.31	39.5
March	97	322,580	8.70	175	0.13	3	0.17	39.5
April	97	321,999	7.67	183	0.30	8	0.18	40.8
Release Apr/May	97	**321,305**	7.65	**183**				

Source: Monthly Inventory Summaries, Sept 1996-May 1997
Final Release summary, BY96 SST
Daily Water Temperature Records, Oct-April, 1996-97

All SST in System I received at least an adipose fin (AD) clip to identify it as a hatchery fish. In addition, there were 3 containers of fish which received coded wire tags (CWTs) from System I. There were 22,322 fish in BP 15 which received CWTs along with a freeze brand (FB). These were so marked to help assess the contribution of these fish to later adult returns. Burrows pond 25 had 21,690 fish receive CWTs with no brands. These were released in the South Fork of the Clearwater River and were tagged to help determine their contribution for the sport fishery. Raceway 5 contained 22,200 SST which received CWTs and FBs. These fish will be used to gain information on early return progeny and help assess raceway rearing. The fish which have FBs will also provide information on broodstock evaluations and early run predictions at Lower Granite Dam (MIS System I, Nov 1996; IFRO Branding, Tagging.DBF). Tagging and branding of fish in System I began November 12 and ended November 19, 1996.

Due to Dworshak Reservoir drawdowns for maintenance during the spring of 1997, water temperatures were below normal and, subsequently, growth in System I was below normal. Water temperatures in RWs and BPs averaged 42.5^{0}F from mid-November to mid-February. During this time, Systems II & III were on reuse averaging 53.6^{0}F and 52.2^{0}F, respectively.

Fish in seven BPs in System I were treated with formalin for Ich in October, 1996. On March 12-13, 1997, fish in all BPs of System I were treated with formalin for trichodina. Mortality for the System remained relatively low and averaged between 0.32 to 0.66 percent/month during the rearing cycle for BPs and 0.17 to 1.73 percent/month for RWs.

Release of the fish in System I occurred from April 21 to May 2, 1997. On April 21-23 there were 323,440 SST outplanted from System I. The Corps of Engineers (COE) assisted in outplanting the SST to Clear Creek; the main stem of the Clearwater River at Kamiah; the South Fork of the Clearwater River at River Mile 8.7, Red House Hole.

Direct release of 678,523 SST from System I took place April 30 through May 2 into the main stem and North Fork of the Clearwater River (Final Release Summary, BY96 SST).

System II

System II has 25 BPs. Fish in BPs 6, 8, 10, 12, and 14 were study fish from USGS-Biological Research Division (BRD, formerly NBS) and totaled 107,736 SST. These fish were used in the continuation of the BRD stock/productivity study. Final release numbers for System II were 562,985 with an average total length of 204 mm (Table 5).

Table 5. System II production, BY96 SST, FY97.

Month	Year	1st of Month			Growth		% Mortality	Ave Temp °F for month
		Number	fpp	L (mm)	in	mm		
October	95	555,634	39.94	105	0.81	21	0.39	53.6
November[1]	95	565,326	22.35	128	0.89	23	-1.74	51.1*
December	95	563,911	16.33	142	0.56	14	0.25	53.8*
January	96	563,755	10.43	165	0.90	23	0.03	53.7*
February	96	563,593	7.56	184	0.74	19	0.03	47.6*
March	96	563,427	6.14	197	0.52	13	0.03	39.9
April	96	563,173	5.85	200	0.13	3	0.05	40.8
Release Apr/May	96	562,985	5.49	204				

* System under reuse for part or all of month.
[1] Adjusted numbers from marking trailer vs inventory.
Source: Monthly Inventory Summaries, Sept 1996-May 1997
Final Release summary, BY96 SST, Production Narratives Sept-May, 1996-97
Daily Water Temperature Records Oct-April, 1996-97

Steelhead in System II received AD clips August 27 through September 4, 1996. Coded wire tagging took place October 22-31 (152,761 fish). Branding took place October 29-30 (10,174 fish). Steelhead in BPs 6, 8, 12, and 14 (86,695 fish) received a CWT and right ventral (RV)clip for BRD studies. Fish in BPs 32 and 34 (44,008 fish) received a CWT, left ventral (LV) clip and FB to help assess contribution of these fish towards future returns and help provide early-run predictions at Lower Granite Dam. Fish in BP 36 (22,058 fish) received a CWT and LV clip to help assess South Fork Clearwater River releases.

System II converted to reuse on November 19. Temperature was increased from 48.0°F on this date to 54.3°F by November 21. Temperature averaged 54.3°F for the remainder of November. Due to the large size of fish in System II, temperature was reduced from 54°F to 50°F from February 1 through 18. System II was put back on raw water on February 19. This dropped the water temperature from 50°F to 41°F within three days. Water temperature averaged close to 54°F during the three month reuse period.

System II was treated with formalin on November 13 for Ich and November 18 and 21 as a prophylactic for going on reuse. Mortality in System II averaged 0.03 percent/month the final four months of rearing.

Release of fish in System II took place April 29-May 1. Outplanting of 219,332 SST took place between April 29 and April 30. These fish were stocked into Clear Creek, the South Fork of the Clearwater River at Red House, and the mainstem of the Clearwater River at Kamiah.

Direct release of 343,653 SST took place April 29 through May 1 into the mainstem of the Clearwater River. (Final Release Summary, BY96 SST).

System III

System III has 34 BPs. This System had 940,678 SST at the beginning of the fiscal year. Final release numbers were 923,226 fish which averaged 200 mm total length (Table 6).

Table 6. System III production, BY96 SST, FY97.

Month	Year	1st of Month			Growth		% Mortality	Ave Temp °F for month
		Number	fpp	L (mm)	in	mm		
October	96	940,678	30.75	115	0.70	17	0.46	53.6
November	96	928,518	19.46	134	0.75	19	1.29	49.7*
December[1]	96	929,238	14.76	147	0.51	13	0.90	53.9*
January	97	927,939	9.86	168	0.83	21	0.14	53.9*
February	97	926,663	7.51	184	0.63	16	0.14	47.3*
March	97	925,465	6.49	193	0.36	9	0.13	39.8
April	97	924,314	6.22	196	0.11	3	0.12	40.8
Release Apr/May	97	923,226	5.86	200				

* System under reuse part or all of month.
[1] Adjusted inventory numbers from marking crew.
Source: Monthly Inventory Summaries, Sept 1996-May 1997
Final Release summary, BY97 SST
Production Narratives Sept-May, 1996-97
Daily Water Temperature Records, Oct-April, 1996-97

Steelhead in System III were AD clipped September 11-19, 1996. Fish in System III were CWTd November 1-8 (86,706 fish). Fish in BP79 and BP81 received a CWT and LV clip (43,789 fish) to help assess release results from Clear Creek and the South Fork of the Clearwater River. Fish in BP53 and BP55 were marked with a CWT, LV clip, and FB (42,917 fish) to help assess System contribution to the return.

III was dropped to 50°F on February 4 and taken off reuse completely on February 19, dropping the temperature to 40°F.

System III fish were treated for Ich with formalin on October 31, 1996. The entire System was treated with formalin again on November 20 and 27 as a prophylactic for going on reuse. Mortality in System II averaged less than 0.14 percent the final four months of rearing.

Release of fish in System III took place April 21 through May 1. There were 584,368 steelhead from System III outplanted April 21 through April 25. These went to Clear Creek, the South Fork of the Clearwater at River Mile 8.7 (Red House), and the main stem of the Clearwater River at Kamiah.

Direct release of 338,858 SST took place April 30 through May 1 into the main stem of the Clearwater River (Final Release Summary, BY96 SST).

Distribution Summary

Release of BY96 SST began April 21 and ended on May 2, 1997. From April 21 through April 30 there were 1,127,140 SST outplanted to various locations along the Clearwater River. From April 29 through May 2 there were 1,361,034 SST direct released from Dworshak hatchery into the Clearwater River (Table 7).

Table 7. Fish distribution summary by site, BY96 SST, April 21-May 2, 1997.

Site	Number	Weight	fpp	Length	
				in	mm
Outplants 4/21-4/30					
Main S Clearwater R- Kamiah	215,534	33,196	6.49	7.61	193
S.F. Clearwater R- Red House	728,328	123,644	5.89	7.86	200
Clear Creek	183,278	28,055	6.53	7.59	193
Subtotal	1,127,140	184,895	6.10	7.77	197
Direct Release 4/29-5/3					
Main S. & North Fork Clearwater River	1,361,034	213,566	6.37	7.65	194
Totals/Averages	2,488,174	398,461	6.24	7.71	196

Source: Final Release Summary, BY96 SST

This is the fifth year in a row that the 200 mm release target size was not met for all systems (System I did not make size). Cold water releases from Dworshak Dam for five weeks in the summer of 1996, along with cold water in System I in the spring of 1997 slowed growth below projections.

Brood Year 1997

Adult Collection

Adult summer steelhead trout (SST) for Brood Year 1997 (BY97) were collected in the late fall of 1996 and again in the winter and spring of 1997 to represent the entire run. The ladder was first opened on October 10 and closed January 8,1997. During this 90 day period, 380 early-run steelhead were collected. The fish ladder was then reopened on February 3 and closed on May 6, 1997. During the February through May operation, 2600 steelhead were collected for a total of 2,980 fish trapped for the BY97 run.

Historically, the male:female return ratio has been 1:2.3. In 1997 the return ratio was 1:1.9. Figure 1 illustrates the number of returning adults of SST since 1989, the first year that opening the ladder in the fall became the standard operating procedure.

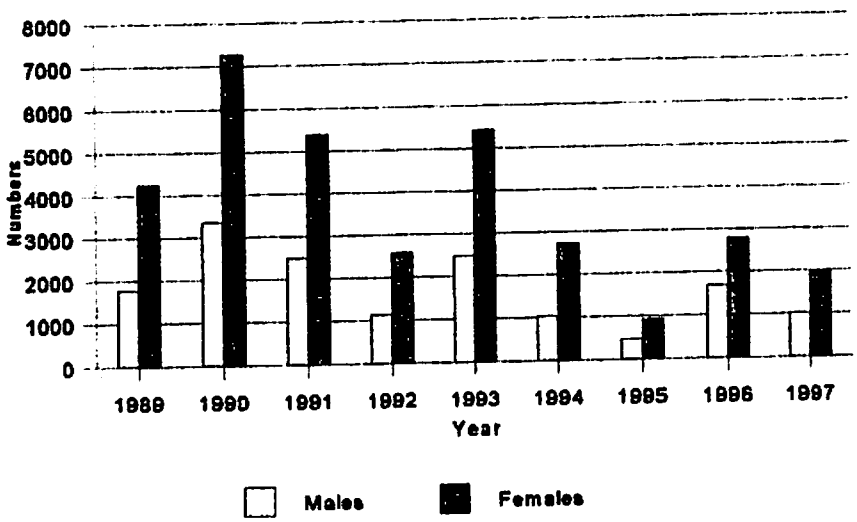


Figure 1. Dworshak adult SST returns 1989-97.

Source: PROD - Spawning Report SST BY96.
PROD - Spawning/Egg Take Plan SST BY97. ST97ET31.wpd
IFRO - SST Rack Returns. Sth97cnt.wk4

Thirty-seven of the 380 early return adults died before spawning. Daily one hour formalin bath treatments of 200mg/L began in January and appeared to control mortality.

Spawning Procedures
Due to the low number of early-return adults (380), the first spawn was delayed one week and the total number of egg Takes was reduced from 15 to 14. This plan worked well for all involved and may be repeated next year.

Spawning began Tuesday, February 4, 1997 and was conducted each Tuesday (except Take 6, spawned on Wed., March 12) until May 6. During most of the spawning season, adult returns from the prior one- to-three weeks were spawned first, then fish from earlier returns were spawned if needed. After spawning was completed, personnel from the Idaho Fisheries Resource Office (IFRO) would then inspect fish for marks, tags, etc., from holding pond 9 (HP9) (the most recent adult returns). These fish were then placed in a HP for spawning the following week. This procedure worked well for both Production and IFRO staff in lessening congestion in the spawning area and reducing actual spawning time. For the first and last egg Takes, personnel from both the IFRO and Production concurrently inspected and spawned the most recently returning adults.

The spawning procedure was similar to past years: adults were crowded from the holding ponds into a crowding channel, moved into a channel basket, and placed into an anesthetic bin. Fish from Takes 1-3 were anesthetized with Tricanine methanesulfonate (MS-222) instead of carbon dioxide because no outlet for human consumption of these carcasses could be found. Each anesthetic bin was prepared with 130 grams/bin of MS-222. Pro-Polyaqua was added (250 ml per bin) to reduce stress and susceptibility to infection. Adults from Takes 4-12 were anesthetized with carbon dioxide at a rate of 400 to 1000 mg/l solution buffered with 8 to 10 pounds of sodium bicarbonate. This was done after securing an agreement with the Federal Bureau of Prisons for human consumption of the fish. Oxygen was provided at a rate of one L/minute when both MS-222 and carbon dioxide were used. Spinal columns of ripe females were severed using a pneumatic knife. The females were then placed on a table for 1-20 minutes for blood drainage. The ventral side was then cut open using a spawning knife and eggs were collected in disinfected colanders. After ovarian fluid was drained, the eggs were poured into a clean bucket. Milt from ripe males was stripped into Styrofoam cups and a one-percent saline solution was added to assist in milt motility. The milt solution was poured onto the eggs and swirled for more complete fertilization. After sufficient time had elapsed for fertilization to take place (one to two minutes), the eggs were rinsed of sperm, blood, and other organic matter.

