



RESIDENT FISH HATCHERIES

2009 Annual Report

**March 2010
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RESIDENT FISH HATCHERIES

2009 ANNUAL REPORT

Resident fish hatcheries reared and stocked about 15 million fish weighing a million pounds. More than 2,000 stocking trips were made to plant fish in over 500 waters in the state. There were a total of 18 species and strains raised by the resident hatcheries during 2009.

Resident hatchery program costs were about \$2.5 million for an average cost of \$2.45 per pound or \$159 per 1000 fish.

Rainbow trout of catchable size (8 to 12 inches) accounted for approximately one-half the program costs at approximately \$1.2 million. All of the catchable sized fish raised and stocked by the Department hatcheries were triploid to minimize the crossing of the hatchery fish with native fish in the wild.

The resident hatcheries cooperated with the states of Wyoming, Montana, Washington, Oregon and British Columbia as well as the US Fish and Wildlife Service to obtain various species of fish to meet management efforts in Idaho. Kokanee eggs were obtained from Washington. Lake trout, brown trout, brook trout and Bear River cutthroat were obtained from Wyoming. Westslope cutthroat were obtained from Washington, Montana and private sources. Lahontan cutthroat and coho salmon were obtained from Washington. Sterile brook trout were obtained from the Fresh Water Fisheries Society of British Columbia. The US Fish and Wildlife Service provided Snake River cutthroat eggs.

Three captive broodstocks were maintained and spawned at the resident hatcheries, producing over 8 million eggs for various resident programs. These stocks include Westslope Cutthroat Trout, Kamloop rainbow trout, and Hayspur rainbow trout maintained at Hayspur Hatchery.

The resident hatcheries operated adult fish traps on the South Fork Boise River and Granite Creek to obtain kokanee salmon eggs. Yellowstone cutthroat trout eggs were taken at the trap at Henry Lake.

The Engineering Bureau coordinated construction at the American Falls, Cabinet Gorge, Grace, Hagerman, and Nampa this fiscal year. The hatchery staff and regional staff accomplished a lot of work on the Sandpoint Nature Center. This center is being developed with volunteer labor and materials and will become an important part of the Sandpoint community. The settling pond at Nampa was dredged as well as the settling pond at Grace.

**Idaho Department of Fish and Game
Resident Hatcheries Fish Production
01/01/09 - 12/31/09**

Production Hatchery	Put-and-Take Number	Pounds	Put-Grow-and-Take Number	Pounds	Average Fish per pound	Feed Pounds	Feed Costs	Average Length	Total cost	Cost 1,000 fish	Cost/Pound
American Falls	273,634	88,614	224,521	7,469	5.2	93,825	\$45,227	7.6	\$229,308	\$610.00	\$2.29
Ashton	198,856	44,481	179,940	4,011	7.8	41,314	\$22,648	6.5	\$191,746	\$506.20	\$5.31
Cabinet Gorge	23,955	5,872	6,248,623	30,542	173.0	31,864	\$30,520	2.4	\$303,048	\$48.17	\$9.88
Grace	160,105	46,829	1,047,795	10,012	21.3	59,358	\$33,524	3.7	\$225,200	\$130.70	\$3.73
Hagerman	364,922	297,102	1,330,533	90,030	4.4	585,220	\$287,669	7.9	\$729,030	\$429.99	\$1.88
Mackay	117,706	43,958	2,905,983	28,191	41.9	76,550	\$40,848	4.1	\$283,583	\$93.79	\$3.93
McCall ¹	0	0	130,550	72	1,813.0	32	\$56	1.1	\$10,678	\$81.80	\$148.79
Nampa	674,184	255,568	939,502	17,768	5.9	267,084	\$137,892	6.9	\$402,700	\$249.50	\$41.51
Sandpoint ⁴			34,000	38.6	880.0	32	\$0	1.4	-	-	-
Sawtooth	0	0	51,750	28	1,900.0	-	-	1.0	\$4,343	-	-
TOTAL	1,813,362	782,424	13,093,197	188,162	15.4	1,155,279	\$598,384	5.25	\$2,379,636	\$159.64	\$2.45

¹ Flight costs only

Note: Total cost for each hatchery is that hatchery's total budget minus capital outlay expenditures

Redistribution of catchables

Hatchery	Put-and-Take Number	Pounds	Put-Grow-and-Take Number	Pounds	Average Fish per pound	Feed Pounds	Feed Costs	Average Length	Total cost	Cost 1,000 fish	Cost/Pound
Clearwater	93,486	30,483	0	0	2.9	3,000	\$3,810	10	\$23,396	\$250.26	\$0.77
McCall ²	109,370	33,262	0	0	3.2	0	0	9.5	\$14,378	\$131.45	\$0.43
Mullan	33,561	10,488	0	0	3.2	0	0	9.5	\$35,960	\$1,070.00	\$3.75
Sandpoint ⁴	107,519	33,083	0	0	3.2	0	0	9.5	\$49,740	\$460.00	\$1.50
Sawtooth	48,374	14,312	0	0	3.3	350	\$158.55	9	-	-	-
Hayspur ³	51,980	14,121	0	0	3.6	-	-	9	\$10,356	\$199.21	\$0.73

² Distribution mileage costs only

³ Distribution costs were not broken out of the overall hatchery budget.

⁴ Sandpoint redistribution and high lake stocking costs not separated.

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AMERICAN FALLS FISH HATCHERY

Tim Klucken, Assistant Fish Hatchery Manager
Jeffrey D. Seggerman, Fish Hatchery Manager I.

INTRODUCTION

American Falls Fish Hatchery (AFFH) is a resident fish hatchery located on 101 acres of land on the north bank of the Snake River, one-half mile below the American Falls Reservoir Dam, and two miles by road from the town of American Falls, Idaho. It is owned and operated by the Idaho Department of Fish and Game (Department).

The primary mission of the AFFH is to rear approximately 260,000 catchable sized (10-inch) rainbow trout, *Oncorhynchus mykiss*. The AFFH also produces approximately 1,500 16-inch catchable rainbow trout and 20,000 brown trout, *Salmo trutta*, for Idaho waters. This year rainbow trout x Yellowstone cutthroat trout, *Oncorhynchus clarkia*, hybrids were reared for Salmon Falls Creek Reservoir.

Two permanent employees and eleven months of temporary employee time staffed the AFFH during 2009. Volunteers were utilized for special projects as needed and when available.

Funding for the AFFH operation came from license monies, an American Falls endowment fund, and from the proceeds of mitigation fish stocked into the Gem State Hydropower Project at Idaho Falls.

The physical layout of the AFFH consists of ten single-pass 210-ft x 8-ft x 2.7-ft concrete raceways. The top section on the even numbered raceways contain a dividing wall, allowing for ten single pass 45.5-ft x 3.5-ft x 3.0-ft sections that can be utilized for early rearing. There is a hatchery building containing fourteen 17.5-ft x 4-ft x 2.5-ft concrete rearing vats.

Water for the AFFH comes from Rueger Springs, which is located on AFFH property. These springs had an average flow of 20.7 cubic feet per second (cfs) and a water temperature of 55°F to 56°F during 2009.

The AFFH staff continued to take flow measurements at eight artesian wells at the department's Springfield Hatchery. These wells had an average flow of 18.5 cfs and a water temperature of 50°F during 2009.

EGG USAGE

During the 2009 calendar year the AFFH received 60,000 triploid rainbow trout eggs from the department's Hayspur Fish Hatchery, 267,950 triploid rainbow trout eggs from the Troutlodge facility in Washington, 35,209 brown trout eggs from the Wyoming Game and Fish Daniels Hatchery, and 154,839 rainbow trout x Yellowstone cutthroat trout hybrid eggs from the department's Henry's Lake Hatchery.

FISH PRODUCTION

The AFFH raised triploid Hayspur strain rainbow trout (KT & T9), triploid Troutlodge Kamloops rainbow trout (TT), Soda Lake brown trout (BN) from Daniels Fish Hatchery, and rainbow trout x Yellowstone cutthroat trout hybrids (RC) from Henry's Lake for the 2009 production year.

The AFFH stocked 18,771 brown trout (2,969 lbs) in Idaho waters and 105,750 rainbow trout x Yellowstone cutthroat trout hybrids (4,500 lbs) into Salmon Falls Creek Reservoir. The AFFH stocked and transferred 273,643 catchable rainbow trout (88,614 lbs) statewide. The average rainbow trout stocked by AFFH was 9.32-inches in length. Total fish stocked and transferred were 398,164 fish weighing 96,083 pounds (Appendix 1). Net production for the year (lbs stocked + lbs on hand 12/31/2009 - lbs on hand 1/1/2009) was 100,222 pounds. Net number of fish produced, using the same formula, was 376,187 fish.

Costs in 2009 for various types and sizes of fish feed were \$45,227, a 22% increase from last year and a 38% increase from two years ago (Appendix 2). Feed costs for the year were \$0.45 per net pound of fish produced, or \$0.12 per net fish produced. Production costs overall were \$229,308, equating to \$2.29 per net pound of fish produced, or \$0.61 per net fish produced. This cost includes all AFFH personnel and operating costs, and the cost of transportation of AFFH fish to stocking waters using fish transports stationed at the Nampa and Hagerman Fish Hatchery during 2009. This figure does not include capital outlay or capital construction and repair costs.

Overall it cost \$0.74 to raise and stock a 9.3-inch catchable rainbow trout from AFFH in 2009. Last year we reported that same 9-inch fish would have cost \$0.92 to raise and stock. Although production costs remained almost unchanged from the previous year, the lower cost to raise the same size fish this year compared to last year can be attributed to the following reasons. First, the AFFH produced 27,301 more pounds of fish for the same cost in 2009 compared to 2008. Second, there was a decrease in personnel costs in 2009 when the full time employee stationed at Springfield Hatchery, but helping three days a week at AFFH, transferred to another hatchery.

Feed conversion for the year averaged 0.94 pounds of feed per net pound of fish produced. The low conversion is partially due to the Will-O-The-Wisp® bug feeders we suspend on the large raceways during the summer months. The mayfly and caddis fly hatches in the adjacent Snake River often produce clouds of insects and thousands of insects pass through these bug feeders and drop into our raceways every day.

HATCHERY IMPROVEMENTS

- A new surround shower was installed in Residence #2.
- A new bathtub faucet, drain, and basement plumbing repairs were done in Residence #1.
- A 2552 Metal Magmeter® Flow meter was installed and calibrated with Rhodamine WT, a fluorescent tracer dye, at the hatchery intake pipe by Idaho Water Resources.
- In order to allow handicap access and satisfy safety inspector concerns, the public visitor fish feeding station was moved to a new location adjacent to the parking area below the large raceways. The site was excavated deeper and three large boulders were placed to provide fish holding areas. A boy scout finished his Eagle project by extending the chain link fence at the new location, putting signs up at the old location warning visitors of drowning hazards, and relocating the bench and coin feeders to the new location.
- A tree trimming service trimmed and/or removed several Siberian Elm Trees whose branches posed hazards to people and property.
- The dam boards for the settling pond and the other three ponds located on hatchery property were replaced with new boards.
- The visitor restroom roof was fixed, an overhanging Russian Olive Tree behind the bathroom was removed, and plumbing repairs to the visitor restroom were completed.
- The old Garren® raceway feeders were loaded onto a flatbed trailer and taken in for metal recycling.

HATCHERY NEEDS

- Residence #1 and residence #1 garage needs to be replaced.
- Aluminum dam boards and aluminum frames for raceway screens and vat screens need to be fabricated.
- Steel siding needs to be installed on the hatchery building.
- The brass bolts on the raceway lawn valves need to be replaced with stainless steel bolts.
- Further trimming and removal of Siberian Elm Trees on hatchery land needs to be done.
- A new concrete keyway and rectangular weir at our settling pond should be poured to replace the existing concrete keyway that is crumbling. Aluminum dam boards should replace the existing wooden boards with a system to prevent the public from tampering

with them. The existing two ponds below the settling pond should be slowly drawn down to a natural river corridor.

PUBLIC RELATIONS

The AFFH received an estimated 5,000 drop-in visitors during this period. Additionally, organized scheduled tours were given to schools, scouts, and families which consisted of 758 children and 7 senior citizens. The AFFH staff participated in a fly fishing clinic, free fishing day activities, and helped staff the department booth at the state fair. Staff gave presentations and trout dissections to 274 students from three area schools as part of trout in the classroom programs. Staff gave presentations and allowed for students to gain experience in aquaculture at three area high schools as part of job shadow experiences. The AFFH donated two auction trips to the Fish and Wildlife Foundation where we allowed two families to fish our settling pond and assist in stocking the fish they caught into public waters. The nature trail kiosk and voluntary sign in sheet indicated 273 visitor trips were placed, consisting of 49 youths and 224 adults. The main activity listed for walking the nature trail was bird watching.

VOLUNTEER PROGRAM

Multiple volunteers were used throughout the year to assist in scatter planting catchable fish, hand loading fish onto transport trucks, assisting in our auction trips, replacing dam boards in the settling ponds, and extending the chain link fence at our fish feeding location. This year we recorded 34 volunteers who logged in a total of 136 hours in order for us to complete our operations. All volunteer hours have been documented on aquatic education tracking forms and sent to headquarters.

ACKNOWLEDGMENTS

During this year employees at AFFH were: Jeff Seggerman, Hatchery Manager I; Tim Klucken, Assistant Fish Hatchery Manager; Janelle Porath, Biological Aide; Lincoln Reed, Biological Aide; and Cory Roper, aquatic training candidate. We would like to give special thanks to Gary Ady, Dick Bittick, and Ken Taylor for driving the fish tankers and helping us complete our fish plants.

APPENDICES

Appendix 1. Swimming Inventory with fish transferred or stocked by month, American Falls Fish Hatchery, 2009.

Month	Fish on hand	Pounds on hand	Fish stocked	Pounds stocked
Dec. 2008	265,882 22,528*	8,343 11*		
Jan. 2009	316,955 20,528*	14,683 20*		
Feb. 2009	312,885 20,028*	22,210 82*	500	100
Mar. 2009	303,459 19,828* 154,839**	33,093 172* 20**	7,300	2,408
Apr. 2009	231,207 19,943* 129,339**	19,906 316* 65**	72,735	21,507
May 2009	206,982 19,843* 125,339**	24,826 722* 296**	18,798	5,686
Jun. 2009	188,547 19,813* 107,729**	30,539 1,425* 833**	15,727	5,550
Jul. 2009	223,473 19,753* 105,229**	23,580 2,270* 1,590**	30,999	11,171
Aug. 2009	255,871 19,738* 104,029**	30,712 2,632* 2,922**	7,757	3,190
Sep. 2009	281,532 4,947*	39,689 811*	6,550 14,771* 105,750**	2,586 2,169* 4,500**
Oct. 2009	165,444 3,495*	9,061 699*	108,709	32,880
Nov. 2009	185,802 35,009*	7,291 10*	3,723 4,000*	3211 800*
Dec. 2009	239,224 27,209*	12,479 14*	845	325
Total Rainbow			273,643	88,614
Total Brown			18,771	2,969
Total Cutthroat x rainbow hybrids			105,750	4,500
Grand Total			398,164	96,083

* Denotes brown trout; **denotes rainbow trout x Yellowstone cutthroat trout hybrids; all others are rainbow trout.

Appendix 2. Fish feed fed during the 2009 production year, American Falls Fish Hatchery.

Source	Size/Type	Pounds	Cost
Rangen Dry	0	165	\$126.12
Rangen Dry	1	310	\$237.24
Rangen Dry	2	1,225	\$931.98
Rangen Dry	3	6,340	\$3,448.40
Rangen Dry	3TM	350	\$277.90
Rangen SM	1/32	44	\$58.08
Rangen Dry	3/32	5,775	\$2,990.42
Rangen Dry	3/32 Aquaflor	550	\$609.80
Rangen Dry	1/8	9,500	\$4,655.00
Silver Cup	3.5mm	69,566	\$31,891.67
Totals		93,825	\$45,226.61

ASHTON FISH HATCHERY

Doug Engemann, Fish Hatchery Manager I
Paul Martin, Fish Culturist

INTRODUCTION

Ashton Fish Hatchery (AFH) is located in Fremont County, Idaho, approximately two miles southwest of the community of Ashton. Ashton Fish Hatchery is owned and operated by the Idaho Department of Fish and Game (IDFG), and is funded by IDFG license dollars and Rocky Mountain Power Company mitigation funds.

Ashton Fish Hatchery's water source is Black Springs, which is a constant 50^o F temperature and has a maximum flow of 5.5 cfs. Ashton Hatchery currently serves as a "specialty station", currently rearing three species/strains of trout, char, and grayling, including rainbow trout *Oncorhynchus mykiss*, Arctic grayling *Thymallus arcticus*, and brook trout *Salvelinus fontinalis*. Species raised at AFH in past production years include cutthroat trout *O. clarkii*, brown trout *Salmo trutta*, golden trout *Oncorhynchus aquabonita*, and rainbow x cutthroat hybrids.

The majority of fish produced at AFH are fry and fingerling (1 inch to 6 inches) that are distributed throughout Idaho as part of various put-grow-and-take management programs. Catchable size fish (8-12 inches) are also reared at AFH and distributed locally in waters managed as put-and-take fisheries.

FISH PRODUCTION

General Overview

A total of 495,796 fish were produced at AFH this year, consisting of 296,940 fry and fingerlings, and 198,856 catchable sized fish, including holdovers. Ashton Hatchery personnel stocked a total of 96,254 catchables into area waters during 2009. These fish averaged 3.0 fpp (9.4 inches) for a total of 32,029 pounds stocked. Production costs (excluding capital outlay) were \$191,746.14 with \$22,648.38 spent on fish feed and the remaining \$169,097.76 spent on general hatchery operations and personnel costs. Fish transportation costs for 2009 were \$5,184.89. The average cost per pound of fish produced during 2009 was \$5.31. A summary of fish numbers, pounds produced, and production costs per species and life stage is provided in Appendix 1.

All fry in indoor nursery vats were fed by hand on an hourly basis. Fingerlings reared in indoor nursery vats were fed by hand at an average frequency of 4-5 feedings per day. Catchables and holdovers reared in outdoor raceways were fed by hand at an average frequency of 2 times per day. Predator exclusion covers were provided when the fish were transferred from vats to outdoor raceways. During 2009, feed conversion for catchables was 1.2, and conversion for holdovers was 1.1. A breakdown of feed cost by size and origin is provided in Appendix 4.

The average survival for all fish stocked from egg to distribution was 57 percent. Arctic grayling survival was 9.84 percent. Consequently, if Arctic grayling survival is excluded from the calculations, the average survival for all fish stocked from egg to distribution was 69 percent. Appendix 2 provides a summary of comparative growth rates, feed conversion, and survival percentages for AFH in 2009.

All of the fish reared at AFH during 2009 were received as eyed eggs with the exception of Arctic grayling, which were received as green eggs. The origin of all incoming eggs and fish stocked during 2009 can be found in Appendix 3.

Rainbow Trout

Ashton Fish Hatchery produced and stocked 96,254 catchable rainbow trout averaging 9.4 inches in length (32,029 pounds) for distribution into area lakes and streams. All rainbow trout production at AFH sterile Hayspur strain T-9 triploid fish. Surplus catchables were stocked into Region 7 area waters. No rainbow fingerlings were stocked in 2009.

On January 28, 2009, AFH received 131,556 Hayspur strain (T-9) triploid rainbow trout eggs. No fingerlings were stocked from this lot, resulting in an estimated total of 102,602 (12,452 pounds) 6.5 inch T-9 holdovers produced for stocking activities in 2010.

Arctic Grayling

Ashton Hatchery received 100,000 green arctic grayling eggs from Meadow Lake, Wyoming on May 26, 2009. Ashton personnel transported the eggs directly from Meadow Lake to AFH after assisting with spawning activities. Poor survival from green egg to fry (9.84 percent) resulted in 9,840 fry ranging in size from 7,571 fish per pound to 8,849 fish per pound (about 1 inch).

Hatchery personnel continue to investigate methods to improve survival of arctic grayling fry. While grayling were feed trained easily, hatchery personnel continued to experience high daily chronic mortality levels soon after first feeding. Phone conversation with Wyoming Game and Fish personnel revealed good success feeding frozen Cyclop-Eeze concurrently with the freeze dried product. They observed that not all fry were actually feeding on the freeze-dried variety of Cyclop-Eeze. This dual feed regime was then used at Ashton with very good success. The high chronic daily losses ceased after only two days on the new diet.

While the green egg to fry survival percentage is low this year, it is significantly improved from the last several years. Ashton hatchery personnel will continue investigation of improved culture techniques to improve grayling survival.

A total of 720 grayling fry were directly stocked into Horseshoe Lake by AFH personnel. Of the remaining 9,120 grayling fry produced, 6,380 were transferred to the Mackay Hatchery, and 2,740 were transferred to the McCall hatcheries, respectively, for secondary rearing and subsequent mountain lake stocking activities.

Brook Trout

On November 4th, 2008, AFH received 250,000 eyed brook trout eggs from Kootenay Hatchery, in British Columbia, Canada. The 2009 brook trout request for Henrys Lake was 100,000 fingerlings. Despite soft shell disease and the resulting poor egg to swim-up fry survival, the extra eggs provided resulted in surplus fingerlings available for stocking. Ashton Hatchery directly stocked 170,100 brook trout fingerlings averaging 4.0 inches in length (4,050 pounds) into Henrys Lake in during the months of May and June, 2009.

On November 3rd, 2009 AFH received 150,000 eyed brook trout eggs from Kootenay Hatchery in British Columbia, Canada. As was the case in the previous year, all brook trout fingerlings are destined for Henrys Lake.

On December 8th, 2009 Ashton Hatchery received approximately 68,000 eyed Brook Trout eggs from Wyoming Department of Game and Fish' Story Fish Hatchery. The resulting fingerlings were originally destined for Henrys Lake. Fisheries personnel are investigating the use of Wyoming brook trout as a more locally available alternative to the British Columbia, Canada stock discussed above.

As the Wyoming stock has a history of testing positive for EEDV virus, the decision was made to destroy these eggs after discussion with the resident hatchery pathology personnel and the Fisheries Bureau. The potential negative effects of this virus are unknown at this time, and the Canadian brook trout on hand are adequate to meet the 100,000 fingerling requested for Henrys Lake. The eggs were destroyed on December 17th, and all incubation units used for these eggs were carefully cleaned, disinfected, and dried.

HATCHERY IMPROVEMENTS

- The outdoor raceway quiescent zone drains were cleaned and put back into operation. New screens were built to isolate the drains, once again enabling hatchery personnel to safely clean these raceways.
- A new grayling water supply intake manifold was constructed.
- Eagle Scouts constructed 2 new picnic tables for hatchery visitor use.
- Trees were trimmed in both the hatchery intake area, as well as grounds adjacent to the main hatchery driveway.
- Salvageable scrap metal was used to shore up the hay barn, and other unusable scrap metal as well as wood scrap and worn out dam boards taken to the local landfill.
- Hatchery buildings were cleaned and organized, and a new tool rack was built and installed in the hatchery shop.

- A new wooden cover was constructed to cover the fish transport water supply electric motor.
- Woodstoves were transferred from the American Falls Hatchery and installed in the two Ashton Hatchery residences to provide an inexpensive source of additional heat.

FISH STOCKED AND TRANSFERRED

The major change in rainbow trout stocking practices for 2009 was the elimination of fingerling stocking due to poor return to creel. No rainbow trout fingerlings were stocked in 2009. As per the previous year, poor water quality resulted in no catchables stocked into the Rexburg City Ponds during the summer months of 2009, resulting in a reduction of 795 catchables from the request.

With the exception of Arctic grayling, the numbers of fish produced exceeded the stocking requests for 2009. Surplus catchable rainbow trout were stocked into region 7 waters. Surplus brook trout fingerlings were stocked into Henrys Lake. No production fish transfers occurred during 2009.

ASHTON FISH SPAWNING

Personnel from AFH traveled to Henrys Lake Hatchery to sort and spawn cutthroat trout and rainbow x cutthroat hybrids. AFH personnel traveled to the Wyoming's Story Fish Hatchery to collect and pressure shock brook trout eggs. Ashton personnel also traveled to Meadow Lake Wyoming to spawn arctic grayling.

FISH FEED

A total of 41,314.72 pounds of fish feed were fed (Appendix 4) to produce 38,352 lbs of fish weight gain (Appendix 1), for an average conversion of 1.08 for the 2009 production year.

PUBLIC RELATIONS

Tours were given to several groups of elementary and secondary grade students, as well as adult enrollees in the Idaho Master Naturalist Program. Several of the Idaho Master Naturalist candidates subsequently volunteered their services at the hatchery for special projects.

Paul Martin and Doug Engemann gave a cutthroat trout presentation at Henrys Fork Elementary School. Paul assisted regional personnel with fish anatomy lessons at Teton Valley water awareness days. Doug Engemann, Paul Martin and regional volunteers staffed free fishing day on June 13th, 2009. Children were allowed to fish the hatchery settling basin on that day, and hatchery staff and volunteers taught the children the basics

of trout angling as well as proper cleaning and care of the catch. Over 150 children participated in the event. Doug drove the AFH tanker in the annual Ashton July 4th parade, and assisted with Living Stream aquatic education projects in the Upper Snake region.

SPECIAL PROJECTS

Brook Trout Estradiol Feminization Study

AFH is assisting with baseline data collection efforts with an Estradiol feminization study that began December, 2008. Through a combination of estrogen treatments and genetic screening, it is believed that a population of daughterless females (producing only YY progeny) can be produced. This could be a valuable tool for future use in controlling populations of non-native species.

AFH personnel received eyed eggs from four separate 1:1 Brook Trout pairings conducted at Story Hatchery in October, 2008. The resulting progeny from each of the four families were split into two groups, resulting in eight lots of fish that were initially reared separately. Eight Rubbermaid storage totes were modified to contain the fish during the first segment of the study. Half of the fish from each family were fed feed containing Estradiol (Estrogen) for the first 70 days of feeding. Fish fed regular feed were contained in vat 11. Fish fed estradiol feed were contained in vat 12.

In order to conserve water and rearing space for production activities, it was decided to cull back to reduce numbers, and PIT tag the remaining fish for identification purposes so that they could be contained in only two or three vats as long as possible. A total of 100 treatment group fish (25 from each family) were PIT tagged and transferred to early rearing vat 1. The remaining fish were euthanized. All of the 425 treatment group fish were PIT tagged and transferred to early rearing vat 2. All fish were measured and weighed during PIT tagging. To further reduce rearing densities, the treatment group fish were subsequently split into vat number 2 and vat number 3.

Efficacy of feminization will be investigated upon sexual maturity, as well as comparative survival, growth, and age at maturation between treated and non-treated groups. Baring complications, the first spawning activity will consist of crossing feminized xy males to normal xy males, resulting in 25 percent of the progeny with a yy genotype.

ACKNOWLEDGEMENTS

The Ashton Fish Hatchery staff sincerely thanks Tom Frew, Paul Kline, Ed Schriever, Damon Keen, Jeff Heindel, Joe and Jerry Chapman, Kaleb Phelps, Phil Coonts, Doug Burton, Doug Munson, Mick Hoover, and Pat Moore for their help, advice, and support this year.

APPENDICES

Appendix 1. Fish production and cost, Ashton Fish Hatchery, 2009

Species	Length (in)	Number Fish	Pounds Planted or transf.	Weight Gained In 2009	Cost/lb	Cost/fish	Total Cost
Fry and Fingerlings Produced and Stocked							
Brook trout triploids	4.0	170,100	4,050.00	4,012.00	\$13.44	\$.317	\$53,954.60
Grayling	1.0	9,840	1.19	0.63	\$3,224.39	\$.206	\$2,031.36
Totals/Ave		179,940	4,011.19	4,012.63	\$13.95	\$0.311	\$55,985.96
Catchables Produced and Stocked							
Hayspur triploid rainbow	9.4	96,254	32,029	19,681	\$4.16	\$0.851	\$81,894.12
Totals/Ave	9.4	96,254	32,029	19,681	\$4.16	\$0.851	\$81,894.12
Catchables Produced For 2010 Stocking-Holdovers							
Hayspur triploid rainbow	6.5	102,602	12,452	12,426	\$4.49	\$0.544	\$55,866.06
Totals/Ave	6.5	102,602	12,452	12,426	\$4.49	\$0.544	\$55,866.06
GRAND TOTAL		378,796	36,040	36,119.63	\$5.31	\$0.506	\$191,746.14

Appendix 2. Comparative growth rates, feed conversion, and percent survival for all species reared at Ashton Fish Hatchery, 2009.

Species	Average Monthly Length Increase	Average Conversion	Percent Survival
Brook trout triploid	.60	.80	68*
Rainbow catchables Hayspur	.48	1.2	99.4+
Rainbow holdovers Hayspur	.45	1.0	78.0+
Grayling	.25	6.0	9.84*

*From egg to stocking
+2009 survival percentage

Appendix 3. Origin of eggs and fish stocked, Ashton Fish Hatchery, 2009

Species	Source	Eggs	Destination	Stocked	Size (inches)
Brook trout triploid	Kootenay, BC	250,000	Henrys Lake	170,100	4.0
Brook trout triploid	Kootenay, BC	150,000	Henrys Lake	Fry on Hand	1.0
Hayspur triploid rainbow	Hayspur Hatchery	^a 150,857	Upper Snake Region	96,254	9.4
Hayspur triploid rainbow	Hayspur Hatchery	^b 131,556	Upper Snake Region	⁺⁺ 102,602	6.5
Arctic grayling	Meadow Lake, WY	100,000	Statewide	9,840	1.0
Total stocked or transferred				276,194	

^a Received in 2007-for stocking fingerling '08 and catchable '09

^b Received in 2008-stocking catchable 2010

⁺⁺ Holdovers remaining on station for stocking in 2010

Appendix 4. Feed use, Ashton Fish Hatchery, 2009

Size	Source	Pounds	Cost/lb*	Total Cost*
Swim up	Rangens	153	\$0.8116	\$124.17
#1 Starter	Rangens	200	\$0.8116	\$162.32
#2 Starter	Rangens	1,050	\$0.8116	\$852.18
#3 Grower	Rangens	3,183	\$0.5660	\$1,801.58
#3 Grower TM-100	Rangens	225	\$0.8990	\$202.27
3/32 Pellet	Rangens	2,000	\$0.5276	\$1,055.20
1/8 pellet	Rangens	19,500	\$0.5417	\$10,563.15
1/8 Pellet 2x Vitamin	Rangens	15,000	\$0.5000	\$7,500.00
Cyclop-Eeze	Argent	3.72	\$104.17	\$387.51
Total		41,314.72		\$22,648.38

*Including Shipping

CABINET GORGE FISH HATCHERY

John Rankin, Fish Hatchery Manager II
Bruce Thompson, Assistant Fish Hatchery Manager

INTRODUCTION

Cabinet Gorge Fish Hatchery (CGFH) is located on the south bank of the Clark Fork River in Bonner County, Idaho approximately eight miles southeast of the community of Clark Fork. The hatchery was constructed in 1985 and was co-funded by Avista (formerly Washington Water Power), Bonneville Power Administration (BPA), and Idaho Department of Fish and Game (IDFG). The primary purpose for Cabinet Gorge Hatchery is to produce late-spawning kokanee salmon *Oncorhynchus nerka kennerlyi* fry for release into Idaho's Lake Pend Oreille. Kokanee fry are needed to mitigate for the loss of wild kokanee recruitment caused by hydroelectric power projects in the Pend Oreille watershed. The kokanee fry releases are timed to coincide with cycles of zooplankton blooms. Maximum hatchery capacity is 20 million eggs, with fish production of 16 million two-inch fry.

The CGFH is staffed with three permanent employees. Twenty-one months of temporary labor are available for use during the year. Housing accommodations on station include three residences for the permanent staff and crew quarters for one temporary employee.

Water Supply

Cabinet Gorge Dam is located about one mile upstream from the hatchery. After its completion in 1952, artesian springs began appearing along the Clark Fork River at the present site of the hatchery. The CGFH water supply consists of approximately 5.4 cubic feet per second (CFS) from a spring, which ranges in temperature from 44°F to 52°F, and approximately 20 cfs from a well field which ranges in temperature from 36°F to 64°F. The temperatures of the lower spring and upper well field vary inversely with each other over a 12-month period. The cooler water from the lower springs (pump #7 and #8) was utilized for the entire kokanee incubation and early rearing period. Incubation and early-rearing water temperatures were maintained around 50 degrees Fahrenheit (range 45.0 degrees F to 52.0 degrees F). Production water ranged from 38.5 degrees F to 46.0 degrees F.

The hatchery utilizes six pumps to move water to a common headbox. The lower spring and upper well field water serves the 31,040 cubic feet of rearing space in the hatchery building, 1,536 cubic feet of space in the cutthroat brood ponds, and 1,800 cubic feet of space in the adult holding ponds.

Rearing Facilities

Rearing facilities at the hatchery include 128 upwelling incubators and 64 concrete raceways. The incubators are 12 inches in diameter by 24 inches high with a maximum capacity of 150,000 kokanee eggs each. In addition, a total of 30 upwelling incubators, which are 6 inches in diameter and eighteen inches high, are available. The smaller incubators have a maximum capacity of 30,000 kokanee eggs each. The 64 concrete raceways have rearing space of 31,040 cubic feet. The hatchery building encloses approximately one-third of each raceway. The adult kokanee holding area consists of two holding ponds (10 ft. by 30 ft. each) at the head of the fish ladder. Additional adult holding is available in three holding ponds (10 ft. by 33 ft. each).

In 2008, an additional four concrete raceways and 10 half stacks of vertical-flow incubators (in a separate enclosure) were added to the hatchery rearing facilities to operate a westslope cutthroat broodstock program. The broodstock holding area consists of four concrete brood ponds, two (5 ft. by 18.5 ft.) and two (7 ft. by 18.5 ft.). These four ponds have actual rearing space of 1,536 cubic feet.

PRODUCTION

Cabinet Gorge Hatchery produced a total of 6,290,812 fish in 2009 weighing 36,414 pounds (Appendix 2). On January 1, 2010, an estimated total of 8,264,100 Lake Pend Oreille kokanee eggs were on hand (Appendix 1). In addition, 1,100,000 September/October-spawning kokanee fry were on hand at the end of the year.

A total of 31,864 pounds of feed produced 30,674 pounds of weight gain for an overall (all species reared) feed conversion of 1.04. Total production cost (including Nampa's transportation costs) was \$303,048, resulting in a cost per pound of fish of \$9.88, cost per inch of fish of \$0.0217, and \$48.17 per thousand fish (Appendix 2).

Kokanee

General Rearing

Fertilized eggs were brought to the CGFH and disinfected in 100-PPM iodine for 10 minutes. After enumeration, the green eggs were placed into upwelling incubators and rolled until eye-up. At eye-up, the eggs were shocked, and sorted with the Jensorter JHC-114 model sorter. The counter mechanism was not operational. Fry were allowed to volitionally swim out of the incubators into the raceways at 1,300 to 1,350 temperature units. All kokanee fry destined for Lake Pend Oreille were thermally marked via temperature manipulation in the raceways. Feed training began at 1,500 (Whatcom

stock) to 1,600 temperature units. This was less than previous years when feed training began at 1,700 to 1,720 temperature units.

Initial early rearing loading rates averaged 240,000 swim-up fry per raceway. Kokanee growth rates were equivalent to 29 monthly temperature units per inch of growth (MTU's), (2008, 29 MTU's). Fish health was excellent throughout rearing and no Bacterial Gill Disease was encountered in 2009.

Kokanee were feed trained at approximately 50 to 52 degrees F using Bio-Oregon BioVita #0 and Rangen Trout and Salmon starter diets for 28 days. At that time, water temperatures were lowered to emulate natural production in LPO. The late kokanee fry remained on Rangen Trout and Salmon starter #1 for the duration of rearing. This was the same rearing protocol that has been used since 2002 with very favorable results.

A total of 677,060 late kokanee fry (Lake Pend Oreille stock) were produced at an average length of 2.02 inches and an average weight of 402 fish per pound. These fish gained 1,564 pounds from 1,606 pounds of feed, resulting in a conversion rate of 1.03:1.0. Fish production cost was \$9.02 per pound, \$0.0103 per inch, and \$20.84 per thousand (Appendix 2).

Survival of Lake Pend Oreille kokanee green eggs to feeding fry was estimated at 93.0% (2007, 84.0%). Survival from first feeding to release was estimated at 98.4% (2007, 98.7%), resulting in survival from green egg to release of 92.4% (2007, 82.9%).

On January 30, February 20, and February 26, 2009, the Cabinet Gorge hatchery received 3,239,295 eyed late spawning kokanee eggs from Lake Whatcom hatchery in the state of Washington. A total of 3,164,289 late kokanee fry were produced at an average length of 1.73 inches and an average weight of 641 fish per pound. These fish gained 4,386 pounds from 4,464 pounds of feed, resulting in a conversion rate of 1.02:1.0. Fish production cost was \$8.94 per pound, \$0.0072 per inch, and \$12.39 per thousand (Appendix 2). All of these fish were released into Sullivan Springs.

Survival of Lake Whatcom kokanee eyed eggs to feeding fry was estimated at 99.2% (2008, 97.8%). Survival from first feeding to release was estimated at 98.5%, (2008, 99.3%) resulting in survival from eyed egg to release of 97.7% (2008, 97.1%).

A total of 1,829,961 early kokanee fry were produced at an average length of 2.66 inches and an average weight of 244 fish per pound. These fish gained 7,164 pounds from 8,104 pounds of feed, resulting in a conversion rate of 1.13: 1.0. Fish production cost was \$9.94 per pound, \$0.0146 per inch and \$38.90 per thousand (Appendix 2).

Survival of early kokanee green eggs to feeding fry was estimated at 75.0% (2008, 81.6%). Survival from first feeding to release was estimated at 94.5% (2008, 94.3%), resulting in survival from green egg to release of 70.8% (2008, 77.0%).

In September 2009, Cabinet Gorge Hatchery received 956,450 green fertilized eggs from the kokanee trap located on the South Fork of the Boise River upstream of

Anderson Ranch Reservoir. On December 31st, 2009 the hatchery had 773,000 early spawning kokanee sac-fry on hand.

In late November 2009, Cabinet Gorge Hatchery received 441,700 eyed (Lake Mary Ronan strain) eggs from Flathead Lake Salmon Hatchery located in Northwest Montana and operated by Montana Department of Fish, Wildlife, and Parks. On December 31st, 2009 the hatchery had 356,000 October spawning kokanee sac-fry on hand.

