

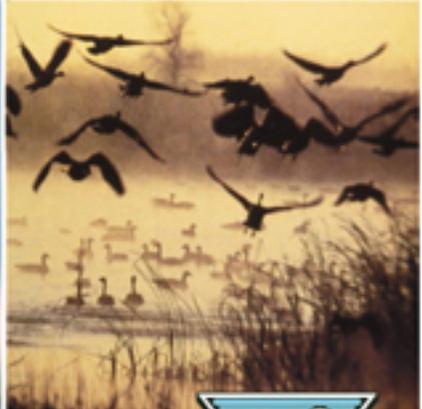
Fall Chinook Acclimation Project

Pittsburg Landing, Captain John Rapids, and Big Canyon

Annual Report 2004

January 2006

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Fall Chinook Acclimation Project

Annual Report 2004

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TABLE OF CONTENTS

ABSTRACT.....	1
1.0 INTRODUCTION.....	2
1.1 Project Background	2
1.2 Project Goals	4
1.2.1 Relationship to the 2000 FCRPS Biological Opinion	4
1.3 Description of Project Area.....	5
1.4 Project History	7
1.5 Relationship to other Projects.....	7
2.0 METHODS AND MATERIALS	10
2.1 Facilities	10
2.2 Operations	12
3.0 2004 OPERATIONS	14
3.1 Introduction.....	14
3.2 Administrative.....	14
3.3 Facility assembly	15
3.4 Equipment Operation/Testing	15
3.5 Fish acclimation	16
3.6 Facility Disassembly.....	18
3.7 Major Problems	18
3.8 Facility improvements	19
4.0 FY 2004 OBJECTIVES AND TASKS.....	20
OBJECTIVE 1. COORDINATION/PLANNING:.....	20
OBJECTIVE 2. FACILITY DEVELOPMENT:.....	21
OBJECTIVE 3. OPERATIONS AND MAINTENANCE:.....	22
OBJECTIVE 4. REPORTS:.....	23
5.0 SUMMARY	25
6.0 LITERATURE CITED	26
7.0 APPENDACIES.....	28
Appendix A: 2004 Fish Production Summaries	28
Appendix B: Acclimation Site Fish Inventories.....	29
Appendix C: Fish Health Report	32

LIST OF TABLES

TABLE 1 ONGOING PROJECTS/ACTIVITIES ASSOCIATED WITH RESTORATION OF SNAKE RIVER FALL CHINOOK SALMON.	8
TABLE 2 SUMMARY OF FALL CHINOOK JUVENILES REARED, ACCLIMATED AND RELEASED FROM THE FALL CHINOOK ACCLIMATION PROJECT FACILITIES, 2004.....	17
TABLE 3 SUMMARY OF FALL CHINOOK SALMON RELEASED FROM FALL CHINOOK ACCLIMATION PROJECT 1995-2004.	25

LIST OF FIGURES

FIGURE 1 MAP OF LOCATION OF FALL CHINOOK ACCLIMATION SITES.	5
FIGURE 2 PITTSBURG LANDING FACILITY.	6
FIGURE 3 CAPTAIN JOHN RAPIDS FACILITY.	6
FIGURE 4 BIG CANYON FACILITY.....	7
FIGURE 5 PITTSBURG LANDING ACCLIMATION TANKS.	10
FIGURE 6 FISH TRANSPORT.....	12
FIGURE 7 FISH CULTURE.....	13

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Bonneville Power Administration and Northwest Power Planning Council provide project reviews and budget recommendations for the Fall Chinook Acclimation Program. Ken Kirkman, Bonneville Power Administration Contracting Officers Technical Representative, facilitated programmatic and budget issues, Patricia O'Donnell, BPA Contract Specialist, was responsible for contract preparation and review and Arleen Henry, NPT Grants and Contracts Accountant, provided monitoring and evaluation of the project contracts.

ABSTRACT

Fisheries co-managers of *U.S. v Oregon* supported and directed the construction and operation of acclimation and release facilities for Snake River fall Chinook from Lyons Ferry Hatchery at three sites above Lower Granite Dam. In 1996, Congress instructed the U.S. Army Corps of Engineers (USCOE) to construct, under the Lower Snake River Compensation Plan (LSRCP), final rearing and acclimation facilities for fall Chinook in the Snake River basin to complement their activities and efforts in compensating for fish lost due to construction of the lower Snake River dams. The Nez Perce Tribe (NPT) played a key role in securing funding and selecting acclimation sites, then assumed responsibility for operation and maintenance of the facilities. In 1997, Bonneville Power Administrative (BPA) was directed to fund operations and maintenance (O&M) for the facilities.

Two acclimation facilities, Captain John Rapids and Pittsburg Landing, are located on the Snake River between Asotin, WA and Hells Canyon Dam and one facility, Big Canyon, is located on the Clearwater River at Peck. The Capt. John Rapids facility is a single pond while the Pittsburg Landing and Big Canyon sites consist of portable fish rearing tanks assembled and disassembled each year. Acclimation of 450,000 yearling smolts (150,000 each facility) begins in March and ends 6 weeks later. When available, an additional 1,700,000 fall Chinook sub-yearlings may be acclimated for 6 weeks, following the smolt release.

The project goal is to increase the natural spawning population of Snake River fall Chinook salmon upstream of Lower Granite Dam. This is a supplementation project; in that hatchery produced fish are acclimated and released into the natural spawning habitat for the purpose of returning a greater number of spawners to increase natural production. Only Snake River stock is used and production of juveniles occurs at Lyons Ferry Hatchery. This is a long-term project, targeted to work towards achieving delisting goals established by National Marine Fisheries Service (NMFS or NOAA Fisheries) and ultimately to provide fall Chinook adults through the Lower Snake River Compensation Plan program as mitigation for construction and operation of the four lower Snake River dams. Complete adult returns (all age classes) for all three acclimation facilities occurred in the year 2002. Progeny (which would then be natural origin fish) would be counted towards achieving Endangered Species Act delisting criteria.

In 2004, a total of 1,751,872 fish weighing 68,180 pounds were released from the three acclimation facilities. The total includes 414,452 yearling fish weighing 43,813 pounds and 1,337,420 sub-yearling fish weighing 24,367 pounds.

1.0 INTRODUCTION

1.1 Project Background

Fall Chinook were once widely distributed in the Snake River from the confluence with the Columbia River upstream to Shoshone Falls, 615 river miles. Construction of the Hells Canyon Dam Complex and the Lower Snake River dams eliminated or severely degraded 530 miles of spawning habitat. The loss of spawning and rearing areas and the degradation of migration habitat are the primary reasons that Snake River fall Chinook salmon are threatened with extinction.

