



SPRING CREEK NATIONAL FISH HATCHERY



ANNUAL REPORT 2010

ANNUAL REPORT FISCAL YEAR 2010

**Spring Creek National Fish Hatchery
Station**

**Underwood, Washington
City and State**

Lawrence S. Marchant, Project Leader

Date

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2010 Annual Report Narrative

Introduction

The U.S. Fish and Wildlife Service's Spring Creek National Fish Hatchery 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 (COE) 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 filterbeds, pollution abatement pond, fish ladder, several service buildings and four sets of quarters. 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 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 which is 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 sufficient number of adults were returning to the hatchery that collection of adults in the White Salmon River was discontinued. Spring Creek is the only hatchery above Bonneville Dam that produces tule fall Chinook salmon and strives to maintain the genetic integrity of this important stock. The tule fall Chinook is an indicator stock for the U.S. - Canadian 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) and trust responsibilities to Native Americans, helping to support an important commercial and recreational ocean and lower river fishery and provides mitigation for habitat lost due to construction of dams.

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 one and a quarter 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 fingerings for release into the White Salmon River. Other species, such as brown trout, chum, Coho and spring Chinook salmon have 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 30 cfs from the White Salmon River. The facility has not been operated since 2002 due to intake screen compliance issues, except for the last two years during adult returns when it was operated as an adult collection site as part of a tule fall Chinook salvage plan study. With modifications, this facility could play an important role in restoration of native species once Condit Dam is removed providing access to 16 miles of additional habitat.

Station Operations

Fish Production

The 2009 tule fall Chinook total salmon return was right at average size with the escapement to the hatchery of 25,687 (return avg. 1991-2009 is 24,917). However, this return was very similar to 2007 when the return included 54.9% jacks. For the 2009 return 55.2% were jacks totaling 14,102. Adult males numbered 5,207 and females 6,378.

Of this return there were 9,641 fish sent to be processed for the Grays Harbor food bank. Another 262 fish were given to the Warm Springs Tribe's Hood River restoration program for carcass outplanting.

Female pre-spawning mortality was 7.55%, and 4,312 females, 2,160 males, and 253 jacks were spawned. The final egg take for brood year 2009 was 20,740,546, and 926,000 eggs were discarded. Fecundity for this year was a record 5,399 eggs per female. A spawning ratio of 1 male to 1.5 females was attained. Egg eye-up was 94.7%, and survival to ponding was 88.7%.

The total weight gain for fish production during FY2010 (BY09, lot number-74) was 105,919 pounds. The amount of feed fed for the year was 80,408 pounds at a cost of \$65,102. The conversion ratio for the year was 0.76.

The reprogramming of 2008 brought changes to several phases of production. Egg-taking targets are the same for at least one more year, until Bonneville State Fish Hatchery-Oregon Department of Fish and Wildlife establishes a broodstock with the eyed-egg transfers they will be receiving. But, Spring Creek production is lowered in part by shipping three million eyed-eggs to Bonneville, this year accomplished on October 23, 29 & 30 in loads of one million each.

As of 2009 the total numbers of fish released and distributed has been significantly changed from the normal levels that Spring Creek has produced since the last program level change in the 70's. Under agreements established by the U.S. v. Oregon Production Advisory Committee, all parties agreed to alter production levels at several facilities to more appropriately distribute the mitigation responsibilities shared by agencies implementing John Day mitigation. It also more appropriately balanced the species distributions and their rearing and release locations with their endemic regions.

An overall reduction in smolt releases also resulted in the elimination of the March release group. That was partly facilitated by the first transfer of fry to Little White Salmon NFH (the rest transferred as 3.0M eyed-eggs in October-November mentioned above). The marking of the Little White Transfer release group was completed on March 2nd by the Fish Marking Crew of the Lower Columbia River Fishery Program Office. The transfer of 1.85M fry to LWS was accomplished on March 8th and 9th and went very smoothly.

The April and May release groups totaled 10,751,653 smolts and 900 eyed-eggs were distributed to local schools for the "Salmon in the Classroom" program. A large number of fish were distributed again this year to many research groups. A detailed summary of these is available in the monthly narratives for the rearing period, and is also included below in the distribution summary.

Rearing conditions were again virtually ideal from start to finish this rearing year with the very stable cold temperatures. Ponding was delayed by one week for a variety of reasons, which made attaining the necessary fish size for tagging difficult. We have decided to target ponding of next year's brood for approximately December 24-26.

Fish health was good through the rearing period; however a rise in apparent dropout mortality began three weeks after ponding and held steady through the majority of the cycle. Lower Columbia River Fish Health monitored and eventually confirmed presence of ERM. Mortality eventually accumulated to a higher than usual total of 2.68% by the end of rearing. In spite of this it was a good rearing year overall. Survival from ponding to release was 97.32%. And fish observed at sampling and releases were in excellent condition.

Marking operations went well as usual and upon completion April 23, enumeration resulted in an actual ponding count +0.454% (+58,273 fish) above our estimated ponding number, impressive to say the least. The initial ponding target is set at a conservative 12.8M.

Extensive PIT-tagging of Spring Creek releases was done again this year. The April release included 8,962 PIT-tags, and 5,973 for the May release group. This was funded through the CRFPO and the hope is that it can continue and be used to shed light on upstream and downstream travel habits of our fish.

At release in April, Dean Ballinger at the Smolt Monitoring Facility, characterized this year as the “most uneventful Spring Creek passage in years”. This appears to be a testament to the conscientious and effective efforts of the ACOE, with the help of Lyle Gilbreth of NMFS, to assess hydro operations and make adjustments. Hopefully conditions will continue to be similar and beneficial to migration in future years.

Operational Equipment Improvements

A PIT-tag antenna array was successfully installed in the upper portion of the fish ladder by our Abernathy Fish Technology Center staff members Kurt Steinke and Jerone Anderson. It consists of three rectangular antenna frames positioned in three consecutive ladder steps in the upper 1/3 of the ladder, and computer controls mounted in a weather proof cabinet along the railing above it. Its operation was overseen by Rod Engle of the CRFPO. This detection site has also been added to the PTAGIS meta-data dictionary as an official PIT-tag interrogation site under the identifier SCL. Rod is preparing a data summary to be reported at some time in the near future.

