U.S. Fish & Wildlife Service
Columbia River Gorge National Fish Hatchery Complex
Annual Report - Fiscal Year 2013

Spring Creek National Fish Hatchery
Underwood, Washington

Mark A. Ahrens

February 4, 2014

Mark A. Ahrens, Hatchery Manager **Date**

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The front page photos are spawning operations at Spring Creek, and a common sight of Complex staff and the teamwork it takes throughout the August to November spawning operations in the Gorge - Mat Maxey (Spring Creek) and Orlanda John (Little White Salmon); the other shot is a great example of the level of interest we receive and dozens of tours coordinated by the CRGNFHC-I&E program.

2013 Annual Report Narrative

Introduction

The U.S. Fish and Wildlife Service's Spring Creek National Fish Hatchery (NFH) produces tule fall Chinook salmon (*Oncorhynchus tshawytscha*) for the Columbia River Basin as mitigation under the Mitchell Act of 1938 and the Flood Control Act of 1950.

The hatchery was authorized by Special Act 24 Stat.523, March 3, 1887 and Special Act 30. Stat.612, July 01, 1891 and placed into operation in 1901 primarily to support the commercial fishing industry. The hatchery was reauthorized by the Mitchell Act (16 USC 755-757:52 Stat.345) May 11, 1938 and amended on August 8, 1946, (60 Stat.932) for conservation of fishery resources in the Columbia River. The hatchery was remodeled in 1948 to mitigate for Bonneville Dam (Mitchell Act) and was expanded to its present size in 1972 by the U.S. Army Corps of Engineers (ACOE) for mitigation under the John Day Dam Flood Control Act of 1950.

Spring Creek is located on the Columbia River one mile west of Underwood, Washington and approximately sixty miles east of Portland, Oregon. The hatchery sits on 60.21 acres in Skamania County, Washington at river mile 167. Hatchery facilities include: a combined visitor center and spawning building, administration building, and feed storage building with crew room, forty-four Burrows ponds, eighteen filter-beds, pollution abatement pond, fish ladder, several service buildings and four houses for hatchery employee residence. The primary water supply for the hatchery comes from a series of five unnamed springs located at the base of basalt cliffs north of the hatchery. A production water well is utilized during incubation and early ponding period.

The hatchery produces more than 10.5 million tule fall Chinook salmon annually for an on

station release. These fish are native to this part of the Columbia River and originally spawned in the White Salmon River one mile east of the hatchery. From 1901 to 1938 tule fall Chinook were trapped by seining the mouth of the White Salmon River. Collected eggs were transported to Spring Creek NFH for incubation and fingerlings were released at both the hatchery site and in the White Salmon River. After construction of Bonneville Dam in 1938 adult collections in the White Salmon River became very difficult and by 1964 a sufficient number of adults were returning to the hatchery and collection of adults in the White Salmon River was discontinued. Today, the tule fall Chinook is an indicator stock for the U.S. - Canada Pacific Salmon Treaty, providing valuable information on all salmon stocks for harvest management decisions. This stock is also important for meeting the U.S. Government Treaty (1855) obligations and trust responsibilities to Native Americans. It helps to support an important commercial and recreational ocean fishery as well as a lower Columbia River fishery, and provides mitigation for habitat lost due to construction of dams.

Prior to 2009 Spring Creek had been the only hatchery producing tule fall Chinook above Bonneville Dam. Through Memorandum of Agreement with co-managers (2008, detailed in the next section), tule fall Chinook production was diversified by incorporating Little White Salmon NFH where marked tule fry are transferred for acclimation to achieve a 1.7 million smolt release goal. The first release from there took place in 2009, adding a second facility above Bonneville into the tule production mix. The reprogramming of Spring Creek tule production also incorporated Oregon Department of Fish and Wildlife's (ODFW) Bonneville State Fish Hatchery (SFH) which has received eyed tule eggs each year since 2008 to achieve a 2.8 million smolt release goal.

