

Sherman Creek Hatchery

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Washington Department
of
Fish and Wildlife
Fish Program
Hatcheries Division

SHERMAN CREEK HATCHERY

Annual Report

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EXECUTIVE SUMMARY

Sherman Creek Hatchery's primary objective is the restoration and enhancement of the recreational and subsistence fishery in Lake Roosevelt and Banks Lake. The Sherman Creek Hatchery (SCH) was designed to rear 1.7 million kokanee fry for acclimation and imprinting during the spring and early summer. Additionally, it was designed to trap all available returning adult kokanee during the fall for broodstock operation and evaluation. Since the start of this program, the operations on Lake Roosevelt have been modified to better achieve program goals.

The Washington Department of Fish and Wildlife, Spokane Tribe of Indians and the Colville Confederated Tribes form the interagency Lake Roosevelt Hatcheries Coordination Team (LRHCT) which sets goals and objectives for both Sherman Creek and the Spokane Tribal Hatchery. The LRHCT also serves to coordinate enhancement efforts on Lake Roosevelt and Banks Lake.

Since 1994 the kokanee fingerling program has changed to yearling releases. By utilizing both the hatcheries and additional net pens, up to 1,000,000 kokanee yearlings can be reared and released. The construction and operation of twenty net pens in 2001 enabled the increased production. Another significant change has been to rear up to 300,000 rainbow trout fingerling at SCH from July through October, for stocking into the volunteer net pens. This enables the Spokane Tribal Hatchery (STH) to rear additional kokanee to further the enhancement efforts on Lake Roosevelt.

Current objectives include increased use of native tributary stocks where available for propagation into Upper Columbia River Basin waters.

The Lake Roosevelt Fisheries Evaluation Program (LRFEP) is responsible for monitoring and evaluation on the Lake Roosevelt Projects. From 1988 to 1998, the principal sport fishery on Lake Roosevelt has shifted from walleye to include rainbow trout and kokanee salmon (Underwood et al. 1997, Tilson and Scholz 1997). The angler use, harvest rates for rainbow and kokanee and the economic value of the fishery has increased substantially during this 10-year period. The investigations on the lake also suggest that the hatchery and net pen programs have enhanced the Lake Roosevelt fishery while not negatively impacting wild and native stocks within the lake.

The 2003 Fourth Annual Two Rivers Trout Derby was again a great success. The harvest and data collection were the highest level to date with 1,668 rainbow trout and 416 kokanee salmon caught. The fishermen continue to praise the volunteer net pen program and the hatchery efforts as 90% of the rainbows and 93% of the kokanee caught were of hatchery origin (Lee, 2003).

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INTRODUCTION

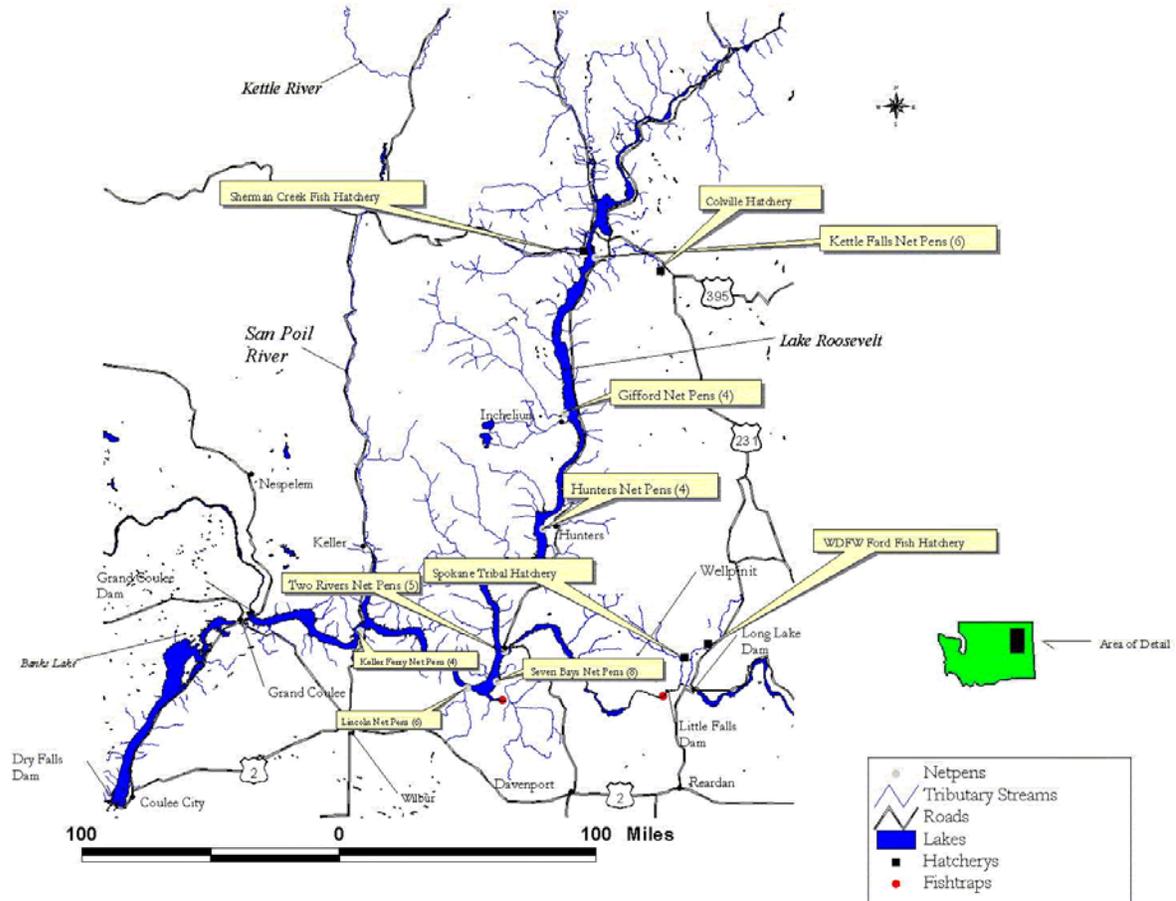


FIGURE 1. SHERMAN CREEK HATCHERY & RELATED FACILITIES

Sherman Creek Hatchery is at the mouth of Sherman Creek on Lake Roosevelt, which is 3 miles west of Kettle Falls, Washington. The Bonneville Power Administration (BPA) constructed the hatchery in 1991. The Washington Department of Fish and Wildlife (WDFW) perform the operations and maintenance with funding provided by BPA.

