ANNUAL REPORT

FISCAL YEAR 1996

DWORSHAK NATIONAL FISH HATCHERY

AHSAHKA, IDAHO

William K. McCle 12/20/96

Complex Manager **Date**

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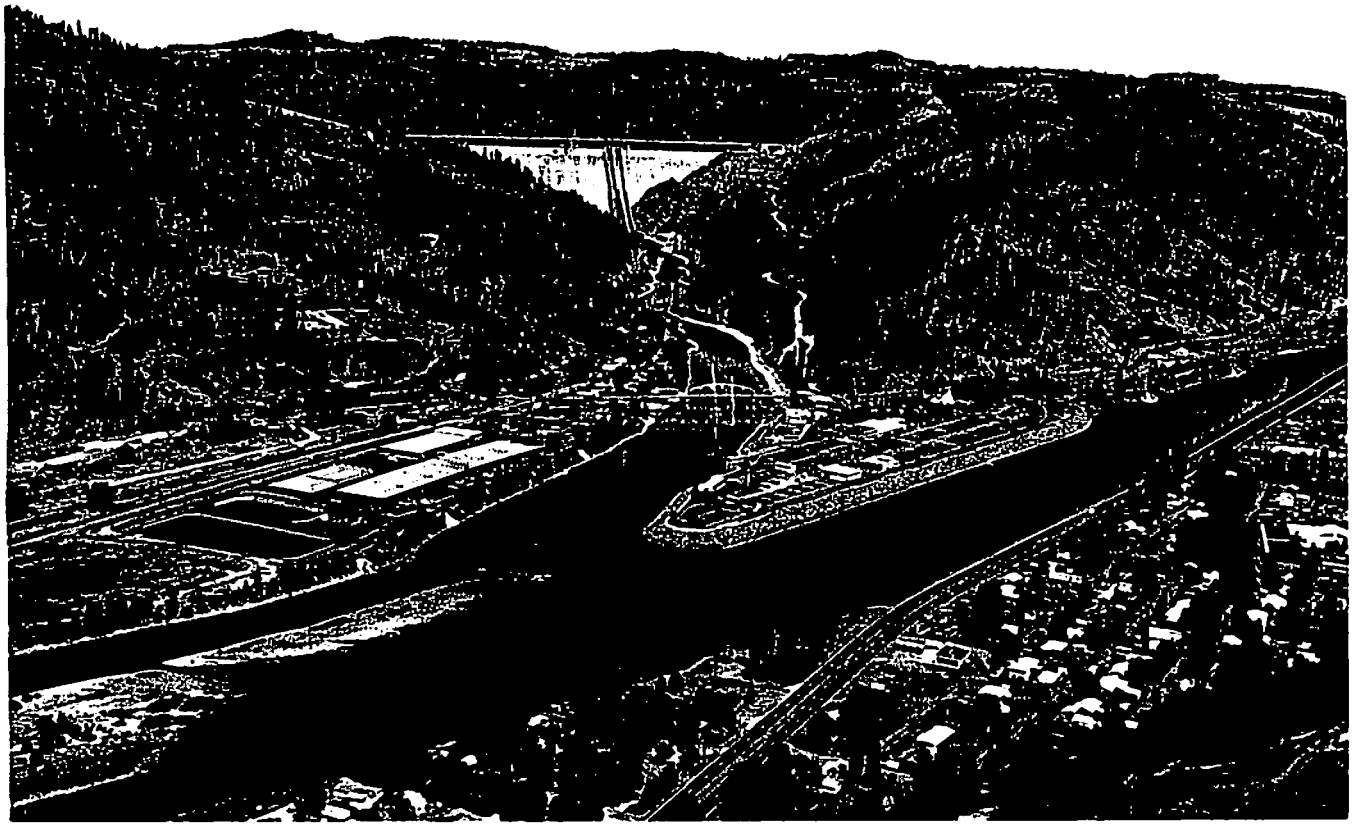
INTRODUCTION



Dworshak National Fish Hatchery (DNFH) is located in north central Idaho downriver 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 26 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 required 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.

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 downriver from the Dam, is capable of providing 92,500 gpm of water. Water reuse in Systems II and III, used during the colder months of November through March, is made up from 10 percent new water to allow heating for desired fish growth. 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 25+ 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 in line items identified in the rehab plan. We are trying to accomplish some of these items through O&M funding. Larger items will need to be funded directly by the COE. In FY 96 the COE funded underground fuel storage tank removal, access bridge repair and emergency electrical repair.

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. This is due to the current operation of Dworshak Reservoir and the effects of cold water releases on the steelhead program.

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.

The Dworshak hatchery has capacity for producing 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 9,000 spring chinook. Steelhead goals are being satisfied in some years but were not in 1996. Spring chinook returns remain well below mitigation levels.

This report covers the period of hatchery activities from October 1, 1995 to September 30, 1996.

PROGRAM HIGHLIGHTS

Production gain for steelhead was 392,845 pounds for the year (10/01/95 - 9/30/96) compared to last year's 352,457 pounds. Ich, caused some losses in System II when operating on reuse. Dworshak released 2,480,639 steelhead, weighing 392,845 pounds (195 mm), both off site and directly from the hatchery in spring of 1996.

We collected 4,480 adult steelhead for brood year 1996 (BY96) production. 737 early run steelhead were collected in the fall of 1995 and 3,743 were collected from February through May of 1996. A total of 6.7 million green eggs were taken for Dworshak production and to provide eggs for Idaho Fish and Game programs at the Clearwater Hatchery and Magic Valley Hatchery. For Dworshak we put 2,882,00 eyed eggs into a program to provide for a release of 2.3 million smolts in 1997.

Brood year 1994 spring chinook spawning, completed September 1994, resulted in the hatchery carrying 103,792 fish into fiscal year FY96. We released 102,903 in April 1996.

Only 165 adult SCS returned to the complex in the summer of 1995, 40 returning to Kooskia and 125 to Dworshak. Twenty-eight females were spawned, 21 from Dworshak and 7 from Kooskia. There were 110,900 green eggs taken. Eye-up was 71.5 percent for a total of 79,000 eyed eggs. 57,000 of these eggs were shipped to Kooskia for hatching and early rearing. Dworshak had 16,140 BY95 SCS by the end of September 1996. Dworshak BY95 SCS were from medium and high BKD status females.

There were 1,165 SCS that returned to the complex in the summer of 1996, 202 returning to Kooskia and 963 to Dworshak. A large number of the returns were jacks (361). There were 335 females and 357 males which return to Dworshak that were spawned. Kooskia returning adults which were spawned included 50 males and 49 females. Dworshak took 1,158,765 green eggs while Kooskia returns produced 174,685 green eggs. At the end of September 1996 all BY96 SCS eggs were being incubated at Dworshak. Plans call for moving most of these eyed eggs to Kooskia for early rearing.

July 15, 1996 was the start of the summer cooler water releases from Dworshak Reservoir. This 50°F water was discharged until August 31st to help the fall chinook salmon in the Snake and Clearwater rivers. This was one of the longest periods of summer cooler water releases in past years.

Dialogue between Idaho Department of Fish and Game (IDFG), FWS and the COE has continued over resident rainbow trout production for Dworshak Reservoir. Resolution of this issue appears to be several years away. Because of disease concerns, Dworshak's 10,000 pounds of rainbow production, now being reared at Hagerman NFH will be planted in other state waters with a trade for disease-free fish from IDFG to be planted in Dworshak Reservoir.

The sixth Annual Open House, again highly successful, was held on June 15, 1996. The highlight was a free fishing pond attracting 669 children to register and catch two rainbow trout each. Another 500 adults attended the popular activities in conjunction with National Fishing Week. Activities included the Japanese art of fish painting and a fish cleaning station was added. There was involvement from Clearwater County Sheriff's Office.

An eight-week Clearwater Youth Program ended on August 2. The program, staffed with seven enrollees and one crew leader, performed numerous work projects with special attention to buildings and grounds maintenance. Dworshak had participated in the YCC program since 1982, but because of its discontinuance, an agreement was set up with Joint School District #171 to administer the program. Funding was provided by LSRCP.

Dworshak's FY96 total funding package from the COE, including overhead costs, was $1,736,000. Operating funds, not including support costs, were $1,336,720 (1935 account). Another $9,000 was received from quarters rental reimbursements (8610 account) for a total of $1,345,720 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.

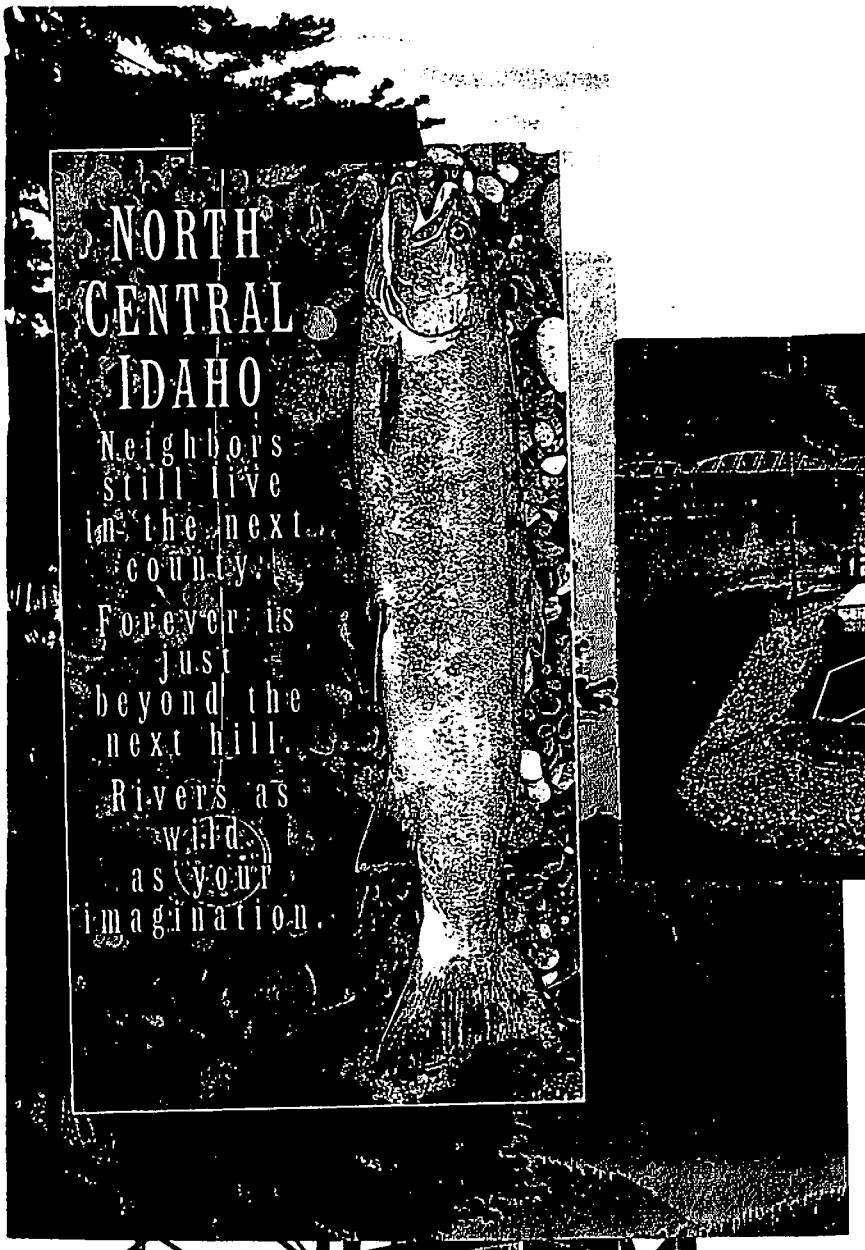
LSRCP provided $337,000 (4710 account) for production of spring chinook salmon. The Clearwater Youth Program, an eight-week summer work program for Dworshak Fisheries Complex and Clearwater State Fish Hatchery, was also covered by LSRCP at a cost of $18,000 for salaries of nine high school enrollees and one crew leader. In addition, a 5-month program of 20 hours a week each for two high school seniors with a GPA of above 3.0 was initiated at a cost of $2,000.

The hatchery received $12,900 in transfer costs from Idaho FRO for assistance on a Stewardship Project, "Interactions of Hatchery and Wild Steelhead in the Clearwater River of Idaho." One temporary bio-aid position and a wage grade position was funded over a six-month period of study.

Fish marking costs included $47,900 to ad-clip 2.4 million steelhead Oct 1 - Dec 1, 1996. Marking started in August for the next group with $50,000 obligated for costs.. Marking of spring chinook cost $8,100 for coded-wire tagging and $12,000 for adipose fin clipping.

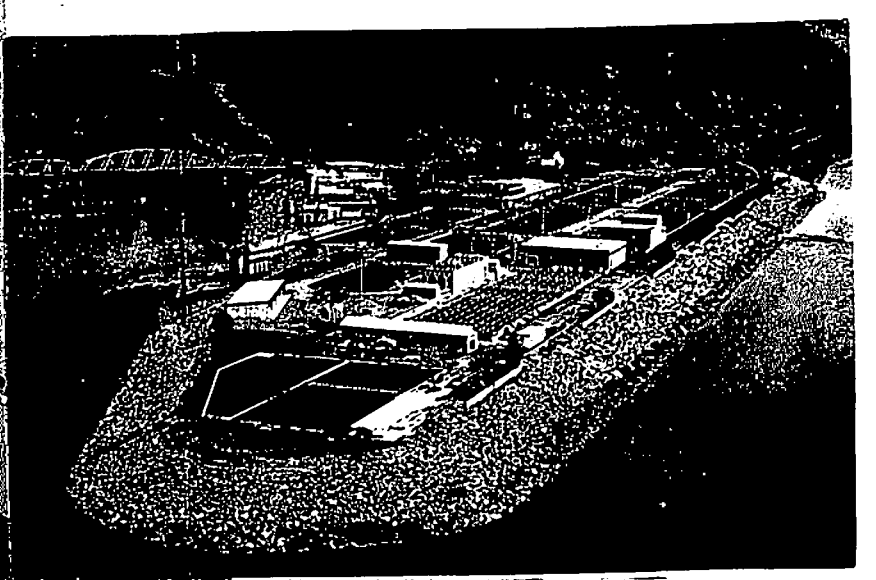
Major costs were also distributed between seven cyclical projects ($18,500), and purchase of new or replacement equipment ($49,500).

Full-time staff years employed by Dworshak NFH were 23.30; permanent employees 22 and temporaries 1.3 years. Twenty-six (26) employees were represented in the staffing during the year. This number does not include temporary service employees 5 for 2252 hours.



PROGRAM HIGHLIGHTS

DWORSHAK FISHERIES COMPLEX
Fiscal Year 1996



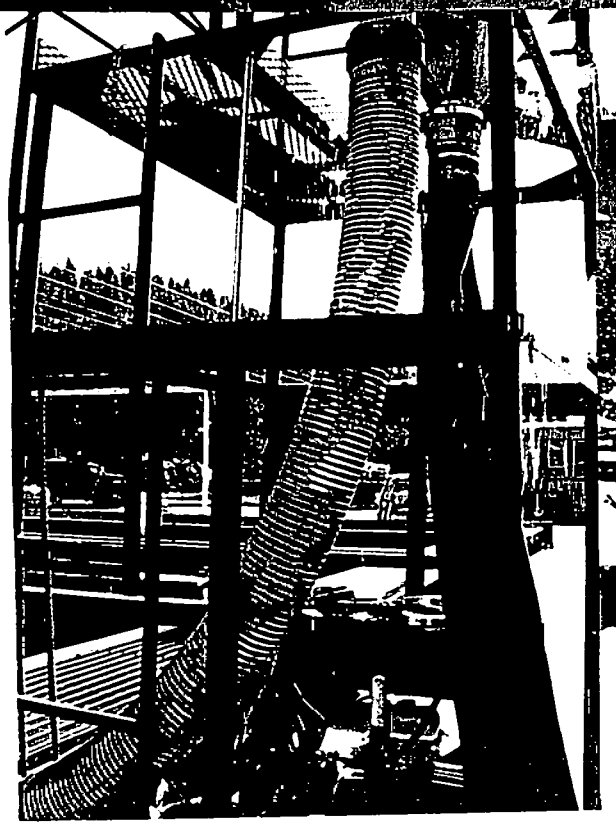
Attention: Steelheaders

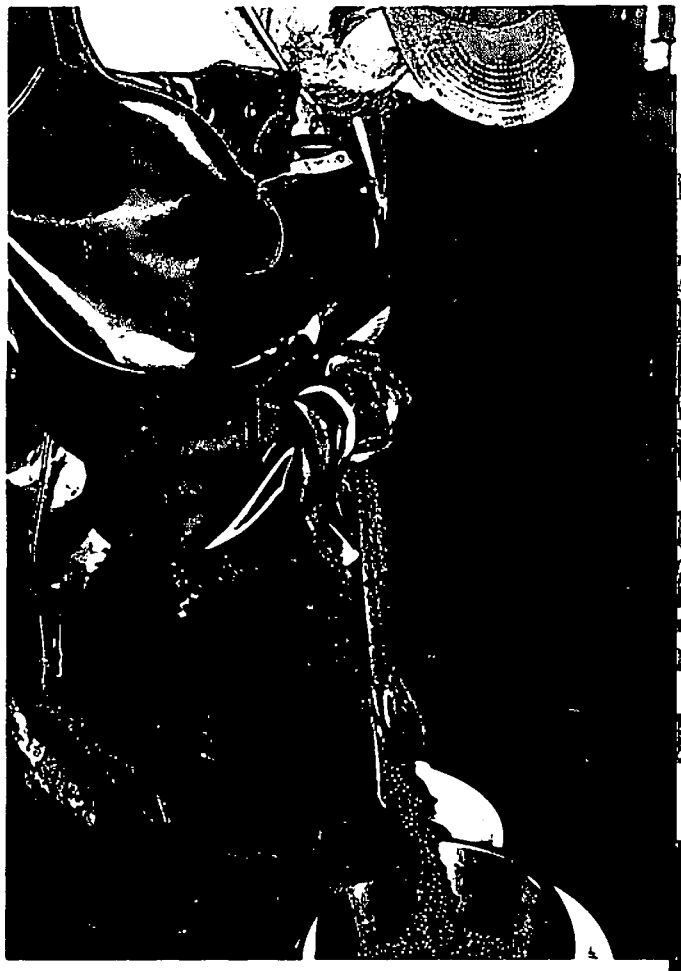
No-harvest rule

Fishing for steelhead on the Clearwater River upstream from the Memorial Bridge at Lewiston, including the North, Middle, and South forks, is no-harvest only. All steelhead must be released unharmed. Barbless hooks are required. Treble barbless hooks are allowed, and bait may be used.

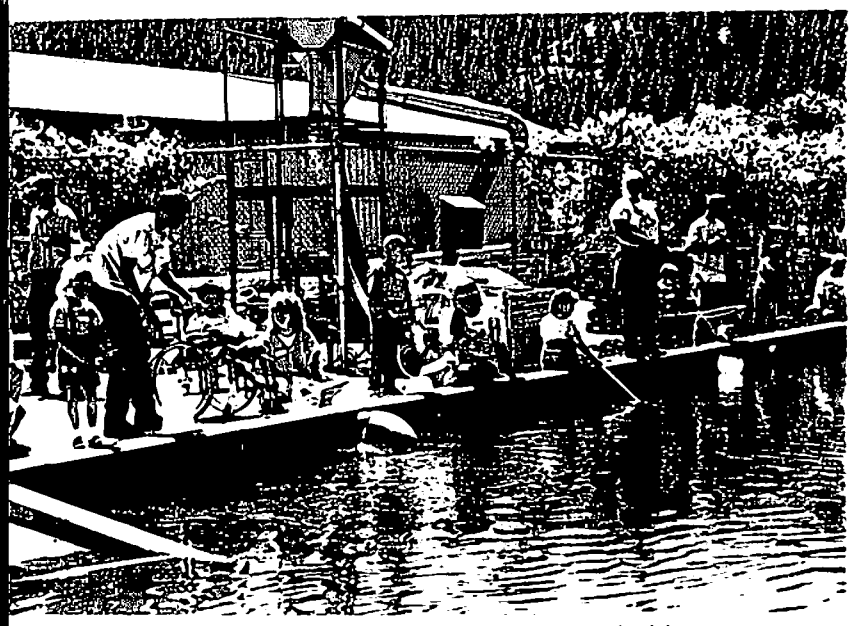
30-inch rule

On the Snake River from Red Wolf Crossing Bridge upstream to the Washington-Oregon state line, and that seg-

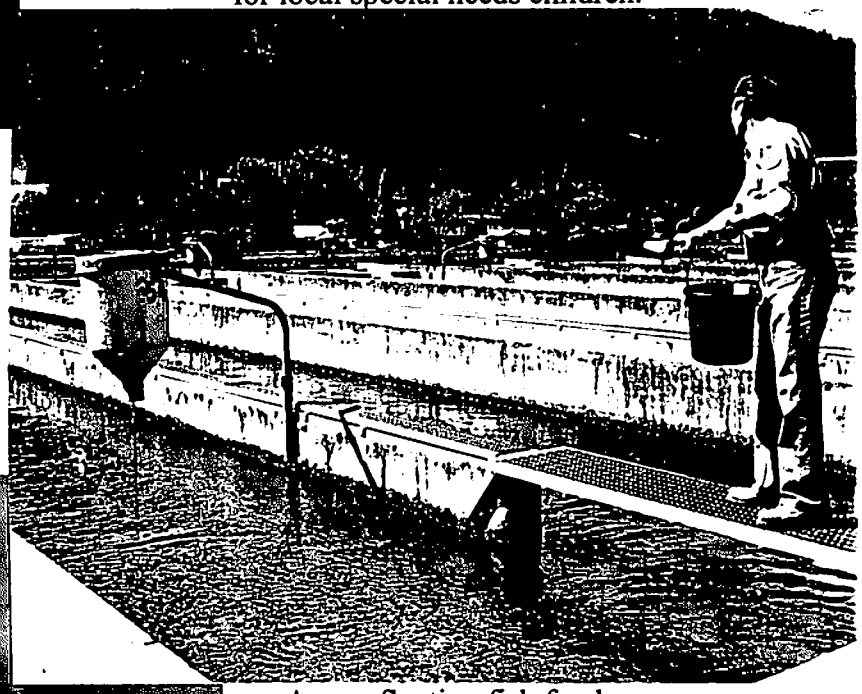




Spring chinook salmon spawning began in late August.



A free Kid's Fishing Day was held for local special needs children.



A new floating fish food was tried at the hatchery.

Weather was severe with record flooding in the Clearwater Region.

