Dworshak Fisheries Complex

Monthly Activity Report

December 2014

U.S. Fish & Wildlife Service, Region 1

Volume 4, Issue 2

Highlights:

- **Total Fish , Alevins, Eyed Eggs on station at Dworshak: 7,598,072**
- **Total Fish on station at Kooskia:**
  - **661,846 SCS smolts**
  - **893,994 SCS sac fry**

Inside this issue:

Manager's Message

Steve Rodgers, Complex Manager

As usual I'm scrambling at the last minute to create a meaningful Manager's Message. This month I'm going to discuss the "broodstock calculator" we've incorporated in the Clearwater Basin.

What is it? The broodstock calculator is a fairly simple spreadsheet that allows hatchery operators and fishery managers to enter a desired hatchery production goal for a given year and species, and the calculator will determine how many returning adult fish will need to be trapped to meet that goal. As an example, if our mitigation goal for spring Chinook production was set at 1,000,000 smolts released annually, the calculator might tell us we'll need 1,268 adults to meet that release goal.

How does it work? The calculator incorporates averages for several hatchery metrics (specific to each facility and program) over the most recent five years to determine adults needed for that program. Examples of metrics include adult holding mortality, egg fecundity, bad egg culling rates, and eyed-egg-to-release survival. These metrics are averaged and then used with common hatchery formulas to determine adults needed for a given program.

Why use the "most recent five years" of data? That is because even in stable hatchery programs, things change constantly. Employees come and go, infrastructure is updated, techniques are modified, and things just change. Using the most recent hatchery performance data accounts for change, and should therefore provide the most accurate estimate. Although we have steelhead production data at Dworshak going back to the 1970's, if we used that old data in determining our current needs, we'd most likely trap the wrong number of adults. Why? Because that data was based on conditions at the time; and is not necessarily related to conditions today. The use of recent data accounts for change.

Any experienced hatchery professional can calculate broodstock needs. ***Why do we need an official calculator?*** Several reasons:

Consistency. It was developed and is used by all the hatcheries in the basin, providing a uniform method for determining broodstock needs, regardless of agency or program.

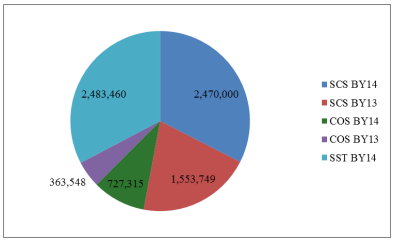
It's easy to use. That's important for hatchery operators, but even more so for higher-level fishery managers. Decision makers that don't work at the hatchery now have a tool to quickly, consistently and accurately determine needs across all programs. These folks are managing real-time fisheries (as they occur), while also striving to meet hatchery broodstock needs. The broodstock calculator helps them maximize the use of each and every returning fish, a critical responsibility we all share in.

This tool is ***transparent***. The data used to generate the averages, the formulas, each hatchery's performance; everything involved in the calculations is shared openly between the agencies and programs that use it.

Collaboration. All programs provide their metric data and broodstock needs (via the calculator) during the Annual Operation Plan (AOP) process. Decisions are made collectively by the co-managers based on this information. As a result, we own success or failure as a group, since we agreed on the plan (and the data that generated it) as a group. Gone are the days of mini-kingdoms and isolated decision making. We own it together.

This tool ***drives improvement***. If a hatchery is struggling in a given metric, it will stand out amongst the performance of all the hatcheries in the basin reporting like information. This leads to discussions, information sharing, program changes, and improved performance.

Many of you are involved with the broodstock calculator, AOP process, and fisheries management. For those of you that are not, I hope this helps you understand what the broodstock calculator is, and why it was developed. Nowadays we have to utilize every fish to its maximum benefit. This tool helps us do that, in a collaborative and transparent way.



Hatchery Headlines: *Dworshak Spring Chinook Salmon*

Brood Year 2013

Credit: :Jill Olson USFWS

All hands on deck! Steve Jeffers, Melissa Wright, Laura Sprague, and Chelsea Weeks are all smiles waiting for steelhead to be brought up to the sorting table.

At the end of December there were 1,553,749 fish in 30 RWs averaging 27 fpp (5.0 inches). Mortality was 0.07% (1,113). There are three distinct ponding groups: Low-density, high-density, and flow study. Each group can be identified through parental based tagging (PBT). Raceway flow averaged 740 gpm and water temperature was 45 degrees. Fish health reports indicated healthy fish with adequate pyloric fat (80%) no sign of disease.