The hatchery is one of three kokanee salmon (*Oncorhynchus nerka*) and rainbow trout (*Oncorhynchus mykiss*) facilities provided to partially mitigate for the loss of anadromous fish habitat due to the construction of Grand Coulee Dam in 1941. The Spokane Tribal Hatchery, Sherman Creek Hatchery and the Ford Trout Hatchery annually contribute harvest opportunities for Lake Roosevelt and Banks Lake.

The Spokane Tribal Hatchery and Sherman Creek Hatchery were initiated in part by the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program. The BPA, Spokane Indian Tribe (ST), Colville Confederated Tribes (CCT), Upper Columbia United Tribes Fisheries Research Center (UCUT), Eastern Washington University (EWU), National Park Service (NPS) and the WDFW work together toward fishery enhancement on Lake Roosevelt and Banks Lake.

The combined production goals of the Sherman Creek Hatchery (SCH), the Spokane Tribal Hatchery (STH) and the Ford Trout Hatchery were established at 13 million kokanee, (8 million for Lake Roosevelt and another 5 million for Banks Lake). Program changes to yearling kokanee have adjusted the numbers to 1 million yearling kokanee released annually into Lake Roosevelt and 700,000 fingerlings into Banks Lake.

In addition to the kokanee, 60,000 redband rainbow trout are reared by SCH, and 500,000 rainbow trout are supplied for net pen rearing through the Volunteer Rainbow Trout Net Pen Project. Fish feed for volunteer rearing is partially funded through the WDFW Aquatic Lands Enhancement Fund.

The role of the Sherman Creek Hatchery in this program is to: (a) establish a kokanee broodstock for future egg requirements; (b) create and enhance the kokanee fishery within Lake Roosevelt; and (c) assist in rainbow trout rearing and fishery enhancement on Lake Roosevelt.

2003 ANNUAL OPERATING PLAN

2003 ANNUAL OPERATING PLAN SUMMARY

The AOP are the goals set forth in the operation of SCH during the coming year. The Lake Roosevelt Hatchery Coordination Team (LRHCT) reviews the AOP which is used to define the Annual Production Objectives (APG) and provide direction for the program at Sherman Creek.

Unit	Fish	Operation	Number	In	Out	J	F	M	A	M	J	J	A	S	O	N	D	
Rw's	KO	Rearing	300,000	25 / lb	10 / lb			I	X	X	O							
Rw's	RB	Rearing	300,000	90 / lb	15 / lb							I	X	X	X	O		
Rw's	KO	Trapping	Unknown											X	X	X	X	
KNP-1	KO	Rearing	300,000	40 / lb	15 / lb	X	X	X	X	X	O					I	X	
KNP-2	KO	Rearing	200,000	40 / lb	15 / lb	X	X	X	X	X	O					I	X	
KFNP	RB	Rearing	100,000	15 / lb	5 / lb	X	X	X	X	X	O				I	X	X	
KFNP	RB	Rearing	60,000	75 / lb	10 / lb	X	X	X	X	X	X	X	X	X		I	X	
CFH	RB	Rearing	60,000	Eggs	75 / lb	X	X	O			I	X	X	X	X	X	X	
CFH	KO	Spawn	Adults	-	Fry										X	X	X	
CFH	KO	Incubate	Eggs	-	Fry	X	O									1	X	
Key:		Rw's = Raceways						KO = Kokanee Salmon										
		KNP#1 = Kokanee Net Pens site 1						RB = Rainbow Trout										
		KNP#2 = Kokanee Net Pens site 2						Size = number per / pound										
		KFNP = Kettle Falls Net Pens						I = Received In										
		CFH = Colville Trout Hatchery						O = Transferred or Planted										
Note: These production numbers are included as a portion of this budget. The fish are reared during this budget cycle but some are programmed for release during the next budget cycle.																		

All production numbers, including numbers of fish to be released and sizes at release, are target goals. Actual size and release numbers may be different from these goals. The APG and methods of operation are based on anticipated events at Sherman Creek, Lake Whatcom, Meadow Creek and the Spokane Tribal Hatcheries. In the event significant circumstances or operations change, those changes will be reported to the LRHCT and BPA.

2003 ANNUAL OPERATING PLAN OBJECTIVES

The objectives for this contract period were to rear, acclimate, imprint, out plant, trap and spawn kokanee salmon and rear and acclimate rainbow trout to meet the 2003 APG and plan for 2003 operations. The purpose of this program is to enhance the fishery within Lake Roosevelt and to create a return of adult kokanee to Sherman Creek for future broodstock acquisition. We try to accomplish this by following standard operating procedures of the Fish Program, WDFW fish health guidelines, and standard fish hatchery practices.

AOP Objective	Task & Activity	Deliverable	Status
1 Yearling Kokanee Acclimation	1.1 Acclimate 300,000 from March 2003 thru June 2003	Successful release of 300,000 kokanee at 10 fpp in June in FDR	Completed
2 Yearling Kokanee Production	2.1 Rear and acclimate 500,000 kokanee yearlings in the net pens	Successful plant of 500,000 kokanee at 15 fpp in Spring into FDR	Completed
3 Rainbow Trout Rearing	3.1 Rear 300,000 rainbow at SCH from June through October 2003	Successful rearing and transfer of 300,000 rainbow to net pens in Fall 2003	Completed
	3.2 Rear 60,000 redband rainbow in net pens	Plant numbers limited to unknown loss	Completed
4 Fish Transfers & Fish Plants	4.1 Transfer of all fish from STH to SCH and FDR net pens	Successful transfer, plant, & release of 129,000 lbs./fish	Completed
5 Vehicle Purchase	5.1 Prepare specifications sheet for purchasing approval	Successful bid approved for purchase of vehicle	Ongoing
6 Facility Maintenance, Repair, & Upkeep	6.1 Hatchery staff maintains facility in operational status at all times.	Successful attention to facility needs and its requirements for operation.	Ongoing
	6.2 Maintain service of all operational needs such as utilities & off road equipment	Successful attention to facility needs & requirements for operation	Completed
7 Fish Health Monitoring	7.1 Produce healthy fish through an effective fish health and diet program	Successful attention to fish health issues and concerns	Completed
	7.2 Follow net pen rearing guidelines	Successful fish growth & rearing densities	Completed
8 Spawning	8.1 Broodstock collection ensuring genetic diversity	Continue to trap and collect adults in FDR tributaries	Completed
	8.2 Receive kokanee eggs from local stocks	Transfer of eggs from Meadow Creek	Completed
9 Alternate Broodstocks	9.1 Continue to seek alternate brood sources improving returns & increasing pop.	Successful use of native stock for enhancement	Completed
	9.2 Assist & support evaluation staff on efforts of improving enhancement	Hatchery staff assisted in Meadow Creek in Canada	Completed
# Coordination of Activities	### Continue to work cooperatively with STH, CCT and the LRFEP.	Successful coordination of hatchery responsibilities	Completed

