



YAKAMA NATION – YAKIMA KLICKITAT FISHERIES PROJECT

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**LOWER YAKIMA RIVER
SUPPLEMENTATION AND RESEARCH
PROJECT
ANNUAL REPORT**

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Table of Contents

Introduction.....	3
Fish Production.....	4
Coho.....	4
Lower Yakima River Fall Chinook.....	5
Marion Drain Summer Chinook	5
Fish Culture.....	6
Coho.....	7
Lost Creek Pond.....	7
Stiles Pond	7
Boone Pond.....	7
Holmes Pond.....	8
Easton Department of Transportation Ponds	8
Mobile Acclimation	8
Parr Releases.....	9
Fall Chinook.....	9
Prosser Tribal Hatchery	9
Marion Drain Hatchery.....	9
Fish Health.....	101
Vehicle Maintenance	116
Maintenance.....	16
Training.....	16
Meetings and Tours	16
2012 Tours	17
Personnel.....	17
Annual DOE Report.....	178

Introduction

The Lower Yakima River Supplementation Complex (LYRSC) has been working to increase the coho and Fall Chinook salmon with use of local broodstock populations and acclimation of out of basin pre-smolts. Fish from Columbia River hatcheries are annually acclimated in strategic areas and local adult returns are trapped to use as broodstock. The long-term goal is to phase the out of basin transfers out in favor of the local stock once the populations and facilities will allow.

The Yakama Nation (YN) have used coho from lower Columbia River hatcheries to supplement Yakima River coho populations in order to further natural production and harvest goals identified in the Yakama Nation's Coho Salmon Species Plan for the Yakima River Basin" (CSSP). In addition, the YN will implement an experimental in-basin broodstock collection program to utilize natural returns of hatchery adults to improve the probability of success for the initial phase of coho restoration feasibility studies in the Yakima River basin.

Selected habitats and acclimation pond sites in the Yakima River basin have been identified for the potential reprogramming of adult and/or juvenile coho from appropriate lower river hatcheries. It is expected that when these fish return as adults they will spawn naturally in areas close to where they are released with the resulting production rearing in suitable production areas identified in the CSSP for about 17 months prior to outmigration. Similarly, juvenile releases would rear for up to one year in suitable production areas then return after ocean migration to these same areas to spawn. Pre-smolts would be acclimated for one month in low cost ponds previously identified or those utilized in studies from prior years. Marion Drain was constructed to return irrigation overflow and groundwater seepage to the Yakima River from agricultural lands located on the Yakama Reservation. It has large component of high quality groundwater influence along with irrigation overflow.

The Yakima River mainstem fall Chinook are located in the lower portion of the Yakima River. The majority of spawning occurs from Zillah to the river mouth. This stock has been supplemented with out-of-basin upriver bright stock for several years. John Day Mitigation upriver bright fall Chinook from Little White Salmon National Fish Hatchery have been planted annually each spring since 1983. Since 1994 the fall Chinook has been acclimated at the Prosser Hatchery site. The Prosser Tribal Hatchery allows the Yakama Nation to use locally adapted broodstock from the Yakima River. The Prosser Adult Trap at Prosser Dam and the Chandler Canal were utilized to collect broodstock from the Yakima River stock. The adults were transported to the Prosser Hatchery for holding and spawning, followed by incubation and early rearing.

Marion Drain/Yakima River experimental supplementation work was conducted by the YN in coordination with the Washington Department of Fish and Wildlife (WDFW) through the YKFP management framework. This Marion Drain/Yakima River supplementation scheme with a

strong monitoring/evaluation component should greatly enhance fall Chinook restoration in the Yakima basin.

A summer Chinook reintroduction program was also started. Green eggs are brought in from Wells Hatchery and spawned at Marion Drain Hatchery. These eggs are held in an egg-isolation unit at Marion Drain Hatchery. When these eggs are determined to be virus free these eggs are taken into the incubation room. When these eggs hatch the juveniles are reared at Marion Drain Hatchery until they are taken to an acclimation pond (Nelson Springs and Roza Dam) acclimated and released.