After fertilization, eggs were placed in Heath incubator trays at approximately 6,750 eggs per tray (1 female). In the tray was a 75 mg/l iodophor solution buffered with sodium bicarbonate. Eggs were maintained in this solution for approximately 30 minutes as a precaution against horizontal disease transmission. The egg trays were then pushed into the incubator. Water flow rate was approximately five gallons/minute and ranged in temperature from 53^0F-55^0F.

Upon eye-up (approximately 16 days after fertilization at 54^{0}F), the eggs were shocked. The next day the eggs were enumerated and sorted using an electronic egg picker and counter (Van Gaalen Model N-100). Eggs were then disinfected for 10 minutes in a 100 mg/l iodophor solution buffered with sodium bicarbonate. Eggs from Takes 1-8 were then placed into 2.5 gallon hatching jars (36,000 eggs per jar) in the nursery. Due to cold water discharges from Dworshak Dam, eggs from Takes 9-14 were returned to Heath trays (6000 per tray) and hatched in the warmer incubator water. The water flow was about 5 gpm in both the trays and jars. The hatching jars drained into 670 gallon rectangular nursery tanks. As the fry swam up, they flowed into these tanks for initial rearing. Eggs that hatched out in the incubator room were transferred out to the nursery in the incubator trays.

Dworshak Fish Health Center Disease Sampling

About 28 percent of the females spawned and 16 percent of the males spawned for Dworshak and Magic Valley Hatchery (MVH) production were sampled for the IHNV assessment by Dworshak Fish Health Center (DFHC). (All disease testing for Clearwater Hatchery (CWH) was done by Eagle Creek Laboratory). All viral testing came back negative for both males and females this year. A complete summary of findings regarding disease sampling was prepared by DFHC.

Spawning Summary

There were 14 egg Takes this spawning season, beginning on February 4 and ending on May 6. The 1114 females spawned produced 7.5 million green eggs with an average fecundity of 6,750 eggs/female. The 7.5 million green eggs were enough to meet Dworshak's commitments to its own production program and those of CWH and MVH. Early-returning adults were spawned in Takes 1 through 3, with later returning adults being spawned from Takes 4 through 14.

Egg Disposition

After shipping eggs for CWH and MVH, and culling both green and eyed eggs, Dworshak put 2,875,000 eyed SST eggs into it's nursery for rearing.

Clearwater Hatchery received 805,100 eyed eggs for incubation for their program. Personnels from CWH also took 1.5 million green eggs for MVH. These eggs were shipped by air the same day as spawning. There were 300,000 eggs from Take 12 incubated at Dworshak for MVH that were subsequently not needed. After eye-up, these eggs totaled 278,400 and were given to the Nez Perce Tribe (NPT) for stocking in Newsome Creek, Mill Creek, and American River.

Performance/Cryopreservation Studies

This is the sixth year in which Dworshak has cooperated with a team from the U.S. Geological Survey, Biological Resource Division (BRD) formerly National Biological Survey (NBS) being led by Jay Hensleigh. The cooperative part of the study involved the holding and spawning of hatchery adult steelhead. The study seeks to examine: 1) Cryopreservation of milt and its effect on production, and 2) developmental effects of using "large" eggs vs. "small" eggs. The study used ten males and 12 females from Take 7.

Dr. Joe Cloud, University of Idaho (U of I), received eggs from two ripe females and milt from six males from each of Takes 10-14. Personnel from the NPT received eggs from two ripe females and milt from six males from Take 13 and eggs from three females and milt from six males from Take 14. Both of these studies involve cryopreservation of gametes. Joe Nagler, U of I, received eggs from one green female from Take 11 to use for study of ovarian receptors.

Adult Disposition

There were 409 adult outplants to the South Fork of the Clearwater River from Dworshak during the return run of BY97 steelhead. Table 1 illustrates the adult disposal of BY97 SST.

Table 1. Adult disposition of BY97 SST from Dworshak.

LOCATION	NUMBER	COMMENTS
Landfill	401	
WSU Bear Program	658	
ID Bureau of Prisons	1512	
Outplanted	409	409 outplanted, 12 returned
Total	2980	

Source: PRD-Spawning Activity Report BY97 SST
FRO-Adult steelhead outplanting 1997

Nursery and Early Rearing

Fry were put into the nursery at a rate of 36,000 fish/tank. For the first time, fry were put into the nursery in banks of four or eight tanks, with lots of either 144,000 or 288,000 fish/Take. Takes 1-8 were placed into incubator jars over the tanks. These eggs were transported from the incubator room to the nursery in a 30 gallon plastic can. When approximately 70 percent of the fry had hatched, the remaining fry were poured into the tank. Because cold water from Dworshak Dam was the only water available for nursery rearing, eggs from Takes 9-14 were returned to Heath trays (6000 per tray) and hatched in the warmer incubator water. Dead eggs and fry were picked and enumerated from each tank and tray. Mortalities, included from two days after swim-up, were subtracted from initial loading resulting in "adjusted initial loading" numbers (fish-on-feed). There was a 91.7 percent survival from the eyed eggs/fry into the nursery to fish-on-feed for BY97.

Egg jars in A and B banks in the nursery began receiving eyed SST eggs on February 20. Eggs from Takes 1-8 went into these two banks of rearing units because the water supply could usually be heated to 54^{0}F. However, since water temperatures ranged as low as 44.4^{0}F in the spring on 1997 in the nursery, Takes 9-14 were held in the incubation room as long as possible to receive the benefit of 54^{0}F incubation water. Beginning on May 5 through June 12, Takes 8-14 were moved into C and D banks of the nursery. This tanking strategy maximized the use of the hatchery's heated water supply.

From March through May of 1997, water temperature in A and B banks of the nursery averaged 51.7°F, over two degrees cooler than normal due to cold water discharge from Dworshak Dam. In June, water temperature in the nursery spiked from 49°F to 62°F within approximately 30 minutes with no prior notification to hatchery personnel. Overall, BY97 SST were about three weeks behind in growth when moved out of the nursery.

Feed

Nine different feed sizes are used in the production of SST at Dworshak (Table 2). The variety of feed sizes provide the growing fish the proper sized feed at various stages, eliminating the need to mix feeds when changing to a larger size. For BY97, floating heat- extruded feed is used for the larger fish. Advantages of this food appear to be greater palatability, less waste, and better conversion.

Table 2. Feed changeover table for BY97 SST.

Feed No.	Feed Type	Feed Name	Abbrev.	Start FPP	End FPP
1	Biodiet Starter	BDS 1	BDS1	2500	1500
2	Biodiet Starter	BDS 2	BDS2	1500	700
3	Biodiet Starter	BDS 3	BDS3	700	400
4	Biomoist Grower	BMG 1.0 mm	BG10	400	300
5	Biomoist Grower	BMG 1.3 mm	BG13	300	200
6	Biomoist Grower	BMG 1.5 mm	BG15	200	100
7	Biomoist Feed	BMF 2.5 mm	BF25	100	20
8	Extruded Floating	RGF 3/32"	EF1	20	13
9	Extruded Floating	RGF 1/8"	EF2	13	1

Source: Annual Report 1996

Fish in the nursery were split to other nursery tanks when density indexes (DI) exceeded 0.5 and when water temperatures were appropriate. Fish were moved outside when they grew to approximately 95 fpp. Take 1 was moved outside on June 30, three weeks later than last year. Subsequent Takes were moved out approximately each consecutive week thereafter. Careful coordination with the marking crew from Idaho Fish & Game allowed for BY97 SST from Take 5 through Take 14 to go directly from the nursery to the marking trailer and subsequently stocked at final densities into Burrows ponds (BP). This reduced stress on the fish by eliminating a handling session and also reduced manpower needed for crowding and netting fish from BPs.

Historical losses indicate a projected release number between 2.2 and 2.3 million SST in the Spring of 1998. Table 3 illustrates the steelhead on station at the end of FY97 and projected release numbers.

Table 3. BY97 SST on station and projected release summary, (9/30/97).

As of September 30, 1997					Projected to release - May 1998		
System	Number	Weight (lbs)	fpp	L (mm)	Proj % Loss to Release	Proj Release Number	Proj Size at Release (mm)*
Sys I	742,554	35,782	20.8	131	5	705,426	177
Sys II	635,592	15,239	41.7	104	5	603,812	201
Sys III	943,550	38,096	24.8	124	5	896,373	205
Total/ average	2,321,696	89,117	28.1	121	5.0	2,205,611	195

*Projected length based on Systems II & III going on reuse end of November - March 1. Source:MIS data, October 1, 1997, Production Narrative, September, 1997

Brood year 1996 SST suffered less than a two percent mortality from September 30, 1996 to release in May, 1997. If BY97 suffers similar losses, the release numbers will be close to 2.27 million SST.

System I

System I received 765,000 BY97 SST. SST in System I were moved out of the nursery beginning with Take 1 on June 30,1997 and ending with Take 5 on July 25. Fish from Takes 1-4 were loaded from the nursery to the BPs. Then, with the exception of fish in BP 5, 29, and 39, the fish were crowded and taken through the marking trailer for adipose fin (AD) clipping . Fish in BP 5, 29 and 39 were later AD clipped and coded wire tagged (CWT) in October, 1997. Fish from Take 5 were loaded directly from the nursery to the AD clipping trailer and then stocked out of the trailer into the BPs at final rearing densities.

At the end of FY97, no fish in System I had been confirmed positive for IHN and SST in six BPs had been treated for Ich.

System II

System II received 640,000 SST during August, 1997. SST in System II were moved out of the nursery beginning with Take 10 on August 7 ending with Take 14 on August 29. As with fish from Take 5 in System I, SST from Takes 10-14 were loaded from the nursery into a transport tank and moved directly to the marking trailer. From the trailer, fish were marked and stocked at final densities to the BPs. Fish in BPs 4 and 48 will be coded wire tagged and AD clipped in October, 1997.

No IHN had been confirmed in System II by September 30, 1997.

System III

System III received 950,000 SST from Takes 5 through 10 beginning with Take 5 on July 23 and ending with Take 10 on August 7. These fish were loaded directly from the nursery to the marking trailer and then stocked at final rearing densities into System III BPs. Fish in BPs 60, 61 and 83 will be coded wire tagged and AD clipped in October, 1997.

No IHN has been confirmed by the end of FY97.

Spring Chinook Salmon
Brood Year 1995

On October 1, 1996, there were 16,140 BY95 spring chinook salmon (SCS) on station at Dworshak. These fish are medium and high BKD status. On January 30,1997, there were 37,331 BY95 Dworshak stock SCS transferred from Kooskia NFH to Dworshak. These fish were low BKD status. The medium and high BKD status SCS were coded wire tagged (CWTd) and adipose fin (AD) clipped on July 15, 1996 at Dworshak. The low BKD status SST were CWTd and AD clipped on July 10-12 at Kooskia. Information from this marking will help determine contributions to various fisheries. On February 6 and 13 of 1997, 7,000 of the low BKD status SCS were PIT tagged by IFRO. Information from these tags will help determine smolt travel time, interrogation rate to the dams, and adult survival. See the IFRO Annual Report for details.

On April 7, 1997, there were 51,559 BY95 SCS released from Dworshak. These were of low, medium, and high BKD status. On April 11 there were 1519 high BKD status SCS released. These fish were the largest of the high BKD status fish and were held back because they were initially suffering the highest mortality during the spring. The fish were released after further ELISA testing determined there was no significant difference in the infection level of these fish (Table 1).

Table 1. BY95 SCS in System I Raceways, 9/30/96, and release data, 04/07/97.

September 30, 1996				% Loss 9/30/96 to 4/7/97	Final Release April 11, 1997			
Number	Weight lbs	fpp	Length mm		Number	Weight lbs	fpp	Length mm
16,140	684	23.6	126	1.03	53,078*	4,187	12.7	163

There were an additional 37,331 BY96 Dworshak stock SCS transferred from Kooskia to Dworshak on January 30,1997.

Source:Oct 1, 1996 MIS, Feb 1, 1997 MIS.
Production Narrative, April, 1997.
Final Release Summary, 1997

Brood year 1995 SCS had a cumulative survival from green egg to smolt of about 62 percent (Table 2). This was below historical levels mainly due to poor quality eggs from the adults.

Table 2. Survival summary from green egg to smolt, BY90-95 SCS reared at Dworshak.

	% Surviving from previous stage				Cumulative % Survival		
Brood Year	(Green to)Eyed Egg*	Tanked Fry	Ponded Finger lings	Smolt Release	Green Egg to Smolt	Eyed Egg to Smolt	Tanked Fry to Smolt
1990	94.2	98.2	95.6	97.2	86.0	91.3	92.9
1991	89.0	96.1	99.3	96.9	82.3	92.5	96.2
1992	96.4	95.1	96.1	98.0	86.3	89.6	94.2
1993	87.2	95.9	99.4	97.7	81.2	93.1	97.1
1994	89.2	89.5	87.4	98.0	82.3	93.4	97.0
5yr Ave	91.2	95.0	95.6	97.6	83.6	92.0	95.5
1995	71.5	96.0	96.0	98.3	61.8	90.8	94.4

* Does not include eggs deliberately culled before eye-up.
Source: Annual Report 1996.
Spawning Report BY95 SCS.
Production Narrative, May 1997.

On February 24, 1997, a 21-day erythromycin treatment was started on the BY95 SCS. This was done as an INAD investigation study for using erythromycin against bacterial kidney disease. After treatment, 480 BY95 SCS were transported to Marrowstone for salt water testing by personnel from the Dworshak Fish Health Center.

On July 15, 1996, the BY95 SCS were CWTd and AD clipped. On March 18, 1997, the IFRO checked for CWT retention and noted that tag retention was 98.9 percent.