Fish Marking

To evaluate the success of a kokanee (*Oncorhynchus nerka kennerlyi*) stocking program in Lake Pend Oreille, an otolith thermal mass-marking (Volk, et al, 1990) program was utilized at Cabinet Gorge Hatchery. All kokanee fry destined for Lake Pend Oreille received a thermally induced otolith pattern at the swim up to two inch stage of development. Differential temperature was about 9 degrees F. These fish will be distinguishable from their wild counterparts, as well as other hatchery year classes, by examining otolith growth rings for these distinctive bands, which are unique each year.

Analysis of pre-release fish specimens (Grimm, et. al., 2009) verified the presence of a recognizable otolith mark on all thermally treated fry.

Two factors contributed to the success of the t-marking and recovery of the t-marks. The first was the ability to manipulate water sources separately in each raceway without affecting the water in the other raceways. The second was the small (less than seven days) spread of the egg takes that were in each raceway. These factors allowed hatchery personnel to thermally treat groups of fry that collectively were at the same developmental stage. That is important because it places the otolith pattern in relatively the same geographic region of the otolith, making examination for and recovery of the mark much easier.

All of the adults that returned to the Sullivan Springs kokanee trap in the fall of 2008 were t-marked. With results from the Washington Department of Fish and Wildlife otolith lab in Olympia, Washington, Idaho fisheries biologists were able to determine the age of the fish and whether it was of hatchery or wild origin. Based on 58 fish sampled from the 2008 kokanee spawning run, 12.1% were hatchery four year olds (2004 brood year), 60.3% were hatchery three year olds (2005 brood year), and 27.6% were four year olds of wild origin. To date, no results have been received from the 2009 spawning adults.

Fish Liberation

On March 18, 2009, 506,000 (561 pounds) of Deadwood Reservoir early kokanee fry were released into the Clark Fork River at 1.55 inches. These fish were excess to state fish managers allocations/needs and were released early due to hatchery budget constraints. On June 2, 2009, 436,701 early kokanee fry were released

into Spring Creek. On June 16, 2009, 3,841,349 late kokanee fry were released into Sullivan Springs. There were no early kokanee fry released into Sullivan Springs in 2009.

During the months of May and June 2009, a total of 887,188 early spawning (Deadwood stock) kokanee were released into eight lowland lakes in The Panhandle, Clearwater, Southwest and Magic Valley regions. The fish averaged 180 fish per pound and had attained a length of 2.75 inches at release.

Numbers at release were based upon Jensorter counter/sorter inventory numbers at eye-up minus mortality. All fish were off feed one day before inventory pound counts were taken. Pound counts were completed on all raceways one to three days prior to fish being loaded onto the transport vehicles. All raceways of fish were displaced onto the transport trucks for all of the releases to double check inventory numbers.

All kokanee fry release groups destined for Sullivan Springs were transported in two IDFG tankers (3,000-gallon capacity) and the two 2-ton stocking trucks from Cabinet Gorge and Sandpoint Hatcheries. Loading densities of small fish in all of the tankers was kept below 0.60 pounds per gallon. All of the fish were planted below the bridge on the access road to the old IDFG patrol cabin. Two tankers made two releases each on June 16, 2009. Two additional releases (one each) were made with the two 2-ton stocking trucks. All of the other kokanee fry releases were accomplished utilizing the two IDFG tankers and one and 2-ton stocking trucks from Sandpoint, Mullan, and Cabinet Gorge Hatcheries.

Rainbow

General Rearing

On January 9, 2009, the Cabinet Gorge Hatchery received 364,700 eyed triploid rainbow eggs from Trout Lodge, Inc. All incoming eyed eggs were disinfected in 100 ppm iodine for 10 minutes. After enumeration, the eyed eggs were placed into upwelling incubators. Fry were allowed to volitionally swim out into the raceways at 700 to 800 temperature units. Feed training began at 1,000 temperature units. Initial early rearing loading rates average 80,000 swim-up fry per raceway. Growth rates were equivalent to 23 monthly temperature units per inch of growth (MTU's). Rainbow trout fingerling were fed Rangen trout and salmon starter and fed Rangen feed throughout their rearing.

The triploid rainbow fingerling gained 4,429 pounds from 4,279 pounds of feed, resulting in a conversion rate of 0.97: 1.0. Fish production cost was \$8.15 per pound, \$0.0399 per inch, and \$141.16 per thousand (Appendix 2.)

Survival of eyed eggs to feeding fry was estimated at 86.5% (2008, 92.3%). Lower survival rates were attributed to an overnight shipment arrival delay where freezing of eyed eggs occurred while they sat on an outside loading dock. Survival from

first feeding to release was estimated at 93.8% (2008, 91.8%), resulting in survival from eyed egg to release of 81.2% (2008, 84.7%).

Twenty thousand rainbow were held back for rearing to catchable-size. They are scheduled to be released in the spring of 2010. On December 31, 2009, 19,535 triploid rainbow were on hand weighing 4,208 pounds. These fish gained 4,201 pounds from 3,417 pounds of feed, resulting in a conversion rate of 0.81: 1.0. Fish production cost was \$6.45 per pound, \$0.1708 per inch, and \$1,388.20 per thousand (Appendix 2).

Five thousand rainbow were carried over from December 31, 2008. These fish were released as catchable-size rainbow in the spring of 2009. The 2008 rainbow were fed Rangen and excess Bio-Oregon fish feed. They gained 587 pounds from 666 pounds of feed, resulting in a conversion rate of 1.14: 1.0. Fish production cost was \$11.27 per pound, \$0.1517 per inch, and \$1,481.64 per thousand (Appendix 2).

Fish Liberation

During the month of June 2009, 255,705 rainbow fingerlings were released into three lowland lakes in the Panhandle and Clearwater regions. These fish averaged 57 fish per pound and had attained an average length of 3.54 inches at release.

During the months of May and June, 2009, 4,460 catchable size rainbow were released into lowland lakes in the Panhandle region. These fish were used mostly for Free Fishing Day stocking. They averaged 2.7 fish per pound and had attained an overall length of 9.77 inches at release.

Westslope Cutthroat

General Rearing

On May 18, 2009, the Cabinet Gorge Hatchery received approximately 27,000 green fertilized westslope cutthroat eggs for future broodstock from King's Lake in Washington. The eggs were disinfected in 100 ppm iodine for 10 minutes and then placed into isolation incubators for twenty-eight days pending genetic and disease sampling results. Five individual pairings were culled. Three parent fish were identified with rainbow trout alleles and two were diagnosed with high BKD levels. Fry were ponded at 500 to 600 temperature units. Initial early rearing took place in a 10 foot fiberglass trough. Feed training began at 800 to 900 temperature units. Growth rates were equivalent to 33 monthly temperature units per inch of growth (MTU's). These fish were feed trained using Bio-Oregon starter feeds. They were inventoried on July 25, 2009. At that time there were 16,782 fish on hand weighing 15 pounds. In late October 2009, these fish were transferred to the cutthroat brood ponds.

These fish gained 257 pounds from 218 pounds of feed, resulting in a conversion rate of 0.85: 1.0. Fish production cost was \$11.20 per pound, \$0.0495 per inch, and

\$177.66 per thousand (Appendix 2.) On December 31, 2009, the hatchery had on hand 16,205 BY2009 westslope cutthroat (King's Lake strain) weighing 262 pounds (Appendix 2).

On February 17, 2009, the BY2008 westslope cutthroat (King's Lake strain) trout were transferred to the cutthroat brood ponds. They were fed a diet of Bio-Oregon's BioVita formula fish feed. During the month of September 2009, 1,725 fish weighing 327 pounds were stocked into Brush, Antelope, and Smith Lakes in the Panhandle region.

These fish gained 2,399 pounds from 1,976 pounds of feed, resulting in a conversion rate of 0.82:1.0. Fish production cost was \$10.88 per pound, \$0.3415 per inch, and \$3,524.02 per thousand. On December 31, 2009, the hatchery had on hand 5,680 BY2008 westslope cutthroat (King's Lake strain) weighing 2,185 pounds. In addition 1,725 of these fish weighing 327 pounds were deemed to be excess to future hatchery egg collection needs and were stocked into area waters (Appendix 2).

During the months of April and May of 2009, 6,041 BY2007 westslope cutthroat (King's Lake strain) weighing 2,060 pounds were stocked into Antelope and Brush Lakes in the Panhandle region. On June 10, 2009, the BY2007 westslope cutthroat (King's Lake strain) trout were inventoried, sorted, and any eggs produced were stripped out and discarded. The inventory revealed that 11,854 fish weighing 2,157 pounds were on hand on June 10th, 2009. The culled fish and excess broodstock were stocked out in the fall when lake temperatures decreased to optimum range. In the month of September 2009, 869 fish weighing 338 pounds were stocked into Antelope, Brush, and Smith Lakes in the Panhandle region. After these excess fish were released, the fish feed utilized was changed from Biodiet (semi-moist feed) to BioVita (with double vitamin pack) as a segue to switching to Bio-Oregon's broodstock feed- Bio-brood in the 4.0mm size.

These fish gained 2,326 pounds from 3,244 pounds of feed, resulting in a conversion rate of 1.39:1.0. Fish production cost was \$15.94 per pound, \$0.2953 per inch, and \$3,437.53 per thousand. On December 31, 2009, the hatchery had on hand 3,877 BY2007 westslope cutthroat (King's Lake strain) weighing 2,143 pounds. In addition 6,912 of these fish weighing 2,398 pounds were deemed to be excess to hatchery egg collection needs and were stocked into area waters (Appendix 2).

On July 24, 2009, 150,000 eyed westslope cutthroat eggs were received from Westslope Trout Company in Ronan, Montana. All incoming eyed eggs were disinfected in 100 ppm iodine for 10 minutes. After enumeration, the eyed eggs were placed into vertical flow (Heath) incubators. These eggs were small in size (18 eggs per ml.). Periodic (weekly) picking of dead eggs was required throughout their incubation. Eggs/alevin remained in these incubators until they reached the button-up stage of development. Fry were moved into the raceways, and feed training began at 1,000 temperature units. Size at initial feeding was about 4,600 fish per pound and 0.85 inches in length. Initial early rearing loading rates average 31,000 swim-up fry per raceway. Growth rates were equivalent to 33 monthly temperature units per inch of growth (MTU's). These fish were feed trained using Bio-Oregon starter feeds.

The BY2009 Montana westslope cutthroat gained 819 pounds from 598 pounds of feed, resulting in a conversion rate of 0.73:1.0. Fish production cost was \$8.00 per pound, \$0.0198 per inch, and \$53.33 per thousand. On December 31, 2009, the

hatchery had on hand a total of 122,849 Montana westslope cutthroat fry weighing 847 pounds and averaging 2.70 inches in length (Appendix 2).

The BY2008 Montana westslope cutthroat trout were carried over from December 31, 2008. These fish gained 2,521 pounds from 3,278 pounds of feed, resulting in a conversion rate of 1.30: 1.0. Fish production cost was \$14.25 per pound, \$0.0590 per inch, and \$245.61 per thousand (Appendix 2).

Fish Liberation

During the months of May and June, 2009, 107,214 Montana westslope cutthroat fingerling trout were released into nine lakes in the Panhandle and Clearwater regions. These fish averaged 40 fish per pound and had attained a length of 4.14 inches at release. An additional 19,000 Montana westslope cutthroat were released into Yellowbelly Lake in the Salmon Region on August 4, 2009, with co-operation from Sawtooth Hatchery and Eagle Hatchery personnel. These fish were graded out and averaged 4.03 inches in length. The remaining 20,000 Montana westslope cutthroat fingerling were stocked into Cocolalla Lake on September 28, 2009. These fish averaged 33 fish per pound and had attained a length of 4.41 inches at release.

Fall Chinook

General Rearing

On October 29, 2009, 40,500 eyed fall chinook eggs were received from Big Creek Hatchery in Astoria, Oregon. All incoming eyed eggs were disinfected in 100 ppm iodine for 10 minutes. After enumeration, the eyed eggs were placed into six 6 inch diameter upwelling incubators. Fry were allowed to volitionally swim out into the raceways at 800 to 900 temperature units. Feed training began at 1,600 temperature units. Initial early rearing took place in one hatchery raceway. Growth rates were equivalent to 25 monthly temperature units per inch of growth (MTU's). These fish were feed trained using Bio-Oregon starter feeds

The fall chinook gained 19.7 pounds from 14 pounds of feed, resulting in a conversion rate of 0.71:1.0. Fish production cost was \$9.81 per pound, \$0.0031 per inch, and \$5.32 per thousand (Appendix 2.) On December 31, 2009, 36,340 fall chinook salmon fry were on station.

Survival of eyed eggs to feeding fry was estimated at 98.7% (2008, 98.3%). Survival from first feeding to December 31, 2009, was estimated at 90.8% (2008, 89.9%), resulting in survival from eyed egg to transfer of 89.7% (2008, 88.4%).

Fish Liberation

A total of 29,000 fish are scheduled to be shipped to Nampa Hatchery on February 4, 2010.

HATCHERY IMPROVEMENTS

Repairs and Improvements

- A 4 ft chain link fence was installed around the back yard of residence #3 by hatchery personnel.
- A new furnace was installed in residence #1 at Clark Fork Hatchery. Avista contributed half of the money needed for this project.
- The entry road to the Granite Cr trap was repaired.
- A total of 10 new ½ stack vertical incubators were purchased for the cutthroat incubation room.
- The installation of the water supply lines for the cutthroat incubation building was started by the F&G Engineering crew.
- The last of the aluminum raceway screens were completed for the westslope cutthroat broodstock ponds.
- A cover was built over the rear entry door to the shop to help prevent snow build up.
- A new chainsaw was purchased to replace the hatchery saw that was stolen.
- A new couch and recliner were purchased for the hatchery dorm.

HATCHERY RECOMMENDATIONS

An inadequate amount of available warm water (50 degrees F) during the production months remains the limiting factor for fish production. Although the upper well field can yield up to 20 cfs, it is too cold during the production cycle. Warmer water from the lower springs must be added to temper the upper well field water. Unfortunately, only 5.4 cfs is available from the lower springs. Modification of existing water collection and pumping facilities or drilling additional wells at this location is warranted. The lower springs collects approximately 6 cfs of available water but the means to pump it is unavailable. Additional water at this location is also available for collection.

All of the 64 raceways (inside and out) need to be sandblasted and repainted as their condition is deteriorating rapidly. Increased algae growth in porous walls is becoming more of a problem in kokanee fry rearing in late spring.

The catwalk structure and the stream anchors for the upper and lower weir at the Granite Cr. trap are made of wood and need replaced. Metal framework and concrete anchors are needed.

An additional 14 doors need to be purchased to replace the existing rusted out doors on the hatchery building.

Residence's #1 and #2 at the Clark Fork Hatchery are in need of new roofs. They are both 30 plus years old.

The main back-up generator and transfer switch as well as the alarm system for the hatchery is over 20 yrs old and needs replaced.

A cold storage area (pole building) needs to be built to protect the hatchery tractor and vehicles from the weather.

FISH SPAWNING

Fish Trapping

The Clark Fork River fish trap was in operation from July 22, 2009 to November 19, 2009. Four hundred and twenty seven adult kokanee entered the trap the entire season. All of these fish were transported to the raceway spawning channel at Clark Fork Hatchery. On November 19, 2009, the ladder was shut down. No eggs were taken.

The Sullivan Springs trap was in operation from October 20, 2009 to December 21, 2009. The Sullivan Springs trap collected 52,501 (5,149 in 2008) adult kokanee salmon. Of these, 5,918 (512 in 2008) adults were passed above the trap to spawn naturally in Sullivan Springs Creek. Spawntaking records showed that 57.1% (56.5% in 2008) of the run was female (26,403).

Spawntaking

An estimated total of 8,264,100 green fertilized kokanee eggs were collected during the 2009 spawning season. Of the 26,403 total females trapped, 23,563 female kokanee were spawned at the Sullivan Springs trap. The number of adults returning in 2009 was the highest number of fish trapped since 2006 when the predator reduction program was initiated on Lake Pend Oreille (Appendix 1).

PUBLIC RELATIONS

The surrounding communities recognize the CGFH as one of the major contributors of kokanee to the Lake Pend Oreille fishery. The importance of this forage species to the world class Pend Oreille trophy fishery and the local economy is presently estimated in the millions of dollars. The hatchery has been the focus of many radio, television, and newspaper stories in recent years. With the decline of kokanee numbers in recent years, even more attention is focused on the hatchery. Because of the popularity of the lake and its attractions, tourism is a booming business, and we have people from all over the world visiting the hatchery.

A total of 100 people signed our guest registration book this year. An estimated 300 visitors toured the hatchery during the 2009 season. In addition, 15 hatchery tours were given to local school groups.

The CGH staff was also involved with the "Trout in the Classroom" program. A total of six local schools received eyed eggs (kokanee) or fish (w. cutthroat) for their classroom tanks. An educational presentation was given to each class at the time of delivery.

The CGFH staff assisted with the local Free Fishing Day event in Clark Fork. There were approximately 60 children and adults that participated.

ACKNOWLEDGMENTS

The CGFH staff would like to thank the Cabinet Gorge Dam and Northern Lights personnel for their continued cooperation with hatchery operations. Thanks also to the Bonner County Sportsmen's Association, numerous volunteers, and various regional and hatchery Department personnel for their cooperation during the spawning season. The staff would also like to thank CGFH Maintenance Craftsman- Todd Braunschweig, Mullan Hatchery Fisheries Technician- Mary Van Broeke and CGFH Biological Aides; Erik Christensen, Rauno Raiha (Bonner County Sheriff's boat operator), and Brett Hubbard for their dedication and hard work in making 2009 a successful year.

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Appendices

Appendix 1. Lake Pend Oreille kokanee trapping/spawntaking summary, 2009.

Spawntaking Site	Total Fish	Females Spawned	Females Unspawned	Green Eggs	Fecundity	Percent Females *
-	-	-	-	-	-	-
Sullivan Sps.	52,074	23,563	2,840	8,264,100	351	47.1%
Cabinet Gorge	427	0	n/a	n/a	n/a	
-	-	-	-	-	-	-
Totals/Ave:	52,501	23,563	2,840	8,264,100	351	47.1%

* includes male/female prespawm mortality

** Note: All 427 adults were transported to Clark Fork Hatchery and put into LR #4 which was rehabilitated into a spawning channel by LPOIC members in the summer of 2008. Ladder was closed on 11/19/2009.

Appendix 2. Production Summary, all species, 2009

Species	Number	Pounds	Length	Fish/lb.	Feed Fed	Feed Cost (b)	Annual Cost (c)	Cost/lb. of fish	Cost/1,000 fish	Cost/inch of fish
PdO KL	677,060	1,683	2.02	402	1,606	\$1,421	\$14,108	\$9.02	\$20.84	\$0.0103
Whatcom KL	3,164,289	4,940	1.73	641	4,464	\$3,949	\$39,213	\$8.94	\$12.39	\$0.0072
Dwd. KE	1,829,961	7,498	2.66	244	8,104	\$7,169	\$71,188	\$9.94	\$38.90	\$0.0146
Oregon FC (a)	36,340	53	1.70	686	14	\$19	\$193	\$9.81	\$5.32	\$0.0031
09 Trout Lodge RB	255,705	4,513	3.54	57	4,279	\$3,635	\$36,095	\$8.15	\$141.16	\$0.0399
09 Trout Lodge RB (a)	19,535	4,208	8.13	5	3,417	\$2,731	\$27,118	\$6.45	\$1,388.20	\$0.1708
08 Trout Lodge RB	4,460	1,664	9.77	3	666	\$666	\$6,608	\$11.27	\$1,481.64	\$0.1517
09-WS Cutt. (Mont.) (a)	122,849	847	2.70	145	598	\$660	\$6,551	\$8.00	\$53.33	\$0.0198
08-WS Cutt. (Mont.)	146,214	3,694	4.16	40	3,278	\$3,617	\$35,912	\$14.25	\$245.61	\$0.0590
09-WS Cutt.BS (K.L.)(a)	16,205	262	3.59	62	218	\$290	\$2,879	\$11.20	\$177.66	\$0.0495
08-WS Cutt.BS (K.L.)(d)	7,405	2,512	10.32	3	1,976	\$2,628	\$26,095	\$10.88	\$3,524.02	\$0.3415
07-WS Cutt.BS (K.L.)(d)	10,789	4,540	11.64	2	3,244	\$3,735	\$37,087	\$15.94	\$3,437.53	\$0.2953
Totals/Ave:	6,290,812	36,414	2.22	173	31,864	\$30,520	\$303,048	\$9.88	\$48.17	\$0.0217

(a). Currently on station

(b). includes freight, shipping & handling

(c). Includes transportation costs for truck transportation from Nampa Hatchery-\$15,245.00

(d). Includes fish on station and fish released

CLEARWATER FISH HATCHERY

Chris Shockman Fish Culturist
Jerry McGehee Hatchery Manager 2

INTRODUCTION

The Clearwater Fish Hatchery (CFH) is located in the community of Ahsahka in Clearwater County, Idaho. Ahsahka is a Native American word meaning, "where two great rivers join", referring to the confluence of the North Fork of the Clearwater River to the main Clearwater River. The hatchery was built by the US Army Corps of Engineers (USACE), under the United States Fish and Wildlife Service (USFWS) Lower Snake River Compensation Plan (LSRCP), and was completed in 1991. Funding for the anadromous fish production is provided by the USFWS. Funding for the resident fish activities is provided by hunting and fishing license sales. The hatchery is operated by the Idaho Department of Fish and Game.

The primary purpose for CFH is mitigation for anadromous fish losses caused by hydroelectric dams. Anadromous fish production is using all available rearing space; therefore, the facility had no excess rearing space for catchable rainbow trout (*Oncorhynchus mykiss*) production. Therefore resident fish activities are limited to redistribution of put and take sized trout that are raised at other facilities.

The hatchery water source is a double pipeline from Dworshak Dam, which can supply over 79 cubic feet per second (cfs) of reservoir water to the facility. Two intakes are located at the dam. The primary intake is adjustable from five feet to fifty feet to collect surface water; the secondary intake is about 200 feet below full pool level. This design allows mixing of water to target a specific temperature.

FISH PRODUCTION

Release Year 2009

Catchable Rainbow Trout

CFH did not produce catchables in 2009 because spring chinook and steelhead occupied all available rearing space. CFH was strictly a redistribution center for Nampa State Fish Hatchery, American Falls State Fish Hatchery and Mackay State Fish Hatchery reared rainbow trout catchables in 2009.

FISH STOCKED AND TRANSFERRED

Catchable Rainbow Trout

CFH redistributed 43,401 Troutlodge triploid (reared at Nampa State Fish Hatchery), 40,085 (reared at American Falls State Fish Hatchery) and 10,000 (reared at Mackay State Fish Hatchery) triploid Troutlodge strain rainbow trout during 2009 (Appendix 1), equaling 93,486 fish stocked. They averaged 2.9 fpp and weighed 30,438 lbs. A total of 106 fish plants were made at 28 different plant sites.

FISH FEED

Catchable Rainbow Trout

CFH redistributed catchable rainbow trout into Region 2 waters during 2009. Because these fish were stocked in local waters as fast as they arrived, little supplemental feed was needed to maintain overall health and size of the fish.

A total of 3,000 lbs of Bio-Oregon feed was fed to the rainbows through the summer of 2009 as a maintenance diet (Appendix 2). This food was surplus feed from the CFH Chinook and steelhead programs.

PUBLIC RELATIONS

Clearwater Hatchery and its satellites were open to visitors during the year. Tours at the main hatchery were given to various groups. We had visitors from many states, as well as other countries.

Two summer youth employees assisted Dworshak Hatchery during their annual open house on June 9, 2009.

On June 9, 2009 Jerod Morris planted 500 catchable rainbow trout (3.1 fpp) into Camp Grizzly Pond for the Boy Scouts of America.

On July 8, 2009 Jordan Rider planted 250 catchable rainbows (3.1 fpp) and 5 trophy sized fish into Jaypee Mill Pond for sixth graders on forestry tour.

On July 31, 2009 Jerod Morris hauled 255 catchable rainbow trout (3.0 fpp) to Orofino Creek near Pierce, Idaho for their annual 1860 Days Celebration.

SPECIAL PROJECTS

A total of 100 trophy size adult size fish, ranging in weight from 3 lbs. to 8 lbs., were recovered from the Clearwater Fish Hatchery total flow pond. The planting crew supplemented 11 fish stocking trips to 7 different sites with these large fish. A total of 200 catchable sized fish were floy tagged (100 in Red River and 100 in the Palouse River) to determine catch rates. Potlatch Creek was not planted this year at the request of Robert Hand (Region 2 Fishery Biologist) in coordination with native spawning steelhead project.

FISH HEALTH

In general, the fish health at Clearwater Fish Hatchery was good this year. The catchable rainbow trout were transferred from Mackay State Fish Hatchery, American Falls State Fish Hatchery and Nampa State Fish Hatchery to CFH and these fish were, in most cases, immediately stocked out into regional waters. A total of 400 mortalities were removed from the raceway over the summer prior to loading fish into trucks. Overall the transported fish showed no signs of poor health. All fish at CFH are monitored daily by personnel to detect any early signs of fish health problems.

ACKNOWLEDGEMENTS

The CFH would like to thank the Nampa Fish Hatchery, Mackay State Fish Hatchery and American Falls State Fish Hatchery crews for raising the rainbows and also Dick Bittick and Gary Ady for transporting the rainbows to Clearwater Fish Hatchery for distribution. Bio Aides that aided in rainbow distribution included Jerod Morris, Steve Duty, Malia Steiner , Holly Stanton-Smith, Jenny Hole, Kevin Miller, Chip Roth, Steve Lee, Sarah Nemeth, Jeff Jenni, Milissa Hicks ,Bob Alberts, Max Bausch, Tim Lee, Jim McCarthy, Phil Willumsen and Rebekah Waltmann. Magan Phillips and Jesse Zick, our two summer youth participants, also participated in the raising and distribution of the catchable rainbows.

APPENDICES

Appendix 1. Clearwater Hatchery resident fish redistribution, Jan 1 - Dec 31, 2009.

2009 Catchable Rainbow Trout

			Number of Fish	Weight (lbs.)
2009 catchable RBT on hand 1/1/09			0	0
2009 catchable RBT on hand 12/31/09			0	0
Date	Number released	Pounds	Fish per Pound	Type of Fish
4/1-4/30	10,170	3,190	3.2	Troutlodge TT
5/1-5/31	23,250	6,901	3.5	Troutlodge TT
6/1-6/30	37,506	10,880	3.1-3.5	Troutlodge TT
7/1-7/31	7,460	2,404	3.0-3.1	Troutlodge TT
8/1-8/31	1,750	625	2.7-3.1	Troutlodge TT
9/1-9/30	8,200	3,863	2.0-2.7	Troutlodge TT
10/1-10/31	5,150	2,575	2.0	Troutlodge TT
Totals	93,486	30,438	Average fpp 2.9	

*This appendix does not include 400 mortalities collected over the summer from the raceway.

Appendix 2. Fish feed costs and amount fed for the CFH rainbow programs, Jan 1 - Dec 31, 2009.

DATE	BRAND	FEED TYPE	WEIGHT (lbs)	COST PER LB	TOTAL
4/1-10/31	Bio-Oregon	Biodiet Grower 2.5	3,000*	\$1.27	\$3,810.00

Appendix 3. Total Summary of Catchable Rainbow Trout Redistributed.

# of FISH	WEIGHT (lbs)	COST PER LB FOR REDISTRIBUTION **	COST/1000 FISH FOR REDISTRIBUTION ***
93,486	30,438	\$0.77	\$250.26

Costs include 1/1-6/30 FY09 and 7/12-12/31 FY10 budgets and do not include permanent salaries or feed cost @ NSFH. Redistribution expenditure by CFH \$10,057.00.

*This feed was made available as surplus from BY08 Chinook and was fed out prior to the end of its shelf life at no cost to the resident fish project.

** Cost/lb equals total budget (minus feed cost @ NSFH) divided by total lbs produced, 1/1/09-12/31/09.

*** Cost/1000 fish equals total budget (minus feed cost @ NSFH) divided by total number of fish produced times 1000.

1/1/09 to 12/31/09	Cost for Rearing @ NSFH and Redistribution @ CFH	10,057.00
	Transport cost to deliver fish from NSFH to CFH	<u>13,339.00</u>

RESIDENT FISH HEALTH REPORT-2009

Douglas R. Burton, Fishery Pathologist

INTRODUCTION

As the Resident Hatchery Pathologist, I am stationed at the Eagle Fish Health Laboratory (EFHL). My primary duties are to provide fish health inspection and diagnostic services to the Idaho Department of Fish and Game's (IDFG) resident fish hatcheries and to assist hatchery personnel in maintaining good health in cultured resident fish. I also provide these services to IDFG fishery managers and biologists and occasionally to private individuals or companies when the information or relationship is of benefit to the State of Idaho. My Anadromous Hatchery counterpart, A. Douglas Munson, and I work closely together, often assisting each other in our respective programs and coordinating efforts when those programs overlap. Both of us hold American Fisheries Society Fish Health Section certificates as Fish Health Inspectors. With the assistance of EFHL personnel, I examined 140 cases for IDFG resident hatchery programs during 2009 (51 diagnostic cases, 66 routine hatchery inspections, 19 inspections of feral brood fish, and 4 research inspections for triploidy). I was also responsible for 3 inspections done on rainbow trout from Rangens Aquaculture (fish purchased by Idaho Power Co. for mitigation release), 6 wild fish inspections, and 2 private hatchery inspections.

Idaho Dept. of Fish and Game is a member of the Pacific Northwest Fish Health Protection Committee (PNFHPC). This group classifies fish pathogens in three categories: Class A (Exotic), Class B (Regulated Endemic Agents), and Class C (Endemic Pathogens of Significant Concern). The EFHL identified no Class A pathogens in Idaho in 2009. Most Class B pathogen detections in the resident hatchery system were at Hagerman Hatchery. These included infectious hematopoietic necrosis virus (IHNV) and two parasitic agents *Tetracapsuloides bryosalmonae* (PKX) and *Nucleospora salmonis* (NS). The first-ever detection of IHNV at Hayspur Hatchery occurred in 2009. A new polymerase chain reaction (PCR) test detected genetic material (DNA) of salmonid herpes virus 3 (epizootic epitheliotropic disease virus or EEDV) from fish at Grace Hatchery and from wild lake trout in Lake Pend Oreille. The PNFHPC lists all herpes viruses of finfish as Class B pathogens. Because PCR detects only a fragment of the viral genome, and because there is no corroborating test or evidence of clinical disease in Idaho, there is uncertainty of how to interpret these results. Management implications are still under discussion.

The most significant fish disease in the statewide resident hatchery system continued to be bacterial coldwater disease (CWD), caused by *Flavobacterium psychrophilum*. Clinical CWD was diagnosed 28 times at 9 resident hatcheries in 2009. Twenty-six clinical cases were diagnosed in rainbow trout, one in brook trout and one in westslope cutthroat trout. Another 8 carrier states were identified: 6 in rainbow trout, 1 in adult cutthroat trout from Henrys Lake, and 1 in spawning adult kokanee salmon from Lake Pend Oreille. Oxytetracycline (OTC) and Aquaflor are the only antibiotics registered to treat CWD in food fish. Results from treating CWD with these drugs in IDFG resident hatcheries were generally successful. An injected autogenous vaccine for *F. psychrophilum* has been used in the brood fish at Hayspur Hatchery for several years and seems to have a positive effect on post-spawning mortality.

Renibacterium salmoninarum (RS), the causative agent of bacterial kidney disease (BKD), is endemic to most of Idaho and can be problematic in anadromous salmon. No clinical BKD was observed in any resident species during 2009, but carrier states were identified in adult rainbow and cutthroat trout populations.

I am the Investigational New Animal Drug (INAD) Monitor for the IDFG resident hatcheries and biologists. The INAD process is the means by which the U.S. Food and Drug Administration (FDA) will allow the limited use of certain drugs and chemicals not currently labeled for a specific use in food fish, while accumulating data to support adding such use to the label. Idaho Department of Fish and Game joined the U.S. Fish and Wildlife Service Aquatic Animal Drug Approval Partnership Program (AADAPP) in 1998. This group, located in Bozeman MT, administers INAD programs for Federal, State, Tribal, and private aquaculture across the United States. My duties include identifying the situations in which a drug or chemical may be used, assisting in preparing written requests and reports, and generally acting as intermediary between IDFG personnel and the AADAPP administrators. The only drug used by IDFG resident hatcheries in 2009 under an INAD protocol was OTC at a high dose and extended duration to treat fish with systemic bacterial infection. The AADAPP group has been very successful in gaining FDA labels for most of the drugs or chemicals the IDFG has used under the program, so the number of INAD protocols for IDFG hatcheries has markedly decreased.

I issued IDFG fish import/transport permits when the purpose of the movement was the noncommercial importation, transportation, or release of fish into surface waters of Idaho. Applicants for permits included IDFG personnel, other resource management entities, and private individuals. This duty involved collecting fish health inspection and certification information from various sources to meet state permitting regulations. Idaho's laws and regulations give IDFG and Idaho State Department of Agriculture (ISDA) parallel, and sometimes overlapping, regulatory authority for such importations. Dr. Debra Lawrence, DVM, has been my contact with ISDA and has been outstanding to work with in this cooperative effort. I also coordinated the paperwork needed to obtain a Federal Title 50 certificate to import sterile brook trout eggs to Ashton Hatchery from British Columbia, Canada.

The following are descriptions of the work done for IDFG resident programs in 2009. Summaries of the test results for each resident hatchery are included in Appendix A through Appendix L, wild resident fish inspection summaries are in Appendix M, and Appendix N contains a list of acronyms used in this report.

AMERICAN FALLS HATCHERY

Seven of seven diagnostic examinations at American Falls determined that CWD was the cause of mortality in rainbow trout and rainbow-cutthroat trout hybrids (Appendix A). Four episodes were successfully treated with antibiotic-medicated feed (2 each with Aquaflor and OTC), while two cases involved chronic mortality that did not justify treatment. The final case was a follow-up to an OTC-medicated treatment in which the mortality rate was already on the decline and returned to baseline levels without further intervention. In a historical note, with the exception of an occasional motile bacterium (*Aeromonas* species), *F. psychrophilum* has been the only primary pathogen detected at American Falls Hatchery in over 15 years.

ASHTON HATCHERY

I inspected the BY08 rainbow trout and brook trout at Ashton in March (Appendix B). No significant bacteria were cultured and no replicating viral agents were detected from either population. Tests done on the rainbow did not detect *Myxobolus* (MYXOB) spores by the pepsin/trypsin digest method (PTD) or evidence of RS by direct fluorescent antibody test (DFAT).

The mortality rate of the brook trout increased during April, and a second set of tests still did not detect viral or bacterial pathogens. Finally, a third test isolated both *F. psychrophilum* and a motile *Aeromonas* species of bacteria (motile aeromonad septicemia or MAS). Treatment with OTC-medicated feed at the label dose and duration was effective in reducing the mortality rate back to normal level.

Infestations of *Gyrodactylus salmonis*, a monogenetic trematode, are an annual issue at Ashton. There has never been an elevated mortality attributed to this parasite, but general fish quality and growth efficiency may have been compromised. There seems to be a persistent reservoir of parasites in the open spring water above the hatchery, therefore, the Hatchery Manager and I decided to initiate a treatment regimen of formalin during the winter months when the problem seems most prevalent. The treatment has controlled the signs of *Gyrodactylus*, including flashing, jumping, and skating on the surface. However, since this was only one of a number of changes the hatchery manager has initiated, it is difficult to quantify any long-term benefit. If this method of treatment continues, the hatchery may need to build a heated chemical storage facility for barrels of formalin.

Ashton Hatchery reared experimental groups of brook trout from Story Hatchery, Wyoming for a study involving the use of estradiol to feminize male fish. Ashton also received brook trout eggs from Story intended as production fish for Henrys Lake. Following the detection of EEDV DNA in the brood populations at Story, we decided to destroy the production eggs rather than take the unknown risk of introducing the virus to Henrys Lake. The estradiol-treated fish remain on hand. We plan to sample feral fish in the hatchery's settling pond in 2010 to test whether or not the estradiol-fish may have shed viable virus into the outflow water.

Part of the hatchery's water source is an open spring on private property. This situation leaves the hatchery at risk to the introduction of pathogenic organisms via birds, animals or human vectors.

CABINET GORGE HATCHERY

This was the third consecutive year that Cabinet Gorge Hatchery received green westslope cutthroat trout eggs collected from King's Lake in Washington State. The goal is to establish a captive brood population from these eggs, so sampling parent fish for both pathogens and genetic introgression is required. I traveled to King's Lake in May to sample the 60 feral adult fish (30 female and 30 male) that produced the BY09 eggs. Tests detected no replicating viral agents from kidney/spleen tissue samples. Direct FAT tests detected no RS, while the enzyme-linked immunosorbent assay (ELISA) detected RS antigen from 17 of the 30 females (15 low and 2 high optical densities). In addition, fin clips were taken from all individuals for genetic analysis. The Eagle Genetics Laboratory reported rainbow trout alleles from one male and two females. In an effort to exclude RS and rainbow trout genetics from the future

brood population, the eggs were culled from the high ELISA positive females and from all crosses that utilized gametes from the introgressed hybrid individuals.

A group of pond mortality fish from both the BY07 and BY08 King's Lake cutthroat populations were saved in order for me to test for RS. Neither DFAT nor ELISA detected evidence of the bacterium. The King's Lake cutthroat have proven challenging to rear at Cabinet Gorge Hatchery. We have already learned that many minor changes in fish culture, e.g. small changes in water temperature or a change in feed size, will cause the fish to develop a food impaction between the stomach and small intestine. There have been several elevated mortality episodes as a result. Several of these pond mortalities examined for RS exhibited this condition.

Many of the fish from the BY07 King's Lake cutthroat population matured for the first time this year. Because gamete quality from cutthroat of this age is generally poor, none of the 2009 eggs were kept. However, ovarian fluid samples were collected and shipped to EFHL for testing. No replicating viruses were detected in these samples. The ovarian fluids remaining after the virus tests were centrifuged and the resulting cell pellets were tested for RS using fluorescent antibody techniques. This OCP-FAT test detected no evidence of RS.

I inspected spawning kokanee salmon adults at Sullivan Springs in November. Tests detected no replicating viruses or MYXOB spores. The DFAT tests for RS were negative, while ELISA test results are still pending. Carrier numbers of *F. psychrophilum* and a *Pseudomonas* (PSEU) species were cultured from kidney/spleen samples from 12 of 12 individuals. The bacterial detections are consistent with historic results. A light infection of encysted cestodes was evident in the pyloric caeca of almost all of the fish. These organisms are observed every year and do not appear to have any adverse effect upon their hosts.

GRACE HATCHERY

One diagnostic case and one inspection were done on rainbow trout from Grace Hatchery (Appendix D). *Flavobacterium psychrophilum* was detected in both cases. A standard-dose application of OTC-medicated feed was applied to the fish from the diagnostic case, while the mortality rate among the fish from the inspection never justified a treatment. In addition, tests in the latter case detected no evidence of replicating viruses, RS by DFAT or MYXOB spores by PTD.

