



Dworshak Fisheries Complex

Monthly Activity Report



July 2014

U.S. Fish & Wildlife Service, Region 1

Volume 3, Issue 6

Highlights:

- By end of July 370 adult males and 664 female chinook were ponded for broodstock at DNFH
- 415 Chinook trapped in July at Kooskia
- Spawning will begin on August 12
- Total Fish on station at Dworshak: 5,053,069
- Total Fish on station at Kooskia: 671,300

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Manager's Message

It's a beautiful Friday morning. This time of year, the days are warm, the evenings are cool, the leaves are turning their beautiful fall colors, red-green kokanee are migrating up the North Fork, and our steelhead are on their way back home. Fall is a wonderful time of year, and it reminds me how lucky I am to live and work here in beautiful Idaho.

Sometimes we lose sight of just how lucky we are. We live in this incredibly wonderful and pristine area, with limited stressors that other people have to deal with, stressors like traffic and the "hustle" of big cities. We don't live in poverty; or the violence of a war-torn country; or without basic services like fresh drinking water, schooling for our children, medicine, etc. Are we lucky? Yes...I think so.

We are very much connected to nature in our work, through the fish and water. Our jobs are actually stress-relieving, being outside working in and with the natural world. By that standard we are fortunate as well.

We are also fortunate when compared to our neighbors in the county. The lowest paid position within Dworshak Complex makes around \$26,000/year at the lowest step within the range of that position. That is fairly close to the median household income for Clearwater County, so even at the starting wage of the lowest paid position here we are all paid well. And Clearwater County has the second highest unemployment rate in Idaho at over 12%. Just *having* a job here is a blessing. Many folks you see in town don't have a job. How do you think *their* stress level is?

And when compared to world standards, we are *extremely* blessed. According to a variety of sources, the median household income worldwide is estimated at \$1,200-\$10,000 per year. That means the income of even an



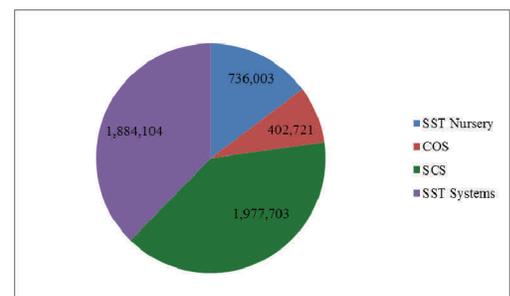
Steve Rodgers, Complex Manager

Question: What's the reason for Steve's hearty smile? Find out in the next issue!

entry level position within the Complex is at least 2.5 times greater than the household global average. And according to one economist, if you make \$34,000 or more annually you are part of the richest 1% of people on earth! Think about that for a minute.

This incredible statistic reminds me of just how lucky I am. I have a wonderful job, and am very well compensated for it. I do that job in an incredibly beautiful area of an unspoiled state. And despite all its flaws, I get to do that job in what is still the greatest country on earth. I am blessed, as are we all that live and work here.

It's Friday, and I'm excited for a great weekend in the woods. I hope you all enjoy this fall and take a moment to think about how fortunate we are. When the going gets tough, remember what the t-shirt says: "life is good".





Credit: FWS

Entrance sign gets a rehab!



Credit: Jill Olson/FWS

Jaden closing a mud valve after cleaning a spring chinook raceway.



Credit: Jill Olson/FWS

All smiles while moving coho out!

Hatchery Headlines: Dworshak Spring Chinook Salmon (SCS)

Brood Year 2013 (BY13)

There were 1,977,703 fish at the end of July averaging 151 fpp (2.8 inches). Mortality dropped from 0.41 % (8,178) to 0.37% (7,248). Medium screens were pulled July 18 to reduce crowding in the RWs. There are four distinct ponding groups: Low-density, high-density, flow study, and Selway. Each group can be identified through parental based tagging (PBT). Fish were fed 4,831 pounds of #1 and #2 crum Bio Oregon gaining 6,392 pounds. Raceway flow averaged 1000 gpm and water temperature was 44.6 degrees. Low chronic mortality in RW B25 (0.61%) was attributed to IHNv by PCR. Chinook will be marked, CWT, and split to final rearing numbers in August. The Selway group will remain ad-intact and will be out-planted in early September.