On the evening of April 7, 1997, Dworshak released 53,084 SCS. The release, late in the day, was done to assist the released fish with predator avoidance. High water flow due to heavy rains also assisted in downstream migration. See the IFRO Annual Report for details.

Brood Year 1996

There were 1165 SCS that returned to the Complex in the summer of 1996, 202 returning to Kooskia and 963 to Dworshak. Thirty-two of the Kooskia fish were passed over the weir. Adults spawned and eggs produced are represented in Table 1.

Table 1. Dworshak and Kooskia adult spawners and both green & eyed egg numbers, BY96 SCS.

Location Adult Return	Males spwnd	Fmls spwnd	No eggs/ fmle	No green eggs	%Survl Grn to Eyed	No eyed eggs	%Surv to tank	%Surv to Pond
Dworshak	357	335	3,459	1,158,765	87.2	1,010,443	?	83.3*
Kooskia	50	49	3,565	174,685	82.1	143,416		
Total/ Average	407	384	3,473	1,333,450	86.5	1,153,859		

*Only medium and high BKD status fish reared at Dworshak. Low BKD status fish reared at Kooskia.
Source: CRIS Summary Table BY96 SCS
BY96 SCS Spawning Report
Dworshak Annual Report, 1996

Low BKD status eyed eggs from Dworshak's egg Takes 1-4 and Kooskia's egg Takes 1-6 were shipped from Dworshak to Kooskia on October 16, 1996. Low BKD status eggs from Dworshak's egg Take 5-9 and Kooskia's egg Take 9 were transferred from Dworshak to Kooskia on November 6. These represent a total of 927,770 SCS eggs moved from Dworshak to Kooskia (Table 2). This will assist in producing a smolt the target size of 18-20 fpp at release since Kooskia has colder incubation temperature (38°F) than Dworshak (45°F). All medium and high BKD status BY96 SCS are reared at Dworshak.

Table 2. BY96 SCS eyed egg shipments from Dworshak to Kooskia, October 16 and November 6, 1996. All low BKD status eggs.

TAKE	NUMBER/DWORSHAK BROODSTOCK	NUMBER/KOOSKIA BROODSTOCK*	TOTAL
1	24,716	16,000	40,716
2	36,500	5,443	41,943
3	110,884	29,500	140,384
4	311,500	25,833	337,333
5	124,271	26,870	151,141
6	63,358	7,143	70,501
7	77,124	0	77,124
8	52,980	0	52,980
9	12,548	3,100	15,648
Total	813,881	113,889	927,770

*Takes 5&6 from Kooskia were accidentally mixed with Dworshak stock and will be considered Dworshak fish.

On April 30, 1997, there were 324,999 Dworshak stock SCS fingerlings transferred from Kooskia to Dworshak. On July 31,1997, there were 102,738 Dworshak stock SCS transferred. On September 11, 1997, there were 172,389 Dworshak stock SCS transferred. At the end of FY97, there were still 199,857 BY96 Dworshak stock SCS being reared at Kooskia which will be transferred to Dworshak in February, 1998.

On June 3, 1997, there were 205,287 BY96 SCS medium and high BKD status fish moved out of the Dworshak nursery into outside raceways (RWS). Of these fish, 10,273 were Kooskia stock, high BKD status, SCS.

On August 7-22, 1997, all BY96 SCS at Dworshak were AD clipped and 143,677 were CWTd.

By the end of FY97, there were 786,667 BY96 SCS at Dworshak. These fish averaged 49.9 fpp and 103 mm total length (4.1 inches). The 199,857 Dworshak stock SCS at Kooskia will be transferred to Dworshak in February, 1998 (Table 3).

Table 3. Dworshak stock BY96 SCS at end of FY97 and projected release from Dworshak, April, 1998.

As of September 30, 1997					Projected to release - April 1998			
Location	Number	Weight (lbs)	fpp	L (mm)	Proj % Loss to Release	Proj Release Number	Proj Size at Release fpp	Proj Size at Release (mm)*
Sys I Dworshak	786,667	15,775	49.9	103	2	770,934	18	145
Kooskia	199,857	5,456	36.6	114	2	195,860	18	145
Total/ average	986,524	21,231	47.2	105	2	966,794	18	145

Source: Dworshak MIS-October 1997
Kooskia Production Narrative, October, 1997

BROOD YEAR 1997

Fish traps at both Dworshak and Kooskia were operated to collect BY97 SCS. The fish ladder at Dworshak was opened May 19, 1997 and closed September 16. There were 3150 SCS returned to Dworshak and 1657 SCS returned to Kooskia by the end of the spawning season (Table 1).

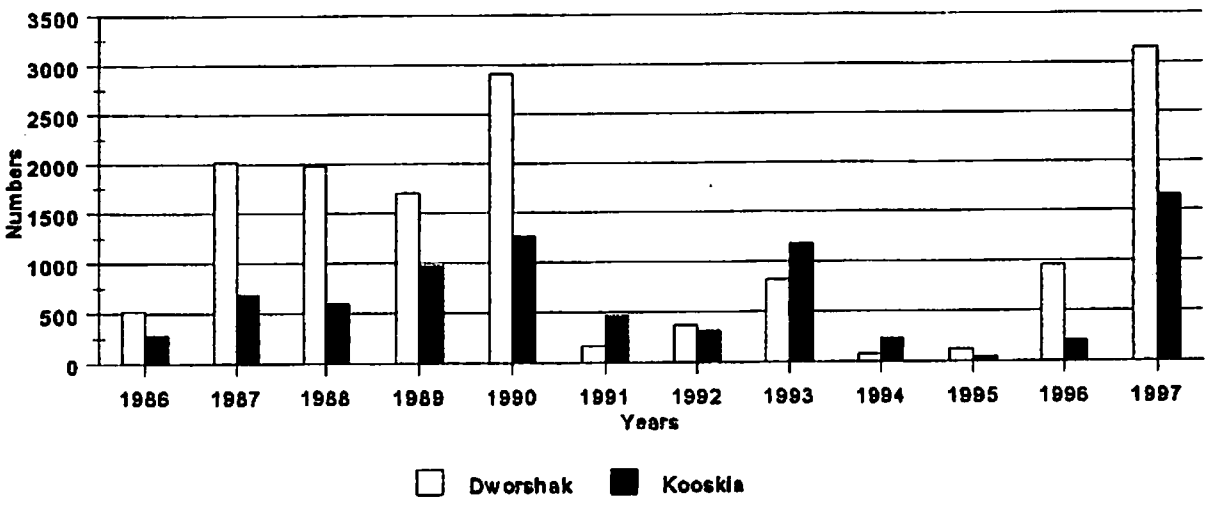
Table 1. Adult returns, BY97 SCS. (09/30/97)

AGE	NUMBER/DWORSHAK	NUMBER/KOOSKIA	TOTAL
I-OCEAN	12	7	19
II-OCEAN	2380	1523	3903
III-OCEAN	740	127	867
UNKNOWN	18	0	18
TOTAL	3150	1657*	4807

*127 of these fish were passed over weir into Clear Creek.
Source:Dworshak/Kooskia Complex SCS News-1997 Edition, rev 9/30/97.

Adult returns for brood year (BY97) SCS were the largest in recent years (Figure 2). A sport season (741 fish) along with a tribal harvest (835 fish) took place along the Clearwater River in the spring and summer of 1997. The Tribe also harvested 12 fish in Clear Creek.

Figure 2: SCS returns to Dworshak/Kooskia 1986-97.
Source: IFRO SCS rack returns.



Adult Holding

Dworshak stock was kept in holding pond (HP) 1 and 2, Kooskia stock was held in HP3. Kooskia transported 1313 adults to Dworshak as spawning stock. Both stocks received opercular punches in order to distinguish between the two. Formalin treatments were administered to the adults in order to retard fungus infection. The formalin treatments began on June 7, 1997 and ended August 29. There were 78 treatments averaging three treatments/week at 200 mg/l for one hour each treatment. Incoming females were also injected with erythromycin at a dosage of 20 mg/kg body weight as a preventative measure against transmission of BKD and to improve health of adults.

Adult Mortality

Prespawning mortality (mortality before the first spawning on August 26) of BY97 adult chinook was 3.6% for Dworshak stock and 13.1% for Kooskia stock. During spawning, losses were 16.7% for Dworshak stock and 18.7% for Kooskia stock (Table 2).

Table 2. Mortality of BY97 SCS adults held from 6/97 until 9/16/97.

Time of Mortality	Dworshak		Kooskia		Total	
	Number	Percent	Number	Percent	Number	Percent
Prespawn	112	3.6	54	4.1	166	3.7
Spawning	413	13.1	191	14.5	604	13.5
Total	525	16.7	245	18.7	770	17.3

Source: SCS BY97 Spawning Report
Spawning Activity Reports, BY97 SCS

Spawning began on August 26, 1997 and continued through September 16. Fish from each HP were sorted and spawned once/week. Altogether there were 966 females and 775 males spawned (1:1.3 ratio) with an average of 3,667 eggs/female. Dworshak took 542 females of Dworshak stock, retained 1.2 million eyed eggs for it's program and provided the Nez Perce Tribe (NPT) with 370,000 surplus eyed eggs. There were 316 females spawned of Kooskia stock, providing 732,000 eyed eggs for the Kooskia program. The NPT also took green eggs from 108 females of Dworshak stock for its program (approximately 380,000 green eggs). These green eggs for the NPT were transferred to Kooskia for initial incubation. All available incubator trays in Dworshak were used for Dworshak and Kooskia initial incubation.

Spawning Procedures

The spawning procedure was similar to past years: adults were crowded from the holding ponds into a crowding channel, moved into a channel basket, and placed into an anesthetic bin. Each anesthetic bin was prepared with 130 grams/bin of Tricanine methanesulfonate (MS-222). Pro-Polyaqua was added (250 ml per bin) to reduce stress and susceptibility to infection. Oxygen was provided at a rate of one L/minute. Spinal columns of ripe females were severed using a pneumatic knife. The females were then placed on a table for 3-20 minutes for blood drainage. The ventral side was then cut open using a spawning knife and eggs were collected in disinfected colanders. After ovarian fluid was drained, the eggs were poured into a clean bucket. Milt from ripe males was stripped into Styrofoam cups and a one-percent saline solution was added to assist in milt motility. The milt solution was poured onto the eggs and swirled for more complete fertilization. After sufficient time had elapsed for fertilization to take place (one to two minutes), the eggs were rinsed of sperm, blood, and other organic matter.

After fertilization, eggs were placed in Heath incubator trays at approximately 3,667 eggs per tray (1 female). In the tray was a 75 mg/l iodophor solution buffered with sodium bicarbonate. Eggs were maintained in this solution for approximately 30 minutes. This was done as a precaution against disease transmission. The egg trays were then pushed into the incubator. Water flow rate was approximately five gallons/minute and temperature averaged 46.0^{0}F.

The number of adult spawners, eggs produced, and survival are illustrated in Table 3.

Table 3. Dworshak and Kooskia adult spawners and both green & eyed egg numbers, BY 97 SCS.

Location of Broodstock Return	Males spwnd *	Fmls spwnd *	Fmls Culled BKD	No eggs/ female	No green eggs after culling*	Percent Enum Eye-up	No eyed eggs
Dworshak	435	542	76	3,724	1,728,534	90.9	1,571,237
Kooskia	274	316	84	3,545	821,609	89.2	732,875
Total/ Average	709	858	160	3,667	2,550,143	90.3	2,302,113

* These numbers do not include 108 females and 33 males of Dworshak stock spawned by the NPT and incubated at Kooskia.
Source: Spawning Activity Report BY97 SCS
BY97 SCS Spawning Report

Dworshak chinook from BY97 eggs had a 78.9 percent total eye-up and a 98.1 percent eyed egg to tanking survival.

Dworshak Fish Health Center (DFHC)

Kidneys were sampled for BKD from all females spawned and from a representative sample of males. The DFHC also took ovarian fluid from all females spawned for viral inspection. The adult females tested 5.4 percent high BKD (ELISA >1.0) for Dworshak and 10.1 percent for Kooskia. Final culling was at 0.40 ELISA and above for Dworshak (13.3 percent of the females spawned) and 0.50 ELISA and above for Kooskia (23.4 percent).

Nez Perce Tribe (NPT)

The NPT spawned eggs from 108 Dworshak females (approximately 380,000 green eggs) to be incubated at Kooskia. In October, 1997, the NPT also took 370,000 low and medium BKD eyed eggs from Take 4 of Dworshak stock which were surplus to Dworshak's needs. These eyed eggs were either planted into Meadow Creek (a tributary of the Selway River), or transferred to Sweetwater Hatchery for further rearing.

Cryopreservation Study/University of Idaho

Dworshak coordinated with researchers from the University of Idaho in cryopreservation of salmonid gametes. Joe Cloud is the primary investigator in studying the effects of short-term storage of milt prior to cryopreservation. Rolf Ingermann and David Bencic are studying the relationship between ATP content regarding the motility and viability of the sperm. Dworshak provided chinook milt from 22 males and eggs from 12 females from excess spawning requirements.

Idaho Supplementation Study (ISS)

There were 21 females and 22 males collected from the Kooskia trap which were spawned for the ISS program. These fish yielded 72,610 green eggs which had a 86 percent survival for a total of 62,244 eyed eggs. These eggs were isolated from other eggs during initial incubation at Dworshak and were transferred to Kooskia in October, 1997, for final incubation and rearing.

Adult Disposition

There were 482 adults from Kooskia stock and 594 Dworshak stock which were outplanted from July to September, 1997 (IFRO-Adult SCS Outplants). Twenty one days before the first spawning date, erythromycin injections were given to the females. Due to these injections, and the deteriorated condition of the adults after spawning, carcasses were unfit for human consumption and were subsequently transferred to the landfill.

