



**Cle Elum Supplementation and Research Facility
Annual Report For
Worked Performed from July 1, 2013 thru August 13,
2014.**

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CLE ELUM SUPPLEMENTATION AND RESEARCH FACILITY

Executive Summary

The Cle Elum Supplementation and Research Facility (CESRF) have been in operation since 1997. Since the collection of the first brood in 1997 up to the 2013 brood the facility has collected and spawned 10,000 adult Spring Chinook salmon, taken 14,401,598 eggs, and released 10,294,345 smolts. See the tables 1 and 2 below for a detailed description of individual brood year activity for wild and hatchery statistics for brood years 1997-2013.

Table 1. CESRF spawning and survivor statistics (Wild/Natural brood only) for brood year's 1997-2013.

Brood Year	Total Collected	Total Morts.	Pre-Spawn Survival	No. Fish Spawned		% BKD Loss	Total Egg Take	Live Eggs	% Egg Loss	Smolts Released
				Males	Females					
1997	261	23	91.2%	106	132	2.6%	482,287	451,458	6.4%	386,048
1998	408	70	82.8%	140	198	1.4%	725,682	655,229	9.7%	589,683
1999	738	24	96.7%	213	222	2.7%	832,397	762,607	8.4%	758,789
2000	567	61	89.2%	170	278	9.2%	937,516	878,534	6.3%	834,285
2001	595	171	71.3%	145	223	53.2%	408,485	380,169	6.9%	370,236
2002	629	89	85.9%	125	261	10.0%	893,186	884,381	1.0%	836,975
2003	441	54	87.8%	115	200	0.0%	820,933	761,902	7.2%	735,981
2004	597	70	88.2%	125	245	0.4%	830,108	762,349	8.2%	691,109
2005	526	57	89.1%	136	241	0.8%	870,741	802,666	7.8%	769,505
2006	519	45	91.3%	122	239	1.7%	772,357	703,657	8.9%	642,977
2007	473	49	89.5%	134	216	.6%	749,131	715,857	4.4%	676,602
2008	480	38	92.1%	151	253	5.5%	915,563	832,938	9.0%	752,109
2009	486	57	88.3%	142	219	1.4%	850,404	848,339	0.2%	744,170
2010	483	20	95.9%	97	193	2.5%	757,124	727,030	4.0%	702,874
2011	455	28	98.9%	96	197	0%	743,617	712,969	4.1%	684,711
2012	363	14	96.1%	111	209	0%	768,310	739,528	3.7%	712,207
2013										Released in spring of 2015
Mean	501	54	89.64%	133	220	5.75%	772,365	726,226	6.01%	680,516

Table 2. CESRF spawning and survivor statistics (Hatchery brood only) for brood year's 2002-2013.

Brood Year	Total Collected	Total Morts.	Pre-Spawn Survival	No. Fish Spawned		% BKD Loss	Total Egg Take	Live Eggs	% Egg Loss	Smolts Released
				Males	Females					
2002	201	22	89.1%	26	72	4.2%	232,316	93,115	9.2%	87,837
2003	143	12	91.6%	30	51	0.0%	201,690	87,966	8.2%	88,734
2004	126	19	84.9%	22	49	0.0%	166,043	100,168	6.7%	94,339
2005	109	6	94.5%	26	45	0.0%	139,194	94,250	11.7%	90,995
2006	136	21	84.6%	21	41	2.4%	112,576	102,889	8.6%	68,434
2007	61	15	91.8%	19	35	0.0%	101,275	86,318	3.7%	94,663
2008	194	10	94.8%	51	67	1.5%	247,503	106,122	5.1%	97,196
2009	164	24	85.4%	30	38	0.0%	148,593	91,994	0.8%	88,771
2010	162	9	94.4%	29	55	1.8%	191,826	94,925	9.2%	92,033
2011	166	7	98.7%	28	49	1.1%	159,801	89,107	4.9%	84,726
2012	140	8	94.3%	29	42	0%	156,725	95,438	2.0%	90,684

CLE ELUM SUPPLEMENTATION AND RESEARCH FACILITY

2013	194	5	97.2%	38	44	0%	127,425	80,534	3.4%	Released in spring of 2015
Mean	150	13	91.78%	29	49	.92%	164,414	93,569	6.13%	88,947

Table of Contents

INTRODUCTION: - 1 -

FISH PRODUCTION: - 2 -

FISH CULTURE: - 2 -

ADULT COLLECTION FOR THE 2013 BROOD - 3 -

 Table 1. Total wild and hatchery adult transfers from Roza to CESRF, 2013. - 3 -

 Table 2. Schematic breakdown of wild/hatchery adult usages at CESRF, 2013..... - 4 -

 Table 3. Schematic breakdown of supplemental usage at CESRF, 2013..... - 4 -

SUMMARY OF EGG TAKE FOR THE 2013 BROOD - 5 -

 Table 4. Schematic breakdown of total eggs collected for BY 2012 by origin and % egg loss and estimated fecundity for each..... - 6 -

FINGERLING / JUVENILE REARING FOR BROODYEAR 12..... - 7 -

 Table 5. Summary of 2012 brood year marking activities at the Cle Elum..... - 8 -

FRY / FINGERLING REARING FOR BROODYEAR 12..... - 9 -

ADULT HOLDING BROODSTOCK 2013..... - 9 -

WATER PRODUCTION: - 10 -

RIVER PUMP STATION MAINTENANCE: - 10 -

WELL FIELD MAINTENANCE: - 11 -

ACCLIMATION SITES:..... - 12 -

EASTON - 13 -

CLARK FLAT - 14 -

JACK CREEK - 14 -

VEHICLE MAINTENANCE: - 15 -

RESIDENTIAL MAINTENANCE: - 15 -

HATCHERY BUILDING MAINTENANCE: - 15 -

MAIN OFFICE MAINTENANCE:..... - 16 -

MAINTENANCE BUILDING UPKEEP:..... - 17 -

SAFETY AND TRAINING: - 18 -

GROUNDS:..... - 18 -

MISCELLANEOUS:..... - 19 -

MEETINGS AND TOURS: - 19 -

PERSONNEL: - 20 -

CLE ELUM SUPPLEMENTATION AND RESEARCH FACILITY

INTRODUCTION

Historically, the return of spring Chinook salmon (*Oncorhynchus tshawytscha*) to the Yakima River numbered about 200,000 fish annually. Spring Chinook returns to the Yakima River averaged fewer than 3,500 fish per year through most of the 1980s and 1990s (less than 2% of the historical run size).