Grace Hatchery had a juvenile population of lake trout that originated as eggs from the Wyoming Game and Fish Story Hatchery in 2008. Dee Dee Hawk, the Wyoming State Pathology Supervisor, sent a report in September that DNA of EEDV had been detected in the lake trout brood fish at Story Hatchery using a new PCR test. Herpes is a DNA virus that incorporates into the host genome and is vertically transmitted through an unlimited number of host generations. A characteristic of herpes virus diseases is that they are highly stress mediated, often remaining latent for extended periods between manifestations. The EED virus does not cause detectable cytopathic effect in traditional cell cultures, which means it is not detectable by traditional virology tests. Prior to PCR, the only method to confirm EEDV was through electron microscopy of clinically sick fish. Early literature has reported that lake trout and lake trout hybrids are the only species proven to experience clinical disease following EEDV challenge.

I sent samples from the Grace Hatchery lake trout and from rainbow trout in the large raceways that received reuse water from the lake trout raceways to the University of California at Davis for analysis. Both groups were positive by PCR, although neither exhibited any signs of disease. As expected, the same lake trout were negative for replicating viruses by traditional cell culture methods. Grace Hatchery has reared fish originating from Story Hatchery for many years with no signs consistent with those reported for clinical EED ever reported. However, the finding in the rainbow trout indicates that the virus can replicate and pass to other fishes. With no indications that this detection was associated to actual disease, and with the probability that the virus has been present in any trout originating from Story for many years, a decision was made not to make any major changes in Grace Hatchery management at this time. The positive lot of lake trout at Grace was released into Bear Lake as scheduled, with the concurrence of Utah Division of Wildlife managers, and eggs from the 2009 spawn-take at Story Hatchery have been received for 2010 production. The rainbow trout will be kept over the winter and released next spring into those waters that Grace normally stocks.

Further PCR testing has detected EEDV DNA in all other fish populations at Story Hatchery, in lake trout sampled by Utah Division of Wildlife from Bear Lake (personal communications from Dee Dee Hawk and Chris Wilson, UDW), and from Lake Pend Oreille lake trout (see Wild Fish Testing, below). The Story Hatchery lake trout population originated from Jenny Lake (Grant Teton National Park) approximately 40 years ago with periodic infusions since. The wild Jenny Lake population probably originated from Lake Michigan as early as 1890. The records are poor, but fish in Lake Pend Oreille may have been introduced as early as 1925 from unknown origins. These results suggest that the virus has been present but undetected in western populations of lake trout since their introduction with no indications of any associated disease. Considerable sampling will be necessary to confirm the distribution of this virus, but in all likelihood, it has probably been spread throughout Idaho for many years.

HAGERMAN STATE HATCHERY

A total of 24 diagnostic, 1 inspection, and 2 research cases were examined from Hagerman State Fish Hatchery in 2009 (Appendix E). Hagerman State easily surpasses all other hatcheries in the IDFG system in the variety of pathogens that kill fish on station, often in concomitant combinations of two or more. Viral IHN and bacterial CWD are the two most significant diseases at Hagerman, followed by bacterial furunculosis (FUR), Columnaris disease (COL), and MAS. Several parasites can also cause losses. *Ichthyophthirius multifiliis* (ICH) can kill significant numbers of fish but can usually be controlled if detected and treated early enough. *Tetracapsuloides bryosalmonae* and *Nucleospora salmonis* are both present in the Riley Creek water. The former is a myxozoan that causes proliferative kidney disease and the latter is a microsporidian that causes a leukemia-like condition by infecting the nuclei of immature blood cells. Neither may directly kill fish, but they can compromise a fish's immune system, making it more susceptible to other diseases. There are no approved treatments for either NS or PKX.

Hatchery personnel detected ICH during routine checks on fish in the Riley Creek raceways in December 2008, January 2009, and December 2009 from the Tucker Springs raceways. One-hour flush treatments of potassium permanganate, applied 2-3 times per week for 6-8 weeks, controlled the parasite with no elevated mortalities attributed to its presence.

The first detections of IHNV in 2009 occurred in January, in both the West and Large Tucker Springs raceways. Virus was confirmed 10 times throughout the year, with several

unconfirmed episodes as well. Historically, losses to IHNV at Hagerman occur in the first 3-4 months of rearing, run their course, and then the survivors are refractory to further disease. However, the virus has started to manifest in a new manner. Larger fish begin to either swim in circles or hang vertically with their heads at the water surface as they drift down to the screen. None of the typical signs, including acute anemia, bilateral exophthalmia, or necrotic kidneys, are evident. No virus can be cultured from kidney/spleen samples, but the virus is easily detected from the brain. The disturbing thing about this new viral encephalitis is that the mortality rate among larger fish is prolonged!

Flavobacterium psychrophilum was cultured at EFHL from Hagerman State fish in 15 cases and from 3 additional samples submitted to the laboratory at Rangens Aquaculture Research Center (RARC). Antibiotic therapies were not as successful in 2009 as they have been in the past, although in vitro antibiotic susceptibility tests at EFHL suggested that they should have worked. I suspect that a number of complicating factors, including concomitant infections with other bacteria or IHNV influenced the response. One dramatic episode occurred in July and August, when small Troutlodge fingerlings in the West raceways were presumptively diagnosed with CWD based on initial clinical signs. We acquired a veterinary feed directive (VFD) and initiated an Aquaflor treatment. Then the bacterial cultures from the fish grew *Aeromonas hydrophila* and no *F. psychrophilum*. The mortality rate actually accelerated after the treatment, with external signs of lost mucous and epithelial sloughing. Fish submitted to RARC at the end of the treatment carried low levels of *F. psychrophilum* and no replicating viruses could be cultured. The hatchery manager and I speculate that the drug may have caused photosensitization. Loss in the lot exceeded 90%. A second lot of Troutlodge fish began to show similar signs approximately half-way through the initial episode. These fish were treated with OTC at standard dose and duration. Similar pathology was observed, but losses were controlled at about 11%.

Documented cases of NS and P XK at Hagerman State have historically been limited to the spring and early summer month and to fish in the Riley Creek water supply. One diagnostic inspection was done in 2009 that fit these criteria (April; raceway L-19). The PCR tests were positive for both parasites (Appendix E). Elevated mortalities were involved and both IHNV and *F. psychrophilum* were present, but clinical signs were not definitive enough to assign a single cause. I am convinced that immune suppression due to NS infection was the root cause of the losses because the fish involved were of an age and size where they have historically outgrown their susceptibility to the other pathogens. I also collected samples from three lots of fish in the Tucker Springs water source in August and November because I observed suspicious signs. All PCR tests for NS were negative, but IHN and/or CWD were diagnosed in all three cases.

HAYSPUR HATCHERY

The most significant issue at Hayspur Hatchery in 2009 was the detection of clinical IHN virus infection from a group of catchable-size rainbow trout in one of the old "large" raceways at the south (downstream) side of the facility (Appendix F). This was the first detection of IHNV recorded at Hayspur, and the first detection of any replicating virus at the facility since 1992. A sample of the virus isolate was sent to University of Washington for typing and was determined to be a new b-subclade of the M-clade typically found in the Hagerman Valley. Responses to this situation included the destruction of the affected lot and the one other group of fish that were in a different large raceway, the destruction of all excess brood fish on the station, the initiation of an intensive sampling regimen of the remaining brood populations, and a restriction

on egg shipments to only receiving hatcheries where M-clade IHNV was already endemic. The first populations to be sampled were the age 0+ and 1+ juveniles destined to be replacement brood fish. Kidney and spleen tissues were taken from 150 individuals of each lot in order to have a 95% confidence of detecting a 2% prevalence. No evidence of any virus was detected. Brood fish from two age classes of Hayspur stock and one age class of Kamloops stock remained in eight round ponds. Each round pond was considered a separate population. Ovarian fluids were collected in 5-fish pools over the course of spawning from 150 fish from each pond and shipped to EFHL for virus testing. (The exception to this protocol was individual samples collected in round ponds #2 and #4, when replacement brood eggs were taken). No evidence of virus was detected from any population. One December shipment of ovarian fluids arrived at EFHL partially frozen, a condition that could reduce virus titers. Those samples were processed, but additional samples were taken to replace them. Further testing of all populations will be done in April 2010 and again prior to spawning in October 2010. If there are no further detections of IHNV, then the restrictions on egg shipments may be lifted. Production of fish in the large raceways should not be resumed.

Hayspur Hatchery produces brood stock replacement eggs by crossing individual males from one age class with individual females from another age class to minimize inbreeding. I sample ovarian fluid from every individual female, and sacrifice a random 60 females from the group for pathogen testing. Eggs are incubated in family groups until the disease testing is complete, so that the eggs of any female that should test positive for any virus or RS can be culled. In 2009, 159 Age 3+ females from pond #2 were crossed with Age 2+ males from pond #4 and 18 females from #4 were crossed with males from #2. (An additional 12 females from pond #4 were crossed with males from the same pond. The eggs were eventually discarded as possible sibling pairs, but the ovarian fluids were tested for virus. All of the sacrificed females came from pond #2. No evidence of IHNV or any other virus was detected from either ovarian fluids or kidney/spleen tissue samples.

Rainbow trout at Hayspur have a long history of carrying RS, but clinical BKD has only been identified once on the hatchery (2006). Various antibiotic therapies in addition to culling of replacement eggs have been used to reduce detected levels of the bacterium. Two groups of 4- and 5-year-old fish were tested by ELISA in April and found to have relatively high prevalence and intensities of infections, although no clinical signs were observed. These fish were on station in 2006, and had received numerous treatments of OTC in medicated feed. Kidney samples from 60 females were tested using ELISA and DFAT during the brood stock replacement spawning operations, and ovarian fluids from all the replacement females were tested by OCP-FAT. Ovarian fluids are non-lethal samples while collecting kidneys for ELISA and DFAT requires sacrificing the fish. No evidence of RS was detected from these samples. The significant difference in this group was that all fish tested by ELISA received two injections of Gallimycin (Erythromycin) prior to spawning. This drug does not have FDA approval for use on food fish, so these treated fish will eventually be destroyed and the carcasses taken to a landfill. I anticipate using OTC medicated feed on most fish for one more year. If there continues to be no evidence that the OTC has been beneficial, I will recommend discontinuing those treatments.

Yellowstone cutthroat trout spawn occurred at Henrys Lake Hatchery from February 23 through April 20, 2009 (Appendix G). Hatchery personnel collected ovarian fluids from all females and shipped the samples to EFHL. Virology testing was done on 28 pooled samples (196 females) and OCP-FAT for RS was done on 245 pools (1,715 females). No viruses were detected in any of the ovarian fluid samples, including five pools (35 fish) that were blind-passed

to check for viral hemorrhagic septicemia virus (VHS). None of the pooled samples were positive for RS. No eggs were culled due to the presence of pathogens in 2009.

I visited the hatchery on March 30 and took lethal samples from a group of 60 fish (both males and females) for kidney DFAT, ELISA, tissue virology, bacteriology (BACTE), and MYXOB tests. No replicating viruses or MYXOB spores were detected. No RS was detected by DFAT, while four of 12 pooled kidney samples were positive by ELISA at low levels. These results were consistent with the findings in previous years. Bacteriology samples isolated *F. psychrophilum* from four of 12 (25%) individuals. This prevalence was consistent with 2008 (20%) but much lower than 2007 (44%) or 2006 (88%). The Fishery Biologist/Hatchery Manager at Henrys Lake reports that the over-winter conditions in the lake were good for a second consecutive year, which would explain the better general condition of the fish observed at spawning. No signs of clinical CWD have ever been evident in the adult cutthroat trout at Henrys Lake.

Henrys Lake and Ashton Hatchery personnel collected kidney samples from a group of adult Yellowstone cutthroat that entered the fish ladder early in December. Half of the samples (30) were sent to University of California at Davis to be tested by PCR for EEDV, while the other half remain at EFHL. Results are pending.

MACKAY HATCHERY

First-feeding Henrys Lake cutthroat fry have historically experienced significant losses due to CWD. Treatments using OTC-medicated feed have never been successful. This was the third consecutive year that a metaphylactic treatment of Aquaflor was given to all lots at about 5-7 days after first feeding. Dr. Phil Mamer provided the VFD for these treatments. Mortality rates remained very low through the entire rearing program, and overall survival of these fish from eyed egg to fall stocking was 82%. Some credit for this excellent survival must be attributed to good initial egg quality that was a result of good winter conditions under the ice at Henrys Lake. Thus, the adults were less stressed and in better condition at spawning. An indication of this better condition was a lower prevalence of *F. psychrophilum* in the spawning (see Henrys Lake, above).

I visited Mackay Hatchery and inspected the Yellowstone cutthroat trout fingerlings that originated from Jackson NFH. No replicating viruses, RS, or MYXOB spores were detected (Appendix H).

Mackay Hatchery has received green eggs for many years from the early-spawning kokanee in Deadwood Reservoir. The program changed in 2009, with trapping moved to the South Fork of the Boise River above Anderson Ranch Reservoir. I sampled sixty spawning adults at the new trap site on September 11. Laboratory tests detected no pathogens, including replicating viruses, RS (by either DFAT or ELISA) or MYXOB spores. The Boise River trap is logistically superior to Deadwood for egg collecting operations. However, I have more fish disease anxieties with this source because thousands of rainbow trout are stocked into Anderson Ranch from Hagerman Hatchery while Deadwood receives none.

MCCALL HATCHERY RESIDENT PROGRAM

The Washoe Park Westslope cutthroat trout fry required two diagnostic investigations in July and August (Appendix I). No replicating viruses were detected in the July sample, while *Pseudomonas fluorescens* bacteria were cultured from two of 10 individuals. A 10-day treatment of OTC-medicated feed was applied. Daily mortality peaked on the ninth day of treatment (August 3), and gradually declined. The second inspection was done on August 7 and isolated *F. psychrophilum* from 10 of 10 fish. Although the mortality rate was already slowly declining at the second inspection, another 10-day medicated feed treatment with Aquaflor was applied in order to assure that the bacteria would be cleaned up when the fish were stocked into mountain lakes. The Washoe Park fish have historically had problems with this “trout fry syndrome” manifestation of CWD. A theory about the route for such early infections is that the *F. psychrophilum* originates from the parent population, is carried on or in the eggs, and infects the fry immediately after hatch.

NAMPA HATCHERY

Nine diagnostic cases and two inspection cases were examined at Nampa Hatchery in 2009 (Appendix J). Eight of the diagnostic cases detected clinical CWD and/or MAS. Two of those cases also included concomitant *Pseudomonas* infections. The other diagnostic case detected both *F. psychrophilum* and *A. hydrophila* on the gills (bacterial gill disease of BGD) but not from the internal organs. Both OTC and Aquaflor were used to treat the systemic bacterial infections and results were mixed, possibly due to stress complications from poor water flow.

Two inspection cases screened groups of fish for ICH before those fish were transferred to other hatcheries for redistribution. A protocol has been established in which raceways containing fish destined for transfer are treated with formalin for five consecutive days. A microscopic inspection is then done on gills from 60 fish per raceway. If no ICH trophonts are detected, those groups of fish can then be transferred within 10 days. No ICH was detected at Nampa in 2009.

The design of Nampa Hatchery is significantly flawed, in that the raceway floors are below the level of the outflow to the settling pond. Thus, the raceways can never be dried up nor can they be isolated from the settling pond. This is a likely reason for the recurring problems with ICH. Major changes, requiring either significant costs in reconstruction or reductions in production, will be necessary before the risk from this parasite can be eliminated. In the meantime, the possibility of transferring ICH with fish from Nampa will persist, even with lot inspections prior to every shipment. Another design flaw at Nampa is the existing water line to the “A” raceways is too small to provide adequate flow when all 16 raceways are in use. In my opinion, many of the MAS/CWD problems mentioned above are the result of stress induced by inadequate water flow in these raceways during the early rearing period.

SANDPOINT HATCHERY

A group of Hayspur Hatchery rainbow trout eggs was incubated at Sandpoint Hatchery in order to delay their early development and growth in cold water. The resulting juveniles were slated for transfer to Nampa Hatchery when the IHN outbreak occurred at Hayspur (see above). The eggs had been shipped to Sandpoint prior to the episode and had been in reasonably good

isolation from the affected group, but I decided it would be prudent to test the lot for virus before the move to Nampa. Whole fish were shipped to EFHL in September. Insufficient padding in the shipping box allowed some of the fish to be crushed by the blue ice packs, so only 55 individuals could be sampled instead of the normal 60. I decided this was adequate for the purpose and processed the remaining fish. No viruses were detected (Appendix K).

SAWTOOTH HATCHERY RESIDENT PROGRAM

The resident fish program at Sawtooth Hatchery consists of redistributing catchable rainbow trout transferred from Nampa Hatchery and stocking cutthroat fry into high mountain lakes. There are typically very few disease episodes associated with this program, as the Nampa fish have already grown beyond the most susceptible life stage, and the cutthroat are stocked out before any problems can occur. However, in 2009, there were concerns about mortality in the Washoe Park cutthroat fry (see McCall Hatchery Resident Program, above). The fry were sampled in August (Appendix L) and *Pseudomonas fluorescens* was isolated, just as had happened a month earlier at McCall. A VFD for Aquaflor was acquired in anticipation of finding *F. psychrophilum* and the medicated feed was transferred from McCall. But daily mortality never became excessive and VFD criteria were never met, so no treatment was applied.

WILD FISH TESTING

Biologists and private individuals from around the state submitted wild fish samples to EFHL for a variety of reasons (Appendix M). A private individual submitted a channel catfish from Crane Falls Lake in Owyhee County. The person's teenage son and friends had caught the fish on an overnight fishing trip. In the course of the evening, they caught and ate a number of other fish that they cooked on sticks over a campfire. All complained of being sick to the stomach the next day. A few common bacteria were isolated that may have amplified during the 3-4 days the fish was in the refrigerator before being submitted. Red lesions on the fish's skin were easily explained as caused by leaches (possibly an *Illinobdella* species), two of which were still attached. My strong suspicion was that the abdominal complaints were more likely the result of poor hand sanitation during the cooking and eating process than from the fish.

A person from the Henrys Fork Foundation submitted three rainbow trout from Thurman Creek (Harriman State Park, Fremont County). Sampling in the stream revealed a number of fish with petechial hemorrhages at the fin bases and red bumps on the external body wall. *Aeromonas hydrophila*, a common water-borne bacterium that can be either a primary or a secondary pathogen, was isolated. The diagnosis was MAS following stress from high water temperature (20 C).

The U.S. Fish and Wildlife Service reported in their Wild Fish Survey that brook trout sampled from St. Charles Creek (Bear Lake County) in 2006 were positive for MC. Biologists from the IDFG Southeast Region sampled rainbow trout, brook trout, and Bonneville cutthroat trout from the stream and submitted them to EFHL for confirmation. *Myxobolus* spores were present in pooled samples of all three species by PTD. Polymerase chain reaction tests confirmed *Myxobolus cerebralis* (MC) from the rainbow trout samples but the Bonneville

cutthroat trout samples were negative. *Myxobolus neurotropis* (MN) was confirmed from the cutthroat samples.

Panhandle regional personnel took tissue samples from lake trout captured in Lake Pend Oreille (Bonner County) following the positive EEDV findings from lake trout and rainbow trout at Grace Hatchery. The samples were relayed via EFHL to a laboratory at University of California Davis for PCR analysis. The test detected viral DNA in 27 of 36 samples (75%). Stocking records are incomplete, but suggest 1925 as the earliest introduction of lake trout into Lake Pend Oreille. Lake trout may also have moved downstream from either Priest Lake or Flathead Lake sometime since then. There is some discussion on how to interpret uncorroborated PCR results, but assuming the test is correct, it is probable that the virus has been in the lake for as long as lake trout have been present.

OTHER ACTIVITIES

Stocking sterile domestic fish from IDFG hatcheries to avoid introgression with wild populations has become an important part of statewide fishery management. Treatment of freshly fertilized eggs causes the embryonic cells to retain an extra set of maternal chromosomes (the polar body), resulting in a state of triploidy. Fish that hatch from such eggs retain this state and are reproductively sterile. Because most practical induction techniques are not perfect, IDFG has established a goal to stock only “sterile” hatchery fish populations that are at least 95% triploid individuals. Testing for triploidy is based on the fact that cell nuclei of triploid fish are relatively larger than those of diploid fish because they contain half again more DNA. A flow cytometer machine is used to measure the size of red blood cell nuclei. I was assigned to take individual blood samples from presumed triploid fish lots and sent them to the Thorgaard Laboratory at Washington State University for analysis.

Hayspur rainbow trout lots at American Falls and Hagerman Hatcheries were tested in 2009 for triploidy. Out of 381 samples, only one diploid was detected (99.7% 3N). Sixty juvenile rainbow (male) X cutthroat (female) hybrid trout were sampled at Mackay Hatchery prior to release back into Henrys Lake, with a detected triploid induction rate of 100%. Lake trout juveniles at Grace Hatchery that originated as eggs from Story Hatchery, Wyoming, were tested and 3N induction in the sample set was also 100% (60 of 60). Six test groups of brook trout eggs (three treatments X two replicates) were pressure treated at Story Hatchery and the resulting eyed eggs shipped to the EFHL for rearing in the wet laboratory. Specifically, the pressure treatments were all at 9,500 psi for 5 minutes, initiated at 35 (A), 40 (B), and 45 (C) minutes post-fertilization. Hatch and early rearing survival was not good for any of the lots, but was generally best for the A and B groups, estimated at 66-68%. Standard cell culture virology was done on some of the juveniles with no replicating virus detected. Triploid induction rates averaged 100% for the A groups (60 of 60), 96.7% for the B groups (58 of 60), and 98.3% for the C groups (59 of 60).

I was asked to inspect a group of rainbow trout juveniles reared at a Batise Springs Trout Farm, a private hatchery near Pocatello, for release into Salmon Falls Creek Reservoir. No evidence of viruses, significant bacteria, or MYXOB spores was detected in the samples. I examined the open water source and found New Zealand mud snails. These invasive exotics were not an issue with this particular transfer, since they have already been identified in Salmon Falls Creek. However, they would be of concern if fish from the hatchery were transported to a drainage that has not yet been contaminated.

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APPENDICES

Appendix A. Summary of Eagle Fish Health Laboratory results for American Falls Hatchery, January 1 – December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2008	Troutlodge	Rainbow trout, triploid	09-014	1/29/09					-	-	+	-			DX: CWD; <i>Flavobacterium psychrophilum</i> 6/6
2008	Hayspur	Rainbow trout, triploid	09-051	3/17/09					-	-	+	-			DX: CWD, PSEU; <i>F. psychrophilum</i> 4/4, <i>Pseudomonas sp.</i> 4/4
2008	Hayspur	Rainbow trout, triploid	09-138	5/12/09					-	-	+	-			DX: CWD; <i>F. psychrophilum</i> 4/4
2009	Hayspur	Rainbow trout, triploid	09-168	6/19/09					-	-	+	-			DX: CWD; <i>F. psychrophilum</i> 1/5
2008	Hayspur	Rainbow trout, triploid	09-182	7/06/09	-	-			-	-	+	-			DX: CWD; VIRO 0/10, <i>F. psychrophilum</i> 6/10
2009	Henry's Lake	Rainbow X Cutthroat Hybrids	09-189	7/20/09	-	-			-	-	+	-			DX: CWD; VIRO 0/8, <i>F. psychrophilum</i> 8/8
2008	Hayspur	Rainbow trout, triploid	09-226C	7/20/09											RS: Triploid Induction Rate 60/60 (100%)
2009	Troutlodge	Rainbow trout triploid	09-362	10/27/09					-	-	+	-			DX: CWD; <i>F. psychrophilum</i> 6/8

Appendix B. Summary of Eagle Fish Health Laboratory results for Ashton Hatchery, January 1 – December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2008	Hayspur	Rainbow trout, triploid	09-064	3/29/09	-	-	-	-	-	-	-	-	-	-	IX: NPD; VIRO 0/55, DFAT 0/55, BACTE 0/10, PTD-MYXOB 0/55
2008	British Columbia	Brook trout	09-065	3/29/09	-	-	-	-	-	-	-	-	-	-	IX: NPD; VIRO 0/10, BACTE 0/5
2008	British Columbia	Brook trout	09-095	4/14/09	-	-	-	-	-	-	-	-	-	-	DX: NPD; VIRO 0/10, BACTE 0/10
2008	British Columbia	Brook trout	09-113	4/21/09	-	-	-	-	-	-	+	+	-	-	DX: CWD, MAS: <i>Flavobacterium psychrophilum</i> 7/8, <i>Aeromonas sp.</i> 7/8
2009	Hayspur	Rainbow trout, triploid	09-238	8/18/09	-	-	-	-	-	-	+	-	-	-	DX: CWD; VIRO 0/5, <i>F. psychrophilum</i> 2/6

Appendix C. Summary of Eagle Fish Health Laboratory results for Cabinet Gorge Hatchery, January 1 – December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
Brood	King's Lake	Westslope Cutthroat trout	09-152	5/18/09	-	-	-	+	-	-	-	-	-	-	IX: BKD; VIRO 0/60, DFAT 0/60, ELISA 17/60 (Females 15 low & 2 high)
Mixed 07 & 08	King's Lake	Westslope Cutthroat trout	09-153	5/19/09	-	-	-	-	-	-	-	-	-	-	IX: NPD; DFAT 0/23, ELISA 0/20
2007 Brood	King's Lake	Westslope Cutthroat trout	09-170	6/22/09	-	-	-	-	-	-	-	-	-	-	IX: NPD; VIRO 0/60, OCP-FAT OCP-FAT 0/60
Brood	Sullivan Springs	Kokanee salmon	09-402	11/23/09	-	-	-	-	-	-	+	-	-	-	IX: CWD, PSEU; VIRO 0/57, DFAT 0/57, ELISA pending, <i>F. psychrophilum</i> 12/12, <i>Pseudomonas sp.</i> 12/12, PTD-MYXOB 0/60

Appendix D. Summary of Eagle Fish Health Laboratory results for Grace Hatchery, January 1 – December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2008	Troutlodge	Rainbow trout, triploid	09-049	3/16/09	-	-			-	-	+	-	-		IX: CWD; VIRO 0/30, DFAT 0/30, <i>Flavobacterium psychrophilum</i> 3/5, PTD-MYXOB 0/30
2009	Hayspur	Rainbow trout, triploid	09-122	4/23/09					-	-	+	-			DX: CWD; <i>F. psychrophilum</i> 7/8
2008	Story, WY	Lake Trout	09-309	10/5/09	-	-	-								IX: EEDV; VIRO 0/60, NAVHS 0/36, PCR- EEDV 8/10 (x4), Triploid induction rate 60/60 (100%)
2008	Troutlodge	Rainbow trout, triploid	09-310	10/5/09									-		IX: EEDV; PCR-EEDV 7/10 (x4), PTD-MYXOB 0/60

Appendix E. Summary of Eagle Fish Health Laboratory results for Hagerman State Hatchery, January 1 – December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2008	Troutlodge	Rainbow trout, triploid	09-003A	1/06/09	-	-			-	-	+	+			DX: COL, MAS, CWD; VIRO 0/5, <i>Flavobacterium columnare</i> 3/4, <i>Aeromonas hydrophila</i> 3/4, <i>Flavobacterium psychrophilum</i> 1/4
2008	Troutlodge	Rainbow trout, triploid	09-003B	1/06/09	+	-			+	-	-	-			DX: IHN, FUR; IHNV 1/1 (x5), IPNV 0/5, <i>A. salmonicida</i> 4/4
2008	Troutlodge	Rainbow trout, triploid	09-003C	1/06/09	-	-			+	-	-	-			DX: FUR; VIRO 0/5, <i>A. salmonicida</i> 4/4
2008	Hayspur	Rainbow trout, triploid	09-011	1/22/09	+	-			-	-	+	-			DX: IHN, CWD; IHNV 1/1 (x5), IPNV 0/5, <i>F. psychrophilum</i> 2/4
2008	Troutlodge	Rainbow trout, triploid	09-012	1/22/09	-	-			-	-	-	+			DX: COL, MAS, PSEU; VIRO 0/5, <i>F. columnare</i> 4/4, <i>A. caviae</i> 3/4, <i>Pseudomonas alcaligenes</i> 1/4
2008	Troutlodge	Rainbow trout, triploid	09-015B	2/04/09	-	-			-	-	+	-			DX: CWD; VIRO 0/5, <i>F. psychrophilum</i> 1/4, PCR-NS 0/1
2008	Troutlodge	Rainbow trout, triploid	09-016	2/04/09					-	-	+	-			DX: FUR; <i>A. salmonicida</i> 4/4
2008	Troutlodge	Rainbow trout, triploid	09-020	2/10/09	+	-			-	-	-	-			DX: IHN, BACTEREMIA; IHNV 1/1 (x5), IPNV 0/5, <i>Flavobacterium sp.</i> 1/5
2008	Troutlodge	Rainbow trout, triploid	09-052	3/17/09					-	-	+	-			DX: CWD; <i>F. psychrophilum</i> 1/4
2009	Hayspur	Rainbow trout, Triploid	09-109	4/20/09	-	-			-	-	+	+			DX: CWD, MAS; VIRO 0/5, <i>F. psychrophilum</i> 5/5, <i>A. hydrophila</i> 3/5
2008	Troutlodge	Rainbow trout, triploid	09-110	4/20/09	+	-			-	-	+	-			DX: IHN, CWD, NS, PKX; IHNV 1/1 (x5), IPNV 0/5, <i>F. psychrophilum</i> 4/5, PCR-NS 1/1, PCR-PKX 1/1
2008	Troutlodge	Rainbow trout, triploid	09-128	4/30/09	+	-			-	-	+	-			DX: IHN, CWD; IHNV 2/2 (x5), IPNV 0/10, <i>F. psychrophilum</i> 6/8

Appendix E. Continued.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2009	Hayspur	Rainbow trout, triploid	09-129	4/30/09	-	-			-	-	+	-			DX: CWD, PSEU; VIRO 0/5, <i>F. psychrophilum</i> 3/5, <i>P. fluorescens</i> 1/5
2008	Troutlodge	Rainbow trout, triploid	09-139	5/12/09	+	-			-	-	-	+			DX: IHN, MAS; IHNV 1/1 (x6), IPNV 0/6, <i>A. hydrophila</i> 1/6, <i>Aeromonas sp.</i> 1/6
2009	Troutlodge	Rainbow trout, triploid	09-196	7/22/09	-	-			-	-	-	-			DX: NPD; VIRO 0/5, BACTE 0/5
2009	Hayspur	Rainbow trout, triploid	09-197	7/22/09	-	-			-	-	-	+			DX: MAS; <i>A. hydrophila</i> 5/5
2009	Troutlodge	Rainbow trout, triploid	09-198	7/22/09	-	-			-	-	-	+			DX: MAS; VIRO 0/6, <i>A. hydrophila</i> 4/6
2008	Hayspur	Rainbow trout, triploid	09-224	8/17/09	+	-			-	-	+	-			DX: IHN, CWD; IHNV 1/1 (x5), IPNV 0/5, <i>F. psychrophilum</i> 4/5
2009	Troutlodge	Rainbow trout, triploid	09-225	8/17/09	-	-			-	-	+	-			DX: CWD; VIRO 0/5, <i>F. psychrophilum</i> 5/5
2008	Hayspur	Rainbow trout, triploid	09-226A	4/20/09											IX: RESEARCH: Triploid induction rate 170/171 (99.4%)
2009	Hayspur	Rainbow trout, triploid	09-226B	8/17/09											IX: RESEARCH: Triploid induction rate 150/150 (100%)
2009	Troutlodge	Rainbow trout, triploid	09-259	8/27/09	-	-	-		-	-	+	+			DX: CWD, MAS; VIRO 0/5, <i>F. psychrophilum</i> 2/5, <i>A. hydrophila</i> 1/5, <i>A. sobria</i> 2/5, Ectoparasites 0/3, PCR-NS 0/6
2009	Troutlodge	Rainbow trout, triploid	09-388	11/09/09	-	-			-	-	+	-			DX: CWD; VIRO 0/5, <i>F. psychrophilum</i> 5/5, PCR-NS 0/5
2009	Hayspur	Rainbow trout, triploid	09-389	11/09/09	+	-			-	-	+	-			DX: IHN, CWD; IHNV 2/2 (x5), IPNV 0/10, <i>F. psychrophilum</i> 4/5, DFAT 0/5, ELISA 0/5 PCR-NS 0/7

Appendix E. Continued.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2009	Troutlodge	Rainbow trout, triploid	09-417	12/15/09	-	-		-	-	-	-				DX: PSEU; VIRO 0/5, <i>P. fluorescens</i> 4/5
2009	Troutlodge	Rainbow trout, triploid	09-418	12/15/09	+	-			-	-	+	-			DX: IHN, CWD; IHNV 1/2 (x5), IPNV 0/10, <i>F. psychrophilum</i> 8/10
2009	Hayspur	Rainbow trout, triploid	09-419	12/15/09	+	-			-	-	+	+			DX: IHN, CWD, MAS, PSEU; IHNV 1/1 (x4), IPNV 0/5, <i>F. psychrophilum</i> 4/5, <i>A. hydrophila</i> 1/5, <i>Pseudomonas sp.</i> 1/5

Appendix F. Summary of Eagle Fish Health Laboratory results for Hayspur Hatchery, January 1 – December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2008	Hayspur	Rainbow trout, diploid	09-004	1/07/09	-	-			-	-	+	-			DX: CWD; VIRO 0/5, <i>Flavobacterium psychrophilum</i> 5/5
2008	Hayspur	Rainbow trout, diploid	09-005	1/07/09					-	-	+	-			DX ; CWD; <i>F. psychrophilum</i> 5/5
04/05	Hayspur	Rainbow trout, diploid	09-102	4/15/09				+							IX: BKD; DFAT 0/6, PCR-RS 3/3, ELISA 23/60 (12 low, 11 high)
04/05	Hayspur	Kamloops RBT, diploid	09-103	4/15/09				+							IX: BKD; DFAT 0/6, PCR-RS 1/3, ELISA 23/59 (11 low, 12 high)
2008	Hayspur	Rainbow trout, triploid	09-243	8/21/09	+	-			-	-	+	-			DX: IHN, CWD; IHNV 1/1 (x5), IPNV 0/5, <i>F. psychrophilum</i> 2/6, PCR-NS 0/5
2008	Hayspur	Rainbow trout, triploid	09-260	8/28/09	+										DX: IHN; IHNV 10/10
2009	Hayspur	Rainbow trout, triploid	09-294	9/15/09	-	-	-								IX: NPD; VIRO 0/150, VHS 0/15
2008	Hayspur	Rainbow trout, diploid	09-298	9/21/09	-	-	-								IX: NPD; VIRO 0/150, VHS 0/15
2006	Hayspur	Rainbow trout, diploid	09-318	10/05/09	-	-	-								IX: NPD; VIRO 0/60, VHSV 0/10
2006	Hayspur	Kamloops RBT, diploid	09-319	10/05/09	-	-									IX: NPD; VIRO 0/10
2007	Hayspur	Rainbow trout, diploid	09-320	10/06/09	-	-									IX: NPD; VIRO 0/5
2007	Hayspur	Rainbow trout, diploid	09-321	10/06/09	-	-									IX: NPD; VIRO 0/15
2006	Hayspur	Kamloops RBT, diploid	09-322	10/07/09	-	-	-								IX: NPD; VIRO 0/110, VHSV 0/15
2006	Hayspur	Rainbow trout, diploid	09-332	10/15/09	-	-	-	-							IX: NPD; VIRO 0/47, VHS 0/5, DFAT 0/15, OCP-FAT 0/47, ELISA 0/15

Appendix F. Continued.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2007	Hayspur	Rainbow trout, diploid	09-333	10/13/09	-	-	-								IX: NPD; VIRO 0/10, VHSV 0/5
2006	Hayspur	Kamloops RBT, diploid	09-334	10/13/09	-	-	-								IX: NPD; VIRO 0/40, VHSV 0/5
2007	Hayspur	Rainbow trout, diploid	09-350	10/19/09	-	-									IX: NPD; VIRO 0/10
2007	Hayspur	Rainbow trout, diploid	09-351	10/19/09	-	-									IX: NPD; VIRO 0/5
2006	Hayspur	Rainbow trout, diploid	09-352A	10/22/09	-	-		-							IX: NPD; VIRO 0/36, DFAT 0/15, OCP-FAT 0/36, ELISA 0/15
2007	Hayspur	Rainbow trout, diploid	09-352B	10/22/09	-	-		-							IX: NPD; VIRO 0/12, OCP-FAT 0/12
2006	Hayspur	Rainbow trout, diploid	09-366A	10/29/09	-	-	-	-							IX: NPD; VIRO 0/28, VHSV 0/4, OCP-FAT 0/28, DFAT 0/15, ELISA 0/15
2007	Hayspur	Rainbow trout, diploid	09-366B	10/29/09	-	-	-	-							IX: NPD; VIRO 0/18, VHSV 0/1, OCP-FAT 0/18
2007	Hayspur	Rainbow trout, diploid	09-367	10/27/09	-	-	-								IX: NPD; VIRO 0/20, VHSV 0/5,
200	Hayspur	Rainbow trout, diploid	09-380	11/05/09	-	-	-	-							IX: NPD; VIRO 0/48, VHSV 0/5, OCP-FAT 0/48, DFAT 0/15, ELISA 0/15
2008	Hayspur	Rainbow trout, diploid	09-381	11/04/09	-	-									IX: NPD; VIRO 0/25
2007	Hayspur	Rainbow trout, diploid	09-382	11/4/09	-	-	-								IX: NPD; VIRO 0/25, VHSV 0/5
2007	Hayspur	Rainbow trout, Diploid	09-392A	11/10/09	-	-									IX: NPD; VIRO 0/40
2007	Hayspur	Rainbow trout, diploid	09-392B	11/10/09	-	-	-								IX: NPD; VIRO 0/15, VHSV 0/10

Appendix F. Continued.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2007	Hayspur	Rainbow trout, diploid	09-393A	11/11/09	-	-	-								IX: NPD; VIRO 0/40, VHSV 0/5
2007	Hayspur	Rainbow trout, diploid	09-393B	11/11/09	-	-									IX: NPD; VIRO 0/10
2007	Hayspur	Rainbow trout, diploid	09-396	11/17/09	-	-	-								IX: NPD; VIRO 0/40, VHSV 0/5
2007	Hayspur	Rainbow trout, diploid	09-397	11/19/09	-	-	-								IX: NPD; VIRO 0/45, VHSV 0/5
2007	Hayspur	Rainbow trout, diploid	09-398	11/17/09	-	-	-								IX: NPD; VIRO 0/20, VHSV 0/5
2007	Hayspur	Rainbow trout, diploid	09-399	11/18/09	-	-									IX: NPD; VIRO 0/15
2007	Hayspur	Rainbow trout, diploid	09-400	11/19/09	-	-									IX: NPD; VIRO 0/10
2006	Hayspur	Kamloops RBT, diploid	09-401	11/18/09	-	-									IX: NPD; VIRO 0/20
2007	Hayspur	Rainbow trout, diploid	09-403	11/23/09	-	-	-								IX: NPD; VIRO 0/35, VHSV 0/5
2007	Hayspur	Rainbow trout, diploid	09-404	11/26/09	-	-									IX: NPD; VIRO 0/20
2007	Hayspur	Rainbow trout, diploid	09-405	11/23/09	-	-	-								IX: NPD; VIRO 0/25, VHSV 0/5
2006	Hayspur	Rainbow trout, diploid	09-406	12/01/09	-	-	-								IX: NPD; VIRO 0/40, VHSV 0/510
2007	Hayspur	Rainbow trout, diploid	09-407	12/01/09	-	-	-								IX: NPD; VIRO 0/35, VHSV 0/5
2007	Hayspur	Rainbow trout, diploid	09-408	12/02/09	-	-	-								IX: NPD; VIRO 0/40, VHSV 0/5
2006	Hayspur	Kamloops RBT, diploid	09-409	12/02/09	-	-	-								IX: NPD; VIRO 0/45, VHSV 0/5

Appendix F. Continued.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2006	Hayspur	Rainbow trout, diploid	09-411	12/08/09	-	-									IX: NPD; VIRO 0/35
2007	Hayspur	Rainbow trout, diploid	09-412	12/08/09	-	-									IX: NPD; VIRO 0/30, VHS 0/15
2007	Hayspur	Rainbow trout, diploid	09-413	12/09/09	-	-									IX: NPD; VIRO 0/25
2006	Hayspur	Kamloops RBT, diploid	09-414	12/09/09	-	-									IX: NPD; VIRO 0/25
2006	Hayspur	Rainbow trout, diploid	09-420	12/15/09	-	-	-								IX: NPD; VIRO 0/30, VHS 0/5
2007	Hayspur	Rainbow trout, diploid	09-421	12/16/09	-	-	-								IX: NPD; VIRO 0/20, VHS 0/5
2007	Hayspur	Rainbow trout, diploid	09-422	12/16/09	-	-									IX: NPD; VIRO 0/35
2006	Hayspur	Kamloops RBT, diploid	09-423	12/16/09	-	-	-								IX: NPD; VIRO 0/40, VHS 0/5
2007	Hayspur	Rainbow trout, diploid	09-425	12/22/09	-	-	-								IX: NPD; VIRO 0/50, VHS 0/5
2007	Hayspur	Rainbow trout, diploid	09-426	12/22/09	-	-	-								IX: NPD; VIRO 0/25, VHS 0/5
2006	Hayspur	Kamloops RBT, diploid	09-427	12/22/09	-	-	-								IX: NPD; VIRO 0/35, VHS 0/5

Appendix G. Summary report of Eagle Fish Health Laboratory results for Henrys Lake Hatchery, January 1 – December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-026	2/23/09	-	-	-	-							IX: NPD; VIRO 0/14, VHS 0/14, OCP-FAT 0/175
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-030	2/25/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/140
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-031	2/28/09	-	-		-							IX: NPD; VIRO 0/21, OCP-FAT 0/98
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-032	3/02/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/105
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-038	3/05/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/105
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-039	3/09/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/105
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-053	3/12/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/140
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-054	3/16/09				-							IX: NPD; OCP-FAT 0/70
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-060	3/19/09	-	-	-	-							IX: NPD; VIRO 0/21, VHS 0/21, OCP-FAT 0/105
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-066	3/30/09	-	-		+	-	-	+	-	-		IX: CWD, RS; VIRO 0/60, DFAT 0/60, ELISA 4/12 (x5; 4 lows), <i>Flavobacterium psychrophilum</i> 4/12, PTD-MYXOB 0/60
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-067	3/26/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/77
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-068	3/30/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/105
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-082	4/01/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/105
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-083	4/06/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/105

Appendix G. Continued.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-093	4/09/09				-							IX: NPD; OCP-FAT 0/105
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-094	4/13/09				-							IX: NPD; OCP-FAT 0/70
Brood	Henrys Lake	Yellowstone Cutthroat trout	09-112	4/20/09	-	-		-							IX: NPD; VIRO 0/14, OCP-FAT 0/105
Adult	Henrys Lake	Yellowstone Cutthroat trout	10-006	12/22/09											IX: PCR RESULTS PENDING

Appendix H. Summary report of Eagle Fish Health Laboratory results for Mackay Hatchery, January 1 - December 31, 2009.