Fish Production

Coho

The coho production for the Yakima Basin consists of taking local brood from the Prosser Dam adult trap. The fish are held at Prosser Hatchery until ripe and spawned, incubated and reared the initial year on site. The yearling fish are then transported to one of the acclimation sites listed below for additional rearing and release. There was also a parr plant in mid-July. There were 27,000 PIT tagged yearlings released in nine different tributaries. The following is a list of the coho production released as smolts:

Coho

Brood Stock	Stage to Hatchery	Number	# fish/lb. April	Rearing Strategy	Comments
2011 Yakima	Spawned at Hatchery	256,283	15 - 17	Spawned and reared at Prosser Hatchery moved to acclimation sites and released	5,00 PIT tagged fish released from these two sites –Stiles and Lost Cr. acclimation sites.
11 Eagle Creek NFH	Pre smolt	444,077	14-17	Trucked from hatchery to acclimation sites	100% CWT released from Stiles, Holmes, and Easton sites (Paid for by Mitchell Act)
2011 Yakima	Spawned at Hatchery	321,905	14-16	Spawned and reared at Prosser Hatchery	Released from Prosser (2,500 PIT tagged).
2012 Yakima	Spawned at Hatchery	30,120	12 - 18	Spawned and reared at Prosser Hatchery moved to acclimation sites and released summer of 2013	Released in 9 tributaries as Parr (all are PIT tagged). Released in summer of 2012.

Yearly Yakima Basin Adult Coho Redd Counts															
River	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Yakima River	53	104	142	27	4	32	33	57	44	63	49	229	75	82	159
Naches River	6	NA	137	95	23	56	87	72	76	87	60	281	276	243	228
Tributaries	193	62	67	25	16	55	150	153	187	195	242	485	327	196	160
Total	252	166	346	147	43	143	270	282	307	345	351	995	678	521	547

Lower Yakima River Fall Chinook

Yakima Fall/Summer Chinook

Brood Stock	Stage to hatchery	Number	# fish/lb. April	Rearing Strategy	Comments
2011 Yakima fall Chinook	Green eggs	42,591	12-15	Spawnd and reared at Prosser Hatchery	100% PIT tagged released as yearlings
2012 Yakima fall Chinook	Green eggs	185,564	90	Spawnd and reared at Prosser Hatchery	Spawnd, reared, and released from Prosser Hatchery
2012 Yakima fall Chinook	Green eggs	49,790	20	Spawnd and reared at Prosser Hatchery	To be released as yearlings in 2014
2010 Little White Salmon NFH fall Chinook	Smolts	1,506,383	12-17	Reared at Little White Salmon NFH , trucked to Prosser by LWS & YN (paid for by Mitchell Act).	Acclimated, and released from PH. Marked by USFWS (paid for by Mitchell Act funds)

Marion Drain Summer Chinook

Brood Stock	Stage to hatchery	Number	Rearing Strategy	Comments
2012 Wells Hatchery Summer Chinook	Green eggs	136,563	Hatched and reared at Marion Drain, tagged, divided into three groups. Two groups moved to Nelson Sp. and one group moved to Roza Dam for acclimation & release.	@ Nelson - 25,116 PIT plus CWT and 63,092 CWT only and at Roza - 15,087 PIT plus CWT and 33,268 CWT only.

The fall Chinook production for the Yakima Basin consists of taking local brood from the Yakima River either from the adult trap at Prosser Dam, the denil at Prosser Hatchery or capturing adults that fall back into Chandler Canal. The fish are held at Prosser Hatchery until ripe and then they are spawned. The eggs are incubated until hatched and then reared on site. The Chinook are reared under accelerated growth regimes by not chilling the well water in the incubation stage. This is done to increase the size in efforts to get the smolts out sooner, by being able to mark the larger fish sooner.

Yearly Yakima Basin Adult Fall/Summer Redd Counts													
River	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Yakima River	*29	*71	740	2065	574	352	400	329	243	288	326	393	276
Naches River				11	2	0	0	0	0	0	0	1	1
Marion Drain		35	56	86	100	56	60	67	46	70	59	59	54
Total	29	106	796	2162	676	408	460	396	289	358	385	453	331

*Redd count for below Prosser Dam only

Blank entry is NO DATA AVAILABLE

Fish Culture

The wide array of multiple species and brood years reared at the Lower Yakima River facilities requires a wide range of fish culture activities during the year. Regular duties included: feeding fish, cleaning ponds and screens, monitoring water quality, monthly samples, brood stock collection, weekly examination for adult ripeness, spawning and egg incubation, fry ponding, facility maintenance and minor repairs to the hatchery.