For a complete listing and description of AOP Objectives please refer to the 2003 Sherman AOP. (Lewis)

KOKANEE SALMON PRODUCTION

Kokanee salmon production on Lake Roosevelt currently uses two stocks of kokanee. The first stock used is Lake Whatcom from the WDFW hatchery near Bellingham, Washington. Kokanee are native to Lake Whatcom and it has been the state's primary egg source since 1915. The stock is pure, having no known introductions from other kokanee sources (Crawford 1979). The second stock used is Meadow Creek from the British Columbia Ministry of Fisheries spawning channel on Kootenay Lake. Meadow Creek is one of three stocks of kokanee in Kootenay Lake and is a wild stock that reproduces naturally at the north end of the lake. On October 27, 2003, 1.6 million Meadow Creek stock eggs were received from the Clearwater Hatchery in British Columbia. The eggs will be used for 2004-2005 releases.

Table 3. 1992-2003 Sherman Creek Hatchery kokanee salmon releases.						
Stock	Fingerlings		Yearlings			Combined Yearling Totals
	Raceways		Net Pens			
	Whatcom Hatchery	Whatcom Hatchery	Meadow Wild	Whatcom Hatchery	Meadow Wild	
1992	976,925	45,714				45,714
1993	902,749	85,321				85,321
1994	946,762	73,157		53,002		126,159
1995		203,357		72,252		275,609
1996		215,198		71,055		286,253
1997		216,896		48,417		265,313
1998	87,421	290,028		211,178		501,206
1999		368,622		181,846		550,468
2000		272,166	105,432	197,975		575,573
2001		205,734	101,993		485,260	792,987
2002		231,038		357,068		588,106
2003		228,417		391,430		619,847

In addition to the kokanee releases SCH reared 10,000 captive brood kokanee during 1993.

RACEWAY PRODUCTION/RELEASES

Lot 07 Lake Whatcom BY01

In April 2003, SCH received 229,269 Lot 07 Lake Whatcom kokanee from the Spokane Tribal Hatchery at 18.3 fpp totaling 12,506 pounds for rearing in the raceways at SCH.

Releases of 228,417 adipose and ventral clipped kokanee at 11.0 fpp from Lot 07 totaled 20,725.5 pounds. These were stocked on June 9, 2003 into Lake Roosevelt through the SCH fish ladder and at the Gifford boat launch. The fish released at Gifford were transported from SCH via tanker trucks as part of the deep-water predation study being conducted by the Lake Roosevelt Fisheries Evaluation Program. During rearing at SCH mortality for Lot 07 was 852, or 0.4%, and represented a production gain of 8,220 pounds.

KOKANEE NET PEN PRODUCTION/RELEASES

Lot 04 Lake Whatcom BY01

In October 2002, SCH net pens 15 & 16 were loaded with a total of 46,000 kokanee from the Ford Hatchery at 54.5 fpp, totaling 844 pounds.

Releases of 45,463 adipose clipped kokanee at 19.2 fpp, totaling 2,368.7 pounds, occurred on June 2, 2003. There was a production gain of 1,524.7 pounds during this rearing cycle in the net pens. Mortality for Lot 05 was 475, or 1.0%. These pens were first located at the mouth of the Sherman Creek Cove. They were later moved to the mouth of the Colville River.

Lot 04 kokanee were part of a precocity study being conducted by the Lake Roosevelt Fisheries Program.

Lot 05 Lake Whatcom BY01

In October 2002, SCH net pens 11 – 14, and 17 – 18 received 191,820 kokanee from STH at 56.1 fpp, totaling 3,422 pounds.

Releases of 186,643 adipose-clipped kokanee at 20.4 fpp totaling 9,168.6, occurred on June 2, 2003. There was a production gain of 5,746.6 pounds during this rearing cycle in the net pens. Mortality for Lot 05 was 5,177, or 2.8%. These pens were first located at the mouth of the Sherman Creek Cove and then moved to the mouth of the Colville River.

Lot 05 kokanee were also a part of the precocity study conducted by the Lake Roosevelt Fisheries Evaluation Program.

Lot 06 Lake Whatcom BY01

In October and November 2002, SCH net pens 19 - 23 received 174,840 kokanee from STH at 51.1 fpp, totaling 3,420 pounds.

Releases of 139,264 adipose-clipped kokanee at 18.4 fpp totaling 7,575.8 pounds, occurred on May 5th and 21st, 2003. There was a production gain of 4,155.8 pounds during this rearing cycle in the net pens.

With help from the Rainbow Trout Volunteer Net Pen Program, Lot 06 net pens were located at the Seven Bays and Lincoln net pen sites. The remaining 20,060 kokanee were transferred to the CCT strobe light / entrainment study at Grand Coulee Dam, and released on June 3rd, 2003. Total mortality for Lot 06 was 15,516, or 8.9%.

Lot 01 Lake Whatcom BY02

On October 23rd, 2003, SCH net pens 17 – 18 received 53,238 adipose-clipped kokanee from the Ford Hatchery. At 48.4 fpp, totaling 1,102 pounds, these fish are part of the continued precocity study being performed by the LRFEP. Net pens 17 – 18 will be reared until release in spring 2004.

This rearing cycle will be the second year of the Ford of the study on kokanee, and what the effects water temperature and rearing conditions might have on early maturation. The data on precocity will be presented by the LRFEP 2004.

