

CLEARWATER FISH HATCHERY
ANNUAL OPERATIONS REPORT
OCTOBER 1, 2006 – September 30, 2007

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LOWER SNAKE RIVER
COMPENSATION PLAN
Coastal Fisheries

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INTRODUCTION

Location

Clearwater Fish Hatchery is located on the North Fork of the Clearwater River, 1.5 miles downstream from Dworshak Dam, 72.5 miles upstream from Lower Granite Dam, and 504 miles upstream from the mouth of the Columbia River.

Red River satellite facility is located 15 miles east of Elk City, Idaho—186 miles upstream from Lower Granite Dam and 618 miles from the mouth of the Columbia River.

Crooked River satellite facility is located 20 miles downstream of Red River. The trap is located one-half mile upstream of the mouth of Crooked River, a tributary of the South Fork of the Clearwater River. The juvenile rearing ponds are ten miles upstream from the Crooked River adult trap. Crooked River is 172.5 miles upstream from Lower Granite Dam and 604 miles upstream from the mouth of the Columbia River.

Powell satellite facility is located 122 miles east of the Clearwater Fish Hatchery (CFH) at the headwaters of the Lochsa River. Missoula, Montana, 45 miles east is the closest town. Powell is 192.5 miles upstream from Lower Granite Dam and 624 miles upstream from the mouth of the Columbia River.

See Appendix 1 for property details.

Mitigation Goals

Lower Snake River Compensation Plan:

The annual goal of Clearwater Fish Hatchery and satellite facilities is to return 12,000 adult salmon and 14,000 adult Steelhead over Lower Granite Dam.

Idaho Department of Fish and game Objectives:

The objectives of Idaho Department of Fish and Game (IDFG) for the Clearwater Hatchery are to reestablish historic fish runs into the upper Clearwater River tributaries, to enhance the wild spawning population, and to increase sport and tribal fishing opportunities.

SPRING CHINOOK SALMON

South Fork Brood Year 2007

(Red River / Crooked River)

1997, Red River and Crooked River stock Chinook were combined to make the South Fork stock and was continued in 2007 due to the straying of Chinook between the two drainages.

The Red River trap was put into operation March 12, 2007 for steelhead trapping. It was left in operation for Chinook trapping, and the first Chinook was trapped on June 6 and the last on September 3. The Red River trap was operated 187 days. A total of 545 fish were trapped of which 21 were wild/natural and 524 were hatchery origin.

The Crooked River trap was put into operation March 15, 2007 for steelhead trapping. It was left in operation for Chinook trapping, and the first Chinook was trapped on June 6 and the last on September 6. The Crooked River trap was operated 190 days. A total of 366 fish were trapped of which 14 were wild/natural and 352 hatchery origin.

South Fork (Red River and Crooked River) 911 fish trapped

Red River 326 adults, 219 jacks: Crooked River 235 adults, 131 jacks

<u>Age Classes</u>	<u>Females</u>	<u>Males</u>	<u>Unknown</u>
3 years	0	350	7
4 years	242	136	15
5 years	62	92	7
Total	304	578	29

See Appendix A for disposition details.

A total of 142 females were spawned between August 7 and September 5, 2007 for a total of 9 egg takes. No eggs were culled at spawning. During incubation, eggs from a total of 3 females were culled due to high BKD levels. One hundred thirty nine (139) females were kept for CFH production.

A total of 514,694 green eggs taken for South Fork stock egg allocations yielded 490,650 eyed eggs for an eye-up average of 95.33%.

See Appendix B1 for egg take breakdown.

A total of 911 fish were trapped of which 35 were wild/natural and 876 were hatchery.

Powell Brood Year 2007

For the tenth year, the Fishery Research trap on Crooked Fork Creek was operated in conjunction with our Powell trap on Walton Creek to collect hatchery fish in the upper Lochsa basin. The Walton Creek weir was installed on May 29, 2007 and taken out of operation on September 22, 2007. The Powell trap was operated 117 days. The first Chinook was trapped on June 6 and the last Chinook was trapped on September 19, 2007.

The Crooked Fork trap was in operation between June 14 and November 4, 2007. A total of 64 fish were trapped at Crooked Fork Creek. The first fish was trapped on June 15 and the last on September 2, 2007. A total of 58 fish were transported to Powell holding pond and used in hatchery spawning.

A total of 1250 fish were trapped in the Powell/Crooked Fork traps of which 14 were wild/natural origin and 1236 were hatchery origin.