Coho

The coho are part of the YKFP reintroduction study. Since acclimation of Lower Columbia River stocks increased the adult population in the Yakima Basin, local brood is now being evaluated to determine the effectiveness for future supplementation. Prosser Hatchery (PH) is used for the local broodstock program. The adults can be captured on either the right bank of Prosser Dam or the hatchery effluent denil trap. They are then held in one of the rearing ponds at PH. Eggs were incubated in chilled well water ranging from 38° – 57° F. This year fry were placed in the upper and lower raceways for initial feeding then transferred to the new raceways for tagging and rearing. Pre-smolts were then trucked to acclimation sites for final rearing and release. The coho acclimation ponds are described below.

Lost Creek Pond

Located in the Upper Naches River near Cliffdell, consists of two ponds adjacent to the Naches River. Prior to putting fish in the ponds, algae and other debris is removed. A seine net is pulled through the ponds and all debris hauled away from the site. The ponds are divided into two separate rearing areas by placing a screen in the ladder structure between the ponds.

There were ~124,425 Yakima Basin stock coho delivered to Lost Cr. from Prosser Hatchery. These pre-smolts were delivered by YN personnel.

Stiles Pond

Located near the town of Glead on private property about ½ mile from the Naches River. Prior to using the ponds the ditch needed to have weeds removed and minor cleaning of the ponds. The pond was excavated into two rearing ponds. Screens were placed at the head of the upper pond, between the two ponds and at an irrigation diversion.

Mitchell Act coho from Eagle Creek National Fish Hatchery (ECNFH) are trucked to Stiles Pond by the Washington Department of Fish and Wildlife (WDFW) and Prosser Hatchery coho are trucked by YN. Approximately 102,975 Yakima Basin stock coho (reared at Eagle Cr.) and 131,850 coded wire tagged Yakima Basin stock (reared at Prosser) were transferred to Stiles Pond. There were 2,500 PIT tagged coho in each stock to compare survival.

Boone Pond

The site was selected for coho supplementation work because of its location in the watershed, proximity to the main stem Yakima River and large source of cool, clean water. The existing large pond gives us the rare opportunity to control flows and monitor out-migration of coho smolts at existing structures. The location is in an area that is suitable to accommodate high numbers of spawning adult coho salmon. In addition to the ponds benefits for coho production, the property also hosts outstanding habitat features. The pond had restoration done to it 6 year ago. Dozens of logs and stumps were placed into the pond, many willows and pine trees were also planted. The land owners are very large supporters of the Yakama Nation and its Fisheries Program. The Boone property offers the coho program an excellent chance at successful coho acclimation and future coho recovery in the upper Yakima River.

There were no fish transferred to Boone Pond in 2012 or 2013.

Holmes Pond

Located near Ellensburg, the site was selected for coho supplementation work because of its location in the watershed, proximity to the main stem Yakima River and large source of cool, clean water. The existing ponds give us the rare opportunity to control flows and monitor out-migration of coho smolts at existing structures. The location is in an area that is suitable to accommodate high numbers of spawning adult coho salmon. In addition to the properties benefits for coho production, the property also host outstanding habitat features. A side channel of the Yakima flows through 2,400' of the property, entering the river only 400; below the downstream property boundary. Wetlands and riparian habitat are also featured. The property also includes a large, senior water right that could be placed in the Yakima Basin Water Trust. At present the water is used for irrigation to support livestock grazing. The instantaneous water right, now adjudicated and in trust, is 3.31 cubic feet per second.

The Holmes property offeres the coho program an excellent chance at successful coho acclimation and future coho recovery in the upper Yakima River.

Mitchell Act coho from ECNFH (Yakima Basin stock) were trucked to Holmes Pond by WDFW trucks. There were 104,059 CWT transferred. There were 2,500 PIT tagged coho in this transfer. A volitional release was used, with the screens pulled on April 10.

Easton Department of Transportation Ponds

Old gravel pits used by D.O.T. which are near the town of Easton and adjacent to the Yakima River make up the uppermost acclimation site on the Yakima River. The water source is the Yakima River which flows through the ponds with additional seepage and reenters the river through an outlet channel.

Coho from ECNFH were delivered to the Easton Ponds, by WDFW trucks. There were 93,332 adipose clipped Eagle Creek coho and 64,119 coded wire tagged YN coho stock raised at Eagle Creek, transferred to Easton. The screens were pulled on April 11 for a volitional release. There were 2,500 PIT tagged fish in this group.