Another adult-return monitoring tool was also added this year in the form of a newly developed adult fish counter designed by Northwest Marine Technology. It was installed at the top of the fish ladder immediately after the last step. It greatly improved counting accuracy of what was previously estimation and/or manual count. Once we confirmed accuracy to be ranging from 93%-95% it removed the stress of uncertainty inherent in visual estimation. We've confirmed this when counting out fish to surplus. But that calculation is not completely accurate since there is some of room for miscounts in that operation. It helped us reach the end of the run with actual return counts of all fish removed at 0.42% over the numbers the auto-counter tallied.

<u>Actual Numbers</u>	<u>Pre-Mark # Estimated</u>	<u>Balance +/-</u>	<u>% difference</u>
12,903,788	12,845,515	- 58,273	+0.202%

Fish Transfers for/ & Ongoing Studies

This year there were far fewer fish distributed than in recent years. Only 530 were transferred to Matt Mesa at USGS for trials with smaller sized PIT tags.

Kyle Hanson of Abernathy Fish Technology Center continued work that was initiated last spawning season, looking at the effects of maternal stress caused by stocking density on egg quality and fry health. It is assessing the effect of stress, specifically the effect cortisol, produced by stress in adult broodstock females during holding, has on egg quality and potentially fry and smolt health as well. We were also able to load and hold 4 ponds at varying densities, one at normal level (650 fish), and one lower (350 fish) than our average stocking density, both early and late in the run.

<u>Distribution as of May 10th, end of rearing for BY09</u>		
<u>Fish transferred to Cook Labs – Matt Mesa</u>		
<u>Date</u>	<u># Transferred</u>	<u>Notes</u>
<u>2/24</u>	530	Tagging Trial
<u>Fish transferred to Little White Salmon NFH</u>		
<u>Date</u>	<u># Transferred</u>	<u>Notes</u>
<u>3/08</u>	888,706	100% Ad-clipped
<u>3/09</u>	916,944	Reprogramming Implementation
	1,805,650	

Note: For more details on brood year 2009 please refer to the Production Year Report tables attached later in the report on pages 36-39.

Return Year 2010 - Adult Return, Spawning & Egg Take

The return to the hatchery for 2010 exceeded the 10,000 fish escapement goal. At the end of the return, 50,135 fish were collected. The run began early and strong with the fish ladder being opened on August 25th, similar to last year. The run was strong through the entire run until October 6th when the ladder was closed ('09 closed 10/01, '08 closed 9/09, '07 it limped along until the 10/09 closure). The run composition was 16,623 males and 30,020 females, and 3,492

jacks.

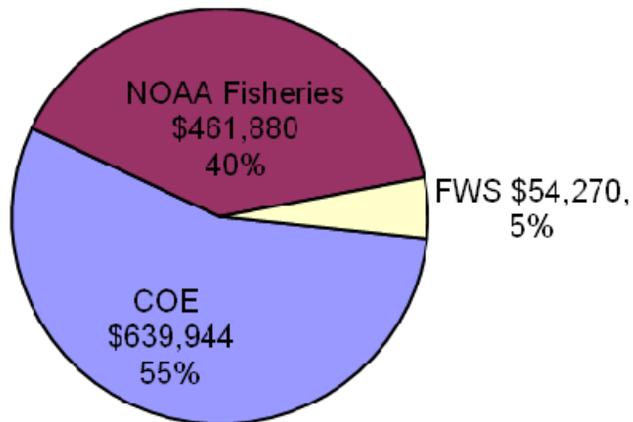
Spawning began on September 15th and ended October 4th, and through that period 4,245 females were spawned. A total of 15 takes were completed and the final estimated egg take was 21.97 million (5,174 eggs/female).

The overall run was more traditional in timing and swim-in rate, spread out in a manageable bell-curve for 6½ weeks. While the return of 50,135 fish fell short of the 60,000 + prediction, the Tribal harvest was substantial which helped us to avoid ladder closures or overloading our holding ponds.