Brood year	Stock	Species	Accession	Sample		IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
				Date												
2008	Jackson NFH	Yellowstone Cutthroat trout (fine spot)	09-187	7/13/09	-	-		-	-	-	-	-	-	-	-	IX: NPD; VIRO 0/60, DFAT 0/60, BACTE 0/10, PTD-MYXOB 0/60
2008	Troutlodge	Rainbow trout, triploid	09-188	7/14/09	-	-		-	-	-	-	-	-	-	-	IX: NPD; VIRO 0/20, DFAT 0/20, BACTE 0/10, PTD-MYXOB 0/20
2009	Henrys Lake	Rainbow X Cutthroat hybrids	09-279	9/08/09	-	-										IX: NPD; VIRO 0/60 Triploid induction rate 60/60 (100%)
Brood	Anderson Reservoir (S.F. Boise)	Kokanee salmon	09-287	9/11/09	-	-		-	-							IX: ; VIRO 0/60, VHS 0/10, DFAT 0/60, ELISA 0/60, PTD-MYXOB 0/60, PCR-NS 0/4

Appendix I. Summary report of Eagle Fish Health Laboratory results for McCall Hatchery Resident Programs, January 1 - December 31, 2009.

Brood year	Stock	Species	Accession	Sample		IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
				Date												
2009	Washoe Park (MT)	Westslope Cutthroat trout	09-201	7/27/09	-	-				-	-	-	-			DX: PSEU; VIRO 0/10, <i>Pseudomonas fluorescens</i> 2/10
2009	Washoe Park (MT)	Westslope Cutthroat trout	09-212	8/07/09						-	-	+	-			DX: CWD; <i>Flavobacterium psychrophilum</i> 10/10

Appendix J. Summary report of Eagle Fish Health Laboratory results for Nampa Hatchery, January 1 - December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2008	Troutlodge	Rainbow trout, triploid	09-001	1/05/09					-	-	+	-			DX: CWD; <i>Flavobacterium psychrophilum</i> 4/6
2008	Troutlodge	Rainbow trout, triploid	09-021	2/18/09					-	-	-	-			DX: BGD; <i>Aeromonas hydrophila</i> 4/4, <i>F. psychrophilum</i> 3/4 (both from gills)
2009	Hayspur	Rainbow trout, triploid	09-044	3/11/09					-	-	-	+			DX: MAS; <i>A. caviae</i> 4/5
2009	Hayspur	Rainbow trout, triploid	09-069	3/31/09					-	-	-	+			DX: MAS; <i>A. sobria</i> 5/5
2008	Hayspur	Rainbow trout, triploid	09-070	3/31/09					-	-	+	-			DX: CWD; <i>F. psychrophilum</i> 3/5
2008	Troutlodge	Rainbow trout, triploid	09-141	5/13/09										-	DX: NPD; ICH 0/60
2008	Troutlodge	Rainbow trout, triploid	09-174	6/18/09										-	DX: NPD; ICH 0/60
2009	Troutlodge	Rainbow trout, triploid	09-186	7/03/09					-	-	+	+			DX: CWD, MAS; <i>F. psychrophilum</i> 4/4, <i>A. hydrophila</i> 2/5
2009	Hayspur	Rainbow trout, triploid	09-208	8/06/09					-	-	+	+			DX: CWD, MAS; <i>F. psychrophilum</i> 5/5, <i>A. hydrophila</i> 5/5
2009	Troutlodge	Rainbow trout, triploid	09-313	10/7/09					-	-	+	+			DX: CWD, MAS, PSEU; <i>F. psychrophilum</i> 7/8, <i>A. hydrophila</i> 7/8, <i>Pseudomonas sp.</i> 5/8
2009	Troutlodge	Rainbow trout, triploid	09-391	11/12/09					-	-	-	+			DX: MAS, PSEU; <i>A. hydrophila</i> 4/4, <i>Pseudomonas sp.</i> 2/4

Appendix K. Summary report of Eagle Fish Health Laboratory results for Sandpoint Hatchery, January 1 - December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2009	Hayspur	Rainbow trout, triploid	09-304	9/28/09	-	-	-								IX: NPD; VIRO 0/55, VHS 0/20

Appendix L. Summary report of Eagle Fish Health Laboratory results for Sawtooth Hatchery Resident Programs, January 1 - December 31, 2009.

Brood year	Stock	Species	Accession	Sample Date	IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	ICH	Diagnoses
2009	Washoe Park (MT)	Westslope Cutthroat trout	09-244	8/21/09					-	-	-	-			DX: PSEU; <i>Pseudomonas fluorescens</i> 4/5

Appendix M. Summary report of Eagle Fish Health Laboratory results for resident wild fish inspections, January 1 - December 31, 2009.

Stock	Species	Accession	Date	Sample											Diagnoses
				IHN	IPN	VHS	BKD	FUR	ERM	CWD	MAS	WHD	MN		
SOUTHWEST REGION															
Snake River															
Crane Falls Reservoir	Channel catfish	09-048	3/14/09						-	-				+	DX: BACTEREMIA; <i>A. hydrophila</i> 1/1, <i>Shewanella</i> sp. 1/1, <i>Illinobdella</i> sp.1/1
UPPER SNAKE REGION															
Teton River															
Badger Creek	Rainbow trout	09-384	9/30/09												DX: NEMATODOSIS <i>Eustrongylides</i> spp.
SOUTHEAST REGION															
Bear River															
St. Charles Creek	Brook trout	09-325	10/07/09												IX: MYXOB; PTD-MYXOB 3/7 (x5)
St. Charles Creek	Rainbow trout	09-326	10/07/09											+	IX: WHD; PTD-MYXOB 4/8 (x4), PCR- <i>M. cerebralis</i> 3/3
St. Charles Creek	Bonneville Cutthroat trout	09-327	10/07/09											- +	IX: NEURO; PTD-MYXOB 2/4 (x3), PCR- <i>M. cerebralis</i> 0/5, PCR- <i>M. neurotropis</i> 1/5
PANHANDLE REGION															
Lake Pend Oreille	Lake trout	09-353	10/19/09	-	-										IX: EEDV; IHNV 0/69, IPNV 0/69, PCR-EPIZOOTIC EPITHELITROPIC DISEASE VIRUS 27/36

Appendix N. List of Acronyms used in the Resident Hatcheries Fish Health Report-2008.

AADAPP	Aquatic Animal Drug Approval Partnership Program
BACTE	Bacteriology test results.
BKD	Bacterial kidney disease, caused by <i>Renibacterium salmoninarum</i> .
COL	Columnaris disease, caused by <i>Flavobacterium columnare</i> .
CWD	Bacterial coldwater disease, caused by <i>Flavobacterium psychrophilum</i> .
DFAT	Fluorescent antibody test
DNA	Deoxyribonucleic acid
DX	Diagnostic examination
EEDV	Epidemic Epitheliotropic Disease Virus or Salmonid Herpes Virus 3.
EFHL	Eagle Fish Health Laboratory
ELISA	Enzyme-linked immunosorbent assay
ERM	Enteric redmouth disease, caused by <i>Yersinia ruckeri</i> .
FDA	Food and Drug Administration. An agency within the U. S. Dept. of Health and Human Services.
FUR	Furunculosis, caused by <i>Aeromonas salmonicida</i> .
IDFG	Idaho Department of Fish and Game
IHN	Infectious hematopoietic necrosis disease, caused by IHN virus.
IHNV	Infectious hematopoietic necrosis virus; acronym used in diagnoses to indicate presence of virus without signs of clinical disease.
INAD	Investigational New Animal Drug
ICH	<i>Ichthyophthirius multifiliis</i> ; a protozoan parasite of skin and gills.
ISDA	Idaho State Department of Agriculture
IPN	Infectious pancreatic necrosis disease, caused by IPN virus.
IPNV	Infectious pancreatic necrosis virus; acronym used in diagnoses to indicate presence of virus without signs of clinical disease.
IX	Inspection examination
MAS	Motile aeromonad septicemia, caused by many <i>Aeromonas</i> -like species.
MC	<i>Myxobolus cerebralis</i> ; causative agent of whirling disease of salmonids.
MN	<i>Myxobolus neurotropis</i> ; new species of <i>Myxobolus</i> found in nerve tissues.
MYXOB	<i>Myxobolus</i> ; acronym used when a species is not identified.
NPD	No Pathogens Detected
NS	<i>Nucleospora salmonis</i> , an intranuclear, microsporidian parasite
OCP-FAT	Ovarian cell pellet fluorescent antibody test
OTC	Oxytetracycline antibiotic
PCR	Polymerase chain reaction test; used to detect specific DNA fragments of a targeted organism
PKX	<i>Tetracapsuloides bryosalmonae</i> : causative agent of proliferative kidney Disease.
PNFHPC	Pacific Northwest Fish Health Protection Committee
PSEU	Septicemia due to a variety of <i>Pseudomonas</i> species of bacteria.
PTD	Pepsin/trypsin digest method for detecting <i>Myxobolus</i> spores.
RARC	Rangens Aquaculture Research Center, Buhl, Idaho
RS	<i>Renibacterium salmoninarum</i> ; causative agent of BKD; acronym used in diagnoses to indicate presence of bacteria without signs of clinical disease
VFD	Veterinary Feed Directive; required to treat CWD with the antibiotic Aquaflor.
VHS	Viral hemorrhagic septicemia; viral disease/agent not yet detected in Idaho.
VIRO	Virology test results
WHD	Whirling disease of salmonids, caused by <i>Myxobolus cerebralis</i>

GRACE FISH HATCHERY

Beau Gunter; Fish Culturist
Bryan Grant; Assistant Manager
Phil Coonts; Hatchery Manager

INTRODUCTION

Grace Fish Hatchery (GFH) is located in Caribou County, Idaho, approximately seven miles south of the community of Grace. The GFH was acquired in 1946. Owned and operated by the Idaho Department of Fish and Game, funding is received from revenue generated by license sales.

The primary mission of GFH is to produce catchable and fingerling rainbow trout *Oncorhynchus mykiss* for stocking waters in the Southeast Region. Catchable size trout (from 9-inches to 10-inches) are distributed locally on a put-and-take basis. Fingerling trout (3-inches to 6-inches) are distributed in area and state-wide waters as part of various put-grow-and-take management programs. The GFH also produces sterile lake trout *Salvelinus namaycush* for stocking into Bear Lake.

One temporary employee, a Fish Culturist, an Assistant Fish Hatchery Manager and a Fish Hatchery Manager I staff GFH.

Water for GFH is supplied by gravity flow from West Whiskey Creek spring and Middle Whiskey Creek spring. Both springs are located on private property neighboring the hatchery. Monthly flow for 2009 averaged 13.5 cfs, which equals the last 13-year average of 13.5 cfs. The springs' flows peak during the fall months. The highest monthly flow this year was 17.1 cfs during September. The lowest flows occur during the spring months. This year's lowest flow was 11.1 cfs during April and May. The springs' flows are at opposition of the hatchery's needs. The greatest demand for water is during the spring when all of next years' catchables and spring fingerling are on station. The least demand for water occurs in the fall when there are few catchables yet to be planted and no fingerling on station. This situation will be relieved this year by the conversion of the Island Park spring fingerling into fall fingerling. Water temperatures fluctuate from 52°F to 54°F.

Fish rearing space consists of sixteen (3 ft x 1.5 ft x 13 ft) single pass indoor vats, sixteen (4 ft x 3.5 ft x 40 ft) single pass small raceways and six (12 ft x 3.5 ft x 300 ft) large raceways. There are also four (4 ft x 3.5 ft x 100 ft) single pass medium raceways, but these should not be used except for an emergency situation due to design limitations. The water for the large raceways is a mixture of first use and second use water from the vats and the small raceways. All effluent water flows through a settling pond before being discharged into Whiskey Creek.

FISH PRODUCTION

GFH began the 2009 calendar year with 161,259 (20,412 lbs) sub-catchable rainbow trout. Sandpoint Hatchery received 35,135 (10,250 lbs) of these fish. GFH planted 124,970 rainbow catchables (36,579 lbs). At the end of 2009, there were 166,252 sub-catchable rainbow trout (23,828 lbs) on hand. These fish will be 2010 catchables (Appendix 1).

GFH raised fingerling for five different reservoirs and one mountain lake. The hatchery planted 1,025,795 (7,362 lbs) rainbow fingerling during the year (Appendix 1).

GFH planted 22,000 (2,650 lbs) fingerling lake trout into Bear Lake. There were around 48,000 fry on hand at the end of 2009 (Appendix 1).

Egg sources for all the fish produced at GFH during 2009 were: Hayspur State Fish Hatchery, IDFG; Story Fish Hatchery, (Wyoming Game and Fish Dept. (WGFD); and Troutlodge Inc., Sumner, Washington (Appendix 2).

Production cost at GFH for 2009 was \$225,200 (Appendix 4). There was no capital outlay money spent in 2009. Rainbow trout (fingerlings and catchables combined) accounted for 99% of the total pounds produced and 99% of total cost. Lake trout account for 1% of the costs. The average cost to produce one pound of fish at GFH in 2009 was \$3.73/lb. (Appendix 4). The average cost per inch of fish produced at GFH in 2009 was \$ 0.05/inch (Appendix 4).

RAINBOW TROUT CATCHABLES

During 2009, GFH planted tributaries of the Bear River and Snake River watersheds with Troutlodge triploid (TT) catchable rainbow trout.

GFH started 2009 with 161,259 (20,412 lbs) sub-catchable fish. Over the course of the year 124,970 (36,579 lbs) triploid catchable trout, averaging 9 inches were planted. An additional 35,135 (10,250 lbs) were transferred to Sandpoint Hatchery for redistribution. On December 31, 2009, 166,252 (23,828 lbs) Troutlodge triploid sub-catchable rainbow were on station for the 2010 planting season (Appendix 1).

2009 catchables and 2010 sub-catchables converted 49,127 pounds of fish food at a rate of 0.97 pounds of feed for a pound of fish (Appendix 1). The rental and mileage costs for the 1-ton and 2-ton planting trucks were about \$10,400.

RAINBOW TROUT FINGERLING

During 2009, GFH raised triploid and diploid rainbow fingerling. A total of 1,025,795 (7,362 lbs) rainbow fingerling were planted into Idaho waters. The rainbow fingerling converted 6,672 pounds of food at a feed conversion of 0.8 (Appendix 1). Use of the Hagerman Hatchery's tanker truck for transport cost about \$5,900.

LAKE TROUT

GFH has a cooperative agreement with the Utah Department of Wildlife Resources (UDWR) to stock 50,000 triploid lake trout over a three year period into Bear Lake. The eggs for these fish are spawned at Story Hatchery, WGFD. In 2009, 22,000 fish (2,650 lbs.) were planted into Bear Lake. These fish tested positive for EEDV, a herpes virus inherent to lake trout but just discovered this year. These fish were confirmed 100% triploidy by Paul Wheeler at the Washington State Univ. School of Biology. The adipose and right ventral fins were clipped by two private clippers. Triploid lake trout converted 3,559 lbs of food at a feed conversion rate of 1.3 (Appendix 1). There were approximately 48,000 fry on hand at the end of the year for stocking Bear Lake in 2010.

FISH FEED

The fish produced during 2009 were fed a total of 59,358 lbs of feed, costing \$33,524 from Rangen, Inc. The fish weight produced during 2009 was 60,427 pounds, which resulted in an overall conversion of 0.98 pounds of feed to produce one pound of fish (Appendix 1, 3).

2009 WORK COMPLETED SUMMARY

- Three visitor kiosks, with new interpretive signs, replaced the old information booth.
- The medium raceways were covered with elk panel and tarps to prevent vegetation from growing in them.
- Vertical mesh large raceway screens were fabricated.
- Additional sprinklers were added to the park and residences 1 and 4.
- Residence 2 received a new sidewalk and resodded lawn.
- Ceiling fans were installed in the hatch house to reduce the moisture condensation.
- Cam fittings were installed on the upwellers, incubation and vat water supply lines.

- The main hatchery roadways were covered with gravel.
- Insulation was installed above the main shop.
- De-gassing aerators were built for the Heath stacks.
- The medium raceways headrace was covered with aluminum grating.
- The middle spring was buried.
- A culvert was installed across the hatchery entrance road.
- Remaining open areas of the west spring were buried.
- Trap boxes were built for the Bonneville cutthroat program.
- New large raceway feeder stands were built.
- A winch was mounted on the 2-Ton stocking truck to lift and lower the catwalk.
- A new fish pump loading arm was installed.
- The workshop received a facelift with a new workbench top, pegboard, new tool chest, and tool organization.
- New lights were installed in the egg room.
- The wooden tables in the egg room were replaced with plastic ones.
- An insulated wall was built between the garage wall and bedroom wall in res. 2.
- The vat walls were tested for PCB and lead. Both were below levels of concern.
- Res. 4 received a new pressure tank and a new water heater was put in res. 1.
- Res. 3 bedrooms, living and dining rooms were repainted.

NEEDED RENOVATIONS

- New concrete settling ponds with sump basins.
- A new building housing an office, public bathroom, and covered parking for the vehicles.
- A French drain at residence 1 entry door.
- New kitchen linoleum in residence 2.
- Remodel the kitchens in residences 2 and 3.
- New siding and windows installed on the hatch house and garden shed.
- The wiring in residences 1, 2, and 3 needs to be inspected.

- Central septic system for residences 1, 2, 3, office and hatch house to replace the sewage pond.
- Refurbish the hatch house vats by sandblasting and installing elastomeric coating.
- Isolated incubation for Bonneville cutthroat rearing program.
- Modify small raceways to securely hold Bonneville cutthroat brood fish.

PUBLIC RELATIONS

GFH staff gave scheduled tours to local area schools totaling 300 students and teachers. GFH staff also gave tours to an additional 50 private people. It is estimated about 400 people took self-guided tours around the hatchery. GFH staff conducted a Free Fishing Day clinic at the hatchery. An estimated 150 kids, 14 and under, fished the settling pond during the day.

ACKNOWLEDGEMENTS

We wish to acknowledge Grey Pino and Forrest McKinley, Biological Aides, for their work through the year. Grey was laid off in July and Forrest hired in November to work weekends. Natividad Wilson and a helper clipped the lake trout. Three volunteers helped with Free Fishing Day.

APPENDICES

Appendix 1. Number and pounds of fish produced and stocked by Grace Fish Hatchery, 2009						
Species/strain	Number (pounds) on hand 01/01/09	Number planted 2009 (pounds)	Fish Transferred from GFH 2009	Number (pounds) on hand 12/31/09	Net Production 2009	Conversion
rainbow catchables	161,259	124,970	35,135	166,252	166,252	
	(20,412)	(36,579)	(10,250)	(23,828)	(50,245)	0.97
						49,127 lbs feed/ 50,245 lbs fish
rainbow fingerlings	0	1,025,795	0	301,000	1,326,795	
		(7,362)	0	(150)	(7,512)	0.88
						6,672 lbs feed/ 7,512 lbs fish
lake trout	22,500	22,000	0	48,000	48,000	
	(5)	(2,650)	0	(25)	(2,670)	1.3
						3,559 lbs feed/ 2,650 lbs fish
Total	183,759	1,172,765	35,135	515,252	1,541,047	0.98
	(20,417)	(46,591)	(10,250)	(24,003)	(60,427)	59,358 lbs feed/ 60,427 lbs fish

Appendix 2. Eggs Received During 2009.				
Species/strain	Source	Number Received	Date Received	Cost
Troutlodge Triploid	Troutlodge, WA	184,748	5/7/09	\$ 5,445
Troutlodge Triploid	Troutlodge, WA	44,445	6/3/09	\$ 908
Troutlodge Triploid	Troutlodge, WA	321,037	12/30/09	\$ 10,273
Hayspur Diploid	Hayspur SH, IDFG	533,397	1/13/09	\$ 0
Hayspur Diploid	Hayspur SH, IDFG	534,416	1/20/09	\$ 0
Hayspur Triploid	Hayspur SH, IDFG	74,246	1/27/09	\$ 0
Lake Trout	Story SH, WGFD	48,178	12/8/09	\$ 0
Total		1,740,467		\$ 16,626

Appendix 3. Fish Food Used and Cost, 2009.					
Source	Diet	Size	Cost/lb. (cents)	Pounds	Total Cost
Rangens	TS Starter	# 0	\$76.55	700	\$ 536
Rangens	TS Starter	#1	\$76.55	700	\$ 536
Rangens	TS Starter	#2	\$76.55	3,100	\$ 2,373
Rangens	TS Starter	#3	\$76.00	9,000	\$ 6,840
Rangens	TS Grower	#3	\$54.00	5,750	\$ 3,105
Rangens	TS Grower	#4	\$52.60	2,500	\$ 1,315
Rangens	Ext 450 low P	3/32 bulk	\$49.70	6,076	\$ 3,020
Rangens	Ext 450 XX vit	1/8 bulk float	\$48.90	30,344	\$ 14,838
Rangens	TM 450	#2	\$79.40	1,100	\$ 873
Rangens	Soft-moist	0	\$1.41	44	\$ 62
Rangens	Soft-moist	1/32	\$1.32	44	\$ 58
TOTAL				59,358 lbs	\$ 33,524

Appendix 4. Production Cost, 2009

Cost of production includes six months of FY 09 and 6 months of FY 10. Personnel cost plus the total operating budget for this time period equals the production cost for 2009. This cost is \$225,200.

The cost per pound of fish produced during the year is calculated by dividing the total production cost by the total pounds of fish produced during the year. $\$225,200/60,427 \text{ lbs} = \$ 3.73/\text{lb}$.

The cost per inch of fish produced during the year is calculated by multiplying each group of fish produced during the year by the group's length. Each of these sums is added together to get a total number of inches of fish produced. This sum is divided into the total production cost. $\$225,200/4,575,574 \text{ in.} = \$ 0.049$, or 5 cents per inch of fish produced during the year.

A SUMMARY TABLE FOR QUICK REFERENCES

Grace Fish Hatchery Production, 2009

Put and Take Number of Fish	160,105
Put and Take Pounds of Fish	46,829
Put, Grow and Take Number of Fish	1,047,795
Put, Grow and Take Pounds of Fish	10,012
Avg. Catchable Fish/lb	3.4
Avg. Catchable length (in.)/fish	9.0
Avg. Fingerling Fish/lb	104.6
Avg. Fingerling length (in.)/fish	2.9
Avg. Length (in.) of all Fish Produced	3.7
Feed Used (lbs)	59,358
Feed Cost	\$33,524
Production Cost (operating + personnel)	\$225,200
Production Cost/1000 fish produced	\$130.70
Production Cost/lb fish produced	\$3.73
Production Cost/inch fish produced	\$0.05

HAGERMAN FISH HATCHERY

Joe Chapman, Hatchery Manager II
David May, Assistant Hatchery Manager I
Travis Parrill, Fish Culturist
Sam Van Liew, Fish Culturist
Ken Taylor, Transport Operator

INTRODUCTION

Hagerman Fish Hatchery (HFH) is a state-owned resident trout production facility. The HFH raises several strains of rainbow trout *Oncorhynchus mykiss* and various specialty species for statewide distribution. The HFH is the largest resident trout production facility of the Idaho Department of Fish and Game (Department). Built in 1947, it is located approximately 30 miles west of Twin Falls on the Snake River.

Funding is provided primarily through Department license money. The HFH used approximately \$729,030 this year: \$18,357 from Hagerman's budget, \$657,171 from Dingell-Johnson (DJ) monies, and \$53,502 from the fish transportation budget, to rear and stock fish in the 2009 production year, not including capital outlay expenditures (Appendix 1).

The HFH is staffed with a Hatchery Manager II, an Assistant Hatchery Manager, two Fish Culturists, and a Fish Transport Operator. Approximately 19 months of temporary labor is available from the DJ budget for use during the year.

The HFH water supply consists of approximately 52 cubic feet per second (cfs) from Tucker Springs during the winter and 47 cfs during the irrigation season. An additional 69 cfs is supplied from Riley Creek although the quantity and quality fluctuates seasonally. The Tucker Springs water serves the 2,045 cubic feet (cu ft) of rearing space in the hatchery building, 10,530 cu ft of rearing space in the fingerling ponds, and up to 138,000 cu ft of rearing space in the large production raceways. Water from Riley Creek supplies the 165,600 cu ft of rearing space available in eight additional raceways. The Tucker Springs water is a constant 59°F year-round while Riley Creek fluctuates from 50°F to 67°F annually.

HATCHERY PRODUCTION

During 2009, the HFH reared and stocked 2,607,070 fish weighing 394,615 lbs. Of these, 982,405 were stocked 6-inches or longer and 1,624,665 were stocked smaller than 6-inches (Appendix 1). About 33.6% of the total fish were stocked in Magic Valley Region waters (Appendix 2). The majority of the larger trout were Kamloops rainbows from Troutlodge Inc., with the balance from Hayspur Fish Hatchery. Approximately 161,800 steelhead were also stocked, and about 21,637 yellow phase rainbows were stocked locally throughout the stocking

season. The 3-inch to 6-inch fish consisted of 194,360 rainbow trout and 1,299,395 Kamloops trout from Hayspur, and 130,910 steelhead (Appendix 1).

The 394,615 lbs stocked included 356,115 lbs of put-and-take fish averaging 9.5 inches, and 38,500 lbs of fingerlings that averaged 3.8 inches. The cost of planting the average 16.6 fish per pound (fpp) (7.1 inches) fish was approximately \$1.36 per lb, or \$206.45 per 1,000 fish (Appendix 1).

In addition to the fish reared and planted, 1,494,243 fish (162,124 lbs) were on hand at the HFH on December 31, 2009. These consisted of 1,060,543 fish (157,739 lbs), average 6.7 fpp, or 7.1 inches) in the large raceways and 433,700 fingerlings (4,385 lbs, average 98.9 fpp, or 2.8 inches) in the west raceways. The cost of producing these fish was \$1.18 per lb or \$127.70 per 1,000 (Appendix 1).

On hand January 1, 2009 were 1,448,117 fish (163,785 lbs). The HFH also received 957,741 fish (5,822 lbs) from other hatcheries. Consequently, these subtractions yielded a net production for 2009 of 1,695,455 fish (387,132 lbs), mortality excluded (Appendix 1). The cost of producing the net production of 387,132 lbs was \$1.88 per lb.

A total of 7,620,282 eggs and fry were acquired to yield the fish produced. Approximately 2,817,790 eggs were purchased and the balance was acquired from government sources at no cost (Appendix 4). Of the eggs and fry received, 4,570,278 were received for the fish planted and the balance was used for 2009 production. Some eggs were sent to Magic Valley Fish Hatchery (MVFH) to alleviate overcrowded conditions here. They were then transferred to Hagerman Fish Hatchery (HFH) when they were about 165 fpp (2.4-inches). Because of continued success, eggs were again shipped to MVFH for early rearing and will be transferred here in February 2010.

The overall survival rate of fish stocked was 57%, almost identical to last year. (Appendix 3). Again, the improved survival over previous years can be attributed to good survival in the hatchery building. Mortality due to IHNV *Infectious Hematopoietic Necrosis Virus* decreased overall, but still impacted larger fish that hadn't obtained the disease earlier in life, similar to last year. This virus to be morphing to be able to damage different organs, such as the skin and brain. Losses to *Ichthyophthirius* (ICH) in 2009 did not occur due to an aggressive treatment program when the pathogen was initially detected. Losses to Furunculosis decreased because of a vaccination program initiated in 2008 among the Troutlodge fish, which account for about 70% of the rainbow catchables stocked. Again this year, the steelhead were kept on water from Tucker Springs to minimize their exposure to pathogens there, thus improving their survival from 9% in 2007 (on Riley Creek water) to 74% in 2008 and 78% in 2010.

Fish Transport Operator Ken Taylor logged 24,259 miles delivering fish to state waters, while the rest of the crew logged 11,030 miles. This amounted to a total of 35,289 miles and 271 stocking trips during 2009, and included 13 trips for the private sector and other IDFG hatcheries.

In addition to the annual requests by regional fisheries managers, the HFH crew made 13 trips to haul and stock 1,217,640 fish weighing 40,886 lbs from other sources (Appendix 7). These included two trips for the American Falls Fish Hatchery (AFFH) to stock 21,709 trout weighing 6,950 lbs, and one trip to Salmon Falls Creek Res. to stock 105,750 Rainbow x Yellowstone Cutthroat hybrids weighing 4,500 lbs; three trips to stock 23,396 channel catfish

weighing 6,495 lbs; three trips for Grace Fish Hatchery (GFH) to stock 642,690 rainbow trout weighing 16,650 lbs; one trip for Magic Valley Hatchery to stock 106,905 steelhead weighing 1,011 lbs; one trip to Batise Springs Trout Farm to stock 117,200 rainbow trout weighing 2,100 lbs; and one trip for Nampa Fish Hatchery to stock 199,990 rainbow trout weighing 3,180 lbs.

FISH FEED

The fish produced during 2009 were fed a total of 585,220 lbs of feed from Rangen Inc. and Silvercup (Appendix 5). The net weight gained during 2009 was 387,132 lbs, which resulted in an overall conversion of 1.51 lbs of feed to produce one lb of fish, not including the weight of the mortalities. Cost per pound of feed remained about the same from 2008.

HATCHERY IMPROVEMENTS

Numerous HFH improvements were completed this year and are listed below:

- Repaired the dike between the settling pond and Riley Creek and removed all of the Russian olive trees.
- Replaced the water supply line and valves in the hatchery building and chlorinated the supply line. Also repaired the cracks in the vat walls.
- Repaired the leaking valve in west raceway #5.
- Constructed new aluminum screens to replace the wooden ones in some of the large raceways. Also installed new damboards in some of the raceways.
- Repaired the traveling screen.
- Removed the visitor's bathroom, electrical power and water to it.
- Replaced the roof on the Res. 3 garage.
- Replaced the floor of the pumphouse building with metal grating.
- Installed a Hydrogen Peroxide treatment line in the hatchery building.
- Removed Russian Olive trees on the WMA to improve fishing access.
- Replaced lids to the air blowers; also painted the flagpole.
- Extended the bird enclosure over L17 to the bottom road so 4 sections can be used.

- Installed a pipeline to capture water from the old domestic water source to be used in the small Tucker Springs line instead of the large line.
- Installed a new rack in the west tailrace to L1 to prevent fish from swimming up the line.
- Installed chain link over the chicken wire on the entire showpond to minimize vandalism.
- Painted the outside of three of the residences, the gashouse and the 3-stall garage.
- Replaced the conduit to provide air to the airline in W17 and 18.
- Replaced the tailrace walkway on W13-16.
- Repaired the septic line from the bathroom to the sewage lagoon.

PUBLIC RELATIONS

The HFH received a large number of visitors and sportsmen throughout the year. An estimated 35,000 visitors toured the facility and used the surrounding public grounds this year. The 37 acres of HFH property are surrounded by 880 acres of the Hagerman Wildlife Management Area (WMA). The WMA provides a large variety of outdoor experiences, including fishing and hunting, wildlife viewing, and family picnic areas.

Hatchery personnel were called upon to give 28 tours to 1,102 school kids during the spring and fall, 2 tours for area scouts, and 4 tours to other large groups of adults. The hatchery also hosted a 4-H Wildlife Day Camp where participants attended seven booths and learned various fish-related activities. Two area scouts completed their Eagle Scout projects this year by building picnic tables and bat boxes for the area property. Again this year, hatchery staff assisted with the Father-Daughter fishing derby at Dierkes Lake to benefit a local charity. Finally, the hatchery hosted a Free Fishing Day clinic here for about 600 participants. The Hagerman Boy Scouts and personnel from Hagerman National Hatchery, Magic Valley Bassmasters and the Department assisted. Pepsi-Cola, Falls Brand Meats, the University of Idaho Fish Culture Station, Sportsman's Warehouse, and Trader Jack's Sporting Goods in Hagerman contributed to the event.

Again this year, a monthly article was contributed to the Hagerman newspaper, the "Fish Wrap", to keep local anglers informed about fishing hot spots, tips, and miscellaneous fishing and hunting adventures. Hatchery personnel also participated in regional activities, such as fawn-trapping, spawning fish, and working the county fair.

Also this year, the "Trout in the Classroom" program continued for fifth-graders at Hagerman, Castleford, and Bliss elementary schools, and Magic Valley Alternative High School. Three sessions were given which included delivery of eggs, discussion of habitat needs, spawning, fish anatomy, and stewardship. At the end of the school year, the students were given a hatchery tour, learned how to fish at the Hagerman WMA, and learned how to clean their catch.

ACKNOWLEDGMENTS

Thanks to the permanent HFH staff of Dave May, Sam Van Liew, and Travis Parrill; to transport operator Ken Taylor; and to temporaries Scott Prestel and Lionel Gonzales.

Regional personnel Doug Megargle, Scott Stanton, Richard Holman, Dean Grissom, and Gary Hompland also deserve our gratitude. Thanks also to personnel from Niagara Springs, Hayspur, and Magic Valley hatcheries for their cooperation this year.

APPENDICES

Appendix 1. Costs of fish produced at Hagerman Fish Hatchery 2009. Costs reflect all costs budgeted, except capital outlay, and include \$53,502 of the fish transportation budget.