Mobile Acclimation

Mobile acclimation sites are currently located on South Fork Cowiche Creek and Rattlesnake Creek. Each vessel is 20 ft. long, 4 ft. deep and 5 ft. wide. They typically cycle 60-90 gallons of water per minute (gpm). The Cowiche site is operated off electricity with a backup generator. The Rattlesnake site is operated of a 17 KW generator and 1,000 gallon propane tank. The Cowiche site holds 20,000 smolts, where as the Rattlesnake site holds a maximum of 10,000 coho smolts.

Coho from Prosser Hatchery were delivered to Cowiche Cr. on February 13th. Standard fish culture practices were observed, with at least two visits daily. These fish were released on March 12th. Coho from PH were delivered to Rattlesnake Cr. on March 5th. Standard fish

culture practices were observed, with at least two visits daily. These fish were released on March 29th.

Parr Releases

Parr are released in late summer to assess over winter survival in 9 select tributaries. The parr are PIT tagged in mid July and scatter planted in early August. Each tributary receives approximately 3,000 PIT tagged coho. Coho parr range from 79-90 mm in length. The fish then must over winter and migrate out the following spring.

Tributaries include, Big Creek, Reecer Creek, Wilson Creek and Crystal Springs in the Upper Yakima River and North Fork Little Naches, Little Naches, Nile Creek, Little Rattlesnake Creek and South Fork Cowiche Creek on the Naches River.

Fall Chinook

Prosser Tribal Hatchery

The Prosser Tribal Hatchery was originally designed as a fall Chinook acclimation facility. It was constructed in 1994 using Mitchell Act funds. A site near the Chandler Fish Screen downstream of Prosser Dam was chosen as the acclimation site. The facility is located in S2, T2N and R24E, north of Prosser on the north bank of the Yakima River. Subsequent improvements expanded the facility's capabilities beyond acclimation to include those of a full hatchery which incorporated adult holding, egg incubation and rearing components. The facility uses surplus Yakima River water made available for operation of the Chandler Juvenile Facility. The water is diverted from the Chandler Canal to the juvenile facility. Surplus water is screened and diverted to the hatchery by gravity flow. During BOR canal maintenance the surface water is pumped to the head of the hatchery via an electric submersible pump. The fish are reared in large, low-density lined ponds and raceways. They are released through an open channel directly into the Yakima River. The outlet structures have screens to prevent premature fish release, dam boards to control the pond water level and are constructed so that the ponds can be completely drained. The Yakima River fall Chinook broodstock were collected from Chandler Canal. The canal was shut down for one day on October 21 to allow Yakama Nation staff the opportunity to remove salmon trapped in the canal. Excess fish are returned to the river but some are held at Prosser Hatchery for broodstock. Additional broodstock are collected at the right bank steep pass trap at Prosser Dam and the steep pass trap in Prosser Hatchery effluent channel. Results of prior releases indicated the accelerated growth produced higher adult return rates. The fall Chinook were volitionally released at strategic times directly from the PH facility. All fall Chinook, in and out of basin were acclimated and released from Prosser Hatchery Ponds. All summer Chinook were acclimated and released from Nelson Springs and Roza Dam acclimation raceways.

Marion Drain Hatchery

Marion Drain Hatchery has two large lined ponds, six raceways, an incubation room, an egg isolation trailer, water chiller, two pole buildings (used to hold fish hauling trucks, sensitive

equipment, pumps, generators) a mechanical building, caretaker's house and the YKFP maintenance shop. Green eggs from Wells Hatchery summer Chinook were spawned at MDH and then were incubated and reared at Marion Drain Hatchery. The fish were trucked to Nelson Springs and Roza Dam acclimation raceways, for final acclimation and release

Fish Health

Pathologist from the U.S. Fish and Wildlife Service are under contract to monitor the fish health. They travel from the Lower Columbia River Fish Health Center at the Columbia River monthly to examine fish at all sites. They also take samples from the broodstock during spawning and do pre-release exams.

The following is the yearly fish health report submitted by Lower Columbia River Fish Health Center:

USFWS taking ovarian samples during spawning





United States Department of the Interior



FISH AND WILDLIFE SERVICE

Lower Columbia River Fish Health Center

201 Oklahoma Road

Willard, Washington 98605

FISH HEALTH SUMMARY

For

Lower Yakama River Supplementation and Research Program

July 1, 2012 to June 30, 2013

Coho Salmon

Yakima Coho Stock, Broodyear (BY) 2012

The coho adults (150 females, 60 males) were sampled on October 2nd and 30th, 2012. No virus was detected in individual sampling of the adults. The agent of furunculosis, *Aeromonas salmonicida*, was detected in 13% (4+/35 samples). *Ceratomyxa shasta* was detected in 10+/20 fish. The enzyme-linked immune-sorbent assay (ELISA) detected negligible levels of *Renibacterium salmoninum* (very low, less than 0.088 O.D.) with 82% non-detected.