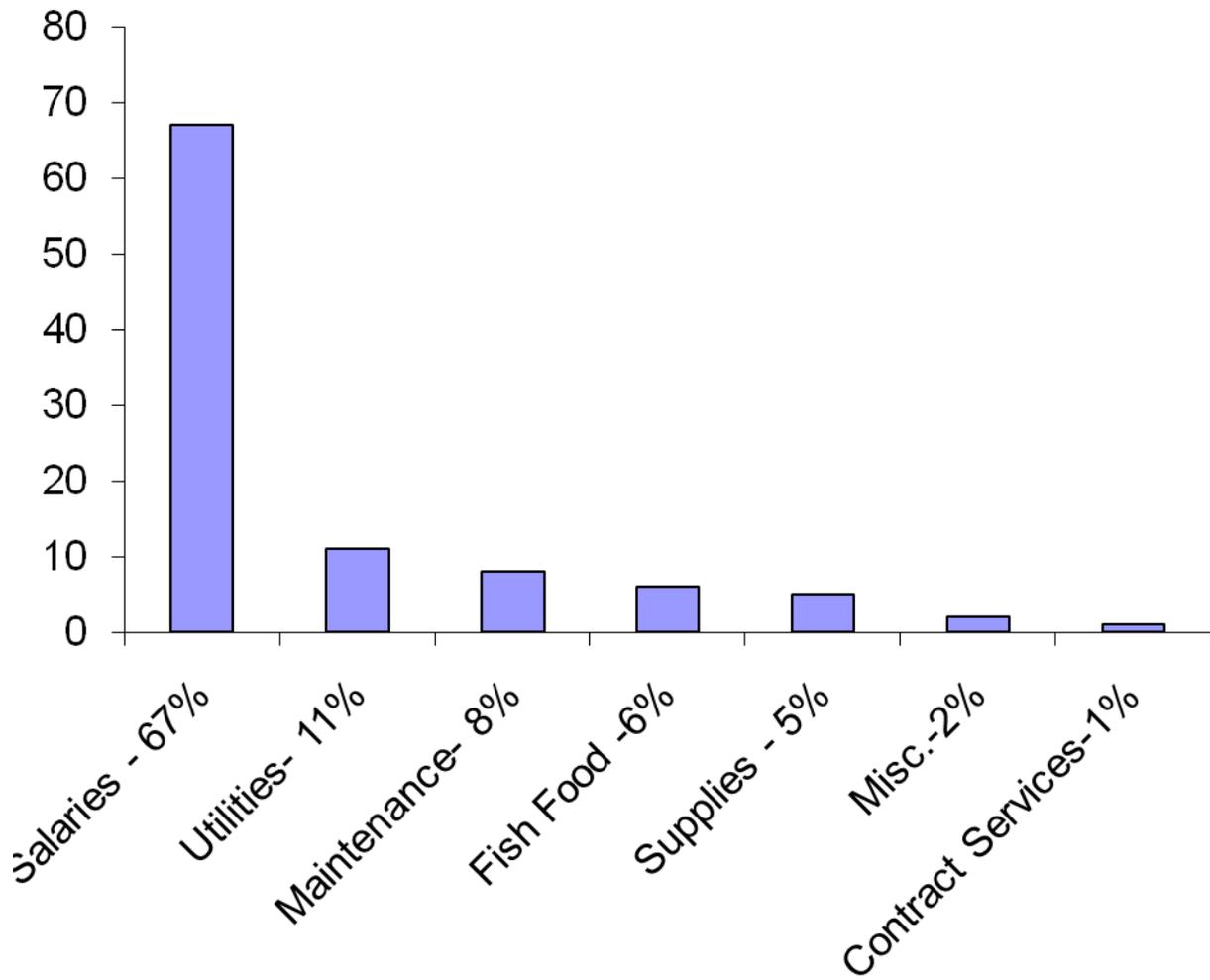
Funding

The majority of funding for Spring Creek National Fish Hatchery is reimbursable, provided by the Army Corps of Engineers, COE, under John Day Mitigation and NOAA Fisheries, National Oceanic Atmospheric Administration, through Mitchell Act. Funding is also provided by the Service to address maintenance issues. Total O&M funding for the facility in FY 2010 was \$1,156,094.

Total Funding



Detailed Breakdown of O&M Expenditures



Meeting and Events

Scott Kahan, Advance Leadership Development Program (ALDP) participant, toured the hatchery on March 19th. Scott was in Region One on detail as the acting Fisheries Assistant Regional Director.

The Hatchery Evaluation Team, 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 Spring Creek NFH, Lower Columbia River Fish Health Center, Columbia River Fisheries Program Office and Abernathy Fish Technology Center. The HET met twice during the year February 16th and July 20th, to discuss hatchery operations and ongoing and new studies.

A Hatchery Coordination Meeting was held on October 16th to update partners and funding agencies on hatchery operations and program accomplishments. Attendees included members of the HET as well as U.S. Army Corps of Engineers, NOAA Fisheries and Washington Department of Wildlife.

Other Projects and Activities

The hatchery has been involved with the White Salmon River Technical work group to identify data needs and recovery tasks prior and post Condit Dam removal. Species restoration plans are being developed which have identified the use of the Big White Ponds to play a major role in recovery and restoration of native species in the White Salmon River watershed. The hatchery has also participated on the White Salmon River Watershed Management Committee that is currently developing habitat restoration projects for the White Salmon River.

The Cooperative Agreement that was put in place in FY 2009 with the Underwood Conservation District to complete a habitat restoration project on Rattlesnake Creek was completed on September 30, 2010. Four rock riffles and a large woody debris jam were installed to prevent further stream incising/head cutting. The project also included a rocked livestock watering access point at an upstream pond, logs where placed as floodplain roughness in the meadow area and planting and mulch were placed along the riparian area. Funding for this project, \$20,000, was provided through the American Recovery and Restoration Act, ARRA. An additional \$10,000 was added to enhance the project beyond the original scope. These improvements will reduce stream bank erosion, increase capacity to hold winter and spring storm flows to regenerate groundwater recharge and promote higher summer flows that would result in lower summer water temperatures. Rattlesnake Creek is a major tributary to the White Salmon River and will be utilized by salmonid populations once Condit Dam is removed.

A Cooperative Agreement established in 2009 with the Underwood Conservation District for the design, planning and permit work for a culvert replacement project on Indian Creek, a tributary to Rattlesnake Creek continued this year. The objective is to replace two 5 foot

culverts that are perched with a bridge to improve passage and to return the stream bed back to a more natural state. The Service provided \$48,000 in funding for the project through the National Fish Passage Program for design and permitting. The design package was completed by Inter-Fluve, Inc this year. The remaining tasks under this agreement include geotechnical investigations, permitting and establishing a flow gage below the project to evaluate effectiveness of the project. Additional funds will be needed for the construction phase of this project.

The hatchery hosted Bio-Security training for hatchery staffs throughout the gorge including Tribal employees from the Klickitat facility. Instructors included: organizer Laura Sprague, Idaho Fish Health Center, Gary Fornshell, University of Idaho, Susan Gutenberger and Ken Lujan from the Lower Columbia Fish Health Center and Roger Sorensen from Warm Springs NFH. Topics included fish health issues, ANS and biosecurity disinfectants.

The hatchery also hosted a one day training on compliance with the new NPDES general permit on May 18th. Dave Terpening, Chris Gebhardt and Don Matheny from EPA provided the training, which included an inspection of Spring Creek NFH's NPDES program. The training was well attended by Hatchery Project Leaders and Staff from throughout the Region.

Larry Marchant completed his involvement with the Hatchery Review Team when a final Region Wide Issues document was provided to Regional Office staff on June 15. The review process covered 24 Salmon and Steelhead hatcheries that took nearly 5 years to complete.

Staffing

Current staffing at Spring Creek NFH includes 9 permanent positions: Project Leader, Assistant Project Leader, Biologist, Lead Animal Caretaker, one additional Animal Caretaker, Maintenance Mechanic, Maintenance Worker, Administrative Assistant, and Information/Educational Specialist. There were also two term positions, Laborer, a part-time Park Ranger (I&E) and a STEP position.

Personnel Changes

No major personnel changes took place in 2010.

Maintenance Projects Completed or awarded in 2010

Bay Valve was contracted to supply three 8-inch butterfly valves. Two of the valves were installed in the pipe gallery underneath the filter-bed bays replacing two worn out pneumatic valves that directed air for backwashing. The third valve will be kept on site for future valve replacement needs. \$3,021.00

Bonney Electric was contracted to move the emergency fuel shut off switch for the unleaded fuel tank. The original shut off switch was located too close to the tank, the new switch is now located 20 feet from the tank. \$2,450.00

Wilcox and Flegel replaced the fuel pump and register on the unleaded fuel tank at a cost of \$1,486.00

The Visitor Center improvement project awarded to Ivie Interpretive, Inc. is still in progress. The majority of the items have been completed: new displays, new information/greeting counter and handicap access to the upper level spawning viewing area. Items to be completed are a large mural that will be installed in the upper level viewing area, banners and reprogramming of some of the displays. \$55,792.71

A contract was award to Patrick Pepeiot to design/construct an ADA interpretive trail with a viewing area and ADA fishing accessible area. The trail would begin East of the Washington State Wind Surfing Park near our pollution abatement ponds and will link with the designated walking path along the entrance road. The concept of the trail would be to attract visitors from the wind surfing park to the hatchery via the trail that includes viewing areas with informational signage concerning the Columbia River fisheries and cultural resources. Spring of 2011 is the completion date set for this project. \$46,076

The contract awarded to J.B. Kerr Construction last year to replace carpeting in the visitor center was completed in July for a total cost of \$5,677.