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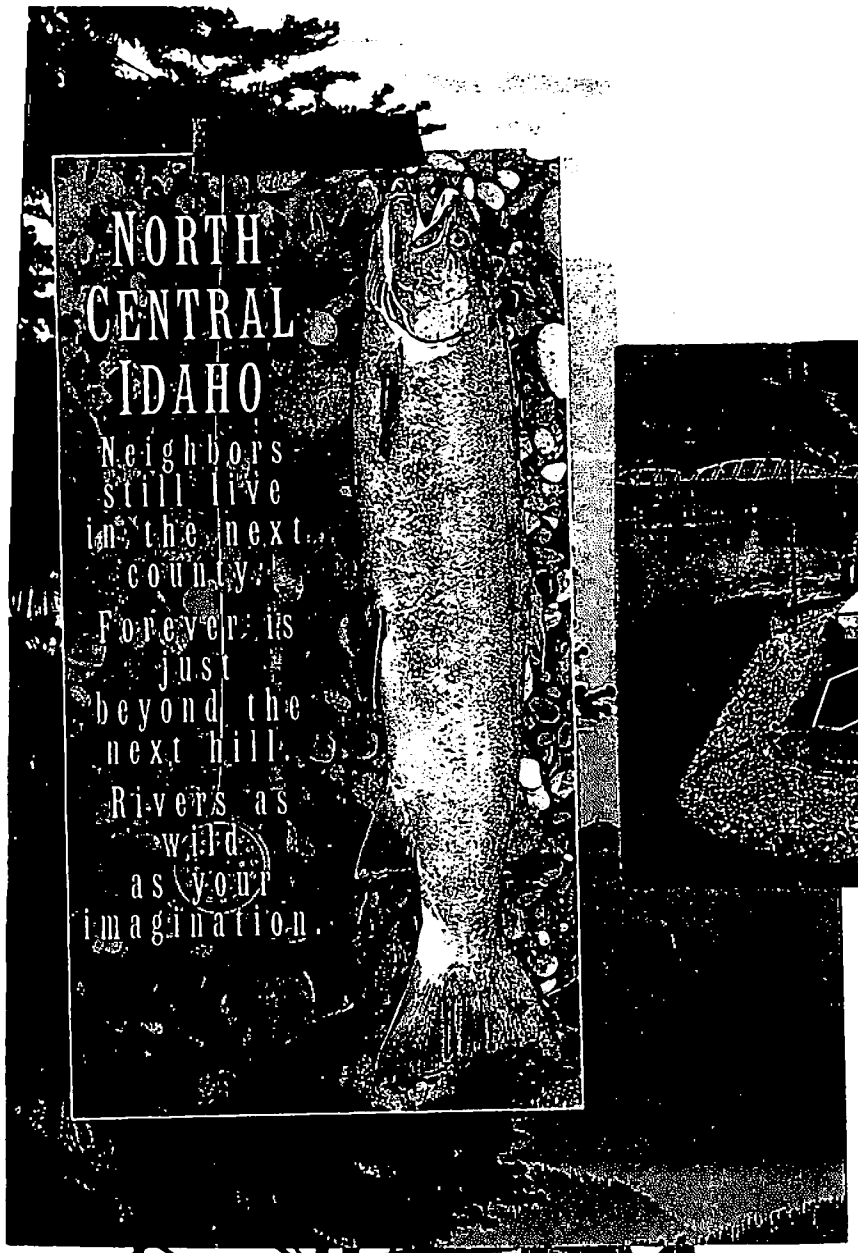

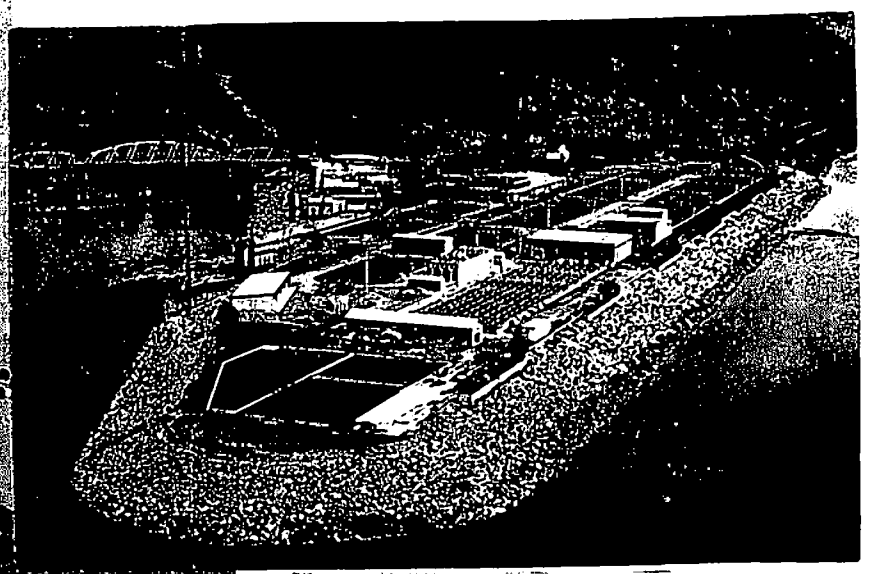

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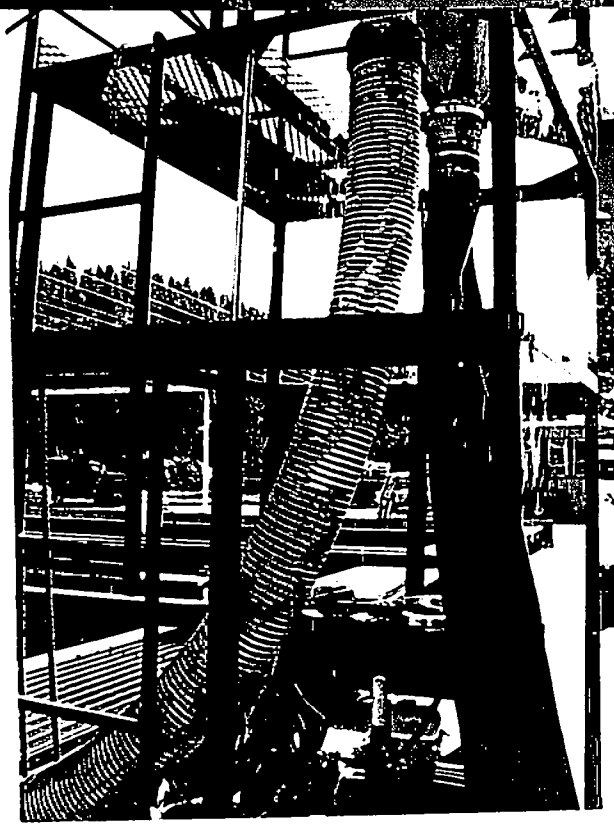

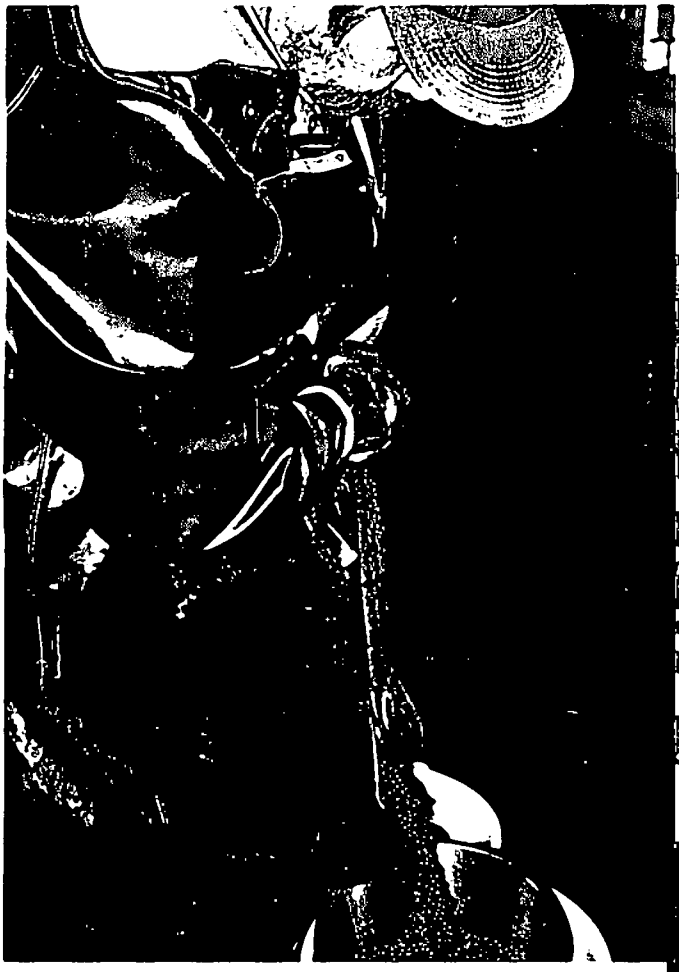

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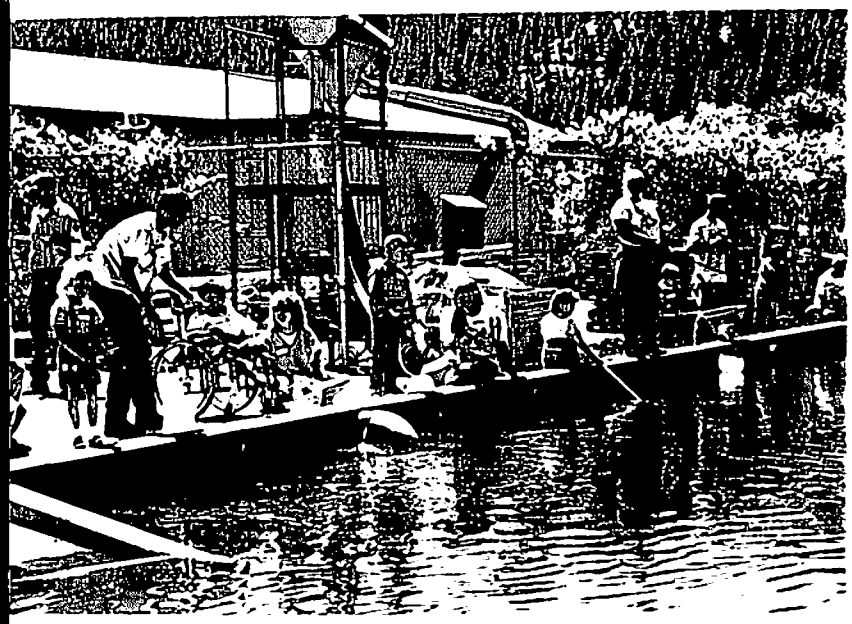

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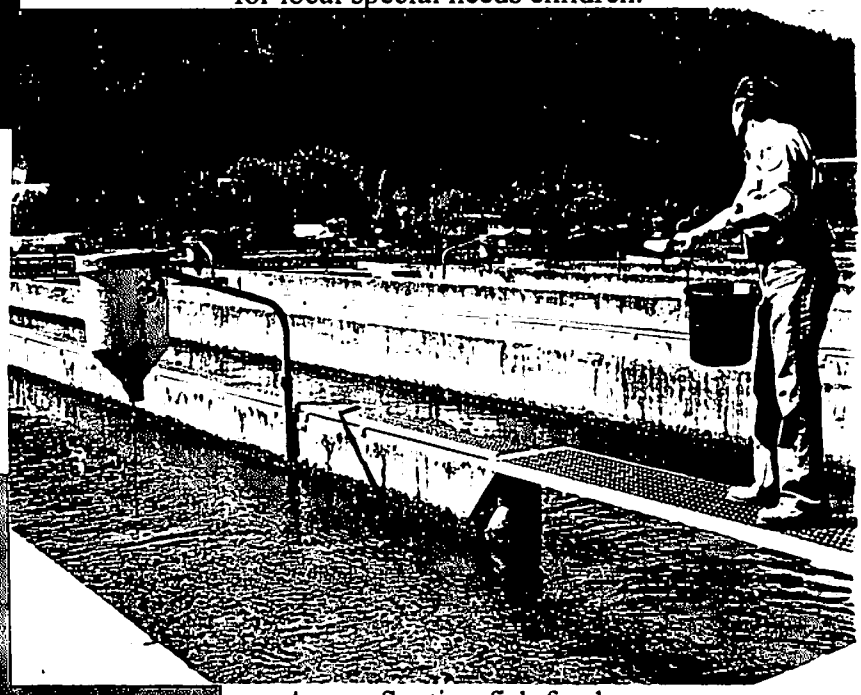
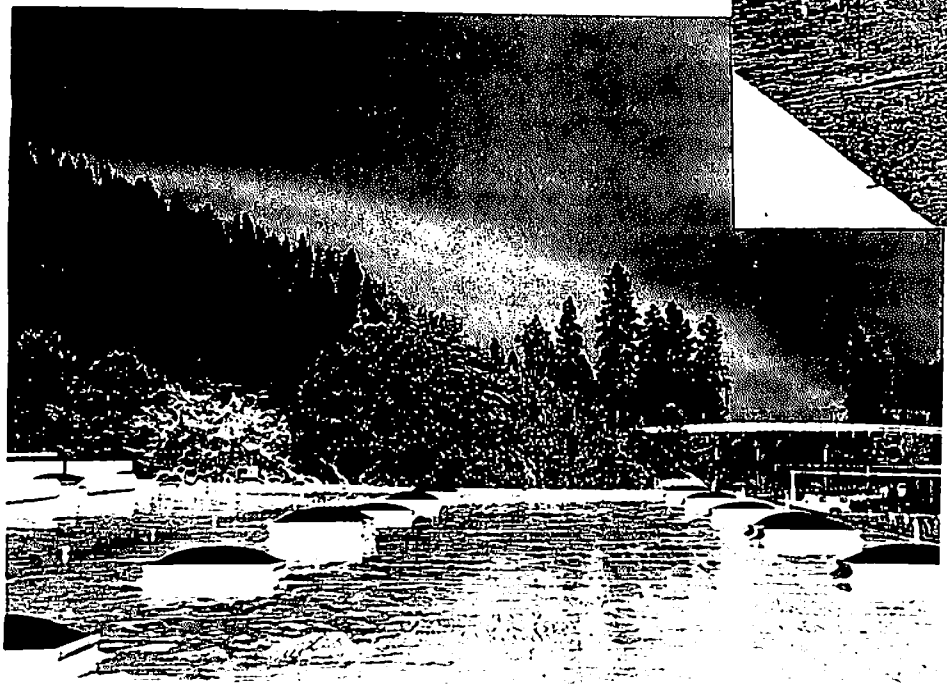


A new floating fish food was tried at the hatchery.



Weather was severe with record flooding in the Clearwater Region.

Rain, melting snow cause slides and flooding problems

A number of roads were closed or hazardous to travel Wednesday morning as rain continued to fall and increase slide and flooding problems with the melting snow.

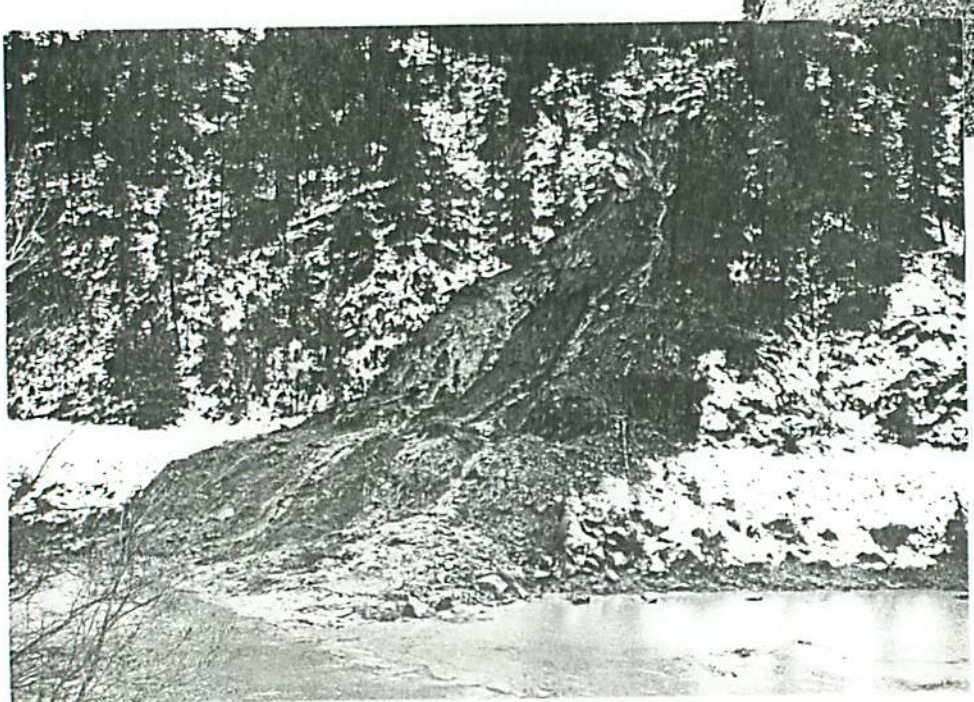
According to Lou McGoldrick, Clearwater County Civil Defense, major problems began with flooding across the road in Greer about 2 a.m. Wednesday.

State Hospital North experienced flooding problems in their parking lot when a pond above the facility washed out the overflow pipe. Inmates from Idaho Correctional Institution Orofino helped with sandbagging around the doors and backhoe work was done to relieve the problem. Residents in Miles Addition also experienced flooding around their homes.

Road closures included U Highway 12, Lower Fords Cre Rd., Crow Bench, Hall Rd., Sun nyside Rd. and Old Peck Rd. Th road into Peck was closed due t a bridge washout, McGoldric said.

Cavendish Rd. was closed fo a time Wednesday morning du to a slide about four miles u that took out about 50 perce of the road. One lane only traff will be open in the area for least the next two weeks. A sli and fallen trees caused th problem.

Among roads with water ov them were: Wells Bench Ro Bobbit Bench Rd., Old De Creek Rd. and Canyon Creek R



A huge slide across the hat reservoir supply lines completely blocked the North Fork Clearwater Ri

STEELHEAD SEASON

Clearwater B-run catch, release

■ Lewiston's annual fish derby will be affected

Associated Press and Tribune

BOISE — Faced with the prospect that normal steelhead fishing regulations on the Clearwater may not allow for hatchery Gam... for hatchery) goals," she said. "Return to date is 9,500 fish. The final return ... be less than half ... is 67,700 fish.

"It's good fall fishing," she said. The rules are in effect from Oct. 15 to Dec ... River from its confluence with the Clearwater upstream to the Oregon-

Steelhead spawn begins at hatche

OROFINO: If the steelhead don't return, neither will the fishermen and their money

By Kevin Richert
of the Post Register

OROFINO — Stu Kestner wo... just as soon work Thanksgi... Day. Either that or fish

Kestner usually keeps his River Sport Shop open till 7 p.m. on the day, selling lures and licenses and ... the steelhead anglers who ... the river." But th... ...ed run h...

Student designs project at Dworshak Fish Hatchery

Amanda Greene, 14, an eighth grade student at Orofino Junior High School, spent a day at Dworshak Fisheries Complex as part of a project she designed for the Gifted and Talented program. Greene has chosen a career in fisheries biology and decided to end a day on the job training ... Idaho Department of Fish and Game ... steelhead sampling and lab analysis, giving her practical experience in her chosen career field.

The student is in the top two percent of her class and has been in the Gifted and Talented program since third grade. She is one of eight Orofino students taking part in the program. Greene said she liked the lab work best, taking blood and tissue samples and experimenting with ... health of rearing ...

Orofino, ID - Clearwater Tribune--3B

Hatchery Happenings

A column appearing monthly, it features current events and activities at Dworshak-Kooskia Fisheries Complex. It is written by U.S. Fish and Wildlife Service employees.

Dworshak Open House Set

The 6th annual Dworshak National Fish Hatchery Open House will be held Saturday, June 15 from 9 a.m. until 3 p.m. This years' event will include the Gyotaku station, where youngsters will learn the art of ancient Japanese fish painting. It was ...ly popular last year.

...tivities are a poster ... school children, ... station, food ... the Kid's ... children ... catch ...

Rain, melting sn... cause slides an... flooding problem...

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Cavendish Rd. was closed for a time Wednesday morning due to a slide about four miles up ... that took out about 50 pe... of the road. One lane ... will be open ... least the no... and fallen ... problem.

Among roa... them were: ... Bobbit Bench ... Creek Rd. and ...

Tribune/Barry Keogh

...en with it. But it looks like ...ses of the town.

Should steelhead be listed?

■ Biologists believe Snake River variety would qualify, but moratorium halted it

By Bill Loftus
of the Tribune

Based on a National M... Service bi... Snake River stee... ify for the enda... list.

But a congre... um on listings ... from followin... course under... Species Act, ... NMFS spok... said Thursd...

A recent... Kempthorn... architect ... would a... steelhe... the mr...

Ke... wi...

...orshak going back to the ...iness of hatching steelhead

By GREGORY H. BURTON
Staff Writer

...into Mother Nature's miraculous bo... ...millions of Idaho's steelhead eggs are ...d to the circle of migration this month ...hak National Fish H... ...more than 2 ...

According to the spawning activity report for 1995-96 at Dworshak, 327 females of the 3,400 ... returning steelhead have been spawned to ... 2.1 million eggs.

And now, heaps of the e... their formative days swirlin... ...ter in see-through breeding ... They get a little curren... ...ing, Sawyer says. Wh... ...hey look like spinnin...

...T is a time for misch... ...kes about "always h... ...also the beginnin... ...atchery, which er... ...head beginning... ...ses by dipping...

...an inkling of ...tching them ... says. "Some ... nets."

...ning steelhe... ...rmant. Once ...iological cloc... surpassing ...

...process is ...ists who co... ...enetic pairs ...sferred to ... ...re pl...

A swid of ...

Corps not quite ready to hang up idea of drawdowns to aid salmon

By Bill Loftus
of the Tribune

Although talk of Snake River drawdowns has hit rock bottom, the U.S. Army Corps of Engineers continues to study the idea advanced by salmon advocates.

The corps will spend $1.5 million this year and has asked for $8 million next year to fulfill a request from the National Marine Fisheries Service that a more detailed drawdown study be finished by 1999.

This fall, the corps will make its first cut, narrowing the options from the current three to one.

The study is part of the federal agency's recovery plan for the Snake's imperiled sockeye and chinook salmon runs that are protected under the Endangered Species Act.

A proposal to study a medium drawdown of the reservoirs, to their spillway crests, already appears to be sinking, said Carl Christianson, the corps' study manager at Walla Walla.

NMFS officials have already suggested the spillway crest drawdown idea needn't go much further, Christianson said.

"This is very close to coming off the table right now," he said. Last winter a

See *Drawdowns*, Page 3A

Catch and keep fishing returns to Clearwater River

As of Monday, Jan. 1 Clearwater River steelhead anglers have a chance to keep a fish.

The new year will bring a return to more familiar fishing regulations to the Clearwater, ending the fall anglers had to release all the steelhead they caught to conserve a weak run.

Nearly ideal migratory conditions, however, allowed a larger than expected proportion of the Clearwater run to reach Idaho waters.

Earlier this month, the Idaho Fish and Game Commission and Nez Perce Tribal Executive Committee agreed on a catch-and-keep season on the Clearwater beginning Jan. 1.

On the Clearwater, anglers will be able to keep two steelhead a day and four for the season, which runs until April 30. Only hatchery-reared fish, those with clipped adipose fins, can be kept.

Anglers are allowed to keep two fish a day and 10 for the spring season, which will also last until April 30 on the Snake.

The change in regulations will draw more anglers to the Clearwater ...

Evelyn Kaple, owner of The Guide Shop at Orofino said, "The fish are here. It's just a matter of getting out and fishing."

Mother Nature let up on us a little bit ...

When the Fish and Game ... the season ...

...1 eggs dance in ...s in the hatch... ...tchery — the ...

...ppies, fry, sm... ...rogress in re... ...ile trip to ... 1 2-3 per 1,00...

...get eyes after ...out six weeks

...o feed them. ...ttached to ... ...g boys ...

Ocean, Columbia salmon fishing seasons likely to mirror "...

By Allen Thomas
The Vancouver Columbian

VANCOUVER, Wash — This summer and fall ocean and Columbia River salmon fishing seasons likely will look much like in 1996. Option 1, allowing a more liberal season than a year ago, isn't likely. Nor are Options 3 and 4.

Option 3 has no non-Indian fishing. Option 4 has no Indian or non-Indian fishing.

When the PFMC makes its final ... portions from the various options when deciding on the season.

The options are based, in large part, on the size of the anticipated Canadian harvest of Washington-bound coho off Vancouver Island.

If the Canadians limit that har... ...

No coho fishing is planned off the central and southern Oregon coasts this summer.

COLUMBIA COHO FORECASTS — Coho and fall chinook salmon forecasts for the Columbia River are out and there's not ... sons.

Hatcheries on lower Columbia tributaries in Washington and Oregon need 27,800 early coho for spawning.

Between 78,200 and 87,400 "late" coho are expected, depending on the ocean season selected ...

...tering the river was 236...

The bleak part of the ...nook picture is in the ... downstream of Bonnev...

A run of 46,200 to ... chinook is expected ba... Columbia River hatch... as Kalama, Cow...

FISH CULTURE OPERATIONS
Steelhead Trout
Brood Year 1995

At the end of September 1995 all of the summer steelhead trout (SST) from brood year 1995 (BY95) were outside in Burrows ponds (BPs), totaling 2.7 million fish. Mortality was eight percent from October 1995 through May 1996 and the final release number was 2.48 million with an average size of 195 mm (Table 1).

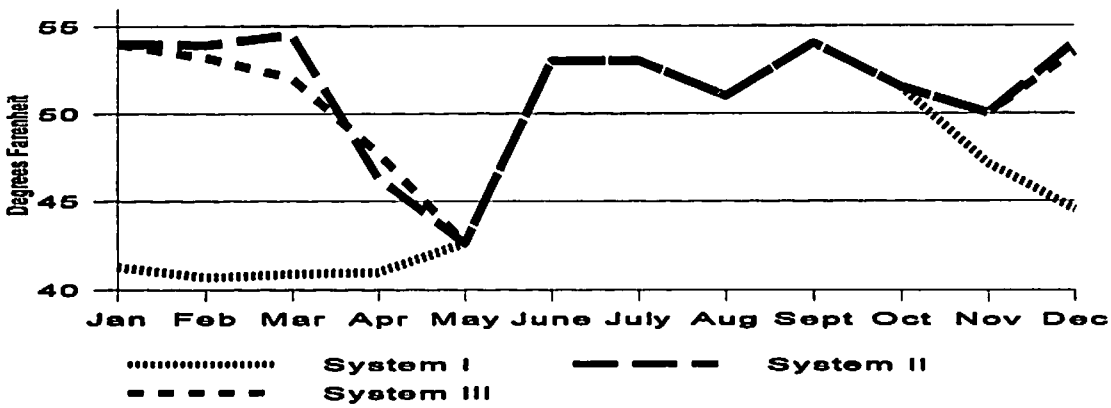
Table 1. Fish inventory summary for BY95 SST on September 30, 1995 and final release summary in May, 1996.