Brood Year 2014 (BY14)

Dworshak opened its fish ladder on July 1 for adult SCS broodstock collection in. The first sorting occurred on July 22 and again on July 29. Females were injected with erythromycin during sorting. By the end of July 370 adult males and 664 females were ponded for broodstock; 294 jacks went to the food bank, and 51 ad-intact fish were released to the Clearwater River. There were two pre-spawn adult mortalities for Dworshak in July. The Dworshak fish ladder will remain open until broodstock needs are met. Kooskia transported 420 adults to Dworshak during the month. Pre-spawn mortality was 145 adults leaving a total of 621 (274 females; 314 males; 39 jacks) Kooskia adults in HP 3 at the end of July. Females were injected with erythromycin on July 22. Spawning will begin on August 12.

Hatchery Headlines: Dworshak Summer Steelhead (SST)

Brood Year 2014

Marking continued through July. At the end of July there were 736,003 fry remaining in the Nursery. Average fpp in the Nursery was 125 (3.0 inches). There were 9,546 mortalities (1.3%) during the month. Primary reservoir water was heated to 54 degrees.

There were 1,884,104 SST in the Burrow's Ponds at the end of July averaging 50 fpp (3.9 inches). There were 1,310 mortalities (0.1%). Fish were split from system 1 into System 2 once the fish reached a minimum of 60 fpp. System 1 is on primary reservoir water and system 2 is on river water.

Hatchery Headlines: Dworshak Coho Salmon (COS)

Brood Year 2013

At the end of July there were 402,721 Coho in 4 RWs averaging 161 fpp (2.7 inches). There were 771 (0.19%) mortalities during the month. On July 25 Coho were transferred from RW 30 to BP 82. The full Coho report can be seen on page 4.

Total Fish on Station: Dworshak, 7/31/2014

SP	BY	Location	Number	Wt (lbs)	FPP	L in	L mm
SST*	14	Nursery	736,003	7,208	125	3.0	76
COS	13	RWs 16-18,30	402,721	2,789	161	2.7	75
SCS	13	RWs 19-28	1,977,703	13,067	151	2.8	71
SST*	14	System 1-2	1,884,104	37,941	50	3.9	98
Total Fish/Fry on Station			5,000,531	61,005			

Hatchery Headlines: Kooskia

This activity report is implemented by the Tribal Fish Hatchery Manager, Kent Hills. All information in this report was collected and or performed by the hatchery staff during the preceding month.

Under SRBA and the Clearwater Annual Operating Plan, the Tribe, Service and Idaho Fish & Game have agreed to implement other fish production actions related to KNFH mitigation. Reports will include additional information about other species reared, processed and released in relation to KNFH operations.

Kooskia Chinook Brood Year 2013

There are 671,300 Chinook fry on station, at 80 fish per pound. These fish were fed 2,772 pounds of feed. Total mortality for July was 831, higher than usual mortality is due to the tagging operation. The fish are on well water at an average of 50 degrees. The total number of fish in each pond will be adjusted in August. Guppy from the Idaho Fish Health Center was out on the twenty first and performed the monthly exam. She found low levels of Sanguinicola on the gills and no parasites on the skin.

Kooskia Adult Trap Operations:

A total of 415 Chinook trapped in July, 117 adult hatchery males, 124 hatchery females, 124 hatchery jacks, 15 wild males, 19 wild females and 16 wild jacks. Transported to DNFH 259, 106 were released into the Clearwater River and 50 wild Chinook were released into Clear Creek above the weir. Mortality for the month was 161 fish, 108 were females and 53 males. The high mortality is coming from a large amount of fungus this year and formalin treatments were started late.