On 09 April 1990 the National Marine Fisheries Service (NMFS) announced that a status review of Snake River fall Chinook had been initiated and that this stock had experienced such a decline in abundance that it could be found only in a fraction of its former range. The Snake River fall Chinook was listed as a threatened species on 22 April 1992.

The NMFS proposed recovery plan for Snake River salmon recommends that Lyons Ferry Hatchery should operate as a gene bank for Snake River fall Chinook and that supplementation be carefully evaluated in areas above Lower Granite Dam to determine if it can assist in recovery (task 4.1.d). The Lyons Ferry Hatchery stock was derived from native fall Chinook salmon captured in the Snake River upon completion of the Hells Canyon Dam in the 1970's thus being the reason for its "gene bank" designation. Although the hatchery stock is considered part of the Snake River fall Chinook salmon Evolutionary Significant Unit (ESU), it is not considered listed under the Endangered Species Act (ESA) because of its captive rearing history at the time of listing (NMFS 1995). The proposed recovery plan task 4.7 also recommends that Snake River fall Chinook be reintroduced into historic habitat, and that areas in the Snake River below Hells Canyon Dam and in the lower Clearwater River be considered for reintroduction.

During 1994, through *U.S. v Oregon*, an agreement was made between the four Columbia River Treaty Tribes, States and Federal agencies to replace the natural production losses from adults trapped and taken out at Lower Granite Dam with about 150,000 Lyons Ferry Hatchery yearlings to be acclimated and released upstream of the dam in 1996. Further agreements were reached to release 450,000 yearlings at acclimation facilities above Lower Granite Dam in future years as long as 450,000 are available for on-station releases at Lyons Ferry Hatchery. In addition, the agreement states that if additional Lyons Ferry fall Chinook brood production is available above the full yearling program of 900,000, then these fish shall be released off-station as sub-yearlings. The fall Chinook acclimation project is designed to incorporate sub-yearling fall Chinook salmon into the existing program.

The fisheries co-managers (*U.S. v Oregon* parties) had agreed that they should take a more active role in rebuilding the Snake River fall Chinook populations within its critical habitat. Because the *U.S. v Oregon* parties largely control harvest and production issues, they revised the existing harvest agreements and production strategy to protect and encourage an increase in natural fish production. NMFS had determined that the Lyons Ferry Hatchery stock was the most appropriate stock to use for supplementation of the fall Chinook population, yet all the fish were

released at the hatchery, which is located within the Snake River reservoir complex below Little Goose Dam, many miles downstream of the natural production area. The fisheries co-managers therefore decided that this stock should be released within the principal fall Chinook spawning and rearing habitat above Lower Granite Dam, to encourage an increase in natural production. The parties also agreed that an acclimated release strategy would result in a greater amount of imprinting to the release area than a direct release and thus be more effective in returning adults to the spawning area. Additionally, the parties determined that research conducted at Lyons Ferry Hatchery showed that a much higher return rate was found for fish released as yearlings (0.27%) versus sub-yearlings (0.04%), and thus a yearling release strategy would be most effective in returning a larger number of spawners to the release area. Since the purpose was to take an active role in increasing natural production, a greater number of spawners would best accomplish the goals. Natural-origin Snake River fall Chinook salmon migrate primarily as a sub-yearling and therefore, a strategy was implemented to incorporate sub-yearlings into the existing programs as soon as feasible because of the uncertainty regarding genetics and ecological consequences of supplementing natural production with the yearling life-history variant. The yearling and sub-yearling groups are differentially marked so that a direct comparison of both life-history types can be made.

The U.S. Congress secured funding for construction of acclimation facilities during deliberations over the FY95 budget. Congress instructed the U.S. Army Corp of Engineers (USCOE) through the Lower Snake River Compensation Plan (LSRCP) to construct final rearing and acclimation facilities for fall Chinook in the Snake River basin to complement their activities and efforts in compensating for fish lost due to construction of the lower Snake River dams. The NPT along with State and Federal agencies selected three acclimation sites. Two acclimation facilities were located on the Snake River, at Capt. John Rapids and Pittsburg Landing, and one acclimation site was located on the Clearwater River at Big Canyon. The Capt. John Rapids facility is a single pond while the Pittsburg Landing and Big Canyon sites consist of portable fish rearing tanks assembled and disassembled each year. The sites were selected because of the proximity of spawning habitat for returning adults and because of good road access. ESA consultation by both NMFS and U.S. Fish and Wildlife Service (USFWS) determined that the rearing, acclimation, and release of Lyons Ferry Hatchery fall Chinook salmon at acclimation sites on the Snake and Clearwater Rivers was not likely to affect listed Snake River sockeye salmon, Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, or their critical habitat (Stelle 1996). The NPT assumed responsibility for operation and maintenance of the facilities. The LSRCP was to fund the operations and maintenance of facilities constructed under the plan however, in 1997 the decision was changed and Bonneville Power Administration (BPA) was directed to fund operations and maintenance (O&M) and monitoring and evaluation (M&E) of the facilities. The title of this program is the Fall Chinook Acclimation Project (FCAP). This report covers operations and maintenance activities of the program. Results of fish survival and performance reared and released from the FCAP facilities can be found in annual reports from BPA Project # 1998-010-04 (Rocklage and Kellar 2005a, 2005b, 2005c, 2005d, 2005e, 2005f and Rocklage, 2004) and BPA Project # 1998-010-03 (Garcia et al. 1999-2004).

1.2 Project Goals

The immediate goal of the project is a concerted effort to ensure that the Snake River fall Chinook salmon above Lower Granite Dam are not extirpated. Long-term goals of the project are:

1. Increase the natural population of Snake River fall Chinook spawning above Lower Granite Dam.
2. Sustain long-term preservation and genetic integrity of this population.
3. Keep the ecological and genetic impacts of non-target fish populations within acceptable limits.
4. Assist with the recovery of Snake River fall Chinook to remove from ESA listing.
5. Provide harvest opportunities for both tribal and non-tribal anglers.

The extended acclimation time at each site should provide natal homing of adults to the appropriate spawning habitat and diminish the likelihood that Lyons Ferry Hatchery fall Chinook will stray into other Columbia Basin populations. Because the Lyons Ferry Hatchery stock and the listed natural-origin fall Chinook are considered to be within the same ESU (Blankenship and Mendel 1993), there are no expected adverse effects to the listed population as a result of genetic introgression from non-native stocks (NMFS 1995).