	September 30, 1995			Sept-May % Loss*	Final Release April 22- May 3, 1996		
Location	Number	Length in	Length mm		Number*	Length in.	Length mm
Syst I	1,098,579	4.98	126		828,439	7.27	185
Syst II	651,940	4.23	107		639,530	7.52	191
SystIII	943,205	4.66	118		1,012,670	8.08	205
Tot/Ave	2,693,724	4.70	119	7.9	2,480,639	7.68	195

*Fish moved from System I raceways to Systems I,II,& III BPs in November to increase growth.
Source: Production Narrative, October 1995, June 1996.

BY95 was the first time Dworshak attempted to raise a large number of SST in raceways (RWs) for an entire rearing cycle. By October, SST of the same Takes in BPs were growing at a faster rate than those in RWs. Growth projections estimated the fish in these Takes in the RWs growing to only 170 mm by release. A decision was made to move some of Takes 4-7 from RWs into BPs. The smallest fish were moved into the two heated reuse systems (Systems II and III) because the warmer water provided the greatest growth potential (Figure 1).

Figure 1. Water temperatures Systems I, II, III in 1995



Source: PRD-Water temperatures records 1995

Only IHN negative fish were moved into System II because no virus had yet been detected in this System. Some of the larger fish were moved into System I BPs. System I BPs had temperature slightly higher (1-3°F) than the raw water in the RWs because of modifications that allows some of the heated nursery water to be used. All moved fish developed Ich before release. Table 2 illustrates a summary of the fish moved, number and size at release, IHN status of fish, and percent mortality of the moved fish.

Table 2. Summary of BY95 SST moves from RWs to BPs in November 1995.

Location	BP	Date moved 1995	IHN status before move	IHN status at release	Number moved	Number at release	% loss	Size at release mm
System I	29	11/06	IHN+	IHN+	32,846	31,890	2.9	174
	43	11/21	IHN-	IHN-	34,654	31,519	9.0	177
	47	11/21	IHN-	IHN-	34,926	32,697	6.4	185
	49	11/21	IHN-	IHN-	35,010	34,378	1.8	183
System II	20	11/09	IHN-	IHN-	32,534	25,564	21.4	183
	38	11/09	IHN-	IHN-	37,715	33,038	12.4	186
	50	11/21	IHN-	IHN-	28,079	0*	100	0
System III	52	11/07	IHN-	IHN-	32,660	27,225	16.6	195
	63	11/07	IHN+	IHN+	32,452	29,532	9.0	194
	65	11/06	IHN+	IHN+	32,759	26,700	18.5	188
	82	11/06	IHN+	IHN+	32,702	29,572	9.6	189
Total/ Average					366,337	302,115	18.9	185

*In December, fish in BP50 developed Ich and never responded to formalin treatments. The fish were culled on March 8.

Source: Distribution Records, 1996
Movement of Takes 4-7 Steelhead from Raceways, internal memo, 1/10/96.
Production Narrative, March 1996

As with BY94 SST, a 60 percent BY95 green egg to smolt survival exceeded that of years past by about 10 percentage points (Table 3). BY94 was the first year that a direct line for reservoir water was available for the nursery. High flows in the North Fork of the Clearwater River also diluted the concentration of IHN virus and contributed to high overall survival from eyed egg and tanked fry to smolt.

Table 3. Survival summary from green eggs to released from smolts, BY90 through BY95, 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
1990	84.1	97.0	71.1	89.1	51.7	61.4	63.4
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
5yr Ave	**85.5**	**91.5**	**77.3**	**83.7**	**50.3**	**58.6**	**64.1**
1995	90.7	89.5	95.4	90.1	60.0	82.9	85.9

Note: Data are only for SST reared entirely at Dworshak NFH.
* Data does not include eggs deliberately culled before eye-up
Source: Steelhead Production Plan 1995
Nursery Rearing Unit Records 1995
Production Narrative May 1996
Steelhead Spawning Report 1996

System I

System I's production included the original System I 25 BPs and 30 RWs for the Lower Snake River Compensation Plan (LSRCP). This System had 1,098,579 SST in it at the start of the fiscal year. In past years only one or two RWs were used to rear excess SST because the RWs are usually used for chinook salmon. Due to very low chinook returns in 1995, RWs were available for rearing of SST. During the rearing of BY95 SST, 680,000 SST were stocked into the RW system to ease crowding in the BPs. By late October, 1995, it became apparent that some of the SST in the RWs would not meet the target release size of 200 mm because of the cold water used in this System (Figure 1). Due to greater growth potential in warmer water, 366,000 fish were transferred to BPs (Table 2). For System I production, there were a total of 137,436 fish moved from RWs to BPs 29, 43, 47, and 49. Overall results of the move from RWs to BPs were that the SST attained appropriate size but with additional mortality. The entire BY95 SST suffered about 8 percent mortality from September 30 until release in May, while the fish moved in November realized an 18.8 percent mortality rate (Tables 1,2). Mortality occurred in the moved fish due to disease infestations which appear correlated to handling stress. Each pond of fish which were moved developed Ich sometime in the rearing cycle. Monthly growth increments, percent mortality, and water temperature for both the BPs and RWs of System I are illustrated in Tables 4 and 5. Final release numbers for System I were 534,184 for the BPs and 285,255 for the RWs for a total of 828,439 SST.

Table 4. System I BP production, BY95 SST, FY 96.

Month	Year	1st of Month			Growth		% Mortality	Ave Temp °F for month
		Number	fpp	L (mm)	in	mm		
October	95	421,957	20.57	132	0.70	18	0.60	51.1
November	95	431,425	14.40	148	0.65	17	0.32	47.1
December*	95	566,424	14.79	147	-0.1	-1	0.34	44.5
January	96	563,439	12.31	156	0.36	9	0.53	40.7
February	96	558,524	9.26	172	0.61	16	0.87	40.9
March	96	549,558	8.41	177	0.22	6	1.61	41.0
April	96	545,180	7.83	182	0.17	4	0.80	42.6
Release Apr/May	96	**543,184**	7.19	**187**				

*Additional numbers due to fish moved from the RWs to BPs during November.

Source: Monthly Inventory Summaries, Sept 1995-May 1996
Final Release summary, BY96 SST
Production Narratives Sept-May, 1995-96
Daily Water Temperature Records, Oct-April, 1995-96

Table 5. System I RW production, BY95 SST, FY96.

Month	Year	1st of Month			Growth		% Mortality	Ave Temp °F for month
		Number	fpp	L (mm)	in	mm		
October	95	676,622	25.05	123	0.66	17	0.32	51.1
November	95	673,004	19.56	134	0.42	11	0.53	44.9
December*	95	302,951	15.26	145	0.45	12	0.74	42.1
January	96	299,451	12.98	153	0.32	8	1.16	40.7
February	96	296,524	10.17	166	0.51	13	0.98	40.7
March	96	292,726	9.49	170	0.15	4	1.28	40.9
April	96	289,316	8.78	175	0.18	4	1.16	41.0
Release Apr/May	96	**285,255**	7.99	**180**				

* Fish moved from RWs to BPs in November.

Source: Monthly Inventory Summaries, Sept 1995-May 1996
Final Release summary, BY96 SST
Production Narratives Sept-May, 1995-96
Daily Water Temperature Records, Oct-April, 1995-96

SST in System I had their adipose fin (AD) clipped by marking crews in October, 1995. Marking began in the RWs on October 2 and ended in the BPs on October 31. Fish in BPs 27 and 35, and RWs A10, A13, and B30 were coded wire tagged (CWT) and left ventral fin clipped (LV) along with AD clipped. Fish in BP27 and RWA13 were also freeze branded (FB). CWTs in fish from BP 35 are used to help assess the contribution of these fish to later returns. CWTs in BP 27 and RW B30 will be used to gain information on early return progeny. CWTs in RW 13 will be used to help assess raceway rearing. Fish CWTed from RW10 will help assess South Fork of the Clearwater River releases. The fish which have FBs will provide information on broodstock evaluations and early run predictions at Lower Granite Dam (MIS System I, Nov 1995; IFRO Branding, Tagging.DBF).

Raceway water temperatures averaged 41.7^{0}F when Systems II & III were on reuse (Mid-November to Mid-April). During this time, these two heated systems averaged 53^{0}F and 54^{0}F, respectively.

From the first of February until March 19, several BPs and RWs in System I were treated for trichodina with formalin and salt baths. Mortality for the System remained relatively low and averaged between 0.3 to 1.6 percent per month during the rearing cycle.

Release of the fish in System I occurred from April 22 to May 2, 1996. On April 22, 23, and 25, there were 275,181 SST outplanted from System I. The COE assisted in outplanting the SST to Clear Creek; the mainstem of the Clearwater River at Kamiah; the South Fork of the Clearwater River at River Mile 8.7, Red house, and Cottonwood Creek.

Direct release of 553,258 SST took place April 29 through May 2 into the mainstem and North Fork of the Clearwater River (Final Release Summary, BY95 SST).

System II

System II has 25 BPs. This System began fiscal year 1996 with 651,940 fish. BPs 2 and 4 had a total of 45,964 NBS fish at the beginning of the fiscal year. These fish were used in the continuation of the NBS stock/productivity study. In November, 109,197 fish were added from System I RWs into BPs 20,38, and 50. Final release numbers were 639,530 with an average total length of 191 mm (Table 6).

Table 6. System II production, BY95 SST, FY96.

Month	Year	1st of Month			Growth		% Mortality	Ave Temp °F for month
		Number	fpp	L (mm)	in	mm		
October	95	651,940	37.84	107	0.82	21	0.10	51.1
November	95	650,936	24.47	124	0.68	17	0.15	50.0*
December **	95	760,133	18.96	135	0.43	11	0.13	54.0*
January	96	739,771	14.95	146	0.44	11	2.68	54.2*
February	96	695,080	12.44	156	0.36	9	6.04	53.9*
March	96	678,797	10.07	167	0.45	11	2.34	54.5*
April	96	647,313	7.60	183	0.65	16	4.64	46.3*
Release Apr/May	96	**639,530**	6.73	**191**				

* System under reuse for part or all of month.
**Additional numbers due to fish moved from the RWs to BPs during November.
Source: Monthly Inventory Summaries, Sept 1995-May 1996
Final Release summary, BY95 SST, Production Narratives Sept-May, 1995-96
Daily Water Temperature Records Oct-April, 1995-96

Fish in System II were AD clipped in October and November of 1995. CWTing began on October 23. Steelhead in BPs 2 and 4 received a CWT and right ventral (RV)clip for NBS studies. Fish in BPs 24 and 26 received a CWT, LV clip and FB to help assess contribution of these fish towards future returns and provide early run predictions at Lower Granite Dam. Fish in BP 46 were CWT and LV clipped to help assess South Fork Clearwater River releases.

System II converted to reuse on November 14. Temperature was increased from 47.4°F on this date and averaged 53-54°F for the remainder of November. System II was put back on raw water on April 14, 1996. Water temperature averaged 54°F during the five month reuse period.

System II fish were treated for Ich with formalin three times in December as mortality climbed from 0.10 percent in November to 2.73 percent in December. Mortality rose to 6.55 percent in January, then dropped to 2.34 percent in February and rose again to 4.64 percent in March. The mortality for April was 1.11 percent. Steelhead in BP 50 did not respond to treatment as mortalities remained elevated, with cumulative mortality exceeding 50 percent by March 1. The remaining sick fish in BP 50 were all culled on March 8, 1996. The high mortality experienced in BP 50 inflated the average monthly mortality numbers for System II.

From January 29 through Feb 1, 1996, BPs 16,18,20, and 22 were treated with Chloramine-T for bacterial gill disease. Mortality averaged 5.44 percent in these four ponds in January and 2.45 percent after treatment in February (MIS, Feb-Mar, 1996).

Outplanting of 302,224 SST took place between April 22 and April 25. These fish were stocked into Clear Creek, the South Fork of the Clearwater River at river mile 8.7, Cottonwood Creek, Red House, and the mainstem of the Clearwater River at Kamiah.

Direct release of 337,306 SST took place April 29 through May 1 into the mainstem of the Clearwater River. (Final Release Summary, BY95 SST).

System III

System III has 34 BPs. This System had 943,205 SST at the beginning of the fiscal year. In November, BPs 52,63,65, and 82 received 130,573 steelhead from System I RWs. Final release numbers were 1,012,670 fish which averaged 205 mm total length (Table 7).

Table 7. System III production, BY95 SST, FY96.

Month	Year	1st of Month			Growth		% Mortality	Ave Temp °F for month
		Number	fpp	L (mm)	in	mm		
October	95	959,324	28.42	118	0.9	22	0.48	51.1
November	95	954,700	19.53	134	0.62	16	0.48	49.8*
December **	95	1,073,011	14.86	147	0.50	13	0.20	53.5*
January	96	1,035,936	11.45	160	0.52	13	3.46	52.7*
February	96	1,029,193	8.60	176	0.63	16	0.65	53.2*
March	96	1,026,285	6.94	189	0.51	13	0.28	52.1*
April	96	1,024,076	5.79	201	0.46	12	0.22	47.7*
Release Apr/May	96	**1,012,670**	5.42	**205**				

* System under reuse part or all of month.
**Additional numbers due to fish moved from the RWs to BPs during November.
Source: Monthly Inventory Summaries, Sept 1995-May 1996
Final Release summary, BY96 SST
Production Narratives Sept-May, 1995-96
Daily Water Temperature Records, Oct-April, 1995-96

Steelhead in System III were AD clipped in October and November of 1995. Coded wire tagging began on October 23. All tagging was completed on November 8. Fish in BP51 and BP78 received a CWT and LV clips to help assess release results from Clear Creek and the South Fork of the Clearwater River, respectively. Fish in BP53 and BP76 were marked with a CWT, LV clip, and FB to help assess System contribution to the return.

System III was put on reuse on November 14. Water temperature increased from 45°F to 53-56°F for the remainder of November. System III was taken off reuse on April 18 and averaged 53°F for this five month period.

System III fish were treated for Ich with formalin three times in December as mortality climbed from 0.24 percent in November to 3.46 percent in December. Mortality dropped to 1.35 percent in January, 0.28 percent in February, and 0.22 percent in March. The mortality for April was 0.18 percent.

There were 525,799 steelhead from System III outplanted April 22 through April 25. These went to Clear Creek, River Mile 8.7, Red House, and the Clearwater River at Kamiah.

Direct release of 486,871 SST took place April 29 through May 1 into the mainstem of the Clearwater River (Final Release Summary, BY95 SST).

Distribution Summary

Release of BY95 SST began April 22 and ended on May 2, 1996. From April 22 through April 25 there were 1,103,204 SST outplanted to various locations. From April 29 through May 3 there were 1,377,435 SST direct released from Dworshak hatchery into the Clearwater River (Table 8). In April there were 4009 SST (729 pounds) distributed to NMFS for study in fish passage at Ice Harbor Dam on the Snake River.

Table 8. Fish distribution summary by site, BY95 SST, April 22-May 2, 1996.

Site	Number	Weight	fpp	Length	
				in	mm
Outplants 4/22-5/1					
Main S Clearwater R- Kamiah	154,271	23,120	6.67	7.54	191
S.F. Clearwater R-Cottonwood Creek	184,057	29,489	6.24	7.71	196
S.F. Clearwater R- River Mile 8.7	205,240	30,294	6.77	7.50	190
S.F Clearwater R- Red House	193,070	33,575	5.75	7.92	201
Clear Creek	366,566	57,604	6.36	7.66	194
Subtotal	1,103,204	174,082	6.34	7.67	195
Direct Release 4/29-5/3					
Main S. & North Fork Clearwater River	1,377,435	218,763	6.30	7.68	195
NMFS-Ice Harbor Dam	4,009	729	5.50	8.04	204
Totals/Averages	2,484,648	393,574	6.31	7.68	195

Source: Final Release Summary, BY95 SST
Fish & Egg Distribution Summary, FY96

This is the fourth year in a row that the 200mm release target size was not met. Cold water releases from Dworshak Dam for five weeks in the summer of 1995 slowed growth below projections.

Brood Year 1996

Adult Collection

Adult summer steelhead trout (SST) for Brood Year 1996 (BY96) were collected in the late Fall of 1995 and again in the Winter and Spring of 1996 to represent the entire run. The ladder was first opened on September 27 and closed November 30, 1995. During this 64 day period a total of 737 early-run steelhead were collected. The fish ladder was then re-opened a second time on February 1 and closed on May 7, 1996. During the February through May operation 3743 steelhead were collected for a total of 4480 fish trapped for the BY96 run.

Historically, the male:female return ratio has been 1:2.3. In 1996 the return ratio was 1:1.7.

Only five of the early run fish were diagnosed with enough fungus to warrant formalin treatment. These fish, along with one other which was severely cut, were moved to raceway C3 to facilitate ease of treatment and reduce chemical use. Half of these fish (3) did not survive to spawn. The fish were treated December 1, 4, 6, and 11 with a standing bath of 200 mg/L of formalin for one hour.

Spawning Procedures

Spawning began on Tuesday, January 30 and was conducted each Tuesday until May 7. The 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. All Takes were anesthetized with a 400 to 600 mg/l carbon dioxide solution buffered with 8 to 12 pounds of sodium bicarbonate. Oxygen was provided at a rate of one l/min. Pro-Polyaqua was added (250 ml per bin) to minimize stress and susceptibility to infection. Anesthetized adults were sexed, measured, and inspected for marks, tags and ripeness by personnel from the Idaho Fishery Resource Office and Hatchery Production. Spinal columns of ripe females were severed using a pneumatic knife. The females were then placed in a blood drainage rack for 1-20 minutes. The ventral side was then cut open using a spawning knife and eggs were collected in sterilized 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 maintain milt motility. Milt solution was poured onto the eggs and swirled for fertilization. After sufficient time had elapsed for fertilization to take place (one to three minutes), the eggs were rinsed of sperm, blood, and other organic matter.

Fertilized eggs were placed in Heath incubator trays at about 6,500 eggs per tray (1 female). In the tray was a 75 mg/l iodophor solution buffered with sodium bicarbonate. The eggs were maintained in this solution for approximately 30 minutes. Water in the incubator was then turned on at a flow of approximately five gallons/minute and ranged in temperature from 53^0F-55^0F.

Upon eye-up (approximately 17 days after fertilization at 54^0 F), the eggs were shocked, salted, passed through an electronic egg picker (Sustaf Model 10^6) to remove dead eggs, and enumerated using a mechanical egg counter. Eggs were then disinfected for 10 minutes in a 100 mg/l iodophor solution buffered with sodium bicarbonate. The eggs were then placed into either 2.5 gallon hatching jars (18,000 to 36,000 eggs per jar) or returned to Heath trays (9000 per tray). 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 the nursery tanks for initial rearing. Eggs which hatched out in trays were transferred out to the nursery in 30 gallon plastic cans.

Dworshak Fish Health Center Disease Sampling

About 52 percent of the females spawned and 8 percent of the males spawned were sampled for the IHNV assessment by Dworshak Fish Health Center (DFHC). Prevalence of IHNV in females tested was 13.2 percent in females and 0.0 percent in males. A complete summary of findings regarding disease sampling is being prepared by DFHC.

Spawning Summary

A total of 15 egg Takes were taken this spawning season, beginning on January 30 and ending on May 7. The 1096 females spawned (excluding the 65 involved in the NBS study) produced 6.7 million green eggs with an average fecundity of 6128 eggs/female. The 6.7 million green eggs plus 120,000 eyed eggs from NBS were enough to meet Dworshak's commitments to its own production program and those of Clearwater (CWH) and Magic Valley (MV) hatcheries. Early-returning adults were spawned in Takes 1 through 4, with later returning adults being spawned from Takes 5 through 15.

Egg Disposition

After shipping eggs for CWH and MV hatcheries and culling both green and eyed eggs, Dworshak put 2,882,040 eyed SST eggs into it's nursery for rearing. This number includes 120,000 eyed eggs from NBS studies which will later be put into the Production program.

Clearwater Hatchery received 145,500 green eggs and 782,500 eyed eggs for incubation in their isolation building. CWH also took green eggs for MV. These were incubated at CWH, and totaled 1,693,300 green eggs.

Performance/stock productivity study

This is the fifth year in which Dworshak has cooperated with a team from the National Biological Survey (NBS) being led by Reg Reisenbichler and Steve Rubin. The cooperative part of the study involved the holding and spawning of hatchery adult steelhead, the subsequent incubation of the resulting spawns, and the rearing of some of the fry and fingerlings in Dworshak's nursery and in Burrows ponds. The study seeks to examine: 1) the size-effects of fry ponded from females with "small" eggs vs females with "large" eggs, and 2) developmental effects of ponding fry at different stages of growth. The study uses fish from Takes 9,10, and 13.

The smallest eggs from 12 of 48 females, along with the largest eggs from 12 of 48 females were used in the size-effects study. Eggs from the 24 females which fell into the midrange egg-size were used in the developmental effects study. Different stages of egg development from the same spawning time were accomplished by varying the water temperature as the eggs were incubated.

Adult Disposition

There were a total of 1281 adults outplanted from Dworshak during the return run of BY96 steelhead. Table 1 illustrates the adult disposal of BY96 SST.

Table 1. Adult disposition of BY96 SST from Dworshak (includes 92 Kooskia transfers).

LOCATION	NUMBER	COMMENTS
Landfill	679	
WSU Bear Program	290	
ID Bureau of Prisons	2583	
Nez Perce	32	
Outplanted	982	1281 outplanted, 299 returned
Unaccounted for	6	
Total	4572	

Source: PRD-Spawning Activity Report BY96 SST
FRO-Adult steelhead outplanting 1996

Nursery and Early Rearing

Fish from the various egg Takes were generally moved from the incubation room to the nursery in amounts of either 18,000 or 36,000 fish/tank. Takes 1-6 were placed into incubator jars over the tanks. When approximately 70 percent of the fry had hatched, the remaining fry were poured into the tank. Eggs from Takes 7-15 were incubated completely in the Heath trays and transported from the incubator room to the nursery in a 30 gallon plastic can. Dead eggs and fry were picked and enumerated from each tank. Mortalities up through two days after swim-up were subtracted from initial loading, resulting in "adjusted initial loading" numbers (fish-on-feed). For BY96, a total of 2,882,040 eyed eggs were placed into the nursery and 2,740,425 fry went on feed (95.1 percent survival). See Table 2 for a comparison of egg and fry survival since 1990.

Table 2. Survival summary from green eggs to released smolts, BY90 through BY95, 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
1990	84.1	97.0	71.1	89.1	51.7	61.4	63.4
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
5yr Ave	**85.5**	**91.5**	**77.3**	**83.7**	**50.3**	**58.6**	**64.1**
1995	90.7	89.5	95.4	90.1	60.0	82.9	85.9
1996 YTD	88.5	95.1	90.9				

Source: Production Plan, BY97 SST.

Egg jars in A and B banks in the nursery began receiving eyed SST eggs on February 15. These two banks of rearing units were initially filled because the water supply could be heated to 54°F. Once these two banks of rearing units were full with Takes 1-8, tanks in C and D bank were used. These later banks began receiving SST in the beginning of May, when water from the primary line of Dworshak Reservoir was relatively close to temperatures in A and B bank. This tanking strategy maximizes the use of the hatchery's heated water supply.

From February through August of 1996, water temperature in A and B banks averaged 53.4°F. From May through August, water temperature in C and D bank averaged 52.7°F.

Growth of BY96 SST fry/fingerlings in the nursery was between 0.6 and 0.9 inches per month for each Take. Because new Takes are being added to the nursery and large fish are being transferred to outside ponds throughout most of the rearing period, actual length gained per month for the entire BY is distorted low on the Monthly Inventory Summary (MIS).

A total of 113,770 NBS study fish were added to Dworshak's production and were originally stocked into BPs 10 and 14 in System II.

The survival from fish-on-feed until ponding was 90.9 percent for BY96 SST. The average for the three years from 1993 to 1995 is 90.1 percent. This will be the final year using an outdated egg picker and counter. Subsequently, future egg and nursery losses should be tracked with greater accuracy.

Nine different feed sizes are used in the production of SST at Dworshak (Table 3). 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 BY96, Rangen floating heat extruded feed was used for the larger fish. The advantages of this food appear to be greater palatability, less

waste, and better conversion.