Spring Creek also operates a small substation on the White Salmon River known as the Big White Ponds. Constructed in the early 1950s, the facility sits on 42 acres that are 1.25 river-miles upstream from its confluence with the Columbia River. The purpose of the facility was for adult trapping and egg collection for tule fall Chinook salmon. After 1964, when adult trapping was discontinued, the facility was used to raise additional tule fingerlings for release into the White Salmon River. Other species, such as brown trout, chum, Coho and spring Chinook salmon have all been reared at the facility and released into the White Salmon River. The last release from the facility took place in 2002, when 170,500 spring Chinook salmon were released. The substation consists of a water intake structure and pipeline, two raceways, a diversion rack in the river and a service building with water-rights of 30cfs from the White Salmon River. The facility has not been operated for traditional purposes since 2002 due to intake screen compliance issues. But in the fall of 2008 and 2009 it was operated as an adult collection site as part of a tule fall Chinook salvage plan study. In 2011 the Big White Ponds played a key role in the fish salvage operations leading up to the scheduled breach of Condit Dam on Oct. 26th of that year. Post-breach in 2011 the site was inundated with debris that buried the site so thoroughly you might not know it had been there. Through the spring and summer JR-Merit, the contractor in charge of dam removal and all things related, proceeded gradually with the clean-up operations and did an outstanding job. With modifications, this

facility could play an important role in restoration of native species now that Condit Dam has been removed, providing access to 16 miles of additional habitat.

Station Operations

Fish Production

Current Fish Production Program Goals

Spring Creek NFH produces tule fall Chinook salmon (*Oncorhynchus tshawytscha*) for the Columbia River Basin as mitigation for Bonneville Dam under the Mitchell Act of 1938 and John Day Dam under the Flood Control Act of 1950. The current production programs at Federally-funded mitigation hatcheries in the Columbia River Gorge are guided by specific fish production goals, identified by the United States v. Oregon Production Advisory Committee. The primary goals of the Advisory Committee, and the parties they represent, are to rebuild weak runs to full productivity and fairly share the harvest of upper-river runs between treaty and non-treaty fisheries in the ocean and Columbia River Basin, as well as to more appropriately balance species distributions and their rearing/release locations with their endemic regions. As a means to accomplish this purpose, the Parties intend to use protection authorities, enhancement efforts, and artificial production techniques as well as harvest management to ensure that Columbia River fish runs continue to provide a broad range of benefits in perpetuity. Fish production goals specific to Spring Creek NFH were modified in a Memorandum of Agreement (2008), extended to 2013, by the Service, the ACOE, Bonneville Power Administration (BPA), and NOAA's - National Marine Fisheries Service (NMFS). This is the final year of the agreement and includes the following:

- For this year, in late 2013 and rearing into 2014 (BroodYear13 (BY13)) 15,000,000 is the total target of tule fall Chinook produced from adult fish returning to Spring Creek NFH, for this final year of the reprogramming agreement.
  - 3,000,000 tule fall Chinook salmon eyed eggs transferred to Bonneville State Fish Hatchery (SFH), reared to achieve an onsite release of 2,800,000.
  - 1,800,000 tule fall Chinook salmon sub-yearlings transferred to Bonneville State Fish Hatchery (SFH), for acclimation and an onsite release of 1,700,000. These fish, in the previous four years of the agreement was sent to Little White Salmon NFH.
  - 10,500,000 tule fall Chinook salmon sub-yearlings released on site at Spring Creek NFH.

- For next year, in fall 2014 (ReturnYear14/BroodYear14) 10,500,000 is the total target of tule fall Chinook produced from adult fish returning to Spring Creek NFH, and all will be released from Spring Creek.

A more detailed description of Spring Creek NFH's production goals are provided in the Comprehensive Hatchery Management Plan (CHMP) and the Hatchery and Genetic

Management Plan (HGMP) for Spring Creek NFH.

The station update quick summary can be accessed through the following web-link: http://www.fws.gov/gorgefish/springcreek/reports/sc2013.final.pdf

The station annual reports can be accessed through the following web-link: http://www.fws.gov/gorgefish/springcreek/reports.html

Tule Fall Chinook Salmon Collection and Spawning: Return Year 2012

Spawning of adult tule fall Chinook at Spring Creek NFH occurs at the close of the fiscal year. Therefore the fish produced in FY2013 are spawned from fish collected in our return year 2012 (RY12). The fish return began August 24, 2012 and concluded on October 1, 2012. From this spawning season a total of 18,599,061 eggs were taken from 3,747 females, over 10 spawn days (September 17 – September 27).

The following table summarizes the Return Year (RY) 2012 spawning season at Spring Creek NFH:

Species	**No. Adult Fish Needed (Escapement Goal)**		**No. Adult Fish Spawned**		**Eggs Collected**	**% Eye-Up**
	Male	*Female*	*Male*	*Female*		
Tule Fall Chinook	4,000	4,000	3,139[1]	3,747	18,599,061	96.6
[1] Includes 210 jacks						

A more detailed summary of returns (RY12) and spawning for BY12 is available in the Five Year Hatchery Production Summary, and the Production Year Report provided at the end of this report.