The Army Corp of Engineers provided funding in the amount of \$77,000 to replace a 1972 boom truck that is used to remove and install the fish ladder steps. The new Ford 550 truck with service body supports a larger boom crane than the original, providing greater reach capacity, making fish ladder step removal a much safer operation.

Quarter's Projects

New furnaces and heat pumps were installed at each of the four quarters. The existing units were more than 30 years old and very inefficient. These new units will be a large improvement in energy efficiency and much more reliable. The project was completed by Monaghan Mechanical Inc. at a cost of \$21,886.

New carpet and vinyl flooring was installed in quarters numbers 2 and 5 by Affordable Floors at a cost of \$7,935. Part of this project included new vinyl flooring in the kitchen and bathroom in quarters #2 and #5.

A total of six new appliances were installed in quarters number 1, 2 and 5 at a cost of \$4,900.

Major Equipment Maintenance and Purchases

An adult fish counter was purchased and installed by NW Marine Technology for \$14,900. The counter operated extremely well and was determined to be within 95% accuracy of the actual adult hand count.

A new underwater camera for viewing adults and juvenile fish in the ponds was purchased for \$1,195.

Construction/Capital Improvements

McNealy Excavation was awarded a contract to remove existing blacktop pavement and replace with new blacktop at the hatchery, entrance road and quarter's area. The contract began in May and was completed August 30th. The project also included a fish return tube from the spawning building to the river, new entrance gate and a number of new concrete slabs. Total cost of this project was \$731,301. For project approval by the Columbia River National Scenic Area, a Mitigation Plan was necessary to address visual impacts caused by removal of some trees along the entrance road and Quarters area. Inter-Fluve Inc. was contracted to develop the mitigation plan and David Brush was contracted to implement the plan at a cost of \$12,739. Completion of the Mitigation Plan is expected to be late 2011.

An ARRA project to replace all fourteen reuse pumps and motors was awarded to Northern Management for 1.3 million dollars. All 14 pumps and motors were replaced with high efficiency units along with variable speed drives. The project also included upgrades to the electrical system involving primary commercial and generator transfer switches, motor control centers and motor starters. This project greatly increased the reliability and efficiency of the biological water reuse system and power distribution through-out the facility.

Columbia Gorge Information and Education Office



Clark County Home and Garden IDEA Fair booth, Vancouver, WA.

The Columbia Gorge Information and Education Office (I&E) succeeded in generating increased public awareness through expanded community outreach efforts and on-site visits. The I&E Manager participated in off-site natural resource education events which generated support for the Service. The office provides outreach services for Spring Creek NFH, Carson NFH, and the Lower Columbia River Fish Health Center. The I&E staff coordinates with the Columbia River Fisheries Program Office on special projects and events.

Project Leaders from the various stations meet quarterly with I&E staff to discuss projects and review program objectives. The Program also supported outreach efforts for Warm Springs and Eagle Creek NFHs, the Columbia Basin Hatchery Review Team, Connecting People with Nature regional initiative, Schoolyard Habitat Projects at Whitson Elementary in White Salmon, WA, in addition to regularly assigned duties.

The I&E Office is staffed by one full-time Information and Education Manager, Cheri Anderson; and a part-time Park Ranger (Visitor Services), Jennifer Rowlen.

Partnerships for natural resource education programs with external agencies included:

- Benton County Conservation District
- Clark County Public Utilities
- Columbia Gorge Ecology Institute
- Columbia Riverkeeper
- Conboy Lake National Wildlife Refuge
- Confederated Tribes of Warm Springs
- Educational Service District 112 in Washington
- Educational Service District 74 in Oregon
- Environmental Information Coop (EIC)
- Klickitat County Solid Waste
- Lower Columbia Fisheries Enhancement Group
- McNary National Wildlife Refuge
- Mid-Columbia Fisheries Enhancement Group
- Northwest Service Academy
- Oregon Department of Fish and Wildlife

- Port of Skamania
- Skamania County Solid Waste
- U.S. Army Corps of Engineers (COE)
- U.S. Forest Service (USFS)
- U.S. Geological Survey
- Underwood Conservation District (UCD)
- Vancouver Water Resource Education Center
- Washington Dept of Fish and Wildlife
- Washington State University, Vancouver
- Yakima Greenways Foundation
- Yakama Nation Fisheries Program

Area media continued their support of hatchery programs and events through public service announcements, news stories, and photos.

We continue to be a subchapter with the 503(c) non-profit *Friends of Northwest Hatcheries*, based at the Leavenworth NFH. *Friends* financially supported Carson and Spring Creek NFH Open Houses by purchasing refreshments. The I&E Manager participates in monthly board meetings via conference call and attends the annual meeting in Leavenworth, WA.

Education

Connecting People with Nature

The I&E Manager remains active on the Regional Connecting People with Nature Team. This team stems from the National Children and Nature Work Group and remains a top priority for the Service. This nationally inspired effort prompted by the book *Last Child in the Woods* considers the harsh reality that people, especially children, are spending less time outdoors.



Student made native pollinator cut-outs adorn the area surrounding the Native Pollinator Garden.

The I&E Manager attended a biannual regional planning meeting in Boise, Idaho in May 2010 to explore new ways to better connect people with nature. We also explored new and innovative ways in which this group could incorporate Climate Change into our messages, supporting the Service's commitment to this important issue.

As part of Connecting People with Nature: Ensuring the Future of Conservation initiative Whitson Elementary School students continue to benefit from various Schoolyard Habitat projects. Schoolyard Habitat has been highly supported by the I&E Office and Spring Creek NFH staff.

A Native Pollinator Garden was initiated this past year to compliment the second grade Insect/Pollinator unit. Plans were drawn up and approved, work parties organized and over 800 native pollinator plants were put in the ground by partners and community volunteers. In addition, second grade students painted large wooden cutouts of various pollinators that adorn the garden. Picnic tables located throughout the pollinator garden area provide the perfect outdoor learning space for students of all grades.



Students and volunteers plant over 800 native plants in the Native Pollinator Garden.