Table 3. Feed changeover table for BY96 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	Rangen Floating	RGF 3/32"	RGF1	20	13
9	Rangen Floating	RGF 1/8"	RGF2	13	1

Source: Annual Report 1995

Fish in the nursery were grown out and split to other nursery tanks when density indexes (DI) exceeded 0.5. Fish were moved outside when they grew to approximately 85 fpp. Take 1 was moved outside on June 6. Each subsequent Take was moved out approximately each consecutive week thereafter. A new transport tank was purchased in August 1996 to help move fish out of the nursery. This tank allowed for Takes 11 through Take 15 and the NBS fish to be moved out of the nursery directly into the marking trailer. This was a first for Dworshak, as prior to this fish were moved outside into BPs and then netted and loaded into the marking trailer at a later date. Fish can be held for longer periods of time in the new transport tank, marked, and then stocked directly from the marking trailer to outside rearing units. This reduced stress on the fish by eliminating an entire handling session for fish in these final Takes.

Historical losses indicate a projected release number between 2.2 and 2.3 million SST in the Spring of 1997. Table 4 illustrates the steelhead on station at the end of FY96 and the projected release numbers.

Table 4. BY96 SST on station and projected release summary, (9/30/96)

As of September 30, 1996					Projected to release - May 1997		
System	Number	Weight (lbs)	fpp	L (mm)	Proj % Loss to Release	Proj Release Number	Proj Size at Release (mm)*
Syst I RW	327,575	17,291	18.9	135	10	294,818	191
SystI BP	705,008	44,310	15.9	143	10	634,507	197
SystII	555,634	13,913	39.9	105	13	483,402	201
SystIII	940,678	30,591	30.8	115	15	799,576	205
Total/ average	**2,528,895**	106,105	27.1	123	**12.5**	**2,212,303**	**200**

*Projected length based on Systems II & III going on reuse end of November - March 1, with March temperature ging 47°F.

BY95 SST suffered only an 8 percent mortality from 9/30/95 to release in May, 1996. There were only 9 ponds of fish with confirmed IHN for BY95 SST. If BY96 suffers similar losses, the release numbers will be in excess of 2.3 million. There were two RWs and one BP of BY96 SST with confirmed IHN at the end of FY96. The losses averaged 16 percent for the RWs and 2.6 percent for the BP fish.

System I Raceways and Burrows Ponds

System I received slightly more than 1 million SST, 0.71 million in the BPs and 0.33 million in the RWs. Because BY95 chinook required only two RWs, 13 RWs were loaded with SST. This allowed for reduced densities by fewer fish being loaded into both the reuse systems. Steelhead from Takes 1-6 were loaded into System I, Takes 1 and 2 into the RWs and Takes 3-6 into BPs.

At the end of FY96, only RWs 19 and 23 have been confirmed positive for IHN. Losses were 19.8 and 12.4 percent, respectively, by the end of September.

On June 13, Take 2 SST were moved from the nursery to one RW to ensure an even genetics mix. The DI in the nursery ranged from 0.58 to 0.64 for this Take. A length frequency sample was taken to determine base line data. The fish were then split equally into three RWs. Two of these RWs were fitted with screens to allow fish to use only 1/3 of the RW. The third RW was left unaltered as a control, allowing the fish to use the entire rearing unit. The initial DI in the two altered RWs was 0.43. The initial DI in the control RW was 0.15. Length frequencies will be monitored periodically throughout the rearing cycle to help assess the role that density plays in length frequency of SST at Dworshak.

System II .

System II received 0.56 million SST at the end of August and beginning of September, 1996. Takes 11-15, along with NBS Takes 98 and 99 were loaded into a new transport tank and moved directly to the marking trailer. From here, fish were marked and stocked into the outside BPs. This transport method proved successful in reducing stress on the fish by eliminating an additional handling session for marking. It also reduced manpower needed to crowd and net the fish during marking.

No IHN has been confirmed in System II by September 30, 1996.

Takes 98 and 99 from NBS studies will be added to Dworshaks production. There were a total of 113,000 SST in these two Takes.

System III

System III received 0.95 million SST from Takes 7 through 10 during July and August, 1996.

Only BP 83 had confirmed IHN by September 30, 1996. The loss thus far has been light at 2.6 percent.

Besides the length frequency evaluation study in System I, SST in all three systems are being fed moist food longer into the rearing cycle. This should increase size and help offset the growth lost

Brood Year 1995

Only 165 SCS returned to the Complex in the summer of 1995, 40 returning to Kooskia and 125 to Dworshak. Twenty-eight females were spawned, 21 from Dworshak and 7 from Kooskia. There were 110,900 green eggs produced. Eye-up was 71.5 percent for a total of 79,000 eyed eggs.

On October 16,18, and 25, 1995, there were a total of 57,000 low or no BKD status BY95 SCS eggs shipped from Dworshak to Kooskia. There were 22,250 medium and high BKD status eggs left for incubation at Dworshak. These eggs at Dworshak were incubated on chilled water ranging in temperature from 43.5 to 48.2°F until they were moved out of the incubation room in January, 1996. The Fish Health Center took 4750 fry for BKD studies, and the remaining fry were moved into two tanks in the nursery. The 8750 fry from females which tested high for BKD were moved into tank 816, and the 8750 fry from females which tested medium for BKD were stocked into tank 716.

On May 21, 1996, an estimated 19,000 BY95 SCS were moved into RWs A1 and A2. They were 180 fpp and 67 mm in total length at the time of the move.
On July 15, 1996, these fish were AD clipped and CWTed. The marking crew recorded fewer fish than our inventory books and the numbers were adjusted for BY95 SCS to 16,153 fish.

By the end of September, 1996, there were 16,140 BY95 SCS at Dworshak. These fish averaged 24 fpp and 132 mm total length (5.2 inches).

during the five weeks of cold water spilled by Dworshak dam during the summer. Historically, SST were converted from moist to dry feed at 50 fpp. For BY95 SST, fish were grown to 40 fpp before being converted to dry feed. Fish in BY96 will be grown even larger before converting to dry feed. SST in System I will reach an average of 30 fpp, System II-16 fpp, and System III-23 fpp.

Spring Chinook Salmon
Brood Year 1994

On October 1, 1995, there were 103,792 BY94 spring chinook salmon (SCS) on station at Dworshak. These fish suffered only a one percent mortality loss through release on April 11, 1996. The release number was 102,903 (Table 1).

Table 1. BY94 SCS in System I Raceways, 9/30/95, and release data, 4/11/96.

	September 30, 1995			9/30/95 to 4/11/96 % Loss	Final Release April 11, 1996			
Number	Weight lbs	fpp	Length mm		Number	Weight lbs	fpp	Length mm
103,792	4,204	24.7	130	0.94	102,903*	9,285	11.1	162

* There were an additional 390 SCS taken to Marrowstone for salt water testing.
Source:Oct 1, 1995 MIS
Final Release Summary, 1996

BY94 SCS had a recorded cumulative survival from green egg to smolt of about 82 percent (Table 2). Dworshak purchased a new egg picker/counter (Van Gaalen Fish Egg Sorter Model N-100) which will assist in greater accuracy in assessing areas of early mortality.

Table 2. Survival summary from green egg to smolt, BY89-94 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
1989	92.8	94.2	89.2	96.5	75.2	81.1	86.1
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
5yr Ave	**91.9**	**95.9**	**95.9**	**97.3**	**82.2**	**89.5**	**93.3**
1994	89.2	89.5	87.4	98.0	82.3	93.4	97.0

Source: Annual Report 1995
Production Narrative, May 1996.

On February 14,1996, IFRO PIT tagged 200 SCS from each of six RWs for a total of 1200 fish tagged. Detection of juvenile SCS with PIT tags help assess downstream migration survival and travel time. Adult return information is also collected from SCS which are PIT tagged. See the IFRO Annual Report for details.

On March 5, a 28d erythromycin treatment was started on the SCS in three of the six raceways. The treatment dosage was 100mg/kg body weight daily. This is being done as an INAD investigation study for using erythromycin against bacterial kidney disease. After treatment, approximately 1500 SCS are transported to Merristone for salt water testing. See the Dworshak Fish Health Center Annual Report for details.

On August 16-18, 1995, the BY94 SCS were CWTed. On March 31, 1996, the IFRO checked for CWT retention. Tag retention was 97.9 percent.

On April 1 the 28d erythromycin treatment was completed. Toxicity testing was done over the next several days and no adverse effects from the treatment were observed.

On April 11, 1996, Dworshak released 102,903 SCS at 8:30 pm. The release late in the day allowed fish to help avoid birds and other predators. High water flow due to heavy rains also assisted in downstream migration. See the IFRO Annual Report for details.

BROOD YEAR 1996

Fish traps at both Dworshak and Kooskia were operated to collect BY96 SCS. The fish ladder at Dworshak was opened May 24, 1996 and closed the last day of spawning, September 24. There were 963 SCS returned to Dworshak and 202 SCS returned to Kooskia by the end of the spawning season (Table 1).

Table 1. Adult returns, BY96 SCS. (09/30/96)

AGE	NUMBER/DWORSHAK	NUMBER/KOOSKIA	TOTAL
I-OCEAN	275	86	361
II-OCEAN	665	104	769
III-OCEAN	23	2	25
UNKNOWN	0	10	10
TOTAL	963	202*	1165

*32 of these fish were passed over weir into Clear Creek.
Source:CRIS Summary Table, BY96 SCS

Adult Holding

Dworshak stock was kept in holding pond (HP) 1 and Kooskia stock was held in HP 2. All of the fish received numbered opercular tags in order to distinguish stocks. Idaho Fish & Game Department also used these tags to track individual fish through the spawning cycle. Formalin treatments were administered to the adults in order to retard fungus infection. The formalin treatments began on June 26 with three treatments per week at 200 mg/l for one hour treatments. Due to four adult mortalities in July, the treatments were then stepped up to five days per week on July 22. Treatments continued until September 20. Fungus was not a major problem or observed to be the cause of any significant adult mortality. Incoming females were also injected with erythromycin at a dosage of 20 mg/kg body weight as a preventative against vertical transmission of BKD.

Adult Mortality

Pre spawning mortality (mortality before the first spawning on August 20) of BY96 adult chinook was 2.5% for Dworshak stock and 0.5% for Kooskia stock. During spawning, losses were 14.1% for Dworshak stock and 19.4% for Kooskia stock (Table 2).

Table 2. Mortality of BY96 SCS adults held from 6/96 until 9/24/96.

Time of Mortality	Dworshak Number	Dworshak Percent	Kooskia Number	Kooskia Percent	Total Number	Total Percent
Prespawn	24	2.5	1	0.5	25	2.2
Spawning	134	14.1	38	19.4	172	15.0
Total	158	16.6	39	19.9	197	17.2

Source: SCS BY96 Spawning Report

Spawning began on August 20, 1996 and continued through September 24, 1996. There were 335 females and 357 males (118 jacks) which returned to Dworshak that were spawned, for a total of 692 fish. Kooskia returning adults which were spawned totaled 99, 50 males and 49 females. The male:female spawning ratio was 1.1:1.0. Total spawning numbers and male/female spawning ratios are represented in Figure 1.

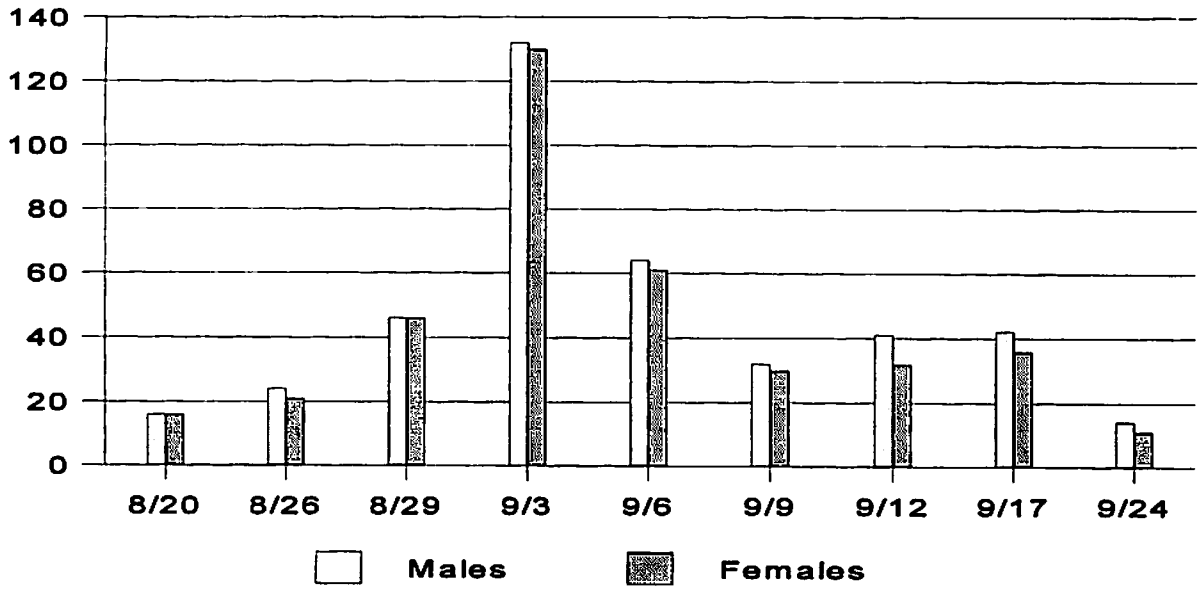


Figure 1. Male/female spawning numbers BY96 SCS
Source: IFRO-Dworshak/Kooskia Complex SCS News 1996 Edition

Spawning Procedures

Adults were anesthetized with Tricain Methane Sulfonate (MS-222) buffered with sodium bicarbonate and checked for ripeness. Males were sent directly to the spawning table while ripe females were killed using a pneumatic knife and bled for 5 to 10 minutes in a spawning rack. Green males and females were sent back to the holding ponds. Spawned adults were identified with numbered pins for later identification and segregation/culling of eggs according to disease status. Milt was collected in disposable Styrofoam cups and kept on ice until needed. Females were cut and eggs collected in disinfected colanders to drain ovarian fluid. Gametes from both males and females were mixed with the addition of a small amount of a 1% saline solution to aid sperm motility. After approximately two minutes, fertilized eggs were thoroughly rinsed and placed into incubators where they were disinfected with 75 mg/L iodine for 30 minutes. Females were swabbed with iodine before spawning. Males were not swabbed with iodine to avoid contaminating the milt. Iodine solutions of 500 mg/L were used to disinfect equipment and

workers' hands.

On September 17, eleven green females were injected with LH-RH_a hormone to induce spawning. One ripe female died in the holding pond. The ten remaining females were ripe on September 24.

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

Table 3. Dworshak and Kooskia adult spawners and both green & eyed egg numbers, BY 96 SCS.

Location of Broodstock Return	Males spawned	Females spawned	No eggs /female	No green eggs	Percent Survival	No eyed eggs
Dworshak	357	335	3,459	1,158,765	87.2	1,010,443
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

Source: CRIS Summary Table BY96 SCS
BY96 SCS Spawning Report

Spawning Summary

BY96 SCS adult returns were better than BY95 returns but were still not enough to realize the goal of a 1.35 million smolt release. Table 4 illustrates adult SCS returns to both Dworshak and Kooskia in recent years.

Table 4. Dworshak and Kooskia adult returns, BY91-96, and eggs produced.

Brood Year	Adult returns[1]	Percent females	Green eggs	Eggs/ female	Percent Eye-up
1991	632	51.9	995,842	4,117	89.0
1992	681	53.2	881,980	?	?
1993	1,579	51.7	3,489,391	4,270	87.2
1994	306	54.7	517,314	4,106	89.2
1995	165	29.1	110,899	3,961	71.5
5yr Ave	673	48.1	1,199,085	4,114	84.2
1996	1,165	36.2	1,333,450	3,473	86.5

[1] Includes jacks
Source: Annual Report 1995
Spawning Report, BY96 SCS
CRIS Summary Table BY96 SCS

All eggs were incubated in Heath trays. Incubation temperatures averaged 44°F using the water chillers. The eggs were given a 15 minute 167 mg/l formalin drip treatment three times a week.

At the end of September, 1996, all BY96 SCS eggs were being incubated at Dworshak. Future plans include incubating all eggs from females which tested high or medium BKD status (ELISA) at Dworshak, and all eggs from females which tested low BKD status to be incubated at Kooskia.

Rainbow Trout
Brood Year 1995

Rainbow Trout used for Open House Fishing Day

On October 1, 1995, the BY95 rainbow trout (RBT) to be used for Dworshak's Open House were in two tanks in the nursery. Inventory numbers showed there were 13,289 RBT averaging 92 fpp and 76 mm (3.0 inches total length). On February 28, 13,700 RBT were inventoried and moved from the nursery to RWA9. There were still 3445 RBT left in the nursery at that time. During the first five days after the move, the fish in RWA9 suffered over 40 percent mortality. It appears an overnight temperature surge into RWA9 along with a corresponding oxygen deficit directly after handling stress may have been responsible for the mortality. On March 27, the outside RBT along with those in the nursery were moved into BP50. At the end of March there were 10,993 RBT on station.

Mortality for April was 19 percent as a heavy Ich infestation developed on the fish in BP50. The fish were treated once in May with formalin, after which the fish were put on cooler river water in an attempt to reduce reinfestation. During May, small RBT which were captured in the steelhead trap were put into BP49 and BP50 to supplement numbers for the Open House. After this occurred, numbers of RBT to be used for the Open House became estimates.

On June 10, 1996, approximately 12,000 RBT were stocked into the hatchery's settling pond. About 1,400 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).

RBT reared at Kooskia and transferred to Dworshak.

There were approximately 160,000 RBT brought down from Kooskia NFH in June. These fish were reared on well-water and originally destined to be stocked in Dworshak Reservoir on the first of June. Because Kooskia no longer had space to hold these fish, they were put on river water at Dworshak. These fish were 7.76 fpp and 182 mm (7.76 inches) total length at the end of June, 1996. These fish were later outplanted to various lakes and reservoirs (Table 1).

Table 1. Outplanting of BY95 RBT from Dworshak, FY96.

Destination	Number	Weight (Lbs)
Var. Lks. Coeur d' Alene Tribe	3,020	625
Mud Springs Res	11,020	2,240
Campbells Pond	4,750	1,133
Lucky Peak Res	34,077	6,384
Arrow Rock Res	40,575	6,529
Anderson Ranch Res	30,201	5,149
Magic Res	34,780	5,450
Soldier's Meadow Res	3,250	1,300
Winchester Lk	3,250	1,300
Spring Valley Res	3,125	1,250
Total	168,048	31,360

Source: RBTPL96.wk3
Distribution Records, 1996
Fish and Egg Fiscal Year 1996 Distribution Summary

Dworshak kept approximately 7500 RBT to use as lunker trout for Open House 1997. At the end of September, 1996, there were 7525 BY95 RBT on station. They averaged 2.9 fpp and 9.5 inches total length. They were being held in RWB30 at the end of September.

Brood Year 1996

Rainbow Trout used for Open House Fishing Day

There were 14,776 BY96 RBT at Dworshak at the end of September, 1996. They are 20 fpp and 5 inches in total length. These fish are being reared for Open House 1998. They were located in BP1 at the end of September. These RBT came from a shipment of eggs from Ennis NFH in March, 1996.

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 BY96 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

Brood Year 1995 Steelhead
There were 2.4 million steelhead smolts released in April/May, 1996. This release was above the mitigation goal of 2.3 million. These smolts are from brood year 1995. They averaged 195 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 nine ponds broke with the virus. A total of 392,845 pounds of steelhead were produced, as compared to 332,000 pounds in 1995 and 280,000 pounds in 1994.

Brood Year 1996 Steelhead
There were 4480 steelhead returned to Dworshak NFH in the Spring of 1996. A total of 2.88 million eyed eggs went into Dworshak's production program. Dworshak shipped 145,000 eyed eggs and 782,000 green eggs to Clearwater Hatchery. Also, 1.69 million green eggs went to 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 fifth 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 1994 Chinook Salmon
Dworshak NFH released 102,903 spring chinook salmon weighing 9,285 pounds on April 11, 1996. This was below the 1.3 million target mainly due to low number of adult returns (306 to Dworshak and Kooskia combined).

Brood Year 1995 Chinook Salmon
Adult returns of Brood Year 1995 produced only 165 fish to the combined stations. Only 51,250 eyed eggs resulted from these returning adults.

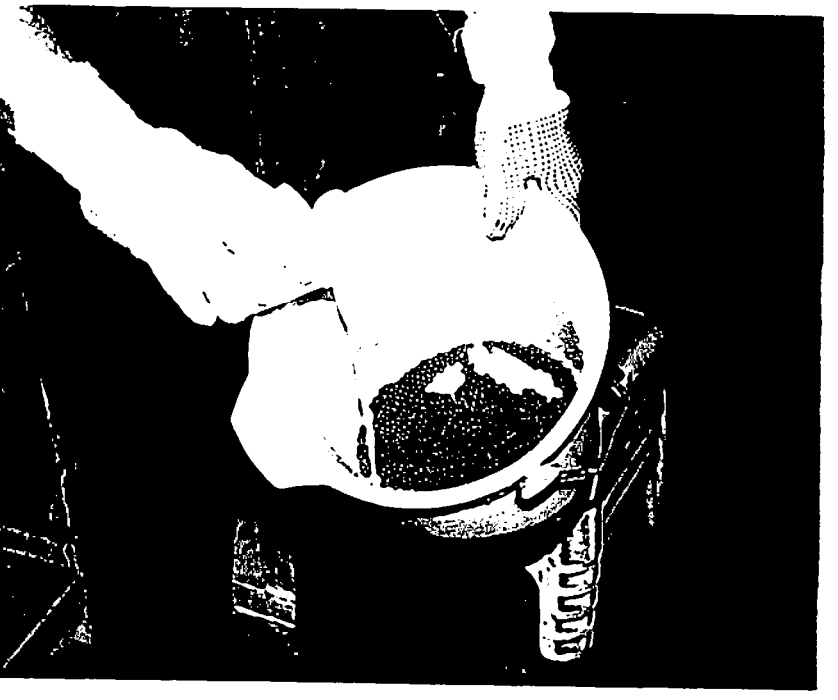
Brood Year 1996 Chinook Salmon
Adult returns of Brood Year 1996 produced 1165 chinook to the combined stations. These have produced about 1.1 million eyed eggs.

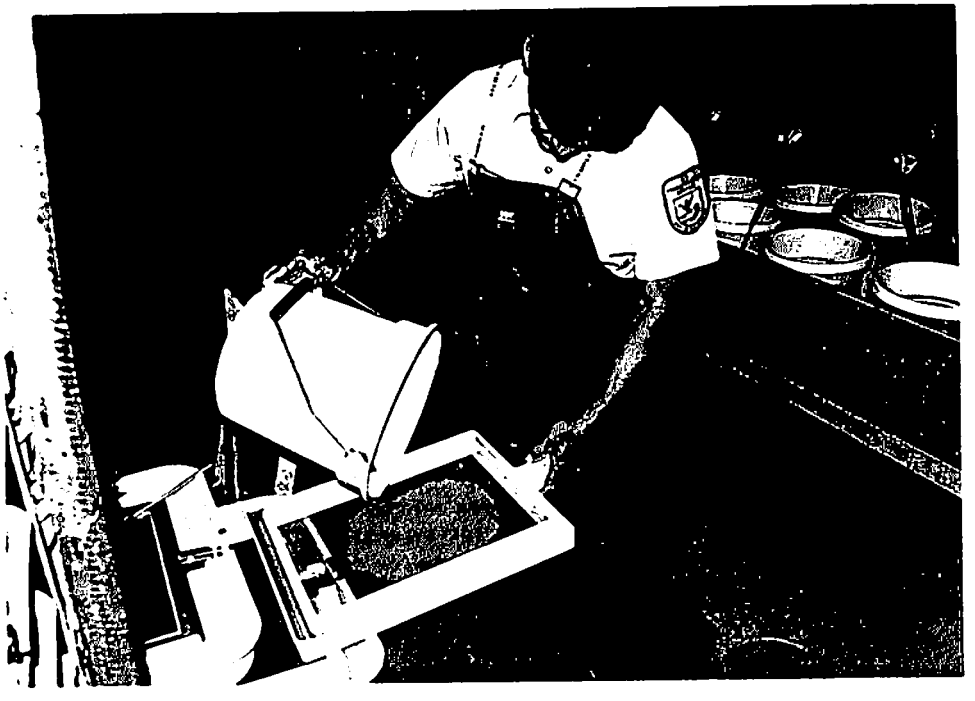
Brood Year 1996 Rainbow Trout
Kooskia reared 160,000 RBT on well-water until June, 1996. At this time Kooskia no longer had space for the RBT and they were transferred to Dworshak and put on river water. Approximately 7500 of these fish are being reared at Dworshak for Open House 1997 fishing day. The remaining fish were not stocked into Dworshak Reservoir but later outplanted to various lakes and reservoirs in Idaho. About 1,400 RBT were harvested at the 1996 Open House by children 12 year and younger.