Tule Fall Chinook Salmon Rearing: Brood Year 2012, Lot Number 77

Rearing conditions remained excellent for production through the early winter in 2013 and temperatures did not fluctuate greatly. Fish were in optimal health throughout the period as well leading to an average survival rate from spawning to eye-up that was up again from last year's 95.9% to 96.6% this year. Survival from eye-up to hatch was 93.1%. Female fecundity was higher than our estimated pre-spawn values, but slightly lower than last year with an average of 4,963 eggs per female. Despite spawning less takes we still had a surplus of 1,353,854 eggs which were culled prior to ponding. Calculating fecundity using average female length has improved the estimated number of eggs taken, and we will continue to shrink the margin of required egg-taking to reduce the number of eggs required to be discarded.

Otolith thermal marking was continued with brood year 2012 (BY12) from the previous two years, and this was the last season for the marking process. Thermal marking is achieved by

exposing the fry to 24-hour cold events after a period of stable water conditions to create a thermal stress band during otolith growth. All BY12 fish received a five-band mark prior to the Bonneville SFH shipment. The remaining fry designated for Spring Creek NFH and Little White Salmon NFH received an additional 5 band mark, and finally Little White Salmon NFH's shipment received a unique 4 band mark, allowing for identification of Spring Creek NFH origin fish and their distributions when recovered as adults. Reference samples were collected from all 10 takes prior to ponding to verify successful otolith banding.

Ponding began on December 23 and was completed on January 1. The fish took to the starter feed perfectly as always with Skretting BioVita dry starter feed #0, and growth rates were ideal as expected. Survival from hatch to feeding was 99.7%. Average size of fry at ponding was 1,147 fish per pound, with a total of 13,214,116 fish ponded. The overall survival from ponding to release was 98.76%, remaining within the five year mean. Detailed information on weight gain, feed expended, cost, and survival rate are provided in the Hatchery Production Summary table included at the end of this report.

The Columbia River Fisheries Program Office's (CRFPO) Hatchery Marking Team marked all fish transferred to Little White Salmon NFH's acclimation pond, as well as all fish released on site at Spring Creek NFH. Marking began February 19 and was completed on April 12, and the marking operations went smoothly. The April release included 8,979 PIT-tagged fish and the May release included 5,976 PIT-tagged fish. Funding for this was provided by CRFPO-Hatchery Marking Team funds.

A more detailed summary of BY12 rearing and production is available in the Hatchery Production Summary (Intensive Culture) provided at the end of the report.

Tule Fall Chinook Salmon Distribution: Brood Year 2012, Lot Number 77

During fiscal year 2013, a total of 16,079,853 tule fall Chinook salmon were produced at Spring Creek NFH. Of these fish, 2,972,131 were transferred as eyed-eggs to Bonneville SFH on November 5, 2012 where they were reared and eventually released on site as sub-yearlings. As described by our program production goals, another 1,865,036 of these fish were transferred as sub-yearlings to Little White Salmon NFH's acclimation ponds and subsequently released to the Columbia River from there in April 2013. The other sub-yearling tule fall Chinook were released on site at Spring Creek NFH in two release groups, the April release of 6,441,575 fish, and May release of 4,801,111 (totaling 11,242,686).

An additional 1,200 eggs to the production total were provided to the Information and Education's "Salmon in the Classroom" project. These eggs are "adopted" by 12 classrooms in local schools. In the classrooms students help raise the young fish, learning about salmon life history and biology, completing the life cycle process by releasing their "adopted" salmon.

An additional 900 eggs and sub-yearling fish were transferred to the U.S. Geological Survey laboratory located in Willard, WA. These fish were also not included in the production total.

A detailed summary of these distributions and transfers is available in the Fish and Fish Egg Distribution Summary provided at the end of this report.

Tule Fall Chinook Salmon - Fish Health, Brood Year 2012

Brood year 2012 was another great year for fish health at Spring Creek NFH. The fish health lab tested juvenile fish throughout the rearing season for various pathogens and disease; nothing was detected the duration of the rearing season. For the RY13 fish that were tested, only one female tested positive for IHNV.

A more detailed summary of fish health is available in the Incidence of Disease in Adults provided at the end of this report.