Spawning Summary

The number of adult returns from BY97 SCS were the largest in recent history. Both Dworshak and Kooskia will have full programs for release year 1999. The NPT was also supplied with approximately 380,000 green eggs and 370,000 eyed eggs from surplus spawning needs.

Coho Salmon
Brood Year 1996

On April 18 and 19, 1997, there were 224,345 BY96 coho salmon (COS) transferred from Kooskia to Dworshak. At the time the COS were 321 fpp and 53 mm (2.1 inches) total length. These COS are being rearing in RWs in C-bank in a cooperative program with the Nez Perce Tribe (NPT). At the end of FY97, there were 219,749 COS averaging 41 fpp and 104 mm (4.1 inches) total length. The fish have grown an average of 10 mm/month since May, 1997. The NPT is currently developing a COS Production Plan.

Rainbow Trout
Brood Year 1995

On May 28, 1997, approximately 6,100 BY95 RBT were stocked into the hatchery's settling pond along with 6,100 BY96 RBT from Clearwater Hatchery. About 2,000 RBT were harvested for the Open House by children 12 years and younger. The remaining RBT were stocked out to various lakes and reservoirs in Idaho (Table 1). Because BY95 and BY96 RBT were different sizes and were mixed during Open House, actual numbers may vary slightly from these estimates.

Table 1. Outplanting of BY95 & BY96 RBT from Dworshak, FY97.

Destination	Number	Weight (Lbs)
Var. Lks. Coeur d' Alene Tribe	3,200	3,200
Nez Perce Tribe Various Lakes	2,000	2,000
Soldier's Meadow Res	2,200	2,200
Kooskia Open House	3,250	4,282
Total	10,650	11,682

Source:Fish and Egg Fiscal Year 1997 Distribution Summary

Brood Year 1996

Rainbow Trout used for Open House Fishing Day 1998

On October 29, 1996, the BY96 rainbow trout (RBT) to be used for Dworshak's Open House 1998 were moved from the nursery to Burrows pond (BP) 1. Inventory numbers showed there were 16,127 RBT averaging 15 fpp and 139 mm (5.5 inches total length). On September 30, 1997 there were an estimated 14,644 RBT in BP1 averaging 2.9 fpp and 244 mm (9.6 inches) total length.

Brood Year 1997

Rainbow Trout for Outplanting

Dworshak's current RBT program commitment is to provide 200,000 five-inch fish for stocking Dworshak Reservoir. Kooskia raised RBT for this program in 1991,92, and 95. Concerns have been expressed regarding the stocking of these fish into Dworshak's and Clearwater Fish Hatchery's water supply (Dworshak Reservoir). There are also concerns about RBT crossbreeding with cutthroat in the North Fork River and low catch rate by fishermen.

Because of these concerns, and because we are awaiting a mitigation report of the fishery from the University of Idaho, we are assuming the following fish exchange with IF&G for BY97 RBT:

Hagerman NFH will raise
- 90,000 K1/R1 5" fish, stocked in May at L. Camas Reservoir
- 20,000 K1/R1 9" fish, stocked in October at Oxbow Reservoir
- 20,000 K1/R1 9" fish, stocked in October at Hells Canyon Reservoir

Nampa FH will raise
- 30,000 K1/R1 10-12" fish stocked in May at Dworshak Reservoir

Nampa will provide the fish transportation. If eggs are not available from Ennis NFH in December for Hagerman, Hayspur Hatchery will provide the eggs.

Rainbow trout reared at Dworshak (river water) have not been stocked into the reservoir since 1984. Fish reared at Kooskia (well water) have not been stocked into the reservoir since 1993 (IFRO).

Hatchery Production Summary FY97

Brood Year 1996 Steelhead

There were 2.488 million steelhead smolts released in April/May, 1997. This release was above the mitigation goal of 2.3 million. These smolts are from brood year 1996. They averaged 196 mm in total length, slightly under the 200 mm target size due to cold water releases from Dworshak dam in the summer. The smolts were reared with low numbers of losses to IHNV as only fish in two Burrows ponds and four raceways were confirmed with the virus (MIS-April 1997). There were 398,461 pounds of steelhead produced in 1997, as compared to 392,845 pounds in 1996 and 332,000 pounds in 1995.

Brood Year 1997 Steelhead

There were 2980 steelhead that returned to Dworshak NFH in the fall of 1996 and spring of 1997. A total of 2.88 million eyed eggs went into Dworshak's production program. Dworshak provided 805,100 eyed eggs for Clearwater Hatchery. Also, 1.5 million green eggs were air-shipped to Sawtooth Hatchery for Magic Valley Hatchery. The production program at Dworshak completed another early rearing phase in the hatchery's nursery without any problems with the IHN virus. This is the sixth nursery rearing program that relied entirely on the water supply from Dworshak Reservoir. The 6,400 gpm received is sufficient to allow eggs and fry to be raised in reservoir water. The steelhead in this brood year also made the transition from inside rearing tanks to outside rearing ponds from water from the North Fork of the Clearwater River.

Brood Year 1995 Chinook Salmon

Dworshak NFH released 53,078 spring chinook salmon weighing 4,187 pounds on April 7 and 11, 1997. This was below the 1.05 million target mainly due to low number of adult returns (165 to Dworshak and Kooskia combined).

Brood Year 1996 Chinook Salmon

Adult returns of Brood Year 1996 produced 1,165 fish to the combined stations. These produced approximately 1.1 million eyed eggs and at the end of FY97 there were 1.0 million fingerlings at the combined stations.

Brood Year 1997 Chinook Salmon

Adult returns of Brood Year 1997 produced 4807 chinook to the combined stations. These have produced about 2.3 million eyed eggs after culling for BKD.

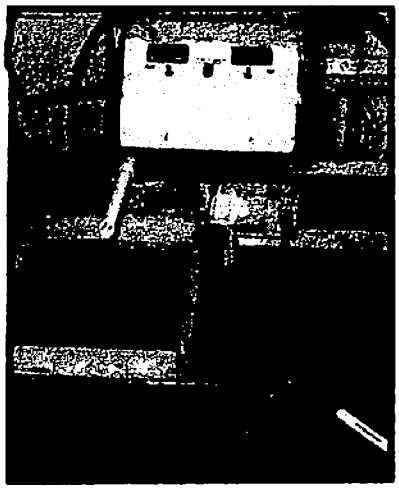
Brood Year 1996 Coho Salmon

Coho salmon are being reared at Dworshak in a cooperative agreement with the Nez Perce Tribe (NPT). At the end of FY97, there were 220,000 coho on station. The NPT are developing a Production Plan for the COS.

Brood Year 1996, 1997 Rainbow Trout

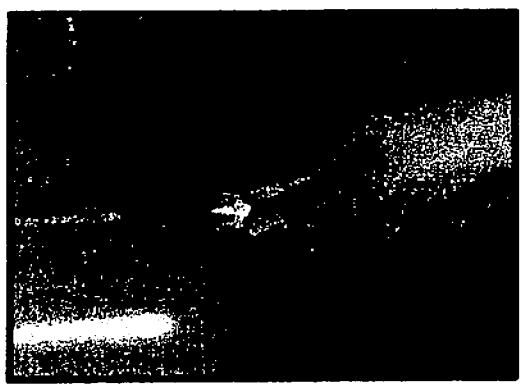
Due to concerns about stocking RBT in Dworshak Reservoir, the following fish exchange is planned: Hagerman NFH will raise 90,000 K1/R1 5" fish, stocked in May at L.Camas Reservoir, 20,000 K1/R1 9" fish, stocked in October at Oxbow Reservoir, and 20,000 K1/R1 9" fish, stocked in October at Hells Canyon Reservoir. Nampa FH will raise 30,000 K1/R1 10-12" fish stocked in May at Dworshak Reservoir.

FISH CULTURE OPERATIONS - PHOTOS

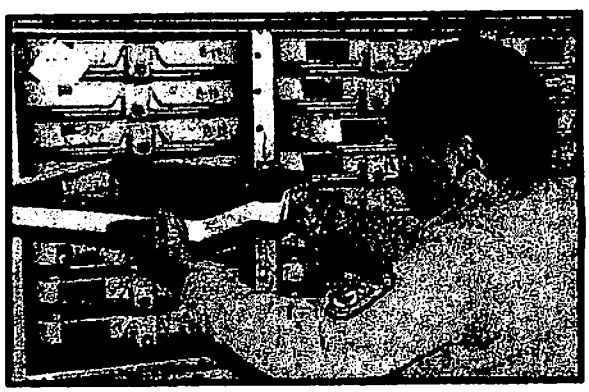


A new egg picker/counter (VMG Model N-100) worked well with chinook and steelhead eggs. The machine has good accuracy in counting and reduces time needed to perform the task.

Fish Culturist Rocky Greenland uses a channel crowder, right, to move adult spring chinook salmon into the spawning room.



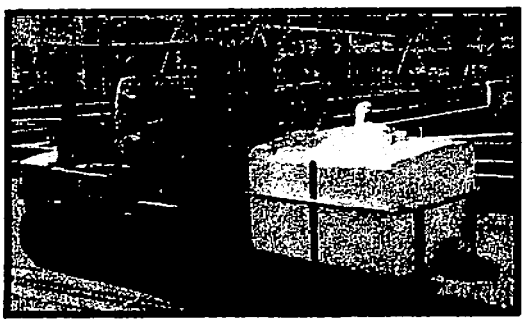
During the Fall of 1996, coded wire tagging and adipose fin clipping was done on 280,000 BY96 steelhead trout.



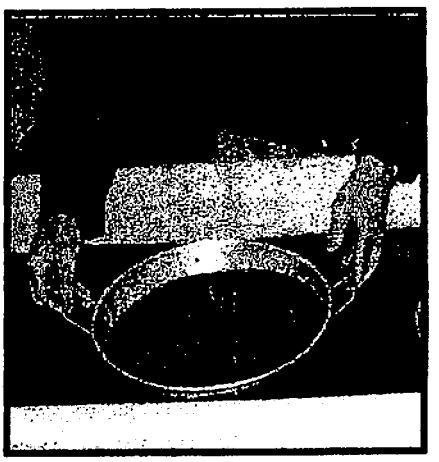
Animal Caretaker John Vargas, right, examines spring chinook salmon eggs from medium to high BKD females. Incubation temperature averaged 42.7^0.

In January, early-run summer steelhead males were injected with LH-RH hormone, to accelerate maturation for spawning.

Steelhead spawning began February 4, and continued until May 7, 1997. At right, Biological Technician Randy Bowen checks an adult male for coded wire tag.

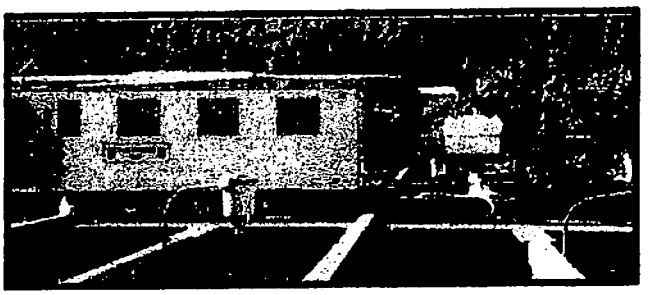


Steelhead fry are transported from the nursery to Burrows ponds in a Reiff oxygenated transport tank.



Steelhead eggs are rinsed in a Betadine solution prior to placement in incubation trays.

Steelhead smolts were direct-released from Dworshak hatchery April 28- May 2, 1997. Fish Culturist Rocky Greenland, left, releases smolts from a Burrows pond into the main outplant channel, which flows directly into the mainstem Clearwater River.



Steelhead fry (BY97) were adipose-clipped and moved from the nursery to outside Burrows ponds beginning in August.

Spawning of BY96 spring chinook salmon began late August, with the third largest return in hatchery history. Many eggs were taken for other program needs and research. New spawning room equipment made the job more efficient. The stand and table at left were borrowed from the Clearwater State Fish Hatchery during the season.

FACILITIES MAINTENANCE

Housing repairs and maintenance for the year included:

-Annual inspection of all four hatchery residences was completed in October.

-Trees planted in the backyard of Residence #1. Sprinkler lines and interior molding were also repaired. An old wooden storage shed was taken down. This residence is now ready for the new Assistant Manager to occupy.

-Fabricated hand rails for residences 1-4 and replaced kitchen stoves.

-Cleaned Residence #2 for new occupancy.

-Fire hydrant replaced in the back of Residence #1.

-Installed security motion lighting in residences 1-4.

OSHA upgrading and repairs included:

-Continued the Complex upgrade of electrical circuits by ordering the required components for the chemical buildings; GFCI breakers, enclosure and breakers. Fish Health Center had GFCI circuit breakers installed.

-Initiated lockout/tagout procedures for Dworshak.

-Provided in-house training on lead base paint testing to the maintenance crew. Tested various paints using test vials.

-Repaired hand rails in incubation room.

-Added mid rail in Mechanical II.

-Replaced shaft guard Mechanical II boiler circulation pump.

-Replaced back up alarm on boom truck.

-Converted all exterior lighting at fuel dispensing station to separate circuits.

-Installed a siren and fire alarm system.

-Changed out breaker panels in chemical building and installed GFI breakers in second chemical building to facilitate GFI circuit breakers.

-Initiated work on handicap access for public bathrooms.

Vehicle maintenance included:

-Repaired the front bucket, new cutting edges and hard surfaced the John Deere tractor.

-Coast Crane inspected boom truck.

-Delivered old S-10 pickups that had been replaced to Fairchild AFB in Spokane, Washington.