In an attempt to reverse this trend the Northwest Power Planning Council (NPPC) in 1982 first encouraged Bonneville Power Administration (BPA) to fund the design, construction, operation, and maintenance of a hatchery to enhance the fishery for the Yakama Indian Nation as well as all other harvesters. After years of planning and design, an Environmental Impact Statement (EIS) was completed in 1996 and the CESRF was authorized under the NPPC's Fish and Wildlife Program with the stated purpose being "to test the assumption that new artificial production can be used to increase harvest and natural production while maintaining the long-term genetic fitness of the fish population being supplemented and keeping adverse genetic and ecological interactions with non-target species or stocks within acceptable limits". The CESRF is co-managed by the Yakama Nation and the Washington Department of Fish and Wildlife (WDFW) with the Yakama Nation as the lead entity. The Cle Elum project became operational in 1997.

This report describes the work performed at the CESRF from July 1, 2012 to June 30, 2013. During this time frame work was focused to maintain and care for the 2011, 2012, and the 2013 broods. Rearing and release of the 11 brood covers much of the work performed under this contract period. The remainder of the report will cover the early rearing of the 2012 brood and the start out of the collection of adults for the 2013 brood.

The maintenance and upkeep of the CSERF is ongoing and specific details are covered in this report. Maintenance and upkeep of the Cle Elum Facility includes; maintaining 23 buildings (includes three acclimation sites and seven residential houses), maintaining 20 large pumps ranging from 50 to 75 hp, maintaining 6 large generators, and maintenance of roads, grounds and data support systems.

FY13 Annual Report
July 1, 2013 – August 13, 2014

FISH PRODUCTION:

2012 Brood – 773,095 smolts released at acclimation sites during the spring of 2014.

2013 Brood – 684,047 fry transferred to Cle Elum rearing ponds on March 3-6, 2013. Schedule release date is in spring 2015.

2014 Brood – 557 adults transferred from Roza to Cle Elum from the May to August 13, 2014 time period.

FISH CULTURE:

Normal fish culture practices continued throughout the 2013/2014 time period. Some of the fish culture duties performed during the year included, but were not limited to: feeding fish, assisting in the marking and tagging of juveniles, transfer of juveniles from CESRF to the acclimation sites, cleaning ponds, maintaining and installation of feed delivery system and supply lines, cleaning/calibrating probes, pressure washing ponds once fish were removed, setting up and shutting down acclimation sites, fertilizing and mowing yards, predator net repairs, maintaining hatchery buildings and grounds, plumbing and small electrical jobs, and fielding tours that visit the Cle Elum Project.

In addition to the supplementation of spring Chinook at the Cle Elum Facility numerous research activities are conducted annually on eggs, fry, juveniles and adults held at CESRF and acclimation sites. Below is a list of annual monitoring and evaluation of spring chinook life history conducted at the Cle Elum Hatchery.

- Reproductive success comparisons between hatchery and wild spring Chinook in observations stream (spawning channel).
- Gamete viability comparisons between hatchery and wild spring Chinook.
- Fecundity, egg size, reproductive effort, age, size, comparisons between hatchery- and wild origin females.
- Reproductive effort and testes weight by male size comparisons between wild, supplementation and hatchery and males—also size and age comparisons.
- Maturation timing comparisons by sex and origin (wild, supplementation and hatchery) adults.
- Emergence timing and Kd comparisons between progeny produced by hatchery and wild-origin adults.
- Juvenile behavior work that monitors dominance and predator avoidance

activity.

- o Morphometric comparison between hatchery, supplementation and wild origin fish.

ADULT COLLECTION FOR THE 2013 BROOD

The bulk of the 2013 brood adult fish transfers for the five month transfer period, were trucked to Cle Elum in May and June 2013. The transfer of adults slowed down in July and August as the peak of the run had passed. Total adult/jack transfers from Roza to the facility are shown in **Table 1**.

Adult Collection for the 2013 Brood transferred from May 1, to September 1, 2013.				
Origin	Males	Females	Jacks	Totals
Wild/Natural	148	202	32	373
Supplementation	78	111	14	203
Hatchery Control	45	72	77	194
Grand Total	271	375	124	770

Table 1. Total adult transfers from Roza to CESRF, for 2013 season.

Broodstock transferred to Cle Elum were of wild/natural, supplemented and hatchery origin. Wild/Natural brood was collected and spawned for production/research purposes only. Supplemented adults (returning adults which were reared and released at CESRF) were collected and allocated for spawning channel and 38 were spawned artificially to compare against wild and hatchery egg development. Thirty-eight females and thirty-one male supplemental adults were spawned artificially and were used to compare fertilization to yolk-sac absorption against wild and hatchery crosses. The progeny of supplemented adults that were spawned are being used for juvenile trait analyses as part of the long-term supplementation study. Hatchery origin adults were collected for spawning channel observations and to fill two of the eighteen raceways used for production at CESRF. This marked year #12 (BY's 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12 and 13) that hatchery origin adults were collected and spawned to create a hatchery by hatchery line. The hatchery control line was created to monitor the effects of domestication. This was recommended by the Independent Scientific Review Panel (ISRP) in 2001 and implemented starting with the 2002 brood.

CLE ELUM SUPPLEMENTATION AND RESEARCH FACILITY

The hatchery control line juveniles are marked differently than their supplemented counter parts so that they can be separated once they return as adults. Hatchery and Supplemented adults are used for research purposes with approximately 100 used in spawning channel observations for reproductive success and trait analyses studies. A breakdown of adult usage for wild/natural (progeny of natural spawners = 1 generation removed from hatchery environment) and hatchery control adults for the 2013 spawning season are shown in **Table 2**.

	Natural					Hatchery			
	Males	Females	Jacks	Total		Males	Females	Jacks	Total
Production spawners	136	178	17	331		16	44	22	82
Spawning Channel	0	0	0	0		21	24	3	48
Mortalities	7	11	3	21		5	2	6	13
Not Used	5	3	13	21		3	1	46	50
Released to River	0	0	0	0		0	1	0	1
Total Accounted	148	192	33	373		45	72	77	194

Table 2. Schematic breakdown of natural and hatchery adult usages at CESRF fall 2013.

In addition to wild/natural and hatchery adults collected for the 2013 season supplemented adults were also collected at Roza and held at CESRF. Supplemented adults are fish that were raised and released at CESRF. Supplemented adults were progeny from wild/natural spawners that were captured at Roza and transferred to CESRF. These adults were then spawned, eggs incubated, reared at CESRF. Supplemental progeny will be used to monitor several different characteristics and then compared to wild and hatchery life history traits from the egg to the adult stages. Supplemental adults were also placed in spawning observation channel located at the main facility. Located in **Table 3** is a breakdown of supplemented adults used of the 2013 season.

Supplemental adults usage for 2013				
	Males	Females	Jacks	Total
Production spawners	31	38	3	72
Spawning Channel	23	24	1	48
Mortalities	1	3	0	4
Not Used	8	1	3	12
Released to River	15	45	7	67
Total Accounted	78	111	14	203

The 2013 adult holding and rearing season pre-spawning losses were low and, as in the past, mortality increases in September as adults are handled weekly until the spawning period is complete. The total mortality for the five-month holding period was 2.8%, with 1.3% from pre-spawning mortality and 1.5% totaling mortality after sorting period began in September.