Species/Strain	Length/	Number	Weight/	Cost to produce and plant	Cost/ 1,000
	Inches	Produced	Pounds		
FISH ON HAND JANUARY 1, 2009					
Rainbow trout, yellow (YT,CL,07)	12.3	18,711	14,969		
Hayspur rainbow trout (T9)	11.9	29,462	21,045		
Kamloops rainbow trout (KT)	7.9	80,168	16,701		
Steelhead (SA)	6.3	147,620	13,931		
Kamloops rainbow trout (TL,TT)	6.2	762,336	96,188		
Kamloops rainbow trout (KT/T9)	1.7	409,820	951		
Totals	6.4	1,448,117	163,785		
FISH PLANTED					
Rainbow trout, yellow (YT,CL,06)	13.9	21,637	24,425	10,542.10	487.23
Hayspur rainbow trout (T9)	12.2	31,933	24,225	195,512.57	341.71
Kamloops rainbow trout (TL,TT)	9.8	572,155	222,815	55,422.77	284.39
Kamloops rainbow trout (KT)	8.1	194,880	43,750	13,627.99	426.77
Steelhead (SA)	8.7	161,800	40,900	49,495.54	305.91
Subtotals	9.5	982,405	356,115	324,600.97	330.41
Hayspur rainbow trout (T9)	4.1	194,360	6,100	28,035.67	144.25
Kamloops rainbow trout (KT)	3.74	1,299,395	30,500	170,133.72	130.93
Steelhead (SA)	3.4	130,910	1,900	15,449.19	118.01
Subtotals	Average 3.8	1,624,665	38,500	213,618.58	131.48
Total Planted	Average 7.1	2,607,070	394,615	538,219.54	206.45
FISH ON HAND DECEMBER 31, 2009					
Kamloops rainbow trout (TL,TT)	12.1	3,744	2,880	1,592.69	425.40
Rainbow trout, yellow (YT,CL,07)	11.1	16,128	9,487	6,273.95	389.01
Hayspur mix (T9,KT)	8.2	400,942	91,454	14,050.47	35.04
Steelhead (SA)	5.9	117,441	9,104	24,226.83	206.29
Kamloops rainbow trout (TL,TT)	5.8	522,288	44,814	106,952.01	204.78
Kamloops rainbow trout (TL,TT)	3.7	156,309	3,693	20,510.62	131.22
Hayspur mix (KT/T9)	1.8	277,391	692	17,203.89	62.02
Totals	6.3	1,494,243	162,124	190,810.46	127.70
TOTAL FISH PRODUCED					
Planted in 2009		2,607,070	394,615		
On Hand December 31, 2009		1,494,243	162,124		
Totals		4,101,313	556,739	729,030.00	177.76
From other hatcheries		957,741	5,822		
On Hand January 1, 2009		1,448,117	163,785		
TOTAL GAINED		1,695,455	387,132		

Appendix 2. Fish distribution from Hagerman Fish Hatchery, 2009.

Percent of number planted by Region

	Number	Pounds	1	2	3	4	5	6	7
Catchables \geq6 inches									
Rainbow trout, yellow	21,637	24,425	-	-	-	100.0	-	-	-
Kamloops rainbow trout (TT)	572,155	222,815	-	20.8	19.9	37.2	20.8	1.2	-
Hayspur Kamloops rbt (KT)	194,880	43,750	-	8.6	9.9	65.3	16.3	-	-
Steelhead (SA)	161,800	40,900	-	-	77.2	3.2	-	19.7	-
Hayspur rainbow trout (T9)	31,933	24,225	-	-	-	100.0	-	-	-
Subtotal	982,405	356,115	-	13.8	26.3	40.6	15.3	3.9	-
<i>Fingerlings <6 inches</i>									
Hayspur rainbow trout (T9)	194,360	6,100	-	-	-	100.0	-	-	-
Kamloops rainbow trout (KT)	1,299,395	30,500	-	-	28.7	21.8	46	3.4	-
Steelhead (SA)	130,910	1,900	-	-	100.0	-	-	-	-
Subtotal	1,624,665	38,500	-	-	31.0	29.4	36.8	2.8	-
TOTAL	2,607,070	394,615	-	5.2	29.3	33.6	28.7	3.2	-

Appendix 3. Fish survival from eyed-egg to stocking, 2009.

Species/Strain	Number Stocked	Eggs and Fry Received	Percent Survival
Catchables:			
Rainbow trout, Yellow	21,637	30,442	71.1
Rainbow trout (T9 & KT)	226,813	472,529	48.0
Kamloops, Troutlodge (TT)	572,155	1,334,286	42.9
Steelhead (SA)	161,800	221,700	73.0
Subtotal:	982,405	2,058,957	47.7
<i>Fingerlings:</i>			
Rainbow trout (T9 & KT)	1,493,755	2,357,250	63.4
Steelhead (SA)	130,910	154,071	85.0
Subtotal:	1,624,665	2,511,321	65.6
TOTAL	2,607,070	4,570,278	57.0

Appendix 4. Number of eyed-eggs and fry received, species, and source for fish produced in 2009.

Species/Strain	Eggs/Fry received		
	For Fish	For fish on hand	
	Planted	December 31, 2009	Source
Received as eggs			
Catchables			
Rainbow/Yellow (YR)	30,442	30,409	Clear Lakes (ITP)
Rainbow (KT & T9)	472,529	801,884	IDFG Hayspur
Rainbow/sterile Troutlodge (TT)	1,334,286	*1,483,504	Troutlodge, WA
Steelhead	221,700	166,008	IDFG Pahsimeroi, Oxbow
Fingerlings			
Rainbow (KT & T9)	1,624,170	343,538	IDFG Hayspur
Steelhead (SA)	154,071	0	IDFG Pahsimeroi, Oxbow
Subtotal eggs	3,837,198	2,825,343	
Received as fry			
Rainbow from Hayspur (T9)	0	36,536	IDFG Hayspur
Rainbow from Magic Valley (KT&T9)	733,080	0	IDFG Hayspur
Rainbow/sterile Troutlodge (TT)	0	188,125	Troutlodge, WA
Subtotal fry	733,080	224,661	
TOTAL	4,570,278	3,050,004	

* 96% loss in Lot 1.

Appendix 5. Fish feed used during 2009 at Hagerman Fish Hatchery.

Size	Source	Pounds	Cost/pound	Cost
Str	Rangen	950	0.7600	\$722.00
#1	Rangen	2,250	0.7600	\$1,710.00
#2	Rangen	25,050	0.7600	\$19,038.00
#2 TM	Rangen	1,650	0.8750	\$1,443.75
#3	Rangen	59,200	0.5260	\$31,139.20
#3 TM	Rangen	2,300	0.8396	\$1,931.08
#3 Aquaflo	Rangen	1,350	1.2325	\$1,663.88
3/32 in, EXT450Float	Rangen	114,710	0.5100	\$58,502.10
5/32 in, EXT450Float	Rangen	371,860	0.4430	\$164,733.98
5/32 in, Romet TC	Silvercup	5,900	1.1500	\$6,785.00
Subtotal		585,220	0.4916	\$287,668.99
<i>Freight charges</i>				\$2,926.10
<i>Fuel Surcharge</i>				\$526.70
<i>Total cost</i>				\$291,121.78

Appendix 6 Fish stocked by Hagerman Fish Hatchery from other sources, 2009.

Hatchery Stocking	Species	Number	Pounds	SOURCE	DESTINATION
Hagerman	TT,T9	127,459	11,450	American Falls Hatchery (IDFG)	Am. Falls Res., Salmon Falls Creek Res.
Hagerman	TT,TD	642,690	16650	Grace Fish Hatchery (IDFG)	Sandpoint Hatchery, Lake Walcott, Island Park Res.
Hagerman	T1	199,990	3,180	Nampa Fish Hatchery (IDFG)	C.J. Strike Res.
Hagerman	SA, SB	106,905	1,011	Magic Valley Hatchery (IDFG)	Salmon Falls Creek Res.
Hagerman	R1	117,200	2,100	Batise Springs Trout Farm	Salmon Falls Creek Res.
Hagerman	CC	23,396	6,495	Fish Processors, Buhl, ID	Dog Creek Res., Alexander Res., Carey Lake
TOTAL:		1,217,640	40,886		

HAYSPUR FISH HATCHERY

Bradford W. Dredge, Fish Hatchery Manager II
Brian L. Thompson, Fish Hatchery Assistant Manager
Richard E. Park, Fish Culturist

INTRODUCTION

Hayspur Fish Hatchery (HSFH) is a license-funded resident salmonid broodstock facility. The mission of the HSFH is production of eyed eggs that are made sterile or triploid by heat shocking or pressure shocking technique. Two captive rainbow trout *Oncorhynchus mykiss* broodstocks are maintained on station. These are the Hayspur strain rainbow trout and the Kamloops strain rainbow trout. The HSFH personnel maintain an on-site public campground, family fishing water (Gavers Lagoon), and a trophy stream fishery.

The HSFH is located in Blaine County, approximately 30 miles south of Sun Valley on Loving Creek. The HSFH property is an odd shaped 105.12-acre parcel. Fish culture facilities include an incubation building with 23 vertical 8-tray Heath type incubator stacks for trout eggs, a hatchery building with 20 early rearing vats, 15 covered 24-foot circular ponds, 4 small raceways, and 6 large production raceways. Other buildings include a fish spawning equipment storage building, two generator buildings, three residences for permanent employees, an office building, shop, a three bay garage, a barn, and dormitory for temporary employees.

Water sources include the covered spring that supplies 5.5 cubic feet per second (CFS) at 52°F (11.6°C), and three pumped artesian wells producing 2.5 CFS at 48°F to 52°F (8.9° C to 11.6°C). The spring and well water are both considered specific pathogen free (SPF) water supplies.

Three permanent employees (Fish Hatchery Manager II, Fish Hatchery Assistant Manager, and Fish Culturist) and 20.95 months of temporary time are assigned to the HSFH.

RAINBOW AND KAMLOOPS EYED EGG PRODUCTION

The 2009 rainbow trout spawning season was a eight-month project, beginning in September and ending in May with an egg take of 8,884,629 green eggs from 3,407 females during the year (Appendix 1). Photoperiod manipulation, or light control, has expanded "normal" spawn timing to more closely match egg production with eyed egg requests. Two, 2-year old round ponds, two, 3-year old round ponds, and two, 4-year old round ponds of Hayspur rainbows and Kamloops rainbows were manipulated. Hayspur rainbow trout eyed egg production totaled 5,818,555 with 2,330 females spawned and overall eye-up was 79.44%. Kamloop rainbow trout eyed egg production totaled 3,066,074 with 1,077 females spawned and overall eye-up was 81.27%. The Hayspur strain and the Kamloop strain combined for a seasonal eye-up of 80.07%, up from 70.76% in 2008 and up from 73.59% in 2007. All eggs produced, except for broodstock replacement eggs and 1,054,284 diploid eggs for Grace, were pressure shocked to induce triploidy. American Falls, Cabinet Gorge (Sandpoint), Grace, Hagerman, Hagerman National,

Magic Valley, Nampa, and Tuccannon National hatcheries were shipped eggs as per their requests. Value to the Department, at the current contract price of \$27.50/1,000 for sterile triploid rainbow trout eggs equates to \$171,026.38 (Appendix 2). The value of the total eyed eggs produced, but not shipped, totaled \$195,650.92. In conclusion, 944 adults with an average fecundity of 2,674 were not used during 2009. An estimated 2,524,256 green eggs could have been collected resulting in an additional 1,972,453 eyed eggs for a value of \$54,242.46 bringing the grand total to \$249,893.38. HSFH has the ability to produce additional eyed eggs. Egg requests for the past five years have resulted in HSFH limiting its production as needed to fill those requests.

In 2009, all rainbow trout eggs produced for shipping were pressure shocked and made sterile with the exception of the Grace diploid shipment for Island Park Reservoir. Replacement broodstock eggs were not pressure shocked and were utilized exclusively at HSFH for replacement broodstock needs. This was the ninth year of full production using the heat or pressure shock method. Washington State University performed induction rate sampling on randomly selected groups. A total of 381 individuals were sampled. Sample results indicated that 380 out of 381 were verified as being triploid (American Falls 60/60, Hagerman 170/171 and 150/150). The overall induction rate was 99.74%, down from 99.80% the previous year.

FISH LIBERATIONS

Fish requested for the Big Wood and Little Wood drainages were reared at Nampa Hatchery (5,850) or HSFH (34,850). Semi-tank and trailer loads of catchable sized fish were hauled as needed to complete HSFH 2009 plant requests. A total of 36 stocking trips into the Big Wood and Little Wood drainages stocked 40,700 catchable sized rainbow trout. A total of 11,280 catchable rainbow trout (7.4 f/lb or 1,524 pounds) were transported and released into Salmon Falls Creek Reservoir on October 14th and October 21st. In all, 51,980 fish or 14,121 pounds of fish were distributed during the season (Appendix 3).

In addition, a total of 36,536 triploid fingerlings (49 f/lb or 743 pounds) were transferred to Hagerman State Fish Hatchery on November 4th and 5th.

The hatchery raised about 35,000 fish for catchable plants this year in an effort to reduce loading at the Nampa Hatchery. Unfortunately, in August, Infectious Hematopoietic Necrosis was isolated from the production population and all of the remaining fish were destroyed. The hatchery will not produce its own allocation of catchables in the future.

TRANSPORT COSTS

The two transport trucks assigned to HSFH made 40 separate stocking trips during the year. Fish from HSFH were planted by truck into 16 different bodies of water. Hayspur personnel traveled 3,466 miles for an average of 86.65 miles per trip. The fleet rental charge was \$421.96/month and 77 cents/mile for the 2-ton truck. Fleet rental for the 1-ton truck was \$222.75/month and 40 cents/mile. HSFH fish transport cost totaled \$10,355.76 for 2009.

FISH FEED

Rangen's provided the 1/4-in brood feed. This food was ordered with 150 grams per ton of canthaxathin red additive to enhance egg color and other possible health benefits. Rangen's was the source of early rearing feeds. Rangen's was the primary food source utilized for catchables and for replacement broodstock retained on station (Appendix 4).

HATCHERY IMPROVEMENTS AND NEEDS

- Several large willow trees were trimmed.
- Residence #1 had a baseboard heater replaced.
- The office and temporary dormitory had new electric baseboard heaters installed to repair and replace the non-functional boiler system.
- Residence #3 had new linoleum installed in the kitchen, entryway, and laundry room. New carpeting was installed and new cabinets were installed in the kitchen, laundry room, and kitchen closet.
- The dryer vent and dryer electrical outlet in Residence #3 were moved and the dryer venting under the residence was replaced with a new solid line.
- All of the residences and the dormitory had the carpets cleaned during July.
- All of the hatchery fire extinguishers were serviced in July.
- The domestic water pump was repaired several times.
- The chimney flues were cleaned in all the residences during the fall.
- The outhouse at the end of the hatchery campground was painted brown.
- Well #4 had the power panel support structure repaired on September 4th.
- All vegetation was removed from large raceways A through F.
- Russian olive trees were pruned in the campground.
- Predator covers over the small raceways were repaired as needed during the season.
- Genplus, a division of Cummins Intermountain Generator Service, serviced both back-up generators and made repairs to Generator #2 as needed.
- The frost free irrigation spicket by the enforcement shed was dug up and repaired with a new one on October 26th.
- Two campground picnic tables were repaired and had new wood installed.
- The park restrooms in the campground were pumped and serviced.
- An old fence was removed from the back yard of Residence #2.
- New photo manipulation timers were installed in Round Ponds 1-9 and new GFI outlets were installed in the kitchens and bathrooms of Residences #1 and #3.
- Wood River Lock and Key made repairs to the shop entryway door and serviced all other hatchery passageway locks on October 29th.
- Modifications were made to the domestic water room to comply with Idaho Industrial Safety Inspection codes and DEQ regulations.
- Several repairs were made to the Generator #2 electrical panel and generator #2 control panel following a loose connection and subsequent power loss to the system.
- The hatchery spring box access road was cleared and the willows around the hatchery spring were cleared and removed.

Needs of the HSFH are:

- Replace the roof on Residence #3.
- Remove several willows between Residence #1 and Residence #3.
- Repair and/or replace numerous concrete areas around the HSFH.
- Replace windows and doors in Residences #1 and #3.
- Replace siding on Residence #3.
- Replace insulation in crawl space of Residence #3
- Replace and enlarge the Gavers Lagoon outlet pipe.
- Removal of old three stall garage and replace with new heated and insulated garage for storage and maintenance of hatchery equipment.

BROODSTOCK MANAGEMENT

The Hayspur rainbow trout (R9) replacement population is perpetuated by using year-class crosses. Using one-male with one-female, 189 pairs of fish were crossed. The adult fish used in the replacement program were adipose clipped. Marked fish are generally used for production egg lots, rarely are they used again for development of a replacement population.

Isolation incubators were used to separate individual families. In 2009, zero R9 families tested positive for Bacterial Kidney Disease (BKD). Isolation trays, constructed of disinfected metal and plastic, were used as isolation incubators. Each tray was capable of holding 10 families segregated from one another. Trays were placed in Heath stacks and eggs were added for isolation incubation.

HSFH personnel completed two medicated feed applications on March 2nd through the 15th and August 21st through the 30th to control and/or eliminate BKD from the broodstock populations (Appendix 5). Medicated feed from Rangen's Inc (item # 4831) described as TM MEDICATED 5/32 WITH TM 8000G was utilized. In addition, adults utilized for the broodstock replacement program at HSFH were injected with erythromycin (Gallimycin-100) at a rate of .2ml/kg for BKD control on the 22nd of January (BY06) and again on the 23rd of September for BKD.

PUBLIC RELATIONS

Many people utilized the HSFH campground and the popular fishing pond, Gavers Lagoon, during the spring, summer, and fall period. The HSFH campground benefited from the efforts of volunteer Camp Hosts. Kenneth and Mary Robbins volunteered time to answer questions, give directions, clarify regulations, tidy outhouses, clean up litter, provide fishing tips, and generally enhance the image of the Department and HSFH.

Tours were provided to area schools and local groups. The Blaine County Sheriff's Office (PAL Program), Valley Elementary School, Sun Valley Adaptive Sports Group, Pioneer Montessori School, Wood River YMCA, 4-H Cub Scouts, Blaine County Soil & Water Conservation, Mountain Adventures of Sun Valley, and the Woodside Elementary School were exposed to the history of the hatchery, the life cycle of trout, water sources and water treatment, followed up by a question and answer period (Appendix 6).

MISCELLANEOUS

On January 22nd Tom Frew received 3,250-eyed eggs for Trout in Classroom (TIC) programs. Tom also received 200 TIC eggs on the 17 of February. Kelton Hatch received 700 TIC eggs in January. The HSFH delivered a total of 6,600 eggs for use in the TIC program during the year (Appendix 2).

Brian and Brad attended a Fish Request meeting In Jerome on February 10th. Brian also attended Supervision II on the 18th and 19th in Boise.

Dave Grundy helped the Hagerman State Fish Hatchery with duties on the 17th and 18th of February. Louis Nottingham assisted Hagerman State Fish Hatchery with stocking operations on the 27th of February.

The Hayspur staff collected milt for use at Henry's Lake Fish Hatchery on February 23rd and on February 25th. The milt was used to generate cutthroat/rainbow hybrids via delayed fertilization.

Richard Park and David Grundy attended an "Invasive Species workshop in Boise on March 3rd. Richard Park also attended the "Truckers/Muckers" meeting in Jerome on March 10th and 11th.

Richard Park assisted staff at the Sawtooth Fish Hatchery with steelhead trout spawning on the 6th and 23rd of April. Richard also helped with Bitterbrush planting on the 18th of April near Silver Creek. In conclusion, Richard volunteered on the Island Park elk calf capture and radio collaring program on June 6th through the 9th.

The State of Idaho facility inspection was performed on the 4th of June with Mike Poulin and the boiler inspection was completed with Robert Redford on the 10th of July.

HSFH personnel attended a meeting with Ed Schriever on the 21st of August.

On November 13th, the Department of Environmental Quality (DEQ) performed an onsite inspection of the domestic water at HSFH. R. Chad Chorney, from Twin Falls, was the DEQ representative that conducted the inspection.

Brian attended a Resident Hatchery Evaluation committee meeting in Boise on December 7th.

ACKNOWLEDGMENTS

In 2009, HSFH benefited from the capable assistance of Biological Aides Megan Moore, Brandon Torske, David Grundy, and Louis Nottingham. The HSFH would like to thank IDFG employees who helped out during the spawning season: George Smith, Brad Lowe, Scott Stanton, Morgan Fife, Sally Rose, Wade Symons, Mike Stoddard, Clint Rogers, Rich Holman, Doug Meyer, Steve Roberts, Lee Garwood, and Rob Morris.

APPENDICES

Appendix 1. Egg production summary of Hayspur Fish Hatchery, 2009.

Species	^aEggs Taken	^bEggs Shipped
T9's	5,818,555	3,914,176
KT's	3,066,074	2,304,965
Totals	8,884,629	6,219,141

^aTotal is displaced (gram weight) of both good and bad eggs taken in 2009.

^bTotal is displaced (gram weight) of eyed eggs available for shipping in 2009.

Appendix 2. Eyed egg shipment summary from Hayspur Fish Hatchery, 2009.

Hatchery	^aSpecies	Total eggs shipped	^bEstimated value
American Falls	T9	60,000	\$1,650.00
Hagerman	T9	1,844,461	\$50,722.68
	KT	1,179,123	\$32,425.88
Grace	T9	623,092	\$17,135.03
	KT	505,981	\$13,914.48
Magic Valley	T9	901,763	\$24,798.48
	KT	159,297	\$4,380.67
Sandpoint	T9	7,000	\$192.50
	KT	40,596	\$1,116.39
Nampa	T9	194,367	\$5,345.09
	KT	351,265	\$9,659.79
Hagerman NFH	T9	151,937	\$4,178.27
Tuccanon NFH	KT	68,703	\$1,889.33
<u>Ashton</u>	<u>T9</u>	<u>131,556</u>	<u>\$3,617.79</u>
Shipped		6,219,141	\$171,026.38
^c Other	Thrown out	843,488	\$23,195.92
	catchables	45,350	\$1,247.13
	<u>TIC</u>	<u>6,600</u>	<u>\$181.50</u>
Total		7,114,579	\$195,650.92

^aT9=sterile R9, KT=sterile Kamloops

^bAt contract value of \$27.50/1,000 sterile rainbow trout eggs.

^cEggs used for trout in the classroom programs, exchanged for laboratory work, and disgarded.

Appendix 3. Hayspur Fish Hatchery stocking summary, 2009.

Fish size	Number of fish	Pounds of fish	Fish per pound
3N Catchables and 2N fingerlings	51,980	14,121	3.68

Appendix 4. Hayspur Fish Hatchery Feed Summary, 2009.

Rangens			
Date	Size	Amount /pounds	Cost
4/21/09	1/4 in. Brood pellet	11,240	\$5,875.12
7/21/09	1/4 in. Brood pellet	15,300	\$7,940.90
Totals		26,540	\$13,816.02

Rangens			
Size	Amount /pounds	Cost	
Trout/Salmon Starter #0	100	\$75.00	
Trout/Salmon Starter #1	100	\$76.00	
Trout/Salmon Starter #2	700	\$531.55	
Trout Grower #4	650	\$342.70	
Extruded 450 1/8"	6,700	\$3,074.10	
Extruded 450 3/32"	1,250	\$650.00	
Extruded 450 5/32"	2,000	\$906.00	
TM Medicated 5/32"	4,550	\$3,563.50	
TM Medicated 1/8"	800	\$555.00	
Totals	16,850	\$9,773.85	

Appendix 5. Hayspur Hatchery Vaccine and Medicated Feed Treatments 2009.

<u>Date</u>	<u>Treatment</u>	<u>Medicated</u> <u>Feed</u> <u>Ordered</u>	<u>Feed</u>	<u>Qty.</u>		<u>Medicated</u> <u>Feed</u> <u>Administered</u>	<u>%</u>	<u>No.</u>	<u>Lbs./</u>	<u>Dates</u>	<u>Vaccine</u> <u>Administered</u>	<u>Dose</u>	
<u>Ordered</u>	<u>Type</u>	<u>Item</u> <u>No.</u>	<u>Size</u>	<u>(Lbs.)</u>	<u>Cost</u>	<u>Fish</u> <u>Treated</u>	<u>BW</u>	<u>Days</u>	<u>Day</u>	<u>Fed</u>	<u>Fish</u> <u>Treated</u>	<u>ml/kg</u>	<u>Dates</u>
01/22/09	Galli-100										BY06-R9	0.2	1/22
02/09/09	TM8000	4831	532	2250	\$1,798	BY07,06	1	10	80	3/2-3/11			
02/09/09	TM8000	4831	532	2250	\$1,798	BY07 RP7	2.5	14	28	3/2-3/15			
02/09/09	TM8000	4831	532	2250	\$1,798	BY08 SR	2.5	14	16	3/2-3/15			
07/01/09	CWD Vaccine	Serial #=160330 Expires: 1/15/2007											
								Note: 4 Ponds injected			BY07-R9	0.2	7/29
08/19/09	TM8000	4831	532	1750	\$1,381	BY07,06,05	1	10	162	8/21- 8/30			
09/23/09	Galli-100										BY06-R9	0.2	9/23

Appendix 6. Hayspur Fish Hatchery Tour Group Summary, 2009.

Month	Name of Tour Group	Grade/Age	Number in Group
April	Pioneer Montessori School	Elementary	30
May	Woodside Elementary School	5th	80
June	Sun Valley Adaptive Sports Group		25
	Blaine County Sheriff's Office-PAL		15
	Blaine County Soil & Water Conservation		50
July	Wood River YMCA		20
	4-H Cub Scouts		30
	Mountain Adventures of Sun Valley		12
	Blaine County Sheriff's Office-PAL		15
August	Blaine County Sheriff's Office-PAL		5
October	Valley Elementary	5th	50

HENRYS LAKE FACILITY

DAMON KEEN, REGIONAL FISHERIES BIOLOGIST

ABSTRACT

The 2009 trapping numbers at Henrys Lake included 4,680 Yellowstone cutthroat trout and 274 hybrid trout. The 2009 spawning operations produced 2,087,872-eyed Yellowstone cutthroat trout eggs and 603,226-eyed hybrid trout eggs. 114,486 eyed Yellowstone cutthroat eggs and 92,742 eyed hybrid eggs were designated as surplus and destroyed. Yellowstone cutthroat Lots 13-16 were also destroyed, but prior to eye-up. Sub samples of Yellowstone cutthroat trout and hybrid trout in the Hatchery Creek run were recorded for total length. Mean lengths of 442 mm and 494 mm were calculated respectively. The percentage of adipose fin clipped Yellowstone cutthroat returning to the ladder was recorded daily throughout the 2009 spawning run. Of the Yellowstone cutthroat trout returning to the ladder in 2009, 3.6% were adipose fin clipped.

Henrys lake production hybrids were evaluated for sterility induction success. Induction for 2009 was 100% successful for the triploid condition.

Pathology reports from ovarian fluid sampling for viral or bacterial presence did not detect any positive results.

Riparian fences, fish diversion structures, and fish screens were maintained on the tributaries and other fragile areas surrounding Henrys Lake. Tributary fencing maintained included: Howard Creek, Targhee Creek, Duck Creek, and Timber Creek. Fencing was also maintained on the south and north side of the county boat dock. Additionally, Teton Valley fencing projects were maintained and a new fence was installed on the Teton River. In 2009, one new fish screen was installed on Duck Creek.

Late winter dissolved oxygen concentrations were assessed at established sampling sites. Oxygen concentrations were monitored to establish oxygen depletion rates and predict possible hazardous oxygen levels for fish in the lake. Dissolved oxygen data was evaluated and oxygen levels were predicted to remain above the level of concern. Therefore, aeration was not deployed in the winter of 2009.

Fishery habitat improvement projects were identified, evaluated, and funded at several locations in the Upper Snake region including: Henrys Lake area, Henrys Fork River, Teton River, and the Big Lost drainage.

Author: Damon Keen

INTRODUCTION

Henrys Lake Hatchery is a license and federal funded resident station located in the northern Island Park area of Fremont County in east central Idaho. The hatchery was established in 1924 as an egg taking facility to off set the potential loss of spawning habitat due to the construction of a dam at the lake outlet in 1922 (Idaho Fish and Game 1924).

The hatchery continues to function as an egg taking station and ships eyed eggs of Yellowstone cutthroat trout *Oncorhynchus clarkii* and sterile rainbow trout *Oncorhynchus mykiss* x Yellowstone cutthroat trout *Oncorhynchus clarkii* hybrids to statewide hatcheries.

The current hatchery building was completed in 1949 and remodeled in 1989. The building consists of 10 double stacks of Heath tray incubators. Hatchery water is supplied via gravity flow from Hatchery springs at 1.0 cfs for domestic and egg incubation use. Unused water flows into Hatchery creek, through the spawning/trapping facility, and then finally into Henrys lake via a 150-foot long fish ladder. The spawning/trapping facility was rebuilt in its entirety in 2003.

The hatchery is staffed with one permanent Regional Fisheries Biologist, one 5-month temporary employee, and one 3-month temporary employee.

METHODS

Spawning Operation

The Hatchery Creek fish ladder was opened for the spring run on February 18 and remained in operation until April 28th. Fish ascending the ladder were identified as Yellowstone cutthroat or hybrid trout and enumerated. Sub-samples of approximately 10% of each group were measured (Total Length - mm) on a random basis. Additionally, all of the Yellowstone cutthroat were examined to detect the presence or lack thereof, of adipose fins. Yellowstone cutthroat trout were produced using ripe females spawned into seven fish pools and fertilized with pooled milt from seven males. Hybrid trout were produced with Yellowstone cutthroat trout eggs from the Henrys Lake run and rainbow trout milt obtained from Hayspur Hatchery. The hybrid contribution was sterilized by inducing a triploid condition using pressure to shock the eggs post fertilization. Hybrid eggs were placed in the pressure treatment machine 47 minutes 45 seconds post fertilization at 10,000 psi. and held at this level of pressure for 5 minutes. Random samples of the hybrid fry were taken at the Mackay hatchery and sent to the Eagle lab to test induction rates of sterilization. Samples were taken from 60 fish. Hybrid production eggs were shipped to Mackay and American Falls hatcheries for hatching, rearing, and subsequent

release back into Henrys Lake and other waters. Yellowstone cutthroat eggs were shipped to Mackay for hatching, rearing, and release back into Henrys Lake.

Disease samples were taken from the spring spawning run. Ovarian samples were taken from the egg pools of females to detect bacterial disease presence. All female egg pools were tested. Viral samples were taken randomly from 25 seven female egg pools. A mixed-sex group of 60 adult Yellowstone cutthroat trout during the spring run were sacrificed for disease testing. All samples were sent to the Eagle Laboratory for evaluation.

Riparian Fencing and Fish Screening

Electric fencing has been in place at Henrys Lake since the early 1990's. Fencing was stretched and solar panels, batteries, and connections were installed during May 2009 at ten sites on the tributaries of Henrys Lake. Fencing was checked routinely during the summer and fall months for proper voltage and function. Voltage was checked using a voltmeter at each of the ten sites. Repairs were made as needed. Fences were let down and prepared for winter in November 2009.

Fish diversion screens are located at eleven sites on the tributaries of Henrys Lake. Screens were maintained, cleaned and checked for proper operation on a routine basis during the summer and fall months of 2009. One new modular screen was installed on Duck Creek at a site that previously had a screen, but was dilapidated and no longer functional.

Creel Surveys

A creel survey was conducted this year at Henrys Lake. No creel survey was conducted on Island Park Reservoir.

Water Quality

Winter (December 2008, January, February, and March 2009) dissolved oxygen concentrations; snow depth, ice thickness, and water temperatures were taken at established sampling sites. Sites were located using GPS readings from historical sampling sites. Holes in the ice were drilled prior to sampling using a gas powered ice auger. Dissolved oxygen samples were taken using a YSI model 550A oxygen probe. Samples were taken at each site at ice bottom and at subsequent one-meter interval until the bottom of the lake was incurred. Total g/m² of oxygen were calculated for each site.

The purpose of recording dissolved oxygen profiles is to develop a dissolved oxygen depletion model to predict the likelihood of the Henrys Lake environment reaching the critical

threshold for fish survival. Upon determining the likelihood of reaching the critical dissolved oxygen threshold, a determination can be made of whether or not to deploy aeration.

Habitat Improvement Projects

During 2009, a portion of the Henrys Lake job function was to identify fish habitat projects and prioritize the same. Funding opportunities were sought to complete said projects and projects were initiated. This job function was a major part of the accomplishments from the Henrys facility in 2009. Further details, accomplishments, and specifics are available in the Upper Snake Regional Fisheries report.

RESULTS AND DISCUSSION

Spawning Operation

Between February 18th and April 28th 4,680 Yellowstone cutthroat trout ascended the spawning ladder. Of these, 2,824 were males (Figure 1) and 1,856 were females (Figure 2) enumerated. Yellowstone cutthroat trout male and female total length averaged 430 and 454 mm (Figure 5), respectively. Combined mean Yellowstone cutthroat trout length was 442 mm.

286 hybrid trout ascended the spawning ladder between February 18th and April 28th, with 274 males (Figure 3) and 12 females (Figure 4) enumerated. Hybrid trout males and females averaged 518 mm and 470 mm (Figure 6), respectively. Combined mean hybrid trout length was 494 mm.

Species/sex ratio at the Henrys Lake trap during 2009 included: YCT females 37%, YCT males 57%, hybrid males 6%, and hybrid females 0% (Figure 7).

Historical species/sex ratio at Henrys Lake for the years 2001-2009 was evaluated (Figure 8). The hybrid fish numbers (both male and female) continues to decrease. The increased success with the sterility program is probably responsible for the decreased trap numbers for hybrid trout. Sterile fish lack the spawning behavior of fertile fish and fewer numbers of those fish could be expected to return to the trap. Creel catch rates for hybrids are still near objective. Likewise, gill net evaluations indicate good numbers of hybrids present in the lake. This indicates that the numbers of hybrids returning to the ladder has little correlation to overall lake population.

Yellowstone cutthroat green eggs totaled 3,867,705 from 1,392 females for a mean fecundity of 2,779 eggs per female (Table 1). Eyed Yellowstone cutthroat eggs totaled 2,087,872 for an overall eye-up rate of 75.8% (Table 1). YCT eye-up varied throughout the

spawn season from a low of 64.9% in Lot 1 to a high of 84.1% in Lot 12 (Figure 9). Lots 13-16 were destroyed prior to eye-up because the egg quota had been met. These four lots were not considered within the eye-up calculation. All of the eyed Yellowstone cutthroat eggs were shipped to the Mackay facility where they were hatched and reared (Table 3). Subsequently, all Yellowstone cutthroat from the 2009 production were released back into Henrys Lake in the fall of 2009. Fourteen spawn days during this year's spring run were devoted to Yellowstone cutthroat spawning.

Hybrid trout green eggs totaled 811,200 from 312 females for a mean fecundity of 2,600 eggs per female (Table 2). Eyed hybrid trout eggs totaled 603,226 for an overall eye-up rate of 74.4 % (Table 2). Lot 1 and part of Lot 2 eggs were treated to induce sterility. The other component of Lot 2 eggs were not treated to induce sterility and remained fertile as they were bound for Salmon Falls Reservoir. Hybrid eye-up was 77.3% in Lot 1 and 66.0% in Lot 2 sterile component and 75.5% Lot 2 fertile component (Figure 10). 355,645 of the hybrid eggs were shipped to Mackay (Table 3) for hatching, rearing, and subsequent release into Henrys Lake and 131,452 fertile and sterile hybrid eggs were shipped to American Falls for release into Salmon Falls Reservoir (Table 3). Two spawn days were devoted to production of hybrid eggs during this year's spawn take. Sterilization induction rates for the sterile hybrid production component indicated 100% (60/60) success for the triploid condition.

Sub-samples of the identified Yellowstone cutthroat trout were inspected for the presence or lack of an adipose fin. For many years, 10% of the Henrys Lake cutthroat fry have had adipose fins removed to estimate hatchery contribution to the total lake population. Over the last five years, adipose clips have been recorded at the ladder. Results of this year's data (Figure 11) indicate 3.6% of the YCT returning to the ladder were adipose fin clipped. This data may indicate that a component of the lake population is of natural production. Further analysis can be found in the regional report.

Historical run numbers (2001-2009) of both Yellowstone cutthroat and hybrids were evaluated (Figure 12). The 2009 Yellowstone cutthroat run numbers were sufficient to satisfy all egg requests and in fact a surplus of eggs and male and female YCT was realized. It is important to note that correlation between run numbers and lake population has never been established. The downward trend in the hybrids returning to the ladder continues, and this is probably reflective of improved induction during the sterilization process. Sterile fish do not exhibit spawning behavior to the same extent that fertile fish do. Pressure shocking was instituted in 2004, and the induction rate using pressure shocking has been near 100% since that time. Heat shocking was used prior to 2004, and results were variable. Induction results were as low as 50% in some cases.

Disease sampling was completed on adult spawning fish during the spring run. Results and discussion are included in the resident fisheries pathologist report.

Bacterial disease sampling was taken during spawning from ovarian fluid of all families of eggs. Viral sampling was taken from ovarian fluid of 25 families. All samples, both bacterial and viral were negative, and no eggs were destroyed due to positive results this year. Additional analysis and results are available in the resident fisheries pathology report.

Riparian Fencing and Fish Screening

Electric fencing functioned well during the year. Voltages remained high throughout the season and riparian infringements by cattle were rare.

One new riparian fence was installed along riparian areas of the Teton River. The fences were installed along previously unfenced riparian buffer areas. The fencing construction and funding was a result of a collaborative effort between the landowner, NRCS, and IDFG.

The fish screens functioned well during the summer of 2009. The new screens on Targhee and Howard Creek that had been installed during the summer of 2008 especially functioned well and will be of benefit both to improved fry survival and facility labor costs.

One new, modular screen was installed on Duck Creek at a location where an older, dilapidated screen was in use prior. The location of the new screen was on the Taft property, near the mouth of Duck Creek. Funding for the replacement screen was provided through the Landowner Incentive Program, with contributions from the Henrys Lake Foundation and the IDFG. Screen fabrication and delivery was provided by the IDFG screen shop. Installation was completed by a private contractor.

Creel Surveys

Island Park

A creel survey was not conducted on Island Park Reservoir during 2009. Periodic angler reports indicated fishing was good overall and angler satisfaction appeared high.

Henrys Lake

A creel survey was conducted on Henrys Lake during 2009. The total catch rate was estimated at .63 fish/hour. An estimated 78,855 fish were caught, with an estimated 13,788 of those harvested. Further analysis and results are available in the regional fisheries report.

Water Quality

Oxygen profiles for December 2008 through March 2009 were recorded at five sites: Pittsburgh creek, County boat dock, Wild Rose, the Outlet, and the Hatchery. Total oxygen diminished from 49.1 g/m² to 43.9 g/m² at the Pittsburgh site, 35.65 g/m² to 24.3 g/m² at the County dock, 42.55 g/m² to 33.35 g/m² at the Wild Rose site, 25.9 g/m² to 20.25 g/m² at the Outlet site, and 37.0 g/m² to 30.75 g/m² at the hatchery site (Figure 13).

Historically, the level of concern of oxygen levels has been established at 10g/m². However, that level of concern is somewhat arbitrary due to the lack of a full understanding of critical dissolved oxygen levels in this environment in relation to the Yellowstone cutthroat species. The projected recharge date is set at April 1st. This date is somewhat arbitrary as well. Recharge varies from year to year based on ice thickness and the onset of warmer conditions. Dissolved oxygen recharge can take place anytime that temperature warms enough to begin ice melt. Recharge from springs and creek inflow can take place throughout the winter months. Recharge from ice melt can begin as early as February and as late as early April. Setting the recharge date at April 1st for the purpose of aeration deployment normally provides a safety buffer.