Lot 02 Lake Whatcom BY02

On November 3rd, 2003, SCH net pens 11 – 16 received 191,450 adipose-clipped kokanee from STH at 70 fpp, totaling 2,735 pounds. These pens are currently located at the mouth of the Sherman Creek Cove, but will soon be moved to the Colville River net pen site.

Net pens 11 – 16 will be reared until release in spring 2004.

Lot 03 Lake Whatcom BY02

From November 7th through November 13th, 2003, SCH net pens 1 – 8 received 253,500 adipose clipped kokanee from STH at 69.7 fpp, totaling 3,623 pounds. Pens 1 – 4 are located at the Lincoln net pen site, and pens 5 – 8 are located at the Seven Bays net pen site.

Net pens 1 – 8 will be reared until release in spring 2004.

RAINBOW TROUT PRODUCTION

Rainbow trout production on Lake Roosevelt is accomplished using net pens to rear fish large enough to counter predation and to hold them past spring draw-downs to reduce entrainment through Grand Coulee Dam. We are currently using two stocks of rainbows in the program.

The first stock is Spokane Hatchery rainbow, which historically have provided a very successful and popular sports fishery on Roosevelt. We now are testing both diploid and triploid Spokane stock rainbows to see what effect the triploids may have on creel returns and impacts on native stocks in the system.

The second stock used is the wild Phalon Lake redband trout, which are from tributaries of the Kettle River (a tributary of the Upper Columbia). This is in response to the goal of increased use of native stocks within the program.

The Lake Roosevelt Fisheries Evaluation Program, (LRFEP), conducts the monitoring and evaluation of the net pen program.

RACEWAY PRODUCTION/TRANSFERS

In 1995 SCH began an annual summer fingerling program of rearing rainbow trout in the raceways for fall net pen stocking. This frees up water and rearing space at the STH enabling them to rear additional kokanee to further our efforts on Lake Roosevelt and Banks Lake.

Table 4. Sherman Creek Hatchery Summer raceway rearing for fall transfer.			
Year	Number Reared	Species	Operation
1993	10,000	Kokanee Brood	Captive Brood
1995	101,116	Rainbow Trout	Fingerling Production
1996	142,072	Rainbow Trout	Fingerling Production
1997	140,359	Rainbow Trout	Fingerling Production
1998	192,461	Rainbow Trout	Fingerling Production
1999	238,139	Rainbow Trout	Fingerling Production
2000	197,379	Rainbow Trout	Fingerling Production
2001	249,560	Rainbow Trout	Fingerling Production
2002	266,217	Rainbow Trout	Fingerling Production
2003	268,327	Rainbow Trout	Fingerling Production

Lot 12 Spokane BY02

In June 2003, we received 179,950 Spokane *diploid* rainbow trout at 71.3 fpp, totaling 2,523 pounds from the Spokane Tribal Hatchery. These fish were used to stock the volunteer net pens in October 2003.

During the rearing cycle at SCH there was a production gain of 11,413 pounds. For a short term this summer we encountered higher than normal mortality due to outbreaks of columnaris bacteria in the raceway population. This outbreak was not as significant as 2002. Medicated feed (antibiotics) was on-hand to apply once the daily mortality reached 0.1% of the entire population. Following one prescribed treatment the mortality subsided and was never a cause for concern the remainder of the rearing cycle.

One of the strategies regarding loading densities from the previous year appeared to have helped in curbing the losses during the high water temperature period.

In October 2003, SCH transferred 171,415 *diploid* rainbows at 12.3 fpp, totaling 13,936 pounds to the Lake Roosevelt Volunteer Net Pen Program. These fish had a raceway-reared mortality of 3,417 or 1.9%. An unknown loss adjustment of 5,185 fish was made to accommodate the final inventory. These fish are scheduled for release in June 2004.

Lot 8 Spokane BY02 (triploids)

In June 2003, SCH received 90,677 Spokane *triploid* rainbow trout at 68.4 fpp, totaling 1,318 pounds, from the Spokane Tribal Hatchery. These fish were used to stock the volunteer net pens in October 2003.

During the rearing cycle at SCH there was a production gain of 5,582 pounds. A short term outbreak of columnaris occurred in July, causing higher than normal mortality. As with the diploid rainbow, medicated feed (antibiotics) was on-hand to apply once the daily mortality reached 0.1%.

In October, SCH transferred 96,912 triploid rainbows at 14.0 fpp, totaling 6,900 pounds to the Lake Roosevelt Volunteer Net Pen Program. These fish had a raceway-reared mortality of 1,459 or 1.5%. An inventory overrun of 7,646 was made to balance our records. These fish are scheduled for release in June 2004.

Table 5. Sherman Creek Hatchery 2003 rainbow trout transfers.			
Number	Size / fpp	Pounds	Location
90,888	13.5	6,716	Kettle Falls Net Pens
58,418	13.3	4,380	Hall Creek Net Pens
62,352	12.2	5,095	Hunters Net Pens
11,468	12.2	940	Seven Bays Net Pens
45,201	12.2	3,705	Lincoln Net Pens
268,327	12.9	20,836	Total Transferred

NET PEN PRODUCTION/RELEASES

In cooperation with the Volunteer Net Pen Program (LRDA), SCH staff operates six rainbow net pens at Kettle Falls. In 2000, the Volunteer Net Pen Program began reporting all hatchery stock rainbow net pen releases while SCH still reports the wild stock releases.

We continue to incorporate an increased use of native or locally adaptive stocks of redband rainbow trout in the net pen program. The Lake Roosevelt Fisheries Evaluation Program (LRFEP) provides recommendations regarding redband performance and stocking strategies through data analysis.

Lot 13 Phalon Lake BY02

In October 2002, SCH net pens 9 – 10 were loaded with 30,089 native redband rainbow from the Colville Trout Hatchery at 82.0 fpp, totaling 367 pounds. In February and March 2003, SCH net pens 7 – 8 were loaded with 28,239 additional redband rainbows from the Colville Trout Hatchery averaging 46.6 fpp and totaling 606.5 pounds.

The combined total transfer of Lot 13 native redband rainbow to the SCH net pen was 58,328 fish.