Powell (1250 fish trapped) 971 adults, 279 jacks

<u>Age Classes</u>	<u>Females</u>	<u>Males</u>	<u>Unknown</u>
3 years	2	277	0
4 years	498	311	6
5 years	59	92	5
Total	559	680	11

See Appendix A for disposition details.

A total of 526 females were spawned between August 6 and September 4, 2007 for a total of nine egg-takes. One female was culled at spawning, seven in incubation for BKD, and four for bad eggs. Eggs from 514 females were kept for hatchery production.

A total of 2,000,753 green eggs taken for Powell stock egg allocation yielded 1,870,377 eyed eggs with an overall eye-up average of 93.48%.

See Appendix B2.

A total of 2,515,447 green eggs from Powell and South Fork stock for CFH production yielded 2,361,027 eyed eggs with an overall eye-up average of 93.86%. Ninety three males at Powell and two hundred two males from South Fork were killed and given to the NPT

Chinook eggs received from other stations Brood Year 2007.

Eggs were received from Rapid River in one shipment yielding a total of 578,457 eyed eggs.

Chinook eggs shipped to other hatcheries.

No eggs were shipped to other stations this year.

DISTRUBUTION

Chinook

Distribution of acclimated brood year 2005 spring Chinook smolts began March 22, 2007 with the transport of smolts to Powell acclimation pond and finished March 30 with transport of South Fork stock to the Crooked River Facility by CFH personnel. Smolts were acclimated and released between March 22 and April 6, 2007. Direct release plants occurred on March 29-30 at Crooked River where 80% of the smolts were direct released at the lower facility. A total of 1,670,006 smolts (106,857 pounds) were transported to the satellite facilities and direct release stream sites. All of these fish were marked. See Appendix G for detailed release information by release site. See Appendices C, E, and H for rearing cost.

Summer and fall releases of brood year 2006 Chinook occurred at three release sites. Summer parr (304,026: 5,375 pounds) were released at McGruder Corridor of Selway River. Selway fish were reared at CFH and transported by NPTH personnel. Pre-smolts (506,735: 25,293 pounds) were released at Red River and Powell acclimation ponds. See Appendix G for detailed release information by release site.

STEELHEAD TROUT

Crooked River Trapping

Crooked River trap was put into operation to trap steelhead March 15, 2007. The first fish was trapped on April 5 and the last on May 15, 2007. A total of 191 fish were trapped of which 84 were hatchery males, 67 were wild/natural males, 17 were wild/natural females and 23 were hatchery females. All wild/natural fish were released above the weir, and all hatchery fish were released below the weir. CWT were recovered from 13 kelts, no fish were sacrificed for CWT information.

Red River Trapping

Red River trap was put into operation to trap steelhead on March 12, 2007. No problems were encountered due to high water from spring run off. Seven Steelhead were trapped during 2007. All 7 were wild/natural males and were released above the weir.

Steelhead eggs received from other station BY-07

A total of 1,270,371 brood year 2007 green eggs were received from Dworshak National Fish Hatchery (DNFH) for rearing to full term smolts at the Clearwater Hatchery. This was the third year Dworshak was unable to shock and pick CFH steelhead eggs before shipping them to CFH. Dworshak incubated the eggs to eye-up. CFH staff shocked them at Dworshak, transported them to CFH incubation room, and picked them the next day. From these green eggs 1,200,280 eyed eggs were produced. Eye-up percentage was 94.5%. These fish will be released in the spring of 2008. CFH also received approximately 1,624,596 green eggs for early incubation, egg picking and enumeration. From these green eggs 863,651 eyed eggs were produced for Magic Valley and 217,137 for Hagerman National. Eye-up percentage was 94.5%. A total of 903,713 swim-up fry were ponded for CFH production. Also, 250,000 eyed eggs were culled at Clearwater Fish Hatchery and 217,137 for Magic Valley/Hagerman. Culling eggs numbers to a full hatchery allocation.

DISTRIBUTION

Steelhead

A total of 868,375 brood year 2006 North Fork steelhead smolts were transported to seven release sites from CFH. See Appendix F for release details. CFH staff and two Idaho Fish and Game transportation drivers transported a total of 174,521 pounds of steelhead smolts. Some of the fish released at Red River and Crooked River had no external marks. See Appendices D, E, and H for rearing cost.

Rainbow

Clearwater Fish Hatchery staff released rainbow trout throughout the Clearwater region. CFH staff released 91,399 catchable size rainbows (32,702 pounds) April through October. These catchable rainbows were all of Troutlodge triploid stock reared at Nampa Hatchery or Shasta stock reared at Dworshak NFH. They were released into streams, lakes and ponds at 22 sites for a total of 96 plants.