In early March, the fry rearing at Prosser Hatchery showed no signs of virus (0+/60) after ponding. Some mortality occurred in April and on the 15th, ten fish were examined. No pathogens (virus, reportable bacteria, *Flavobacteria*, *R. salmoninarum*)* were detected by culture, DFAT or gram stain although there were indications that the erythrocyte inclusion body syndrome virus (EIBS) may have played a role. External signs were few, other than a possible excess of mucus and some clubbing of the gills. By April 30th, EIBS was ruled out (0+/10 on blood slides), although the fish continued to have some mortality that was not caused by virus (0+/15) or bacteria (0+/15). The fish were on surface water

and algal debris was noted on the skin. A suggestion was made to use the 800 gpm well water for the coho and redistribute the surface water to the upriver brights in raceways 2 and 3.

Yakima Coho Stock, BY 2012, Eagle Creek National Fish Hatchery

In November 2012, 180 K eyed eggs from the coho adults spawned at Prosser Hatchery were delivered to Eagle Creek NFH for rearing. Of these, 110K eggs from the first spawn arrived in good shape. The 70K eggs from the second take, incubated at a higher temperature to speed eye-up for the transfer, suffered from softshell syndrome and despite best efforts to save these, all died. At ponding on March 20, 2013, fish were examined for virus (0+/60) and overall health. In late April 2013, the second exam found the fish healthy, with no infections of bacterial or parasites (0+/10). The Lower Columbia River Fish Health Center will continue examination of these fish at Eagle Creek where they will be reared until their return to the Yakima acclimation sites in early 2014.

Eagle Creek Coho Stock, BY2012, Eagle Creek National Fish Hatchery

The Eagle Creek coho brood adults, spawned in two takes in late October 2012, were healthy with no detections of virus (0+/210), and just one finding of *A. salmonicida* (1+/30), . All were positive for *C. shasta* (20+/20). One hundred percent of the 210 adults sampled were at no to very low levels of *R. salmoninarum* (less than 0.088 OD by ELISA). Approximately 550K BY12 progeny from the Eagle Creek adults will be used to supplement yearling outplants to the Yakima River in 2014. The first exam of their progeny occurred on March 20th, 2013--the fish were healthy with no detection of virus (0+/60). In April, a follow-up exam and necropsy showed no infections of bacteria or parasites (0+/10). Nearing the end of June 2013, mortality due to coldwater disease occurred in one raceway which warranted treatment with florfenicol medicated feed.

Yakima Coho Stock, BY 2011, Prosser Hatchery

Earlier in 2012, this lot of coho juveniles had been stressed by crowding in the nursery tanks, *Phoma*, water pumping problems, coldwater disease and furunculosis, the latter two requiring treatment, with florfenicol and then with oxytetracycline, respectively. They appeared to outgrow these infections and on July 12, 2012, nine juveniles were examined and found healthy by necropsy with no findings of parasites and, most importantly, no *F. psychrophilum* or *A. salmonicida*, the agents of coldwater disease and furunculosis. Another exam of 20 fish in late September revealed the same although some runts were noted in raceways 4 and 10. These fish were held on well water. Observations in December 20th, 2012 and January 15th found the fish still healthy.

A pre-release exam on Jan. 29th, 2013 occurred prior to the outplanting of a portion of the BY11 fingerlings to a streamside mobile acclimation site (two raceways) in the upper Yakama River. No virus (0+/60), bacteria (0+/30), *Renibacterium salmoninarum* (0+/30), or *Flavobacterium psychrophilum* (0+/30) were detected. By February 21st, a low mortality occurred at the site. An exam of 10 of these fish detected no viral or bacterial pathogens, however, all fish had unilateral hemorrhage of the eye.

Two fish also had edema in the spleen and kidney. There were no other conclusive results by external/internal necropsy. Discussions with the biologist indicated there may have been a transportation problem.