Information and Education Corner

July Statistics: Tours– 4, 41 people; Register– 349 visitors from 21 states, Canada; Website 261 visitors; Facebook reach 612

Dworshak

On Site: Two organized tours were conducted on **July 2**, and **July 24**. These tours served people from Florida, Pennsylvania, and Washington state. The visitors were able to watch fin clipping, fish coming up the fish ladder, and feeding of the kelts. **July 15**– The Imagine Summer Camp came for a general facility tour. We served 18 adults and 7 kids.

Off-site: July 8 -The annual Sixth grade Forestry Tour was conducted at Deyo Reservoir . Chelsea Weeks and Melissa Billups spoke to the kids about water quality, fish migration and homing. Students 40 students and 10 adult enjoyed playing the “Finding Your Water Address” game! **July 16** - The two week math and science camp known as PACE was conducted in Lapwai . Casey Mitchell and Jill Olson worked with 24 kids and 5 adults on a fish dissection which included finding an otolith, and extraction and reading of a coded-wire tag!

Kooskia: On Site: There were 295 visitors to the hatchery during this month; this figure is compiled by staff.



Credit: Jill Olson/FWS

Mike Bisbee monitors fish counter as coho are moved from raceways to Burrows ponds .



Credit: Jill Olson/USFWS

Laura Sprague inspects fish from Hagerman NFH

Hatchery Headlines: Nez Perce Tribal Fisheries At Dworshak

Performance July 2014

The inventory of BY13 Coho on August 1st showed a total of 402, Clearwater stock Coho in four B Bank Raceways (16, 17, 18, and 30). On July 25th, all BY13 Coho in RW 30 were moved and inventoried into BP 82.

Table 1. Brood year 2013 Coho inventory as of August 1, 2014 at DNFH

	Number of Fish	Weight (lbs.)	FPP (average)	Length (inch)
Raceway 16	10,4480	568	184.00	2.49
Raceway 17	120,482	605	199.00	2.43
Raceway 18	96,151	509	189.00	2.47
30/82	81,608	1116	73.1	3.39
TOTALS	402,721	2,798	161.28	2.70

MORTALITY:

- o The average percent mortality for Clearwater stock Coho for the month was 0.19%.
- o Total monthly mortality was 771 collected by staff.

GROWTH:

- o Average fish per pound (fpp) decreased from 303.38 fpp to 161.28 fpp.
- o Average length increased from 2.21 inches to 2.70 inches.

FEED:

- o A total of 894 pounds Bio-Oregon's BioPro starter #1 crum, and #2 crum feed was fed for the month. The cost of feed for the month was \$2,1578.71.

FISH HEALTH:

- o Monthly fish health samples were collected by Corrie Samson. See fish health report 14-188

REPORTS: NA

MEETINGS/TRAINING: NA

Idaho Fish Health Center—July 2014

Bacteriology: Laura received and processed diagnostic cases from Hagerman, lamprey, and wild fish health survey cases this month. *Flavobacterium psychrophilum* and *F. columnare* was suspected in 2 diagnostic cases from HNFH. *Aeromonas salmonicida* was isolated from lamprey. Wild fish samples were found to have *A. hydrophila* and *F. psychrophilum*.

Virology: Corie ran a total of 171 samples representing 511 fish from Dworshak NFH, Kooskia National Fish Hatchery, Kootenai Tribe of Idaho and the Wild Fish Health Survey. Corie ran 12 blind passes representing 9 fish from Kootenai Tribe of Idaho.

PCR: Laura performed PCR confirmations on all suspect bacterial isolates for *Flavobacterium psychrophilum* and *F. columnare*. HNFH monthly monitoring *Nucleospora salmonis* (NS) samples were also processed and the RBT were found to be positive. Additional samples were submitted from viral pellets (182) which were processed by Laura and Chelsea for NS.