SUMMARY OF EGG TAKE FOR THE 2013 BROOD

The spawning period for the 2013 brood took place over a five week period with the first egg take occurring on 9/4/13 and the last one on 10/1/13. The CESRF standard operations during the spawning period are to sort by sexes and check for ripeness on Mondays, and spawn on Tuesdays of each week starting on the first week of September. The spawning period is usually completed by the first week of October. The Cle Elum staff sorts and identifies by sex, checks for ripeness, spawns, and fertilizes Chinook salmon. Other individuals involved with the spawning process include:

- Bill Bosch (Yakama Nation) YKFP Data Manager
- Simon Goudy (Yakama Nation, Cle Elum Hatchery) head of incubation
- Simon Goudy/ Vernon Bogar III/Michael Whitefoot/ (Yakama Nation) factorial crosses/egg measurements
- Paul Huffman (Yakama Nation) records lengths and photographs adult salmon
- Sharon Lutz and Joy Everson (USFW) pathology screening
- Curt Knudsen and Chad Stockton (WDFW) factorial crosses/egg measurements

A combined 260 (178 wild/natural + 44 hatchery + 38 supplemental) females were spawned for the 2013 season. One female tested high for Bacterial Kidney Disease (BKD) and was removed from the spawning population. Total egg take of 885,864 (includes WW 721,971 + 163,893 HH). The total estimated egg take is the first estimation of total egg take using the volumetric method during the spawning period. The next text method of estimated egg take is by running the eggs through the egg counter once they reached the eyed stage.

The total eyed egg reported in table 4 was formulated by the use of the egg counting machine. After all eggs reach the eyed stage they were shocked and processed through the Jensorter (egg sorting machine) which removes the dead unfertilized eggs and then they are ran through the egg counter to give the new egg inventory.

Wild				Hatchery				
Total eggs	Eyed eggs	% Egg Loss	Est. Fecundity		Total eggs	Eyed eggs	% Egg Loss	Est. Fecundity
633,899	612,458	3.4%	3,541		131,696	**80,534	3.4%	3,062

Table 4. Schematic breakdown of total eggs collected for BY 2013 by origin and % egg loss and estimated fecundity for each. ** Only 1,879 eggs from each hatchery control female were used to fill the two HxH production ponds. The remaining eggs from each hatchery female used were culled which is reflected in the total eggs of 131,696 – 80,534 eyed eggs = 51,162 eggs culled for the hatchery line.

In **table 4**, under the Hatchery Origin, of the total 131,696 eggs taken only 80,534 eggs were utilized to fill the two hatchery by hatchery raceways designated to monitor the effects of domestication. In this report reference to a hatchery female is one that was reared and released from CESRF and upon returning as an adult it was selected for brood to create a hatchery by hatchery (HxH) line. The hatchery line adults will at no time be allowed to pass the Roza collection facility and spawn naturally. All hatchery adults are trapped at Roza and are artificially spawned to create the HxH line or used for spawning channel observations. Approximately 1,879 eggs from each of the hatchery females spawned were used to make up the two HxH raceways. The allocated eggs of 1,879 were then split in half with one half represented one HxH raceway and the remaining eggs used to fill other HxH pair = two full raceways.

Supplemental females were spawned but fecundity estimations were not calculated as only 600 eggs from each cross of artificial spawn were used for research purposes. The bulk of the research was conducted by Curt Knudson of Onchor Consulting and Chad Stockton, onsite Washington Department of Fish and Wildlife biologist.

In the fall of 2013, 38 supplemental females were artificial spawned and used by WDFW researchers Chad Stockton and Curt Knudson. The 38 supplemental females were artificially spawned with 34 supplemental males and 600 eggs from the supplemental crosses were then incubated for research purposes. Chris Johnson of WDFW used 5,000 supplemental eggs for hatch out study conducted in the Yakima River. After research eggs were allocated the remaining supplemental eggs from each female were then culled.

During the incubation period, eggs for the 2013 brood were thermally regulated by using a combination of 48° well water and 37° chilled water. By use of thermal control, it was possible to pond fry in a three day period starting on February 25 and concluding on February 27, 2014. At the time of ponding the average temperature unit (TU) at ponding was 1765TU's with an average of 1371 fry/lb. Total pounds transferred to raceways were 499 with an overall average of 27.7 pounds per raceway. The total number of fry ponded was 684,047 with an average of 38,002 fry per raceway.

FINGERLING / JUVENILE REARING FOR BROODYEAR 2012

Juvenile rearing at the CESRF covers a ten month span and starts when fry are transferred from incubation building to the 18 outdoor raceways (transferring fish from incubation to raceways = ponding) in early-March. Juveniles remain in the raceways until January of the following year. For example, the 2013 Brood was ponded in CESRF raceways in March of 2013 and transferred to off-site acclimation sites January of 2014. In January/February (weather permitting) of each year the juveniles are transferred from the CESRF to one of the three acclimation sites (Easton, Clark Flat and Jack Creek).

The 2012 brood was reared under methods which were set to have fish reach the 30 fish per pound size in mid-October 2013. Fish were hand fed Bio-Vita Starter until they reached the 300 fish per pound size and then they were fed Bio-Vita Fry size 1.2 mm pellets by utilization of automatic underwater feeders. Fry were started on well water and sequestered to one half of the raceway to make hand feeding more effective. As fish mass increased flows were increased as well. By mid- May 2014 fish were large enough to change to utilize the automatic underwater feeder pond dividers were removed and fish were given the whole raceway. Well water was used for initial rearing and gradually as the spring freshets passed they were reared solely on Yakima River water.

While in the incubation building, eggs from the 2012 brood were separated in to treatment groups. Half of each female's egg was split evenly with one half placed in vertical incubator tray and the other half of the eggs were placed in the adjacent vertical tray. Each vertical tray incubates no more than three female's eggs which were split in half (not to exceed more than 5000 eggs/tray). Approximately 45,000 eggs were placed in each vertical incubator stack (with one stack equaling 10 to 12 trays). Each adjacent vertical stack was set in pairs with each pair comprised of the same female which was split in half. Again each vertical stack was then transferred in pairs randomly to the outdoor raceways. For example, vertical stacks 5 and 6 comprised of at least 12 to 14 wild females, which were transferred to outdoor raceways 18 and 17, respectively. Each pair will then be moved to one of the three acclimation sites with ponds 18 and 17 being transferred to Jack Creek ponds 6 and 5.