-Rebuilt right rear ladder and repaired front bumpers on the distribution truck.

Reuse maintenance included:

-Installed new heaters for starters in the filter bed motor control center that starts the sludge draw off motors and the Rader blower motor.

-Installed new space heater motor in the System I control room.

-Put reuse pump #10 back together and pulled reuse pump #9 and had repaired at Idaho Machine.

-Completed upgrade of the effluent pond Motor Control Center (MCC) by installing cooling fans on each side of the cabinet.

-Rebearings for a pump in Mechanical II.

-Repaired System III reuse filter bed, chains, and scraper boards.

-Changed oil and pump drive belts on System II and III channel pumps.

-Replaced a reuse pump.

-Repaired Systems II and III filter bed.

-Installed drain pump #11 reuse pump.

-Repaired System I reuse system alarm.

Flood and weather repairs included:

-A combined effort from Idaho FRO, COE, and maintenance crew removed a large tree from the front of the intake at the main pump house.

-Repaired fence by shop that had snow removal damage.

-Repaired fish planting pipe damaged by high flows on the middle fork of the Clearwater with the help of a COE crane and operator.

-COE, with their crane, put rock rip rap around the new fish planting pipe to the Clearwater River.

New work, modifications and contract work included:

-Knight Construction of Deer Park, Washington arrived October 18, 1996 to start the railroad overpass re-hab project. The $60,000 contract was completed in 4 weeks.

-We worked with BPA and COE to get modifications for heating nursery water supply. Contract was let for getting valves in place and Knight Construction received the contract. The rest of the project, the water line between Mechanical Buildings I and II, will be finished by April/May 1998.

Repairs or work for fish production equipment included:

-Main pump #6 torn down for repair; the pump had vibrations.

-Repairs were made to the channel crowder - wheels added to bottom of front crowder for uneven surfaces and metal welded to holding pond gate area to close spaces between channel crowder and walls. This should prevent adult fish from escaping past crowder.

-Bird netting was completely repaired and replaced, as needed, on all fish production systems; sanding and painting of net standards was completed.

-Repaired two pond aerators and ordered additional aerators along with chemical pumps to facilitate formalin treatment of outside rearing ponds.

-Fabricated a weather proof box for production chemical pump for outside treatment. Installed junction boxes for future expansion/electrical circuit needs in Mechanical I.

-Completed spawning room repairs, including lift basket repair, a foot switch and air valve on the guillotine knife and fabricated and redesigned equipment for spawning area including; a steel spawning table, a new rack for holding adult males and water flow for an upper level stainless steel table.

-Repaired fish ladder barrier gate.

-Rebuilt male racks in spawning room for adult salmonids.

-Remodeled egg picker table and plumbing.

-Painting and pipe insulation repair for Mechanical I net disinfection area.

-Repaired Magic Valley fish pump and fabricated attachment for lifting fish pump baskets. Repaired left cylinder for dewatering tower on a Magic Valley fish pump.

-Repaired pit-tagging station for FRO and tail screen Pond 29, chinook raceways.

-Replaced grate on Pond 9.

-Fabricated oxygen bottle holder for production tank for fork lift.

-Replaced rear gate cable #2 channel crowder.

-Repaired air leaks on spawning table and adjusted cables.

Work or repair to structures, buildings or basic equipment included:

-The maintenance crew erected a 50' Christmas tree made from strings of lights with a 7' star on the highway 12 side of the hatchery.

-Installed new lighting in the two Mechanical buildings.

-Replaced lights on shop and pump house.

-Installed new water cooler in the feed building.

-Painted the wall in Mechanical I and poured 1.75 yards of concrete for Mechanical I production net disinfection area.

-Installed junction boxes for future expansion/electrical circuit needs in Mechanical I.

-Fabricated a cage enclosure for the lab storage and I&E storage.

-Replaced circulating pump for main building heating system.

-Replaced HVAC pump system in the furnace room.

-Replaced drain valve on tank on Mechanical building I.

-Replaced pop off valve #2 compressor in Mechanical building I.

- Removed main pump #4, repaired and re-installed #4 main pump motor.

-Repaired Mechanical building I lighting problems.

-Repaired header pipe Pond 13.

-Repaired and cleaned valves on two low flow ponds System III.

-Repaired broken water pipe in the Nursery.

-Rebuilt main pump #6.

-Removed old fire and maintenance line and replaced with new air line in incubation room, hooked up a new rotary screw compressor for spawning room equipment.

-Painted heat exchangers Mechanical building I and cleaned and painted Systems II and III reuse pumps.

-Cleaned and painted System II channel pumps.

-Replaced holding pond II gate operator valves.

-Repaired air leak in incubator room.

-Installed new heater unit for pump house generator set.

-Replaced check valve and end cap compressor in Mechanical building I.

I/E and other maintenance projects included:

- -Installed public address system in the spawning room public viewing area balcony for use on group tours.

-Assisted contractors with LAN system preparations.

-Repaired water distiller.

-Cut and welded ground plates for FRO's Jill Olson's radio tracking project.

-Repaired and replaced air dryer for the ozone system.

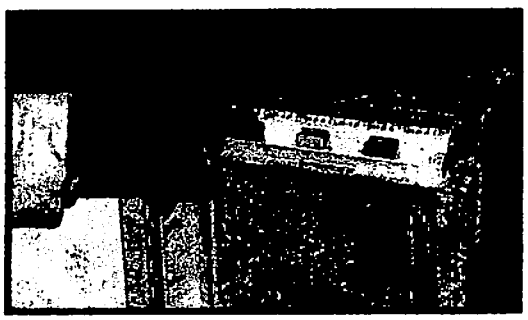
-Installed chiller line into head tank incubator room.

- EQUIPMENT -

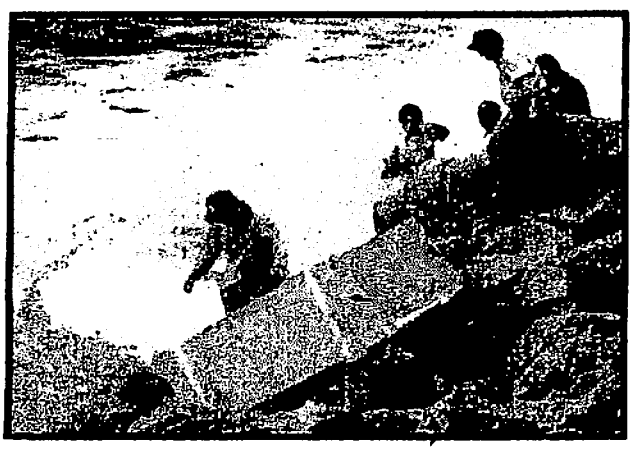
Shop Welder	$2,650.00
Shop Heater, Waste Oil	$5,056.00
Pump Impellers	$4,300.00
Portable Oxygen Meter	$ 961.00
Tray Incubators	$4,298.00

REPAIRS, IMPROVEMENTS AND NEW EQUIPMENT - PHOTOS

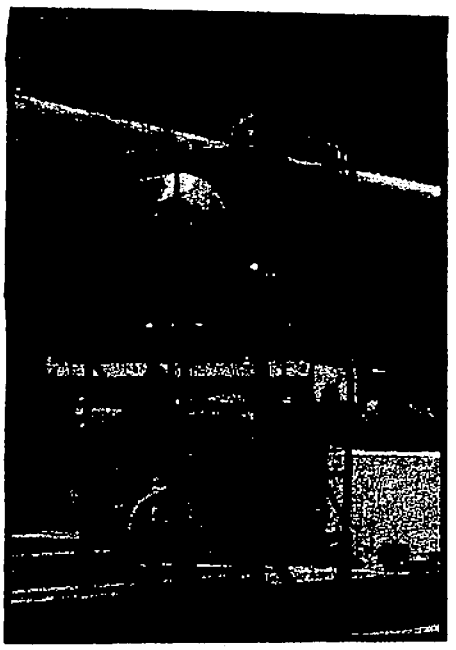
Main pumps, left, were torn down and repaired because vibrations and damaged impellers caused operational problems.



Maintenance division staff fabricated several new features for the spawning room, including an elevated push-button counter (left) and improved water flow system for upper level stainless inspection table (right).

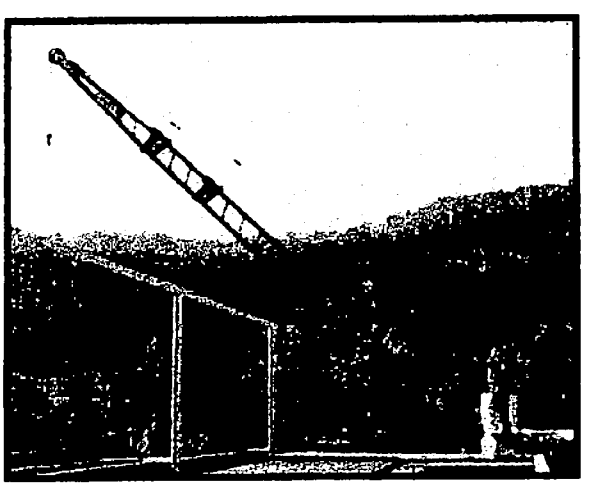


High river flows in April destroyed the main outflow pipe into the Clearwater River as steelhead smolts were being released. Maintenance crew quickly made a wooden chute (left), allowing releases to continue.



Summer Job Training Partnership Act (JTPA) crew finished the bird netting project over outdoor rearing ponds. They sanded and painted the support standards, then strung nylon mesh over all Burrows ponds.

Maintenance worker Hubert Sims cleans out a blocked low flow valve in System III. The valve became plugged with filter media.



Above, Corps of Engineers crane helps replace the hatchery outflow pipe. At right, maintenance worker Dave Trainor installs the fire siren system on the main hatchery building.

ADMINISTRATIVE ACTIVITIES

Meetings, Training, and Travel

Jimmy Brown, COE, Walla Walla and Mike Deitrich performed an EEO inspection on October 2 for the hatchery. This is very similar to an OSHA inspection. Dave Owsley and Dave Clifford assisted with the inspection. A report will be finalized in November.

Keith Marshal with the Nez Perce Tribe Wolf Recovery Program met with Dave Owsley on October 2. Several boxes of wolf feed are being stored in the large freezer in the feed building. The Complex will assist the program with space in the cold storage area in the feed building.

Ben Greene and Dave Owsley conducted a demonstration and training session October 8 of the hatchery alarm system and the incubator chiller.

Bill Ayotle of the Federal Highway Administration met with Dave Owsley on October 17 regarding the current railroad overpass rehab and future inspections.

Dave Owsley, Kathy Clemens, Carl Berger and Eric Hutchins traveled to Bonners Ferry to meet with the Kootenai Tribe on October 17 to discuss the Kootenai River Sturgeon Project. Owsley is assisting the project with water treatment designs and techniques. The group also visited the IDFG Sandpoint hatchery.

Dave Owsley traveled to Reno, Nevada on October 30 to attend the Western Regional Aquaculture Committee meeting. Mr. Owsley is the technical advisor for the solids removal in aquaculture project.

Dave Owsley and Diane Praest attended the Region 1 Budget training in Boise November 12-15.

Bill Miller traveled to Seattle for a NMFS workshop on assessing extinction risks for west coast salmon on November 13 and 14.

Dworshak fall coordination meeting was on November 19 at Dworshak hatchery.

On November 15 Bill Miller met with Steve Huffacker, IDFG, on hatchery management coordination, coho issues and other items.

Amy Kishpaugh attended a class in Missoula on November 18 for Management Skills for Secretaries.

Bill Miller, Kathy Clemens, Michelle Bouchard, Thomas Trock and Kip Bottomley attended the Northwest Fish Culture Conference.

On December 4 Dave Owsley represented the complex at a COE meeting in Orofino at the Orofino Jr. High School. The meeting was in regard to the grouting of a leak in Dworshak Dam and drawing down of the reservoir this summer.

Dave Owsley attended a Western Regional Aqua Culture meeting in Hagerman, Idaho. Owsley is the Technical Advisor for a group working on solids removal from hatcheries.

Bill Miller attended most of the monthly Clearwater Management Council Meeting.

Bill Miller, Dave Owsley and Charlie Krahenbuhl, COE project leader, met on two occasions in January to discuss safety concerns and OSHA and ERGO inspections. There was a conference call with Dan Diggs and Colonel Curtis on the 97 and 98 budget for the Dworshak Complex and a discussion on OSHA and ERGO safety concerns.

Dave Owsley and Dave Clifford met with Charlie Krahenbuhl and Mike Dietrick for a follow-up discussion of safety on OSHA and ERGO inspections at Dworshak NFH.

Bill Miller, Dave Owsley, Bob Semple, Howard Burge, Kathy Clemens, Kip Bottomley and Glenn Green attended the Project Leaders meeting in Reno. Bottomley also visited Lahontan NFH to view recent flood damage.

Bill Miller met with David Cummings, from the Nez Perce Tribe legal staff, on Kooskia papers the tribe requested under Freedom of Information Act (FOIA).

Bill Miller met with Nez Perce Tribe on fish production options at FWS hatcheries to help meet tribal needs.

Ray Rosales, Terry Weeks and Gerry Fogleman attended a two-day training in Meridian Idaho, called "Theory of Real Maintenance" on January 28-29.

A Dworshak Complex supervisor's meeting was held January 27.

Bill Miller, Dave Owsley, Diane Praest and Mary Lou Galloway completed the ethics course supplied by the RO on a computer disk.

Production supervisor, Bob Semple attended an outplanting meeting with FRO, IDFG, USFS and the Nez Perce Tribe on February 19.