Tule Fall Chinook Salmon Collection and Spawning: Return Year 2013

The fish ladder was opened August 22, 2013, a little earlier than normal in anticipation of an early run. Along with the tule fall Chinook return, there was a record setting Upriver Bright fall Chinook return. The total return for RY13 was 18,649 higher than the original estimated return and exceeding the 10,000 fish escapement goal. The ladder was closed on September 27 due to declining numbers from a projected early season return and a high number of Upriver Bright swim-ins from straying. The run was comprised of 6,502 males, 8,476 females, and 3,671 jacks, or 34.8%, 45.4%, and 19.6%, respectively.

Spawning began on September 16 and ended September 27 with 10 takes. A total of 18,599,061 eggs were taken from 3,861 females.

The following table summarizes the Return Year (RY) 2013 spawning season at Spring Creek NFH:

Species	**No. Adult Fish Needed (Escapement Goal)**		**No. Adult Fish Spawned**		**Eggs Collected**	**% Eye-Up**
	Male	*Female*	*Male*	*Female*		
Tule Fall Chinook	4,000	4,000	2,857[1]	3,861	18,795,937	94.6

[1] Includes 368 jacks

A more detailed summary of Return Year 2013 is available in the Brood Stock Summary provided at the end of this report.

Funding

The majority of funding for Spring Creek National Fish Hatchery is reimbursable; provided by the ACOE, under John Day Mitigation; and NMFS, through the Mitchell Act. Funding is also provided by the Service to address maintenance issues. Spring Creek summary:

Fund Source	Spring Creek
NMFS – Mitchell Act	$459,830
COE – John Day Mitigation	$685,697
USFWS Deferred Maintenance	49,268
Total	**$1,194,905**

Fish hatchery expenditures typically focus on three critical areas and include staff salaries, fish food, and maintenance of all facilities including keeping an adequate and healthy rearing environment. Salaries and fish food alone comprised 75% of the Complex budget during Fiscal Year 2012 (salaries 65%; fish food 10%). Spring Creek budget figures are heavily influenced by electrical use incurred with the water reuse pumping system. Electric use accounted for 10.4% of the Spring Creek budget while salaries and fish food were 59% (salaries 50.1%; fish food 8.9%).

Staffing & Personnel Changes

The overall staff at Spring Creek is comprised of 8 positions, with 6 positions currently filled (6-permanent, 1- vacant Maintenance Worker position, and 1-Student Temporary Employment Program TEP winter-weekend employee:

Spring Creek NFH (organization 13255)

Mark Ahrens	Hatchery Manager	GS-482-12	10/1/12 – 9/30/13
Mathew Maxey	Fish Biologist	GS-482-07	10/1/12 – 9/30/13
John Meduna – **currently vacant**	Maintenance Mechanic	WG-4749-10	10/1/12 – **8/23/13 retired**
Vacant	Maintenance Worker	WG-4749-08	10/1/12 – 9/30/13
Scott Zirjacks	Fish Culturist Leader	WL-5048-05	10/1/12 – 9/30/13
Mark Doulos	Fish Culturist	WG-5048-05	10/1/12 – 9/30/13
Chris Hankin	Fish Culturist	WG-5048-05	10/1/12 – 9/30/13
Darren Hemmer*	Fish Culturist (Temp)	WG-5048-02	12/24/12– 5/29/13

*Darren Hemmer (winter 2013, position will not be utilized in 2014), was formerly a Student Temporary Employment Program (STEP)-weekend helper. Strategies for weekend staffing will be revised in 2014 and two full-time staff will be assigned to weekends as needed to manage workload post-ponding. We will adjust as needed in the future.

Personnel Changes

On August 23, 2013 John Meduna served his last day as the Maintenance Mechanic at Spring Creek before retiring after 13 years at Spring Creek NFH. He had a long career that began with the U.S. Forest Service where he was a firefighter for eight years, and then worked for SDS Lumber in Bingen, WA for 20 years. He returned to federal service after SDS and finished with 13 years here at Spring Creek. He made many great improvements to the water-reuse system and operational techniques. He also was integral to major retrofit work during some major projects in recent years. In 2010 all 14 main pumps and motors in the reuse system were replaced along with a complete overhaul of all electrical lines and breakers that supply the hatchery, a major undertaking. In 2011 the fish production water alarm system was replaced which was also enormously intricate. These are but a few of the projects John was in the middle of over the course of his time as the maintenance mechanic.