Take 2 and 3 adult SCS from Kooskia NFH that were trapped in late June and early July were screened by Rick for IHNv using non-lethal samples of mucus, gill and fin. One male from Take 2 was positive for IHNv by reverse transcriptase real-time PCR.

Rick confirmed by conventional PCR two aquareoviruses from the Ring Test that Corie isolated by cell culture. They were the aquareovirus from FCS at Makah NFH and the fountain darter aquareovirus from Region 2 Dexter Fish Health Center.

ELISA: Guppy analyzed 180 samples by the ELISA test for Bacterial Kidney Disease (*Renibacterium salmoninarum*). These included samples from the National Wild Fish Health Survey, the Nez Perce Tribe's kelt program, and pre-release exams for the Nez Perce Tribal Hatchery, Hagerman National Fish Hatchery, and the Nez Perce Tribe's North Lapwai Valley acclimation site.

FWS Hatcheries

Kooskia: Guppy visited Kooskia for routine exam on 7/16. Fish from the general population appeared healthy. One moribund fish had low levels of Bacterial Kidney Disease (*Renibacterium salmoninarum*) by kidney imprint.

Hagerman: Corie visited Hagerman for routine exam on 7/16. The Rainbow trout looked very good with very little mortality. Steelhead in Tank 40 from Hatchery 1 were experiencing low chronic mortality. Corie was able to isolate *Columnaris* from the gills. It was recommended to ensure the tank was clean and to check the flows. Two tanks were examined from Hatchery 2, coldwater was isolated from one tank. It was detected that the flows in Hatchery 2 were low, this was corrected. Due to a continued increase in mortality in Hatchery 2, Hagerman shipped more fish 7/22 and Coldwater was again detected. Florfenicol treatments were started.

Dworshak: Rick screened juvenile SCS from B bank raceways in July experiencing increased mortality. IHNv virus was detected by reverse transcriptase real-time PCR at low to moderate levels. Additional samples were collected to confirm by cell culture. IHNv was also detected in the cell culture samples.

Corie, Rick and Guppy participated in pre-HET SCS meeting to discuss fish health IHNv pit tag study using Kooskia SCS. Guppy gave short presentation of the purpose and results of the study so far.

Jill, Guppy, and Laura gave erythromycin injections to both Kooskia and Dworshak SCS broodstocks on 7/22. Corie gave injections to Dworshak SCS broodstock on 7/29. Guppy provided the veterinary extra label prescriptions for the erythromycin injections for Bacterial Kidney Disease (*Renibacterium salmoninarum*) for female adult spring Chinook for both stocks.

NEZ PERCE TRIBE:

Laura assisted NPTH to give injections of Draxxin (tulathromycin) to 50 SCS female adults for Bacterial Kidney Disease to compare to the erythromycin injections given to the rest of the female SCS broodstock.

Maintenance Activities

Dworshak July 2014

This month maintenance activities included:

Annual Chiller Maintenance Performed
 Completed valve Repairs/replacements in Mechanical I heat exchanger
 Sent Pentair pumps back to Kansas for repair
 Installed new egress ladders on System II and III
 Finished automatic control valve installation on Mech I Sump
 Installed new sprinklers in quarters and housing area
 Removed old water supply vaults at hatchery entrance
 Rehabbed entry sign planter boxes
 Crack sealed and topcoat the visitor parking lot



Credit: USFWS

Maintenance staff Scott Koehler and Terry Weeks installing a new control valve in the Mechanical I sump.

Kooskia July 2014

Jul 01: A total of 25 adult males, 16 adult females and 40 hatchery jack Chinook were removed from the trap, 24 males, 16 females and 9 jacks were transported to DNFH for holding. 1 hatchery male adult and 31 jacks were released into the Clearwater River at Pink House. Also removed from the trap were 2 wild adult males, 1 wild adult female and 9 wild jacks, which were released into Clear Creek above the weir at the second bridge.