Marking and tagging for the 2012 brood began October 21, 2013 and was completed by December 11, 2013. Pit tags were inserted in 40,000 fish, 2,000 tags in each of the sixteen WxW production ponds and 4,000 in each of the two HxH ponds. The marking process consisted of 100% adipose clip, coded wire tag placement in the snout for WxW production juveniles and posterior dorsal for HxH juveniles. Elastomer marks were also inserted in adipose tissue of the eye of juvenile salmon. The tagging and marking operation conducted by Mark Johnston, YN Fisheries Research Scientist IV, was completed by using the two YKFP trailers and twenty Yakama Nation Fisheries employees. A summary of marking and tagging figures for the BY 12 is found in Table 5.

CLE ELUM SUPPLEMENTATION AND RESEARCH FACILITY

Brood Year 2012 Marking and Tagging										
CLE RW ID	ACC. Site ID	Comment	Elastomer Eye	Color	CWT Body site	CWT	PIT Tags	Total	Start Date	End Date
CLE01	ESJ03	WW	Right	Green	Snout	44358	2000	46358	10/21/2013	10/23/2013
CLE02	ESJ04	WW	Left	Green	Snout	44999	2000	46999	10/23/2013	10/28/2013
CLE03	CFJ03	HH	Right	Red	Post Dorsal	42147	4000	46147	10/28/2013	10/31/2013
CLE04	CFJ04	HH	Left	Red	Post Dorsal	41497	4000	45497	10/31/2013	11/05/2013
CLE05	ESJ05	WW	Right	Green	Snout	43627	2000	45627	11/05/2013	11/07/2013
CLE06	ESJ06	WW	Left	Green	Snout	44507	2000	46507	11/08/2013	11/13/2013
CLE07	CFJ05	WW	Right	Red	Snout	41067	2000	43067	11/14/2013	11/18/2013
CLE08	CFJ06	WW	Left	Red	Snout	37499	2000	39499	11/18/2013	11/21/2013
CLE09	CFJ01	WW	Right	Red	Snout	42001	2000	44001	11/21/2013	11/26/2013
CLE10	CFJ02	WW	Left	Red	Snout	38364	2000	40364	11/26/2013	12/04/2013
CLE11	JCJ01	WW	Right	Orange	Snout	41425	2000	43425	12/05/2013	12/10/2013
CLE12	JCJ02	WW	Left	Orange	Snout	44713	2000	46713	12/03/2013	12/10/2013
CLE13	ESJ01	WW	Right	Green	Snout	42619	2000	44619	11/25/2013	12/03/2013
CLE14	ESJ02	WW	Left	Green	Snout	45217	2000	47217	11/19/2013	11/22/2013
CLE15	JCJ03	WW	Right	Orange	Snout	43330	2000	45330	11/14/2013	11/19/2013
CLE16	JCJ04	WW	Left	Orange	Snout	42900	2000	44900	11/12/2013	11/14/2013
CLE17	JCJ05	WW	Right	Orange	Snout	43240	2000	45240	11/06/2013	11/08/2013
CLE18	JCJ06	WW	Left	Orange	Snout	43257	2000	45257	11/04/2013	11/06/2013
Totals						766,767	40000	806,767		

Table 5. Summary of 2012 brood year marking activities at the Cle Elum Supplementation and Research Facility.

After juveniles from BY 12 were marked and tagged they were allowed to recover and heal prior to transferring fish to the acclimation sites. Quality control and tag retention tests were performed by Mark Johnston and staff, in the latter part of December 18 and 19th of 2013. In January of 2014 Joy Everd, USFW pathologist, cleared BY 12 juveniles for fish transfer.

Juveniles from BY 12 were transferred from CESRF to the acclimation sites starting January 2014. Fish were first moved to the Easton and Clark Flat site on January 6 and 7, 2014. Fish transfer for the 12 brood concluded with Jack Creek site on January 23, 2014 with all six ponds transferred on this day.

With fish transfers completed to all three acclimation sites, the juveniles were allowed to imprint for a minimum of three weeks prior to pulling screens in mid-March to start the volitional release of the 12 brood. Screens at Easton and Clark Flat site were removed on

March 14, 2014.

Raceways at all acclimation sites included ten 5' diameter camouflaged floating hoola hoops and ten underwater feeders dispersed evenly on pond walls. Flows for raceways were set at 840 gallons per minute at all sites. Feed was introduced at a sub-surface water level, and as rearing water temperature increased in early spring fish were fed at optimum levels.

Half of the ponds at each of acclimation sites were fed Bio-Vita Fry six weeks prior to volitional release and the other half of the fish were fed Bio-Supreme Transfer feed. Bio-Supreme Transfer is formulated to help prepare juvenile salmon for the transition from fresh to saltwater environments. Transfer feed was fed until fish were forced out in mid-May 2014. Of the six total raceways at each of the three acclimation sites all odd numbered raceways were given the Bio-Supreme feed diet and the even numbered raceways were fed Bio-Vita Fry. Both feed types were of the 2.0 mm sized pellet. Data will be monitored and evaluated to see if any differences in survival are detected in the both the juveniles and returning adults from the 2012 brood.

On March 11 and 12, 2014 samples of juvenile fish at all three sites were taken by Joy Evered (USFW pathologist). USFWS takes a small sample of fish from each site to make sure fish are healthy and ready to release. USFWS sampled 40 smolts from each raceway for a total of 720 smolts from all acclimation sites (six raceways at each acclimation site x 3 sites = 720 smolts sampled). Sampling conducted by USFWS was started on March 11 and completed by March 12, 2014. Once samples were complete screens were removed at the sites to allow fish to be released volitionally.

In March and April juveniles were fed at optimum levels, and adjustments to feed levels were made by watching the YKFP website migration patterns and expansion for releases for the 2014 period. As more pit-tag fish were detected leaving each acclimation site feeding levels were reduced.

FRY / FINGERLING REARING FOR BROODYEAR 2013

Brood Year 2013 was transferred from indoor incubators to outdoor raceways during the week of February 25-27, 2014. Water was thermally regulated in both the iso-buckets and vertically incubators to achieve a February ponding date. Estimated fingerlings transferred to the 18 raceways totaled 684,047 and average size at transfer was 1417 fish per pound. At the end of July 2014, 651,987 fish were estimated to be on-hand with an average of 55.4 fish per pound. All fish were hand fed Bio-Oregon's Bio Vita dry starter feed.

ADULT HOLDING FOR BROODYEAR 2014

Brood year 2014 marked the 18th year that adults were captured at Roza and held at the Cle Elum Supplementation and Research Facility. Total adult transfer count for August 2014 collection for BY 2014 was 557 adults that were transferred to the facility. The remainder of the adult holding period will summarized on next year's annual report as Yakima River spring Chinook are collected up until mid-August of each year.

The rest of the report will cover the operation and maintenance of the Cle Elum Supplementation and Research Facility for the 13 month contract period for the periods of July 1, 2013 to August 13, 2014. Contract period was extended from the original end date of June 30, 2014 to August 13, 2014 as emergency work/repairs water damage in incubation were not able to be completed by the June 30 end date.