In the winter of 2008-2009, the initial analysis of the dissolved oxygen depletion model predicted dissolved oxygen remaining above the level of concern throughout the winter. Therefore, aeration was not deployed.

Further evaluation of dissolved oxygen depletion and events are included in the regional fisheries report.

Acknowledgements

Henrys Lake Fish Hatchery continues to operate with assistance from a wide variety of sources. Acknowledgement is at least a minimal thank you for people going out of their way to contribute to the success of the Henrys program. Department personnel from around the state, as well as entire Department programs including: Mackay Fish Hatchery, Ashton Fish Hatchery, Hagerman Fish Hatchery, and the Hayspur Fish Hatchery, assisted in spawning, rearing, and/or transportation. Additionally, several hundred hours of volunteer time were devoted to the Henrys program, mostly during the spawning cycle. Of special consideration is Kaleb Phelps, volunteer coordinator from the Idaho Falls office, who organized numerous volunteer trips to Henrys Lake to assist in several projects. Special thanks are given to the other volunteers and employees who venture to the site in the name of resource benefit.

Likewise, a special acknowledgement is given to the Henrys Lake Foundation. For many years, the foundation has given unselfishly in the form of donated time and funds, to maintain this important fishery. Over thirty thousand dollars was pledged this year alone to improve habitat, purchase fishery equipment, and to improve fish passage for natural production benefits. Without the Foundations' support, many improvements would not happen.

The Henrys Lake facility remains an important avenue for disseminating information to the public. Hundreds of anglers, as well as the general public, stop by the facility to ask questions or to help with the processes of collecting data and spawning fish. It is acknowledged that one of the most important tasks the IDFG faces is relaying the state of the resource to the interested public and to further promote the cooperative atmosphere that is so important in resource management.

Literature Cited

Idaho Department of Fish and Game. 1924. Fish and Game Warden. 10th Biennial Report. 10:113-114.

APPENDICES

Table 1. 2009 Henrys Lake Spring Yellowstone Cutthroat Spring Spawning Summary

<u>Spawn Date</u>	<u>Lot Number</u>	<u>Females Spawned</u>	<u>Number of Green Eggs</u>	<u>Mean Fecundity</u>	<u>Number Eyed Eggs</u>	<u>Disease Status</u>	<u>Percentage Eye-up</u>
2/28/2009	3	98	248,430	2535	161,290	Neg.	64.9%
3/2/2009	4	105	266,175	2535	205,645	Neg.	77.3%
3/5/2009	5	105	294,000	2800	239,486	Neg.	81.5%
3/9/2009	6	103	278,100	2700	200,000	Neg.	71.9%
3/12/2009	7	140	378,000	2700	305,645	Neg.	80.9%
3/16/2009	8	70	203,000	2900	162,903	Neg.	80.2%
3/19/2009	9	103	298,700	2900	208,065	Neg.	69.7%
3/26/2009	10	77	215,600	2800	161,290	Neg.	74.8%
3/30/2009	11	105	294,000	2800	209,677	Neg.	71.3%
4/1/2009	12	105	278,250	2650	233,871	Neg.	84.1%
4/6/2009	13	105	304,500	2900		Neg.	0.0%
4/9/2009	14	101	297,950	2950		Neg.	0.0%
4/13/2009	15	70	206,500	2950		Neg.	0.0%
4/20/2009	16	105	304,500	2900		Neg.	0.0%
TOTALS		1392	3,867,705	2779	2,087,872		75.8%

Lots 13-16 Excluded from Eye Up Calculation

Table 2. 2009 Henrys Lake Hybrid Spring Spawning Summary

<u>Spawn Date</u>	<u>Lot Number</u>	<u>Females Spawned</u>	<u>Number of Green Eggs</u>	<u>Mean Fecundity</u>	<u>Number Eyed Eggs</u>	<u>Disease Status</u>	<u>Percentage Eye-up</u>
2/23/2009	1 Sterile	175	455,000	2600	351,613	Neg.	77.3%
2/25/2009	2 Sterile	70	182,000	2600	120,161	Neg.	66.0%
2/25/2009	2 Fertile	67	174,200	2600	131,452	Neg.	75.5%
TOTALS		312	811,200	2600	603,226		74.4%

Table 3. 2009 Henrys Lake Egg Shipment Summary

<u>DATE</u>	<u>LOT</u>	<u>STOCK</u>	<u>EGG SIZE</u>	<u>ML</u>	<u>EGGS</u>	<u>TU'S</u>	<u>DESTINATION</u>
27-Mar-09	1	HYBRIDS	3.1	13,800	222,581	432	MACKAY
31-Mar-09	2	HYBRIDS	3.1	6,000	96,774	459	MACKAY
30-Mar-09	2	HYBRIDS	3.1	8,150	131,452	445.5	AMERICAN FALLS
30-Mar-09	2	HYBRIDS	3.1	1,450	23,387	445.5	AMERICAN FALLS
31-Mar-09	1	HYBRIDS	3.1	2,250	36,290	486.0	MACKAY
3-Apr-09	3	YCT	3.1	10,000	161,290	459	MACKAY
3-Apr-09	4	YCT	3.1	12,750	205,645	432	MACKAY
7-Apr-09	5	YCT	3.1	13,500	217,742	446	MACKAY
14-Apr-09	6	YCT	3.1	12,400	200,000	486	MACKAY
14-Apr-09	7	YCT	3.1	13,200	212,903	446	MACKAY
21-Apr-09	8	YCT	3.1	10,100	162,903	486	MACKAY
21-Apr-09	9	YCT	3.1	12,900	208,065	446	MACKAY
30-Apr-09	10	YCT	3.1	10,000	161,290	473	MACKAY
30-Apr-09	11	YCT	3.1	13,000	209,677	419	MACKAY
8-May-09	12	YCT	3.1	10,000	161,290	500	MACKAY
TOTALS				149,500	2,411,290		

Figure 1. Henrys Lake 2009 Run Timing of Male Yellowstone Cutthroat Trout

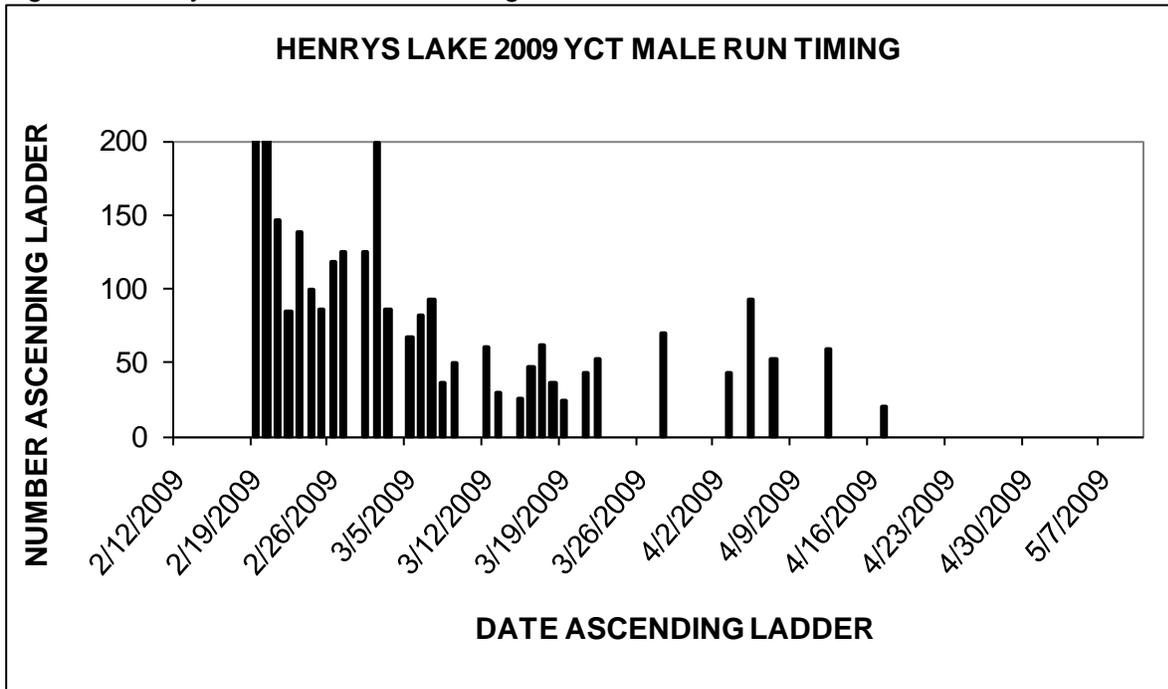


Figure 2. Henrys Lake 2009 Run Timing of Female Yellowstone Cutthroat Trout

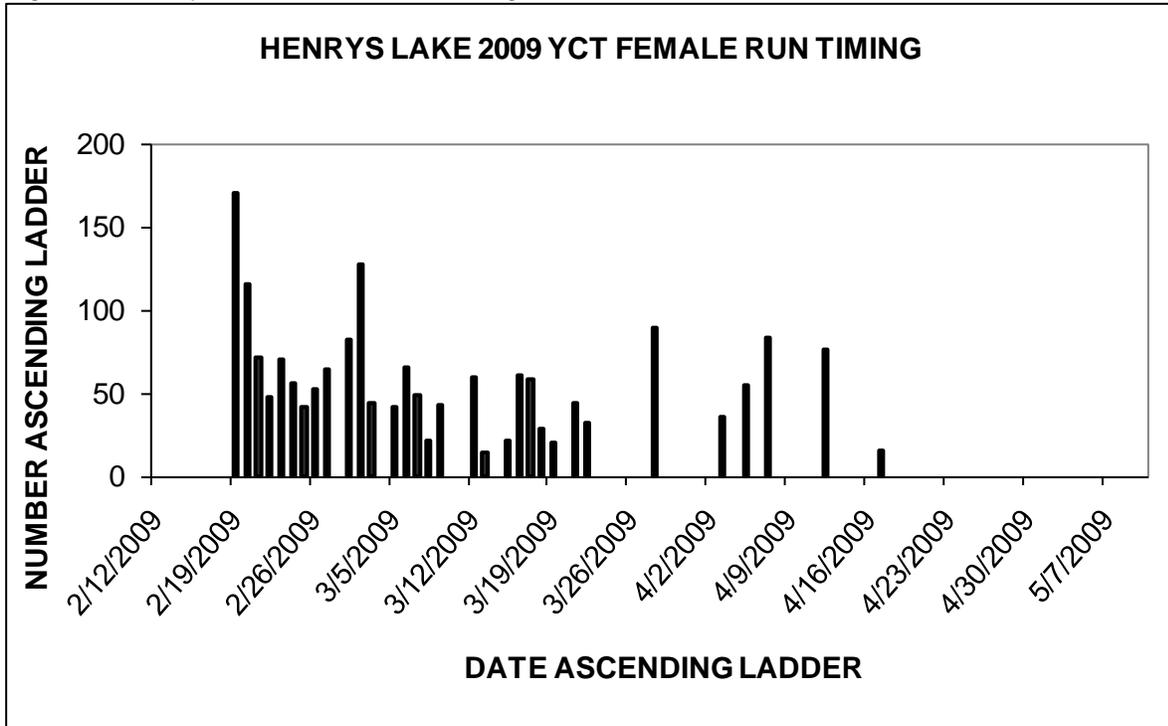


Figure 3. Henrys Lake 2009 Run Timing of Male Hybrid Trout

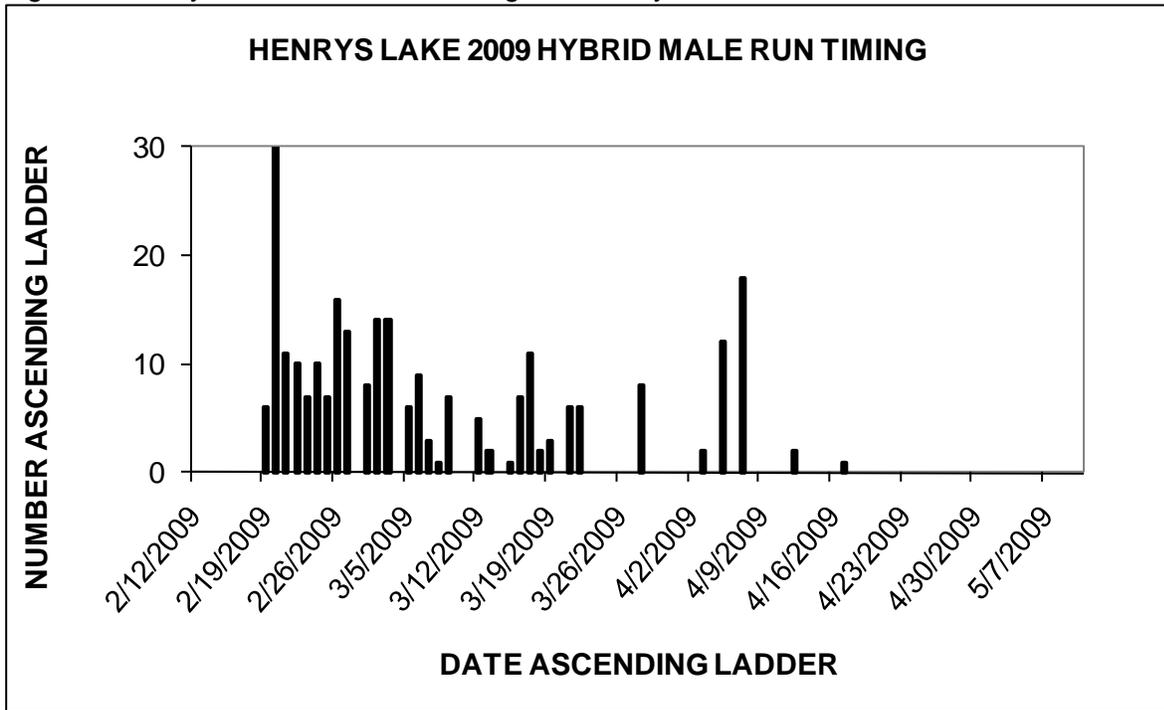


Figure 4. Henrys Lake 2009 Run Timing of Female Hybrid Trout

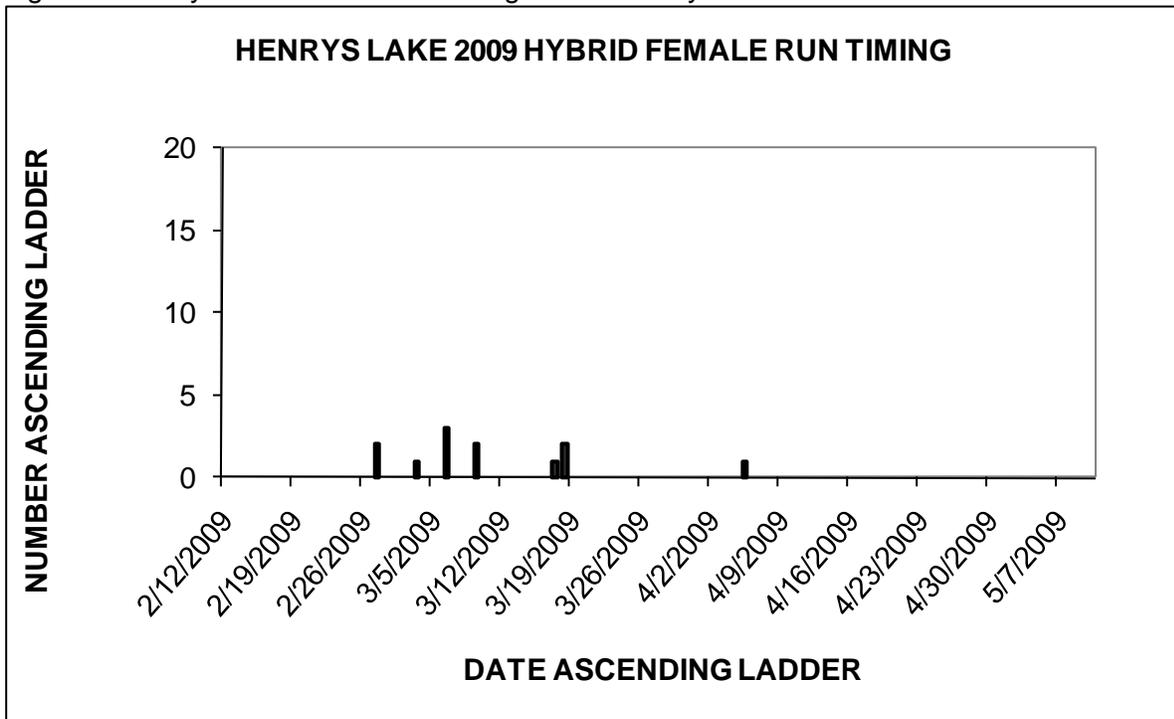


Figure 5. Henrys Lake 2009 Length Frequencies of YCT Spawning Run

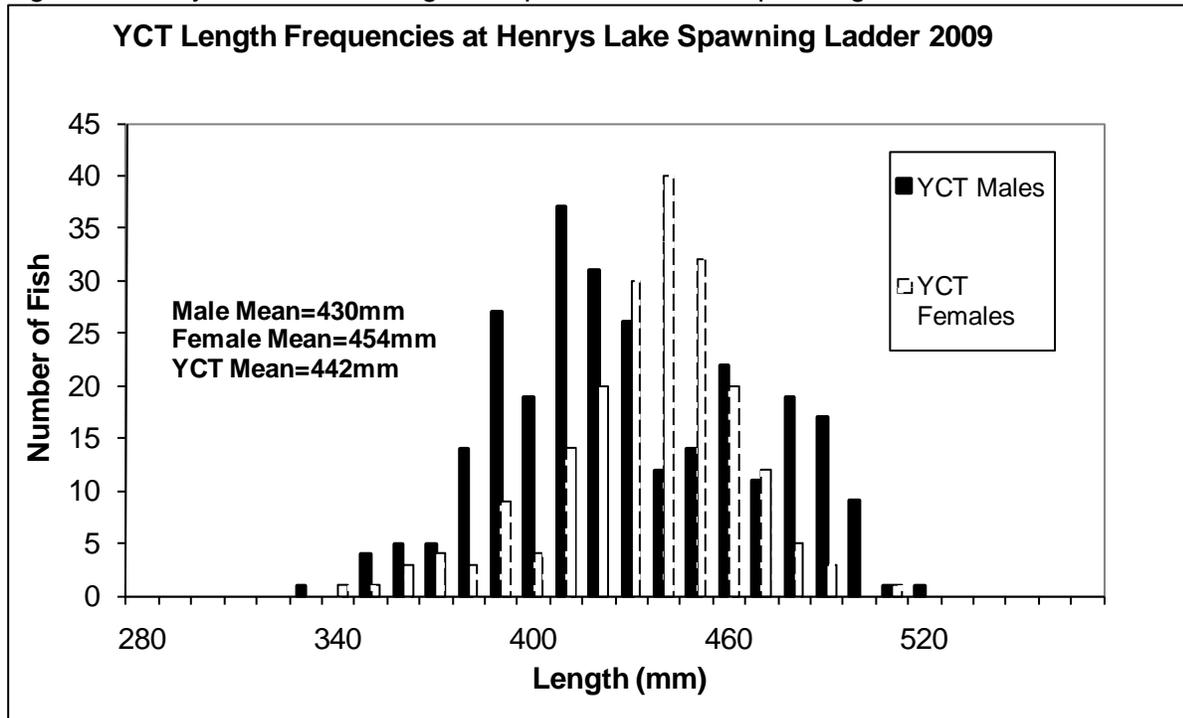


Figure 6. Henrys Lake 2009 Length Frequencies of Hybrid Trout Run

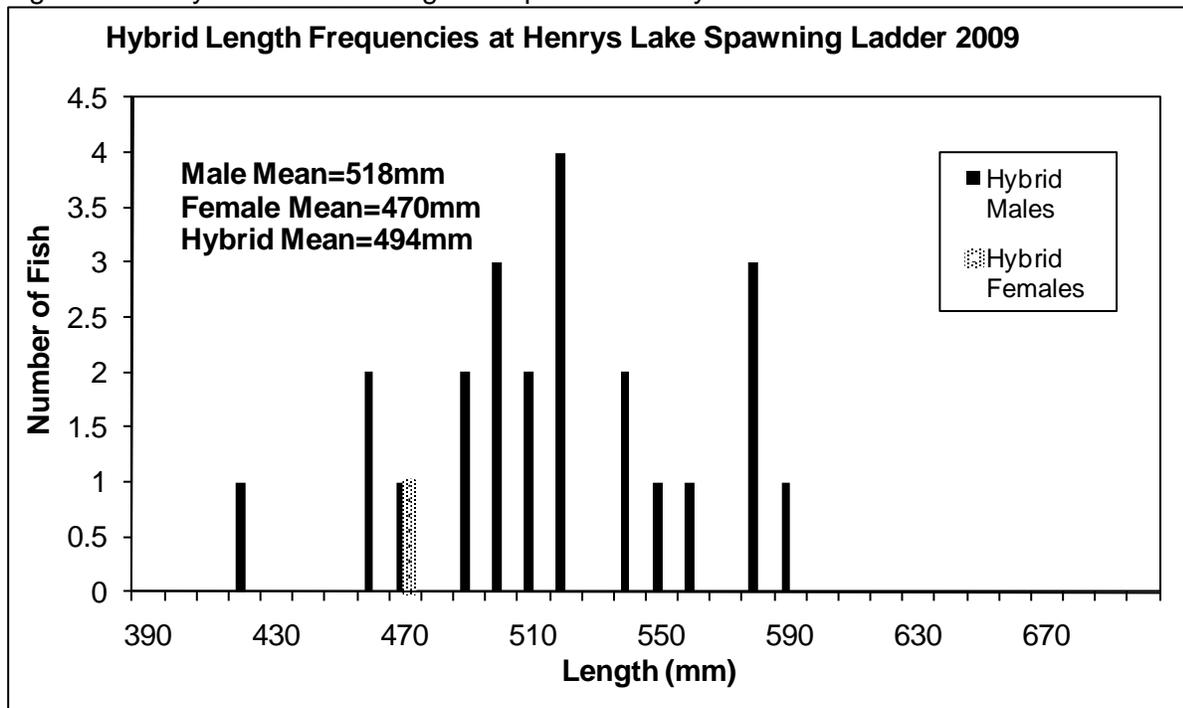


Figure 7. Henrys Lake Trap Species/Sex Ratio Composition 2009

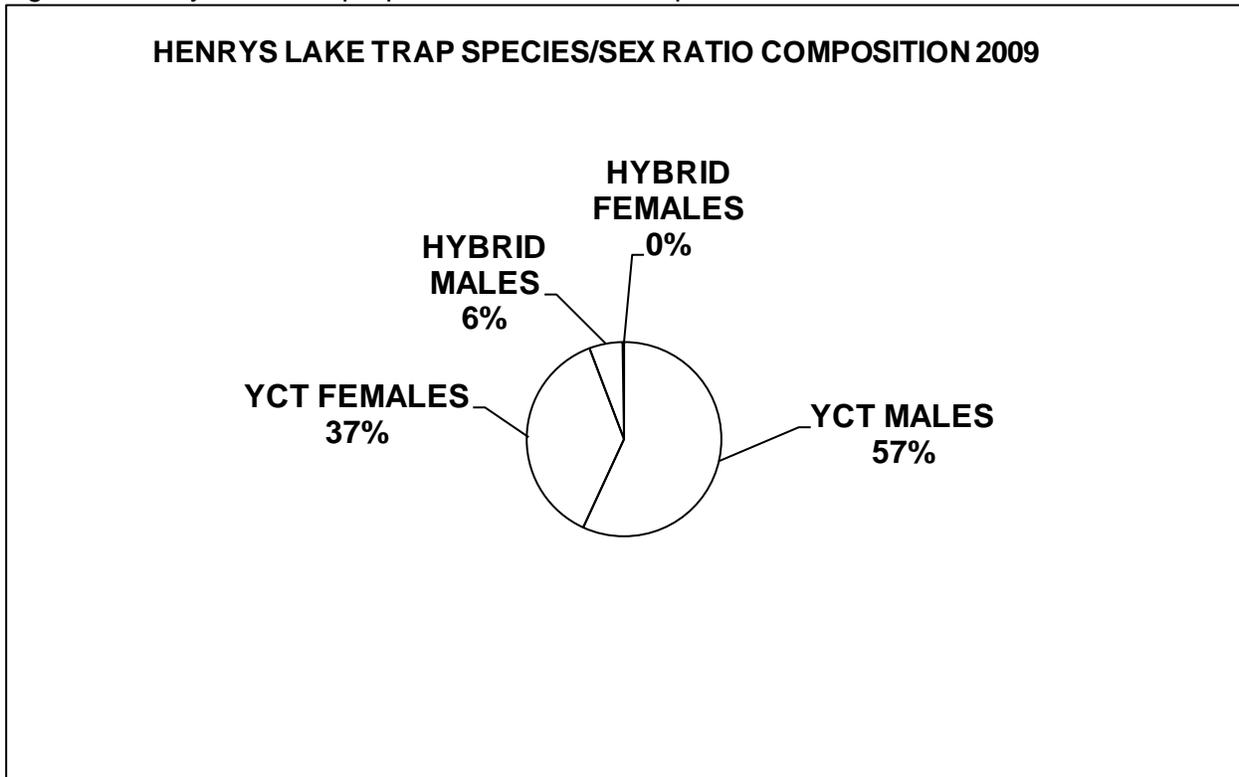


Figure 8. Henrys Lake Trap Historical Species/Sex Ratio Composition 2001-2009

HENRYS LAKE TRAP SPECIES/SEX RATIO COMPOSITION 2001-2009

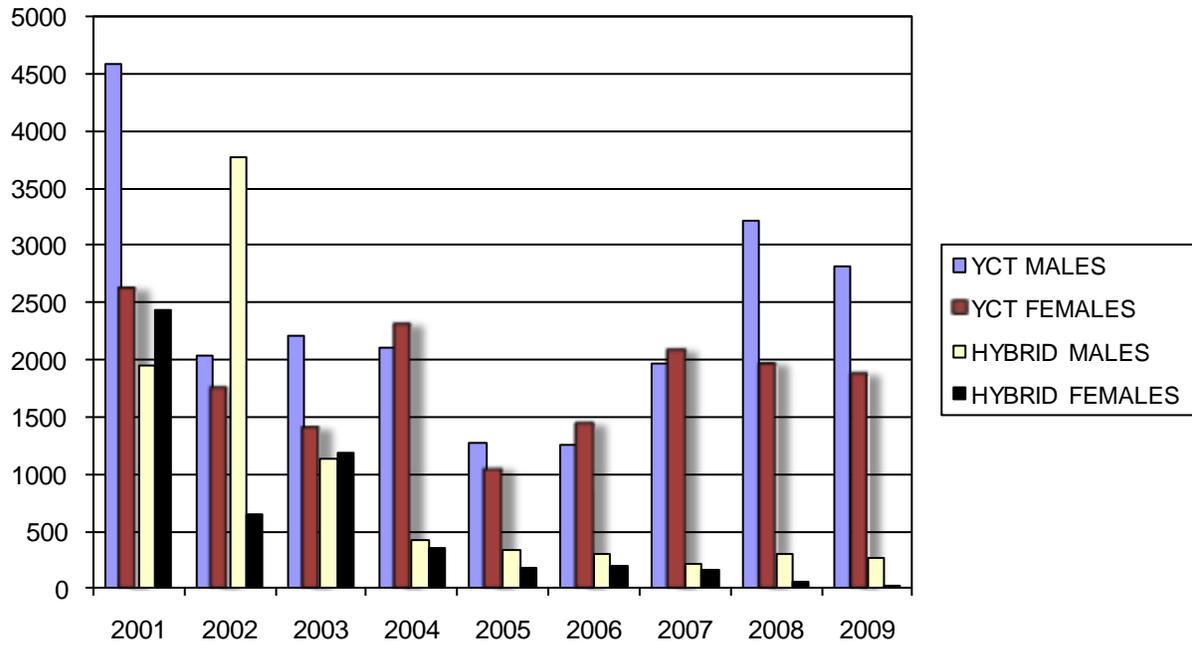


Figure 9. Henrys Lake YCT Eye-Up Percentages by Lot Number

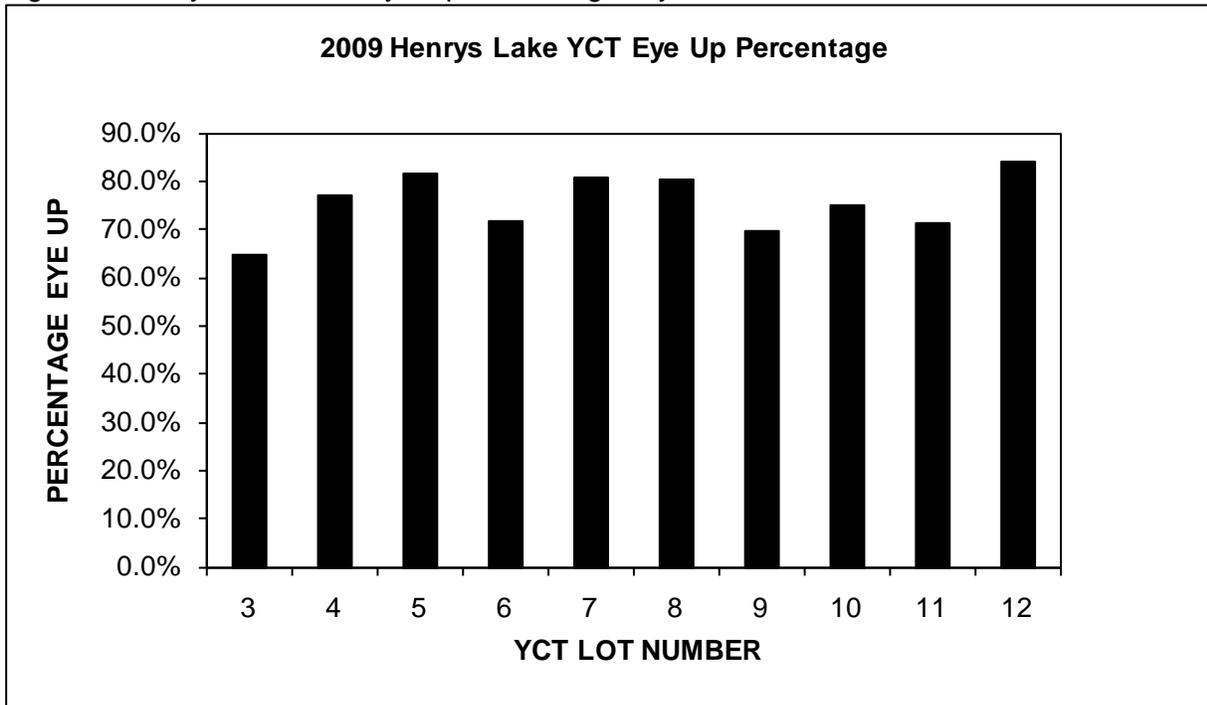


Figure 10. Henrys Lake Hybrid Eye-Up Percentages by Lot Number

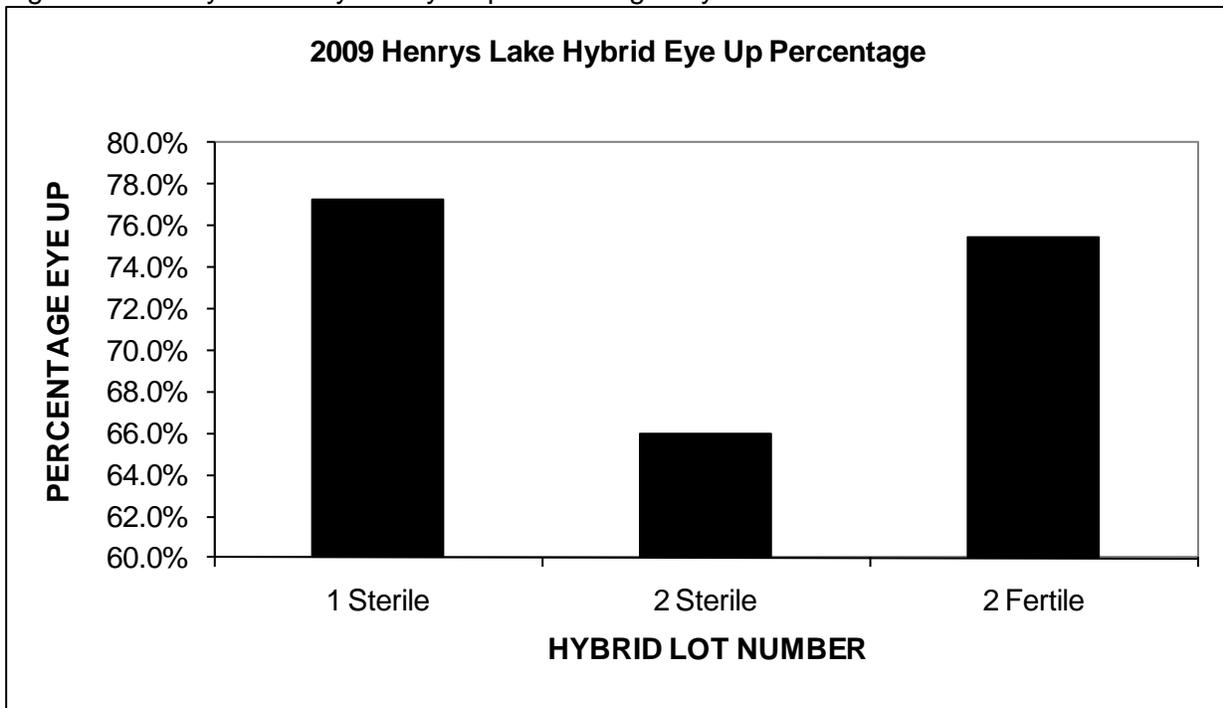


Figure 11. Henrys Lake Adipose Clipped Yellowstone Cutthroat Run Timing

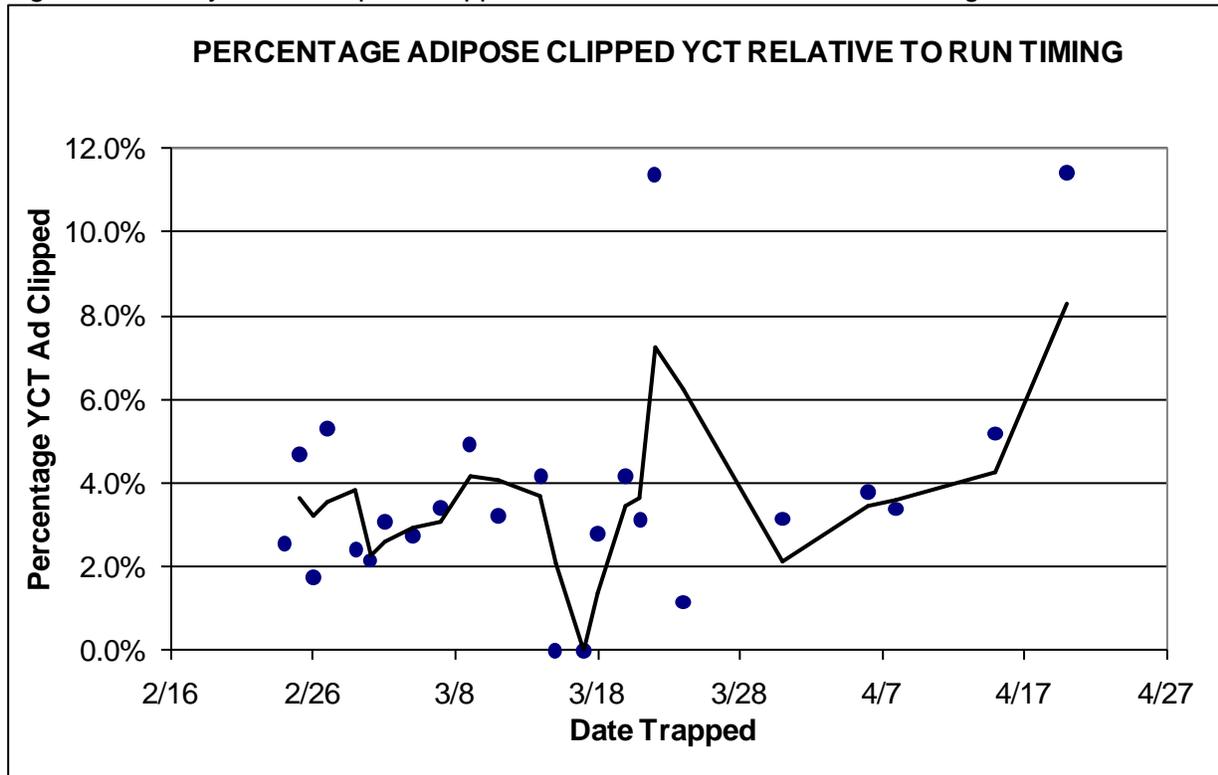


Figure 12. Henrys Lake Cutthroat Run Numbers 2001-2009

**HENRYS LAKE CUTTHROAT TRAP NUMBERS
2001-2009**

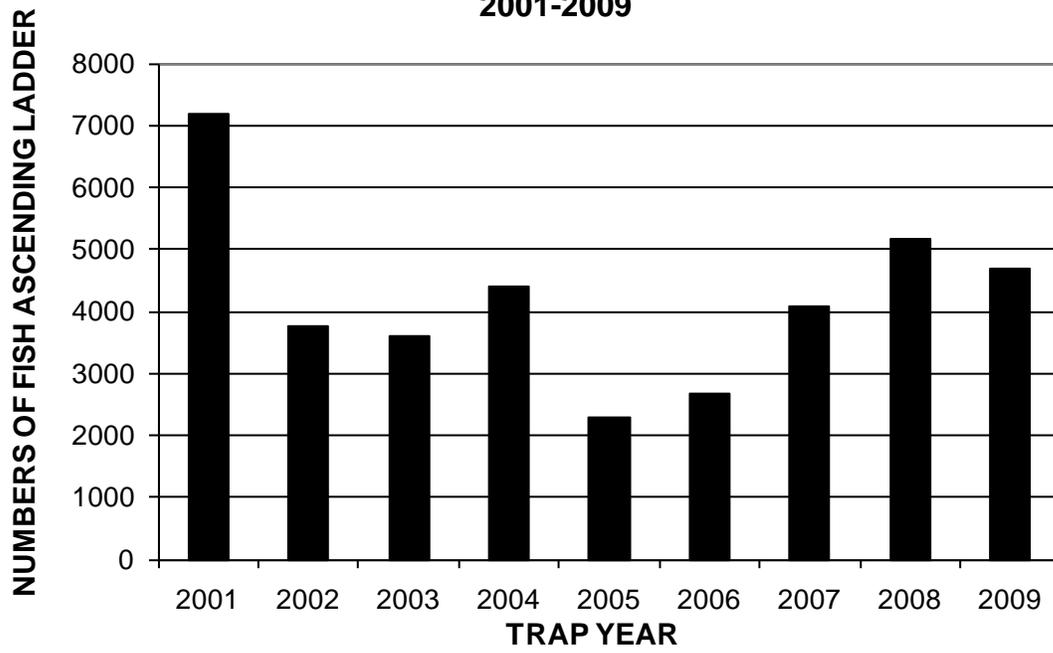
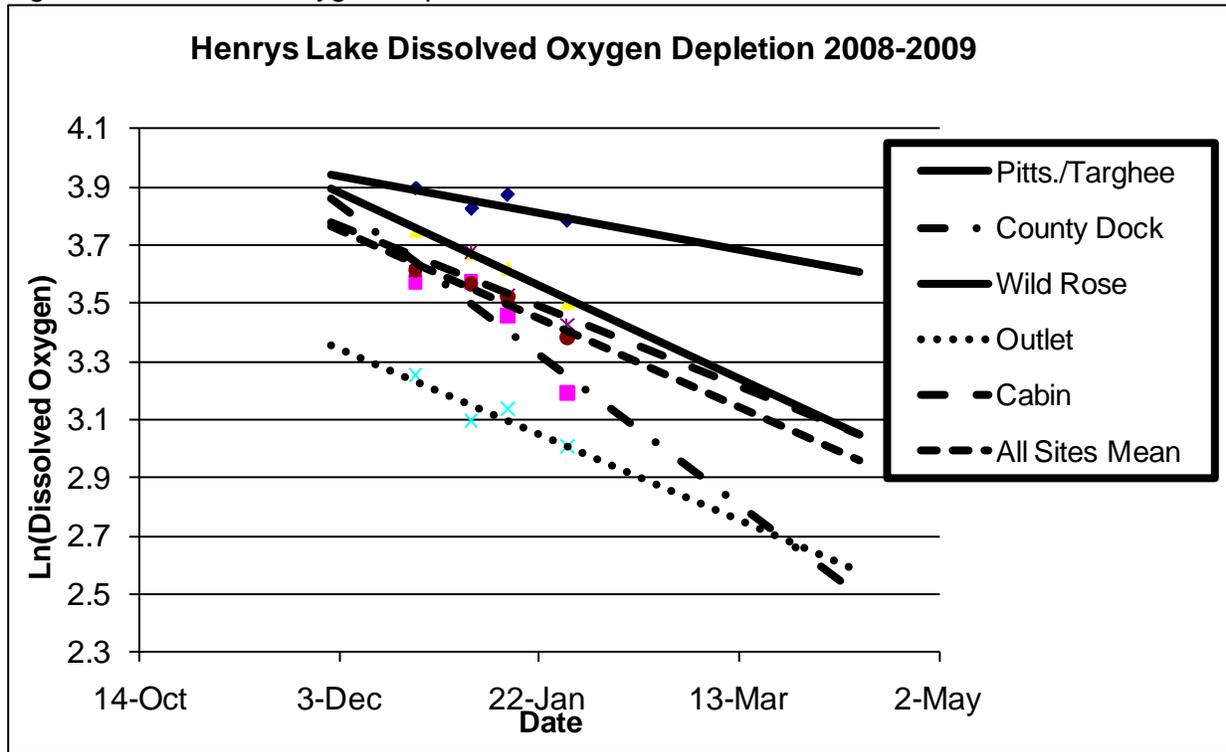


Figure 13 Dissolved Oxygen Depletion Model Winter 2008-09



MACKAY FISH HATCHERY

Patrick M. Moore, Fish Hatchery Manager I
Robert M. Hoover, Assistant Fish Hatchery Manager
Jason M. Jones, Fish Culturist

INTRODUCTION

The Mackay Fish Hatchery (MFH) is located approximately 15 miles north of Mackay, in Custer County, Idaho. The hatchery produces fish of various species and strains, from 1 to 12 inches in length, for statewide distribution. Funding comes from state license monies for operational and personnel cost.