Brood Year 2014

BY2014 Chinook eggs eyed and were enumerated in November. There are 2.47 million eyed eggs currently in Dworshak production. Percent eye up was 77.4%. There was a surplus of approximately 400,000 eggs that were out-planted to O'Hara Creek in early December. Hatching occurred in December. Alevin are being incubated on secondary reservoir water chilled to 39 degrees. Formalin treatments were halted once hatching began.

Hatchery Headlines: *Dworshak Summer Steelhead (SST)*

Brood Year 2014

There were 2,483,460 SST in the Burrow's Ponds at the end of December averaging 11 fpp (6.38 inches). There were 2,050 mortalities (0.10%). All fish are being reared on river water at about 700 gpm and water temperature was 45 degrees. Fish are on track to be released in April at 6 fpp.

Brood Year 2015

The ladder was opened again in December. There were a total of 813 adults (217 1-Ocean, 591 2-Ocean, and 5 3-Ocean) inventoried for the month. Dworshak is holding a total of 568 adults for broodstock. Spawning will commence January 13, 2015.

Credit: Jill Olson USFWS

Melissa, Laura and Chelsea sort unripe male steelhead for hormonal injections.

Hatchery Headlines: *Dworshak Coho Salmon (COS)*

Brood Year 2013

At the end of December there were 363,548 Coho in 5 Burrow's ponds. Coho averaged 31 fpp (4.5"). Mortality was 0.05% (165 individuals). The full Coho report is seen on page 4.

Brood Year 2014

The ladder was opened again in December. There were a total of 813 adults (217 1-Ocean, 591 2-Ocean, and 5 3-Ocean) inventoried for the month. Dworshak is holding a total of 568 adults for broodstock. Spawning will commence January 13, 2015.

Table 1. Total Production—Fish on Station (11/31/14).

SP	BY	Location	Number	Wt (lbs)	FPP	L in	L mm
SCS	13	RWs 1-30	1,553,749	57,850	27	5.0	127
SCS	14	alevin/incubation	2,470,000				
COS	13	BP 74-82	363,548	11,604	31	4.5	113
COS	14	eyed eggs	727,315				
SST	14	Systems	2,483,460	226,414	11	6.4	163
Total Fish/Fry on Station			**7,598,072**	**238,018**			

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 661,846 Chinook smolts on station at 28.0 fish per pound; they are 4.87 inches (124.9 mm). These fish were fed 1,044 pounds of feed. Total mortality of 56, the fish were on creek water at an average of 33 degrees. Weather the end of the month was mild and we did see some growth in the fish. This is unusual for December.

Kooskia Chinook Brood Year 2014

There are 893,994 sac fry on station; they are on 40 degree water in 17 incubation stacks. We had a total mortality this month of 4,314 fry. BY14 has completely hatched. One tray of eggs was culled due to curled sac fry these were from take 1.

Kooskia Adult Coho Trap Operations:

Trap is closed

MERRY CHRISTMAS !

- from the Dworshak Fisheries Complex Staff

Eyed Eggs being placed in top of the new egg planting tool

Cordes USFWS

Cordes USFWS

Carter Lopez and Angela Feldman out planting eggs .

Hatchery Headlines: Nez Perce Tribal Fisheries At Dworshak

Performance December 2014

The inventory of BY13 Coho on January1st showed a total of 363,548 Clearwater stock Coho in five Burrows Ponds (74, 76, 78, 80, and 82).

Table 1. Brood year 2013 Coho inventory as of January 1, 2015.

	Number of Fish	Weight (lbs.)	FPP (average)	Length (inch)
BP 74	80094	2423	33.05	4.42
BP 76	79540	2337	34.03	4.38
BP 78	79940	2540	31.47	4.49
BP 80	51735	1651	31.34	4.50
BP 82	72239	2652	27.24	4.72
TOTALS	**363548**	**11604**	**31.43**	**4.50**

MORTALITY:

- The average percent mortality for Clearwater stock Coho for the month was 0.05%.

- Total monthly mortality after inventory was 165 collected by staff.

GROWTH:

o DNFH

- Average fish per pound (fpp) decreased from 40.50 fpp to 32.50 fpp.