An Adopt-A-Garden program was presented at the Parent Teacher Organization meeting to seek community members and classrooms to participate in the upkeep of the various gardens around the school. I&E Staff provided training to the volunteers, ensuring the gardens continue to thrive. Other partners for the Schoolyard Habitat Project include:

Yakama Nation Fisheries Program, Whitson Elementary Parent Teacher Organization, Underwood Conservation District, Oregon State University Master Gardeners and the Gorge Native Plant Society.

e3 – Washington

The I&E Manager served on the e3-Washington committee for Southwest Washington. This statewide initiative serves to broaden and strengthen environmental education in the state. The initiative aims to provide both decision-makers and citizens with the knowledge and skills to make informed choices that sustain healthy

communities and environmental quality. The committee communicates through email updates, electronic newsletters and conference calls.



Students from Klickitat Elementary release their salmon fry at the Klickitat Hatchery.

Salmon in the Classroom

I&E staff continued to be active and involved in area schools. Spring Creek NFH houses six aquariums/chillers for loan to area schools for a Salmon in the Classroom program. This program provides an opportunity for students to rear salmon in their classroom. Participating teachers present a six week cross curriculum unit with assistance from I & E staff. Each aquarium/chiller is loaned out for a three to four month period twice a year for maximum utilization. In addition, several area schools have purchased their own aquarium/chillers to participate in this growing program. A total of 25 classrooms participated in this program for the 2009/2010 school year.



Students check out the salmon eggs before they go into the Salmon in the Classroom tanks.

A partnership with the Yakama Nation Fisheries Program (YNFP) continues to provide six tanks/chillers to schools in the Klickitat Basin. Schools benefitting from this program include: Lyle, Klickitat, Wishram and Goldendale Primary and Middle Schools. Programs were presented in partnership with Jeanette Burkhardt with the YNFP.

A similar effort with the Confederated Tribes of Warm Springs started a salmon rearing program in the upper Hood River Basin. The tribe approached the I&E Manager to seek assistance in starting a Salmon in the Classroom program similar to ours. Educators with the tribe shadowed our I&E staff to learn about tank set-up, rearing logistics and in-class presentations. We continue to mentor them with their program. Tule jacks were provided for their salmon dissections. We supported the first annual Salmon Days with the tribe at the Parkdale Hatchery. Students from Pine Grove and Parkdale Elementary rotated through learning stations learning about salmon, native culture, water quality and all aspects of hatchery operations.

I&E staff visited mid-Columbia Region classrooms to provide a series of hands-on educational activities to supplement existing salmon units. Fashion-A-Fish is an adaptation lesson designed to allow students the opportunity to create their own unique fish and develop an appropriate habitat. Fish dissection explores internal and external anatomy of salmon. To enhance the Land and Water required curriculum by Washington State, watershed model presentations augment learning about watershed health, forest ecology and the importance of healthy ecosystems to salmon. In addition, many classes request talks about the history of the Columbia River fishery and associated declines in salmon populations.

Stream Surveys

I&E staff assisted area schools with Adopt-A-Stream and Watershed Health projects. They assist Whitson Elementary fourth graders with water quality monitoring of Jewett Creek each month. Wind River Middle School enters its eighth year of watershed assessments of the Wind River. Our office, COE and UCD provide in-class learning about watersheds, the importance of healthy streams and how this affects salmon in our region. Students perform water quality tests, macro-invertebrate inventories, soil profiles and plant identification in three field days along the Wind River. The spring trimester of Outdoor Education completed its second year of an extensive monitoring project in partnership with the USFS at Hemlock Lake in Stabler, WA. Students monitored stream flow, stream profile, macro-invertebrates, water quality and riparian vegetation. This was a fabulous opportunity for students to monitor water quality of Hemlock Lake which was formed in 1913 by the construction of Hemlock Dam. The USFS removed Hemlock Dam in the summer of 2009. Student monitoring will continue to collect post dam removal data.



I&E Assistant, Jennifer Rowlen, explores a river rock looking for macro-invertebrates during the *Wagons to Wildflowers* event.

Outdoor Field Days

I&E staff assisted the Warm Springs NFH for the fourth year by leading Hooks and Ladders at the Seeds of Discovery Learning Day for The Museum at Warm Springs. Over 300 fourth and fifth graders gained a better understanding of salmon life cycle and the trials salmon face in their migration to and from the ocean.

A five year partnership between Conboy Lake National Wildlife Refuge and the I&E Office provided an outdoor learning experience for over 100 second grade students from Whitson Elementary School. The field day provided a hike where students took a closer look at forest and aquatic habitats and a larger wetland ecosystem. This field day was presented in partnership with the Columbia Gorge Ecology Institute.

The sixth annual Bass Lake Field Day inspired 100 Kindergarteners from Whitson Elementary in spring 2009. This unique learning experience provides hands on activities in stream, forest and meadow ecosystems. Students culminate the day at Bonneville Dam to view returning salmon and complete activity books for reinforced learning. This is a partnership between

USFWS, COE and Whitson Elementary School. The same curriculum is utilized for Camp Wa-Ri-Ki (a Skamania County residential camp) presented to 75 fifth graders from Carson Elementary.

Other education programs offered this year include: Macro-invertebrate in-class study in preparation for the Conboy Lake NWR field days, flower anatomy lesson to enhance Whitson Elementary first grade New Plants unit, and a salmon life cycle lesson was presented to pre-schools at White Salmon Head Start.

The Lewis and Clark Learning Trunk was to be utilized throughout the school year and into the summer with special camps. This trunk traveled to seven schools offering more than 300 students learning opportunities.

Other Educational Opportunities

River Camp, a week long teacher training was offered in August 2010 in partnership with U.S. Army Corps of Engineers and the City of Vancouver to 28 area teachers. Educators traveled to various sites throughout the gorge gaining a better understanding of salmon, energy, wetlands and formation of the gorge.

A Memorandum of Understanding was signed with Conboy Lake National Wildlife Refuge and the Columbia Gorge Ecology Institute. This MOU states that Conboy Lake NWR will be utilized by all partners as an outdoor learning space and that all partners will support each other in their outreach efforts.

A *Nature Of Learning* grant was obtained by the Columbia Gorge Ecology Institute to further outdoor learning at Conboy Lake NWR and at the Spring Creek NFH. Monies from this grant can provide transportation to the refuge/hatchery to support ongoing outreach efforts by all partners.