Meetings and Events

The Hatchery Evaluation Team (HET) met twice during the year, March 28th and August 30th, to discuss hatchery operations and ongoing and new studies. The HET is the forum used to ensure that the hatchery is operating in a manner consistent with its stated goals. The HET is made up of representatives from all of the Columbia River Gorge NFH Complex stations, Lower Columbia River Fish Health Center, CRFPO, and Abernathy Fish Technology Center. These meetings serve an extremely vital role within the Complex and with our Service partners. There are very beneficial and lively discussions on all variety of operational issues with fish rearing including; updates on studies, operational needs, and fish health status. It never fails to be a rewarding get together and serves a valuable role within our fisheries management mission.

A Hatchery Coordination Team (HCT) meeting was held on August 15th. The HCT is made up of core HET members and also operational and stakeholder partners of the hatchery. The annual meeting serves to update partners and funding agencies on hatchery operations and program accomplishments. For this year it was a dual meeting incorporating Little White Salmon NFH into the meeting to address interests among partners regarding the John Day/the Dalles Dam mitigation and the Spring Creek reprogramming which heavily involves both programs. Attendees included members of the Spring Creek and Little White Salmon HET's as well as ACOE, NMFS, Yakama Nation Fisheries Program, WDFW and ODFW. This forum is equally valuable as a tool with which to stay connected and maintain effective and productive communication.

Other Projects and Activities

Spring water collection bulkhead breach

On May 9 a major water leak was discovered at our main spring collection point. The bulkhead had eroded at the base where it meets the natural rock foundation. The water flow eroded and exposed the 12-inch pipe bringing water from the other springs and where this collection point ends. Over the course of the following five days various remedies were explored. Initially sand-bags were deployed from the inside of the bulkhead to slow the leak. We consulted local concrete supplier Rapid Ready Mix who recommended a special in-water mix that would cure quickly, and then an additional outside reinforcement of low-density standard mix. After discussion with Monique Chase of Engineering and Larry Telles, Chief of Fisheries Operations, it was decided the proposed corrective approach was sound. It proved to be so and by May 15 the leak was completely stopped, and eroded areas filled with low-density concrete mix which is easily excavated in the event accessing those supply lines is necessary in the future. We suspect possible seismic activity as a partial cause, in addition to age of the structure. This reconfigured collection point is approximately 65 years old.

Figure 1 (above). Leak/breach prior to repair.

Figure 2. Low-density fill going in after concrete patch set.

The hatchery also continues participation in the White Salmon River Watershed Management Committee/Underwood Conservation District, that is developing habitat restoration projects for the White Salmon River.

Construction/Capital Improvements

Incubation Building - Office Remodel

A renovation of the front office and entry area into the incubation building was completed in January. The renovated manager's office and newly created adjacent office came out exceptionally well, and hallway space is ideal for work access, and loading in and out through that area if needed. Visitor access was also improved by adding an accessibility ramp for wheelchairs. The contractor was Five Rivers Construction of Longview, WA, and work began on Dec. 17, and was completed rather quickly even with some extended work gaps and follow through and completion of punch-list items that took most of February. Monique Chase of Engineering assisted in overseeing the project. Mark Ahrens and Mat Maxey were able to move over to the newly renovated office and newly created office in February.


EXIT

Lagoon Pump Impeller Replacement

After several years of successful system upgrading to water pumping systems at Spring Creek from 2009-2011, one remaining item that needed to be addressed is the lagoon pumps that reside near the hatchery entrance. Back in 2009 when the majority of hatchery production water pumps and motors were replaced these were identified and did not get replaced at that time. The following year in 2010 we were able to address those as well. The new soft-start electronic controls, infrared level sensors and new electric motors that were replaced are outstanding. However at the time the impellers provided by the contractor (Schlecht Construction) were never satisfactory after six months of trouble-shooting finally resulted in reinstalling the pump and impeller assemblies were reinstalled. The newly installed ones were not up to specification for pump volume, and clogged within days of installation every time they were tested. The reinstalled original pumps/impellers were rebuilt by Northwest Pump of Portland, OR in 2009, and worked very well. They could handle water and debris as needed, and we requested that the new impellers also be capable of passing debris that makes its way there such as leaves and pine needles.