- Average length increased from 4.10 inches to 4.45 inches.

o KNFH

- Average fpp decreased from 34.22 fpp to 27.24 fpp.

- Average length increased from 4.37 inches to 4.72 inches.

- Overall average fpp decreased from 39.27 fpp to 31.43 fpp.

- Overall average length increased from 4.18 inches to 4.50 inches.

FEED:

- A total of 1877 pounds Bio-Clark's Fry 2.0mm feed was fed for the month @ $1,846.76.

FISH HEALTH:

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

REPORTS:

- 12/30/14 – Mike Bisbee submitted Final Mitchell Act/NOAA Report.

MEETINGS/TRAINING: NA

BY 14:

- There are 727,315 BY14 eggs in DNFH A-Bank

- 12/3/14 – 362,263 eyed eggs were transported to Eagle Creek NFH.

- 12/10/14 – 326,097 eyed eggs were transported to Eagle Creek NFH.

- 12/18/14 - 543,227 eyed eggs were transported to Cascade NFH.

- A total of 1,267,587 eyed eggs were transported

Idaho Fish Health Center—December 2014

Bacteriology: Rick isolated motile Aeromonas sp. and Flavobacterium pyschrophilum was isolated from external lesions on juvenile steelhead trout sampled at Hagerman National Fish Hatchery during monthly monitoring.

Virology: Corie and Rick ran a total of 60 samples representing 60 fish from Dworshak NFH. They also ran 95 blind passes representing 178 fish from Dworshak NFH and the Nez Perce Tribal Hatchery.

PCR: Laura and Chelsea extracted and ran PCR for NS from Hagerman for samples collected from the last two months. The Flavobacterium pyschrophilum isolated from external lesions from juvenile steelhead trout at Hagerman NFH was confirmed by Rick using PCR. Rick screened non-lethal samples (gill, fin, mucus) for IHNv using RT-rtPCR from river fresh takes three and four. Corie provided Rick with one COS and four FCS IHNv suspect cell culture samples for confirmation by RT-rtPCR. All samples were positive by RT-rtPCR. Rick exchanged emails with Janet Warg, APHIS, Jayde Ferguson, Alaska Game and Fish, and Justin Liao, Life Technologies regarding Alaska having issues with background fluorescence occurring while using an Applied Biosystems StepOne Plus Real Time PCR instrument. The problem was occurring during ISAv screening using the SOP's developed by APHIS for the Pacific Northwest ISAv Surveillance.

ELISA: Guppy analyzed 404 samples by the ELISA test for Bacterial Kidney Disease (Renibacterium salmoninarum) on 12/1-12/2. This run primarily included samples from the Nez Perce Tribe Coho spawning adults, the Nez Perce Tribal Hatchery Fall Chinook spawning adults, as well as Dworshak and Kooskia juvenile SCS monitoring cases.

Parasitology: Rick digested 60 rainbow trout heads for Myxobolus cerebralis for an inspection conducted for the Kootenai Tribal Hatchery.

Histology: Guppy read slides from 144 white sturgeon larva for the WDFW to test for the White Sturgeon Iridovirus. All samples were found negative for this virus.

FWS Hatcheries

Kooskia: Guppy visited Kooskia on 12/16 for routine monitoring. One Ichthyophthirius parasite was seen on the skin of one fish, but Chinook are doing well overall.

Hagerman: Rick visited Hagerman NFH, December 16 to conduct the monthly monitoring. Juvenile steelhead trout were checked in the 3 raceway decks and sculpin from Bickle Spring for Ichthyophthirius (Ich) levels. No Ich parasites were observed. Minor flashing was observed in the lower deck. External lesions and significant gas bubbles in gills were observed in juvenile steelhead trout from three raceways in the top deck. Samples were also collected from the RAS and RAS controls. Fin condition appears to be improving in the RAS circulars.

Dworshak: Guppy examined fish from system 2 on 12/16. Moderate levels of the parasite Gyrodactylus and very low levels of Trichodina were detected on the skin. No treatment was recommended at this time, but fish health should be notified if fish are flashing or going off feed.

Rick conducted routine monitoring for juvenile steelhead trout in System 3. Rick conducted the monthly monitoring of the low and high density SCS raceway project. SCS in both densities are in good condition at this time.

Laura performed monthly monitoring on System 2 steelhead. Very low numbers of external parasites were found, so no treatment was recommended at this time. Apparent jumping and flashing was attributed to a change in barometric pressure.