Brood Year 1996 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.

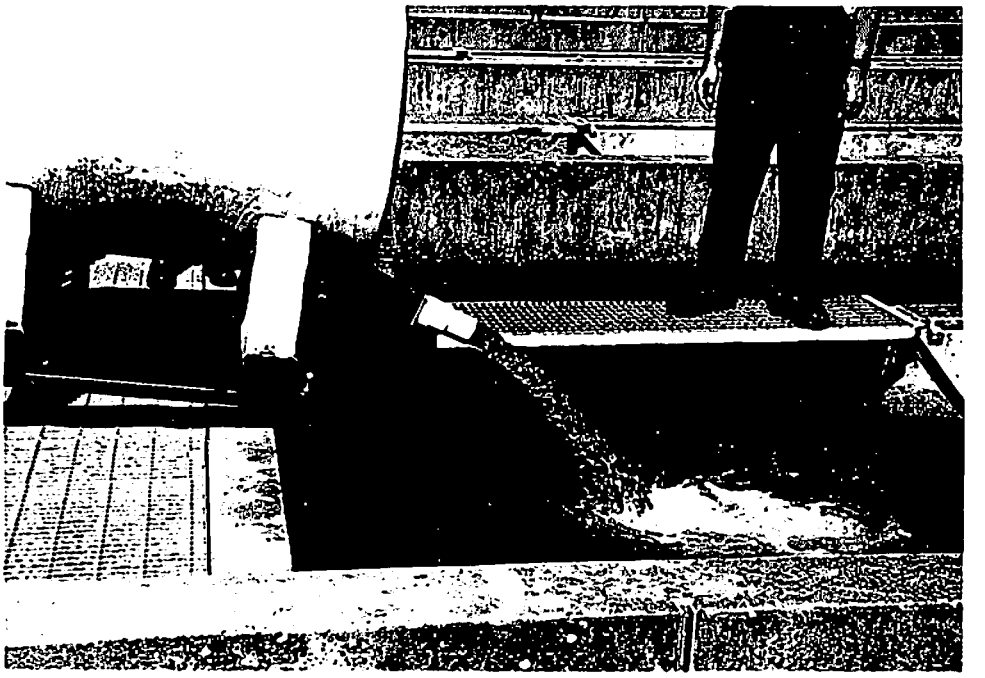
FISH CULTURE ACTIVITIES

Summer Steelhead Trout (SST) were spawned beginning in January. Over 7 million eggs were collected during the spawning season.

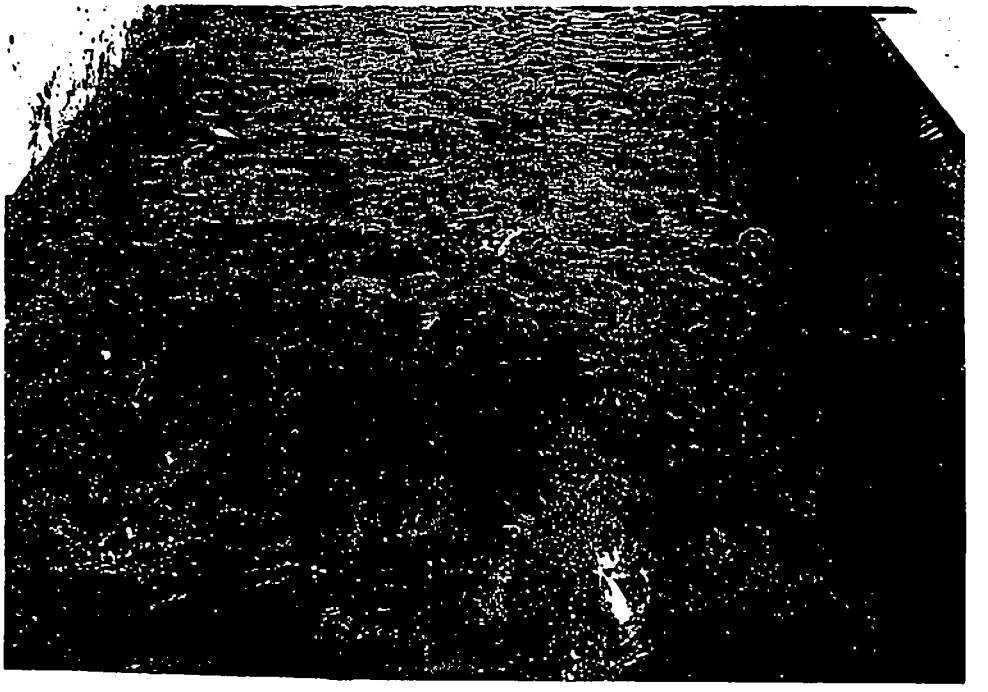




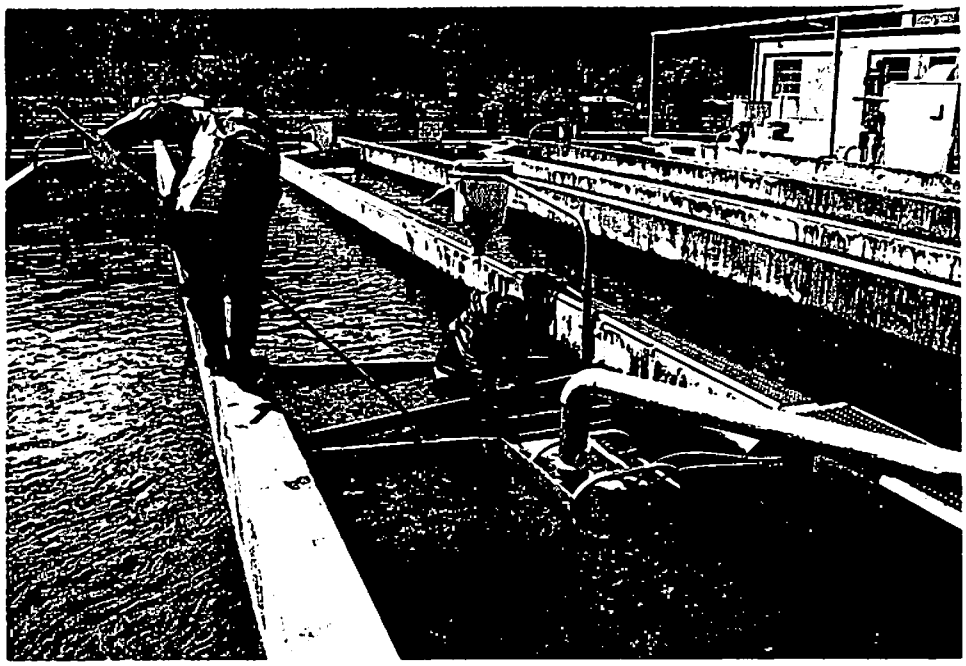
Animal Caretaker John Vargas pours fertilized steelhead eggs into an incubating tray.



Steelhead fingerlings being moved from the nursery to the outside Burrows ponds.

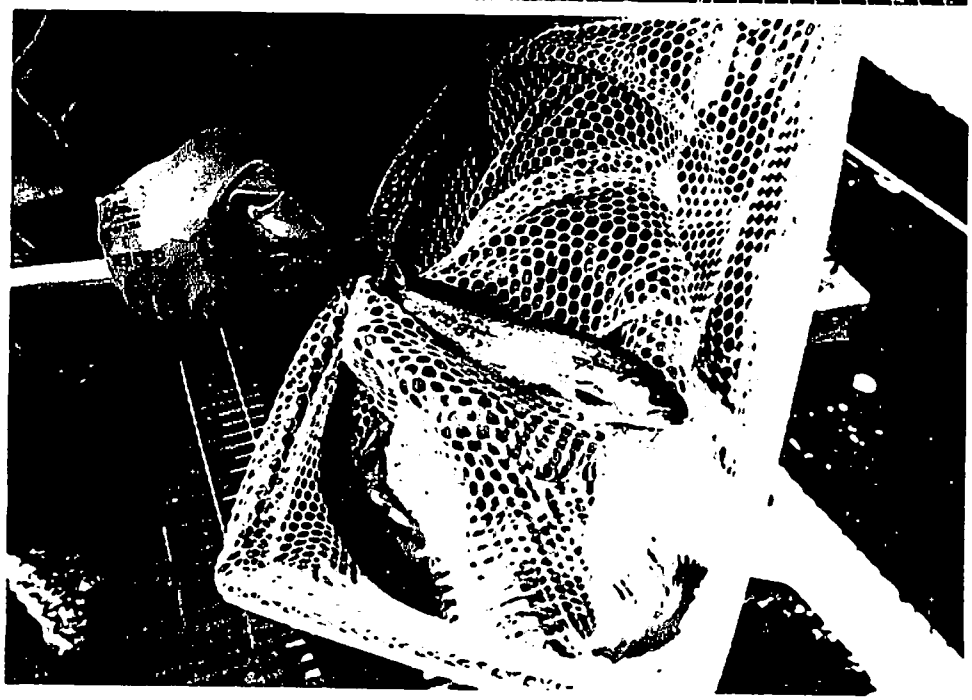


Heat extruded floating feed was one of several types fed to pre-release sized steelhead.



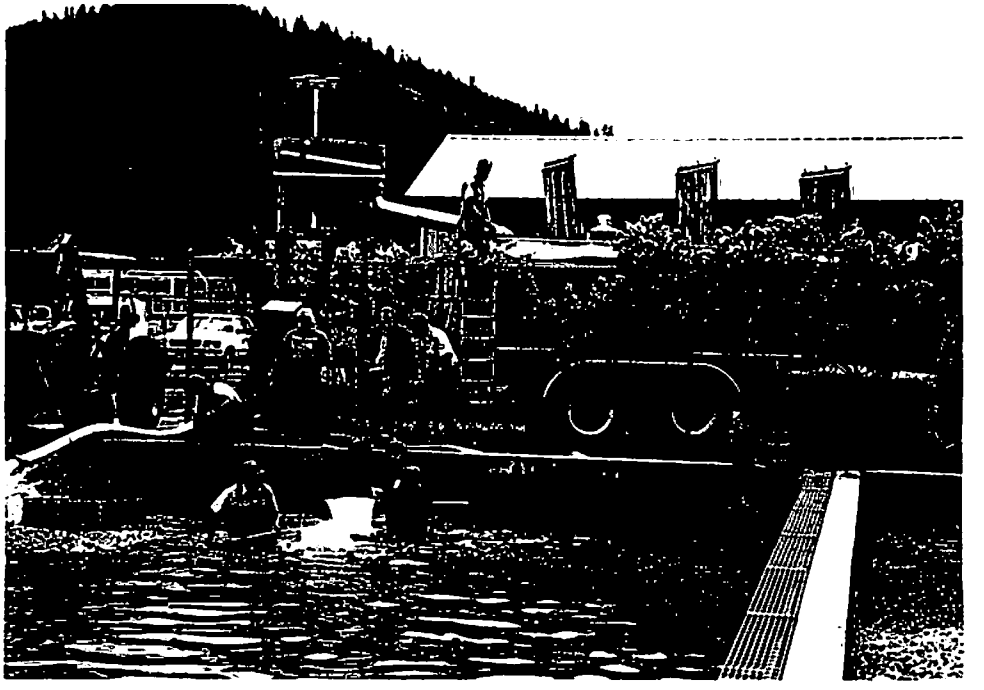
Hatchery workers crowd fish into the pump for loading in the fish transport truck.

Army Corps fish transport truck loading smolts for off-site release.



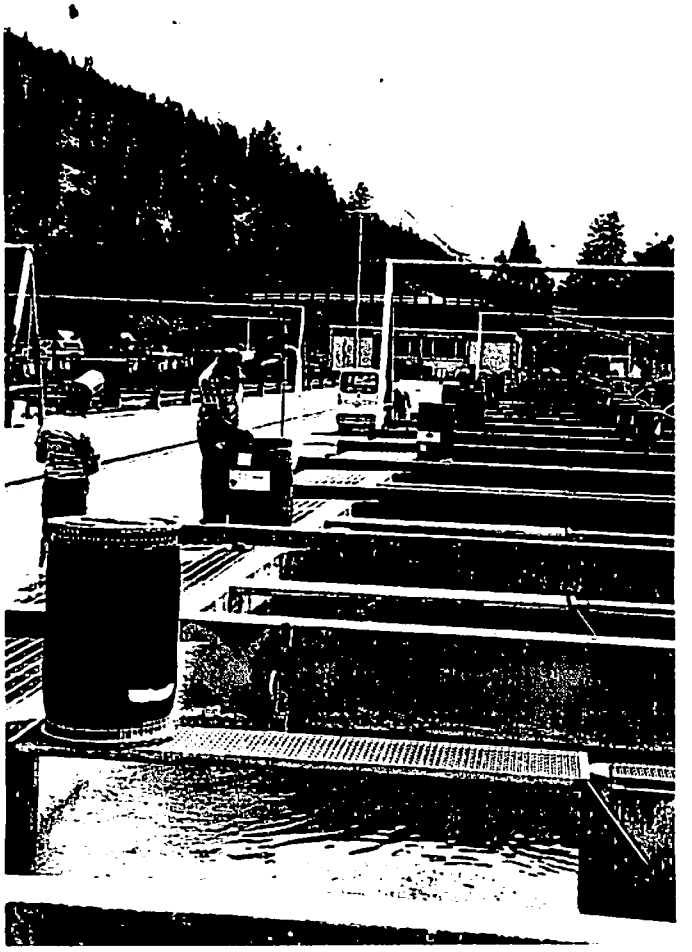
Steelhead smolt at release size, about 8 inches in length.

Adult steelhead trout were outplanted in various release sites on the Clearwater River. Assisting in the outplanting were Idaho Fish and Game, and the Nez Perce Salmon Corps.



Rainbow trout remaining after the summer Kid's Fishing Day were outplanted in various lakes and rivers.

Fish Culturist Rocky Greenland making pond crowders.



Hatchery production crew treats Burrows ponds with chlorine after releasing smolts.

REPAIRS/IMPROVEMENTS/NEW EQUIPMENT

Maintenance

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

Steps were repaired on A-bank and the walkway to Burrows pond 70 at Dworshak. Mechanical I and II boiler recirculation pumps were installed and painted. Painting of electrical shop is in process.

The maintenance crew assisted an electrical contractor on a COE electrical repair contract. The contractor damaged both an electrical line and a water line that had to be repaired. Aerators for the reuse sludge basin were repaired and replaced for the reuse operation.

Carports were finished on the four Complex residences with maintenance crew installing wiring for lights. New plumbing fixtures in kitchens and bathrooms were installed by the crew. New cabinets were installed by a local contractor.

Ben Greene, electrician, furnished the COE Electrical Design Branch a report on Bassler (electrical controls) for generator modification.

A 480 volt safety disconnect was relocated for the large pond crowder.

A new boom truck was delivered on December 14. Truck was paid for out of FY 95 funds. All the maintenance crew received training on the use of the new boom truck.

Continued to upgrade Complex electrical systems by installing approximately 30 ground fault interrupters plus general maintenance to electrical circuits.

A recirculation pump in one of the large boiler in Mechanical Building II was repaired. System III was off heat for several days.

Piping modifications were done in Mechanical Building I. These modifications will allow the future removal of the sand filters and U.V. lights not being used.

Electro Test, Inc serviced and repaired a large 3000 amp breaker in Mechanical Building I.

The railing around the fish counter was removed so visitors scan get a better view of the fish counter and adult steelhead and salmon jumping over the weir.

With the aid of an Idaho FRO jet boat and operator, the maintenance crew repaired the mainstem Clearwater River discharge pipe damaged during the flooding. This pipe is used for all of the steelhead on-site releases.

Cleanup and rehab projects for the mechanical buildings continue. The U.V. bulbs were removed and shipped out for proper disposal.

The maintenance crew finished the cabinet work and painting of the employee hatchery residences.

Dave Owsley and Dave Clifford along with operator Jim Dodge and COE representative Jim Kosciuk, worked on a frozen sewer line from Ahsahka to the hatchery on February 7.

In preparation for installing the two new pumps at the main pump house, electrical work was done on the Bassler controls.

Hatchery electricians are trouble shooting the hatchery alarm system after experiencing some problems of the system malfunctioning. Ben Greene, electrician, did a complete backup of the existing alarm system.

Allied Security Co. replaced all door locks on the Dworshak Complex building. A master key can be used for all doors except the FRO building and FHC.

Work was finished on the guard rails along the adult holding ponds and the modified adult holding pond raceways.

Bird netting repairs were done on the B-bank chinook raceways.

Systems II and III filter bed cleanup and bubbler lines were repaired and/or replaced.

Ground Fault Interrupter breakers were installed in the maintenance shop as well as the production area on any electrical power tool that could create a safety hazard.

New conduit was installed in the Fish Health Center and three new electrical outlets were added for a new infinite temperature bacterial culture cooler.

Work began with the dismantling and eventual rebuilding of the biofilter bed pumps/control room to comply with OSHA electrical codes.

Work continues in sludge sump. Removal/relocation of all topside electrical gear.

Annual breaker maintenance was contracted out to Electro-Test, Inc.

On May 8 assisted Clearwater Power Company with the latest 12.5 KV boiler problem in Mechanical Building II. A drain line from the feed building roof was rebuilt. It appears that the original contractor neglected to put a 20' section of drain pipe in.

Valves and fire hydrant on the 'point' and Warehouse West were repaired.

Three apple trees, two flowering Japanese cherry trees and an English Walnut tree were planted on the station.

Sand filter control cabinet and piping near Mechanical Building I were dismantled.

Sludge pond and fishing pond was cleaned in preparation for the June 15 Open House.

Annual power outage with Clearwater Power Company occurred May 22.

Herco Asphalt patched several areas of pavement on the Complex.

Valve repair in Burrows ponds 49 and 9.

Mike Dietrich, COE Safety Officer, assisted the maintenance crew June 18-20 with separating water from the used oil in the underground storage tanks. The tanks will be removed or filled-in with sand.

Annual disinfection with chlorine in reuse Systems II and III from June 24-27.

The summer youth group formed and poured cement for the hatchery picnic area, painted the hatchery employee's residential carport, and painted a yellow directional fish path for the self-guided visitor tour.

The underground storage tank removal contract started up again. COE and the contractor began filling in place two 20,000 gallon tanks near the fish ladders.

Extensive work was done on Residence #1. Five trees were cut down and shrubs in both front and back yards were cleaned up. The patio cover was changed, and sprinkler system revamped. The residence insides were prepared for new paint and carpeting and electrical maintenance completed.

Work on main pumps #1 and #3 included dismantling and assembly of a new pump. Electric panels on pump control panel door frames were modified to accommodate soft starts.

Maintenance crew accomplished cleanup, repair and retube work on ozone generator

Dave Trainor, Maintenance Worker, installed additional modem lines in administration office area to allow for integrated modem.

Another phase of the rehabilitation in Mechanical Building I was completed with dismantling of the storage loft.

Maintenance crew removed the outside sand filter in Mechanical Building I.

Completed fuel tank (boiler) filling and hazmat removal.

-- EQUIPMENT --

Egg sorter ($4,700.00)

Adjustable grader ($3,500.00)

Electric cart ($6,500.00)

Fish transport tank ($3,526.00)

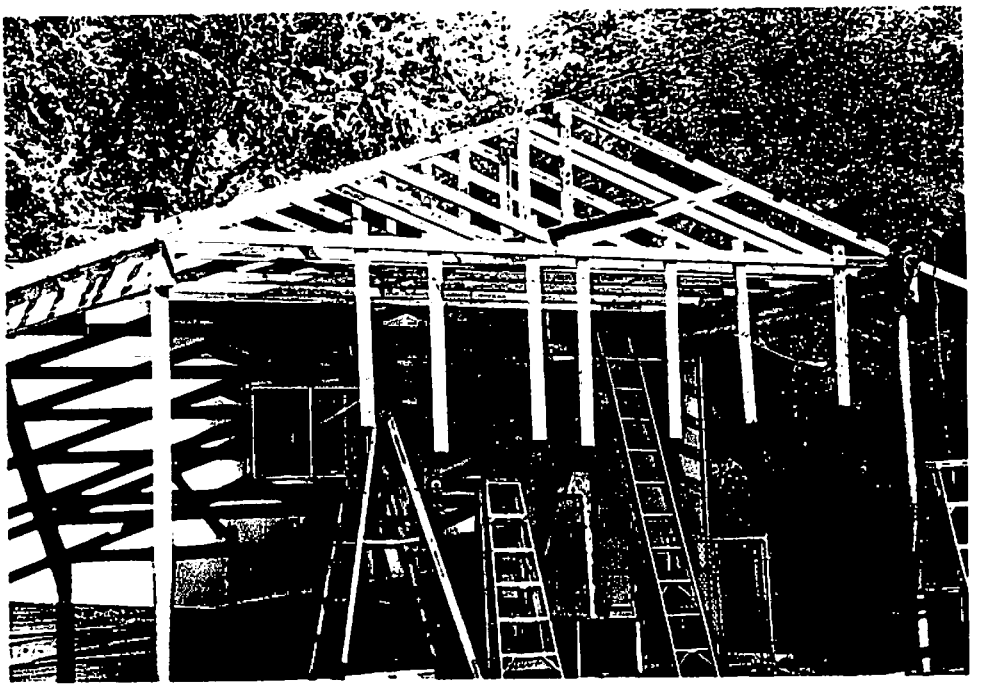
4 Computers ($10,000.00)

Office furniture ($2,000.00)

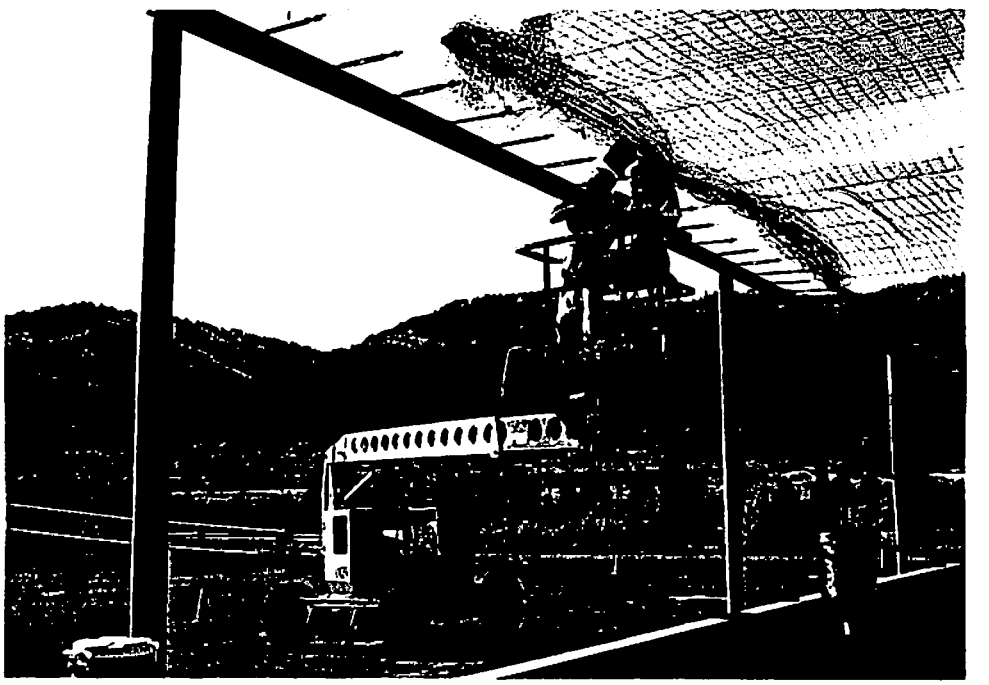
2 compact pick-up trucks ($19,000.00)

Snow blower ($650.00)

REPAIRS, IMPROVEMENTS AND NEW EQUIPMENT



Maintenance crew built carports onto the four hatchery residences.



Painting and sanding of the bird-netting standards was begun during the summer.