Michelle Bouchard and Bill Miller attended the annual AFS Idaho chapter meeting held in Boise, during February 24-27.

Bill Miller, Kathy Clemens and Mary Lou Galloway attended Region 1 Administrative Training in Boise February 11-13.

Diane Praest, Rod Funderburg, Pat Bigelow, Aaron Garcia and Randy Bowen attended Mid-Career Retirement Training in Reno, Nevada February 19-21.

Amy Kishpaugh attended Personnel Management Training in Seattle, Washington February 19-21.

Complex Manager, Miller attended the Project Leaders Meeting for Fish and Wildlife Offices in Reno, Nevada February 4-6.

Complex Manager Miller along with ARD Shake and FRO Project Leader Burge attended a meeting with the Nez Perce Tribe's Fish and Wildlife Subcommittee on fish production issues and development of an MOU between Service and Tribe.

Dave Owsley gave a tour and talk to Make Falter, University of Idaho Professor and 20 graduate students on February 11.

The Spring Coordination meeting was held March 11, at the Dworshak conference room. Attendees were Dworshak NFH, Idaho FRO, Dworshak Fish Health, Kooskia NFH, Idaho Fish and Game, Nez Perce Tribe, Army Corps of Engineers and National Biological Survey.

Dave Owsley and Dave Clifford met with Mike Dietrick and Lynn Hinton, COE, on the underground storage tank (UST) upgrade at Dworshak.

Dave Owsley attended "The Role of Supervisors and managers in EEO" training on March 4-6 in Grangeville, Idaho.

Complex Manager Bill Miller, attended a class on Team Building in Denver, Colorado on March 17 - 21.

Dave Owsley, Bob Semple and Ray Rosales met on March 11 to discuss government quarters at Dworshak.

On March 20 Dave Owsley attended the Clearwater Management Council meeting.

Dave Owsley and Dave Clifford met with Chuck Palmer, Mechanical Design Section, COE, Walla Walla, on the reservoir water line to be tied into Mechanical Bldg. II. This will allow for additional heating for water in the nursery building using the two large boilers in Mechanical Bldg II.

Dave Owsley met with the maintenance crew to discuss retirement and EEO information on March 24.

Dave Owsley met with Mike Dietrick, COE safety officer, on OSHA March 25.

Dave Clifford, Rick King, Terry Weeks, Hubert Sims, and Gerry Fogleman attended a class by J&R Rigging in Spokane on April 10, as part of the safety training program.

Joan Sperber attended a one-day seminar, Grammar and Usage, in Spokane April 23.

Amy Kishpaugh and Diane Praest attended a seminar entitled Bridges to Opportunity at Lewis Clark State College in Lewiston on April 23. This was sponsored by the Lewis-Clark Chapter of

Professional Secretaries International.

Supervisor's meetings were held April 9 and 30.

Bill Miller met on April 3 with Gary Blefgen, R.O. Engineer, Rolf Wielick, Contractor for Sverlick, Kip Bottomley, and Dave Owsley on Kooskia weir replacement. Contractors presented some options which the field staff received and commented on. Project is moving forward.

Bill Miller met on April 4 with John Curry, private contractor, on the administration review of field offices. Our administration staff is being reviewed as part of a region-wide effort to assess job levels and grades of administration staff.

Bill Miller and Kip Bottomley met with Anan Raymond, Lee Sappington, and Leah Evans-Janke on archaeology work plans for Kooskia this summer. Evans-Jake will be the student on the field work this summer.

Complex Manager Miller attended a Clearwater Management Council Meeting. There was much discussion on the Clearwater Economic Byway plans. Contractor and Highway Department are changing the name to Northwest Scenic Byway.

Dave Owsley participated in a conference call with Tom Pruitt, manager of the Ouray NFH, and Bureau of Reclamation engineers, on an ozone system for treating the hatchery water supply at Ouray NFH.

Dave Owsley assisted the Nez Perce Tribe in designing fish tanks and aeration equipment.

Susan Sawyer traveled to Pittsburg Landing, to photograph and discuss the cooperative effort on the Fall Chinook acclimation facility.

Complex Manager Miller attended the 2 day Idaho Natural Resource conference in Boise.

Dave Owsley assisted Region 6 Engineers at the Dexter NFH new water treatment system design.

Dave Owsley and Kip Bottomley traveled to Finn Ranger Station May 20 to examine a surplus mobile home for possible relocation to Kooskia hatchery.

Joan Morgan, Office of Workers' Compensation Program, Seattle, gave two half-day presentations about Federal Injury Compensation May 22 in the main conference room. Thirty employees from the Complex, Dworshak Dam and Clearwater National Forest attended the training session. Amy Kishpaugh scheduled the program and coordination with other agencies.

Supervisor's meeting was held May 30.

Dave Owsley and Dave Clifford met with Chuck Palmer, Mechanical Engineer and Dick

Eilertson, Electric Engineer from COE, Walla Walla on the proposed reservoir water supply line to Mechanical building II for additional nursery heat on June 12.

Dave Owsley, Diane Praest and Kathy Clemens participated in the RO conference call on procurement practices and procedures that will be coming out in the future.

Dave Owsley and Dave Clifford interviewed workers at the Orofino Job Service Office for summer employment. Three people were selected for the FEMA work program.

Dave Owsley participated in a conference call on the Dexter Fish Technology Center water supply system.

Dave Owsley attended Pre-Retirement Training in Reno, Nevada the week of July 7.

Dave Owsley traveled to Portland on July 30-31 to meet with Project Leader, Mike Paiya, and Regional engineers on the Warm Springs reuse system project.

Dan Compton from Abernathy visited the hatchery on July 24 and discussed genetic issues and concerns with complex personnel.

A supervisor's meeting was held August 5 in the Complex conference room.

Dave Owsley traveled to Leavenworth NFH and met with Gary Bllefgen, Engineer in RO and Engineers from Sverdrup Engineering to look at weir designs for a future project at Kooskia NFH on August 19 and 20.

A chinook production planning meeting was held at Dworshak on August 19. Topics covered included adult outplants and egg takes for chinook in the Clearwater and Salmon drainages. Idaho Fish and Game, Nez Perce Tribe and FWS participated in this planning meeting.

Dave Owsley traveled to Bonners Ferry on September 10, to assist the Kootenai tribe on water problems at their sturgeon hatchery.

Dave Clifford and Dave Owsley met with Knight Construction and COE staff on the new reservoir water supply contract.

Supervisor's meetings were held September 3 and 30 in the Complex conference room.

Bill Miller and Dave Clifford met with Ron Bauer of Clearwater Power Company and Idaho Transportation Department on Ahsahka bridge replacement. Bridge replacement will impact power supply to the hatchery and needs to be addressed.

Bill Miller coordinated with the NPT for taking extra spring chinook salmon eggs and holding until eye up for the Tribe. The NPT will be providing a plan for these eggs.

Safety and Wellness

The Health Fair on October 23 was a success with 21 people attending.

Charles Lyons and Jeanne Bleeker, both registered nurses from the Lewis-Clark State College BSN program, presented an instructional program about Material Safety Data Sheets (MSDS) on December 11. Twenty-nine complex employees received MSDS training.

Jeanne Bleeker, R.N. and Chuck Lyons, R.N. presented a program on immunizations on February 5. Employees completed a questionnaire about immunization needs. Dworshak NFH will provide funds for tetanus shots for all employees who need and want the immunization.

On March 24, Dave Owsley met with the new safety committee. Rick King is the chairman with the other members being John Vargas, Joan Sperber, Jill Olson and Marilyn Blair.

Employees had the opportunity to get tetanus and hepatitis A and B immunizations and TB testing on March 26. The tetanus shots were paid by the Complex and other services were self-pay. The District Health Department supplied each person who participated with a Personal Immunization Record. Chuck Lyons and Jeanne Bleeker, both registered nurses in the LCSC Bachelor of Science program, gave a presentation on cancer, highlighting skin cancer and melanoma. Others participating in the Wednesday morning program were Linda Spooner of the North Central Health District, and Jamie Weeks, registered nurse from St. Joseph's Regional Medical Center.

A station safety meeting was held to discuss the recent safety upgrades and ways to avoid unsafe work areas and situations at the hatchery water intake.

Complex employees attended a lockout/tagout safety meeting and training session May 8.

Mike Dietrick, Safety Officer for the COE conducted a respirator fitness check for all Complex employees. All respirators checked out okay.

A Wellness Program, "Improving Communication and Stress Reduction," was presented by Jim Arnon of the pastoral staff of St. Joseph's Regional Medical Center on July 7. This was coordinated by Jamie Weeks, R.N.

CPR and first aid certifications were given to nine Complex employees on July 23, and recertification to 15 employees on July 30 by Ginger Christiansen of Clearwater National Forest.

Staffing

Marilyn Blair, Veterinary Medical Officer GS-0701-9, new appointment at Fish Health Center, effective October 13.

Complex employees receiving on-the-spot Performance awards at an employees meeting

December 18 included: Galloway, Kishpaugh, Owsley, Praest, Sawyer, Clifford, Greene, King, Rosales, Sims, Trainor, Weeks, Bouchard, Green, Greenland, Holloway, Izibicki, Oatman, Seldon, Trock, Vargas, Wright, Clemens, Bottomley, Fogleman and Funderburg.

Bob Semple, Supervisory Fisheries Biologist, GS-0482-12, transferred from Makah NFH on December 8.

Vern Holloway, Laborer, retired effective January 18.

Kim Seldon, Production Bio Science Aid, end of appointment January 3.

The Classification Study Workgroup scheduled April 3 and 4 for interviews with Mary Lou Galloway and Diane Praest at Dworshak Fisheries Complex. This is part of the Region 1 Administrative Classification Review.

Adam Izbicki, GS-048207 was promoted on February 2 to Biologist, GS-0482-9.

Glenn Green, Assistant Hatchery Manager, transferred Quinault NFH effective March 17.

Three employees in the administration section went to the 4/5/9 alternative schedule effective April 13, 1997. The office is open from 7:00 a.m. to 5:00 p.m. Monday through Thursday, with regular hours of 7:30 a.m. to 4:00 p.m. on Fridays. This schedule will continue until October 24.

Craig Eaton, Fishery Biologist, GS-0482-7, permanent appointment, effective April 13

Dennis Ochszner, Laborer, WG-3502-2, term appointment, effective April 13.

Kim Seldon, Bio Science Aid, GS-0404-4, term appointment, effective April 27.

Ron Oatman retirement effective July 31.

Diane Praest received an On-the-Spot Award for the extra effort she put in on the JTPA 3-day outing to Crooked River.

Terry Weeks promotion to Maintenance Mechanic effective August 3.

Amy Kishpaugh, GS-318-5, Secretary transferred to the National Park Service effective August 17.

Michelle Bouchard, GS-0482-9, resigned effective August 17.

Tim Rynearson from Express Personnel Services started August 11 in the Office Automation position.

Guy Eggert, Charles Thompson, and Connie Marsh from Express Personnel Services have been assisting in the Production section since August 11.

Amy Kishpaugh, Michelle Bouchard and Rick King received on-the-spot awards.

Griffin Walker, GS-186-5, Social Services Assistant appointment ended on September 28.

Kim Smathers took over the temporary position as Office Automation Clerk on September 29.

Other

Mike Millard, Washington, D.C. Office, was given a hatchery tour and briefing by Dave Owsley on October 3.

Dave Owsley presented a Hunter Safety video and discussion on October 8 at a monthly safety meeting for Dworshak Dam employees.

The 1999 COE budget was prepared and forwarded to R.O. for signature and submittal to COE.

Performance plans were completed in November.

A Christmas party was held for all Complex employees December 14 at the Greer Cafe.

Dave Owsley and family won 2nd place in the annual Christmas Lighting Contest in the Orofino area. Dave had several thousand lights on his house and property.

Dave Owsley assisted Jim McNulty, Regional Safety Officer, on an OSHA inspection at the

Dworshak Complex including Kooskia NFH.

Dave Owsley and Dave Clifford completed the annual COE property inventory.

Dave Owsley gave a tour to Tim Wick and fish truck drivers from Lower Granite Project on March 12.

On March 13 the Complex had a potluck for Glenn Green who transferred to Quinault Fish Hatchery effective March 17.

On March 12-22 Dave Owsley conducted a Hunter Education class for 42 students at Orofino Jr. High School.

Dave Owsley was presented with the Region II and State of Idaho instructor of the year awards at a banquet in Lewiston, Idaho on March 22.

Dave Owsley and Dave Clifford gave tours to 40 Aquaculture students and Dr. Sandra Ristow from W.S.U. on March 25.

Dave Owsley assisted EPA on the annual inspection for the NPDES discharge permit.

Dave Owsley, and wife Janet, traveled to Boise where Dave received a lifetime hunting and fishing license from IDFG at the Commissioners meeting for being named "Instructor of the year" for State of Idaho Hunter Education.

Dave Owsley represented the Complex at the Federal Day Care Center open house May 8.

Complex employees enjoyed a post release party on May 10.

Mary Lou Galloway worked on a special project involving quarters' reconciliation in the Budget and Finance section of the regional office May 12-16.

A Complex annual power outage was held May 14.

A sport fishing season for spring chinook salmon started in the Clearwater River May 17. The last limited sport season on the Clearwater was in 1992. The Nez Perce tribe fishery started on the Clearwater May 23. Reports are that fishing has been good with a number of early fish being harvested by Complex employees.

A Local Area Network (LAN) installation was completed May 19. A team comprised of Steve Toretta, Doug Robertson and Anita Nelson from IRM section of the regional office, and Randy Bowen of IFRO did the installation, training and troubleshooting.