The hatchery is staffed with three full-time and two year round part-time Idaho Department of Fish and Game (IDFG) employees. MFH 2010 fiscal year budget is \$278,527. Wages and benefits is \$199,207 for all personnel. The operating budget is \$79,320. Actual expenditures for calendar year 2009 are used for production cost calculations (Appendix 1). This year's fish production included five species and six strains (Appendix 2).

Rainbow trout (*Oncorhynchus mykiss*)
Troutlodge triploid (Sumner, WA)

Yellowstone cutthroat trout (*Oncorhynchus clarkii*)
Henrys Lake (Island Park, ID - Henrys Lake SFH)
Snake River Fine Spot (Jackson, WY - Jackson NFH)

Rainbow x cutthroat triploid hybrids
Hayspur rainbow male x Henrys Lake cutthroat female

Kokanee salmon (*Oncorhynchus nerka*)
Early (South Fork Boise River, ID)

Arctic grayling (*Thymallus arcticus*)
Meadow Lake (Dubois, WY)

WATER SUPPLY

The hatchery's water comes from an artesian spring on the hatchery grounds. The spring flows are collected in six distribution boxes that provide water to the raceways and hatchery building. Following the earthquake in 1983 the spring area was dug out and filled with cobblestone to eliminate any standing water. The available volume of water for hatchery production ranges from 18 CFS during the early months of the year to 23 CFS during the summer months. The temperatures of the springs are 50°F, 52°F and 54°F. Egg incubation temperature is 52°F.

HATCHERY IMPROVEMENTS

No capital projects were completed nor were any new vehicles or equipment acquired in 2009. An informational kiosk was installed near the kids pond. MFH staff continue to maintain the hatchery grounds, buildings, and equipment.

FISH STOCKED

Fingerlings were planted in four regions across the state. These put-grow-and-take fish numbered 2,887,429 and weighed 28,160 pounds (Appendix 2).

Catchable rainbow trout were stocked in the Upper Snake and Salmon regions. These put-and-take fish numbered 63,790 and weighed 24,077 pounds (Appendix 2).

Catchable Snake River Fine Spot cutthroat trout were stocked in the Upper Snake region. These put-and-take fish numbered 22,272 and weighed 12,586 pounds (Appendix 2).

Henry's Lake cutthroat trout (23,751), Troutlodge triploid rainbow trout (18,004) and grayling (550) were stocked in 47 mountain lakes. Stocking methods included: fixed wing aircraft, ATVs, horse and backpacking. Fish stocking personnel included IDFG staff (regional and hatchery), USFS staff, and volunteers.

FISH TRANSFERS

MFH transferred 10,000 catchable rainbows weighing 3,105 pounds to Clearwater Fish Hatchery March 30. MFH transferred 20,000 catchable rainbows weighing 6,275 pounds to Hayspur Fish Hatchery May 13.

TRANSPORT COSTS

The three fish transport trucks assigned to MFH made 70 separate stocking trips during the year. Fish from MFH were planted by truck into 27 different bodies of water. Hatchery personnel traveled 14,104 miles for an average of 201 miles per trip. The fleet rental charges for FY09 were \$421.96/month and 84 cents/mile for each of the 2-ton trucks. Fleet rental for the 1-ton truck is \$158.93/month and 39 cents/mile. The fleet rental charges for FY10 are \$421.96/month and 77 cents/mile for each of the 2-ton trucks. Fleet rental for the 1-ton truck is \$158.93/month and 34 cents/mile. MFH fish transport cost totaled \$19,601 for 2009.

The fish transport tanker trucks from Nampa Fish Hatchery made 10 trips to 6 different waters, traveling 4,882 miles for MFH during the year. The cost for the use of the two tankers were \$17,151 bringing our total fish transportation cost to \$36,752.

FISH FEED

A total of 76,550 pounds of feed purchased from Rangen, Inc. was fed during the year. This feed cost \$40,848, including shipping charges and fuel surcharges (Appendix 3). Conversions ranged from a low of 0.78 for the 2008 Deadwood kokanee and to a high of 1.62 for the 2007 Snake River fine spot cutthroat. The average conversion for all lots of fish reared at MFH during the year was 1.11 (Appendix 3).

FISH MARKING

Adipose fins were clipped on 130,345 Henrys Lake cutthroat trout during the second week of August 2009. This represented approximately 10% of the Henrys Lake cutthroat planted into Henrys lake. Natividad Wilson and her crew administered these clips.

FISH HEALTH SUMMARY

The 2009 South Fork Boise River kokanee had a poor eye up percentage (67.5%). Approximately another ten percent died between the eyed egg and feeding fry stage. After the fish are on feed they do quite well.

The Snake River Fine Spot cutthroat eggs received from Jackson National Fish Hatchery were of very poor quality. After the eggs hatch and the fry start feeding they survive well.

The Henrys Lake cutthroat and the triploid (cutthroat x rainbow) hybrids have a history of Cold Water Disease (CWD) at MFH. A Veterinary Feed Directive was administered in 2008 to reduce mortalities caused by CWD. Aquaflor (Florfenicol) was used in May in early rearing to treat the Henrys Lake cutthroat and the triploid hybrid fry. They responded very well to the treatment and did not exhibit any signs of CWD.

PUBLIC RELATIONS

More than 500 people toured the hatchery during the year. Most of these visitors came to fish the diversion pond below the hatchery during the Memorial Day Holiday and free fishing

day. Signs are posted suggesting the pond be for youth fishing only and most people complied. Scheduled tours were given to the following groups: one church youth group, USFS YCC crew, and an adult group from the Antelope Creek Living Center. MFH provided sixty five Henrys Lake Cutthroat fingerlings to region 5 for trout in the classroom programs.

ACKNOWLEDGEMENTS

MFH would like to thank John Lambert, and Robert Nash, bio-aides throughout the year, for their very important contribution to the hatchery's accomplishments. Their work enables the hatchery to produce an excellent quality product for the angler. MFH would also like to thank the USFS for providing thirty one sacs of fish food.

APPENDICES

Appendix 1. Mackay Fish Hatchery Production and Costs Summary, 2009

Pounds of fish stocked, 2009 =	72,194
Pounds of fish on station, 12/31/2009 =	26,900
Total pounds of fish on Site for 2009 =	99,094
Pounds of fish on hand, 12/31/2008 =	28,608
Net pounds of fish produced, 2009=	70,486

Production Costs

6 months FY 2010 budget		6 months FY 2009 budget	
personnel =	\$88,203	personnel =	\$99,542
operating =	\$41,010	operating =	\$54,828
total	\$129,213	total	\$154,370

TOTAL 2009 costs = \$283,583

Appendix 2. Mackay Fish Hatchery stocking summary, 2009

Species/Strain	Lot	Number Planted	Pounds Planted	Size at Release
Yellowstone cutthroat-Snake River fine spot	07-WY-C4	22,272	12,586	catchable
Yellowstone cutthroat-Snake River fine spot	08-WY-C4	124,730	4,960	fingerling
Yellowstone cutthroat-Snake River fine spot	09-WY-C4	41,330	108	fingerling
Yellowstone cutthroat-Henrys Lake	09-ID-C3	1,582,792	12,076	fingerling
Rainbow x Cutthroat Triploid hybrid	09-ID-TH	220,508	2,100	fingerling
Triploid rainbow - Troutlodge	07-WA-TT	1,644	915	catchable
Triploid rainbow - Troutlodge	08-WA-TT	63,790	24,077	catchable
Triploid rainbow - Troutlodge	09-WA-TT	18,004	30	fingerling
Early spawner kokanee-	08-ID-KE	918,069	8,916	fingerling
South Fork Boise R. Arctic grayling Meadow Lake, Wyoming	09-WY-GR	550	1	fingerling

Total Fish Stocked, 2009

	Number of Fish	Pounds of Fish
Fingerlings	2,905,983	28,191
Rainbow catchables	65,434	24,992
Cutthroat catchables	22,272	12,586
Total	2,993,689	65,769

Appendix 3. Feed used and feed conversions at Mackay Fish Hatchery, 2009

Rangen Feeds	Cost / pound	Pounds used	Cost
TSS # 0	\$0.076	1,600	\$121.60
TSS # 0 Aquaflor	\$1.173	400	\$469.20
TSS # 1	\$0.761	4,050	\$3,082.05
TSS # 2	\$0.759	3,750	\$2,846.25
#3 Grower	\$0.519	13,750	\$7,136.25
3/32" 450 sinking	\$0.517	13,500	\$6,979.50
5/32" 450 sinking	\$0.466	39,500	\$18,407.00
Shipping/freight			\$1,806.06
Totals		76,550	\$40,847.91

Feed conversions

Stock	Conversion
09-C3	0.83
07-C4	1.62
08-C4	0.94
09-C4	1.27
08-KE	0.78
07-TT	1.50
08-TT	1.40
09-TT	0.79
09-TH	0.85
AVERAGE	1.11

Appendix 4. Eggs Received at Mackay Fish Hatchery, 2009

Date	Species	Lot Number	Strain	Green Eggs	Eyed Eggs
03/26/09	Rainbow	09-TT-1	Troutlodge triploid	N/A	135,295
TOTAL					135,295
03/27/09	C3XR9	09-TH-1	Henrys Lk/triploid R9 Cross	N/A	198,387
03/31/09	C3XR9	09-TH-1	Henrys Lk/triploid R9 Cross	N/A	42,742
03/31/09	C3XKT	09-TH-2	Henrys Lk/triploid Kam. Cross	N/A	91,935
TOTAL					333,064
04/03/09	Cutthroat	09-C3-03	Yellowstone (Henrys Lk.)	N/A	171,774
04/03/09	Cutthroat	09-C3-04	Yellowstone (Henrys Lk.)	N/A	206,452
04/07/09	Cutthroat	09-C3-05	Yellowstone (Henrys Lk.)	N/A	228,226
04/14/09	Cutthroat	09-C3-06	Yellowstone (Henrys Lk.)	N/A	206,452
04/14/09	Cutthroat	09-C3-07	Yellowstone (Henrys Lk.)	N/A	227,419
04/21/09	Cutthroat	09-C3-08	Yellowstone (Henrys Lk.)	N/A	167,742
04/21/09	Cutthroat	09-C3-09	Yellowstone (Henrys Lk.)	N/A	217,742
04/30/09	Cutthroat	09-C3-10	Yellowstone (Henrys Lk.)	N/A	158,065
04/30/09	Cutthroat	09-C3-11	Yellowstone (Henrys Lk.)	N/A	214,516
05/08/09	Cutthroat	09-C3-12	Yellowstone (Henrys Lk.)	N/A	162,097
TOTAL					1,960,485

06/09/09	Cutthroat	09-C4-1	Yellowstone (fine spot)	N/A	166,937
06/16/09	Cutthroat	09-C4-2	Yellowstone (fine spot)	N/A	109,821
TOTAL					276,758
09/09/09	Kokanee	09-KE-1	South Fk. Boise R.	166,667	115,476
09/11/09	Kokanee	09-KE-2	South Fk. Boise R.	390,588	252,353
09/17/09	Kokanee	09-KE-3	South Fk. Boise R.	289,286	221,429
09/21/09	Kokanee	09-KE-4	South Fk. Boise R.	151,111	81,667
09/25/09	Kokanee	09-KE-5	South Fk. Boise R.	262,195	164,634
09/30/09	Kokanee	09-KE-6	South Fk. Boise R.	238,095	175,000
TOTAL					1,497,942 1,010,559

Appendix 5. Mackay Fish Hatchery Cost Summary 2009

Put and Take Number	117,706
Put and Take Pounds	43,958
Put, Grow & Take Number	2,905,983
Put, Grow and Take Pounds	28,191
Fish/lb Average	41.91
Total Pounds of Feed	76,550
Feed Cost	\$40,847.91
AVG Length in Inches	4.1
Total Cost *	\$283,583
Cost per 1,000 Fish Stocked	\$93.79
Cost per Pound of Fish Stocked	\$3.93

* **Total Cost includes permanent & temporary employee wages and benefits, and 2009 operating budget expenditures.**

Appendix 6. Fish on Hand December 31, 2009

Stock	Fish Numbers	Pounds	Avg. Length
08-TT	1,383	768	11.15
08-C4	30,052	8,839	9.02
09-TT	106,892	15,492	7.13
09-C4	158,856	1,801	3.19
09-KE	~900000	N/A	N/A

MCCALL SUMMER CHINOOK HATCHERY

(RESIDENT PROGRAM)

STEVEN T KAMMEYER,
ASSISTANT HATCHERY MANAGER

INTRODUCTION

McCall Summer Chinook Fish Hatchery (MCFH) is located within the city limits of McCall, approximately ¼-mile downstream of Payette Lake, adjacent to the North Fork of the Payette River. This facility underwent a complete renovation by the U.S. Army Corps of Engineers in 1979. The primary objective for MCFH is to produce one million summer Chinook salmon *Oncorhynchus tshawytscha* smolts annually. Anadromous funding is provided through the Lower Snake River Compensation Program (LSRCP). Secondary hatchery objectives pertain to resident programs. Resident fisheries program activities are financially supported through Idaho Department of Fish and Game (IDFG) license sales revenue. Most resident activities occur during the summer months from May to September. Funding for personnel time used on resident program objectives is derived from IDFG license sales revenue and provides for 5-months of assistant fish hatchery manager and 6-months of seasonal biological aide time. Facility overhead and maintenance charges are provided through the anadromous program as funded by LSRCP.

Gravity flow from Payette Lake provides for all of MCFH water needs. Two water intakes are available, which provide limited water temperature control through mixing. The surface intake is located at Lardo Dam at the outlet of Payette Lake. The subsurface intake extends approximately ¼-mile into Payette Lake at a depth of 50 feet. A 2-foot diameter constriction in the 3-foot diameter mainline limits maximum flow capacity to 20 cubic feet per second (cfs).

Incubation capacity consists of 26 eight-tray Heath style incubation stacks. Additional incubators may be plumbed into six of the early rearing vats if more incubation space is required. Rearing of resident fry is accomplished utilizing several of the 14 indoor vats. Each early rearing vat is 40-feet long and 4-feet wide. Outside rearing space consists of two concrete ponds 196 ft x 101 ft x 4 ft which are used exclusively for rearing summer Chinook salmon. Outdoor ponds are joined to a common collection basin (101 ft x 15 ft x 4 ft) that is used to hold catchable size rainbow trout for redistribution in the summer.

Major resident program objectives:

- Hatch and rear westslope cutthroat trout *O. Clarkii lewisi*, domestic kamloop rainbow trout *O. Mykiss*, golden trout *O. Aquabonita* and rear arctic grayling *Thymallus arcticus* fry for

stocking into mountain lakes in the Panhandle, Clearwater, and Southwest Regions.

- Redistribute up to 101,000 catchable-size rainbow trout.
- Maintain the statewide high mountain lakes stocking request database.
- Provide assistance to the anadromous program as needed and available.

FISH PRODUCTION

Mountain Lake Stocking

Waters located in the Panhandle, Clearwater, Southwest (Boise) and Southwest (McCall) Regions were stocked with 130,550 fry out of MCFH in 2009. Species available for redistribution included westslope cutthroat trout, sterile rainbow trout and arctic grayling (Appendix 1.). A total of 134 lakes, that are part of the mountain lake stocking program, received 126,200 fry. Four additional locations received 4,350 eggs/ fry that were available and in excess of program needs. No golden trout were available for stocking in 2009 and grayling were stocked at a reduced rate due to availability being limited to 35% of requested numbers. Westslope cutthroat trout stocking requests were met with the exception of a 5,000 fry request for Brundage Reservoir which the Regional Fish Manager elected to defer to 2010.

Nine fixed-wing fish stocking flights were flown during the period of August 3rd through September 13th resulting in the release of 118,920 fry into 125 lakes. In doing so, approximately 3,013 air-miles were covered at a flight cost of \$9,562.50. The average cost, based on redistribution flight time, to stock a mountain lake out of MCFH in 2009 was \$76.21 and ranged from \$69.43 to \$107.30 for individual regions. Volunteers backpacked 11,230 fry into 13 lakes/ waters in the McCall Area. It is estimated that their efforts saved the IDFG \$903 in comparable flight time costs. The Morrison Knudsen Nature Center also received 400 eyed westslope cutthroat trout eggs to place on display for educational purposes. One lake in the McCall sub-Region was stocked by air and by a volunteer.

Skretting BioVita Starter #0 was the primary feed used throughout the rearing period with good results. Additionally, the first group of Washoe Park FH westslope cutthroat trout were fed 2 medicated feed treatments. In all, 31.7 pounds of feed was used resulting in an average conversion of 1.48 (Appendix 2.). The total feed cost for feeding resident fry was \$55.66 and averaged \$0.43 per 1,000 fry stocked.

Washoe Park FH, Montana Department of Fish, Wildlife and Parks, was intended to be the primary source of westslope cutthroat trout eyed eggs for stocking in 2009. However several mortality issues necessitated not only obtaining a second group of Washoe Park westslope cutthroat eyed eggs, but also obtaining additional eyed eggs from the Westslope Trout Company. Washoe Park FH reported sending 108,360 westslope cutthroat trout eyed eggs which were received on June 18th and 77,050 eyed eggs received on July 2nd. Numbers for both groups appeared to be over-estimated; the 1st by 17,140 (15.8%) and the 2nd by 11,580

(15.0%). Performance values for these fish have been reduced accordingly. Overall, incubation mortality for both groups averaged a 45.2% loss or 70,820 eggs (44.8% & 45.8%, individually) and proved to be very labor intensive. Rearing mortality averaged 50.3% but was primarily related to an epizootic disease outbreak in the first group which alone was 84.0%. Ultimately 42,660 fry originating from Washoe Park FH eggs were stocked out or 27.2% of the total adjusted receipt number: 1st group 8,080 eggs/fry (8.9%) and 34,580 (52.8%) for the 2nd group.

Two medicated feed treatments were given to the first group of Washoe Park FH cutthroat trout received. The first involved a metaphylactic 10-day treatment using TM-200 (3%), fed at a rate just below INAD reporting levels. This treatment was prearranged to begin once the fry went on feed. At the start of this treatment, initiated July 25th, an epizootic outbreak occurred resulting in significant mortalities. Doug Munson, IDFG Anadromous Fish Pathologist, provided diagnostic services on July 27th and was able to isolate the presence of *Pseudomonas fluorescens* (2/10) that was susceptible to Oxytetracycline but resistant to Aquaflor. The mortality curve peaked on the last day of the TM feed treatment (10.2% daily mortality) and then began to taper off at a steady rate. Due to the persistent mortality a second diagnostic service was requested and Doug Burton, IDFG Resident Fish Pathologist, re-sampled these fish on August 7th. He was able to isolate *Flavobacterium psychrophilum* (10/10) which was shown to be most susceptible to the antibiotic Aquaflor. Even though mortalities were steadily declining, it was decided that an Aquaflor medicated feed treatment would be conducted as the most prudent course of action prior to fish releases. A 10-day Aquaflor feed treatment was initiated on September 1st with fish fed to past satiation. Following the Aquaflor feed treatment the remaining westslope cutthroat trout were stocked out as mortality level had subsided to an acceptable level. It is unknown if the Aquaflor treatment improved fish health resulting in a reduction of mortality or if the pathogen cause had simply run its course and mortalities would have fallen off regardless.

Catchable Rainbow Trout Redistribution

A total of 109,370 sterile Trout Lodge rainbow trout triploids were stocked into 37 waterbodies in the McCall vicinity during the period of May 18th to September 2nd. These fish were reared at Nampa FH (91,800 fish averaging 3.40 fpp) and American Falls FH (17,785 fish averaging 2.63 fpp). Comparing the transferred number of fish into MCFH to the number stocked out of MCFH plus holding mortalities resulted in a net inventory gain of 210 fish or 0.2% and likely derived from errors in loading weights and sample counts throughout the redistribution period at MCFH.

Transportation costs to bring catchable size rainbow trout to MCFH totaled \$9,528 with 2,168 miles driven by Transport Operators stationed out of Nampa FH. Hatchery personnel drove 4,209 miles on 99 stocking trips to complete requests at an approximate transportation cost of \$4,850. To maximize efficiency multiple sites were stocked on 18 occasions eliminating the need to make additional stocking trips. The combined transportation redistribution cost was \$131.45 for each 1,000 fish stocked, or \$0.43 per pound stocked (Appendix 3.). To maintain the condition of fish, while at MCFH, 1,056 pounds of BioClark's 4.0 mm feed was used to provide intermittent feeding at a cost of \$735.46.

Payette Lake Net Pens

Two net pens (20' x 20' x 17' each) are utilized to provide for continued rearing of catchable size rainbow trout during the summer months at Brown's Park. All fish rearing activities are directed by the McCall sub-Regional Fishery Management Staff.

This community interaction program was significantly hampered by vandalism incidents that occurred during the summer. Problems experienced included: the automatic feeder being broken into requiring repairs to make operable, one of the coin-operated "gum-ball" machine used to allow people to feed the fish was broken into and ended up in the bottom of one of the nets and individual(s) prematurely released the bulk of the fish. Additional sporadic problems also included instances of northern pike minnows being added to the nets and people fishing out of the nets. Due to repeated, and nearly annual, instances of vandalism the continued operation of this program is under review, but will likely be attempted again for 2010.

Rainbow trout, numbering 6,000, were placed into the nets on May 28th at a size of 3.70 fpp (9.0 inch TL). All of the fish in one net and most of the fish in the second net were prematurely released by vandals in early August. Fishery management personnel released the last 300-500 fish on September 1st. While in operation, approximately 1,364 pounds of feed was fed at a cost of \$1,529. No ending release size information or season growth information is available this year.

Special Projects

Efforts were coordinated with Dale Allen, McCall sub-Regional Fish Manager, to examine the use of catchable trout redistributions out of MCFH. This resulted in eliminating several stocking sites that appeared not to be returning fish to the creel and expanding stocking efforts to those sites that were more productive while not increasing the overall stocking request numbers. Revised catchable rainbow trout stocking requests have been incorporated into the state wide default request database.

Hatchery Improvements/ Needs

No hatchery improvements related to resident activities were undertaken in 2009. Changing the discharge pipes exiting the wash-down vats, located near incubators, has been identified as a needed improvement to be completed prior to use for resident fry rearing in 2010. This project will entail running additional PVC pipe from the wash-down vats to existing effluent discharge channels.

Public Relations

Fish stocking opportunities were provided to several groups of volunteers who backpacked 11,230 fry into 13 mountain lakes in the McCall area; saving the Department approximately \$903 in comparable flight time costs. Small groups of catchable rainbow trout were periodically provided to Scout Masters at Camp Morrison, in McCall, who used these fish as part of their aquatic education lessons given to Boy Scout groups. In all, approximately 20 fish were provided for this effort. Hatchery personnel participated in the Free Fishing Day event held at Rowland Pond and numerous hatchery tours were given to visitors/ school groups throughout the summer.

Acknowledgements

Resident program activities were completed with the support and cooperation of the entire staff at McCall Summer Chinook Hatchery. I wish to thank Gene McPherson, MCFH Hatchery Manager II, for his ongoing advice, support and for making available seasonal employees who were utilized on resident program endeavors. Individuals assisting on resident program activities in 2009 include: Joel Patterson, MCFH Fish Culturist, and seasonal bio-aides Sean Dardis, Tony Folsom, Nick McConnell, Nikki Sauerland, Sean Ward, Brett Watterson, and Matt Watterson.

APPENDICES

Appendix 1. Fry redistribution by Region, MCFH, 2009.

Species	Panhandle	Clearwater	Southwest (3B)	Southwest (3M)	Total Stocked
Westslope Cutthroat Trout (Washoe Park, MT F&G – C2)	19,700	2,000	2,400	18,560	42,660
Westslope Cutthroat Trout (Westslope Cutthroat Trout Co – C2)	-	6,000	26,750	6,720	39,470
Rainbow Trout Triploid (Trout Lodge – TT)	14,600	-	6,250	22,600	43,450
Arctic Grayling (Meadow Lake, WY – GR)	2,300	-	600	2,070	4,970
Total	36,600	8,000	36,000	49,950	130,550
# Lakes Stocked by Plane	15	15	43	52	125
# Lakes Stocked by Other Means	-	-	1	13	14
Total Lakes Stocked	15	15	44	65^a	139^a
Approximate Flight Costs	\$1,609.50	\$1,305.00	\$3,001.70	\$3,610.30	\$9,526.50
Average Cost to Stock Each Lake by Plane	\$107.30	\$87.00	\$69.81	\$69.43	\$76.21

^a One lake stocked by Plane and by Volunteer and is double counted.

Appendix 2. Resident fry feed usage and conversion data, MCFH, 2009.

Species	Number Stocked	Feed Used (lb)	Pounds Gained	Conversion	Cost per Lb Gain	Cost per 1000 fish	Total Feed Cost
Westslope Cutthroat Trout ^a (Washoe Park, MT F&G – C2)	42,660	19.0	8.04	2.36	\$4.40	\$0.83	\$35.34
Westslope Cutthroat Trout (Westslope Cutthroat Trout Co – C2)	39,470	3.6	2.48	1.15	\$2.32	\$0.15	\$5.76
Rainbow Trout Triploid (Trout Lodge – TT)	43,450	7.2	10.33	0.70	\$1.12	\$0.27	\$11.52
Arctic Grayling (Meadow Lake, WY)	4,970	1.9	0.64	2.98	\$4.75	\$0.61	\$3.04
Fry Total	130,550	31.7	21.49	1.48	\$2.59	\$0.43	\$55.66

^a Includes medicated feed applications of TM-200 & Aquaflor.

Appendix 3. Production and distribution costs, MCFH, 2009.

Species	Setout ^a / Received	Stocked/ Transfer	Transportatio n Cost	Pounds Stocked	Cost per LB Stocked	Cost per 1000 Stocked
Fry Redistribution^b						
Westslope Cutthroat Trout (Washoe Park, MT F&G – C2)	156,690	42,660	\$2,526.20	25.08	\$100.73	\$59.22
Westslope Cutthroat Trout (Westslope Cutthroat Trout Co – C2)	44,900	39,470	\$3,510.71	12.69	\$276.65	\$88.95
Rainbow Trout Triploid (Trout Lodge – TT)	47,260	43,450	\$3,011.70	33.59	\$89.66	\$69.31
Arctic Grayling (Meadow Lake, WY)	6,310	4,970	\$1,629.89 ^c	1.41	\$1,155.9 5	\$327.95
Fry Redistribution Total	266,160	130,550	\$10,678.50	71.77	\$148.79	\$81.80
Notes: ^a Setout/ received number reported as stocked plus rearing mortality. ^b Breakdown based on \$9,526.50 partitioned flight redistribution for C2 & TT. Fry stocked by volunteers/ excess are included at no cost. ^c Breakdown for GR includes an additional transport cost of \$1,152.00 for returning grayling fry to MCFH from Ashton FH.						
Catchable Rainbow Trout Redistribution						
Trout Lodge Rbt Triploid (Reared at Nampa FH)	109,795	109,370	\$14,378	33,262	\$0.43	\$131.45
Note: ^d Based on transportation costs of \$ 14,378 (\$ 4,850 MCFH and \$ 9,528 Nampa FH).						
Grand Total^e	375,955	239,920	Average Budget \$83,031	33,334	\$2.49	\$346.08
Note: ^e Grand total cost is based on the average resident program budget of \$ 83,031; no capital outlay money is included.						

MULLAN FISH HATCHERY

Mary Van Broeke

Fisheries Technician

INTRODUCTION

The Mullan Fish Hatchery (MUFH) is a resident species redistribution station located four miles east of Mullan, Idaho. The Shoshone County Sportsmen's Association owns the MUFH. Shoshone County provides funds to maintain the physical plant. The Idaho Department of Fish and Game provides funds for personnel costs, production costs, and equipment with fishing and hunting license fee revenue. The manager at Cabinet Gorge Fish Hatchery supervises operations and provides additional labor and equipment if needed. There is one temporary employee on station year-round.

The hatchery receives water from the South Fork of the Coeur d'Alene River and the Little North Fork of the Coeur d'Alene River. Two (10 ft x 60 ft) concrete raceways and three dirt ponds (30 ft x 100 ft) are used to hold fish prior to stocking into the Coeur d'Alene and St. Joe River drainages. One of the dirt ponds has been developed as a show pond complete with a visitor's access deck, information board, and a feed dispenser.

The Mullan facility plays a vital role in supporting the put-and-take rainbow trout *Oncorhynchus mykiss* fishery. From this location, daily trips are made to the Coeur d'Alene and St. Joe River drainages to stock ponds and lakes, from May to September, providing the frequent stocking service needed to support such a fishery. The close proximity to a Shoshone County park encourages the highest visitor attendance rate of any hatchery in the Panhandle Region.

Mullan Hatchery personnel, in 2009, were also involved with the kokanee spawning operation at Granite Creek.

HATCHERY IMPROVEMENTS

Hatchery improvements during 2009 included:

1. Replaced the plumbing in the hatchery bathroom.
2. The east side of the hatchery building was scraped and painted.
3. A 50"x30" valve box and cover was built for the S.F. water supply.
4. A 4'x6' informational sign was built for the hatchery show pond.
5. The observation deck over the show pond was painted.

FISH STOCKED OR TRANSFERRED

A total of 33,561 rainbow trout, 3.2 fish/pound (nine-inches long), were released into waters of the Coeur d'Alene and St Joe river drainages from May to September to support a put-and-take fishery. All stocking sites received sterile rainbow trout. Trout Lodge Triploids (TT) Trout released from the MUFH came from Nampa Hatchery. Hatchery personnel loaded the fish into a 500-gallon pick-up truck mounted tank and delivered them to ten different lakes and ponds. The distribution schedule requires three to five hour trips, four to five days each week during the summer season.

Mullan Hatchery's annual expenditures came to \$35,960. This amount included \$6,353 in operating costs, \$21,985 in personnel costs and \$7,622 in transportation costs from NFH. The streamside cost of catchable redistribution from MFH in 2009 was \$1.07/fish or \$3.75.pound.

PUBLIC RELATIONS

The MUFH is located adjacent to a popular Shoshone County "day use" park. As a direct result, the hatchery receives a much higher visitor level than would be expected in this remote location. The hatchery serves the highest number of visitors of any hatchery in the Panhandle Region, with over 13,500 people touring the grounds in 2009. The hatchery also hosted the Silver Valley Good Samaritan RV rally and the Silver Valley Jeep rally. The Shoshone County Sportsman had their annual meeting at the hatchery with over 75 members attending. A total of three school tours were given this year.

NAMPA FISH HATCHERY

Rick Alsager; Fish Hatchery Manager II
Bob Turik; Assistant Fish Hatchery Manager
Bob Becker; Fish Culturist

INTRODUCTION

Nampa Fish Hatchery (NFH) is a resident trout rearing facility located one mile south of Nampa. The NFH water is supplied by eight pump assisted artesian wells. A maximum flow of 35 cubic feet per second (cfs) of 59°F water is available for fish production. Built in 1975 and purchased by the Idaho Department of Fish and Game (Department) in 1982, fish rearing facilities consist of a hatchery building/dorm that contains 4 early rearing vats and a feed storage room. Outside rearing tanks including 16 fry raceways, 3 fingerling/broodstock raceways and 10 production raceways. Sixteen upwelling incubators are available for use in the fry raceways for eyed-egg incubation. A settling pond treats flows from the production units before discharge into Wilson Springs Ponds and Wilson Springs Drain.

FISH PRODUCTION

During the 2009 fish year, the NFH net fish production was 1,614,316 fish at a net weight of 273,336 pounds (Appendix 1). The net cost for rearing fish at the NFH from grow out through stocking was \$402,700 (Appendix 2). Fish transferred to other hatcheries are included in the total number and pounds produced. Kamloops and rainbow trout *Oncorhynchus mykiss* comprised 86.24% of the fish stocked or transferred from NFH. In addition, Lahontan cutthroat trout *O. clarkii henshawi* were produced at NFH during 2009 (Appendix 3). Another 475 fish weighing 150 pounds were produced at NFH and given to schools for educational purposes and department personnel for various research programs. A total of 2,184,164 eyed-eggs were received during the 2009 fish year (Appendix 4).

From March 2005 to Dec 2008 NFH had numerous *Ichthyophthirius multifiliis* (Ich) outbreaks, the largest being in early 2006 leading to 250,000 mortalities. In 2009 NFH continued to apply five day formalin treatments to any fish being transferred to anadromous hatcheries. Fish were inspected by pathologists after treatment and prior to hauling. No Ich was diagnosed.

In October, NFH received 33,000 Hayspur triploid fingerlings weighing 41.25 pounds from Sandpoint Hatchery. These fish were sent to Sandpoint Hatchery as eyed eggs to slow down their development. This allows NFH to produce a catchable sized fish for release into Stanley basin lakes that meet the size restrictions as per ESA permit number 1188.

FISH STOCKED/TRANSFERRED

The NFH personnel stocked or transferred 1,445,096 fish, weighing 218,137 pounds, during the 2009 fish year. These fish do not include warm water transfers and fish reared in non-IDFG hatcheries to waters in Idaho. NFH made 185 stocking trips to 280 planting waters during 2009.

NFH stocked or transferred a total of 125,448 fry (Appendix 5), 658,405 fingerlings (Appendix 6) and 661,243 catchables (Appendix 7), which are listed by species/strain in each table. A total of 271,362 catchables (Appendix 8) were transferred to six other hatcheries throughout the state.

FISH TRANSPORTATION

Fish transport operators (Gary Ady and Dick Bittick) stationed at NFH, stocked waters in all seven regions throughout the state. They transported fish to and from 15 different state and federal fish hatcheries. The transport operators made 136 trips totaling 41,600 miles during 2009. The little down time the transport operators have is spent assisting the NFH staff in fish rearing and facility and equipment maintenance.

The NFH transport operators stocked 210,381 rainbow trout fingerlings weighing 6,304 pounds from Lyons Ferry Fish Hatchery into Clearwater Region waters. They also stocked Spring Chinook salmon and B-run steelhead smolts from Clearwater Fish Hatchery and assisted with the transportation of summer Chinook Salmon smolts from McCall Fish Hatchery. NFH stocked Channel Catfish purchased from Fish Breeders of Idaho to lakes in the Panhandle, Clearwater and Southwest Regions.

In May, Dick and Gary went to Oxbow Fish Hatchery in Western Oregon operated by ODFW to transport ESA listed sockeye salmon fingerlings back to Redfish Lake. In July, NFH assisted the department with personnel time and vehicles in planting 6 loads of adult chinook salmon into the Boise River. These surplus fish were provided by Rapid River Hatchery and the South Fork Salmon trapping facility. In November the transport operators and NFH personnel assisted in transporting and stocking 1500 surplus A-run adult steelhead from Oxbow Fish Hatchery into the Boise River. These adult anadromous fish create a very popular local fishery.