Special Events

Annual events in which the I&E Office participates include:

- 11th Annual Carson NFH Disabled Fishing Day (60 contacts)
- 11th Annual Carson NFH Kid's Fishing Day (350 contacts)
- Benton County Salmon Summit, Richland, WA (400 contacts)
- Clark County Home and Garden IDEA Fair, Vancouver, WA (6,000 contacts)
- Hood River County Fair, Odell, OR (400 contacts)
- HUGS (Health and Safety) Fair, White Salmon, WA (500 contacts)
- Spring Creek NFH Open House (300 contacts)
- Trout Lake Community Fair, Trout Lake, WA (150 contacts)

- Trout Lake U.S. Forest Service Free Fishing Day (500 visitors)
- Wagons to Wildflowers (75 contacts)
- Warm Springs Museum Seeds of Discovery Learning Day (350 contacts)
- Water Jam '09 (330 contacts)
- Wenatchee River Salmon Festival, Leavenworth, WA (1000 contacts)
- Yakima Greenways Festival, Yakima, WA (400 contacts)

Information

I&E Manager and Spring Creek Manager continued their outreach efforts to inform district Congressmen in Washington and Oregon and area County Commissioners about hatchery issues (ie. mass marking, Mitchell Act, hatchery reform/operations).

The I&E Manager remains active on the Columbia River Gorge Visitor Association. She is in her fourth year on the Executive Board.

The I&E Manager offered assistance to Eagle Creek and Warm Springs NFH as needed in an ongoing effort to offer complete and quality programming to the public.

I&E and hatchery staff continued their presence and show of support at Jewett Creek Streamkeepers, White Salmon River Management Committee, Wind River Technical Advisory Committee, and Wind River Watershed Council monthly/quarterly meetings.

I&E staff continued to photo document the area around the Big White Pond facility on the White Salmon River. Three photo stations are located in the vicinity of the facility. Photos are taken in the spring and fall each year and randomly when significant weather events occur.

The Columbia Gorge National Fish Hatcheries and Pacific Region Hatchery Review Team websites meet the Pacific Region Website Content Accuracy and Accountability standards required by March 30, 2010. Website hits are outlined below.

The I&E Manager continued outreach efforts of maintaining and updating the Pacific Region Hatchery Review, Carson, Spring Creek, Little White and Willard National Fish Hatcheries and Lower Columbia Fish Health Center websites.

FY010 Website Statistics

Month	Total Visitors (www.fws.gov/gorgefish)	Spring Creek NFH Visitors	% of Total Visitors
October	1,482	250	8.1%
November	3,017	281	9.3%
December	2,453	281	11.5%
January	2,792	235	8.4%
February	2,746	217	7.9%
March	3,306	279	8.4%
April	3,032	264	8.7%
May	1,534	160	10.4%
June	871	123	14%
July	704	121	17%
August	1,439	439	30.5%
September	1,653	123	7.4%
Total	26,627	2,773	10.4%

I&E Manager creates and distributes the annual Columbia Gorge Outreach Notes in conjunction with Hatchery Data Sheets created by the Columbia River Fisheries Program Office. These informational documents are mailed electronically each fall to over 80 recipients.

Volunteers

The Discovery Center in The Dalles, OR provided a seven person crew as part of a Summer Service program. Middle school students satisfied a community service requirement by removing scotch broom from the interpretive trail area at the hatchery.



Conboy Lake NWR loaned us a five person Youth Conservation Crew for a week in July. The crew's main task was invasive weed removal along the interpretive trail site at the hatchery. A massive mound of scotch broom, blackberry and false indigo was heaped onsite. The mound will be burned in conjunction with the Mid-Columbia Refuge fire crew later this winter. An MOU and Burn Plan were drawn up for the project.

Two independent projects were carried out as part of the AmeriCorps National Day of Service on August 5, 2010. A five-person crew worked to remove blackberries at the Spring Creek Fish Hatchery State Park, under the supervision of Washington State Parks. Another seven-person crew worked at the Whitson Elementary School nature trail to remove invasive vinca vine and define the nature trail through trail clearing and spreading ten yards of wood chips. This crew improved the trail for student use this fall. The projects were fantastic. Native plants for future restoration were secured for these projects through the Regional Youth in Careers small grant proposal procedure. \$500.00 was obtained for the hatchery project, and \$800 was obtained for the nature trail project.



AmeriCorps Volunteers define nature trail at Whitson Elementary School to enhance outdoor learning opportunities.



To assist with spawning and to allow Regional Office employees a valuable field experience, we coordinated hands-on educational day-trips to the hatchery. About 20 people from various Regional Office Departments – Human Resources, Division Budget and Finance, Contracting and General Services, Department of Administration Services-team, Diversity and Civil Rights and Information Technology Management came out to assist with some facet of spawning. Almost everyone that came jumped in to help and just a couple avoided getting messy. Everyone said they thoroughly enjoyed the chance to see what we do and appreciated the opportunity. On more than one day they covered staff shortages and made things a lot of fun for everyone. This has become an annual occurrence.

Mount Hood Community College's aquaculture class participated in spawning operations in September. Twenty-five students had the opportunity to experience all phases of the operation from sorting fish, collecting eggs to washing and placing eggs into incubators.

Hatchery Improvements



The I&E Manager participated extensively in the planning and implementation of Visitor Center improvements, funded through 2009 and 2010 Visitor Facility Enhancement monies. Improvements include: new carpeting, elevator lift, new stairs, front desk, interpretive panels, two touch screens with programming, banners, large screen television and new visitor sign in area.

Considerable time was spent exploring options for implementing the required Mitigation Plan for the Paving Project that

took place at the hatchery in May/June 2010. Due to funding restraints it was decided to phase the paving mitigation. Phase one was to plant two strips with 10 Ponderosa Pines per strip. The trees were purchased for \$500.00 with the Regional Youth in Careers Grant opportunity. The hatchery is responsible for maintenance and survival of these trees for the next three years.

The hatchery has also received Visitor Facility Enhancement funds for an Interpretive Trail and Accessible Fishing Area. Appropriate permits have been submitted, Sensitive Plant and Cultural Surveys have been completed, Mitigation Plan is in process and the contract has been awarded to P.F. Pepiot, Inc. Work on this project will proceed when the U.S. Forest Service National Scenic Area permitting process has been completed.



Paving Project plant mitigation.