On 12/23, Laura and Rick performed non-lethal sampling of Dworshak steelhead adults. They were helped by two Jr. high school students that wanted to job shadow fisheries. Corie also allowed them to shadow her in virology.

On 12/30, Laura performed GNRHa injections on 77 males, while Chelsea Weeks came in to volunteer and marked injected

(Continued page 7)

Maintenance & Operations Activities December 2014

Dworshak -

Credit NPT

Nez Perce Tribal Fisheries Staff outplant Chinook eggs.in O'hare Creek on Selway River, Idaho.

We are still working, as time permits on cleaning and organizing the facility. We received our 3rd metal recycling bin and are beginning to fill it. Much more to do.

Replaced the 20 inch pipe that pumps water out of system three.

Changed out system 1 pump and are waiting on the proper length motor shaft to complete that project.

Inspected all roof drains preparing for the spring rains and runoff

Fertilized the hatchery lawns

Checked operation of and flushed out incubation water supply, head tanks and pumps

Performed monthly check of all electric carts

Installed 4 additional hose bibs in the nursery

Monthly inspection and running of all emergency generators.

Continue to monitor pump output in main river pumps

Install screens to protect fish from falling below equipment in spawning room.

Rpair electrical issues with flight pumps

And as always, continue to address preventative maintenance work orders as they come due.

Kooskia -

Credit NPT

Kent and Art outplant Chinook eggs.

Dec 08: Gerry began improving the lighting at the intake.

Dec 09: Art, Kenny & Kent out planted 470,635 Chinook eggs in O'Hara Creek on the Selway River. A total of 128,608 were from KNFH and 342,027 were from DNFH

Dec 12: Gerry took the Hustler mower to Lewiston for servicing.

Dec 15: Gerry installed new lights at the intake.

Dec 16: Kent and Art to Dworshak to clean incubation trays.

Dec 19: All staff to the Nez Perce Christmas party.

Dec 30: The weir panels at the trap were raised because of ice flows.

Dec 31: Kent, Kenny & Art to Dworshak to finish cleaning incubation trays.

Idaho Fish Health Center (continued from page 5)

fish with zip ties, as well as some control fish. More than 45 males were "ripe" at this time and a dozen or so females.

Guppy provided veterinary extra labeled prescription for use of formalin for fungus on steelhead adults at Dworshak NFH.

NEZ PERCE TRIBE: With Rick's assistance Corie examined the coho for their monthly monitoring. Brown algae was observed on the pond walls and was also observed in light levels on the gills. Light Costia was observed in 1/5 gills. This is a decrease to what was observed last month. 3/5 had rocks in their stomachs and intestines. This had not been observed before in the Coho here at Dworshak.

Laura performed monthly monitoring on SCS in S channels at the end of the month. No parasites were seen.

Wild Fish Survey: No samples collected in Dec. The UAT conference call scheduled for Dec. was also cancelled.

Other

All available staff including Rick and Guppy attended a national fish health center conference call hosted by Joel Bader, National Aquatic Animal Health Coordinator on 12/1. Laura and Guppy attended a mandatory national fish health PL conference call on 12/4 to discuss the up- coming National Biologists fish health meeting.

Guppy and Laura submitted FY 15 Funding Analysis as requested by the RO. Guppy attended a Region 1 project leader conference call on 12/15 and also submitted updated annual conference plan to the RO for the Idaho FHC.

Guppy and Laura attended meeting with the RO on 12/18 at the Lower Columbia River Fish Health Center to provide information and participate in discussions concerning the fish health program in Region 1 and options for reorganization.

Guppy submitted the Idaho FHC's FY 14 Annual Report to the Lower Snake River Compensation Office. She met with LSRCP Steve Yundt and new staff member Rod Engler on 12/16 during their visit of the Dworshak Complex.

Guppy participated in the 2014 Final Clearwater AOP meeting on 12/10. She gave a presentation on the current IHNV study of testing Kooskia SCS adults at both trapping and spawning.

Information and Education Corner

Dworshak–

Visitors: We had 28 visitors from 2 states.

Website Statistics*:* 221 Page Loads, 151 Unique Visits, 120 First Time visitors, 31 Returning Visits;

Facebook Reach: 2,657; Engagements - 572

Tours: No on-site tours

Off-site: Outreach: None reported

Kooskia-

Visitors: There were 105 visitors to the hatchery during this month; this figure is compiled by staff.