The fish were released from September 17th through the 19th, 2003 at an average size of 5.5 fpp. During tagging procedures in mid-September, a significant loss was discovered. With signs of otter activity, the net pens were inventoried upon release and the loss was significant. The total release was 14,309 fish, totaling 2,601.7 pounds.

Strategies to defend against future losses and otter predation were discussed among the hatchery staff and the LRHCT. For the next rearing cycle, some of these strategies (e.g. live otter trapping, securing predator net closures with additional wire ties) will be applied. To date three otter have been trapped and relocated, and no otter activity has been observed in the pens.

Lot 10 Phalon Lake BY03

On November 3rd, 2003, SCH net pens 9 – 10 received 46,139 redband rainbows from the Colville Hatchery at 58.9 fpp, totaling 783 pounds.

On December 10th, 2003, SCH net pens 7 – 8 received 36,448 redband rainbows from the Colville Hatchery at 67 fpp, totaling 544 pounds. The combined transfer totals to date are 82,587 redband rainbows.

These fish are located at the Sherman Creek Cove and the Colville River net pen sites.

Table 6. Sherman Creek Hatchery wild rainbow net pen releases.

Year	Stock	Number	Size / FPP	Pounds	Brood Year
1999	Phalon Lake	9,725	2.34	4,155.7	1998
2000	Phalon Lake	32,449	7.80	4,160.9	1999
2001	Phalon Lake	58,859	6.70	8,820.5	2000
2002	Trout Lodge	45,714	3.34	13,703.3	2001
2003	Phalon Lake	14,309	5.50	2,601.7	2002

The Trout Lodge stock triploids were substituted for the unavailable wild rainbows normally released.

ADULT KOKANEE COLLECTED

These fish were collected using a combination of methods but primarily through boat electro-fishing. The fish collected were of known hatchery origin with fin clips and/or coded wire tag implants. Additional adult origin and trapping information is available through Eastern Washington University and the Lake Roosevelt Fisheries Evaluation Program.

2003 ADULT TRAPPING/COLLECTION

A total of 2,296 kokanee were collected during the fall of 2003. Fort Spokane and Gifford releases were the most successful and collected at tributaries throughout the reservoir including the Spokane River. The majority of Gifford kokanee were collected at tributaries north of Gerome Bay (n = 514; also known as Enterprise, just south of Alder Creek), with a large number collected at Hawk Creek (n=330). The majority of Fort Spokane released fish were collected in the middle reservoir and the lower Spokane River (n =964), with the most at Hawk Creek (n=783). (H. McLellan, 2003)

The sex ratio of all returning kokanee reservoir-wide for 2003 was one female to every eight males. (H. McLellan, 2003)

Release Location	Number Stocked	Number (%) collected in reservoir		Number collected @ Sherman Ck		Number collected @ Hawk Ck		Number collected at Meyers Falls	
Gifford	203,596	926	0.45%	157	0.08%	330	0.16%	57	0.03%
Sherman Creek	24,821	16	0.06%	15	0.06%	0	0.00%	1	0.00%
Fort Spokane	211,461	1,103	0.52%	6	0.00%	783	0.37%	17	0.01%
Little Falls	24,900	5	0.02%	0	0.00%	3	0.01%	0	0.00%
Meyer's Falls	24,960	101	0.40%	3	0.01%	7	0.03%	87	0.35%

Analysis by EWU Fisheries Center (McLellan, 2003).

With a total of 185 kokanee collected at Meyer's Falls in 2003, there was significantly more returns to Meyer's Falls from the Meyer's Falls release compared to the Gifford release and return ratio. (McLellan, 2003)

MONITORING AND EVALUATION

The Lake Roosevelt Fisheries Evaluation Program performs monitoring and evaluations. Since 1988, the principle sport fishery on Lake Roosevelt has shifted from walleye to include rainbow trout and kokanee salmon (Underwood et al. 1997, Tilson and Scholz 1997). The angler use, harvest rates for rainbow and kokanee, and the economic value of the fishery has increased substantially during this 10-year period. The most recent information from the monitoring program also suggests that the hatchery and net pen rearing programs have been beneficial to enhancing the Lake Roosevelt fishery while not negatively impacting wild and native stocks within the lake.

SCH assists in the monitoring and evaluation efforts through marking coordination, data collection, and database coordination. Information collected and compiled is being used to improve on operations throughout Lake Roosevelt. This information is made available to other natural resource agencies and is also available through the BPA web site.

HATCHERY OPERATIONS AND MAINTENANCE

MAINTENANCE AND CONSTRUCTION PROJECTS

Operations and maintenance were performed according to the state of Washington and WDFW policies and guidelines.

The hatchery crew was involved with a variety of projects both with fish handling and facility operations. Some of the projects completed this year were: roadway and grounds maintenance, facility safety modifications, feed dock construction, building repairs and maintenance, water festival and facility site improvements including habitat plantings and noxious weed control.

Residence Improvements

Continued with residence finish work as hatchery workload and time was available.

Stream Maintenance

We continue to monitor streambed levels and perform annual maintenance including gravel removal as necessary. This is covered under a blanket Hydraulics Permit for the maintenance and operation of the hatchery water system.

EQUIPMENT PURCHASES

1,500 Gallon Fish Transport Tank

In April 2003, we received delivery on the 1,500-gallon fish transport tank & fish pump assembly from Magic Valley Heili-Arc. The transport tank & fish pump were purchased with funds approved in FY02 (encumbered). We are looking forward to using the tank once the new fish truck is delivered.

Fish Truck

We completed the specification and bid phase for acquiring a truck to use with the new 1,500-gallon fish transport tank. In order to stay within current budget constraints, we had to separate purchase of the tank and truck in our 2002 and 2003 contract years. This required postponement of some maintenance tasks in 2004-2005. The new truck purchase was approved by BPA for FY03. We are hoping for delivery in early 2004, in time for kokanee transfers in the spring.