The yearling to adult return rate is expected to be equal to the Lyons Ferry Hatchery survival rate of 0.269%. A total of 1345 adults (or more) may return above Lower Granite Dam as a result of these annual releases. Sub-yearling releases at Lyons Ferry Hatchery have resulted in juvenile-to-adult survival rates of only 0.0364%. Thus, adult returns from yearling releases may be 8 times or more great than returns for sub-yearlings.

The success of the acclimation program depends upon three critical assumptions:

1. Three to six weeks acclimation is sufficient for fall Chinook salmon yearlings and sub-yearlings to imprint on the release location.
2. Smolt-to-adult survival will maintain at current levels or increase during the project.
3. Sufficient broodstock will return to Lyons Ferry Hatchery to supply 450,000 yearlings.

Monitoring and evaluation of the juvenile releases from the Fall Chinook Acclimation Facilities is being conducted by the Nez Perce Tribe through project #1998-010-04 (see Section 1.5).

1.2.1 Relationship to the 2000 FCRPS Biological Opinion

The FCAP project was termed a safety-net project in the 2000 Federal Columbia River Power System (FCRPS) Biological Opinion by Reasonable and Prudent Action (RPA) 177.

“This action funds the actual implementation and operation of safety-net projects. Depending on the planning results, specific measures may include funding modifications of existing facilities, or construction and operation of new facilities. The obligation to fund the safety-net

program, including O&M, monitoring, and evaluation, will continue indefinitely, as circumstances warrant.”

The Crosswalk of 2000 NOAA FCRPS BiOp RPA Actions and the 08/30/04 Draft UPA for Action # 177 states that BPA has sustained funding of safety-net projects for several populations of Snake River spring/summer Chinook and Snake River Sockeye and other ESU’s. BPA is funding safety-net programs for other ESU’s as conservation actions under the Council’s Fish and Wildlife Program.

1.3 Description of Project Area

The three fish acclimation sites that were identified and developed through this project were selected due to their location and proximity to historic fall Chinook salmon spawning habitat: Pittsburg Landing on the Snake River below Hells Canyon Dam, Captain John Rapids on the Snake River near the confluence with the Grande Ronde River and Big Canyon site on the lower Clearwater River (Figure 1).

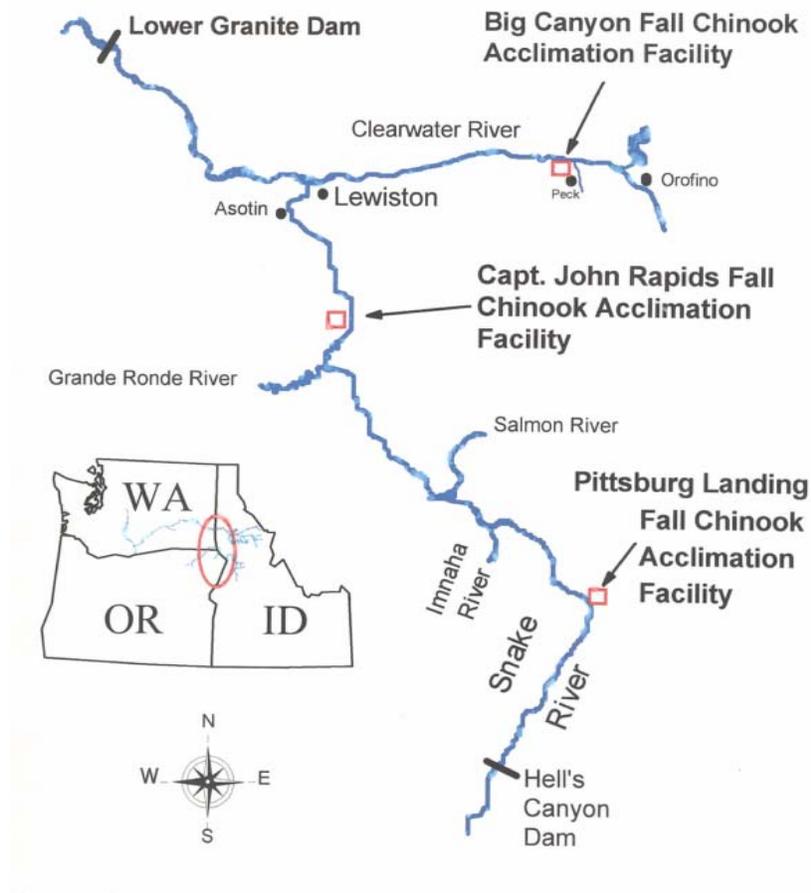


Figure 1 Map of fall Chinook acclimation sites.

Pittsburg Landing

Pittsburg Landing is located in the Hells Canyon National Recreation Area (HCNRA) near Whitebird, Idaho. The site is located on the Idaho side of the Snake River at River Mile (RM) 215, about 31 miles downstream of Hells Canyon Dam. Pittsburg Landing has the only road access to the Snake River on the Idaho side of the HCNRA suitable for passenger vehicles. Access to the site is by Deer Creek Road (U.S. Forest Service Road 433), 18 miles from US Highway 95.

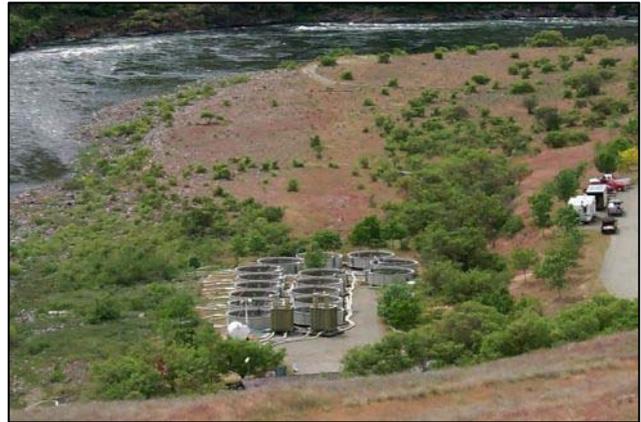


Figure 2 Pittsburg Landing Facility.

This site was chosen because of its location near suitable spawning and rearing habitat and good road access, which is necessary for delivery of equipment and fish. The site is a temporary acclimation facility consisting of portable fish rearing tanks assembled and disassembled each year (Figure 2).

Captain John Rapids

This site is located at Captain John Rapids on the Snake River between Asotin, Washington and the mouth of the Grand Ronde River at RM 164. The site is on the Washington side of the river, 20 miles upstream of Asotin, with vehicle access provided by the Snake River Road.



Figure 3 Captain John Rapids Facility.