Pre-release exams done on March 7, 2013, for the April release from Prosser Hatchery, showed no *A. salmonicida* (0+/30 on TSA), *F. psychrophilum* (0+/30 on TYES), virus (0+/60 on two cell lines) or *R. salmoninarum* (0+/30 by DFAT)

Yakima Coho Stock, BY 2011, Eagle Creek National Fish Hatchery

In late November 2011, 590K eyed eggs from Prosser coho adults were transferred and reared through to pre-smolt stage at Eagle Creek NFH. Prior to the transfer of the yearlings to the acclimation sites in the Yakima River, an inspection on Feb. 13, 2013 showed no detections of virus (0+/60), reportable bacteria (0+/30) or *R. salmoninarum* (0+/30). There was a finding of *Flavobacterium psychrophilum* in one fish.

After acclimation at Lost Creek, Easton, and Stiles Ponds, the coho yearlings passed their health exams on April 15th, with no detections of virus (0+/120), reportable bacteria (0+/80), *R. salmoninarum* (0+/80), or *Flavobacteria* (0+/80).

Upriver Bright Fall Chinook Salmon

Yakima Stock, URB Chinook, BY 2012, Prosser Hatchery

The adults (98 females and 60 males) were sampled on Oct.25 and 30th, in 2012. There were no detections of virus, reportable bacteria (0+/30) or *Ceratomyxa shasta* (0+/20). In all fish, the levels of *R. salmoninarum* were non-detected to very low by ELISA (less than 0.115 O.D.).

On Jan. 29th, 2013, the BY 12 progeny were ponded and the health exam showed the fish negative for virus (0+/60). In early February, some mortality was noted and the exam of 10 fish found *A. hydrophila*, an opportunistic pathogen that generally occurs in adverse culture conditions, usually without mortality. No *F. psychrophilum* (coldwater disease) was detected. The cause of the mortality was *Phoma*, a stomach fungus that occurs in conjunction with the first feedings and immature digestive systems. The pre-release exam, April 9th, was uneventful, with no detections of virus (0+/60), reportable bacteria (0+/30) or *R. salmoninarum* (0+/30).

Yakima Stock, URB Chinook, BY 2011 (yearling program)

As in past years, poor viability and mortalities occur in the yearling program around the first spring smolt, the second fall smolt and just prior to release as yearlings. Short term solutions are the use of salt (0.5 to 1%) to reduce stress and the use of 100% well water until the danger of *A. salmonicida* and bacterial gill disease have passed.

Ten fish were examined on July 12, 2012 with no findings of bacteria or other deleterious health issues. These fish are held on well water, generally through to the end of September to reduce exposure to canal water which is contaminated by agricultural use. By Sept. 26th, notable numbers of scales were floating in the raceway and the fish were obviously stressed despite no findings of bacteria or parasites in the ten fish examined. Mortalities were normal. Coho were also found in this raceway, probably getting in by jumping into the pipe. Around Dec 20, 2012, a heavy and solid three foot of silt had collected across the inflow end of raceway 15. Serious tail rot was observed in 1/3rd to 1/2th of the population, likely aggravated by infections of *A. salmonicida* (1+/7) and *A. hydrophila* (4+/7) in the coho examined. A recommendation was made to open the water flow to release some of the silt build-up, to clean, and to start formalin treatment to control the tail rot. By Jan. 15, 2013, a recommendation was made to return to 100% well water, ~56°F. An exam of ten fish found severe tail rot with fungus, pale, clubbed or hyperplastic gills with excessive mucus. The fish had some food in stomach, but none in the gut, and 90% had furunculosis (*A. salmonicida*). No virus or *R. salmoninarum* was found. The fungus was treated with formalin, (3x at 250 ppm) which was followed by a 10 day treatment with oxytetracycline-medicated feed to control furunculosis in late January 2013. In early February, five moribund fish were examined and four were positive for furunculosis. *Flavobacterium psychrophilum*, agent of coldwater disease, also complicated the health in two of four fish. All were negative for virus. By the time of the pre-release exam, March 18, 2013, *F. psychrophilum* was still present (8+/30 fish) however, they were negative for virus (0+/60), reportable bacteria, including *A. salmonicida* (0+/30), *R. salmoninarum* (0+/30) and *Myxobolus cerebralis* (0+/60).

Little White Salmon (LWS) URB Chinook, BY12

The brood adults spawned on Oct. 23rd and Nov. 1st, 2012, at Little White Salmon National Fish Hatchery, had an 18-54% prevalence of IHNV (38+/70 three fish pools). Over 98% of the adults had no to very low levels of *R. salmoninarum* (less than 0.099 OD by ELISA). Their offspring, were tested on March 4th, 2013 and found free of virus (0+/60). These were transferred to Prosser Hatchery and in late April, the fish continued healthy as shown by the pre-release exam with no detections of virus (0+/60), reportable bacteria (0+/30), or *R. salmoninarum* (0+/30). Some *Epistylus* and *Trichodina* were present on the skin and the gills showed evidence of *F. branchiophilum* (bacterial gill disease), which is always present this time of year, so the Prosser staff were advised to pull the screens before this became a problem.