Jul 03: A total of 13 males and 13 females Chinook were taken from the trap and transported to Dworshak for brood stock spawning.

Jul 07: Total Hatchery Chinook trapped was 35 males, 51 females and 24 jacks and they were transported to DNFH for holding except 19 jacks which were transported to Pink House and released into the Clearwater River. Total wild fish trapped was 4 males and 5 females; released into Clear Creek above the weir.

Jul 07: In a joint operation between Kooskia National Fish Hatchery, Nez Perce Tribal Fisheries and Fisheries Resource Office, a pit tag array was installed in Clear Creek about 1/8 of mile below the Toll Rd bridge. The purpose is to allow pit tag information on tagged fish to be accessed without injury to the fish.

Jul 08: A total of 5 males, 9 female adults and 4 jacks hatchery Chinook were taken from the trap and transported to DNFH for holding.

Jul 09: A total of 7 males and 8 females Chinook were taken from the trap and transported to DNFH for holding, also 1 jack was released into the Clearwater at Pink House. There was also 1 wild jack taken out of the trap and released into Clear Creek above the weir.

Jul 10: A total of 1 male and 2 females hatchery Chinook were taken from the trap and transported to DNFH. Also removed from the trap were 6 jacks which went to Pink House and released into the Clearwater River.



Credit: USFWS

Maintenance worker Rick King demolishes the irrigation supply vault the old fashioned way.

Idaho Fish Health Center (continued from page 5)

on 7/22. Guppy provided the veterinary extra label prescriptions for these antimicrobial injections at NPTH.

Laura worked with Aaron on the 2011 NPT Hatchery report. A detailed Fish health overview was completed.

Guppy submitted annual fish health report for the Nez Perce Tribe's Fall Chinook Acclimation Program.

Monthly monitoring on Coho salmon was conducted on 7/29. Raceway B16 was examined. Fish were eager to feed. Fish looked good. No parasites or bacteria were observed. 3/5 fish had pale livers, all five had food in their stomachs.

Kootenai Tribe: Corie continues to process the virology samples for the Adult Kootenai White Sturgeon.

Wild Fish Survey: Laura and Chelsea worked with Ken Lujan in collecting samples from tributaries to the Pend Oreille River in NE Washington. Collections were made from tributaries between Boundary and Box Canyon Dams, as well as tributaries from between Box Canyon and Albeni Falls Dams. Fish from ~ 20 sites were collected. In addition, Laura and Chelsea collected samples from Upper Priest Lake and tributaries to the Priest River early in the month. Rick with the assistance of the Nez Perce Tribe interns began processing wild fish heads to screen for whirling disease.

Other

All available staff attended national fish health center conference call hosted by Joel Bader, National Aquatic Animal Health Coordinator on 7/7.

Guppy participated in Dworshak management team meeting on 7/3. She also attended a Dworshak Facilities Maintenance meeting on 7/21 and a R1 Project leader call on 7/14. Guppy attended the Snake Basin SCS coordination webinar/conference calls scheduled for every Tuesday morning, as available. She attended the Snake River Fall Chinook Coordination meeting by webinar on 7/24.

Chelsea Weeks set up and worked on entering MSDS' for the Idaho FHC in COE online MSDS electronic database.

Guppy submitted response on 7/21 to Regional Safety Of-

fice's safety compliance evaluation of the Idaho FHC. All issues identified in the evaluation were addressed.

Corie and Guppy made a visit to the Spokane credentialing center to pick up smart cards on 7/8.

Guppy submitted updated FIS Station Fact Sheet for the Idaho FHC. Laura worked on the volunteer and outreach reports in FIS, and completed accomplishments for WFS, biosecurity, and helped with parts of other projects.

Guppy participated on an AFS-FHS Inspection Manual Committee conference call for Laura on 7/16.

Guppy attended the Aquatic Animal Drug Approval Coordination Workshop on 7/29-31 in Bozeman, MT.