The site has favorable characteristics for fish acclimation that includes proximity to adult spawning habitats, has a good release point into an eddy instead of into the river current and is isolated from residences which reduces the possibility of conflicts with local citizens. The facility is a single in-ground 150'X 50' acclimation pond with two screened intakes and submersible electric pumps, which are located in the main river channel (Figure 3).

Big Canyon

Big Canyon acclimation site is located on the lower Clearwater River adjacent to US Highway 12 near Peck, Idaho. The site is 4 miles below the confluence of the North Fork and Middle Fork of the Clearwater River at RM 35. It is located on Nez Perce Tribal allotment 992 and the site of a Clearwater River boat launch facility that was previously leased to the Idaho Department of Fish and Game.

The site was selected because it is located within the designated critical habitat area for Snake River fall Chinook and has good road access. Listed fall Chinook are known to successfully spawn in the Clearwater River both immediately upstream and downstream of the facility. The Big Canyon site is a temporary facility with fish rearing tanks and aeration towers remaining on site while water pumps and related equipment are disassembled and stored offsite each year (Figure 4).



Figure 4 Big Canyon Facility.

1.4 Project History

Operation of the facilities funded by this project began in 1996, which initiated supplementation of the Snake River fall Chinook upstream of Lower Granite Dam. In 1996, the Pittsburg Landing facility on the Snake River acclimated and released 114,000 fall Chinook yearlings. In 1997, both the Pittsburg Landing facility and the Big Canyon facility on the Clearwater River were operated and resulted in 147,000 yearlings and 451,000 yearlings and sub-yearlings released, respectively. In 1998, Capt. John Rapids facility on the Snake River was operational and the three-acclimation facilities resulted in releases of 336,000 yearlings. In 1999, a total of 1,198,378 fish including 528,346 yearling fish and 670,032 sub-yearling fish were released. Fish releases in 2000 totaled 2,580,816 fish and included 397,339 yearlings and 2,183,447 sub-yearlings. In 2001, a total of 2,051,099 fish were released from the three acclimation facilities. The total includes 318,932 yearling and 1,732,167 sub-yearling fish. In 2002, a total of 2,877,437 fish were released from the three acclimation facilities. The total includes 479,358 yearling fish and 2,398,079 sub-yearling fish and was the largest number of fish ever released in one year from the acclimation facilities. In 2003, 2,138,391 fish were released from the acclimation facilities including 437,633 yearling and 1,700,758 sub-yearling fall Chinook. This report contains activities involving acclimation and release of fall Chinook juveniles from the acclimation facilities in 2004.

1.5 Relationship to other Projects

Activities that occur through the Fall Chinook Acclimation Project (FCAP) represent only the operations and maintenance (O&M), or production aspect, of the program of a larger comprehensive effort to restore Snake River fall Chinook salmon. Within this effort, in addition to the artificial production and release of fall Chinook juveniles are a number of monitoring and evaluation studies conducted by a host of fisheries management agencies (Table 1). The agencies include Washington Department of Fish and Wildlife (WDFW), USFWS, Idaho Power Company (IPC), and NPT. The associated projects are integrated and project operators work cooperatively to implement project activities, data collection and analysis, coordination, and management.

Table 1 Ongoing projects/activities associated with restoration of Snake River Fall Chinook Salmon.

Project	Agency	Funding Source	Activities
Lyons Ferry Hatchery	WDFW	Lower Snake River Compensation Plan Project # 200112, 200115, 200124,	Production of yearling and sub-yearling fall Chinook salmon for on-station releases and outplants above Lower Granite Dam.
LSRCP Fall Chinook Salmon Production and Evaluation Program	WDFW	Lower Snake River Compensation Plan Project # 200118 and 200121	Evaluate yearling and sub-yearling fall Chinook salmon released on-station from LFH. Run reconstruction of adult fall Chinook salmon returns to Lower Granite Dam.
Fall Chinook Acclimation Project	NPT	Bonneville Power Administration Project # 199801005	Acclimation and release of yearling and sub-yearling fall Chinook salmon from facilities on the Snake and Clearwater Rivers above Lower Granite Dam.
USFWS Dworshak National Fish Hatchery Fish Health Laboratory	USFWS	Lower Snake River Compensation Plan Project # 200101	Monitor health of FCAP yearling and sub-yearling fall Chinook salmon.
M&E of Fall Chinook Salmon Released From FCAP Facilities.	NPT	Bonneville Power Administration Project # 199801004	Monitor and evaluate yearling and sub-yearling fall Chinook salmon released from FCAP facilities. Spawning ground surveys – Imnaha and Grande Ronde Rivers (beginning 2003).
M&E Spawning Distribution of Yearling Fall Chinook Salmon Released From FCAP Facilities	USFWS	Bonneville Power Administration Project # 199801003	M&E of spawning distribution of fall Chinook salmon released as yearlings. Spawning ground

			surveys – Snake , Imnaha and Grande Ronde Rivers.
Nez Perce Tribal Hatchery	NPT	Bonneville Power Administration Project # 198335000	Production of fall Chinook for release throughout the Lower Clearwater River subbasin.
Nez Perce Tribal Hatchery M&E	NPT	Bonneville Power Administration Project # 198335003	M&E of NPTH fall Chinook salmon program. Spawning ground surveys – Clearwater, Salmon and Selway Rivers.
Idaho Power Fall Chinook Program	Idaho Power Corporation	Idaho Power Corporation	Spawning Ground Surveys – Snake, Imnaha and Grande Ronde Rivers. Production of fall Chinook salmon for release in the Snake River below Hells Canyon Dam. Habitat quality in Snake River above and below the Hells Canyon Complex.

2.0 METHODS AND MATERIALS

2.1 Facilities

Pittsburg Landing

The acclimation facility at Pittsburg Landing consists of: 16 -20ft aluminum circular tanks; 2 aluminum distribution boxes; 4 river intake screens; ringlock flexible hose: 4" = 1,260 ft, 6" = 1,780 ft, 8" = 3,110 ft; camlock flexible hose: 6" = 2,080 ft; 1 - 500 gallon diesel storage tank; 1 - 20ft storage container; 2 - 30ft camp trailers; 1 - 1996 Chevy S-10 pickup; two alarm systems; 16 emergency oxygen systems - hoses, microdiffusers and regulators (1 per tank); a trailer mounted 4,000 watt generator light plant; one utility storage trailer; 16 camouflage nets; 2 trailer mounted hydrocyclones; miscellaneous bolts, seals, camlock fittings, etc. Equipment used at Pittsburg Landing and the other two facilities was purchased by USCOE, Walla Walla under the FY95 Congressional Add-on (Senate Report, 103-672, p7).