LAHONTAN CUTTHROAT TROUT

During 2009, NFH stocked 125,448 Lahontan Cutthroat trout (662 pounds) into lakes and reservoirs located in the Southwest. The Lahontan Cutthroat eggs were received from Omak Fish Hatchery in Washington. All of the Lahontan Cutthroat were stocked as fry (Appendix 5). Estimated survival from eyed-egg to stocking was 101.88%. NFH suspects a pound count error connected with the July 13, 2009 plant or an egg enumeration error was the cause of the inflated survival percentage.

FALL CHINOOK

In 2009, NFH stocked 26,707 Fall Chinook fingerlings (2,695 pounds). Two trips totaling 21,499 chinook were stocked in Coeur d'Alene Lake, as well as one trip to Deadwood Reservoir totaling 5,208 fingerlings. Chinook were received as fry from Cabinet Gorge Fish Hatchery. Cabinet Gorge acquired the eggs from Big Creek Hatchery in Astoria, OR. Estimated survival from fry to plant was 97.74%.

FISH FEED

A total of 267,084 pounds of feed was fed during 2009 at a cost of \$137,892.72 (Appendix 9). The average cost per pound of feed was 49.22 cents. Rangen's Inc. made up 97.32% of the feed purchased by weight. An additional 3,622 pounds of feed was received from other hatcheries and fed throughout the year. The overall feed conversion was 0.98 pounds of feed fed to produce one pound of fish.

Rangen's continues to carry the feed contract and is used throughout the rearing cycle. The use of Skretting feed was curtailed because of supply problems. Fall Chinook were fed a Bio-Oregon diet during early rearing.

FISH SPAWNING

Early Kokanee

In 2009 the Kokanee trap was installed on the South Fork of the Boise River approximately 5 miles upriver from Anderson Ranch Reservoir. The decision to relocate the trap from Deadwood Reservoir to Anderson Ranch Reservoir was based on high run numbers on the South Fork from the preceding years. This was the first spawning operation for the new concrete sill that was installed in 2006. The trap itself was installed on August 5th and 6th. Doug Megargle from the Magic Valley region was in charge of the weir installation. Nampa Hatchery personnel assisted with set up and also set up our camp for the spawning crew. A large crew of probably 20 people came from the region also to assist in setup. The weir was easily installed however the trap was a little more complex with many of the framework pieces needing to be placed in specific locations. Color coded pieces of angle and pictures from the prior year assisted in setup. More detailed marking and notes would be of assistance in the future. An overall green egg goal was set at 2.5 million eggs. Mackay Hatchery was to get 1.5 million and Cabinet Gorge Hatchery was to get 1 million eggs. Pre-spawning trawl data from Anderson Ranch indicated there could be a smaller run in 2010.

Fish started entering the trap on August 7th. Some minor “fine tuning” was required on the trap due to this being the first time a spawning operation was done with this trap. The first spawn day was September 9th with 289 females spawned and eggs shipped to Mackay. This group contained a lot of green females which seemed to continue throughout the run. One reason for this could have been the long distance fish had to travel past the weir to reach their spawning locations. Fish were found spawning over 20 miles upriver from the weir. This distance may have contributed to fish delaying egg development. Fish were held below the weir at times with no noticeable improvement in “ripeness”. Spawning ran from September 9th through September 30th with a total green egg take of 2,495,987 eggs. Cabinet Gorge received 998,045 green eggs in two shipments which produced 818,496 eyed eggs for an 82.0% eye up between the two lots. Mackay received 1,497,942 green eggs in 6 shipments which produced 1,010,559 eyed eggs for an average of 67.5% eye up. Egg takes ranged between a high of 618,380 to a low of 81,667 eggs per day. Average fecundity through the season was 608 eggs/female.

Public relations were a much larger issue at the South Fork Trap as compared to the Deadwood River location, due to the close proximity to Mountain Home and Boise recreationists. Maintaining the weir seemed to be much easier than the Deadwood River weir due to smaller fluctuations in water level during storm events. Transportation was easier to and from the trap due to paved roads the entire way making it a two hour trip.

HATCHERY IMPROVEMENTS

Several important improvements were implemented at NFH during 2009:

- Rehabilitated “island” with grass and habitat seeding after 2008 settling pond dredging.
- Set up irrigation system on island.
- Repaired irrigation line from Residence #2 and #3 well casing that caused Residence #2 crawlspace flooding.
- Replaced dishwasher in Residence #1.
- Repaired wood flooring in Residence #2 and #3.
- Installed ventilation fan in shop.
- Repaired funnel and feed dispenser system on feed bin #3.

NFH improvements scheduled for 2010 include:

- Replace carpet and vinyl in office and dorm.
- Do informational pamphlets for hatchery.

- Acquire a camp trailer for kokanee spawning project.
- Replace toilets in Residence #1.
- Replace stove hood in Residence #2.
- Replace stove and refrigerator in dorm.
- Replace blinds in the office.

PUBLIC RELATIONS

As in past years, NFH was a focal point for many visitors, tours, and special groups. In 2009, an estimated 2,600 tourists visited the NFH. Most visitations came through the late spring and summer months although year around school and educational tours were scheduled throughout the spring, summer, and fall. A total of 40 guided tours were given to area school, church, and Boy Scout groups which included over 2,500 visitors. Several disabled veterans groups were allowed to fish the settling pond four times during the summer months. The settling pond was also opened to fishing on Free Fishing Day. NFH, with the help of regional personnel, reservists, and the Nampa Recreation Department, hosted the Free Fishing Day clinic, which was attended by approximately 500 visitors/fishermen, with an estimated 600 fish caught. The largest fish caught was a 5.5 pound rainbow trout and four more over four pounds were caught. Free Fishing Day at NFH was again a big success and will be continued in the future. The “kids only” session from 8:00 a.m. to noon continued to be very popular and successful. The Gem State Fly Fishing Group continues to hold a 3-day fly fishing instructional class (no hooks allowed) at the hatchery. Hatchery personnel assisted with the Trout in the Classroom program again this year. Eggs, fry and fingerlings were provided for living streams and catchables were provided for dissection in several instances.

ACKNOWLEDGEMENTS

The NFH staff for 2009 included Rick Alsager, Fish Hatchery Manager II; Bob Turik, Assistant Fish Hatchery Manager; Bob Becker, Fish Culturist; Gary Ady and Dick Bittick, Fish Transport Operators. Bio-aides for 2009 included; Nick Gates, Tim Maier, and Travis Balls. Chuck Kiester trained new NFH staff and assisted with fish marking. David Jansen, a high school student, assisted hatchery personnel through a work-study program in 2009. Two groups of correctional inmates from the state prison worked at the hatchery scraping raceways and doing ground maintenance. Volunteers, community service, and several kids from the juvenile detention center have also helped on a number of projects throughout the year donating over 275 hours of time.

APPENDICES

Appendix 1. Total net fish production at Nampa Fish Hatchery, 1994 through 2009

Year	Put-and-Take		Put-grow-and-take		Total		Feed		Feed Conversion
	Number	Pounds	Number	Pounds	Number	Pounds	Pounds	Costs	
1994	308,023	146,978	793,065	55,014	1,101,088	201,992	220,544	\$72,340	1.09
1995	567,147	193,309	783,722	42,336	1,350,869	235,645	261,589	\$76,793	1.11
1996	694,659	212,011	950,412	34,271	1,645,071	246,282	262,902	\$91,893	1.07
1997	556,718	188,208	693,859	19,006	1,250,577	207,214	240,140	\$94,502	1.12
1998	692,706	228,006	2,172,659	22,901	2,865,363	250,907	267,782	\$96,338	1.07
1999	1,077,110	336,841	348,962	26,677	1,426,072	363,518	345,288	\$112,003	0.95
2000	864,603	250,976	1,100,595	18,197	1,965,198	269,173	281,264	\$81,862	1.04
2001	754,641	241,435	1,197,489	15,513	1,952,130	256,948	282,264	\$75,737	1.10
2002	923,854	346,918	1,155,212	24,334	2,079,066	371,252	356,982	\$100,727	0.96
2003	981,383	285,537	535,119	16,239	1,516,502	301,776	337,630	\$91,742	1.12
2004	811,838	272,531	711,242	11,206	1,523,080	283,737	310,718	\$93,818	1.10
2005	851,974	287,331	889,924	14,212	1,741,896	301,543	287,706	\$96,150	0.95
2006	882,057	269,183	1,316,658	17,060	2,198,715	286,243	294,160	\$95,925	1.03
2007	657,640	172,669	1,012,943	14,511	1,670,583	187,180	217,415	\$94,694	1.16
2008	739,450	227,052	394,636	9,064	1,134,086	236,116	223,537	\$111,223	0.95
2009	674,184	255,568	939,502	17,768	1,614,316	273,336	267,084	\$137,893	0.98

* Feed cost does not include feed donated from other hatcheries, but is included in feed fed and feed conversion.

Appendix 2. Total cost of net fish production at Nampa Fish Hatchery, 1994 through 2009

Year	Total cost through grow - out				Mean Length in inches	Total cost through stocking			
	Total Cost	Cost/1000 Fish	Cost/ Pound	Cost/ Inch		Total Cost	Cost/1000 Fish	Cost/ Pound	Cost/ Inch
1994	\$258,010	\$234.32	\$1.28	\$0.029	8.06	\$291,650	\$264.87	\$1.44	\$0.028
1995	\$271,156	\$200.77	\$1.15	\$0.033	7.93	\$304,695	\$225.30	\$1.29	\$0.037
1996	\$274,072	\$166.60	\$1.11	\$0.027	7.50	\$310,851	\$188.96	\$1.26	\$0.031
1997	\$308,979	\$247.07	\$1.49	\$0.043	7.79	\$342,063	\$273.52	\$1.65	\$0.048
1998	\$279,045	\$97.39	\$1.11	\$0.023	7.30	\$329,161	\$114.88	\$1.31	\$0.027
1999	\$363,623	\$255.00	\$1.00	\$0.025	10.12	\$428,624	\$300.58	\$1.18	\$0.030
2000	\$353,747	\$180.02	\$1.31	\$0.032	5.59	\$411,497	\$209.41	\$1.53	\$0.037
2001	\$338,998	\$173.67	\$1.32	\$0.031	5.64	\$390,917	\$200.27	\$1.52	\$0.036
2002	\$379,398	\$182.49	\$1.02	\$0.027	7.75	\$440,031	\$211.66	\$1.23	\$0.032
2003	\$408,764	\$269.63	\$1.35	\$0.037	7.22	\$441,840	\$291.45	\$1.46	\$0.040
2004	\$391,145	\$256.83	\$1.38	\$0.036	7.07	\$409,293	\$268.74	\$1.44	\$0.037
2005	\$428,208	\$245.96	\$1.42	\$0.037	6.72	\$466,381	\$267.88	\$1.55	\$0.040
2006	\$418,182	\$190.26	\$1.47	\$0.037	5.11	\$455,674	\$207.31	\$1.59	\$0.041
2007	\$466,723	\$279.48	\$2.49	\$0.052	5.38	\$501,323	\$300.19	\$2.68	\$0.056
2008	\$396,508	\$349.65	\$1.68	\$0.050	7.78	\$437,862	\$386.12	\$1.85	\$0.055
2009	\$363,010	\$224.87	\$1.42	\$0.033	6.91	\$402,700	\$249.50	\$1.51	\$0.036

Appendix 3. Fish Requested and produced at Nampa Fish Hatchery, 2009

Species/Strain	Size	Production Goal	Actual Production	% of Goal Achieved
Brown Trout (BN)	3-5 Inches	75,000	46,720	62.29%
Lahontan cutthroat trout (C6)	2-5 inches	43,000	44,460	103.40%
Fall Chinook (FC)	5-7 inches	25,000	26,707	106.82%
Triploid rainbow trout (T1)	3-5 inches	550,000	533,488	96.99%
Triploid Kamloops trout (KT)	3-5 inches	50,000	51,490	102.98%
Triploid Kamloops x steelhead trout (TT)	8-12 inches	700,000	629,058	89.87%
Triploid rainbow trout (T9)	8-12 inches	18,000	24,933	138.52%
Totals:		1,478,000	1,356,856	91.80%

Appendix 4. Eyed-eggs received at Nampa Hatchery, January 1 to December 31, 2009

Date Received	Species/Strain	Source	Number	Pond	Destination	Cost/1000 eggs
1/7/2009	Triploid rainbow trout(T1)	Hayspur	280,200	A7- 11	SW/Reg	N/C
4/14/2009	Triploid rainbow trout(T9)	Hayspur	92,019	A12	SW/Reg, C Reg	N/C
4/14/2009	Triploid kamloops trout(KT)	Hayspur	30,204	A14	SW/Reg	N/C
4/21/2009	Triploid kamloops trout(KT)	Hayspur	17,017	A14	SW/Reg	N/C
4/28/2009	Triploid kamloops trout(KT)	Hayspur	46,218	A14	SW/Reg	N/C
4/29/2009	Lahontan cutthroat trout(C6)	Omak, WA	123,134	A15	SW/Reg	N/C
5/6/2009	Triploid rainbow trout(T1)	Hayspur	53,426	A11	Statewide	N/C
6/4/2009	Troutlodge Kamloop(TT)	Triploid Trout Lodge	551,750	A1-6	Statewide	\$30.25
6/25/2009	Troutlodge Kamloop(TT)	Triploid Trout Lodge	315,940	A7-10	Statewide	\$30.25
9/24/2009	Troutlodge Kamloop(TT)	Triploid Trout Lodge	247,180	A13-15	Statewide	\$30.25
11/17/2009	Brown trout(BN)	Daniel, WY	113,625	A16	SW/Reg, MV/Reg	N/C
12/17/2009	Troutlodge Triploid Kamloop(TT)	Trout Lodge	135,251	A1-2	Statewide	\$30.25
12/30/2009	Troutlodge Kamloop(TT)	Triploid Trout Lodge	178,200	A3-5	Statewide	\$30.25
Total:			2,184,164			

Designation Key

C Reg	Clearwater Region
MV/Reg	Magic Valley Region
P Reg	Panhandle Region
SE Reg	Southeast Region
SW/Reg	Southwest Region
US/Reg	Upper Snake
Salmon Reg	Salmon Region

Appendix 5. Fry produced at Nampa Hatchery in 2009

Species/Strain	Number Received	Number Produced	Pounds Produced	% Survival Egg to Plant	Destination
Lahontan cutthroat trout	123,134	125,448	662	101.88%	Southwest Region
Totals:	123,134	125,448	662	101.88%	

Appendix 6. Fingerlings produced at Nampa Fish Hatchery in 2009

Species/Strain	Source	Number Received	Number Produced	Pounds Produced	% Survival Egg to Plant	Designation
Triploid Kamloops Trout (KT)	Hayspur	92,019	51,490	1,355	55.96%	SW Reg/Clwtr
Triploid Kamloops Trout & Triploid Rainbow Trout Mix (T1)	Hayspur	810,742	533,488	7,883	65.80%	Southwest Region
Brown Trout (BN)	Daniel Hatchery, WY	113,625	46,720	1,930	41.12%	SW Reg/MV
Fall Chinook (FC)	Big Creek Hatchery Astoria, OR	27,324	26,707	2,695	97.74%	SW Reg/Panhandle
Totals:		1,043,710	658,405	13,863	63.08%	

Appendix 7. Catchables produced at Nampa Fish Hatchery in 2009

Species/Strain	Source	Number Received	Number Produced	Pounds Produced	% Survival Egg to Plant	Designation
Triploid Rainbow (T9)	Hayspur	44,880	32,185	9,947	71.71%	Salmon, Southwest Regions
Triploid kamloops x Troutlodge Steelhead (TT)		886,972	629,058	193,665	70.92%	Statewide
Totals:		931,852	661,243	203,612	70.96%	

Appendix 8. Catchable transfers from Nampa Hatchery to other Hatcheries throughout the state.

Hatchery	Species	Number	Pounds	Fish/pound
Clearwater Fish Hatchery	TT	44,010	12,300	3.58
McCall Fish Hatchery	TT	91,800	26,500	3.46
Mullan Fish Hatchery	TT	34,052	10,600	3.21
Sawtooth Fish Hatchery	TT	47,560	14,500	3.28
Sandpoint Fish Hatchery	TT	48,010	15,425	3.11
Hayspur Fish Hatchery	TT	5,930	1,850	3.20
Totals:		271,362	81,175	3.31

Appendix 9. Nampa Hatchery feed costs in 2009

Supplier/Source	Size/Type	Pounds	Price/lb.	Feed Charges
Rangen				
Dry Crumble	Starter #0	300	0.763	\$228.95
Dry Crumble	Starter #1	1200	0.757	\$909.48
Dry Crumble	Starter #2	5,950	0.755	\$4,494.45
Dry Crumble	Starter #3	13,200	0.514	\$6,778.60
Soft Moist	1/32"	220	1.29	\$284.24
Soft Moist	3/64"	308	1.29	\$396.44
Soft Moist	1/16"	616	1.26	\$777.04
Soft Moist	3/32"	1,364	1.29	\$1,769.68
Soft Moist	1/8"	1,100	1.21	\$1331.00
450 Floating	1/16" sack	3,900	0.589	\$2,296.75
450 Floating	3/32" sack	9,250	0.490	\$4,533.75
450 Floating	1/8" sack	3,700	0.454	\$1,677.95
450 Floating	5/32" sack	12,250	0.455	\$5,572.10
450 Floating	3/32" bulk	45,860	0.481	\$22,058.66
450 Floating	1/8" bulk	124,760	0.450	\$56,195.32
450 Floating	5/32" bulk	31,195	0.465	\$14,499.54
Dry Crumble med. TM	Starter #1	100	0.794	\$79.40
Dry Crumble med. TM	Grower #3	3,100	0.823	\$2,552.60
Dry Crumble med. TM	Grower #4	150	0.794	\$119.10
Dry Crumble med. TM	3/32 pellet	1,400	0.717	\$1,003.43
Dry Crumble med.	3/32 pellet	2,615	1.08	\$2,811.13

Aquaflor

Bio-Oregon

Bio-Vita	Starter #0	498	\$0	DONATED
Bio-Vita	Starter #1	44	1.35	\$59.40
Bio-Vita	Starter #2	88	1.35	\$118.80
Bio-Vita	Fry 1.2mm	132	1.27	\$167.64
Bio-Diet	Grower 1.5 mm	132	1.16	\$153.12
Bio-Diet	Grower 2.0 mm	528	1.10	\$580.80
Bio-Diet	Grower 2.5 mm	1,672	\$0	DONATED
Bio-Clark	4.0 mm	1,452	\$0	DONATED

Total:		267,084		\$131,449.50
Freight:				\$6,443.22
Grand Total:		267,084		\$137,892.72

Appendix 10. Kokanee egg take at South Fork Boise by Nampa Fish Hatchery in 2009

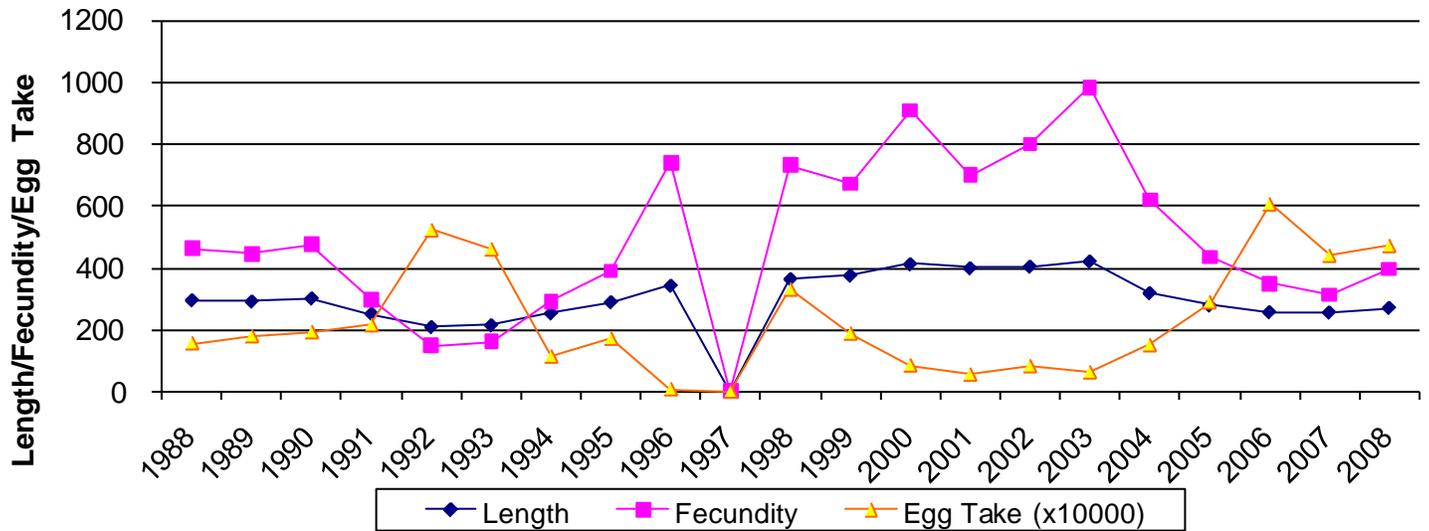
MACKAY

Spawn Date	Lot Number	Females Spawned	Green Eggs	Eyed Eggs	% Eye-up
9/09/2009	1	289	166,667	115,476	69.3
9/11/2009	2	657	390,588	252,353	64.6
9/17/2009	3	440	289,286	221,429	76.5
9/21/2009	4	256	151,111	81,667	54.0
9/25/2009	5	401	262,195	164,634	62.8
9/30/2009	6	343	238,095	175,000	73.5
Totals:		2386	1,497,942	1,010,559	67.5

CABINET GORGE

Spawn Date	Lot Number	Females Spawned	Green Eggs	Eyed Eggs	% Eye-up
9/14/2009	1	1135	618,380	517,244	79.8
9/15/2009	2	605	379,665	301,252	79.1
Totals:		1740	998,045	818,496	82.0
2009 Spawning Totals:		4,126	2,495,987	1,829,055	73.28

Deadwood Kokanee Spawning Spawning Summary (1988-2008)



SANDPOINT HATCHERY

Jamie Mitchell; Fish Culturist

INTRODUCTION

Sandpoint Fish Hatchery (SPFH) is located two miles west of the town of Sandpoint, on the south side of the Pend Oreille River in Bonner County, Idaho. The Idaho Department of Fish and Game (IDFG) constructed SPFH in 1908, with additional funding from the Bonner County Sportsman Club. The hatchery is currently owned and operated by IDFG and is funded with revenue generated from hunting and fishing license sales.

The Sandpoint Fish Hatchery is in operation from mid March through October and is staffed with a Fish Culturist. The Fish Culturist spends the remainder of their time working at Cabinet Gorge Fish Hatchery (CGFH) assisting with the late kokanee *Oncorhynchus nerka* spawning operation and egg incubation. The Manager II position at CGFH oversees operations at SPFH and supplies additional labor when needed. During normal operations there is a great deal of facilities maintenance at Sandpoint Hatchery that needs to be completed on a regular basis.

Sandpoint Fish Hatchery is primarily used as a redistribution facility for catchable triploid Kamloops rainbow trout *Oncorhynchus mykiss* (TT). The catchables are delivered to SPFH via IDFG semi tanker trucks from various production hatcheries in southern Idaho where they are raised. There are roughly 22 lowland lakes that receive catchables throughout the spring, summer, and fall. Along with catchable redistribution, SPFH also raises up to 50,000 two inch triploid Hayspur rainbow trout *Oncorhynchus mykiss* (T9) fingerlings for Nampa Fish Hatchery (NFH). Additionally, on even years, 50,000 westslope cutthroat trout *Oncorhynchus clarkii* (C2) fry and 30,000 TT fry are raised for planting 29 mountain lakes in the Idaho Panhandle.

WATER SUPPLY

The hatchery receives water via enclosed PVC pipeline from Murphy Spring which is collected a quarter mile southwest of the hatchery. The spring is enclosed and supplies the facility with 400-500 gallons per minute (gpm) of pristine groundwater. Throughout the year, the spring water temperature may fluctuate between 43-48 degrees Fahrenheit.

REARING FACILITIES

The hatchery rearing facilities include 4 half-stack Heath tray incubators (8 trays), and 18 concrete vats (15x2.5x3ft) located inside the main hatchery building. There are also two outdoor concrete raceways measuring (10x60x4ft) each.

FISH STOCKING

Catchable size triploid rainbow trout (~9.0-10.0 inches) were stocked in the Kootenai, Pend Oreille, and Spokane River drainages to support a put and take fishery. All of the lakes and reservoirs stocked are located within the northern portion of the Panhandle Region. Fish supplied for redistribution in 2009 were TT's from NFH, Grace Fish Hatchery (GFH), and Mackay Fish Hatchery (MFH). Fish transportation efforts from Southern and Eastern Idaho were split between the transport operators from NFH and Hagerman Fish Hatchery (HFH). A total of 107,519 fish weighing 33,083 lbs (3.25f/lb) were stocked between the second week of April and the second week of October. Streamside cost to redistribute fish was \$0.46 per fish (Appendix 1). The cost of stocking fish from SPFH includes employee wages, transportation cost from NFH, and operating expenses that total \$49,740.

PRODUCTION

Sandpoint Hatchery received 47,596 eyed T9 rainbow eggs from Hayspur Fish Hatchery (HFH). The T9's were hatched and reared on 43°F water delaying growth to fit a specific Salmon Region stocking criteria. A total of 34,000 feeding fry at 880 fish per pound were transferred to NFH on September 21st.

HATCHERY IMPROVEMENTS

- The hot water heater elements were replaced.
- A new PVC incubation line was built.
- Four dead cottonwood trees along Lakeshore Drive were removed.
- A cover for the 2" trash pump was built.
- Exposed pieces of the old pipeline on easement land was removed at the landowners request.

HATCHERY NEEDS

- The hatchery building interior ceiling panels need replaced.
- New hatch house windows need to be installed.
- A catwalk over the headbox and tailbox of outside raceways needs to be constructed.
- The interior electric service of work shop in main hatchery building needs to be upgraded.
- A fish truck water fill structure needs to be constructed.
- The water supply line under hatchery building needs to be replaced.
- The information in the visitors kiosk needs to be updated.
- Rip out the old dam structure on spring #2 per landowner request.

PUBLIC RELATIONS

The hatchery receives a fair amount of visitors because of its close proximity to Sandpoint and US Highway 95. A kiosk, built by the Lake Pend Oreille Idaho Club (LPOIC), serves as an information center for self guided tours and natural history of the area. SPFH is a one-person fish distribution station. There is not a great deal of public interaction due to lack of time actually spent at the hatchery. When available, the hatchery personnel conduct educational tours, provide information to the public, and attend community events on the department's behalf. Hatchery staff frequently interact with the public during fish plants and use these opportunities for education. SPFH staff also participate in free fishing day (FFD) activities. Four waters were stocked specifically for Panhandle Region FFD annual events; Priest Lake Golf Course Pond, Rathdrum Creek, Round Lake, and the Clark Fork Lodge Pond.

Construction has continued on the Water Life Discovery Center (WLDC), which will increase public educational opportunities in the future. The Center now consists of a pond with viewing windows, interpretive trail system, a public boat dock on the Pend Oreille River, and an educational building which was completed this fall. Most of the landscaping has been completed including the pond inflow and outflow streams. Noxious weed control was initiated this summer and will continue in the spring and summer of 2010.

ACKNOWLEDGMENTS

The SPFH staff would like to thank the staff at CGFH; John Rankin (Fish Hatchery Manager 2), Bruce Thompson (Assistant Manager), Todd Braunschweig (Maintenance Technician) for their assistance when additional manpower was needed. Thanks to Gary Ady, Dick Bittick, Kenny Taylor, and Neil Ring for transporting catchable rainbows from NFH, GFH, and MFH throughout the stocking season. Also, we would like to thank Mark Taylor from the Panhandle Region for all of the work and dedication he has put into the WLDC.

APPENDICES

Appendix 1. TT Catchable Redistribution Cost:

Employee Costs	\$22,050
Nampa Transportation cost	\$11,434
HFH Transport Cost	\$7,451
Operating	\$8,805
Total	\$49,740

Cost	Number of Catchables	Streamside Cost Per Fish
\$49,740	107,519	\$.46

Appendix 2. Production Summary:

T9

# Eyed Eggs Received	47,596
Transfer to Nampa	34,000
Overall % Survival	71.43
Conversion	1.2
End Weight	38.6 lbs
End F/lb	880

Appendix 3. Feed costs:

	Rangen Starter* #0	Rangen Starter* #1	Totals
Amount Fed	19lbs	13.2lbs	32.2lbs
Total Cost	\$0	\$0	\$0

*Surplus feed from CGFH kokanee salmon and rainbow trout production

SAWTOOTH FISH HATCHERY

Chris Jeszke, Fish Culturist
Danielle Dorsch, Fish Culturist
Lori Burchard, Biological Aide

INTRODUCTION

Sawtooth Fish Hatchery (SFH) is a U.S. Fish and Wildlife Service (USFWS) Lower Snake River Compensation Plan (LSRCP) hatchery and has been in operation since 1985. IDFG operates this facility. SFH's primary goal is to trap, spawn, rear, and release spring Chinook salmon, *Oncorhynchus tshawytscha*. Also, adult steelhead are trapped and spawned with the eyed eggs being sent to other hatcheries for hatching and rearing. In 1990, a program to stock rainbow trout, *Oncorhynchus mykiss*, into surrounding area waters for improved angling opportunities began. In 1996 SFH began participating in a program to stock high mountain lakes with Westslope cutthroat trout fry, *Oncorhynchus clarkii lewisi*, for future angling opportunities.

FISH STOCKING

Sawtooth Fish Hatchery (SFH) met its stocking request in 2009 for the rainbow trout stocking program. Between May 29 and September 3, a total of 48,374 hatchery rainbows were stocked in 55 stocking trips. (Appendix 1).

Nampa Fish Hatchery (NFH) supplied SFH with Troutlodge triploid rainbows for stocking. Based on 8 sample counts the fish averaged 3.38 fish per pound and 9.06 inches in length (230 mm). SFH employees drove approximately 2,327 miles to stock fish in local lakes and streams. NFH stocked Stanley, Pettit, Perkins, and Alturas lakes in 2009.

NOAA permit # 1188 that expired December 31, 2004, outlines resident rainbow trout release in anadromous waters in the Salmon River drainage. The permit allows that hatchery-reared rainbow trout be released in rivers, streams, and lakes with ESA-listed fish. Stocked fish should average in size no greater than 250 mm with no individual larger than 300 mm in length. The 250 mm size restriction would include fish planted in the Salmon River, Valley Creek, and the Yankee Fork Dredge Ponds. The permit, which stipulates the upper Salmon River cannot be stocked before June 15 and stocked fish must be adipose fin-clipped, continues to be followed. Only fish with the adipose fin-clipped may be kept, thereby protecting wild fish. Rainbow trout received at SFH stocked into the river were adipose clipped by NFH personnel and then delivered to SFH over 21 days later to allow for withdrawal of MS-222 to comply with label directions.

The rainbows were fed a maintenance diet of Rangen's 450 extruded pellets 3/16 inch size. A total of 350 pounds of 3/16 pellets were purchased at a cost of \$158.55.

Weekly notices informing the public of the whereabouts of the latest stocking locations are distributed to the local businesses and are posted at SFH. Also, *Fishing the Sawtooth Valley*

brochures are distributed to local businesses where they are readily available to summertime visitors. A repeating message, updated weekly, containing stocking information and current news about SFH can be heard over the local IDFG radio transmitter. Current stocking information can also be found on IDFG's web site.

High Mountain Lake Stocking

SFH personnel continued high mountain lake stocking of westslope cutthroat trout by fixed wing aircraft in the Salmon Region. On September 11, 17, 23, and 30, Sawtooth Flying Service using a Cessna 185 flew five flights to complete stocking of lakes in rotation "B". A total of 72 lakes were stocked in rotation "B" for a total of 51,750 fry. Another 14 lakes located in the Magic Valley region were stocked with 10,400 fry. Excess fry totaling 12,500 were stocked into Yellowbelly Lake by Sawtooth Flying Service. Cost of the six flights was \$4,343.50.

Approximately 49,246 Westslope cutthroat eggs from Washoe FH were received on July 2, 2009. Unfortunately, 31,500 eggs died. A second group of 40,000 eggs from Westslope Trout Co. were received July 27, 2009. Size of the fish at stocking was between 3 and 5 fish per gram or about 1,900 per pound.

SFH in conjunction with Cabinet Gorge Fish Hatchery (CGFH) and Eagle Fish Hatchery (EFH) planted cutthroat fingerlings into Yellowbelly Lake. The fish were reared at CGFH and transferred to the 300 gallon distribution trucks from EFH and SFH. (See CGFH Resident Report).

Free Fishing Day

On June 13, 2009 Free Fishing Day was held throughout the state of Idaho. Sawtooth Hatchery participated by providing assistance to anglers from 10:00 to 14:00 at the Kids Fishing pond. Sawtooth Hatchery Tour Guide, Liz Crawford and Biological Aide Tomi Quigley-Baker organized Free Fishing Day with the assistance of Biological Aides Heather Holloway, Lori Burchard, and Megan Moore. Free Fishing Day was successfully carried out by Biological Aides George Smith, Pete Starr, Megan Moore, and Laura Rose. In attendance were 111 people, 35 of which were children under the age of 17 years old.

Refreshments and snacks were also provided, consisting of juice, bottled water, and chips. All children were provided a baggy of goodies that included fishing regulations, a coloring book, and various other informative pamphlets. Also provided were fishing rods, reels, tackle and bait. Children were divided into four age groups of four and under, 5-8, 9-12, and 13 and up. One child in each age group won a fishing pole. All children received a prize.

Prizes were donated by the following local businesses: McCoy's Tackle Shop, Orvis, Red Fish Lake general store, Riverwear, Back Eddy's Market, The River Company, Jerry's Country Store, Stanley Baking Company, Papa Brune's River1, Sawtooth Adventure Company, Sawtooth Luce's Pizza and Suds, Bridge Street Grill, Mountain Village Mercantile, White Cloud Rafting Adventures, Peaks and Perks, and Mackay Wilderness River trips. SFH plans to participate in Free Fishing Day program in June.

PLANS FOR 2010

SFH will stock flowing water sites and small ponds with NFH stocking Sawtooth Basin lakes. Fish for stocking will be provided by NFH. In 2010, SFH plans to continue high mountain lake stocking of westslope cutthroat trout by airplane in the Salmon and Magic Valley Regions.

ACKNOWLEDGEMENTS

The SFH would like to thank Rick Alsager and the Nampa Hatchery crew for their cooperation in making 2009 successful. Special thanks go to Gary Ady, Dick Bittick, Bob Becker, and Bob Turik for transporting fish from Nampa and stocking the big lakes in the Stanley Basin. Bio Aide Peter Starr did a very good job of stocking fish and delivering stocking notices. Tom Frew provides valuable coordination for SFH Resident Fish Programs.

APPENDICES

Appendix 1. Planting sites and numbers of catchable rainbow trout stocked in the Salmon Region by Sawtooth Fish Hatchery from June through September 2009.

Site	Number
Sawtooth Kids Pond	1,600
Stanley Lake	2,674
Little Bayhorse Lake	2,000
Kelly Creek Pond	900
Salmon River	31,200
Yankee Fork Dredge Ponds	4,000
Valley Creek	4,500
Blue Mountain Meadow Pond	300
Squaw Creek Pond	1,200
Totals	48,374

Appendix 2. Planting sites and numbers of Westslope cutthroat fry stocked in the high mountain lakes by Sawtooth Fish Hatchery in late September 2009.

High Mountain Lakes Stocking: Rotation B, Salmon Region	
Site	Number
Alpine Creek Lake #02	375
Alpine Creek Lake#06	300
Alpine Creek Lake#07	350
Alpine Creek Lake#12	50
Baldwin Creek Lake	350
Bear Creek Lake#01	200
Cabin Creek Lake#03	100
Cabin Creek Lake#04(Crimson)	600
Cabin Creek Lake#07	200
Cabin Creek Peak Lake #01	150
Cliff Creek Lake#01	150
Cliff Creek Lake#04	75
Collie Creek Lake #01	1,075
Decker Creek Lake#01	575
Elizabeth Lake	500
Elk Lake	675
Finger Lake #03 (Fall Creek Lake #3)	475
Fishhook Creek Lake #02(NE)	75
Fishhook Creek Lake #03(South)	75
Goat Lake#01	2,225
Goat Lake#04	425
Goat Lake#05	50
Hanson Lake #01	225
Hanson Lake #03	725
Hanson Lake #05	125
Harlan Creek Lake#01	300
Harlan Creek Lake#02	250

Hasbrook Lake #01	375
Helldiver Lake	550
Hidden Lake	250
Hindman Lake	500
Imogene Lake #02	200
Imogene Lake #03	625
Imogene Lake #04	100
Imogene Lake #06	525
Iris Lake #01	225
Iris Lake #03	350
Kidney Lake #02	150
Knapp Lake #07	200
Lola Lake #02	500
Lola Lake #03	500
Loon Creek Lake #03 (Fish Lake)	150
Loon Creek Lake #11	175
Loon Creek Lake #13	225
Loon Creek Lake #15	175
Lost Lake	200
Lower Island Lake	550
Lower Valley Creek Lake	550
Lucille Lake	775
Marshall Lake #02	550
Martha Lake	200
McGowan Lake #03	250
P-38 Lake	325
Parks Peak Lake #01	500
Profile Lake	775
Rocky Lake	450
Soldier Lake #04	975
Soldier Lake #07	250
Soldier Lake #08	250
Soldier Lake #10	250
Soldier Lake # 11	250
Tango Lake #04	675
Tango Lake #05	250
Tango Lake #06	900
Thompson Cirque Lake	900
Upper Cramer	500
Upper Hell Roaring Lake #01	275
Upper Hell Roaring Lake #02	275
Upper Redfish Lake #02	425
Upper Redfish Lake #03 (Kathryn)	625
Valley Creek Lake #02	400
Vanity Lake #05	125
Excess	
Yellow Belly L	12,500
	Total 41,350

Rotation B, Magic Valley Region

Site	Number
Big Trinity Lake	2000
Fiddle Lake	700
Heart Lake	700
Little Bear Lake	500
Little Lost Res.(Smokey Lake)	500
Little Trinity Lake	1,000
Lookout Lake (Big)	1,000
Lower Box Canyon Lake (Box Can 4)	500
Miner Lake	500
Window Lake #01	500
Nip-N-Tuck Lake	500
Windy Lake	500
SF Ross Fork Creek Lake #02	1,000
SF Ross Fork Creek Lake #01	500
Big Trinity Lake	2,000
	Total 10,400
	Grand Total (both regions)
	51,750

Approved By:

Idaho Fish and Game

Edward B. Schriever, Chief
Fisheries Bureau

Thomas S. Frew
Resident Fish Hatchery Supervisor