REPAIRS, IMPROVEMENTS AND NEW EQUIPMENT

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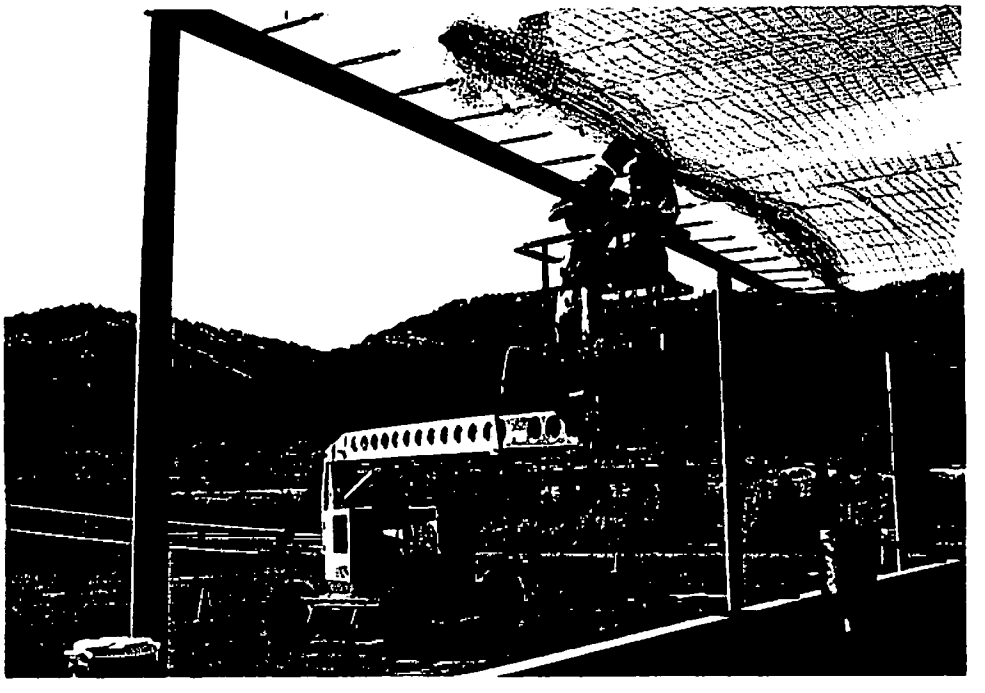

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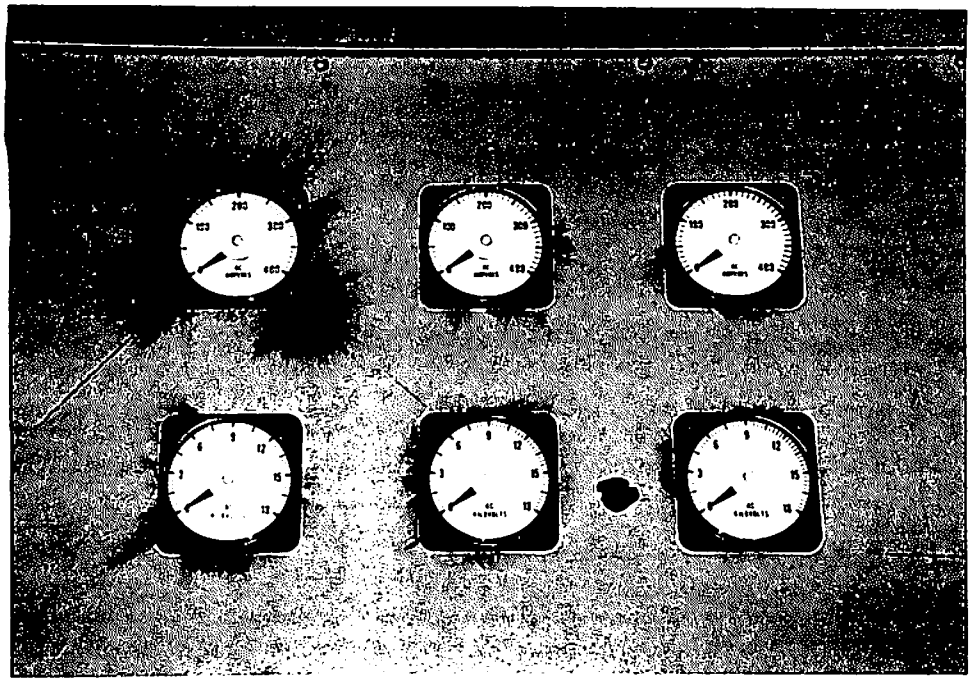
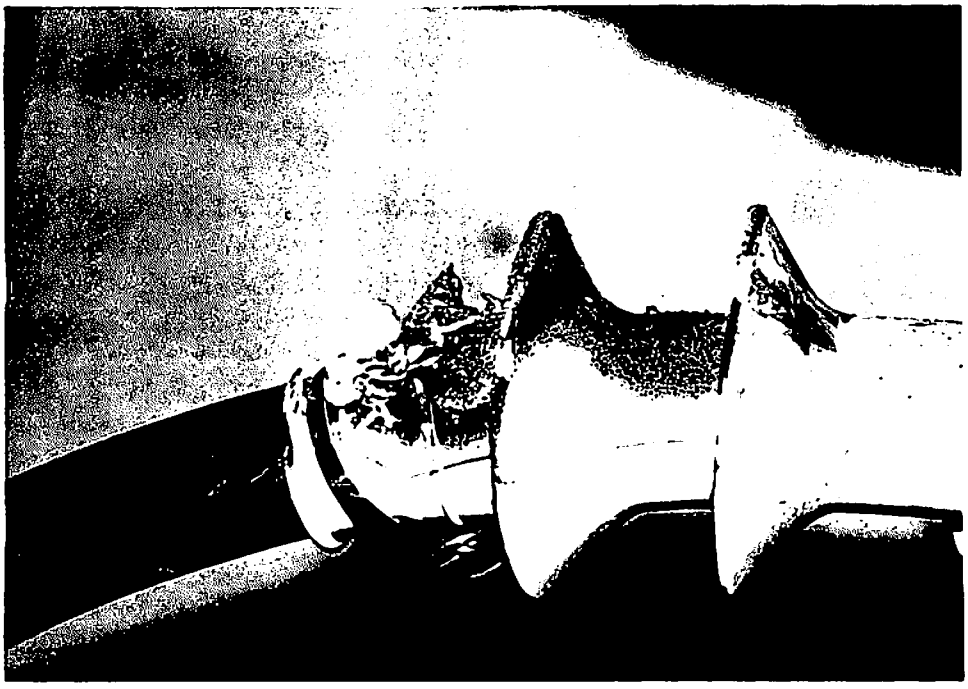
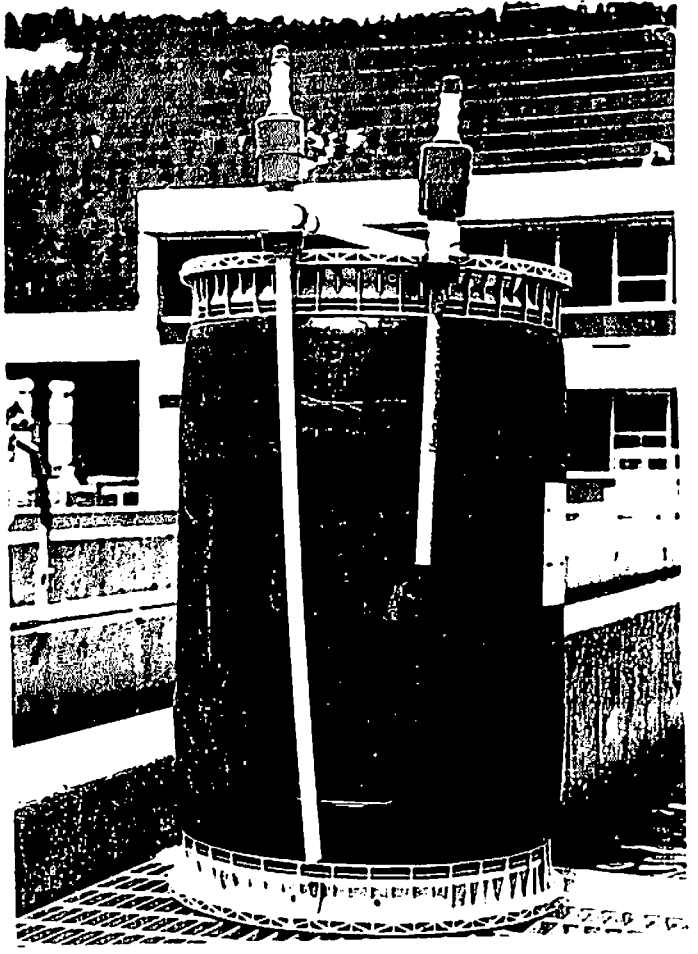


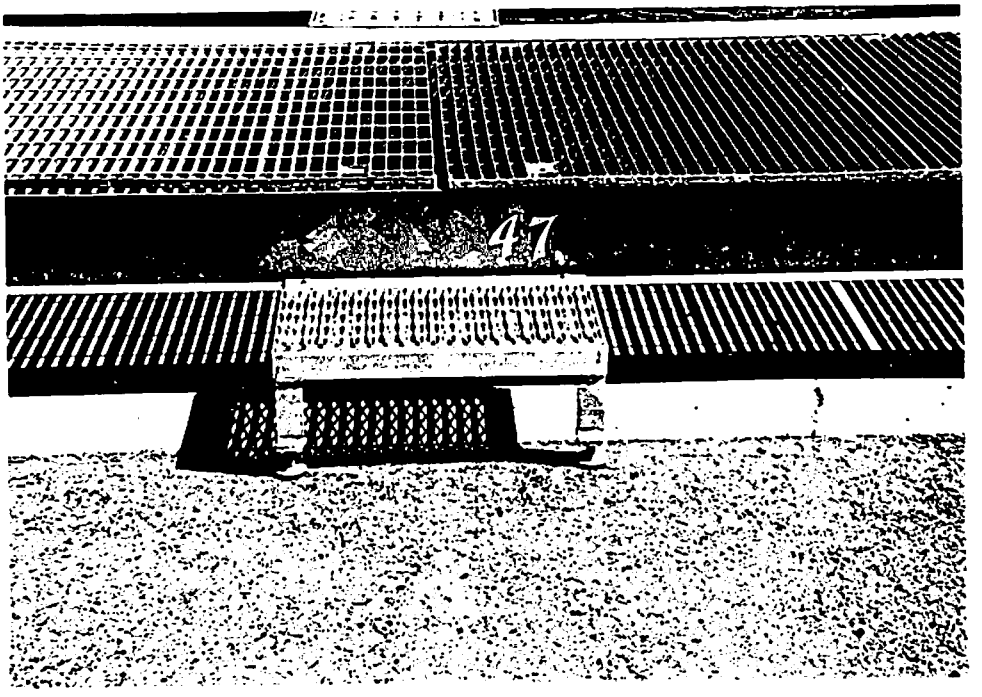
Panel meters on 12.5 kv boiler in Mechanical 2 received arcing and smoke damage from failure of feeder within the enclosure.



Stress cone on 12.5kv boiler feeder failed causing considerable damage to wiring and components.

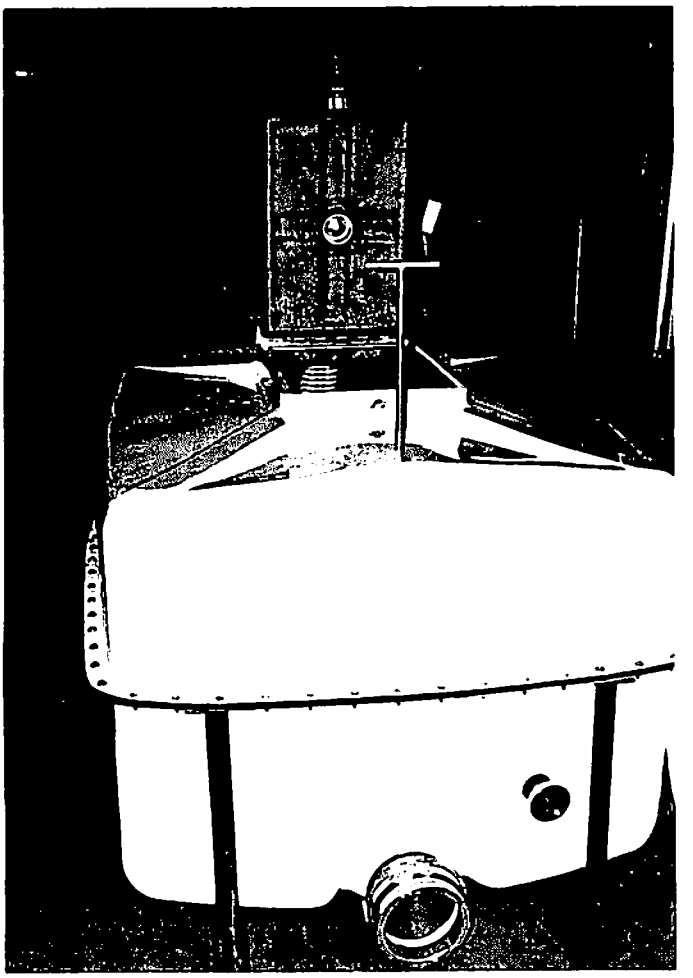


Siphons were used to pump chlorine into Burrows ponds for disinfection treatment. Note the two lengths of hose; each is for a half-barrel dose.

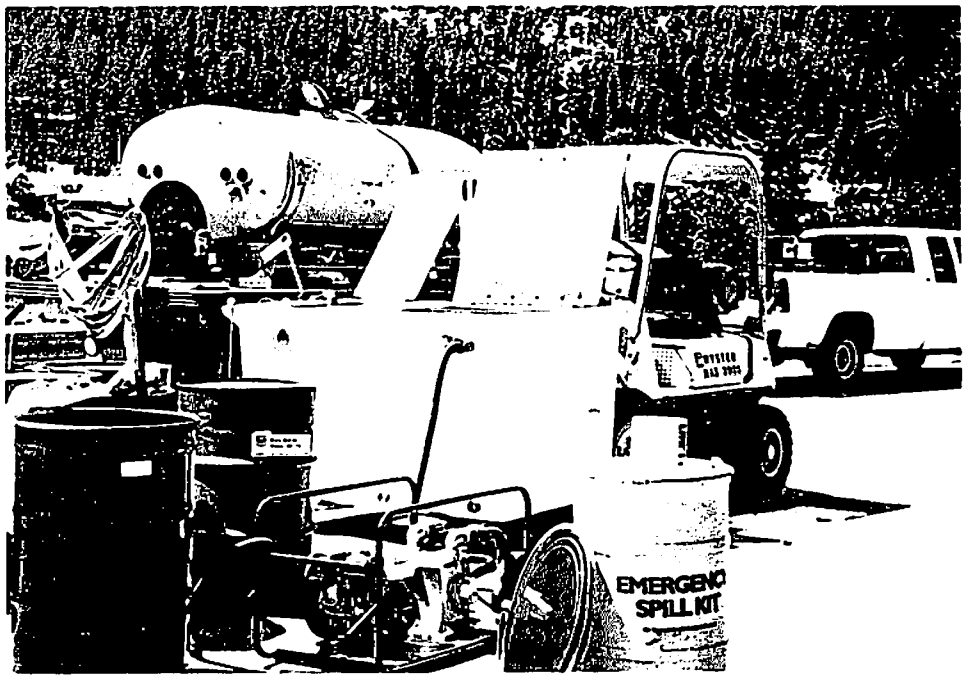


Steps were designed and added to each outside pond for easier and safer access by hatchery workers.

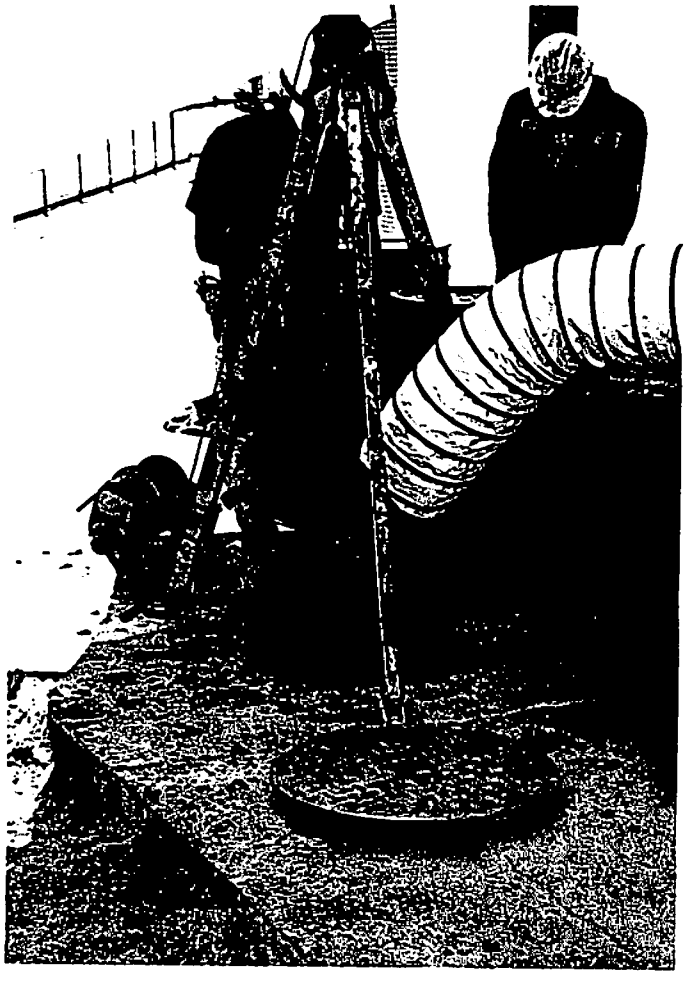
Rocky Greenland, production worker holds a new Ziegler automatic fish feeder. This is a 12-hour, belt driven feeder used both in the nursery and outdoor ponds to train young fish to the demand feeders. These feeders are also used with other feeding methods to help smaller fish grow to size.



A Reiff fish transport tank was purchased in the fall. The tank has a fresh-flow aerator and oxygen stones which aid in reducing stress on the young fish being moved from the nursery to outside ponds.



Army Corps and Dworshak maintenance crews separated water from the used oil in the underground storage tanks in June. Two 20,000 gallon storage tanks were filled in place beginning in August.



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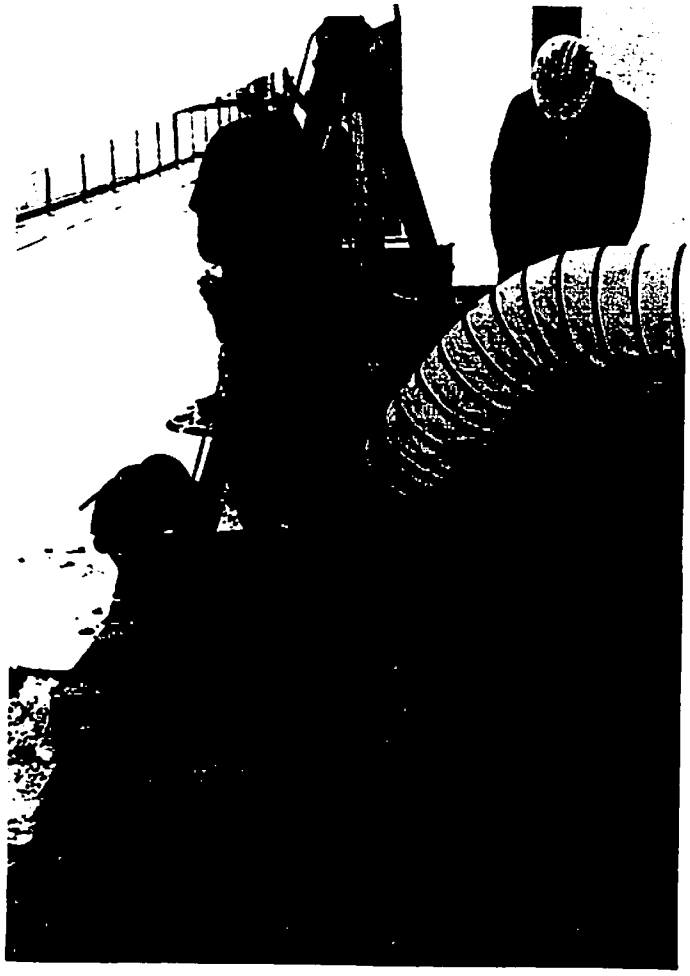
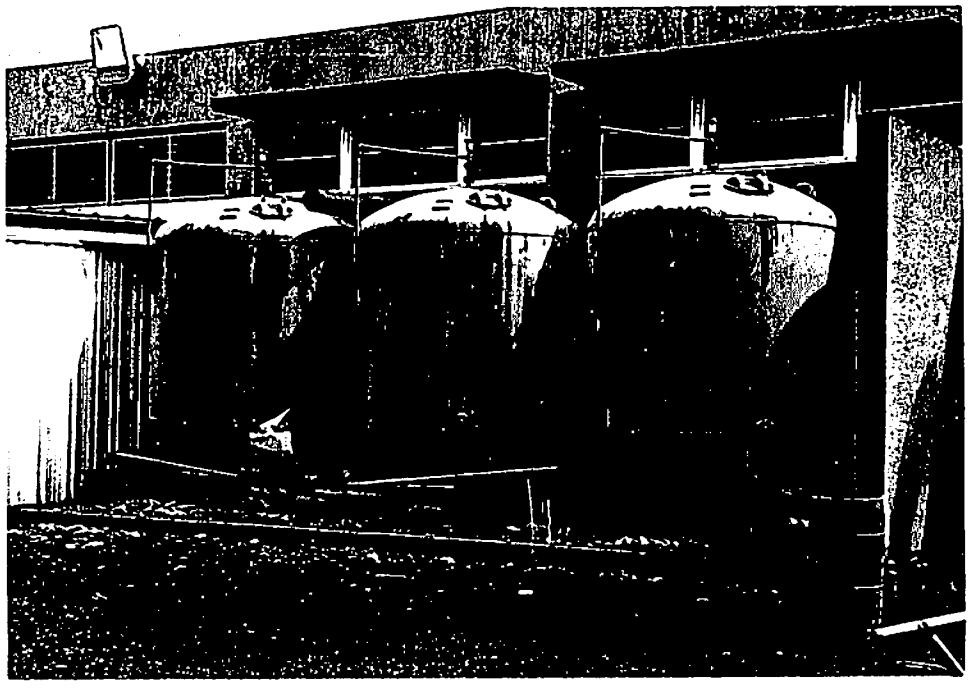
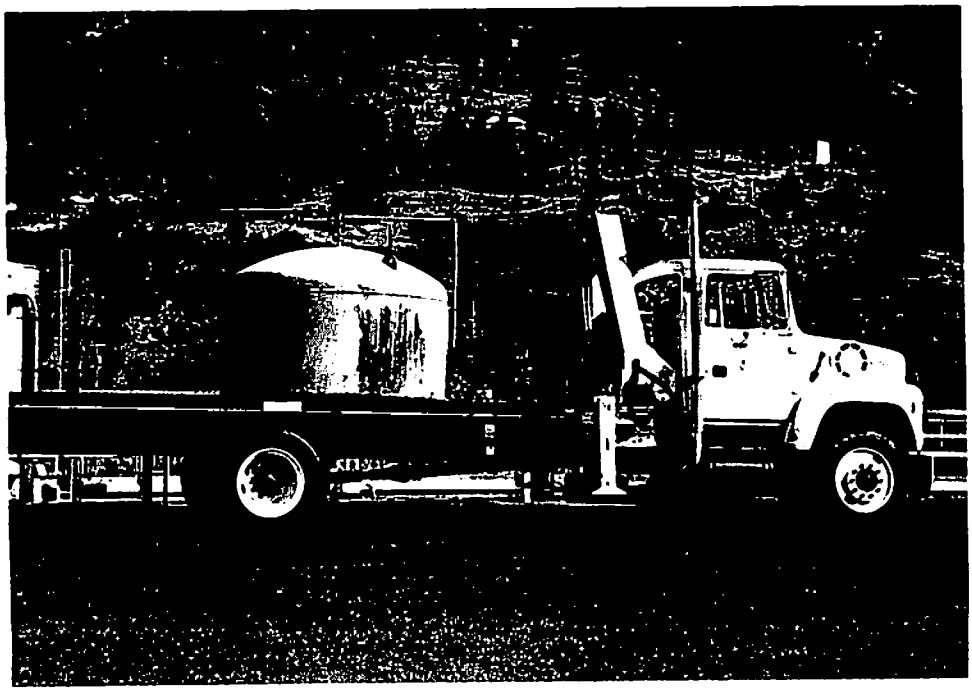




Sand filters outside of Mechanical building 1 were dismantled and removed throughout the summer. Control panels, inside filters and plumbing were also removed, as part of the renovation project.



MEETINGS/TRAVEL/TRAINING

Dave Owsley and Ray Jones traveled to Spokane and Bonners Ferry assisting Spokane Ecological Service Office and Kootenai Tribe on the Kootenai River Sturgeon Project.