Summer youth JTPA program at Dworshak started June 2 with five young adults and one crew leader.

A potluck luncheon was held at noon on July 25 in honor of Ron Oatman's retirement from 16 years of government service.

JTPA student workers Steven, LeeAnn, Tami and Melissa along with Griff Walker and Diane Praest as chaperones went on a work detail at Clearwater Hatchery satellite stations. Work included replace large rocks around a weir (for stabilization) at Five Mile Pond, construction of a weir made of rocks at the upper Crooked River satellite, and digging a 5" deep pad for a 12' by 15' concrete slab. The crew enjoyed these projects and received compliments for their good work from IDFG employees.

Cake and ice cream were served at the morning break on July 25 in honor of the JTPA youth group. The five participants, Steven Anderson, LeeAnn Gumfory, Melissa Marsh, Tami JeanBlanc, and Judy Cottenham did an excellent job on such projects as Kid's Fishing Day at Dworshak and Kooskia hatcheries, outplanting fish with Clearwater Hatchery, a 3-day work detail at IDFG's facility at Crooked River as well as routine duties like pond cleaning. Griffin

Walker served as Crew Leader/Coordinator with administrative assistance from Diane Praest.

Howard Burge assisted the maintenance crew by scuba diving in the main pump house to retrieve a large bolt that proposed a potential hazard to the main pump.

Kip Bottomley submitted two "Request for Cultural Resource Compliance" project forms to our Cultural Resource Team - Anan Raymond, Tualatin NWR for review on September 12.

Dave Owsley conducted a Hunter Education course from September 17-27, at the Orofino High School. Forty students completed the course.

Dave Owsley gave a tours to Tapio Kivri, a graduate student from Finland.

Maintenance section sponsored an after hour's car wash to benefit the Combined Federal Campaign on September 25. Program was a success.

Dworshak Employees
- FY 97 -

Name	Position Title	Period of Employment	Status
Bouchard, Michelle A.	Fishery Biologist	10/01/96 08/15/97	Permanent
Clifford, David E.	Work Supvr. (Maint.)	10/01/96 09/30/97	Permanent
Eaton, Craig A.	Fishery Biologist	04/13/97 09/30/97	Permanent
Galloway, Mary Lou	Program Assistant	10/01/96 09/30/97	Permanent
Green, Glenn S.	Fishery Biologist	10/01/96 06/16/97	Permanent
Greene, Benny C.	Electrician	10/01/96 09/30/97	Permanent
Greenland, Rocky E.	Fish Culturist	10/01/96 09/30/97	Permanent
Holloway, Vernon C.	Laborer	10/01/96 01/18/97	Temporary
Izbicki, Adam H.	Fishery Biologist	10/01/96 09/30/97	Permanent
Jenks, Alfred H.	Maintenance Worker	10/01/96 02/01/97	Permanent
Kishpaugh, Amy C.	Secretary	10/01/96 08/15/97	Permanent
Miller, William H.	Hatchery Manager	10/01/96 09/30/97	Permanent
Oatman, Ronald W.	Fish Culturist	10/01/96 07/31/97	Permanent
Ochszner, Dennis J.	Laborer	04/13/96 09/30/97	Temporary
Owsley, David E.	Environment Engineer	10/01/96 09/30/97	Permanent
Praest, Diane E.	Budget Assistant	10/01/96 09/30/97	Permanent
Seldon, Kimberly	Bio-Science Aid	04/27/97 09/30/97	Temporary
Rosales, Raymundo A.	Maintenance Worker	10/01/96 09/30/97	Permanent
Sawyer, Susan	I&E Specialist	10/01/96 09/30/97	Permanent

Semple, Robert A.	Assistant Manager	12/08/96 09/30/97	Permanent
Sims, Hubert M.	Maintenance Mechanic	10/01/96 09/30/97	Permanent
Sperber, Joan	Office Automation Clerk	10/01/96 09/30/97	Permanent
Trainor, David A.	Welder	10/01/96 09/30/97	Permanent
Vargas, John J.	Fish Culturist	10/01/96 09/30/97	Permanent
Walker, Griffin	Social Services Assistant	06/02/97 09/30/97	Temporary
Weeks, Terry C.	Maintenance Worker	10/01/96 09/30/97	Permanent
Wright, Benjamin A.	Fish Culturist	10/01/96 09/30/97	Permanent

Other Staffing
FY 97

Summer Youth Program

Anderson, Steven	Student Worker	06/09/97 08/01/97
Cottenham, Judith	Student Worker	06/09/96 08/01/97
Gumfory, LeeAnn	Student Worker	06/09/97 08/01/97
Jean Blanc, Tami	Student Worker	06/09/97 08/01/97
Marsh, Melissa	Student Worker	06/09/97 08/01/97

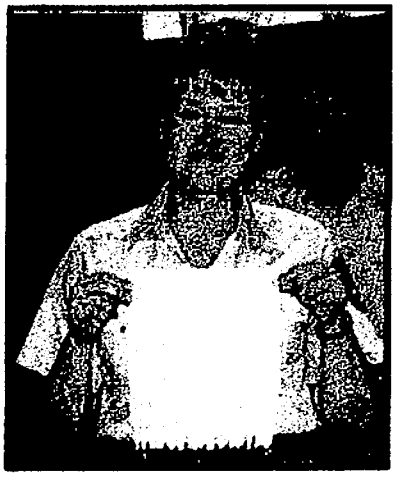
Express Personnel Employees

Eggert, Guy	Bio-Aid	04/06/97 09/30/97
Hall, Sorena	Clerk	09/11/97 09/19/97
Ochszner, Dennis	Laborer	12/22/96 04/11/96
Rynerson, Tim	Clerk	08/08/97 09/10/97
Taylor, Charles	Laborer	08/16/97 09/29/97

STAFFING, ACTIVITIES, MEETINGS, TRAVEL AND TRAINING - PHOTOS

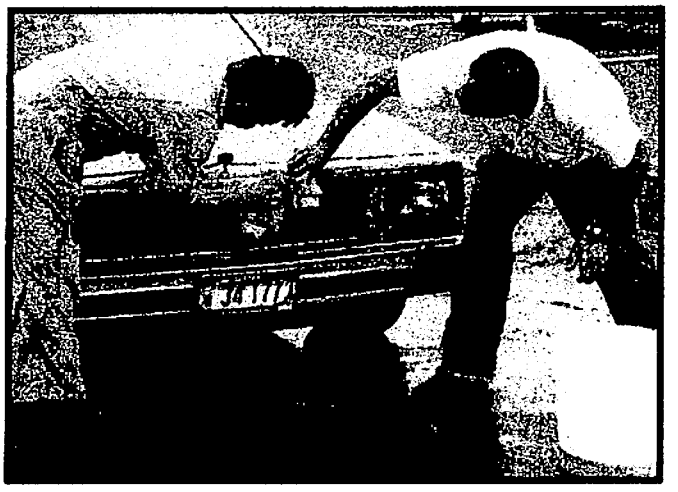
New hires in the hatchery Production section were (left) Craig Eaton, Fishery Biologist and (right) Robert Semple, Assistant Hatchery Manager and Production Supervisor.

Changes in the Production staff included, clockwise from above: Vern Holloway, Laborer, retirement; Glenn Green, Fishery Biologist, Production Supervisor, transfer; Ron Oatman, Fish Culturist, retirement. Each was given going-away potluck and gifts.



Michelle Bouchard, Fishery Biologist (left) resigned, got married and moved, and Amy Kishpaugh, Secretary, (right) shows her transfer orders for a new position with the National Park Service in Arizona.

Complex manager Bill Miller enjoys a root beer float as part of the annual Combined Federal Campaign fund drive. Below, the maintenance crew sponsored a car wash, with proceeds going to the Rocky Mountain Elk Foundation. With a bake sale, chili feed, and payroll deductions, total contributions exceeded $1000.



OUTREACH AND VISITOR ACTIVITIES

The second year of the Information and Education program at Dworshak Fisheries Complex experienced an increase in general public and school group visits to the site, and expanded outreach efforts in local communities. A new curriculum-based educational trunk was popular with area schools for conducting pre-visit lessons in fishery management. The annual Open House and Kids Fishing Day was a success, with new activities available, corporate sponsorships of prizes and stations, and a new attendance record set.

Contacts and interpretive program planning with external agencies developed throughout the year, especially with Army Corps of Engineers - Dworshak Dam visitor services, and the National Park Service - Nez Perce National Historical Park. Local media continued their support of the hatchery programs with public service announcements, news stories and photos.

Volunteers assisted during the spawning season tours, and with the Open House event, contributing several hundred hours throughout the year. Dworshak National Fish Hatchery was the site for several student workers to participate in "On-The-Job-Training" programs, as part of cooperative efforts with local school districts.

Monthly highlights for outreach and educational activities during the year are listed below :

October: Sixty wildlife management students from Washington State University toured the complex; 3 biologists and manager Bill Miller spoke to the group.

Miller gave a short tour and talk to representatives of Potlatch Corporation and Alliance for America.

November: Orofino Chamber of Commerce sponsored a high school sophomore for the day at the hatchery; she assisted in the nursery and Fish Health Center.

University of Idaho sponsored a high school junior for a day as part of a mentor program; he worked with Production, Fish Health and FRO staff.

December: The *"Newcomers Guide to Clearwater County"* was published, with a feature article on Dworshak hatchery.

The Complex and the Army Corps combined efforts at a food drive for the Orofino Thrift Store and Food Bank outlet. Over 400 pounds of canned and boxed goods were collected.

January: Flyers and press releases on steelhead spawning were sent to area media. The hatchery will coordinate school tour reservations this year.

February: The *"Fin Bin"* educational trunk arrived along with teacher guidebooks; school tour

reservations began; talks given to RSVP Senior Center and Clearwater Retired Teachers/AARP monthly meetings for recruiting hatchery volunteers.

Visitor balcony audio system completed for upcoming tour season; Orofino High School and the hatchery will begin a *"Student to Work"* program. Two seniors with career plans in public contact will work with Information/Education Specialist Sawyer during spring semester.

March: Dave Owsley, Deputy Complex Manager, conducted a Hunter Education course for 42 students in Orofino. Owsley received a regional and the State of Idaho Instructor of the Year awards from the Idaho Department of Fish and Game.

The annual Washington State University Aquaculture tour was led by Dave Owsley and Dave Clifford. Forty students participated.

Susan Sawyer taped a promotional message on TV station KLEW and KRLC radio in Lewiston, about steelhead spawning season. KLEW visited the hatchery and taped manager Bill Miller regarding the proposed listing of wild steelhead as endangered.

Susan Sawyer attended and co-instructed a 2-day *"Project WET"* teacher workshop at Dworshak Dam.

April: Earth Day activities were conducted for 170 4th grade students over 2 days at Big Eddy marina on Dworshak Reservoir. This was the third year the multi-agency program was presented.

The Complex sponsored a booth at the Kiwanis Kids Fair in Orofino. Activity packets were handed out to 80 children. The two I/E student workers designed and staffed the display booth.

First annual kids poster contest was announced to Orofino 4th graders. Winners to be announced during June's Open House event.

Idaho Fish and Game, along with Pulp and Paper Workers Resource Council sponsored a streamside egg incubation project for 5 area high schools. The hatchery is providing 5000 steelhead eggs for the project.

A career talk was presented to the Wildlife Society at Washington State University.

American Wildlife Calendars owner/photographer toured the hatchery and took photos of steelhead for the 1998 fish calendar. The hatchery will be featured in December 1998 with photos and text.

May: Nez Perce Tribe borrowed slides for a publication on salmon of the Columbia River basin.

Clarkston High School sent 4 students to job-shadow hatchery staff for a day.

The hatchery participated in annual *"Water Awareness Week"* activities for 90 local 6th graders.

Susan Sawyer visited Lakeside Middle School in Plummer to follow up on their classroom incubation project. They presented Trout Journals, and showed their aquarium of steelhead fry.

Susan Sawyer, and fisheries biologists Ralph Roseberg and Thomas Trock presented a salmon unit as part of Spring Valley Environmental Awareness Days; over 370 6th graders attended.

Student volunteer Kristi Ponozzo coordinated a presentation for the Clearwater Art Club. Susan Sawyer demonstrated GYOTAKU, Japanese fish printing. The club will staff that booth at the Open House in June.

The Orofino Job Service was contacted regarding a summer youth employment program. Job descriptions and interview questions were written, and a staff panel selected 5 students for the summer program, under the Job Training Partnership Agreement (JTPA).

June: Open House activities dominated the month. The hatchery and Dworshak Dam coordinated the first *"FINS and FLOATS"* event, combining Kids Fishing Day and Water Safety Fair in one day. The Corps sponsored window posters advertising the event; Susan Sawyer and Joyce Dunning of the Corps taped a segment on KLEW-TV3 for the event. Local radio KLER matched on-air ad time, and did live remote broadcasts at both locations.

Hatchery staff visited Orofino schools regarding Open House; 700 students were contacted.

Sponsorships from 13 fishing industry manufacturers and 15 local businesses were received for the Open House. The Orofino High School Booster Club again sponsored a concession stand, and donated pop for prizes. The poster contest entries were judged and prizes awarded to the top 5 finishers. Three non-partisan judges were: State Senator McLaughlin, Lewiston outdoor writer Bill Loftus, and Orofino City Manager Rick Lamm, who donated pool passes to all contestants.

During Open House there were 831 children registered to fish; another 1700 general public attended.

July: Idaho Public Utility Commission toured with 90 students as part of their summer scholarship program.

Spring chinook salmon spawning flyers were distributed to area media outlets.

Over 1100 slides of the complex were categorized and filed in new storage boxes.