Water is pumped directly from the Snake River to the acclimation tanks by four, 4-inch diesel pumps. Water pumps are rented from a contractor because leasing appeared to offer the least cost over a ten-year life cycle. Each pump has a portable water intake screen that is placed into the river each year and connected to the pump by 120 ft of 6-inch plastic hose. The pumps provide 500 gpm of water and operate 24 hours each day throughout the 6-week acclimation period except for oil checks and servicing. A 1,000 gallon tank, placed within a spill containment barrier, supplies fuel for the pumps. The water is pumped to one of two 12 ft. high water distribution boxes, containing degassing towers to remove nitrogen gas, before flowing through a series of downsizing pipes to the rearing units.

The rearing units consist of 16 circular aluminum tanks, 20 ft in diameter and 4 feet deep. The tanks are transported from the storage area by a 20 ft flatbed lift-truck and placed on leveled 6-inch by 6-inch wood timbers. The tanks, made in two pieces and bolted together, drain water from the center of the tank through an 8-inch pipe placed in a plywood manhole running under the tank. The tank is fitted with vertical 12-inch circular perforated aluminum screen and the water depth controlled by a 6-inch center PVC standpipe.



Figure 5 Pittsburg Landing Acclimation Tanks.

The rearing water enters the tank through a 4-inch pipe located on the edge of the tank and is directed in a manner to facilitate a circular motion to aid the movement of fish waste and mortality to the center screen. Water flow is controlled by a 4-inch gate valve located on the

incoming line and maintains flows at 100 gpm. The water discharge line is connected from the tank to the river by an 8-inch flexible plastic pipe, which is also used to release the fish.

A 24-volt alarm system constantly monitors water levels in each rearing tank and each of the two water distribution towers. An enunciator panel that provides a visual and audio alarm when a low water level is detected monitors the alarm system. The alarm control box and enunciator panel is located near the staff-housing trailer.

Assembly of the acclimation site begins in February each year with the transport of equipment and material from an offsite storage area. The U.S. Forest Service (USFS) agreed, in 1998, to allow the NPT to leave assembled fish rearing tanks and related equipment at a storage site near the fish acclimation site. This agreement has resulted in considerable dollar savings, greatly reduced equipment fatigue and reduced assembly and disassembly time by half.

Big Canyon

The Big Canyon facility uses identical or similar equipment to that of Pittsburg Landing. The rearing tank assembly has been changed over the years to include a single row of tanks that sit flat on the gravel surface. The center drain line is located in a trench dug under the tank, thus eliminating the need for 12-inch deep gravel pad that was previously used. This method can only be used where the proper elevation is available to facilitate water discharge to the river.

The USCOE agreed to furnish electric pumps to replace the diesel units that were rented each year. Electric pumps were installed and tested before the 2002 acclimation season. The electric pumps provide the same performance as the diesel pumps while reducing rental and maintenance costs, allowing onsite staff reduction and eliminates the risk of a major fuel spill. .

FCAP Project Leader received verbal agreement from the Nez Perce Tribe that allows the fish rearing tanks and water distribution tower to remain assembled at the site the entire year. This eliminates the need for an assembly and disassembly contract and reduces equipment fatigue hence provide dollar savings to the program.

Capt. John Rapids

The Capt. John Rapids Fall Chinook Acclimation Facility is a single 150'X50' in-ground, lined pond that is supplied with Snake River water by two independent 1,250 gpm submersible electric pumps. Other facility equipment and capital construction consists of: 2 river intake screens; one camp trailer; one standby propane generator; one water well (domestic water); septic system; commercial electric service; alarm system; telephone service. The pumps and intake screens were designed to be placed into the river and then removed following fish acclimation each year but were replaced in 2001 with permanent intake screens located in the main Snake River channel. The pump intake screens are provided with an air backflush system to remove debris and an alarm system is available to monitor flows.

The pumps deposit large amounts of sand in the acclimation pond, which must be removed by hand tools between each group of fish. The alarm system does not provide accurate data, if working at all. Negotiations are ongoing with the USCOE to provide the necessary changes to meet the standards required at the facility.

2.2 Operations

Assembly

The portable tanks and associated equipment at Pittsburg Landing and Big Canyon sites are assembled and disassembled using FCAP staff members and equipment. This effort reduces project costs and assures that facility assembly is consistent with fish rearing, acclimation and fish release goals.

Actual assembly of the temporary acclimation facilities begins in January and testing of the facilities completed by the last week of February. The Pittsburg Landing and Big Canyon facilities begin operation in March of each year and the Capt. John Rapids facility begins operation in February to allow for sub-yearling production at Lyons Ferry Hatchery.

Staffing

A two person crew works an 8-day on and 6-day off schedule. Crew members work 10 hours each day but are required to remain on site 24 hours to monitor the pumps and alarm system. Staff members live in an on-site travel trailer and receive a per diem allowance for food and personal items. Staff members are supervised by a project foreman who makes periodic visits to the site and have a radio-telephone for communications. Written schedules, manuals and oral instructions guide staff members. Some employees work 6 months on the project to assist in assembly, operations and disassembly while others work from 6 to 12 weeks during fish acclimation. Employees move to other projects immediately following the completion of operations.

Fish transport

Up to 150,000 fall Chinook salmon yearlings are transferred from Lyons Ferry Hatchery to each facility on or about 01 March, at a size of approximately 12 fish per pound. If sub-yearlings are available, up to 500,000 are transferred to each facility at 100 fpp in late April-early May. Priority release sites for sub-yearlings are: 1) Big Canyon, 2) Capt. John Rapids, and 3) Pittsburg Landing. WDFW and NPT fish distribution vehicles share fish transport to all the acclimation facilities. Lyons Ferry Hatchery personnel provide schedules and facilitate loading and enumeration of the fish. Fish transport permits are requested and received before fish are distributed.



Figure 6 Fish Transport

Fish culture

Staff perform daily scheduled fish culture duties that includes: checking and recording oxygen levels in the rearing units three times each day, feeding the rearing units three times each day and picking fish mortality twice each day. Staff also observes fish behavior for abnormalities and assist in fish health checks and the fish-marking program. The fish are fed a semi-moist pellet manufactured by Bio-Oregon of Warrenton, Oregon. Fish culture methods are the same as per Integrated Hatchery Operations Team (IHOT) guidelines and consistent with WDFW fish culture techniques at Lyons Ferry Hatchery. The NPT-DFRM Production Division Director reviews any changes to standard procedures and other agencies are consulted if necessary. Environmental precautions are necessary to handle diesel and oil for the portable water pumps.