Laura, Jill, Rick and Corie worked with 4 Tribal interns rotating through the lab the last week of July. Presentations were given on what the FHC does, as well as hands-on exercises including bacterial isolation and identification, de-fleshing heads, viral sample processing and cell culture, and monthly monitoring on steelhead and Coho. In addition, IDFG submitted KOE samples for the wild fish health survey program. The interns learned how to take and record data including weights and lengths, and how to take scale samples from these fish.

Rick installed safety cabinet latches on cabinets in the bacteriology laboratory and located all Ground Fault Circuits (GFC) in the laboratory and listed them to be included in the laboratories safety plan.

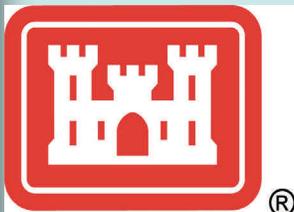
Rick and Corie replaced the Cell culture Sterile Hood glass. It had been cracked since 2000 and was getting worse.

Corie completed FBMS training for property and conducted the property inventory.



Credit: NPT-Kooskia

Art Broncheau handling adult chinook from Kooskia trap.



Aquatic Conservation

Met with Nancy Leonard (NPCC) and Neil Ward (QW Consultants) to assist the Council with their bull trout “Dashboard” and identification of High Level Indicators (HLI). We evaluated the existing data summaries reported in the draft website and identified some discrepancies and errors that need to be rectified.

Reviewed the Draft Bull Trout Recovery Plan for compatibility with NPCC bull trout Dashboard and High Level Indicators.

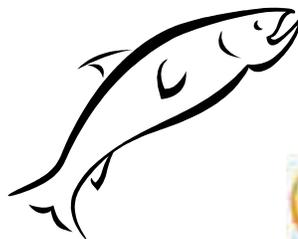
Met with Jana Grote and Jody Brostrom via teleconference to discuss and review the second draft of the Aquatic Conservation Strategic Plan. I continued developing ideas for the Plan as the month progressed. The next version of the Plan will be available in mid-August.

Met with Brandon Glaza (Idaho Panhandle National Forest) to discuss opportunities for upcoming projects where we can leverage fish passage and/or habitat \$\$ to existing resource needs. We will meet again in the near future to visit project sites in the Kootenai River Basin, and discuss project proposals.

Attended the monthly meetings of the Clearwater Basin Collaborative, and the Kootenai Valley Resource Initiative. These groups are comprised of Resource Management agencies, Tribes, Industry Representatives, Legislative Representatives, and the general public. They were established to collaborate with each other and work through issues and conflicts associated with resource management projects.

Met with Sam Lohr, Denise Hawkins, and R.D. Nelle via teleconference on July 17 to discuss approaches and protocol for Aquatic climate change monitoring on National Wildlife Refuges. A follow up meeting has been scheduled for August 18.

Attended the annual Warmwater Fish Meeting in Spokane hosted by Washington Department of Fish and Wildlife and the Kalispell Tribe. Topics of discussion focused on Northern Pike suppression, Bass and Walleye management, and Invasive Mussel monitoring.



Maintenance Activities continued page 6 (Kooskia)

Jul 11: Total hatchery fish trapped for the day was 4 adult males 7 adult females and 2 jacks and released into Clear Creek above the weir for natural spawning.

Jul 12: Total hatchery fish trapped was 2 adult males, 2 adult females and 1 jack. These were released into Clear Creek above the weir for natural spawning.

Jul 14: US Park Service personnel began construction on replacing the split rail fence around the nature trail.

Jul 15: Total hatchery Chinook trapped 2 adult females and 1 jack were transported to DNFH. One jack was released at Pink House.

Jul 16: A total of 1 adult male and 1 adult female hatchery Chinook were taken from the trap and transported to DNFH for holding.

Jul 17: A total of 1 adult female and 2 jack was taken from the trap. The adult was transported to DNFH for holding, the jacks were released at Pink House for natural spawning. The trap was closed due to unavailability of transport for the weekend.