Susan Sawyer was named as Co-chair of Gyotaku station at Idaho Salmon & Steelhead Days held in Boise, Idaho.

Elementary and college teachers toured the hatchery to arrange class visits this fall.

August: Local media covered spring chinook salmon spawning activities. Many foreign tourists visited the complex this month.

A fair booth was designed for the Clearwater County Fair, using historic fish culture artifacts from DC Booth Hatchery in South Dakota.

Susan toured the Morrison-Knudsen Nature Center in Boise, as part of Idaho Salmon and Steelhead Days planning.

A site visit was made to Leavenworth National Fish Hatchery in Washington, to return the Salmon Maze and tour with I/E staff.

September: US West phone directory requested photos and revised text for an expanded listing in next years' publication.

University of Idaho Environmental Sciences class toured with 90 students.

Susan Sawyer attended Idaho Salmon and Steelhead Days in Boise, presenting *Gyotaku* activities to 2700 4th grade students, and 1000 general public.

The hatchery sponsored an historic exhibit at the Clearwater County Fair, for their 50th anniversary of the event. The booth was unstaffed, and received a third place for educational displays.

Grant sources are being contacted for possible funding of outreach/education projects at the hatchery next year.

Susan visited Spring Creek NFH in Cook, Washington to assist at their visitor weekend, return borrowed exhibit items, and tour the Lower Columbia Gorge Complex with I/E staff.

Visitor Use Statistics
Dworshak National Fish Hatchery - Fiscal Year 1997

Type of Program		# of contacts	% change from FY96
Visitors Touring Dworshak Hatchery (Register sign-ins and self-guided tour)		**13,570**	**+37%**
Guided Tour Groups	**61**		**+10%**
Total Visitors -		**1883**	**+105%**
Open House attendance -	Kids 12 & under	**831**	**+19%**
Others		**1700**	**+240%**
Off-site Programs -	**14**		**+28%**
Total Contacts -		**4185**	**+103%**
Fair Booth contacts (est. from total attendance) -		**750**	**+20%**
Grand Total Contacts for FY 97 --		**22,919**	------
Total Increase/Decrease Annual Visitation -		------	**+27%**

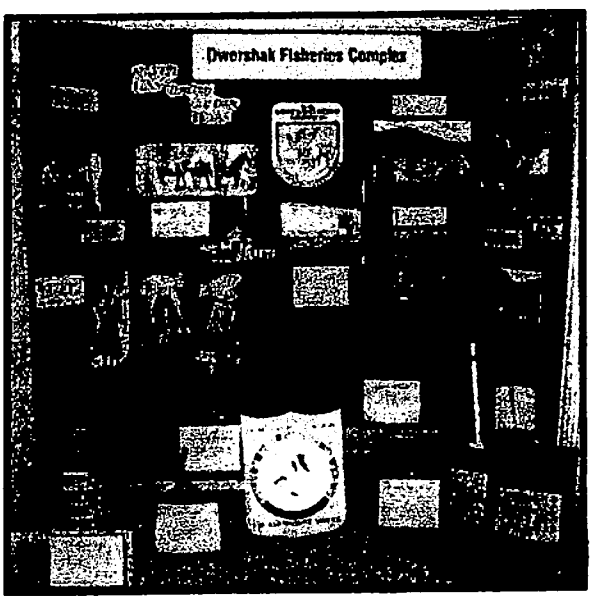
OUTREACH AND VISITOR ACTIVITIES - PHOTOS

Information/Education Specialist Susan Sawyer leads a school tour through the hatchery. School group visits increased by 10% as word of the education program spread.

Other outreach activities included, clockwise from above left, Earth Day event for area 4th graders at Dworshak Reservoir; Kiwanis Kids Fair booth, staffed by student volunteers Jackman and Ponozzo; Spring Valley Environmental Awareness Days with biologist Trock talking to 6th graders; and streamside incubation projects raising hatchery steelhead eggs (biologist Trock giving eggs to Owen Squires of the Pulp and Papermill Workers Council, with Larry Barrett of Idaho Fish and Game looking on.

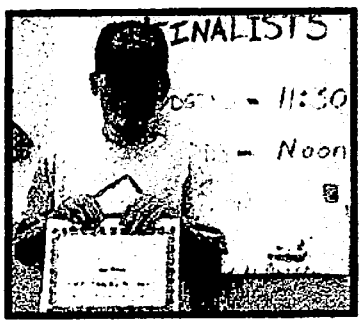
In September, the first Idaho Salmon and Steelhead Days event was held in Boise. I/E Specialist Susan Sawyer (right, center) attended as co-chair of the *Gyotaku* fish print station. Above left, Idaho Governor Phil Batt watches the print process, with Idaho Fish and Game director Steve Mealey (red shirt, behind).

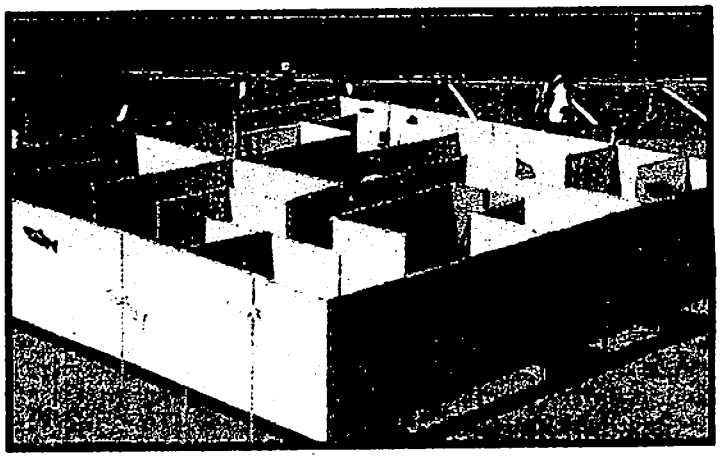
The Complex sponsored a booth at the 50th Clearwater County Fair. Several historic fish culture artifacts were displayed, and the booth won third in educational exhibits.



OPEN HOUSE AND KID'S FISHING DAY - JUNE 14, 1997

A record 831 children 12 years and under registered to fish, and over 1600 other visitors attended the 7th annual event. KLER radio did a live remote broadcast, there was a poster contest, the Amazing Salmon Maze entertained families, and Gyotaku was very popular with the children. The Army Corps of Engineers designed and constructed a fish cleaning table for the event, and thirteen manufacturers donated door prizes and fishing equipment. Over 30 volunteers helped the day run smoothly and everyone had a good time.





COOPERATIVE PROGRAMS

Complex personnel (Dworshak National Fish Hatchery, Kooskia National Fish Hatchery, Dworshak Fish Health Center, and Idaho Fisheries Resource Office) worked closely with the following agencies and groups to accomplish various activities.

-Idaho Department of Fish and Game (IDFG)
  Boise Office
  Lewiston Office
  Salmon Office
  Clearwater State Hatchery
  Idaho State Historical Preservation Office
-National Biological Service
  Seattle Research Center
  Columbia River Research Laboratory at Cook Washington
-Corps of Engineers
  Walla Walla District
  Dworshak Dam and Reservoir Project
-Natural Resource Conservation Service
-Bonneville Power Administration
-Cooperative Fishery Research Unit (CFRU) -University of Idaho
-Nez Perce Tribal Fisheries
-Kootenai Tribal Fisheries
-National Marine Fisheries Service (NMFS)
-University of Idaho
-Washington State University
-Clearwater National Forest
-Clearwater County Sheriff's Office
-Retired Senior Volunteer Program (RSVP)
-Joint School District #171
-Idaho Department of Employment
  Job Training Partnership Act (JTPA)
-Federal Emergency Management Administration (FEMA)
-Pulp and Paperworkers Resource Council
-National Park Service
-Idaho Department of Employment
-Express Personnel Service
-Wolf Research and Education Center
-Lewis-Clark State College
-Lewis and Clark Recyclers
-NADL Recycling

Steelhead carcasses were, as in recent years, received by a local processor on spawning days to be processed, frozen, and made available to several commodity programs administered through the Bureau of Prisons. The hatchery provides cold storage space for the processed fish until transferred for distribution.

Eggs and small fish were furnished to other agencies and university groups, as approved for study purposes, i.e., environmental testing, genetic experiments, and ongoing bacterial kidney disease monitoring. Local high school classes conducted streamside incubation studies using hatchery steelhead eggs.

Two semi-annual coordination meetings were held at Dworshak with Idaho Department of Fish and Game, Nez Perce Tribe, Corps of Engineers and other Service groups to review hatchery production and to discuss Clearwater River fishery activities. A meeting in November of 1996 was followed by another in March 1997.

Over 220 pounds of paper was recycled through an agreement with Lewis and Clark Recycling in Lewiston. NADL in Orofino continues to collect hatchery cardboard.

Two volunteers contributed over 300 hours of service to assist with public viewing during Dworshak's steelhead spawning operations in the spring.

Environmental Engineer Owsley continued to assist federal, state, tribal and private agencies on water treatment, holding design and other related facility operations. Numerous information mailings, telephone calls, personal contacts and site visits were made throughout the year. Owsley participated on several task forces and was involved in formal presentations and work groups as requested.

Distribution trucks and drivers from the COE assisted the hatchery in hauling steelhead smolts upriver from the hatchery. This assistance has been ongoing since 1982 when the hatchery first began releasing fish offsite.

The hatchery works closely with IDFG Clearwater Hatchery in the operation of the reservoir pipelines furnishing water to the two hatcheries. Temperature monitoring and valve operations were closely communicated to assure both parties were understanding of each other's needs.

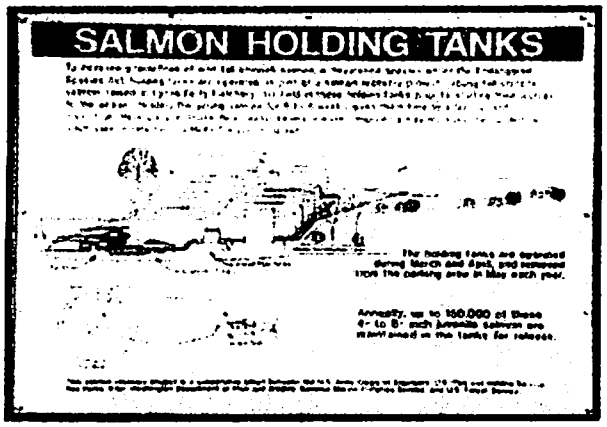
Several hatchery employees assisted Idaho FRO with fish monitoring and sampling activities.

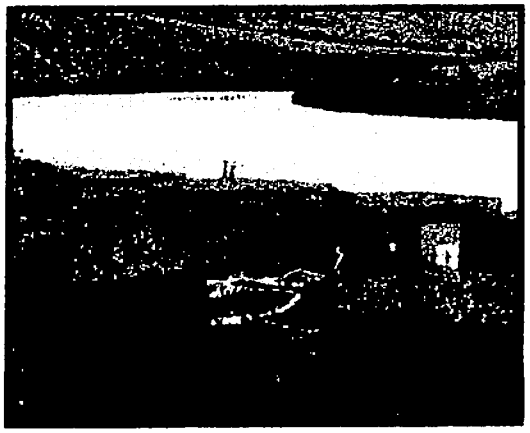
For the third year, I/E Specialist Susan Sawyer represented the FWS as part of the Interagency Earth Day planning committee. A 2-day event for three hundred and fifty 4th grade students was held at Big Eddy Marina in April.

The summer youth work program partnered with Idaho Department of Employment to employ 5 high school students. The state also provided 2 laborers under the flood relief program funded by the Federal Emergency Management Agency. They repaired extensive damage to the bird

netting and standards and the hatchery outflow pipes.

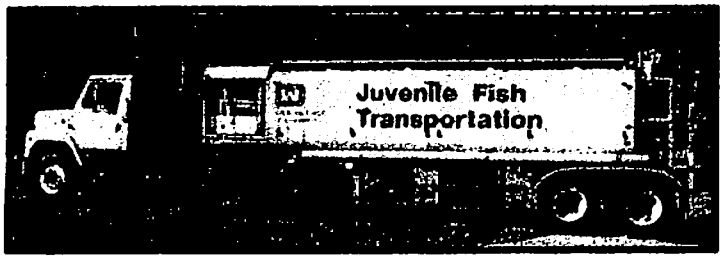
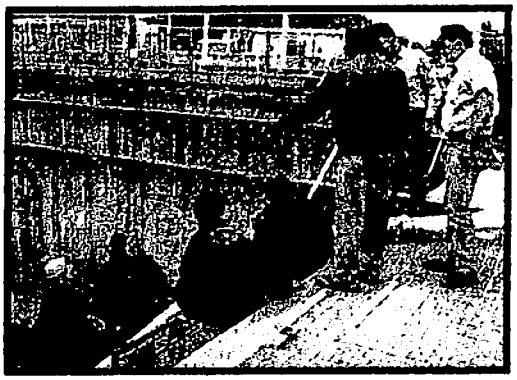
COOPERATIVE PROGRAMS - PHOTOS





The hatchery participated in the juvenile Fall chinook rearing program at Pittsburgh Landing in Hells Canyon. Above is the entrance sign; at right are the acclimation tanks next to the Snake River.

The complex worked with the state Job Service summer youth program to employ high school students for 6 weeks. They are from left: LeeAnn Gumfory, work leader Griffin Walker, Melissa Marsh, Tami JeanBlanc, Judith Cottenham. Not pictured is Steven Anderson.



Army Corps provided trucks and drivers, above, to outplant juvenile fish in April. At right, members of the Nez Perce Tribal Salmon Corps prepare to unload Coho salmon fry into a rearing pond at the hatchery. The tribe provides on-site care until the fish are released.