Figure 7 Fish Culture

Yearling fish are reared and acclimated in the temporary facilities for six weeks (10 weeks at Capt. John Rapids) before release into the Snake and Clearwater Rivers in April, at a size of approximately 10 fpp, or 160-170 mm fork length. Sub-yearling fish are reared and acclimated approximately four weeks for group 1 and two to four weeks for group 2 before release into the river in June, at 60 fpp. Release typically occurs during rising water conditions, at the same time or slightly preceding fall Chinook salmon releases at Lyons Ferry Hatchery, and at night to minimize predation by birds or other fish.

Fish health

Fish health services are provided by contract with the USFWS, Dworshak Fish Health Center (DFHC). The contract provides diagnostic and pathogen survey services for all fall Chinook juveniles and smolts transported to the fish acclimation facilities. The services include a fish health check before transfer, bi-weekly exams during acclimation and a pre-release exam. Other health checks are performed as requested. Fish health protocols are as per AFS Blue Book, IHOT and Nez Perce Tribe fish health protocols.

3.0 2004 OPERATIONS

3.1 Introduction

This report consists of activities conducted during 2004 at fall Chinook acclimation projects Pittsburg Landing (98-010-05), Big Canyon (98-010-08) and Capt. John Rapids (98-010-07).

This report is submitted by Bruce McLeod, Project Leader for the Fall Chinook Acclimation Project (FCAP). The project leader facilitates the implementation and completion of all task activities set forth in the project plan. The project leader was given the authority to define, implement and oversee all methods, protocols and procedures for assembly, operation and disassembly of the Pittsburg Landing, Big Canyon and Capt. John Rapids sites.

3.2 Administrative

Preparations for the 2004 fall Chinook acclimation season began in October 2003 with the ordering of supplies, assembly of staff, designing equipment experiments and consulting with the USCOE on facility improvements.

Staff members spent part of four weeks during October and November preparing and making corrections to the 2004 budget requests. The budget task orders were received before the start of the 2004 budget period.

Task orders for the three projects were received from BPA beginning 17 December 2003. The Pittsburg Landing (project 4235) budget totaled \$233,850, Big Canyon (project 4297) budget totaled \$269,660 and the Capt. John Rapids (project 4186) budget totaled \$226,022. The FY 2004 budget dollars were the same as provided in FY 2003. Carry-forward funding has been discontinued by BPA.

The 2003/2004 Lyons Ferry Annual Operating Plan (AOP) draft was completed in November 2003 and distributed by the Snake River Lab of WDFW. Nez Perce Tribe Fisheries management personnel attended the AOP coordination meeting of 23 October 2003 in Dayton, WA. Attachment 1 to the AOP summarizes the NPT plan of activities for the FCAP facilities in 2004. The plan covers activities at Lyons Ferry Hatchery from 01 October 2003 to 30 September 2004.

Fisheries Department staff members met with the U.S. Forest Service personnel for the Hells Canyon National Recreational Area (HCNRA) regarding a new site for the yearly storage of acclimation tanks and other equipment from the Pittsburg Landing acclimation site. The Forest Service agreed to allow the acclimation tanks and other equipment to be stored near the administrative ranch house used as a caretaker residence and bunkhouse. The site provides a flat area for storage and offers more protection from vandalism for the tanks and equipment.

Nez Perce Tribe fisheries personnel attended the Fall Chinook Technical Group meetings on 04 March and 08 August 2004. Cooperators met at Dayton, WA on 29 September to discuss the 2004/2005 Lyons Ferry AOP.

Fisheries Department staff members continue to negotiate with the USCOE for facility improvements at the Capt. John Rapids acclimation site that will provide the modification needed for normal operation of the fish acclimation program.

3.3 Facility assembly

The assembly and disassembly of the facilities was completed by FCAP personnel using equipment purchased by and shared with the Nez Perce Tribal Hatchery (project ID 83-350-00). This effort results in saving dollars that can be spent to improve other areas of the project needing improvements and equipment purchases. Assembly work on the acclimation sites began 12 January and was completed 27 February 2004.

3.4 Equipment Operation/Testing

New equipment that was tested during the 2004 acclimation season and the results include:

1. Evaluate the operation of the rebuilt water aeration towers and larger Kock rings used to assist in aeration and gas removal of the water at the Pittsburg Landing fish acclimation site.

Results: The tower modification worked better than expected with aeration and gas removal remaining at acceptable levels while providing for quick removal and replacement of plugged Kock rings. The aeration towers at Big canyon were modified and tested during the 2003 acclimation season with similar results.

2. Test the use of floating docks on the Capt. John Rapids acclimation pond. Three connecting 20 ft sections were purchased and placed on the pond.

Results: The docks provided a safe walkway down the pond center that allowed the fish culturist to spread fish feed over the entire pond surface, assuring that the food was being presented to all the fish. The center walkway allowed more mortality to be removed from the pond and provided a greater opportunity to observe fish behavior and health. Staff members used the dock surface to install a backup oxygen system that can be used in an emergency situation. The emergency oxygen system is designed to assist in keeping the pond oxygen level above the lethal limit for a short period of time while other measures are being undertaken.

3. Evaluate the performance of new variable speed motor controllers for the electric water pumps at Capt. John Rapids. The controllers were installed in June and will be tested during the 2005 acclimation season

3.5 Fish acclimation

Fish health exams indicated that the incidence of Bacterial Kidney Disease (BKD) in the yearling fish was low and fish mortality did not appear to be BKD related at Pittsburg Landing or Capt. John Rapids. The mortality at Big Canyon appeared to be Erythrocytic Inclusion Body Syndrome (EIBS) related with most fish having fungus on the tail and other parts of the body. The number of yearling fish received from Lyons Ferry was 30,000 short of the programmed number. The loss of fish occurred after ponding at Lyons Ferry due to unknown causes. The shortage of fish was reflected in the Big Canyon group because they are the last to be marked at Lyons Ferry.

The sub-yearling fish size was near the target goal when received at the acclimation sites, with sizes ranging from 78 to 83 fish per pound. The size of the fish when received provided an opportunity to reach the programmed release size this year. Most of the sub-yearling mortality was related to pin-headed fish within the groups received from Lyons Ferry Hatchery.

Yearling fish were again transferred to the Capt. John Rapids facility one month early (03 February 2003) to allow Lyons Ferry Hatchery rearing space for the large group of sub-yearlings on hand this year.