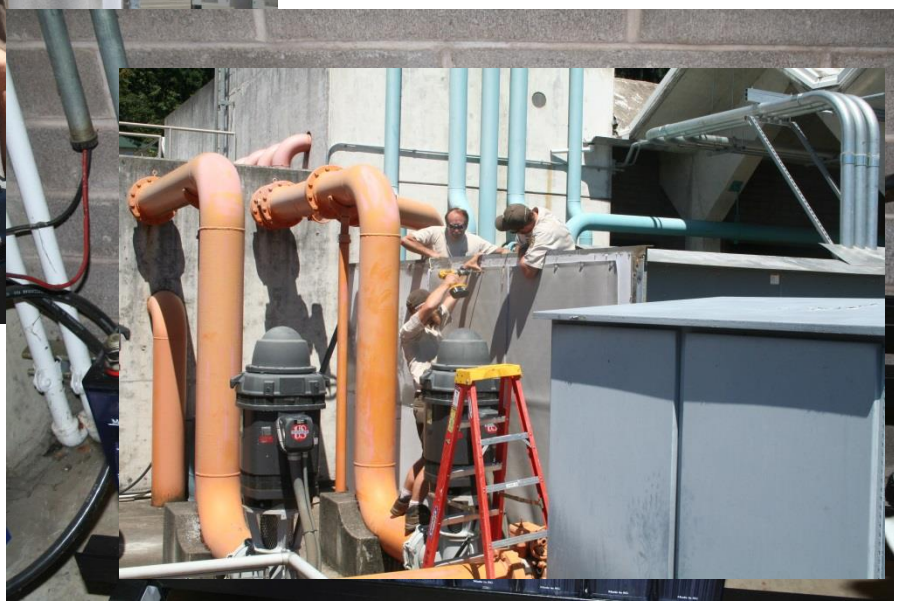
Finally addressing those aging and critical pump impellers and the need for replacement was a priority last year. Customer service calls from Bob Ulrich of Northwest Pump mid-summer last year lead to discussions about these. He was quite confident that although obscure and hard to find, that impeller style still existed and was either available as a special order with a long lead-time to build them, or could be copied and made to exact replacement. A scope of work was created and we worked with Contracting and General Services to advertise the job of replacement. It was won by Northwest Pump with a bid of $50,058 and awarded on August 16. Other bidders were far higher. We intend to schedule replacement as soon as the new impellers are constructed by special order. Timing for install will land in mid-winter around January 2014 with the 16-weeks lead time required for construction.

Emergency Generator battery replacement

In April of 2012 we ordered replacement starter batteries for the emergency generator to replace the existing battery set that had reached the end of their 20-year service life. There was an extensive order backlog at the Alpha Industrial battery plant in Japan due to high demand for heavy duty NiCad batteries. This delayed our acquisition of these significantly. After a six-month delay, the batteries were finally installed on Oct. 19, 2012. Thirty-six 24-volt 100 amp-hour Alpha Industrial Power cells (NiCad) which were acquired from PowerLogics, Inc. Maintenance mechanic John Meduna performed all installation work and test-start, and all went very well. The batteries are a key component required to start the emergency generator when power outages occur.

Noise Control

A sound barrier wall was built around the water reuse system aeration pumps. In 2010, pump controls were replaced with variable frequency drives (VFD) and their operational noise level was greatly increased due to those VFD's. Hatchery neighbors and residents have pointed out that the new level of noise was quite bothersome and unpleasant. The pumps are heard quite loudly from the three hatchery houses to the west. Running continuously, the noise generated from those pumps was a concern we needed to address. We proceeded with constructing a noise containment barrier after consulting with the noise control specialist company All Noise Control. During separate periods May 14-24 and July 15-18 John, Mark and Chris teamed up to frame and sheet the metal walls, then later hang sound-dampening



blanket material to reduce noise around the pumps and from adjacent areas. As of system start-up on Aug. 19 the desired effects are being observed. Being near or adjacent to the pumps is bearable now given the barrier is between you and them. However this may require some additions and further steps to progressively work towards better containment. They are still quite noisy, but much less so than they were previously from most locations.

Quarters Maintenance Projects

On Aug. 1 and 6 Bonney Electric of Hood River, OR performed remedial safety work on all hatchery residences. Upper floors of each of the residences needed electrical outlet updates and replacement GFCI's. They also performed similar work in the wood shop and storage shed to install GFCI's to an updated standard for such protection in work areas like these.

Work Orders have been created to correct safety deficiencies in Q#2 and #5 which consist of enlarging the bedroom windows for emergency access. It will be combined with window-well

expansions for the spare basement rooms in each house, along with more extensive update and improvements taking place for Q#2 once it is vacant as planned in Dec. ’13 – Jan. ’14.