A total of 122 three-to-eight pound trout were recovered from the sediment basin and released throughout the year with the normal fish allocation.

Fish and Game license fees funded this project with cooperation from the U.S. Fish and Wildlife Service.

CONSTRUCTION PROJECTS

- Constructed and installed storm drain fields around 5 of the hatchery residences and placed sidewalks.
- Cleaned old bark from bark beds and applied washed river cobbles to clean up appearance of Hatchery grounds
- Installed metal ceiling in Red shed
- Constructed vacuum system for steelhead bridges
- New bumper framework for intake platform
- Redesigned and constructed stainless steel oxygen bottle holders for 3 smolt trucks and 2 ton truck
- Designed and constructed “Fish Wheel of Fortune” interpretive display for visitor’s center
- Drilled new domestic well and installed pump and pressure tank at Powell

MAINTENANCE AND REPAIRS

- Repair to north steelhead bridge drive train
- Rebuild 4-wheel drive front end on backhoe tractor
- Rebuilding main air compressor for CFH
- Repaint all cedar fences
- Pavement crack repair
- Painted interior of 2 residences

NEW TOOLS AND EQUIPMENT PURCHASED

- Portopower
- Vehicle hoist
- Floor jack
- 2 Pressure washers
- Electric start engine for trash pump
- Redesign and modification to 8” fish pump
- Electric jack hammer

APPENDIX A

Chinook Adult Returns to Clearwater Hatchery Satellite Facilities 2007

	Powell	Crooked River	Red River
Date of first return	6/06/2007	6/06/2007	6/06/2007
Date of last return	9/19/2007	9/6/2007	9/03/2007
Number of females returning	559**	304*	
Number of males returning	677**	578*	
Number of unknown sex returning	14	12	17
Date of peak returns	6/22/2007	7/8/2007	6/22/2007
Total trapped	1250	366	545
Number released to spawn naturally above weir	0 females 0 males 14 unknowns	1 females 1 males 12 unknowns	0 females 4 males 17 unknowns
Released to spawn below weir and sport fisher	0 females 0 males	1 females 3 males	0 females 0 males
Trap Mortality	2 females 2 males	0 females 1 males	0 females 0 males
Sport Fishery Outplant	0	0	0
Fish transferred from other traps	58**	0	0
Number Spawned	526 females 545 males	142 females* 334 males*	
Pre-spawning mortality	31 females 39 males	160 females*** 33 males**	
Fish transferred to other hatcheries	0	0	0
Fish given to NPT Food Bank	93 males	202 males	

* In 1997, Red River and Crooked River Chinook were combined to make the South Fork stock.

**Includes fish trapped at Crooked Fork Weir.

***Includes 134 females killed from accidental fish kill at Clearwater Hatchery.

APPENDIX B1. Chinook Spawning Record 2007 for South Fork.

SOUTH FORK (Red River / Crooked River).

Lot	Spawn Date	Total Females	BKD Females Culled		Other Females Culled		Females Kept	Green Eggs	Eyed Eggs	Percent Eye Up	Fecundity
			Table	Incubation	Table	Incubation					
1	8/7/07	4	0	0	0	0	4	17,622	17,210	97.7	4,406
2	8/10/07	2	0	0	0	0	2	6,524	6,401	98.1	3,262
3	8/14/07	12	0	0	0	0	12	51,663	46,853	90.7	4,305
4	8/17/07	40	0	1	0	0	39	151,739	144,190	95.0	3,891
5	8/21/07	33	0	0	0	0	33	136,913	131,450	96.0	4,149
6	8/24/07	20	0	1	0	1	18	62,407	61,171	98.0	3,467
7	8/28/07	17	0	0	0	0	17	62,000	60,726	98.0	3,647
8	8/31/07	7	0	0	0	0	7	25,826	22,649	87.7	3,689
9	9/5/07	7	0	0	0	0	7	0	0	0.0	0
Total/Average		142	0	2	0	1	139	514,694	490,650	95.33%	3424.0

APPENDIX B2. Chinook spawning record 2006 for Powell.