Pittsburg Landing

A total of 154,151 yearling fish @ 12.2 fpp (12,635 lbs.) were received on 01-02 March 2004 at the Pittsburg Landing facility. Following six weeks of acclimation, 151,443 fall Chinook yearlings were released from the Pittsburg Landing facility into the Snake River on 12-13 April 2004 (Table 2). These fish were all marked with an adipose fin clip, a Coded Wire Tag (CWT 61-25-02) and a Green Visual Implant Elastomer (VIE) tag near the right eye. Passive Integrated Transponder (PIT) tags were also implanted into 4,983 fish released from this group

A total of 366,868 sub-yearlings were received 03-10 May. The fish were received from two facilities for Pittsburg Landing. On 03 May 166,623 fish were transported from Oxbow fish hatchery and on 10 May 200,245 fish were received from the Lyons Ferry Hatchery. The fish from Oxbow resulted from green eggs being transported from Lyons Ferry Hatchery to IDFG for rearing but were required to be released at the Pittsburg Landing acclimation site. A total of 363,125 sub-yearling fish were released in May 2004 after three weeks of acclimation. The Oxbow fish were released on 24 May and the Lyons Ferry Fish on 31 May. All the fish in the Oxbow group were CWT (10-69-73, 10-79-76, 10-80-76) and fin clipped by IDFG and 2,496 of the Lyons Ferry group were PIT tagged.

Big Canyon

A total of 113,316 yearling fish @ 13.75 fpp (8,241 lbs.) were received at the Big Canyon facility from 03-04 March 2004. Approximately 109,758 fall Chinook yearlings were released from the Big Canyon facility into the Clearwater River on 14-15 April 2004 (Table 2). These fish were all marked with an adipose fin clip, CWT (61-26-59) and a green VIE tag near the left eye. This release group received 4,982 PIT tags.

A total of 481,671 sub-yearling fish at 80.0 fpp (6,020 lbs.) were received at Big Canyon facility on 11-14 May and acclimated for 3 weeks. Therapeutic treatment of BGD was necessary in one tank of fish at the acclimation site. A total of 473,556 sub-yearlings were released on 03 June 2004 (Table 2). There were 198,190 fish with CWT (61-25-00) in this group of fish and 2,490 were PIT tagged.

Capt. John Rapids

A total of 153,654 yearling fish @ 12.6 fpp (12,194 lbs.) were received 09-12 February at the Capt. John Rapids acclimation facility. Yearling fish are transferred to the Capt. John Rapids facility in February to allow Lyons Ferry Hatchery rearing space for the sub-yearling group on hand each year. Bacterial Kidney Disease (BKD) was verified by fish health exams throughout the acclimation period however fish mortality was not excessive even with the long acclimation season (10 weeks). Following ten weeks of acclimation, approximately 153,251 yearling fish were released into the Snake River on 07 April 2004 (Table 2). These fish were all marked with an adipose fin clip, a CWT (61-25-03), and a blue VIE tag near the left eye. PIT tags were implanted in 4,985 fish in this release group.

Transport of 500,940 sub-yearling fish @ 83.0 fpp (6035 lbs) to the Capt. John Rapids facility occurred on 10-12 May 2004. The sub-yearling fish were acclimated for four weeks and a total of 500,739 sub-yearling fish were released into the Snake River on 01 June 2004 (Table 2). There were 192,649 with CWT (61-26-00) and 2,493 PIT tags in this group.

There was no second group of sub-yearlings in 2004 at Capt. John Rapids.

Table 2. Summary of fall Chinook juveniles reared, acclimated and released from the Fall Chinook Acclimation Project facilities, 2004.

Facility	Number Received at Facility	Age	Date Received	Number Released from Facility	Size at Release (fpp)	Date Released	Survival to release (%)
Pittsburg Landing	154,151	1+	3/3-4/04	151,443	9.9	4/12-14/04	98.2%
Big Canyon	113,316	1+	3/1-3/04	109,758	9.4	4/14-15/04	96.9%
Capt. John Rapids	153,654	1+	2/9-12/04	153,251	9.1	04/02-07/04	99.7%
<i>Total Yearling</i>	<i>421,121</i>			<i>414,452</i>			<i>98.4%</i>
Pittsburg Landing	366,868	0+	5/03-10/04	363,125	51.2	06/24-31/04	99.0%
Big Canyon	481,671	0+	5/11-14/04	473,556	57.6	06/03/04	98.3%
Capt. John Rapids	500,940	0+	5/10-12/04	500,739	57.6	06/01/04	99.9%
Total							
<i>Sub-yearling</i>	<i>1,349,479</i>			<i>1,337,420</i>			<i>99.1%</i>
2004 Total				1,751,872			

A total of 1,751,872 fish weighing 68,180 pounds were released from the three acclimation facilities. The total includes 414,452 yearling fish weighing 43,813 pounds and 1,337,420 sub-yearling fish weighing 24,367 pounds. A complete production summary, including marking information, is presented in Appendix A.

Surplus Fish Transport

FCAP provides staff and equipment to transport surplus steelhead and spring Chinook salmon adults from hatcheries in the Snake and Clearwater River basins. The surplus fish are transported to underseeded streams in the basin to spawn naturally. Staff members use a truck and fish transport tanks purchased by BPA for this purpose. The fish would be killed and placed in a landfill if this effort was not undertaken.

In 2004, a large number of surplus adult Chinook salmon, adult A-run steelhead, adult B-run steelhead, spring Chinook salmon (SCS) smolts and fingerlings, Coho salmon (COS) smolts and fingerlings and steelhead (STT) smolts and fingerlings were transported. The transports included:

- 1,406 (6 trips) adult B-run STT from Dworshak NFH to Southfork Clearwater River
- 60,000 COS smolts from Eagle Creek NFH to Sweetwater Creek
- 139,700 STT smolts from Dworshak NFH to American River
- 280 adult SCS from Southfork Salmon River for subsistence distribution
- 233 jack SCS salmon from Wallowa hatchery for subsistence distribution
- 1,008 (3 trips) SCS adults from Dworshak NFH to lower Selway River
- 90,000 SCS parr from Rapid River fish hatchery to upper Selway River at Magruder
- 93,923 SCS parr from Rapid River fish hatchery to upper Selway River at Magruder
- 70,191 SCS parr from Dworshak NFH to upper Selway River at Magruder
- 300,000 COS parr from Clearwater fish hatchery to Lolo Creek
- 1,000 adult A-run STT from Oxbow fish hatchery to Lapwai for subsistence distribution

3.6 Facility Disassembly

Disassembly of the acclimation tanks and related equipment at Pittsburg Landing was completed by FCAP staff members on 11 June 2004. The USFS agreed, in 2004, to allow the Nez Perce Tribe to leave assembled fish rearing tanks and related equipment at a new storage area near the fish acclimation site. The new site affords a large flat surface area for storage of the tanks and equipment and affords a measure of protection from vandalism.