WILD BROODSTOCK SUMMARY

Station: Spring Creek National Fish Hatchery				Period Covered: October 1, 2009			Through: September 30, 2010	
Species/Strain And Stock 1	Total Number Returned Or Captured		Number Spawned		Eggs (E) Taken or Fish (F) Harvested		Eggs Retained For On-Station Production 8	Remarks 9
	Females 2	Males 3	Females 4	Males 5	Number 6	% Eyed 7		
FCS-SCW-09-SPC-75	30,020	16,623	4,425	2,876	21,967,397	95.1	17,891,118	Eggs retained is pre-discard, 3,000,000 transferred to Bonneville SFH-ODFW.
Jacks		3,492		252				
Totals/Averages	30,020	20,115	4,425	3,128				

FISH AND FISH EGG DISTRIBUTION SUMMARY

Station: Spring Creek National Fish Hatchery

Fiscal Year: 2010

Species (All Tule FCS) FCS-SCW-09-SPC-74 1	Fish or Fish Egg Number 2	Fish		Management Area 5	State 6	Agency 7
		Total Weight 3	Length 4			
FCS-SCW-09-SPC-74	1,600 eyed eggs	1	EE	Whitson Elementary School	WA	Various Schools
	11,000 eyed + fry stages	1	EE	I&E Egg Display Project	WA	
Bonneville SFH	3.0M eyed eggs	2,400	EE	Columbia River	OR	ODFW – Bonneville SFH
LWS Transfer	1,805,650	8,101	2.79	Columbia River	WA	
April Release	6,200,388	54,865	3.20	Columbia River	WA	
May Release	4,551,265	56,561	3.38	Columbia River	WA	
Smolts	530	1 est.	various	Columbia River	WA	USGS – Matt Mesa – Cook Labs

Form 3-102 (Rev. 1/89)

HATCHERY PRODUCTION SUMMARY (INTENSIVE CULTURE)

Station: Spring Creek National Fish Hatchery				Period Covered: 10/01/09				Through: 09/30/10		
Species/Strain and Lot Number 1	Fish on Hand Last Day of Period					To Date This Fiscal Year				
	Number 2	Weight 3	Length 4	D.I. 5	F.I. 6	Weight Gain 7	Feed Expended		Conversion 10	Percent Survival 11
							Pounds 8	Costs 9		
FCS-SCW-09-SPC-74						105,919	80,408	\$65,102	0.76	97.32
Totals/Averages						105,919	80,408	\$65,102	0.76	97.32

FISH HEALTH ACTIVITIES SUMMARY NATIONAL FISH HATCHERY

Station: Spring Creek National Fish Hatchery

Fiscal Year: 2010

Problem/Incident/Activity 1	Species 2	Therapeutic Treatment 3	Results/Comments 4
Enteric Redmouth (ERM)	FCS	None	ERM was detected and showing possible small contribution to mortality, but considered a minor case.

Chemical Summary:

Chemical : Iodophor Purpose: Disinfection Total Amount Used: 650 Gallons Total Cost: \$8,866.00

Chemical : MS - 222 Purpose: Anesthetic Total Amount Used: 20 Kilos Total Cost: \$4,186.00

Chemical : Chlorine Purpose: Disinfection Total Amount Used: 113l Gallons Total Cost: \$4,707.00

FIVE YEAR HATCHERY PRODUCTION SUMMARY

STATION: Spring Creek National Fish Hatchery

Fiscal Year 2010					
	2010	2009	2008	2007	2006
Fish Production Data					
Intensive Culture:					
Fish Weight Gain (pounds)	105,919	117,541	136,014	133,524	132,833
Fish Numbers	12,557,833	13,129,341	14,936,336	15,475,070	15,239,053
Percent Survival	97.32	98.84	97.13	97.3	97.87
Feed Conversion	0.76	.65	.73	.82	.82
Extensive Conversion					
Fish Weight Gain (pounds)					
Fish Numbers					
Percent Survival					
Pounds Per Acre					
Broodstock Production Data					
Number of Females Spawned	4,425	3,846	4,312	3,301	4,246
Number of Eggs	21,967,397	20,740,546	22,408,533	16,951,908	20,160,523
Number of Fish					
Management Data					
Full-Time Equivalent	10.61	9.20	9.37	9.86	8.87
Operational Costs	1,123,709	1,034,500	1,039,199	1,009,268	892,822
Vehicle/Equipment Costs (Items Over \$1,000)	14,117	13,806.00	2,212	26,829	0
Cyclical Maintenance Costs	53,800	42,972	44,061		
Quarters Costs	47,796	34,848	4,199	6,513	11,499

OPERATION/MAINTENANCE COST DATA

STATION: Spring Creek National Fish Hatchery

FISCAL YEAR: 2010

- 1. Salaries, Permanent (Including Benefits):
- 2. Salaries, Temporary (Including Benefits):
- 3. Operating Costs:
 - A. Utilities
 - 1. Telephone (Land and Cell)
 - 2. Electricity
 - 3. Heating Oil
 - 4. Natural Gas
 - 5. Other
 - B. Vehicle Maintenance
 - 1. Distribution Vehicles
Total Mileage 0 .

Funding Source			
Operations (Fisheries) 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4
	\$14,062	\$7,230	\$751,742
			\$4,509
			\$3,456
			\$127,171

OPERATION/MAINTENANCE COST DATA

STATION: Spring Creek National Fish Hatchery

FISCAL YEAR: 2010

B. Vehicle Maintenance (continued)

2. Non-Distribution Vehicles

Total Mileage: 23,887 .

C. Fuel for Vehicles/Equipment

D. Supplies

1. Fish Food

2. Chemicals

4. Tags and Tagging Supplies

5. Office
Supplies/Custodial/Other
Supplies

E. Travel

FUNDING SOURCE			
Operations Fisheries 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4
			\$6,294
			\$66,703
			\$11,574
			\$41,374
			\$14,318

OPERATION/MAINTENANCE COST DATE

STATION: Spring Creek National Fish Hatchery

FISCAL YEAR: 2010

	FUNDING SOURCE			
Operations Fisheries 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4	
3. <u>F. Moving Expense</u>				
<u>G. Miscellaneous - Bingen Garbage, GSA Awards, Security Plus, Training, HGH, Fitness Reimbursement</u>			\$39,738	\$26,651
4. Operations (Total: Line 1, 2, 3 A-G)		\$53,800	\$7,230	\$1,053,792
5. Vehicles/Equipment Purchased (Over				\$14,117
6. Cyclical Maintenance				
7. Quarters Maintenance			\$40,566	
8. Total Maintenance (Total: Lines 5, 6, and				
9. Column Totals (Total Lines 4 and 8)		\$53,800	\$47,796	\$1,067,909