POWELL

Lot	Spawn Date	BKD Females Culled		Other Females Culled		Females Kept	Green Eggs	Eyed Eggs	Percent Eye Up	Fecundity
		Table	Incubation	Table	Incubation					
1	8/7/06	9	0	0	0	9	31,928	28,920	90.6	3,547
2	8/10/06	13	0	0	0	13	43,526	39,427	90.6	3,348
3	8/14/06	40	0	0	1	39	133,157	124,819	93.7	3,414
4	8/17/06	35	0	1	0	34	121,195	112,047	92.4	3,564
5	8/21/06	75	0	0	0	75	270,547	244,495	90.4	3,607
6	8/24/06	30	0	1	0	29	103,428	98,019	94.8	3,566
7	8/28/06	27	0	0	0	26	83,546	79,549	95.2	3,213
8	8/31/06	13	0	1	0	11	37,253	33,648	90.3	3,387
Total/Average		242	0	3	1	236	824,580	760,924	92.28%	3,456

Appendix C

CHINOOK REARING FY07

Rearing to fry stage only

BY-06

Hatched from eyed eggs	NA
Percent hatched – eyed to fry	NA
Percent mortality to stocking	NA
Total number of fry stocked	NA
Total weight of fry stocked	NA
Average number/lb. of fry	NA
Conversion rate	NA

Rearing to Fingerling stage only (parr & pre-smolts)

BY-06

Fingerlings produced	937,616*	
Weight of fingerlings produced	33,577*	
Percent mortality to stocking	3.6%	
Average number/lb. of fingerlings	Parr	56.56
	Pre-smolt	21.1
Conversion rate	0.79	

Smolts reared (**BY-05 all stocks combined**)

Hatched from eyed eggs	1,685,365
Percent hatched – eyed to fry	98.05
Percent mortality to stocking	99.08
Number of smolts produced	1,670,006
Weight of smolts produced	106,857
Average number/lb. of smolts	15.63
Average Conversion rate	1.09

BY-05 Chinook

Total number of trips at release: 60 @ 1,800 lbs per trip.

*Included 126,855 (2,909 pounds) pre-smolts transferred to NPTH on September 11, 2007

Appendix D

STEELHEAD REARING FY07

Rearing to fry stage only

BY-06

Hatched from eyed eggs	NA
Percent hatched – eyed to fry	NA
Percent mortality to stocking	NA
Total number of fry stocked	NA
Total weight of fry stocked	NA
Average number/lb. of fry	NA
Conversion rate	NA

Rearing to Fingerling stage only

BY-06

Fingerlings produced	NA
Weight of fingerlings produced	NA
Percent mortality to stocking	NA
Average number/lb. of fingerlings	NA
Conversion rate	NA

Smolts reared

**Dworshak
BY-06**

Hatched from eyed eggs	906,726
Percent hatched – eyed to fry	93.6
Percent mortality to stocking	95.8
Number of smolts produced	868,375
Weight of smolts produced	174,521,
Average number/lb. of smolts	4.98
Average Conversion rate	0.94

BY-06 Steelhead

Total number of trips at release: 84 @ 2,100 lbs per trip.

Appendix E

CHINOOK
FOOD FED & WEIGHT GAINED

	BY-05	BY-06
Period Fed: 10.01.06-9.30.07		
Feed Used (lb.) (LSRCP)	68,629	54,401
Weight Gain (lb.)	62,668	65,802
Feed Purchased FY06	\$38,397	\$112,349*
Conversion	1.09	0.82

STEELHEAD
FOOD FED & WEIGHT GAINED

	North Fork	
	BY-06	BY-07
Period Fed: 10.01.06-9.30.07		
Feed Used (lb.) (LSRCP)	112,366**	39,660
Weight Gain (lb.)	120,824	53,296
Feed Purchased FY07	\$19,565	\$148,660*
Conversion	0.93	0.74

Fish reared on station for other projects.
Feed cost provided by surplus feed from CFH.

Species	Rainbow
Agency reared for	Idaho Fish & Game
Period fed	June – Sept 2007
Feed fed (lb.)	1,100
Weight gain (lb.)	1,100
Cost	0
Conversion	1.0

*Portion of feed purchased will carry over to FY08.