Aquatic Conservation December 2014

Credit: Jill Olson USFWS

Lou Ann Lasswell sharing a laugh as she presents her poster at the Pacific Northwest Fish Culture (PNFC) Conference in Pendleton, OR.

Credit: Jill Olson/USFWS

Jeremy Sommer and Melissa Wright during the poster session at PNFC conference.

Credit : Jill Olson USFWS

Kenny Simpson presenting his poster at the CWFC Conference

Mike Faler—Ahsahka, Idaho

- Downloaded data from 2 hobo temperature loggers and 1 pressure sensor on Myrtle Creek for the aquatic climate change monitoring program on National Wildlife Refuges.
- Participated in the Clearwater Basin Bull Trout Recovery Unit Implementation Plan meeting at IDFG in Lewiston.

Jody Brostrom –Salmon, Idaho

- Attended Interagency Yellowstone Cutthroat Meeting December 8-9. Folks working in the various Geographical Management Units presented activities conducted in the last year. These primarily focused on constructing barriers where hybridization is a risk, non-native fish removal and passage. We also discussed the upcoming revision for the Status Review and Interagency Agreement.
- I worked with several state and federal agencies, NGO's and Lemhi County Weed Management Area to submit a proposal through the National Fish and Wildlife Foundation's "Developing the Next Generation of Conservationists" grant opportunity. Our proposal is to fund local at risk youth through the Youth Employment Program and college interns to work on a broad range of projects in Lemhi and Custer counties. These projects include removing wildlife unfriendly fence in sensitive habitats and replacing it with wildlife friendly fence; noxious weed surveys and control on public lands; using drone technology to map cheatgrass invasion and spread in greater sage-grouse habitat and document changes in stream habitat and vegetation after restoration activities; fishing access trail reconstruction and maintenance; rare forest carnivore monitoring; streambank revegetation; Monarch Butterfly and Milkweed monitoring; assisting with stream restoration and groundwater monitoring. A concerted effort was made to include an educational component into all activities so the crews were just not building "widgets". Even though the USFWS has contributed funds to this grant opportunity in the past, this year funding is coming from the Bureau of Reclamation, the Bureau of Land Management, and the U.S. Forest Service. We asked for $130,000 over 18 months, with a non-federal match of $237,000. There is an additional federal match which is not given credit for in the application. We will hear by the end of April if we will

Chris Peery—Lamprey Research December 2014

Presented research results on lamprey telemetry study at USACE Annual Review meeting.

Participated in 4 lamprey conference meetings.

Ray Jones - Hatchery Monitoring and Evaluation

1) Met with the DNFH SCS production team to finalize data input to the 2014 final AOP tables. Staff attended a meeting at the Clearwater Hatchery to finalize the information and data in the 2014 AOP production tables.

2) Re-analyzed historical production information for spring Chinook salmon at DNFH in coordination the production s taff and re-constructed the broodstock calculator for the upcoming 2015 AOP planning process.

3) Staff coordinated with the DNFH production staff in developing the 2015 production plans, as input to the 2015 Clear water AOP process, for steelhead and Chinook salmon.

4) Plans and schedules for PIT-tagging and CWTing spring chinook and summer steelhead were finalized, including funding sources.

5) Coordinated with production staff in sorting early return steelhead adults for broodstock.

6) Staff met with Rod Engle and Steve Yundt to discuss LSRCP M&E Program.

7) Samples were collected to measure on-station performance of spring Chinook salmon for the rearing density evaluation project.

8) A draft annual report for the flow evaluation study in the spring Chinook salmon raceways was completed and submitted for review and approval.

9) John Hook attended a week long course at NCTC on using the R statistical program.

Staff List

Complex Management

Steve Rodgers, Complex Manager

Mark Drobish, Dworshak NFH Manager

Mike Tuell, SRBA Coordinator

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

Adam Izbicki, Jeremy Sommer, Jill Olson,

Angela Feldmann, Tom Tighe, Rob Bohn, Wayne Hamilton, Mike Bisbee, Tui Moliga, Lou Ann Lasswell, Steve Coomer, Carter Lopez, Casey Mitchell ***Administratio***n

Penny Hasenoehrl, Steve Bradbury, Randy Bowen

Maintenance

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

Idaho Fish Health Center

Laura Sprague, Corie Samson, Rick Cordes,

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