FUTURE MODIFICATIONS IDENTIFIED

- Continue looking for ways of reducing silt and debris entering the head box through the intake screen on Sherman Creek. WDFW Engineering has suggested replacing the wedge wire intake screen with smaller slots to reduce silt entering the system. We will look in to the costs associated with the change over during 2004.
- The number of fish transfers in and out of the SCH has increased from seven loads in 1992 to forty-seven 1,000-pound loads in 2001. This lead to the purchase of a planting tank in the 2002 budget. With the help of the new fish truck, the planting requirements and release strategies will be achieved in 2004. This is even more important now that the Hatchery Coordination Team has requested open water releases of the raceway kokanee to offset predation in the cove. Early collection data support the need to alter release strategies on the reservoir.
- Replace older, 70 horsepower outboard motor on transport barge (purchased in 2002) with a twin motor drive system. By using two smaller outboard motors, it will enhance safety and maneuverability for operations on Lake Roosevelt, especially during inclement weather. It will also aid the demand for frequent moving of net pens, fish food and equipment.

COOPERATIVE PROJECTS

The hatchery staff represented WDFW and BPA on the Lake Roosevelt Water Festival Organization Committee, which prepares for the annual fourth-grade event. SCH and BPA were joint presenters for the ninth year at the water festival, providing hands-on instruction to more than 500 students from the surrounding area.

Two Rivers Fishing Derby

The 2003 derby was the most successful derby to date in terms of harvest and data collection. The harvest and data collection were the highest level to date with 1,668 rainbow trout and 416 kokanee salmon caught. The fishermen continue to praise the volunteer net pen program and the hatchery efforts as 90% of the rainbows and 93% of the kokanee caught were of hatchery origin. In many cases, harvest was only limited by state regulations for both rainbow trout and kokanee salmon. (C. Lee, 2003)

Lake Roosevelt Fall Coordination Team Meeting

Sherman Creek Hatchery hosted the annual fall coordination team meeting on October 7th, 2003. This method of coordinating programs continues to improve our efforts and provide for a more consistent approach to fishery management on Lake Roosevelt and Banks Lake.

Meadow Creek Native Kokanee

In October 2003, 1.6 million Meadow Creek stock kokanee were received from the Clearwater Hatchery in British Columbia. When available, program recommendations by the LRFEP, as well as the Independent Scientific Review Policy (ISRP), emphasize the use of native stocks in the reservoir. The eggs received will provide releases in 2004 and 2005.

PERSONNEL

SCH was operated during 2003 with two FTE's; Mitch Combs, Fish Hatchery Specialist 3 and Jeffrey Weathermen, Fish Hatchery Specialist 2 with administrative and complex support from Mike Lewis, Complex Manager and Jon Lovrak, Fish Hatchery Specialist 4. Steve Roberts, Fish Health Specialist, provided fish health services for both SCH and STH.

Two incidents of injury to hatchery staff occurred in 2003, both requiring extended leave; in June, Mitch Combs had back surgery. He missed six weeks, ultimately returning to duty on July 14th. In late July 2003, Jeffrey Weatherman suffered an injury to his foot. We are anxiously awaiting his return.

With at least one staff member absent from June through December, workload demands increased. Due to their efforts, Mitch and Jeffrey accomplished all of the plants, transfers and ultimate care for the fish in the net pens.

During 2003, hatchery staff received training in the following areas: computer applications, fish health, aqua culture techniques, fisheries management, pesticide application, ethics, boat handling, first aid and safety.

REFERENCES

Crawford, B. 1979. The origin and history of the trout brood stocks of the Washington Department of Game. Washington Department of Game. pg. 55-56.

Lee, C. 2003. 2003 Two Rivers Trout Derby, Summary. Lake Roosevelt Fisheries Evaluation Program.

McLellan, H. 2003. Preliminary 2003 Kokanee Summary on Lake Roosevelt. Eastern Washington University.

Underwood, K.D. and J.P. Shields and M.B. Tilson. 1997. Lake Roosevelt Fisheries Monitoring Program, 1995 Annual Report in K.D. Underwood and J.P. Shields. Lake Roosevelt fisheries research, 1995 annual report. Bonneville Power Administration.

APPENDIX A
SCH 2003 PLANTING REPORT SUMMARY

SHERMAN CREEK HATCHERY 2003 PLANTING REPORT SUMMARY											
#	(Sp:Stk:BY:BO)	Unit	Date	Water Name	Site	Number	Size	Pounds	CWT	Mark	Lot
01	KO:WHAL:01:H	7-Bays 1	05/21	Roosevelt, Lake	Seven Bays Net Pens	34,792	16.6	2,,095.9		Ad clipped	06
02	KO:WHAL:01:H	Lincoln 1	05/05	Roosevelt, Lake	Lincoln Net Pens	34,824	19.3	1,804.4		Ad clipped	06
03	KO:WHAL:01:H	Lincoln 2	05/05	Roosevelt, Lake	Lincoln Net Pens	34,824	18.8	1,852.3		Ad clipped	06
04	KO:WHAL:01:H	Lincoln 3	05/05	Roosevelt, Lake	Lincoln Net Pens	34,824	19.1	1,823.2		Ad clipped	06
05	KO:WHAL:01:H	NP-N#15	06/02	Roosevelt, Lake	Colville River	22,730	21.4	1,062.2		Ad clipped	04
06	KO:WHAL:01:H	NP-N#16	06/02	Roosevelt, Lake	Colville River	22,733	17.4	1,306.5		Ad clipped	04
07	KO:WHAL:01:H	NP-N#17	06/02	Roosevelt, Lake	Colville River	25,888	25.8	1,003.4		Ad clipped	05
08	KO:WHAL:01:H	NP-N#18	06/02	Roosevelt, Lake	Colville River	25,708	22.6	1,137.5		Ad clipped	05
09	KO:WHAL:01:H	NP-N#11	06/02	Roosevelt, Lake	Colville River	33,604	16.6	2,024.3		Ad clipped	05
10	KO:WHAL:01:H	NP-N#12	06/02	Roosevelt, Lake	Colville River	34,212	18.4	1,859.4		Ad clipped	05
11	KO:WHAL:01:H	NP-N#13	06/02	Roosevelt, Lake	Colville River	34,338	21.0	1,635.1		Ad clipped	05
12	KO:WHAL:01:H	NP-N#14	06/02	Roosevelt, Lake	Colville River	32,893	21.8	1,508.9		Ad clipped	05
13	KO:WHAL:01:H	RW-1	06/09	Roosevelt, Lake	Gifford Boat Ramp	104,245	11.0	9,476.8		Ad+LV	07
14	KO:WHAL:01:H	RW-2	06/09	Roosevelt, Lake	Gifford Boat Ramp	99,351	11.1	8,950.5		Ad+LV	07
15	KO:WHAL:01:H	RW-3	06/09	Roosevelt, Lake	Sherman Creek	24,821	10.8	2,298.2		Ad+LV+RV	07
16	KO:WHAL:01:H	CCT	06/03	Roosevelt, Lake	Grand Coulee Dam	198	18.0	11.0	Sonic Tag	Ad clipped	06
17	KO:WHAL:01:H	CCT	06/03	Roosevelt, Lake	Grand Coulee Dam	19,862	18.0	1,103.4		Ad clipped	06
18	RB:PHAL:02:W	NP#7-10	09/19	Roosevelt, Lake	Kettle Falls	10,000	5.5	1,818.2		Floy Tagged	11
19	RB:PHAL:02:W	NP#7-10	09/19	Roosevelt, Lake	Kettle Falls	4,309	5.5	783.5			11