Safety Audit

On June 26 and 27, 2013 Al Williams of the Regional Safety Office visited the hatchery for the review of the Safety and Health Program for Spring Creek. The review was satisfactory, although identifying some corrective actions that will affect operations. Most items were routine administrative functions out of compliance for scheduling conflicts and logistics challenges. Corrective measures were taken and all items corrected that included catching up with training for First Aid/CPR/AED, Hazardous Chemical handling and Fire Extinguisher use. We’re also updating our Material Safety Data Sheets (MSDS).

One significant item that was identified as a safety deficiency that must be corrected was the lack of exclusionary fencing around fish ponds and channels. Working with Kim Hubbard funds were secured to proceed with engineering design and contracting for bids. Zach Spruell was assigned from engineering to work with us on the fencing design and the project is underway with design and the bidding process through our regional office of Contracting and General Services (CGS). The project was awarded for $98,178.

Additionally bedroom windows for quarters #2 and #5 (the two brick ones to the west) were identified as out of spec for egress purposes. Monique Chase of engineering is working with us to develop the scope of work and proceed with installation of appropriate windows.

Quarters Moves

On Oct. 25, 2012 Mark Ahrens vacated hatchery residence #2 after just short of 10 years living on-station as a required occupant. He has moved with his family to White Salmon, 5.5 miles from Spring Creek. The duties and responsibilities of the Spring Creek Hatchery Manager position require availability for alarm response. In accordance with the updated Station Security Plan (July 2012) the flexibility to reside off-station has been authorized for alarm responder positions under the condition that they are capable of responding within 15-minutes. This new location meets that requirement.

On Jan. 15, 2013 Debbie Hogberg and her husband Arn moved into that same residence for a temporary residence while building a home in Husum. Expected completion of their build is Nov. 2013 – Jan. 2014, and they plan to vacate once it is complete. Mat Maxey the Spring Creek staff-biologist is scheduled to move from quarters at Little White Salmon into this residence here at Spring Creek once ready.

Production Summary Tables

HATCHERY PRODUCTION SUMMARY (INTENSIVE CULTURE) - BY2012 (Released 2013)

Station: Spring Creek National Fish Hatchery						**Period Covered:** October 1, 2012			**Through:** September 30, 2013	
Species/Strain and Stock	**Fish on Hand Last Day of Period**					**To Date This Fiscal Year**				
	Number	**Weigh t**	**Length**	**D.I.**	**F.I.**	**Weight Gain**	**Feed Expended**		**Conversion**	**Percent Survival**
							Pounds	**Costs**		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
FCS-SCW-12-SPC-77						122,289	84,600	107,606	0.69	98.76
Totals/Averages						122,289	84,600	$107,606	0.69	98.76

FISH AND FISH EGG DISTRIBUTION SUMMARY - BY2012 (Released 2013)

Station: Spring Creek National Fish Hatchery				**Period Covered:** October 1, 2012	**Through:** September 30, 2013	
Species	**Fish or Fish Egg Number**	**Fish**		**Management Area**	**State**	**Agency**
		Total Weight	**Length (in.)**			
1	**2**	**3**	**4**	**5**	**6**	**7**
FCS-SCW-12-SPC-77	1,200	1	**EE**	I&E	WA	Various Local Area Schools
Fry and Eyed Eggs for Research and other uses	150	2	3.4	I&E	WA	Life Stage Displays
"	130	1	2.5	Columbia River	WA	LCRFHC - Pre Release Exam
"	900	7	3.4	Columbia River	WA	USGS - Cook Labs
"	3,938	32	3	Columbia River	OR	NMFS @ Bonneville SFH
Smolt releases or transfers>	2,972,160	1,763	**EE**	Columbia River	OR	ODFW - Bonneville SFH
"	1,865,036	9,325	2.5	Columbia River	WA	USFWS -LWSNFH Acclimation
"	6,441,575	65,066	3.2	Columbia River	WA	USFWS - April Release
"	4,801,111	60,990	3.5	Columbia River	WA	USFWS - May Release

RELEASE CONDITIONS FOR FISH HELD IN PRODUCTION PONDS ONLY - BY2012 (Released 2013)

Release Group	Date	Avg. Length (in.)	Total Released	Index Marked	Other Marks	River Temp (F)
LWS Transfer	4-Mar 5-Mar	2.65	1,865,036	597,762 Ad/CWT	100% Ad-clipped	N/A
April	11-Apr	3.21	6,441,575	204,654 CWT-only, 205,059 Ad/CWT	100% Ad except Double Index (CWT only)	45.8
May	2-May	3.53	4,801,111	201,463 CWT-only, 201,452 Ad/CWT		51