10. Total Expenditures (Add Totals of Column 1-4) \$1,123,709 .

REPORT OF STATION PERSONNEL

STATION: Spring Creek National Fish Hatchery

FISCAL YEAR: 2010

Part I - Permanent Personnel (FTE's: 9)					
Name of Employee	Functional Title	Grade	Period Worked	Remarks	FTE
Marchant, Lawrence S.	Hatchery Manager	GS 0482/13	10/01/2009- 09/30/2010		1
Ahrens, Mark A.	Asst. Hatchery Manager	GS 0482/12	10/01/2009- 09/30/2010		1
Anderson, Cheri A.	Information & Education Specialist	GS 1001/11	10/01/2009- 09/30/2010		1
Armstrong, Ronald D.	Maintenance Worker	WG 4749/8	10/01/2009- 09/30/2010		1
Doulos, Mark F.	Animal Caretaker	WG 5048/5	10/08/2009- 09/30/2010		1
Hogberg, Debra L.	Program Assistant	GS 0303/7	10/01/2009- 09/30/2010		1
Meduna, John H.	Maintenance Mechanic	WG 4749/10	10/01/2009- 09/30/2010		1
Risley, Casey A.L.	Fish Biologist	GS 0482/9	10/01/2009- 09/30/2010		1
Zirjacks, Scott L.	Animal Caretaker Leader	WL 5048/5	10/01/2009- 09/30/2010		1
Part II - Temporary Personnel (FTE's: 1.61)					
Name of Employee	Functional Title	Grade	Period Worked	Remarks	FTE
Hankin-Dustin, Chris	Laborer	WG 3502/3	10/01/2009- 09/30/2010	Term	1
Egan LaGrander	Animal Caretaker (STEP)	WG 5048/2	01/03/2010 – 05/08/2010	Part-Time STEP 288 Hours Worked	.13
Rowlen, Jennifer	Park Ranger	GS 5938/6	10/01/2009 – 12/19/2009 01/04/2010 – 05/13/2010 08/29/2010 – 09/30/2010	Part-Time Term 999 Hours Worked	.48

Form3-114(Rev. 1/89)

PUBLIC RELATIONS

Station: Spring Creek NFH

Fiscal Year: 2010

1.	Presentations:	Number of Groups	Number of People
	On Site	<u>37</u>	<u>2,088</u>
	Off Site	<u>170</u>	<u>13,758</u>
2.	Number of Visitors		
	Official	<u>1</u>	<u>3</u>
	Public	<u>0</u>	<u>10,000</u>

3. Other Public Relations Activities:

Type of Activity: Condit Dam decommissioning public relations and education.

Co-Op Agreements With: Conboy NWR
Columbia Gorge Ecology Institute

Volunteer Agreement With:

1. Friends of Northwest Fish Hatcheries
2. Columbia High School – Student Volunteers
3. Northwest Service Academy

See pages 18 - 25 for details.

PRODUCTION YEAR REPORT

Spring Creek National Fish Hatchery

Fall Chinook Salmon

Hatchery Return Measurements 2009

Table 1: 2009 Adult Returns, Dead In Ponds (DIPs), Killed as Surplus, Other (Bad or Green Females) and Spawned.

	Males	Females	Jacks	Totals
Adult Return	5,207	6,378	14,102	25,687
DIP's	869	693	1,695	3,257
Killed as Surplus	2,178	1,743	12,153	16,074
Other (Bad or Green)		96		96
Spawned	2,160	3,846	253	6,259

Dates of Adult Return: August 26 – October 02
 Dates of Spawning: September 14 – October 01
 Results: 20,740,546 eggs taken(fecundity 5,399 eggs/female)

Incidence of Disease in Adults:

Males 20 sampled
 Infectious Hematopoietic Necrosis (IHN) 3
 Infectious Pancreatic Necrosis (IPN) 0
 Viral Hemorrhagic Septicemia (VHS) 0
 Erythrocytic Inclusion Body Syndrome (EIBS) 0

Females 150 sampled
 (IHN) 16/50
 (IPN) 0
 (VHS) 0

150 sampled *Renibacterium salmoninarum* 10 (very low)
 sampled *Yersina ruckeri* 0
 sampled *Aeromonas salmonicida* 0
20 sampled *Ceratomyxa shasta* 0

Table 2: **RY2009** Adult Return Age Composition and Mean Lengths.

Male			Female		
Age	Number	Mean Length	Age	Number	Mean Length
2	11,893	63.25	2	95	61.67
3	5,527	85.79	3	2,936	83.52
4	1,819	96.39	4	3,189	92.00
5	70	104.00	5	158	91.00
Total	19,309			6,378	

Hatchery Rearing BY2009

Green Eggs	Taken	<u>20,766,049</u>
	Kept	<u>14,485,044</u>
	Discarded	<u>3,268,405</u>
	Shipped	<u>3,000,000 ODFW - Bonneville SFH</u>
		<u>1,600 I&E Salmon in the Classroom</u>
		<u>11,000 I&E Egg Display Projects</u>

Survival Percentages	Green To Eyed Egg	<u>94.7%</u>
	Eyed Egg To Ponding	<u>88.9%</u>
	Ponding To Release	<u>97.32%</u>

Fry	Ponded for Production	<u>12,900,788</u>
	Released	<u>10,751,653</u>

Table 3: Rearing Conditions for System During Rearing Period (Dec.2009 - May 2010).

Month	Density Index	Flow Index	Ammonia (ppm)
December	NA	NA	0.00
January	0.10	0.82	0.05
February	0.14	1.25	0.10
March	0.21	1.06	0.18
April	0.24	1.11	0.13
May	0.24	1.20	0.17

Table 4: Fish Health Conditions During Rearing Period (Dec.2009 - May 2010).

Date	Presence of Pathogens
At Ponding	Low level ERM indentified in March but never created significant mortality
January	
February	
March	
April	
May	

Release Conditions for Fish Held in Production Ponds Only

Table 5: Conditions at Release.

At Release(by group)	LWS Transfer	April	May
ate	3/08 & 09	4/12	5/10
Average Length (in.)	888,706		
Total Released*	<u>916,944</u> 1,805,650	6,200,388	4,551,265
Index Marked	150,243 Ad/CWT	206,423 CWToonly 204,698 Ad/CWT	199,385 CWToonly 199,336 Ad/CWT
Other Marks	100% Ad-clipped	100% Ad-clipped except Double Index (CWT only)	100% Ad-clipped except Double Index (CWT only)
Water Temp in River(F)	NA	48.0F	53.0F

* = reflects mortality occurring post-marking until release