APPENDIX B

LAKE ROOSEVELT VOLUNTEER NET PEN 2003 PLANTING REPORT SUMMARY

LAKE ROOSEVELT VOLUNTEER NET PEN 2003 PLANTING REPORT SUMMARY											
#	(Spc:Stk:BY:BO)	Unit	Date	Water Name	Site	Number	Size	Pounds		Mark	Lot
01	RB:SPOK:01:H	NP#1	05/25	Roosevelt, Lake	Kettle Falls Net Pens	15,612	8.8	1,774.1	Triploid		10
02	RB:SPOK:01:H	NP#2	05/25	Roosevelt, Lake	Kettle Falls Net Pens	8,679	3.6	2,410.8	Triploid		10
03	RB:SPOK:01:H	NP#2T	05/25	Roosevelt, Lake	Kettle Falls Net Pens	6,700	5.8	1,155.2	Triploid	Floy Tagged	10
04	RB:SPOK:01:H	NP#3	05/25	Roosevelt, Lake	Kettle Falls Net Pens	12,766	6.0	2,127.7			09
05	RB:SPOK:01:H	NP#4T	05/25	Roosevelt, Lake	Kettle Falls Net Pens	6,700	5.8	1,155.2		Floy Tagged	09
06	RB:SPOK:01:H	NP#5	05/25	Roosevelt, Lake	Kettle Falls Net Pens	14,689	6.4	2,295.2			09
07	RB:SPOK:01:H	NP#6	05/25	Roosevelt, Lake	Kettle Falls Net Pens	13,782	6.2	2,222.6			09
08	RB:SPOK:01:H	NP#4	08/18	Roosevelt, Lake	Kettle Falls Net Pens	6,373	1.94	3,285.1			09
09	RB:SPOK:01:H	NP#1	05/27	Roosevelt, Lake	Lincoln Net Pens	9,960	3.3	3,018.0			
10	RB:SPOK:01:H	NP#2	05/27	Roosevelt, Lake	Lincoln Net Pens	10,503	3.8	2,763.0			
11	RB:SPOK:01:H	NP#3	05/27	Roosevelt, Lake	Lincoln Net Pens	10,033	3.4	2,950.0			
12	RB:SPOK:01:H	NP#4	05/27	Roosevelt, Lake	Lincoln Net Pens	9,954	3.1	3,210.0			
13	RB:SPOK:01:H	NP#5	05/27	Roosevelt, Lake	Lincoln Net Pens	10,041	4.0	2,510.0			
14	RB:SPOK:01:H	NP#6	05/27	Roosevelt, Lake	Lincoln Net Pens	12,612	5.2	2,425.0			
15	RB:SPOK:01:H	NP#1	05/28	Roosevelt, Lake	Seven Bays Net Pens	15,627	4.1	3,811.0	Triploid	Floy Tagged	
16	RB:SPOK:01:H	NP#2	05/28	Roosevelt, Lake	Seven Bays Net Pens	15,782	3.6	4,383.0	Triploid		
17	RB:SPOK:01:H	NP#3	05/28	Roosevelt, Lake	Seven Bays Net Pens	9,380	5.0	1,876.0		Floy Tagged	
18	RB:SPOK:01:H	NP#3T	05/28	Roosevelt, Lake	Seven Bays Net Pens	5,600	5.0	1,120.0		Floy Tagged	
19	RB:SPOK:01:H	NP#4	05/28	Roosevelt, Lake	Seven Bays Net Pens	15,208	6.6	2,304.0			
20	RB:SPOK:01:H	NP#5	05/28	Roosevelt, Lake	Seven Bays Net Pens	15,212	5.3	2,870.0			
21	RB:SPOK:01:H	NP#6	05/28	Roosevelt, Lake	Seven Bays Net Pens	15,328	5.4	2,385.0			
22	RB:SPOK:01:H	NP#7	05/28	Roosevelt, Lake	Seven Bays Net Pens	15,418	4.5	3,426.0			
23	RB:SPOK:01:H	NP#8	05/28	Roosevelt, Lake	Seven Bays Net Pens	15,018	4.7	3,229.0			
24	RB:SPOK:01:H	NP#9	05/28	Roosevelt, Lake	Seven Bays Net Pens	14,347	3.8	3,775.0			
25	RB:SPOK:01:H	NP#10	05/28	Roosevelt, Lake	Seven Bays Net Pens	14,668	3.3	4,444.0			
26	RB:SPOK:01:H	NP#11	05/28	Roosevelt, Lake	Seven Bays Net Pens	14,488	3.8	3,812.0			
27	RB:SPOK:01:H	NP#12	10/29	Roosevelt, Lake	Seven Bays Net Pens	10,000	19.0	526.3			