WATER PRODUCTION:

During the peak water usage period as much as 14,400 gpm's (combination of river and well water) was pumped through the facility. Peak river water usage occurred during August-January time period when four river pumps supplied water to the outdoor rearing ponds. Only one pump was in operation in February and March when twelve of the eighteen juvenile rearing ponds were transferred to off-site acclimation sites. Four intake pumps supplied Yakima River water to production raceways, and adult holding pond.

Well water is used for tempering river water down during warmer months, for egg incubation and tempering adult holding flows. Five wells were used for early rearing of the 2013 brood in March. Peak well usage occurred in March, April, May and July: During these months, wells were used for fingerling rearing and cooling river water down during the warmer months of the summer. Well water was also used to supplement lost river water flow due to plugged intake screens from either frazzle ice in winter months or spring runoff which caused water to be murky and plug intake screens.

In addition to providing water to incubation building, adult and juvenile holding ponds river water was also used to supply water to the spawning channel which was operated from September 2013 to May 2014. During this operational period one to two drain water pumps located in the River Water Cooling Facility building picked up effluent water from raceways and then pumped water to the spawning channel.

RIVER PUMP STATION MAINTENANCE:

Normal maintenance involved checking the operation of working pumps, checking oil levels daily, changing fluids once pumps were shut down, checking river levels and cleaning the building. AMB Tools technician performs annual service on backwash compressor to ensure that it is working effectively to keep intake screens clean. Mark Luce, of Laurmar Electric performs annual inspection of breakers, pumps, motors and drives. Mark replaced fan in variable speed #1 drive and also the pneumatic actuator in the airburst valve #1. The drive fan keeps the motor cool and the actuator valve allows the valve to open and close to keep river intake screens clear of debris. A Partlow thermograph records daily temperature for a 24 hour, and the thermograph paper is replaced every seven days with a new record sheet. This gives the Cle Elum staff a hands-on river temperature profile throughout the whole year.

River pump flow ranged from 3,600 to 14,400 gallons per minute, depending on the time of year. Peak pumping flows occur from the May to December of each year. Once fish are transferred off site to acclimation facilities flows and pumping rates were reduced to one or two pumps to supply water to spawning channel and Oxbow. On two separate occasions

two of the four river pumps were shut down and well water turned on. In December 2013 freezing conditions and frazzle ice plugged screens and in July 2013 run off and high water washed debris from river banks and plugged the intake screens. On both occasions river pumps were stopped and well water was used to supplement water to juvenile raceways.

WELL FIELD MAINTENANCE:

Six wells were operational throughout the year and maximum sustainable flows were 3,650 gallons per minute. Well #3 was fired up in April 2014 and ran for a 13 day period. This particular well had not been operated for not since 2000 based on its limited sustainable flow. Well #3 was able to sustain flow and is used in limited capacity when 300 gallons of minute of water is needed. All wells are used to supply early rearing water to the eighteen production and adult ponds and for egg incubation. Well water was used to temper down the warmer river water flows during the warmer summer months. In addition to tempering river water down in the summer months wells are used for early rearing when juveniles are transferred from incubation to outdoor raceways. Wells 1, 2, 4, 5, and 6 were used to start the 2013 brood in the spring of 2014.

Well water was infused with the river water delivery to the adult holding pond, during the summer months when river temperatures exceeded bio-specifications rearing temperatures for the holding period. Weekly well depths and flows are recorded and forwarded to CH2MHill for review. Well #2 recorded the most hours of operation as it was used for egg incubation from September 2013 through early March of 2014.

Well #1 historically has accumulated the most hours of operation of all six wells. In September 2013 well one went down and could not be restarted. Both Laurmar Electric and Pump Tech verified that pump and motor had failed. Prior to installation of the new pump and motor, Wells Scan of the Seattle area, was called in to video and probe the screen for well #1. The good news was that our screen was in excellent condition and not tears were found. The pump was installed in January 2014 by Pump Tech. In February a variable speed was added to well #1. This along with a downsized motor will allow more efficient operation of the well. The original motor was 100 horsepower and it was replaced with a 50 horsepower. The down size of the motor was based on the pumping rates and the draw down period of the well #1. The original 100 horse motor had a quicker draw down rate and when pump was on it had to be monitored by staff. When pumping rates were low the staff would close valve down to allow less ground water to be pumped. The reduced horsepower and the installation of the variable speed drive will prove to be more efficient and beneficial for facility needs. This was a major and unforeseen maintenance cost of \$50,000 for motor/pump and \$10,000 for drive. For future plans strong consideration will be weighed on retrofitting pumps and drives for the remaining four wells. Well #2 motor/pump was replaced several years ago and should be good for some time.



Figure 1. Mark Luce of Laurmar Electric installing variable speed drive in well #1. Variable speed drive is a more efficient way of operating wells for the Cle Elum Facility.

In addition to the maintenance needed for well #1, wells 5 and 6 required service by Laurmar Electric and TSI, Technical Systems Incorporated. Well 5 had the probe that measures well depths fail and well #6 had faulty wiring and the flow meter was replaced.

ACCLIMATION SITES:

Each acclimation site includes a river intake, six raceways, a cleaning waste basin, service building with office and storage, generators for primary or backup power, and a Supervisory Control System (SCS). The application and software on the SCS computer at each acclimation site includes a process control unit and alarm display screens. The display screens allow operators to monitor and interface with process controls at the SCS computer. The operator can change set points, acknowledge alarms, and review trend data.

Normal operation of acclimation sites during the contract period entailed the rearing and release of the 2012 brood. Acclimation site(s) clean up and shut down operations occurred during June 2014. Each acclimation site was operated and maintained by one seasonal fish culturist stationed at the site for a six-month period (January to end of June). Seasonal personnel were relieved by Cle Elum staff on Tuesday and Wednesday of each week. The use of the two-way radios and the Cle Elum computers allowed close contact and monitoring the operation of each site. Normal maintenance and emergency repairs occurred during the year as needed. Prior to transferring fish to the acclimation sites Technical Systems Incorporated (TSI) inspected computer software and data collection at sites to make sure data transfer was operating efficiently.

Technical Systems Incorporated (TSI) software engineer had to trouble shoot computers at each site so data transmissions (CESRF real-time system downloads) and alarm systems functioned properly. TSI is contracted to inspect software and provide technical assistance on data collection equipment. In addition to having site computers and data transmission systems checked, Darren Chase, Pacific State Marine Fisheries Tech, started up and shut down the pit-tag detectors/interrogation systems at all three acclimation sites.

In July 2014 Mark Luce of Laurmar Electric performed annual maintenance at

each of the three acclimation sites. He also provided maintenance during the operation of the site from January to August 13, 2014 time period. Mark Luce is well versed in commercial/industrial electrical needs, motor pumps and has the ability to respond during critical periods. He is located in Ellensburg and is in close proximity when a quick response is needed. AMB tools also inspects facility compressors annually at each site. All sites have compressors that operate continuously keeping incline and T-screens free of debris when and water flowing into rearing ponds.