Diane Praest and Mary Lou Galloway attended Paradox training in the Regional Office October 19. The second part of this training will be held November 1.

Michelle Bouchard attended a one-day course on stress management in Spokane, October 10. Gerry Fogleman and Dave Trainor traveled to Portland to attend the New Employee Orientation Training, October 23-27. Complex Manager Bill Miller, attended an Artificial Propagation workshop in Newport, OR, October 11-13.

Bill Miller spoke to the Orofino Chamber of Commerce on new complex organization and steelhead production. Questions from the Chamber included Dworshak releases and fall chinook work. Bill also attended a Clearwater Management Council meeting.

On November 8 Dave Owsley attended a local Water Resource meeting; draw down of Dworshak Reservoir was the main topic. Dave also attended a Clearwater Management Council meeting on November 16.

Dave Owsley traveled to Denver, CO to meet and travel with Paul Janeke to Jones Hole and Hotchkiss NFHs where Dave did water feasibility evaluations. They also met with Tom Pruitt in Vernal, Utah and visited the new Quary NFH.

On November 9 a presentation was given by John Robertson, Physical Therapist. He observed the various work stations, presented his findings to the staff, and held a question and answer session for all employees.

Mike Deitrich, COE, Safety Officer at Dworshak Dam met with Dave Owsley and Dave Clifford to discuss a safety program at Dworshak. Mike will be working with the hatchery staff on OSHA matters.

Andy Shoulders and Kyle Shaw, COE, Walla Walla, reviewed with Dave Owsley the structural problems in the main building November 20.

Adam Izbicki attended the Coldwater Fish Culture Course, December 4-15, Portland.

Bill Miller, Dave Owsley, Kip Bottomley, Michelle Bouchard, Thomas Trock, Ken Peters, Pat Bigelow, and Ray Jones attended the Northwest Fish Culturalist Conference in Fife, WA, December 4-8.

Diane Praest attended Remote Data Entry training at the Regional Office in Portland December 12-15.

Dave Owsley taught a water quality class for the Leetown Coldwater Fish Culture Course in

Portland December 14-15.

Dr. John Colt from Montgomery Watson visited DNFH to discuss nitrogen gas and the small hydro project for the reservoir water supply on December 14.

On December 18, Chuck Palmer, COE Walla Walla, Jerry Shaffer, DEQ, and Dave Owsley met at DNFH to discuss the domestic water supply upgrade.

On December 27, Randy Ryan, COE Dworshak Dam, Bill Miller, and Dave Owsley met and discussed rehab projects for DNFH and future site visit by Walla Walla office.

Chris Perry, University of Idaho graduate student, was on station December 28 to do a literature search using our annual reports.

Bill Miller attended a meeting with representatives from Columbia Basin Fish and Wildlife Authority (CBFWA) and other FWS technical people on the draft Programatic EIS on "Interaction of Hatchery Fish ... in Columbia River Basin."

Dave Owsley and Dave Clifford met with Dick Eilertson, Chief Electrical Design Branch, COE Walla Walla, and other engineers, including Greg Parker, COE Dworshak Dam, about additional heating of reservoir water for nursery rearing. Ben Greene and Dave Clifford toured with the group on the existing facilities on December 4.

Dave Owsley completed the Jones Hole NFH and Hotchkiss NFH water supply reviews. These reports were in conjunction with a site visit in late November.

Dave Owsley met with COE staff at Dworshak Dam on the underground storage tank removal contract at Dworshak NFH.

Bill Miller and Dave Owsley met with Col. Welder, Wayne John, and Steve Voss of the Walla Walla COE District Office. Randy Ryan and Greg Parker, COE, Dworshak Dam, also attended. They discussed rehab, hatchery needs, planning, and budgets. We received budget dollar figures for 1996 and projected 1997 funds.

Dan Diggs, R.O., met with all the Complex personnel on a site visit. Dan discussed the recent furlough as well as what is happening at the Washington and Regional level in the USFWS.

Dave Owsley met with DEQ on the domestic drinking water system. DEQ set up a system for locating all public water systems by satellite.

A station-wide first aid meeting was conducted for all Complex employees. Jack Campbell, a local EMT, presented a one-hour demonstration on first aid. There will be a follow up session with practical experience demonstration in February.

Mary Lou Galloway attended Remote Data Entry training at the Regional Office on January 22-24.

On January 10th Dave Owsley and Bill Miller met with Bonneville Power Administration and

Corps of Engineers personnel from Portland to give them a tour of facilities and overview of water use and management on station.

On January 25 Complex Manager Bill Miller, I&E Specialist Susan Sawyer, Assistant Manager Kip Bottomley, Regional Archaeologist Anan Raymond and contract Historian/Interpreter Virginia Parks met at DNFH to draft a trail plan for Kooskia NFH. Virginia Parks will be focusing on the Nez Perce history in the area, designing an exhibit near the historical marker at the site. She and Susan will work together on the text and sign placement along the trail.

On January 18 Complex Manager Miller attended a Clearwater Management Council Meeting.

Kip Bottomley traveled to Tucannon State Fish Hatchery in Washington to pick up donated parts for the floating weir on January 17.

Bill Miller attended the Whirling Disease Workshop in Denver, Colorado on February 5-8.

Bill Miller, Dave Owsley, and Mary Lou Galloway met with Mike Taylor and Jeanne Gomsrud of the Walla Walla, COE District Office, to discuss the budgeting process for hatchery operations.

A meeting was held on February 22 at the hatchery complex to make plans for Earth Week, April 22-26. Dworshak Fisheries Complex employees Susan Sawyer and Anne Rockhold, and Jaymi Osborn from Dworshak Dam, covered topics of aquatic insects and microscopic life for the planned "Wading Into Wetlands" theme.

Dave Owsley and Dave Clifford met with COE engineers Brian Miller and Bob Oschner, Mechanical Design Section, Walla Walla. The traveling water screens at the main pump house and additional heat for early steelhead rearing were primary topics discussed.

Several Complex employees attended the annual Idaho Chapter AFS 3-day conference in Coeur d'Alene, Idaho, last week of February.

George Dekan, Idaho Department of Health and Welfare, Division of Environmental Quality (DEQ), conducted an annual inspection on March 20 of the Complex domestic drinking water system. Dave Owsley assisted Mr. Dekan with the inspection.

Bill Miller, Complex Manager, attended a meeting on adding nutrients to North Fork Clearwater River and Dworshak Reservoir. The meeting was initiated by sportsman Dennis Harper, representatives from Idaho Fish and Game, Department of Environmental Quality, Corps of Engineers, Trout Unlimited, and local sportsmen attended.

On March 26, General Fuhrman, US Army Corps of Engineers (COE)-Portland, Colonel Weller, COE-Walla Walla, Cheryl Lohman, COE-Portland, and Ed Larson, Nez Perce Tribe, visited the facilities.

Dave Owsley and Dave Clifford attended the OSHA 600-Collateral Duty Course in Pendleton, Oregon on March 11-14.

The Spring Coordination Meeting was held on March 21. Representatives from Nez Perce Tribe Fisheries, Idaho Department of Fish and Game, National Biological Service, and Fish and Wildlife Service attended. Attendance was down from last year with only one Nez Perce representative and none from the Corps of Engineers.

Dick Kuehner, EPIC Region Manager, Virginia Parks, Archeologist, toured the Dworshak hatchery on March 13 to get ideas on upgrading informational signs and the public tour route.

Dave Owsley conducted a hunter education class from March 18-30, with forty-eight students in the class. On March 23, the hunter education awards banquet presented Mr. Owsley a 15-year plaque, belt buckle and knife, and to Bill Miller, a 10-year plaque and pin.

On March 26, Dave Owsley and Dave Clifford gave a guided tour for Dr. Sandra Ristow and 32 Washington State University students.

Susan Sawyer, Information and Education Specialist (I&E), attended the CISPUS workshop near Randall, WA., March 3-8.

Bill Miller attended an Idaho Natural Resource Conference in Boise, Idaho, April 16-17.

Dave Owsley attended a water treatment meeting at Warm Springs NFH April 10-12. Reuse systems and water disinfection were discussed.

Dave Owsley, Mary Lou Galloway, Diane Praest, Jon Streufert, and Glenn Green attended "Interpersonal Communication Skills" training in Spokane, Washington, April 17.

Bill Miller, Dave Owsley, and Mary Lou Galloway met with Wayne John and Randy Ryan, COE, to discuss future budgeting and O&M funding on April 25.

Dave Owsley assisted Linda Gonzales, COE on a real property survey of Dworshak NFH on April 30. Real property includes buildings, roads, bridges, and other permanent structures.

Amy Kishpaugh and Linda Willoughby attended a Secretaries Day seminar, Lewiston, Idaho, April 24.

A meeting was held on May 22 at Dworshak Hatchery between Complex Manager, Bill Miller, Nez Perce Tribe and State agencies to discuss the Dworshak rainbow program. Numbers and future plans were discussed for rainbow trout. The State wants catchables planted twice a year at access areas. Dave Bennett, University of Idaho, who was contracted by the Corps of Engineers (COE) to develop a long range management plan for Dworshak also attended. Dave will have a plan out this September.

Ted Bjornn, U of I, visited the hatchery with a group of Norwegian fish biologist. Complex Manager Bill Miller discussed hatchery operations with the group.

Dave Owsley, Dave Clifford and Mike Dietrich, (COE) Safety Officer, met on May 1 and 6 for upgrading/removing of the hatchery underground storage tanks.

Dave Owsley met with Mike Hoyles, EPA, Seattle, on May 2-3, to complete the annual EPA inspection for the hatchery NPDES permit.

Dave Owsley, Dave Clifford, Ray Rosales, and Terry Weeks assisted the Clearwater Hatchery on May 7 with their annual valve exercise and inspection of the reservoir water supply lines at the dam and the distribution box.

Dave Owsley and Ray Jones assisted the Spokane ES office in a field inspection for a fish hatchery at Libby, Montana on May 15-16..

John McKern and Dennis Coleman, COE, along with personnel from BPA and NMFS, were given a tour of the Complex guided by Howard Burge, Ralph Roseberg, and Dave Clifford on May 15.

Dave Owsley took a group of Complex employees to Lower Granite Dam and the trapping/transporting facilities on May 23. Jerry Harmon, NMFS, gave a tour of the facilities. Those participating were: Adam Izbicki, Michelle Bouchard, Thomas Trock, Susan Sawyer, Linda Willoughby, Gerry Fogleman, and Pat Bigelow.

Dave Owsley conducted a tour for Wayne Penney and others from the Nez Perce Tribe Fisheries, May 28.

Complex Manager Bill Miller and Project Leader Howard Burge, along with Tom Sheldrake, PAC, attended a production review meeting June 10-12 in Walla Walla.

Bill Miller and Jon Streufert were in the Regional Office June 19-20 for a scheduled briefing with Associate Manager Dan Diggs, Columbia Basin Ecoregion.

Dave Owsley attended a pre-construction meeting in Lewiston, June 20, regarding Hwy 7 road closure. Road closures were initially scheduled for 19 hours per day. No plans were made for emergency vehicles - medical, fire, etc.

Dave Owsley attended another Hwy 7 closure meeting on June 27 in Orofino. Idaho Department of Transportation will alter the schedule allowing for medical and fire emergencies, etc.

Dave Owsley gave a tour of the Complex to Dr. Bill Jackson, Jackson Research Center, Colorado, on June 28.

Michelle Bouchard attended the "Introduction to Fish Health" course from June 17-21, Olympia, Washington.

Diane Praest, along with crew leader Tom Eichert chaperoned the Clearwater River Summer Youth Program members (Kandi Supak, Pamela Wolfe, Crystal Miller, Tiffany Haworth, David Heywood, Jed Arsena, Dennis Owsley, and Jon Gilliland) to the Red River Satellite Hatchery, operated by Idaho Department of Fish and Game June 24-28. The State provided food and lodging for the work detail. The group repaired trails damaged by winter storms and did routine maintenance work. The group relaxed after hours in nearby Red River Hot

Springs.

Dave Owsley, Thomas Trock, Michelle Bouchard, and Adam Izbicki attended a public meeting on June 27 in Orofino. John Stockner (Canadian limnologist) presented the results of his work on fertilizing Canadian shield lakes and the resulting positive impacts on salmon populations.

Dave Owsley and Dave Clifford attended a Waste Management Course conducted by Regional Office in Richland, Washington, July 10-11.

Dave Owsley attended a Clearwater Management Council meeting on July 18 in Orofino.

Dave Owsley and Dave Clifford attended a pre-construction meeting on July 22 for the removal and filling of three underground storage tanks (one 275 gallon tank, two 20,000 gallon tanks). Work began on July 23.

Bill Miller, Dave Owsley, and Jon Streufert met with the new Army Corps of Engineers Commander, Colonel Curtis. Wayne John, Walla Walla, COE, and new project leader, Charlie Krahenbuhl, Dworshak/Lower Granite/Little Goose Dams, also attended the meeting.

Complex employees (half the group for each day) attended a one-day training session on "Team Effectiveness" July 30-31 at the U.S. Forest Service Supervisor's Building, Orofino. The training was conducted by Sonnie Sussillo from the Service's National Education Training Center.

The summer youth group participated with Idaho FRO in research/snorkeling and rode with IDFG personnel to various fish distribution sites.

Michelle Bouchard traveled to Marrowstone Field Station, Norland, Washington, with Dworshak FHC personnel to assist with an INAD study for erythromycin treatment of BKD for chinook.

Dave Owsley, Mary Lou Galloway and Rocky Greenland met on August 22 with Carol Matney of Lewis-Clark State College to discuss the Wellness Program for the coming year.

A number of awards were presented to employees at the August 15, staff meeting.

Reg Reisenbichler and Frank Shipley from NBS Seattle toured the hatchery on August 13, with Dave Owsley.

Bill Miller met with Dan Diggs on August 1 about planning for fish production at Kooskia and options for optimizing use of personnel and capacity at Kooskia during these recent years of low Chinook returns.

Susan Sawyer, I/E Specialist, attended a Regional Outreach Coordination Meeting in Troutdale, Oregon, August 20-22.

Bill Miller met with Ed Crateau, Dan Herrig and Joe Krakker August 19 & 20 of LSRCP on what the future might hold for Fish Wildlife Service program with the proposed ESA listing

for steelhead. Conferencing needs, potential impact and key players were discussed.

Amy Kishpaugh was on a temporary detail to Public Affairs, Regional Office, filling the secretarial position the first two weeks of September.

Complex Manager Bill Miller attended the annual University of Idaho Coop Unit Meeting with Cooperators. The meeting reviewed some coop unit projects, presented cooperation information on the new NBS-USGS organization and discussed future needs.

Complex Manager Bill Miller and I&E Specialist Susan Sawyer presented an overview of Dworshak NFH and salmon issues to a FFA state leaders group from Boise, Idaho.

Hatchery audits under IHOT were conducted during the month at both Dworshak and Kooskia.

Dan Diggs and Tom Dwyer visited the Complex for a couple of days, meeting with all sections including Kooskia, FRO, FHC, Dworshak, and the river.

Wellness and Safety

A Wellness Program was held October 4, 12, and 30 where Complex employees had a opportunity to get a blood pressure reading, cholesterol screening and overall fitness check.

On November 9 a presentation was given by John Robertson, a local Physical Therapist. He observed the various work stations, presented his findings to the staff, and held a question and answer session for all employees.

A station-wide first aid meeting was conducted for all Complex employees on March 20. Jack Campbell, a local EMT, presented a one-hour demonstration on first aid.

Dave Owsley met with the new safety committee on March 22. Rocky Greenland is the new safety chairperson. Liz Steiner, Terry Weeks, and Ann Rockhold are committee members.

Chaplain Jim Aronen, St. Joseph's Regional Medical Center, along with Jamie Weeks presented a program on stress reduction July 25.

In September Jamie Weeks presented a program on heart attack and stroke prevention and identified the early warning signs.

Rocky Greenland coordinated a safety program on fire extinguishers including an informational video and hands-on demonstration (September).

STAFFING

Linda Willoughby, Express Personnel Services, filled the Office Automation Clerk position from September 1995 until May 1996. Between May 26 and September 30 Linda was in a temporary appointment for this same position.

Kimberly Seldon, Express Personnel Services, was extended for a 45-day period until January 5 to fill a Bio-Aid position in Production. Kim began working with the production crew under a temporary appointment. Kim worked on for the remainder of the FY 96 year in this position as a Bio-Science Aid, GS-0404-3.

Thomas Trock, GS-11 Fishery Biologist, arrived on station November 6, from Pvt. John Allen NFH, Tupelo, MS and will work in Production.

Susan Sawyer, GS-5 Information and Education Specialist, began a temporary appointment effective November 26. Susan's permanent appointment became effective May 26, 1996.

Fred Darbonne, Office Automation Clerk (Temporary), GS-3, entered on duty December 10, 1995 and resigned on February 3, 1996.

Orofino High School students Jennifer Lathrop and Dennis Owsley began part-time work weekends and after school hours with the Production crew January 5, 1996. They are working under a Cooperative agreement between DNFH and Joint School District 171.

Eric Dade, WG-4749-5 began work in the maintenance section on temporary appointment effective January 21, 1996.

Diane Praest, change of title, from Secretary GS-0318-6, to Budget Assistant, GS-0561-6, was effective February 18.

Amy Kishpaugh, promotion from Office Automation Clerk, GS-0926-4, to Secretary, GS-0318-5, was effective March 17.

Colleen Hesson, Bio Science Lab Tech, GS-0404-8, resignation, effective May 11.

On May 2 several employees each received $50 "On-the-Spot" Awards for the exceptional work they did with off-site stocking of steelhead smolts between April 22-24. They were: Michelle Bouchard, Adam Izbicki, Ron Oatman, Brad Petry, Thomas Trock, John Vargas, and Ben Wright of Production; Ray Rosales and Terry Weeks of Maintenance. Ralph Roseberg of IFRO received $150 for his outstanding job coordinating the outplanting.

On May 7, Ron Oatman, Fish Culturist, received a Special Act Award for his outstanding, long term fish culture work (10,000+ ponds cleaned without injury). Hugh Sims, Maintenance Mechanic, received a Special Act Award for his effort in building a specially designed PIT-tagging work station.

An 8-week Clearwater River Youth Program began on June 10. Seven enrollees were selected

for Dworshak Complex and two for Clearwater State Hatchery.

Dennis Ochszner and Jeremy Wright, Express Personnel Services, began on June 6 sanding and painting bird netting support beams.

Brad Petry, Fish Culturist, WG-5048-3, temporary appointment ended July 6.

Guy Eggert, Express Personnel Services, began a 4-week assignment with other Express Personnel employees repainting the bird netting standards on July 8.

Jon Streufert transferred to Division of Fish Hatcheries, Washington D.C. effective August 4, 1996.

Clearwater River Summer Youth Program ended August 2 with a visit to Lower Granite Dam. This was a joint field trip with the group from Clearwater Hatchery.

John Vargas, promotion, from Animal Caretaker WG-5048-5 to Animal Caretaker Leader WL-5048-5, was effective August 18.

Joan Sperber transferred to the Office Automation Clerk GS-0326-4 position, from MCB, Twentynine Palms, California, effective September 1.

Michelle Bouchard, promotion, from Fishery Biologist GS-0482-7 to GS-0482-9, effective September 15.

Rod Funderburg, Animal Caretaker at Kooskia NFH, was detailed to Dworshak between July 15 and September 16.

Express Personnel services supplied a Bio Science Aid on September 19 for four weeks to assist in production.

Dworshak Employees
- FY 96 -

Name	Position Title	Period of Employment	Status
Bouchard, Michelle A.	Fishery Biologist	10/01/95 09/30/96	Permanent
Clifford, David E.	Work Supvr. (Maint.)	10/01/95 09/30/96	Permanent
Galloway, Mary Lou	Program Assistant	10/01/95 09/30/96	Permanent
Green, Glenn S.	Fishery Biologist	10/01/95 09/30/96	Permanent
Greene, Benny C.	Electrician	10/01/95 09/30/96	Permanent
Greenland, Rocky E.	Fish Culturist	10/01/95 09/30/96	Permanent
Holloway, Vernon C.	Laborer	10/01/95 09/30/96	Temporary
Izbicki, Adam H.	Fishery Biologist	10/01/95 09/30/96	Permanent
Jenks, Alfred H.	Maintenance Worker	10/01/95 09/30/96	Permanent
Miller, William H.	Hatchery Manager	01/08/95 09/30/96	Permanent
Oatman, Ronald W.	Fish Culturist	10/01/95 09/30/96	Permanent
Owsley, David E.	Environment Engineer	10/01/95 09/30/96	Permanent
Seldon, Kimberly	Bio-Science Aid	03/30/96 09/30/96	Permanent
Rosales, Raymundo A.	Maintenance Worker	10/01/95 09/30/96	Permanent
Sawyer, Susan	I&E Specialist	11/26/96 09/30/96	Permanent
Sims, Hubert M.	Maintenance Mechanic	10/01/95 09/30/96	Permanent
Sperber, Joan	Office Automation Clerk	09/01/96 09/30/96	Permanent
Streufert, Jonathan M.	Assistant Manager	10/01/95 08/04/96	Permanent
Trainor, David A.	Welder	10/02/95 09/30/96	Permanent
Vargas, John J.	Fish Culturist	10/01/95 09/30/96	Permanent
Weeks, Terry C.	Maintenance Worker	10/01/95 09/30/96	Permanent
Willoughby, Linda	Office Automation Clerk	05/26/96	Temporary

		09/30/96	
Wright, Benjamin A.	Fish Culturist	10/01/95 09/30/96	Permanent

Other Staffing
FY 96

Summer Youth Program

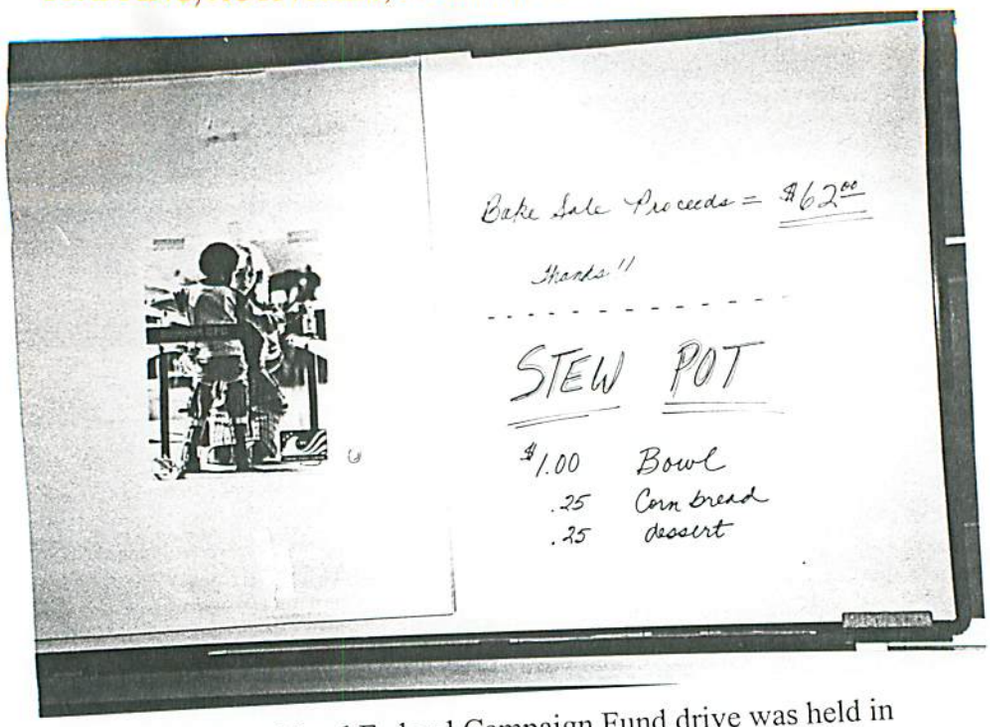
Arsena, Jedediah	Student Worker	06/10/96 08/02/96
Eichert, Thomas	Crew Leader	06/10/96 08/02/96
Hayworth, Tiffany.	Student Worker	06/10/96 08/02/96
Haywood, David.	Student Worker	06/10/96 08/02/96
Miller, Crystal	Student Worker	06/10/96 08/02/96
Owsley, Dennis	Student Worker	06/10/96 08/02/96
Supak, Kandi	Student Worker	06/10/96 08/02/96
Wolfe, Pamela	Student Worker	06/10/96 08/02/96

Clearwater River Youth Program

Lathrop, Jennifer.	Student Worker	06/10/96 08/02/96
Owsley, Dennis	Student Worker	06/10/96 08/02/96

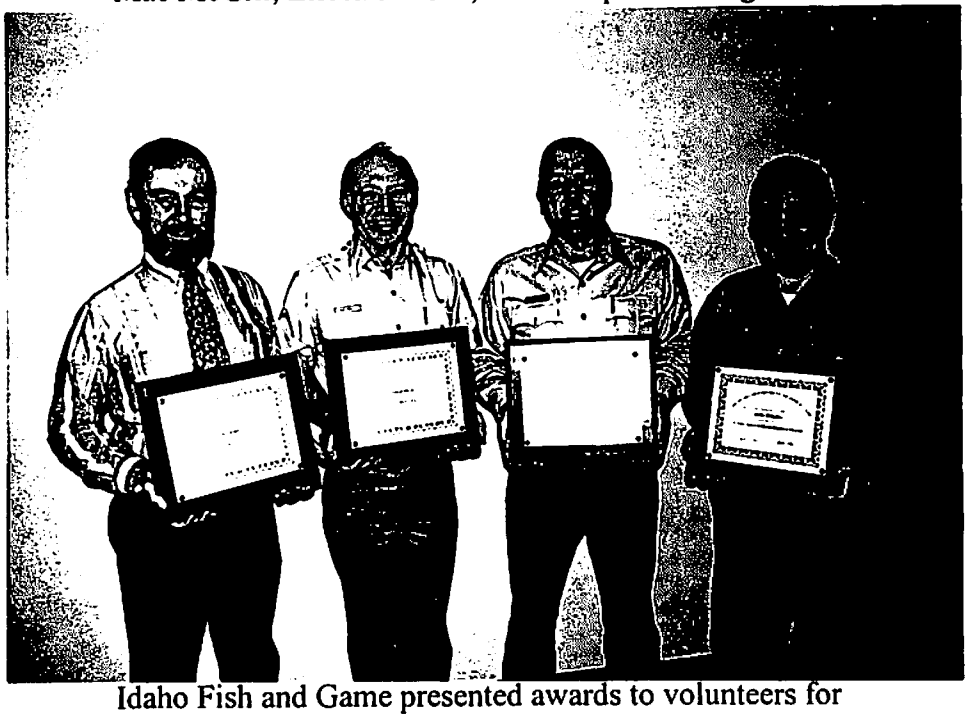
Express Personnel Employees

Baker, Dave	Production	09/19/95 02/02/96
Eggert, Guy	Maintenance	07/14/96 08/04/96
Ochszner, Dennis	Production	06/01/96 09/30/96
Willoughby, Linda D.	Administration	02/18/96 09/30/96
Wright, Jeremy	Maintenance	06/09/96 09/15/96



The annual Combined Federal Campaign Fund drive was held in November. A bake sale, car wash and cornbread/stew luncheon were sponsored by Administration, Maintenance and Production sections. Proceeds went to St. Judes Hospital, Rocky Mountain Elk Foundation and Ducks Unlimited. Below the maintenance car wash crew stands ready to clean and shine.