**Portion of feed purchased in FY06.

Cleanwater Fish Hatchery
2007 Steelhead Release

Appendix F

RELEASE BYO6 SH full-term smolts									
Date	Site	Number Released	Stock	Length	FPP	Pounds	Marks	Raceway	Comments
4/15-17/2007	Red River	100,329	Dworshak B	7.95	5.11	19,634	100,029 AD; 300 AD/PIT	9E-10E	Vol; Forced 4/17
4/15-17/2007	*Red River	151,317	Dworshak B	7.84	5.33	28,390	300 PIT	6E-8E	Vol; Forced 4/17
4/13-17/2007	Red House Hole	272,819	Dworshak B	8.24	4.59	59,438	204,696 AD; 67,823 AD/CWT/LV; 300 AD/PIT	4W-9W	Direct
4/15-17/2007	*Crooked R (Upper)	83,811	Dworshak B	7.97	4.96	16,897	21,299 CWT; 299 PIT	11E-12E	Vol; Forced 4/17
4/12-13/2007	Crooked R (Lower)	151,296	Dworshak B	8.05	4.92	30,751	84,911 AD; 66,085 AD/CWT/LV; 300 AD/PIT	10W-12W	Direct
4/17/2007	*Meadow Cr	28,050	Dworshak B	7.70	5.61	5,000	297 PIT	5E	Direct
4/17/2007	*Mill Cr	28,338	Dworshak B	7.70	5.61	5,051	300 PIT	5E	Direct
4/19/2007	*Lolo Cr	52,415	Dworshak B	7.71	5.60	9,360	300 PIT	4E	Direct; Hauled by NPT
TOTAL/ AVERAGE		868,375		7.90	4.98	174,521			

* supplementation

Cleanwater Fish Hatchery
2007 Chinook Release

Appendix G

RELEASE BY05 CH full-term smolts									
Date	Site	Number Released	Stock	Length	FPP	Pounds Marks	Raceway	Comments	
3/29/2007	Upper Crooked R	133,829	SF Cr/Rapid R	5.39	16.00	8,364 133,330 ad; 489 ad/pit	11A & B	Fish held for 10 hours then released.	
3/29-30/2007	Lower Crooked R	517,092	SF Cr/Rapid R	5.39	16.00	32,318 459,674 ad; 42,425 ad/cwt, 14,993 ad/pit	7A-10A, 7B-10B	Direct release.	
3/23-4/4/2007	Walton Cr	373,977	Powell/Rapid R	5.46	15.40	24,284 272,322 ad; 86,655 ad/cwt, 15,000 ad/pit	1-3 A&B	Volitional 9/23; Forced on 4/4/2007.	
3/31-4/6/2007	Red R	375,759	SF Cr/Rapid R	5.46	15.40	24,400 318,733 ad; 42,049 ad/cwt, 14,977 ad/pit	4-6 A&B	Volitional 9/31; Forced on 4/6/2007.	
4/2-4/3/2007	Lower Selway R	269,349	Dwor/Rapid R	5.46	15.40	17,490 179,432 ad/cwt; 89,917 no ad/cwt	2-3 E&W	Direct release; hauled by NPT.	
	TOTAL/ AVERAGE	1,670,006		5.43	15.63	106,857			
RELEASE BY06 CH parr									
6/25-28 7/2/2007	Selway R (McGruder)	304,026	Powell	4.00	56.56	5,375 Oxytetracycline; No fin clip	2E&W	NPT plant	
9/17-9/20/2007	Red River	122,215	South Fork	4.20	23.00	5,319 Ad Clipped	1E	Volitional 9/17-Forced 9/20	
9/24-9/27/2007	Walton Creek	384,520	South Fork	5.30	19.25	19,974 Ad Clipped	Powell Pond	Direct Volitional	
9/11/2007	BY06 Fish Transfer								
	NP Tribal Hatchery	126,855	So Fork & Powell		43.6	2,909 Non-Clipped 100% CWT	1W	CWT Codes 61-27-17 36% 61-27-13 64%	

Appendix H

OPERATION COST 2007

Total Pounds Gain Reared on LSRCP budget	302,590 lbs
Total Feed Cost	\$318,971
Feed Cost per LB Gain (Feed only)	\$1.06

COST TO OPERATE ENTIRE PROJECT FOR 2006-2007

	Actual Spent	As of 9/23/2007 \$ encumbered
Personnel Cost	718,420	0
Operation Cost	361,472	2,202
Capital Outlay	2,630	0
Sub-Total	1,082,522	2,202
\$ Actual spent & \$ encumbered	1,084,724	
Overhead	197,404	0
Feed Cost	318,971	
Grand Total	1,601,099	

Total pounds reared by LSRCP funded personnel	302,590 lbs
Cost per pound using entire budget w/o overhead	\$4.64/ lb

Appendix I

Clearwater Fish Hatchery Property Information

Clearwater Hatchery

24 buildings
0 wells
1.8 miles of pipeline
17.5 acres

Red River

4 buildings
0 wells
300 yards of pipeline
3.25 acres (approximately)

Crooked River (lower)

1 building
1 well
187 yards of pipeline
6 acres

Crooked River (upper)

1 building
0 wells, 1 spring box
167 yards of pipeline
6.27 acres

Powell

2 buildings
1 well, 1 spring box, 1 direct creek source.
1 pump station from White Sands Cr.
200 yards of pipeline
7.77 acres