Summer Chinook Salmon

Wells Hatchery Stock, Summer Chinook, BY 2012

Samples collected from 75 female adults, spawned on Oct. 17, 2012 at Wells Hatchery, were negative for virus (0+/75) and reportable bacteria (0+/30). *Renibacterium salmoninarum*, causative agent of BKD, was non-detected to very low (less than 0.102 OD by ELISA) in the females. One female was green and not spawned.

The progeny (~360K), were received as eyed eggs at the Marion Drain Facility and reared on well water. On March 7, 2012, a ponding exam of 60 fish, found the lot negative for virus. In early April, a generator failed to engage during a power outage, causing a significant loss of the juveniles; however, no untoward health effects were seen in a pre-release exam of the survivors, done on April 15th.: The fish were negative for virus (0+/60), reportable bacteria (0+/30), *R. salmoninarum* by DFAT (0+/30) and *M. cerebralis* (0+/60).

To make up the loss, Wells Hatchery staff were contacted to obtain their surplus juveniles (~90K, at 150 fish per pound), siblings to those lost. Fish health biologist Bob Rogers of WDFW obtained and mailed 90 fish for a pre-release sampling, April 16th, at the Lower Columbia River Fish Health Center. During the 21 day testing for virus, the fish continued on well water at Wells Hatchery. The fish were negative for virus (0+/60), *A. salmonicida* (0+/30) and *R. salmoninarum* (0+/30) and were transferred on May 9th to the Roza and Nelson Springs acclimation sites.

Completed Fish Health Recommendations (from last year's report)

1. A new sterilizing unit (from Israel) for incoming water was installed and did not appear to improve egg eye-up. The company is reporting otherwise as noted by S. Gutenberger who was called by the salesperson.
2. Silt-detaining baffles were added to the water supply pond.
3. During PIT tagging events, personnel at Prosser are double-checking to ensure that raceway screens are placed to allow adequate room for fish to avoid crowding and gasping for air. Marking trailer should be clean at the start of tagging.

Fish Health Recommendations for the Prosser Programs

1. Rearing densities and/or fish numbers should be reduced to better manage the onslaughts of environmental and mechanical issues.
2. Shade covers for the ponds at Marion Drain and Prosser Hatchery would help reduce ponding stress that is induced by the fish crowding into the small bits of shade offered by the walls.
3. Evaluate 75% re-use of well water.

*Reportable fish pathogens (disease): *Aeromonas salmonicida* (furunculosis); *Renibacterium salmoninarum* (Bacterial Kidney Disease or BKD); *Yersinia ruckeri* (Enteric Redmouth Disease); Infectious Hemorrhagic Necrosis Virus (IHNV); Infectious Pancreatic Necrosis Virus (IPN); Infectious Salmonid Anemia Virus (ISA); Viral Hemorrhagic Septicemia Virus (VHSV); *Myxobolus cerebralis* (Whirling Disease).

S. Gutenberger, Dave Thompson July 24, 2013 (edits of 7/9th version, as per 7/17/2013 meeting)

Vehicle Maintenance

Ten GSA vehicles were leased for this project. Two vehicles were used by the tribal biologists for site visits and traveling to meetings. Three other vehicles were assigned to the Maintenance Technicians to transport tools and supplies to work sites. Four vehicles were used by the Fish Culturist for two hatcheries and various acclimation ponds. One large flatbed used to haul the fish transporting tank. Regular oil changes and maintenance was performed under the GSA contract.

Maintenance

Three full time Maintenance Technicians (time split within YKFP) take care of the repairs, maintenance, and fabrication needed for the YKFP programs. The facilities that they maintain are: Prosser Hatchery, Marion Drain Hatchery, all fall Chinook and coho acclimation sites, Cle Elum Spring Chinook Hatchery, Spring Chinook acclimation sites (Easton, Jack Creek and Clark Flats). They also work with the following M&E Biologists, where they repair, do regular maintenance and/or fabricate items as needed: Coho M&E, Fall Chinook M&E, and Spring Chinook M&E, and Klickitat M&E Biologists, and the Habitat Biologists. The YKFP Maintenance Shop is located at Marion Drain Hatchery.