SURPLUS FISH and CARCASS DISTRIBUTION - RY2013

Station: Spring Creek National Fish Hatchery		**Period Covered:** October 1, 2012			**Through:** September 30, 2013	
Species/Strain and Stock	**Transfer Destination**	**Distribution of Fish**			**Total Number of Fish**	**Remarks**
		Females	**Males**	**Jacks**		
1	**2**	**3**	**4**	**5**	**6**	**7**
FCS-SCW-13-SPC-78	Coastal Harvest Food Bank	2,874	1,983	738	5,650	55 non-tule in total
	Columbia Gorge Discovery Center	6	6	7	19	
	Confederated Tribes of Warm Springs	144	121	116	396	15 non-tule in total
	Forked Tree Ranch	4,900	3,860	2,738	11,693	195 non-tule in total
	Mid-Columbia Fisheries Enhancement Group	512	567	209	1,288	
Totals/Averages		8,436	6,537	3,808	19,046	265 non-tule in total

SURVIVAL PERCENTAGES - BY2012

Green To Eyed Egg:	96.6%	**Eyed Egg To Ponding:**	97.5%	**Ponding To Release:**	98.8%

FISH HEALTH ACTIVITIES SUMMARY - BY2012

Station: Spring Creek National Fish Hatchery		**Period Covered:** October 1, 2012	**Through:** September 30, 2013
Problem/Incident/Activity	**Species**	**Therapeutic Treatment**	**Results/Comments**
1	**2**	**3**	**4**
N/A	N/A	N/A	No fish health problems to note in rearing
			of FCS-SCW-12-SPC-77

INCIDENCE OF DISEASE IN ADULTS - RY/BY2012

Pathogen	**Males (45 Sampled)**	**Females (90 Sampled)**
Infectious Hematopoitic Necrosis (IHN)	0	1
Infectious Pacreatic Necrosis (IPN)	0	0
Viral Hemorrhagic Septicemia (VHS)	0	0

Pathogen	**Number Sampled**	**Incidence**
Renibacterium salmoninarum (RS)	30	0
Edwardsiella ictaluri (ESC)	30	0
Aeromonas salmonicida (AS)	30	1
Yersinia ruckeri (YR)	30	0

CHEMICAL USE SUMMARY

Station: Spring Creek National Fish Hatchery		**Period Covered:** October 1, 2012	**Through:** September 30, 2013
Chemical	**Purpose**	**Total Amount Used**	**Total Cost**
Chlorine	Disinfection	620 Gallons	
Iodophor	Disinfection	738 Gallons	
MS-222	Anesthetic	7.2 Kilos	$4,687

FIVE YEAR HATCHERY PRODUCTION SUMMARY

STATION: Spring Creek National Fish Hatchery

FIVE YEAR HATCHERY SUMMARY – Previous Production Cycles

Fish Production Data	2013	2012	2011	2010	2009
Fish Weight Gain (Lbs)	122,286	96,559	106,505	105,919	117,541
Fish Numbers	11,242,686	12,761,679	12,687,604	12,557,833	13,129,341
Percent Survival	98.76	97.77	98.11	97.32	98.84
Feed Conversion	0.69	0.78	0.76	0.76	0.65
Number of Females Spawned	3,861	3,747	3,891	4,245	3,846
Number of Eggs	18,599,061	19,399,922	18,955,009	21,967,397	20,740,546

BROODSTOCK SUMMARY - RY2013 (Brood Year 2013 Production Begins)

Station: Spring Creek National Fish Hatchery | **Period Covered:** October 1, 2012 **Through:** September 30, 2013

Species/Strain and Stock	Total Number Returned or Captured		Number Spawned		Eggs (E) Taken or Fish (F) Harvested		Eggs Retained for On-Station Production	Remarks
	Females	Males	Females	Males	Number	% Eyed		
1	2	3	4	5	6	7	8	9
FCS-SCW-13-SPC-78	8,476	6,502	3,861	2,489	18,795,937	94.6	18,795,937	Eggs retained is pre-discard,
Jacks		3,671		368				3,000,000 eggs transferred
Totals/Averages	8,476	10,173	3,861	2,857	18,795,937	94.6	18,795,937	To Bonneville SFH-ODOW