In March, a memorial plaque was dedicated to Clay McGill, a retired volunteer who had worked at the hatchery giving talks during spawning season. Pictured from left: Wayne Olson, retired hatchery manager, Steve McGill, Mrs. Mae McGill, Eileen McGill, and Complex Manager Bill Miller.

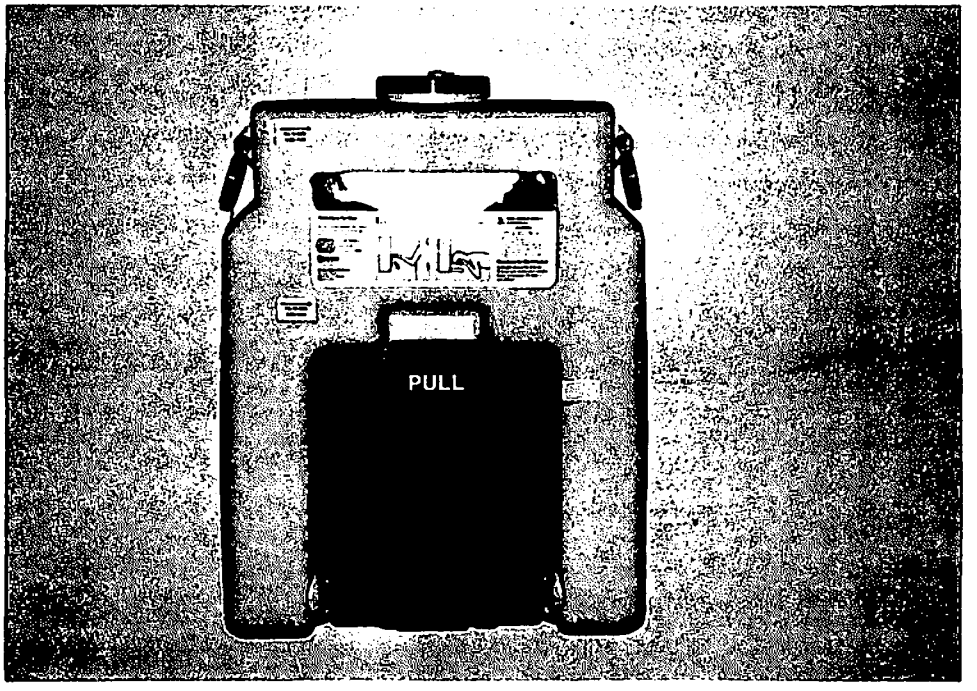


Idaho Fish and Game presented awards to volunteers for their work in the Hunter Education Program. From left are: Jim Johnston; Dave Owsley and Bill Miller of Dworshak Fisheries Complex; Clearwater Hatchery Manager Jerry McGehee.

"On The Spot" awards were presented to production and maintenance crews for their outstanding performance in outplanting 2.2 million steelhead smolts in April. Ralph Roseberg, third from right, of the Idaho Fishery Resource Office coordinated the effort and was also recognized.

Colleen Hesson, Biological Technician in the Fish Health Center, retired after 14 years of service.

Jack Campbell, an EMT for Clearwater County, presented a talk and demonstration on emergency first-aid procedures. The 'victim' is Terry Weeks, maintenance employee.



Emergency Eyewash stations were placed in strategic locations around the hatchery complex, and all staff were informed of the proper and safe use of them at the regular safety meeting.

OUTREACH AND VISITOR ACTIVITIES

A staff Information/Education Specialist, Susan Sawyer, was hired in November 1995 assuming the outreach and public contact duties that had been performed by fishery biologists. Most of the first several months were spent becoming familiar with the Fish and Wildlife Service and the hatchery complex, but several key outreach contacts were established. Susan attended the Cispus Natural Resource Communications Workshop in Randall, Washington the first week of March. She represented the Service in planning and presenting the inter-agency Earth Day 1996 programs to area schools in April. Susan coordinated on- and off-site public involvement activities for Dworshak Fisheries Complex, including school programs, the annual Open House event, hatchery tours and volunteers, media contacts, and youth work programs. Overall visitor numbers were down from last year, possibly due to severe weather conditions during spawning season, no catch and keep early steelhead season, and budget cuts which eliminated several off-site outreach events.

Monthly highlights for outreach and educational activities during the year were as follows:

October: Complex Manager Bill Miller was contacted by the Boise Statesman newspaper for an article on steelhead and spawning needs for the hatchery.

Manager Miller spoke to Orofino Chamber of Commerce on complex reorganization and steelhead production.

November: Susan Sawyer, Information/Education Specialist hired effective Nov. 26.

December: Coordinated with Joint School District #171 to select two Orofino High School seniors for the Clearwater River Youth Program to work from January through May.

Complex staff donated to the Children's Wishing Tree through the Clearwater Valley Hospital, providing art supplies and sports-logo shirts to an under priveledged Orofino girl and boy.

January: Flyers and press releases on steelhead spawning were sent to area newspapers, radio and television stations. A weekly flyer, "Dworshak Fish Facts" was designed to provide hatchery visitors with updated information during the spawning season.

February: "Hatchery Happenings", a monthly column in the weekly newspaper was initiated; the format includes short paragraphs on different complex activities, some with photos.

Amanda Greene, 14, spent a day at the hatchery as part of the "Gifted and Talented Students" program. The local paper ran a special feature on her project.

During the flooding in the area, hatchery employees not able to get to work offered help to the community in many ways.

March: Susan Sawyer, I/E Specialist, attended training in CISPUS, Washington.

A plaque in memory of retired volunteer Clay McGill was dedicated at the hatchery. The local paper covered the ceremony, which was attended by friends and family of Clay's.

Eight Complex employees helped judge the Orofino Elementary School Science Fair. Dave Owsley conducted a Hunter Safety course in Orofino for 48 students. Owsley and Bill Miller received plaques for their many years of providing this course for the local community.

April: Susan Sawyer participated with 6 state and Federal agencies in planning and presenting Earth Day activities in Juliaetta and Weippe. Over 450 5th graders attended the program on "Wading into Wetlands". Susan Sawyer and Jaymi Osborn of the Army Corps Of Engineers discussed aquatic invertebrates, and the children discovered a variety of larval insects.

KLEW TV-Channel 3 in Lewiston taped a segment on wild and hatchery fish for the "Assignment: Idaho" weekly program. Jon Streufert, Production Supervisor, was featured along with the high school in-stream incubation project, for which Dworshak donated eyed steelhead eggs.

Teachers (120) from 6 western states toured the hatchery as part of their Agriculture Education Seminar at UI/Moscow.

May: The Complex was featured in the Interior Department publication "People, Land and Water" for their help with the Red Cross flood relief effort in February.

The Orofino Chamber of Commerce "Students & Business In-Service Day" sent 8 high school sophomores to the hatchery for a day. They rotated among Fish Health, Fishery Resource Office, Production, Maintenance and Administration sections.

Staff gave presentations to 600 elementary school students about the upcoming Open House and Kid's Fishing Day.

June: Susan Sawyer appeared on Lewiston Channel 3-KLEW TV "Spectrum" morning show to announce the Open House/Kid's Fishing Day. Area newspapers and radio stations ran public service announcements for two weeks prior.

The 6th annual Open House was the most successful so far, with 669 children registering to fish. Each child received a prize when finished. Orofino Boosters and Cultural Youth Exchange 4-H c[illegible] sponsored concession stands, and displays were set up by Production, Fish Health and FRO. G[illegible] was very popular again this year. Nearly 150 prizes were sponsored by area businesses. T[illegible] fino Special Education class had their own fishing day and picnic the following week.

[illegible] tchery curriculum guide was reviewed for possible use in area classrooms.

[illegible] emporary interpretive signs were printed and placed along the revised and shorter self-[illegible] tour route. Nearly 800 visitors came to the hatchery this month.

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.

University of Idaho Professor Hunt was contacted about developing a student intern program through the Resource Recreation and Tourism Department. It should be implemented next semester, with interested students designing interpretive materials for the Complex while earning college credit.

Over 1000 pounds of paper were recycled through Lewis/Clark Recycling in Lewiston.

Susan Sawyer attended the annual Regional Outreach Coordination Meeting in Troutdale, OR.

September: FFA State Advisor and Officers toured Dworshak hatchery with Complex Manager Miller and I/E Specialist Sawyer, discussing fisheries and water issues for report to all state chapters.

The Complex staffed a booth at the Clearwater County Fair and Lumberjack Days, and received a second place award in the education category. Over 600 visitors were contacted during the 4-day event. The booth reflected the Fair theme of Keeping Our Heritage Alive by depicting how we keep our fishing heritage alive. A live steelhead display was the highlight for visitors, along with handouts of balloons, buttons and activity booklets for the kids.

Text and photos were submitted to the travel magazine "Discover North Central Idaho" for publication next spring. The hatchery will be featured on the cover.

A local publication "Newcomers Guide to Clearwater County" will feature the hatchery in photos and text. I/E provided graphic arts support for the publication of the guide.

New volunteer applications and work descriptions were drafted for Fall recruitment. Washington State University toured the hatchery with 75 wildlife/ecology majors. Representatives from each section gave short presentations about various fisheries issues.

Visitor Use Statistics

Visitors Touring Dworshak Hatchery	**8562**
(Register sign-ins only, self-guided tour)	
Other Visitors (non-sign in, self-guided tour)	**3424**
Guided Tour Groups -	**55**
Total Visitors in Tours Groups -	**912**
Open House attendance -Kids 12 & under	**669**
Others	**500**
Off-site School Programs -	**10**
Total of Students Contacted -	**2032**
Fair Booth contacts -	**600**

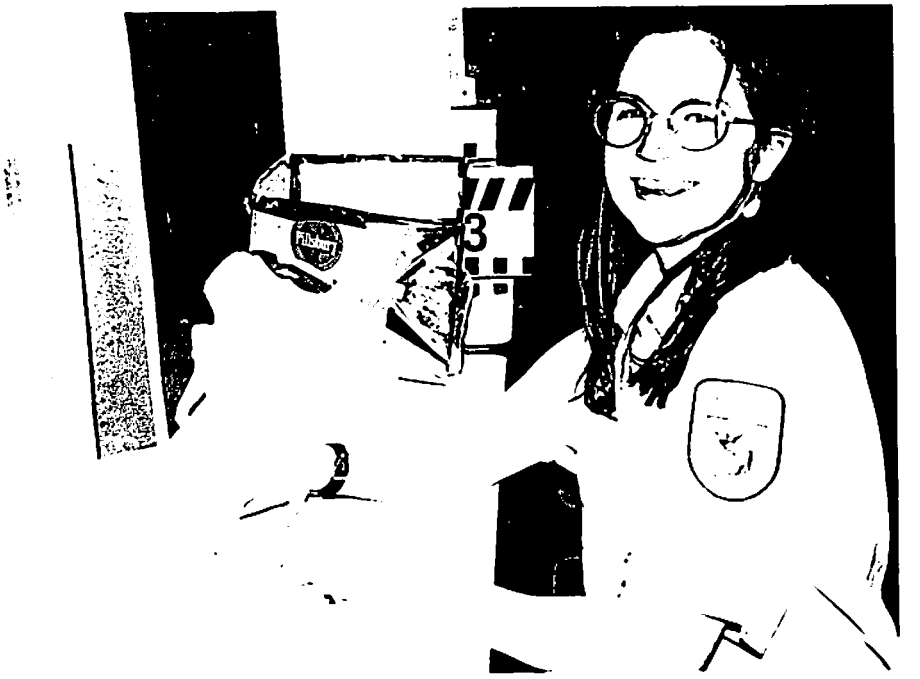
Total estimated on and off-site contacts for FY 96 - 16,699

(-33% from FY 95)

OUTREACH AND VISITOR ACTIVITIES

Several employees helped out the local community during the flooding disaster. Shown are Pat Bigelow, Anne Rockhold and Randy Bowen of the Idaho Fishery Resource Office.

Amanda Greene, 14, designed a study project at the hatchery as part of the Gifted/Talented student program at Orofino Jr. High. Here she is doing fish blood counts in the lab.



Hatchery employees helped judge the Orofino Elementary School Science Fair in March. Michelle Bouchard, Fishery Biologist, judges a challenging entry.

Jaymi Osborn of the Army Corps conducts a session for Earth Day activities. Six agencies including FWS presented programs to over 400 5th grade students in April.

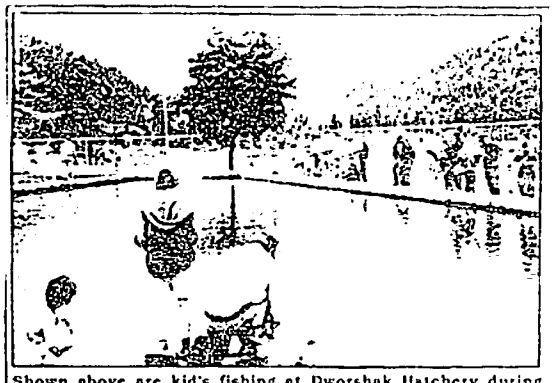
Dworshak Complex Manager Bill Miller talks to Orofino High school students participating in the Chamber of Commerce "Students in Business Day". All hatchery sections participated.

Washington State University brought 70 wildlife/ecology management students for a tour of the hatchery. Each section provided an overview of their responsibilities and duties.

OPEN HOUSE and KID'S FISHING DAY
JUNE 15, 1996

Each child caught 2 trout, and received a prize. Over 660 kids attended. All had a good time.

Volume 83, Number 24 Thursday, June 13, 1996



Shown above are kid's fishing at Dworshak Hatchery during last years Open House and Free Fishing Day. The sixth annual Open House and Free Fishing Day at Dworshak National Fish Hatchery will be held Saturday, June 15 from 9 a.m. to 3 p.m. Kids 12 and under can catch two fish each! Poles and bait will be provided.

6th ANNUAL OPEN HOUSE

and

KID'S FREE FISHING DAY

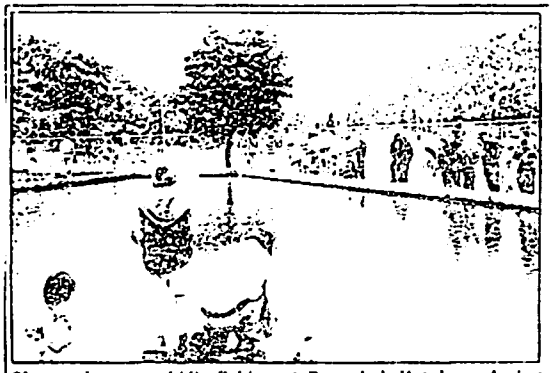
WHEN: Saturday, June 15, 1996, 9 a.m. - 3 p.m.
WHERE: Dworshak National Fish Hatchery
WHAT: Fun for all!
WHO: Everyone is invited!

Kids 12 and under can catch 2 fish each!

Family Activities!

Call 476-4591 for more information.

Volume 83, Number 24 Thursday, June 13, 1996



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WHEN: Saturday, June 15, 1996, 9 a.m. - 3 p.m.
WHERE: Dworshak National Fish Hatchery
WHAT: Fun for all!
WHO: Everyone is invited!

Kids 12 and under can catch 2 fish each!
Family Activities!

Call 476-4591 for more information.

COOPERATIVE PROGRAMS

Complex personnel (Dworshak National Fish Hatchery, Kooskia National Fish Hatchery, Dworshak Fish Health Center, and Idaho Fishery Resources 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 (COE)
  - 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 Office
- -Clearwater Management Council
- -Older Worker Program
- -Senior Citizen Volunteer Program
- -Joint School District #171

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 other agencies and university groups, as approved for study purposes, i.e., environmental testing, genetic experiments, and ongoing bacterial kidney disease monitoring.

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 1995 was followed by another in March 1996.

Three senior volunteers contributed over 100 hours of service to assist visitors viewing Dworshak's steelhead spawning operations in the spring.

Environmental Engineer Owsley continued to assist both 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. Mr. Owsley participated on several task forces and was involved in formal presentations and work groups as requested.

A Stewardship Initiative Proposal was funded during the year to the Idaho FRO project. Funds were allotted from FRO to the hatchery as a cooperative participant for work involved in rearing and tagging steelhead for use in several study groups of fish.

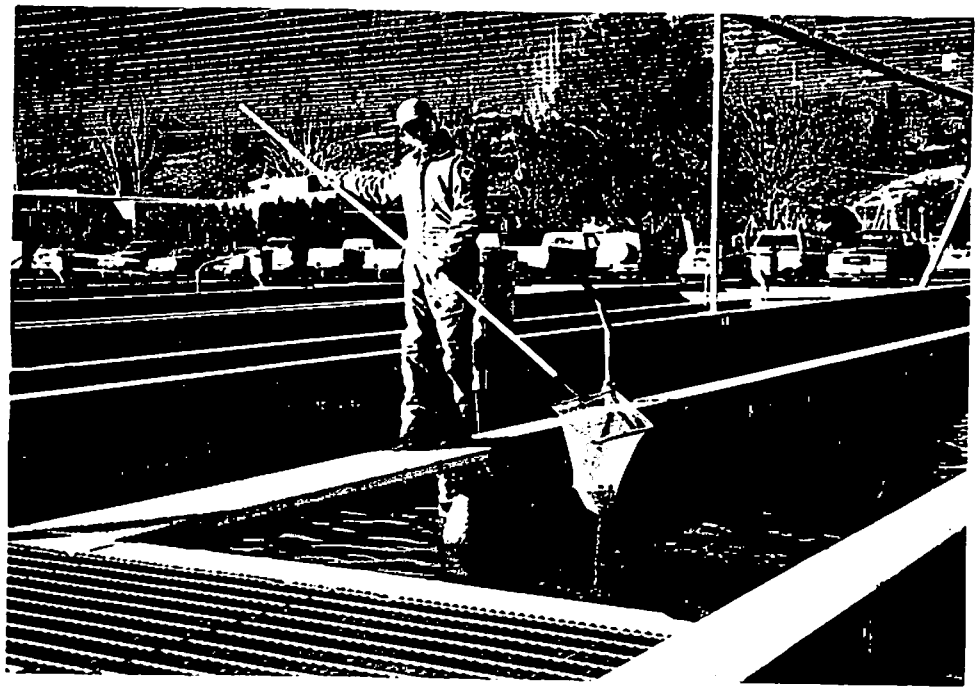
Distribution trucks and drivers from the COE assisted the hatchery in hauling steelhead smolts upriver from the hatchery. This assistance has been ongoing since 1982 when the hatchery first began releasing fish offsite.

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.

Separate weekly spawning dates were set aside to collect eggs for NBS's Seattle (Reisenbichler) research study. Temperature modifications and egg incubation space were made available at Dworshak to accommodate the study.

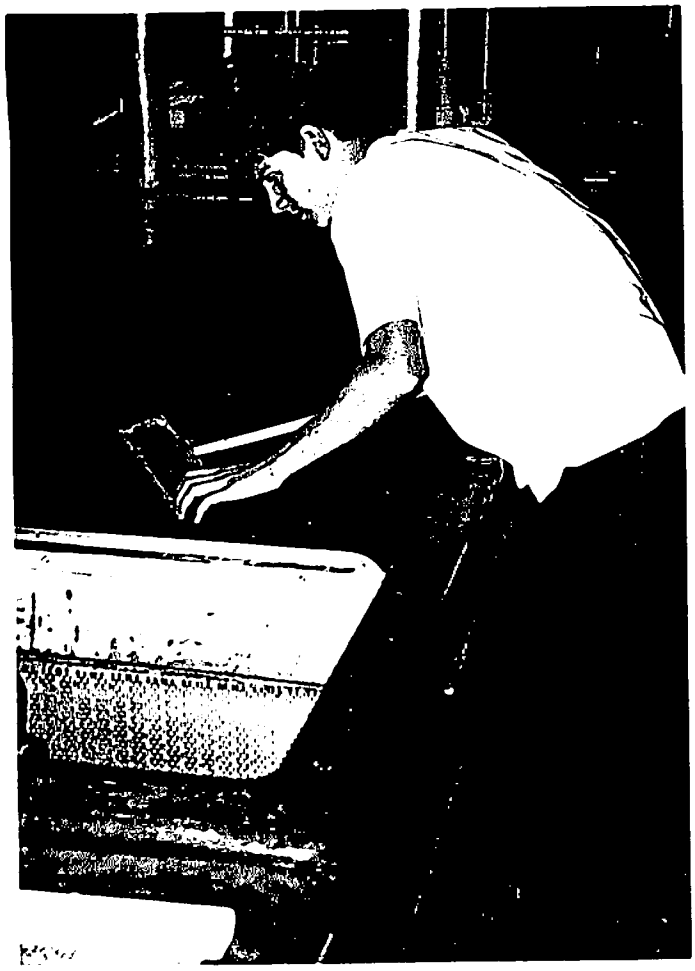
Several hatchery employees assisted Idaho FRO with fish monitoring and sampling activities.

COOPERATIVE PROGRAMS



Dennis Owsley, Clearwater River Youth Program, picks dead fish out of the ponds. Eight high school students were employed at the complex in 1996 in this cooperative program with the school district.

One of the many projects the Clearwater River Youth Program staff worked on was completing new concrete pads for the picnic tables.



Jed Arsena, Clearwater River Youth Program, cleans out nursery tanks.

Summer youth program workers at the Red River Satellite station operated by Idaho Fish and Game. The crew rebuilt a nature trail damaged by flooding.

Jennifer Lathrop, Clearwater River Youth Program, learns how to measure fish electronically from Paul Hayduk, Idaho Fishery Resource Office biologist.

Clearwater River Youth Program last day of work. Pictured are: Tom Eichert, crew leader; David Heywood, Pam Wolfe, Jed Arsena, Dennis Owsley, Kandi Supak, Crystal Miller. Not pictured is Tiffany Haworth.