LAKE ROOSEVELT VOLUNTEER NET PEN 2003 PLANTING REPORT SUMMARY											
#	(Spc:Stk:BY:BO)	Unit	Date	Water Name	Site	Number	Size	Pounds		Mark	Lot
28	RB:SPOK:01:H	NP#1	06/08	Roosevelt, Lake	Hall Creek Net Pens	15,188	3.97	3,825.0			
29	RB:SPOK:01:H	NP#2	06/08	Roosevelt, Lake	Hall Creek Net Pens	15,472	4.28	3,614.0			
30	RB:SPOK:01:H	NP#3	06/08	Roosevelt, Lake	Hall Creek Net Pens	15,689	5.73	2,738.0			
31	RB:SPOK:01:H	NP#4	06/08	Roosevelt, Lake	Hall Creek Net Pens	14,894	3.78	3,491.0			
32	RB:SPOK:01:H	NP#1	06/03	Roosevelt, Lake	Hunters Net Pens	14,891	5.4	2,757.0			
33	RB:SPOK:01:H	NP#2	06/03	Roosevelt, Lake	Hunters Net Pens	16,404	6.0	2,734.0			
34	RB:SPOK:01:H	NP#3	06/03	Roosevelt, Lake	Hunters Net Pens	14,912	5.5	2,711.0			
35	RB:SPOK:01:H	NP#4	06/03	Roosevelt, Lake	Hunters Net Pens	15,318	4.8	3,191.0			
36	RB:SPOK:01:H	NP#1	06/04	Roosevelt, Lake	Two Rivers Net Pens	15,808	5.4	2,927.0			
37	RB:SPOK:01:H	NP#2	06/04	Roosevelt, Lake	Two Rivers Net Pens	15,767	4.2	3,754.0			
38	RB:SPOK:01:H	NP#3	06/04	Roosevelt, Lake	Two Rivers Net Pens	15,780	3.68	4,288.0			
39	RB:SPOK:01:H	NP#4	06/04	Roosevelt, Lake	Two Rivers Net Pens	15,803	4.9	3,225.0			
40	RB:SPOK:01:H	NP#5	06/04	Roosevelt, Lake	Two Rivers Net Pens	15,762	5.0	3,152.0	Triploid		
41	RB:SPOK:01:H	NP#1	04/23	Roosevelt, Lake	Keller Ferry Net Pens	15,443	6.4	2,412.0			
42	RB:SPOK:01:H	NP#2	04/16	Roosevelt, Lake	Keller Ferry Net Pens	5,500	6.4	859.0		Floy Tagged	
43	RB:SPOK:01:H	NP#3	04/23	Roosevelt, Lake	Keller Ferry Net Pens	14,648	4.6	3,184.0			
44	RB:SPOK:01:H	NP#4	04/16	Roosevelt, Lake	Keller Ferry Net Pens	14,812	4.6	3,220.0		Floy Tagged	

Note: For a complete listing of plants into Banks Lake and Lake Roosevelt please refer to WDFW, Hatcheries Division Plants Report.

APPENDIX C
STH 2003 LAKE ROOSEVELT/BANKS LAKE PLANTING REPORT SUMMARY

SPOKANE TRIBAL HATCHERY 2003 LAKE ROOSEVELT/BANKS LAKE PLANTING REPORT SUMMARY										
#	(Spc:Stk:BY:BO)	Unit	Date	Water Name	Site	Number	Size	Pounds	Marks	Lot
01	KO:WHAL:01:H	STH	05/05	Roosevelt, Lake	Little Falls Dam	24,900	12.0	2,075	Left Pectoral + Adipose clipped	
02	KO:WHAL:01:H	STH	05/06	Roosevelt, Lake	Meyers Falls	24,960	12.0	2,080	Right Ventral + Adipose clipped	
03	KO:WHAL:01:H	STH	05/14	Roosevelt, Lake	Fort Spokane	20,140	10.0	2,014	Right Pectoral + Adipose clipped	
04	KO:WHAL:01:H	STH	05/14	Roosevelt, Lake	Fort Spokane	19,990	10.0	1,999	Right Pectoral + Adipose clipped	
05	KO:WHAL:01:H	STH	05/14	Roosevelt, Lake	Fort Spokane	2,000	10.0	2,000	Right Pectoral + Adipose clipped	
06	KO:WHAL:01:H	STH	05/19	Roosevelt, Lake	Fort Spokane	24,294	12.0	2,077	Right Pectoral + Adipose clipped	
07	KO:WHAL:01:H	STH	05/19	Roosevelt, Lake	Fort Spokane	19,940	10.0	1,994	Right Pectoral + Adipose clipped	
08	KO:WHAL:01:H	STH	05/19	Roosevelt, Lake	Fort Spokane	23,920	13.0	1,840	Right Pectoral + Adipose clipped	
09	KO:WHAL:01:H	STH	05/20	Roosevelt, Lake	Fort Spokane	19,990	10.0	1,990	Right Pectoral + Adipose clipped	
10	KO:WHAL:01:H	STH	05/20	Roosevelt, Lake	Fort Spokane	20,232	12.0	1,686	Right Pectoral + Adipose clipped	
11	KO:WHAL:01:H	STH	05/20	Roosevelt, Lake	Fort Spokane	20,475	13.0	1,575	Right Pectoral + Adipose clipped	
12	KO:WHAL:01:H	STH	05/21	Roosevelt, Lake	Fort Spokane	19,950	10.0	1,995	Right Pectoral + Adipose clipped	
13	KO:WHAL:01:H	STH	05/21	Roosevelt, Lake	Fort Spokane	19,900	10.0	1,990	Right Pectoral + Adipose clipped	
14	KO:WHAL:02:H	STH	05/12	Banks, Lake		121,000	440	275	Thermal Otolith	
15	KO:WHAL:02:H	STH	05/13	Banks, Lake		121,000	440	275	Thermal Otolith	
16	KO:WHAL:02:H	STH	07/07	Banks, Lake		58,400	160	365	Thermal Otolith	

Note: For a complete listing of plants into Banks Lake and Lake Roosevelt please refer to WDFW, Hatcheries Division Plants Report.

APPENDIX D
 FORD HATCHERY 2003 LAKE ROOSEVELT/BANKS LAKE PLANTING REPORT SUMMARY

FORD HATCHERY 2003 LAKE ROOSEVELT/BANKS LAKE PLANTING REPORT SUMMARY										
#	(Sp:Stk:BY:BO)	Unit	Date	Water Name	Site	Number	Size	Pounds	Marks	Lot
01	KO:WHAL:02:M		10/14	Banks Lake	Northrup Creek	419,898	52	8,073	Otolith marked	
02	KO:WHAL:02:M		10/08	Banks Lake	Electric City Net Pens	128,759	56	2,286	Otolith and left-vent clipped	
Note: For a complete listing of plants into Banks Lake and Lake Roosevelt please refer to WDFW, Hatcheries Division Plants Report.										