Water samples are collected at acclimation sites throughout the operational period. Samples are collected and sent to laboratory for determination of total suspended solids (TSS), as per temporary use permit requirements. Daniel Brownlee, Complex Foreman, was responsible for this task and submits a quarterly report to Department of Ecology for acclimation site and Cle Elum operations.

Starting February 2014 fish at the acclimation sites were issued two diets. Those in the odd numbered ponds at each site received Bio Supreme Transfer diet and those in the even numbered ponds received the Bio Vita diet. Both diets were in the 2.0 mm size pellet and the Bio Vita was the same diet that all fish were issued up to the February 2014 time period. The Bio Supreme Transfer diet is formulated to prepare fish for the transition from fresh to salt water environment and was fed 4-6 weeks prior to release of salmon. Further monitor and evaluation of the diets will be used on juvenile migration and returning adults from the 2012 brood.

Prior to removing screens for volitional release of BY 2012 Joy Everd, USFW pathologist, and NOAA Fisheries physiologist, sampled smolts from each raceway at the three acclimation sites. Joy sampled fish to develop a fish health profile and to ensure juveniles were clear to release. Sadly this was Joy Everd last sample as is scheduled to retire in January 2014. She will be greatly missed and we wish her well in her new adventure.

Screens were pulled at all three sites on March 14, 2014. Fish at all three acclimation sites were given optimal allowable feed diets. As water temperature warmed in the early spring a higher percent body weight was fed to all juveniles at each of the three acclimation sites. By May 15, 2014 all fish were forced out of the acclimation sites to prepare for cleanup and shut down of the sites. Only 17% of the total population was remaining for the 2012 brood at the time of the final force out.

A summary of the operation and maintenance of Easton, Clark Flat and Jack Creek acclimation site describes work performed at each site.

EASTON

All six ponds received fish, and during volitional release smolts left the sites at a faster pace when spring freshets hit the sites. Smolts for the 2012 brood were pushed on at the end of May 15, 2014. Easton clean up and shut down was completed by June 30, 2014.

Maintenance issues and/or repairs for the site included annual inspection and maintenance on backup generator, yearly inspection of electrical equipment by Laurmar

Electric. In August 2013 NC Machinery performed maintenance on the facility backup generator. AMB tools serviced the facility airburst system and compressor in October of 2013.

Fish transfer for Brood Year 2012 took place on January 6 and 7 with 279,162 juveniles transferred to Easton. Odd number ponds at the Easton site were fed Bio-Supreme Transfer diet and the even numbered ponds were fed Bio-Vita and both feed was of the 2.0 mm sized pellet. Final force out of the brood year 2012 was on May 15, 2014 and 82% of the juveniles had migrated from the site.

CLARK FLAT

The Clark Flat site had the compressors serviced by AMB Tools October 2013. NC Machinery performed annual maintenance of facility generator in September 2013 as well. Four Seasons's Heating and Air Conditioning serviced HVAC system in October 2013 and Zee Medical Supplies replenished first aid supplies for onsite first aid unit.

Once the site was cleared for fish and all maintenance items were performed fish were transferred to the site on January 7, 2014. A total of 270,762 juveniles were transferred to the Clark Flat site. After pre-release samples were conducted in early March by, screens were removed on March 14, 2014 to allow fish to leave volitionally.

Odd numbered ponds were fed Bio-Supreme Transfer and the even numbered ponds were fed the Bio-Vita Fry diet while fish were at the Clark Flat Acclimation site. At the time of the final force out on May 15, 2014 there were 28% of original 270,762 juveniles remaining at Clark Flat. The site was cleaned and shut down on June 30, 2014.

JACK CREEK

Like the other two acclimation sites Laurmar Electric performs preventative maintenance checks in July 2013 and is called in during the season as needed. AMB Tools inspects and performs maintenance on compressor and is also called in the event of an emergency. DayWireless made several trips to check data and phone line communication for the Jack Creek site. TSI was also needed to check data transfer on their equipment as well. Ford Excavation cleared the intake road and the main compound of snow. A total of six days was spent removing and clearing snow from the site.

Juveniles from the 2012 brood in the odd numbered ponds were fed Bio-Supreme Transfer and the even numbered ponds were fed the Bio-Vita Fry diet while at the Jack Creek Acclimation site. Fish for the 2012 brood were transferred to the site on January 23, 2014. Estimated release numbers for the 2012 brood were a total of 269,503 juveniles were transferred from Cle Elum to Jack Creek. Juveniles from the BY 12 were forced out of the raceways on May 15, 2014. At the time of the force out of juveniles there was an estimated 5% fish remaining in the rearing ponds. The site was cleaned and shut down on June 2014.

VEHICLE MAINTENANCE:

All vehicles were taken in for service, washed, and cleaned on a regular basis. The CESRF has six passenger vehicles and two large trucks; one for adult fish transfer and one for juvenile fish transfer. Each vehicle is maintained (oil checks, washed, etc.), regularly and mileage reports are sent to Linda Lamebull, YN GSA fleet representative, monthly.

Day Wireless of Yakima inspected and tested all two-way radios (vehicle and hand-held) during October of each year. The Chevrolet 3500 had a minor fender bender and was repaired. No one was hurt but the right rear quarter panel needed to be replaced. The 3500 also had a new mounting snowplow bracket installed as the old one would not fit on the brand of truck. The F-350 had work in the fuel injectors as one of the modular went bad and caused the truck to run sluggish with little power. Two batteries and the alternator were replaced on the F-350. Ford Ranger had brake work done and is one of the next vehicles on list to trade in.

Other motor and non-gasoline motor vehicles maintained throughout the year include; two club-carts, four snow mobiles, two tractors (one riding lawn mower and one 5500 John Deere), one electric forklift, and numerous small engines and trash pumps that are used for maintaining hatchery grounds and cleaning acclimation site raceways. Snow mobiles were taken in for yearly maintenance in October and both John Deere machines were serviced on site during the year

RESIDENTIAL MAINTENANCE:

There are a total of seven resident houses located on at the Cle Elum facility. Yearly maintenance includes starting up irrigation systems in May, and shutting down and winterizing these systems in early November. Other maintenance performed each year includes annual service of heating and air conditioning units of each residence in May and November each year. In August 2013 resident 401 was vacated and carpets and linoleum were replaced prior to new occupant Andrew Lewis moving in. Also in resident 401 the indoor heating unit was removed and replaced with an outdoor heating unit which is much quieter and more efficient. The original units were installed in 2002 when four modular homes were installed on facility grounds. Originally the units were sold as super good cents but over time replacement parts for units are difficult to locate. Duct work for 401 were professionally cleaned prior to startup of new furnace and heat pump.