Jul 20: The trap was opened.

Jul 22: A total of 16 male, 12 female hatchery adults and 15 jacks were taken from the trap. All the adults and 2 jacks were transported to DNFH for holding, 13 jacks were taken to Pink House for release into the Clearwater River. Also taken from the trap were 3 adult wild males and 3 adult wild female, and 1 wild jack Chinook, which were released above the weir into Clear Creek.

Jul 22: US Fish & Wildlife began marking BY13.

Jul 23: A total of 4 male, 3 female adults, and 1 jack hatchery Chinook were taken from the trap. The adults were transported to DNFH for holding, the jack was transported to Pink House and was released into the Clearwater River.

Jul 25: A total of 5 adult males and 2 adult females Chinook were taken from the trap, and transported to DNFH for holding. Also taken from the trap was 1 adult wild female and 2 wild jacks which were released into Clear Creek above the weir. Also taken from the trap were 20 hatchery jacks which were released into the Clearwater River at Pink House. The two adult females which were taken to DNFH were inoculated with *Erythromycin*.

Jul 28: Gerry installed an electric pump for irrigation.

Jul 29: Removed 1 adult male and 4 adult female Chinook from the trap and transported them to DNFH for holding, also removed were 5 jacks which were released into the Clearwater River at Pink House.

Jul 30: Tagging is going according to plan, all 103,573 fish in pond 6 were coded wire tagged, 55,000 fish were left unclipped in pond 5 as per SRBA.

Meetings....Training....Travel***Kooskia***

Art and Kenny complete the Security Awareness Training.

Kent went to Joseph, Oregon for meetings on the 21st & 22nd.

Kent completed the Security Awareness Training.



Credit: NPT-Kooskia

U.S. Park Service and Tribal interns replace split rail fence at Kooskia.



Administrative Activities

Safety

None reported

Personnel Actions

Chelsea Weeks' resignation to attend graduate school effective 7/24

Staff Service Anniversaries and Birthdays

Congratulations to those celebrating a Service Anniversary!

J. Olson, N. Wiese, J. Brostrom

Happy Birthday greetings to R. Kellar!

Staff List

Complex Management

Steve Rodgers, Complex Manager
 Mark Drobish, Dworshak NFH Manager
 Mike Tuell, SRBA Coordinator
 Nate Wiese, Assistant Hatchery Manager
 Dr. Marilyn "Guppy" Blair, Idaho Fish Health Ctr.
 Mike Faler, Aquatic Conservation Lead
 Adam Izbicki, Maintenance Supervisor
 Dr. William Conner, Fall Chinook Research Lead
 Kent Hills, Kooskia NFH Manager
 Dr. Chris Peery, Fish Production M&E Lead

Dworshak Production Staff

Angela Feldmann, Jill Olson, Rob Bohn, Wayne Hamilton, Tom Tighe, Mike Bisbee, Tui Moliga, Lou Ann Lasswell, Steve Coomer, Jeremy Sommer, Carter Lopez, Mike Murphy, Casey Mitchell

Administration

Penny Hasenoehrl, Steve Bradbury, Randy Bowen

Maintenance

Adam Izbicki, Terry Weeks, Rick King, Rob Kellar, James Oatman, Scott Koehler, James Paddelty, Melissa Wright, Joe Livesay

Idaho Fish Health Center

Dr. Marilyn Blair, Laura Sprague, Corie Samson, Rick Cordes, Chelsea Weeks

Idaho Fishery Resource Office

Ray Jones, Aaron Garcia, Carrie Bretz, Frank Mullins, Jody Brostrom, Ken Bugler, John Hook, Brad Buechel

Kooskia National Fish Hatchery

Art Broncheau, Kenny Simpson, Gerry Fogelman



Credit: NPT-Kooskia

Inoculating female adult chinook with Erythromycin.