Training

Training for the Fish Culturists and Maintenance Technicians this year has been mainly on the job training. The following shows the training that personnel were sent to: the lead Bookkeeper attended Evaluation of Bids training in June of 2012; three Fish Culturists added the Northwest Fish Culture Conference in Portland. in December of 2012; the Fish Culturists (8 of them) and the Maintenance Technicians (3 of them) took Heavy Equipment Certification Training in April of 2013.

Meetings and Tours

Regular meetings for the staff include the monthly policy group and bi-monthly fishery staff meetings. The staff also meets with members of STAC to update and coordinate fish rearing objectives. The US BOR through BPA schedules tours for schools to visit the Prosser Hatchery

to get an understanding of what is being done in the Yakima River for salmon enhancement. Following is a list of the tours this past year:

2013 Tours

March 27 McClure Elementary - 120 students; April 3 Zillah Intermediate - 120 students; May 8 Sunnyside Christian - 40 students; May 16 Yakama Nation Head Start - 20 students; May 22 Yakama Nation Head Start - 20 students; May 22 Pioneer Elementary - 30 students; June 4 Vista Elementary - 30 students; June 25 Granger Middle School - 30 students.

Personnel

The project employees: two full time Fish Biologists; two Administrative Personnel; one Fish Culturist V (Lead Foreman), one Fish Culturist III, five Fish Culturist II's; three Fish Culturist II (split between LYRSRC, the Tribal account, and the Steelhead Kelt Reconditioning Contract); two seasonal/temporary Fish Culturist II and three Maintenance Technicians (split within the YKFP program). Since there is no housing on station at Prosser, the facility has personnel on duty 24 hours every day. Two full time Fish Culturist II are night shift and one is scheduled swing shift. Marion Drain has one house on station where a Maintenance Technician resides as the caretaker for the Hatchery and YKFP maintenance shop.

Collecting DNA Samples



Annual DOE Report

April 22, 2014

15 West Yakima Ave.
Suite200

Yakima, WA. 98902

RE: Annual Summary of Chemical Usage for 2012

To whom it may concern

The Yakama Nation Prosser Hatchery is required to submit an annual summary of all chemicals used at the fish rearing facility. Chemicals are required at times to ensure safe rearing conditions for the fish. Any chemical used at the fish rearing facility is produced for the specific use and an accepted method in fish culture. Three chemicals used the past year include; Tricane Methanesulfonate (MS222), Argentyne (Iodine solution) and Paracide F (Formaline solution).

The MS-222 is used for fish culture to anesthetize the fish for easy handling and reduce stress. The chemical is used when fish must be handled for adult broodstock or juvenile monitoring at a rate of 20-mg./liter. A total of 1600 grams of this chemical was used in 2012. The MS-222 is diluted with water in closed container such as a storage box or fish tote and discarded into the ground after every use.

The Iodine solution is used to disinfect equipment to prevent spread of disease. The iodine solution is used to rinse any tool or outer wear that comes in contact with the hatchery water source. The iodine is also mixed to a solution of 1 part to 100 parts water and eggs are disinfected. Argent chemicals inc. supplies the solution with a brand name Argentyne. A total of 25gallons was used over the year. The iodine solution is rinsed off prior to use and unused iodine is discarded in the gravel parking area

The Parricide F is 37% formaldehyde solution used to treat eggs and fish from external parasites. The formaline is dripped in the eggs at a rate of 1 part per 600 parts of inflowing water for 15 minutes five days each week during egg incubation period. It is dripped in tanks holding adult coho salmon at a rate of 1part per 6000 parts of inflowing water for one hour five days per week during adult holding period. A total of 300 gallons were used the past year.

The chemicals used were purchased through Argent Chemical Lab in Redmond WA. And manufactured specifically for these purposes. Feel free to contact me with any questions (509) 945-5899.

For 2013 the Prosser Hatchery will be included in an INAD application with Columbia River Inter Tribal Fish Commission for the use of "slice". Slice is a solution with emmemectin and saline used to treat adult fish for parasites such as copepods. It will be ingested into each individual fish.

Feel free to contact me with any concerns or questions. Thank you.

Sincerely,

Joe Blodgett
Yakama Nation Fish Biologist

YKFP and BOR installing electrical control panel for river pump.



Sampling Broodstock



Chandler Canal fish rescue



Sampling Broodstock



Loading Coho Smolts for transport to acclimation site.



Unloading Coho at acclimation site



Sorting Broodstock