In September 2013 all four modular residents (391,401,411, and 871) had sagging in floors. RJS Construction was contacted and inspected all foundation and concluded that floors would have to be leveled by adjusting foundation jacks underneath each home. When flooring was replaced in the kitchen areas of the residents all water damaged flooring was replaced. Unfortunately repairs were not covered under manufacturer warranty and the original installers has since went out of business.

HATCHERY BUILDING MAINTENANCE:

The hatchery, fertilization room, lab and feed rooms are all located in the same building. The incubation building is in operation from mid-August to the end of March each year. Annual maintenance and operation entails setting up incubation systems (troughs and vertical incubators), adjusting water to troughs and incubation islands, and controlling egg and fry development by infusing cooler chilled water to temper well water down. The chiller is turned on in mid-August of each year and cools well water down from 48° to 37° when in operation.

By the use of the chilled water incubation temperatures can range from 48° to 37°. The warmer the temperature the faster the eggs develop and the cooler the water temperature the slower the eggs develop. So eggs that are taken in the early part of the spawning period (early September) are chilled down so eggs that are taken in later September can catch up by incubating in warmer well water temperature of 48°. The chiller is shut down after fry are removed from vertical incubators and transferred to rearing ponds. Troughs, iso-buckets and incubators are cleaned after eggs and fry are removed. The chiller was shut down at the end of March 2014 after seven months of use. 691,113 fry from Brood Year 2013 were transferred from incubation to outdoor rearing ponds on February 25-27, 2014.

In December 8, 2013 a domestic water line break in the ceiling of the hatchery building caused considerable damage to ceiling. The break was located during night inspections from hatchery employee Simon Goudy. He was able to shut domestic water down and notified hatchery Manager. Luckily eggs incubating from the 2013 brood were in the vertical incubators and were not damaged by water break. The eggs are reared on well water and it is separate from the domestic line and did not affect eggs. Clean Image of Ellensburg with assistance from hatchery staff removed installation from attic and fans and heaters were placed two dry attic out. Laurmar Electric repaired broken line and placed thermally controlled heat tape along with isolation valves were installed on line.

It was determined after dry out was complete that the ceiling drywall would have to be replaced and new insulation installed. RTD was awarded the bid and once fry were transferred to outdoor rearing units repairs would begin. Budget modifications were necessary to complete work as this was not a budgeted item. Once mod was approved an extension was granted as vendor ran into difficulties prior to starting drywall repairs. Final repairs were complete to hatchery ceiling in August 14, 2014.

Yearly maintenance for hatchery/incubation building items include flushing formalin delivery system lines in January, repairing leaky faucets, setting up troughs and repairing Heath tray lids. HVAC units are inspected bi-annually in the fall and spring of each year by Four Season Heating and Air Conditioning.

MAIN OFFICE MAINTENANCE:

Much of the yearly maintenance and upkeep of the main office building is

accomplished by the Ros-Elum Cleaning Service. Ros-Elum is responsible for cleaning offices and restrooms, including shop restroom and M&E Office building, twice a week. Windows and carpets are professionally cleaned once a year by Ros-Elum and Roy's Carpet Cleaning. The HVAC system for the office building was also serviced by Four Seasons Heating and Air Conditioning. Four Seasons services included changing filters and pressure testing the system for leaks and repairing motor in the office HVAC unit. In September Simplex Fire Systems inspected the entire facilities fire protection system. Simplex is contracted on an annual basis to inspect and test fire alarms and interface control panels located throughout facility. Inspection includes testing batteries and smoke alarms in all buildings.

In addition to upkeep of the main office building Ros-Elum cleaning services cleans the Monitor and Evaluation Office building #551 which is located on facility grounds. Chad Stockton of WDFW uses this as his main office and throughout the year numerous meetings are held at this office. The Monitoring and Evaluation Building was also use to lodge field crews from Yakama Nation, WDFW, NOAA, and University of Washington graduate students when they were conducting extended surveys or research projects on the Yakima, Cle Elum and Teanaway rivers.

December 9, 2013 a broken water line in ceiling of break room flooded the entire office. This was a day after the broken line was found in the incubation building. The extremely cold weather is tough on pipes and we were hit with double whammy with the two breaks. Water was turned off and Clean Image of Ellensburg was called and was on site within an hour of the call. The started extracting water immediately and set up dryers and pumped into heat to elevate office temps to 95° to make sure no mold would grow. Laurmar electric repaired broken line and ceiling tiles were replaced in break room. New carpet was installed in the entire office as result of the water break. Cabinets were removed and drywall was removed from the water soaked area. Our break room had no water and sink from December 2013 to June 2014. This was unforeseen repair item and a budget modification was necessary and one mod was used for the office and hatchery water line breaks.

MAINTENANCE BUILDING:

The maintenance building is a high traffic area and cleaning is done on a weekly basis. Any fabrication, project-specific construction item or equipment repair is accomplished by use of shop equipment in the maintenance building. The chiller, which is used for cooling well water down for egg incubation, is located in a separate but attached room of the maintenance building.

The chiller is operational from late August to March of each year. Raincountry Refrigeration, the original installer of the unit, services the chiller on annual basis to ensure it is operating at top efficiency. In addition to inspection of the chiller, Raincountry also provides maintenance for the walk-in freezer and cooler, and ice machine. Four Seasons Heating and Air Conditioning serviced ceiling mounted heaters and replaced elements on broken ones. AMB Tools provided service to shop compressors in October 2013.

SAFETY AND TRAINING:

Each crew member at the Cle Elum facility received at least one training opportunity in the past year. Opportunities ranged participating in Cold Water Disease training, to attending conferences or seminars in; Construction Contracting, Future of Our Salmon, Supervisory training and recognizing alcohol and drug abuse in the work place and OSHA compliance training, cross training at various Prosser, Klickitat, and Wells Hatcheries, attending Yakama Nation employee training sessions, and on-the-job training such as feed ordering, calculating therapeutic treatments for juvenile and adult salmon and all that comes with maintaining and operation of the hatchery. In June 2014 Vernon Bogar III received cross training in seining and tagging Fall Chinook in White Bluff area of the Columbia River.

Safety inspections were performed on an annual basis. All facility fire extinguishers were tested by a qualified technician from ABC Fire Control Inc. Simplex Inc. tested all smoke and fire alarms for the CESRF. In May 2013 Quinn James replaced DJ Brownlee as CESRF safety officer. Four safety meetings were held during the contract period. Safety meetings consisted of recognizing unsafe conditions in the work place, getting staff properly fitted with safety masks used when treating with formalin, and watching safety videos pertaining the work environment. Cle Elum staffers Charles Strom, Daniel Brownlee, Andrew Lewis and Vernon Bogar III attended a CPR course sponsored by the Cle Elum Fire Department. They now are updated through December 2015. In November 2013 Indian Health Service from the Toppenish office traveled to Cle Elum to administer flu shots for Cle Elum and marking/tagging staff.

GROUNDS:

The maintenance of the hatchery grounds starts at the entryway of Charter Road and continues onto hatchery grounds. The traffic signal lights were inspected and maintained monthly by John Rostad of Green Light Solutions throughout the 2013 and 2014 year.

Charter Road (the road coming off of South Cle Elum road) is heavily traveled by many different users, and maintaining road is a twelve-month job. During the winter months the hatchery crew plowed snow to keep the road open. Debris was collected by the crew from the road and transported to the local refuse center twice a year. The road is in dire need of repairs to asphalt by outgoing signal light. Ellensburg Cement Product trucks use Charter Road as they enter and exit the gravel pit located at the end of Charter Road. The asphalt was repaved in July 2013 and was much needed. Ellensburg Cement repaired the patch that was located underneath the outgoing signal lights. The section replaced was 200' long and took the force of stopping and going from trucks with heavy loads.

Kathy Sample of VMACS LLC applied spring and fall weed applications to the main facility and the Easton and Clark Flat acclimation sites. Kathy took over for former owner and operator Rex Schenk who retired from VMACS. First application was applied in July 13, 2013 and her second application was administered in October 2013.

MISCELLANEOUS:

On September 11, 2013 a total of 96 adult Chinook were transferred to the spawning channel by hatchery personnel and WDFW. (Supplemental line: 24 females, 23 males and 1 jack. The hatchery control line has: 24 females, 21 males and 3 jacks.) WDFW researchers monitored reproductive behavior of spawning adults and pedigreed offspring. The channel was in operation from September 2013 to May 2014.

Laurmar Electric inspected all breaker panels located throughout the main facility and acclimation facilities in July 2013. NC Machinery performed annual maintenance on Cle Elum's generators in October 2013. Generators are cycled once a month by Cle Elum staff to ensure they are operating efficiently.

Mark Luce, owner of Laurmar Electric, made perhaps the most significant of all maintenance/trouble shooting at the main facility. He was aware as hatchery Manager shared concerns that the transfer switch to the main generator at the main facility was not operating correctly. Since 2000 we noticed that in an event of a power outage the generator would start but not automatically take on power. We have several electrical vendors take a crack at correcting the problem but none could pinpoint why it would not transfer power to generator during an outage. The best that they could come up with was showing staff a procedure on how to manually transfer power by opening and closing breakers to cause the generator to take the load. Not only was this dangerous but in if a outage happen to occur during the middle of a night staff would have no way of knowing as no audible alarm would sound. This could have be catastrophic as we could have potentially lost eggs, fry or adult salmon. Luckily during outages staff was able to manually transfer the load and avoid fish loss.

Mark Luce tackled this issue and was able to correct it and now when power is lost in September 2013 as Patelco had to cut power to the hatchery as they were installing new lines running through hatchery gird. The power was dropped at 8:00 am and the transfer switch operated as it should and generator picked up power and shutdown and 3:30 pm when Patelco restored commercial power was restored.

MEETINGS AND TOURS:

Weekly meetings were conducted at the hatchery for personnel and strategic work planning. Cle Elum staffers DJ Brownlee and Andrew Lewis attended the Northwest Fish Culture held in Boise, Idaho. DJ Brownlee and Charles Strom attended the Project Annual Review held at Central Washington University in June 2013.

Numerous tours and visitations were fielded during the year. Schools who toured the The facility included: Roslyn pre-schoolers (30 students) Cle Elum third grade classes (50 students), Selah third graders (60 students); West Valley 7th grade students (480 students), Ellensburg High School Environmental class (30 students); Yakama Nation 8th graders (15 students) and 20 students from the Mount Hood Community College Fisheries Program in Gresham Oregon toured the facility in April 2014.

The Cle Elum Project held its annual open house on July 19, 2013 and the turnout was great. The open house is an annual event with potluck format. A self-guided tour is set up and the public has an opportunity to get a closer look at the operation of the Cle Elum Project. Over 320 people attended the annual event. As this contract was granted an extension to complete work in the incubation water damage Open House for July 18, 2014 was a held and over 550 people attended the event.

Cle Elum is a central location to host meetings for west side folks or those in the Yakima and surrounding area. Numerous meetings with the Yakama Nation reps and Washington State agencies were held in the conference room of the Monitoring and Evaluation building. The pre and post spawning meetings were held at the Cle Elum facility in August and October of 2013. Bill Bosch met monthly to update data and transfer project information to YKFP website. In November 2013 a one day internal Project Annual Review meeting was held at the M&E office building.

PERSONNEL:

The Cle Elum Facility employs eight full time and three seasonal employees. Permanent staff include Hatchery Manager Charles Strom, Complex Foreman DJ Brownlee, Fish Culturists; Simon Goudy, Quinn James, Michael Whitefoot, and Vernon Bogar III and Andrew Lewis who joined the Cle Elum team in September 30, 2013; Office Coordinator Patricia Bogar and Seasonal Fish Culturists Ted Martin, David Washington, and Jackson James. The seasonal employees were employed for a seven-month period and stationed at the acclimation sites. Seasonal and full time employees were administered quarterly evaluations throughout the year. Quarterly evaluations for Fish Culturists were issued by DJ Brownlee.

Keith Parker worked for a five week period from late June 2014 to August 2014. He was a summer intern from the Bonneville Power Administration. Keith was instrumental in updating video for our open house held in July 2014 and also attend Yakama Nation Production workshop held in July 2014. Keith was also able to assist Cle Elum's Michael Whitefoot and transport returning adult Sockeye from Roza to Lake Cle Elum.

During the July 2013 to August 30, 2014 contract period we had two hatchery hosts from the May to the end of September time period. Hatchery hosts provide tours and greet guests who visit the Cle Elum facility from May to the September time period. In addition to working with the public the hosts perform landscaping, basic carpentry, and assist in fish culture duties.

Jon and Juli Gill were hosts for the month of July 2013 through September 2013. Bruce and Pam Griffon relieved the Gill's in August of 2013 and stayed through the month of September. This was the third year that the Griffon's were hosts for the Cle Elum Facility. The host program has proven to be beneficial for the Cle Elum Supplementation and Research Facility and each set of hosts. Both the Wall's and Gill's provided the Cle Elum project with plenty of smiles to meet and greet visitors. Plenty of hard work went into beautifying hatchery grounds with freshly planted flowers and or plants. The work and dedication to the Cle Elum project is not only noticed by hatchery staff but is very much

appreciated by all who tour/visit the Cle Elum Supplementation and Research Facility.



Photo of Juli and Jon Gill's work as hatchery host for July- September 2013 time period.



Michael Whitefoot and Simon Goudy serving salmon for open house 2013.



Both open houses for 2013 and 2014 were a success with an estimated total of 800 guests attending the annual event.