Nez Perce Tribal Fisheries personnel has verbal permission from the Nez Perce Tribe for the Big Canyon acclimation site which allows the fish acclimation tanks and aeration towers to remain on site. Water pumps, alarm system and emergency generator are disassembled and transported to the Sweetwater Storage Facility while the water intake and discharge hoses are dismantled and stored in converted truck transport trailer vans at the acclimation site. Disassembly of Big Canyon was completed on 22 June.

3.7 Major Problems

The electric water pumps at Capt. John Rapids were replaced in January because a rock lodged in the pump impeller causing the pump motor to burn out. The impellers on the replaced pumps

were noted to be severely worn from the sand that is pumped from the river into the acclimation pond each year. The pumps had been operating for only two years before being replaced. This problem must be addressed before the transfer of the site from the USCOE to the USFWS.

Water pump #1 at Capt. John Rapids would shut down on a daily basis throughout the yearling acclimation period due to a motor heater overload. The problem was finally solved when it was discovered that the heater had been improperly programmed by the contractor.

Power failure at Captain John Rapids forced crews to use alternate power source (propane generator) to run pumps. Clearwater Power Company did not notify the acclimation site of power being restored for 14 hours, creating a logistical problem of finding a supplier to make an emergency propane delivery during closed business hours.

A short power failure at Big Canyon Creek caused variable speed motor controller to malfunction which forced crews to use a backup Mag starter until John's Electric could re-program the drive 48 hours later.

A broken drive belt on a diesel pump at Pittsburg landing forced crews to transfer hoses to a backup pump until Godwin Pump service representatives could resolve problem and get the pump back on line 24 hours later.

In March and May snow melt combined with heavy rain created near record high water flows in the Clearwater River causing the water pump intakes at Big Canyon acclimation facility to plug with debris. Staff members cleaned the screens day and night as needed and moved the screens in and out of the river channel as the water flows increased and receded. The plugging of the intake screens this season was reduced by the installation of variable speed motor controllers on the electric pumps, which allows control of the amount of water being pumped.

At Capt. John Rapids the high river water flows caused a large amount of suspended sand to be pumped from the river and deposited in the acclimation pond. The sand creates a poor fish acclimation environment especially during release, reduces the pond rearing space, requires numerous man-hours to remove and probably exceeds the water discharge permit for suspended and settleable solids. Removal of the sand was necessary between each group of fish this year.

3.8 Facility improvements

The USCOE continues to address modifications needed to correct operational deficiencies at the Capt. John Rapids and Big Canyon facilities. FCAP personnel worked with USCOE engineers and contractors

The USCOE awarded a landscape contract at Capt. John Rapids in July. The contract included; perimeter fencing, cattle guard, ground vegetation and stream bank stabilization. The project was put on hold in October pending an archeological review.

Nez Perce Tribe Fisheries, USCOE and LSRCP personnel continue to communicate on the remaining issue of sand accumulation in the fish acclimation pond at Capt. John Rapids. Several

options are being discussed and all agree that this problem must be corrected before the facility is fully operational.

At Capt. John Rapids the USCOE provided new variable speed motor controllers on the electric pumps, which allow control of the motor speed and hence the water discharge rate. Reducing the pumping rate to the minimum flows needed for fish acclimation reduces suction pressure at the intake screens and decreases plugging from debris. The controllers will be tested during the 2005 acclimation season.

4.0 FY 2004 OBJECTIVES AND TASKS

OBJECTIVE 1. COORDINATION/PLANNING:

The Nez Perce Tribe formally and informally consulted with all the Fall Chinook Acclimation Project cooperators. NPT staff improved coordination and information exchange this fiscal year.

The project represents a cooperative effort between the Nez Perce Tribe, State and Federal agencies.

Task 1.1: Coordinate with WDFW to arrange for the transfer of 450,000 yearlings (150, 000 yearlings to each of three facilities). Provide release summaries and other information to WDFW to assist in the M&E of releases from all three facilities.

Response: Fish transfers this fiscal year included 421,121 yearling and 1,349,479 sub-yearling fish. The Nez Perce Tribe provided trucks and staff to assist WDFW with the fish transfers. Release summaries have been finalized and distributed to WDFW and other cooperators.

Task 1.2: Coordinate with USFWS to collect pre-release fish health samples, securing a fish transport permit from IDFG, and M&E of Pittsburg Landing releases.

Response: A cooperative agreement with the USFWS Upper Columbia Fish Health Lab provides for the collection of pre-release fish health samples and routine fish health exams during acclimation. The agreement was renegotiated in 2004 with annual funding costs established until FY2008. Fish health exams were conducted at Lyons Ferry Hatchery prior to fish transport to the three acclimation facilities and a final health exam conducted before fish releases at all the facilities. Fish transport permits for both the yearling and sub-yearling transport were received 02 February 2004 from Idaho Fish and Game. USFWS personnel have been represented at all M&E meetings and discussions. USFWS personnel did not PIT tag at Pittsburg Landing this year but did conduct redd surveys.

Task 1.3: Coordinate with NMFS to ensure that the planned activities as presented in the biological assessments are adhered to and include NMFS in the review of changes to planned production that may affect listed stocks.

Response: Coordination between NMFS and the Nez Perce Tribe is an ongoing process through *U.S. v Oregon* PAC meetings. No production changes were made during the 2004 acclimation season.

Task 1.4: Coordinate with WDFW to facilitate transport of the yearlings and sub-yearling fish.

Response: Fish transport was provided by WDFW and Nez Perce Tribe fisheries department. Coordination with WDFW is outstanding and provides

Task 1.5: Participate in *U.S. v Oregon* PAC, to keep them informed of activities in these facilities and changes in planned actions.

Response: The Nez Perce Tribe is represented in *U.S. v Oregon* PAC, and presents any requested changes in planned actions to the members for consideration.

Task 1.6: Coordinate with USFS to renew the Special Use Permit to operate the temporary acclimation facility at Pittsburg Landing.

Response: Task completed during the first quarter of the fiscal year. Permit is carried forward each year by mutual agreement of both parties.

Task 1.7: Coordinate with NPT M&E projects 98-010-01 and 98-010-04 on fish rearing and release protocol to facilitate the fish monitoring program

Response: Coordination with M&E projects during the year required close contact to facilitate the many potential and actual production changes due to river water conditions. Cooperation from the M&E projects was excellent and provided the best rearing and release strategy for fish survival.

Task 1.8: Coordinate with USFWS and IDFG to transport surplus STT and SCS adults to underseeded habitat areas for release.

Response: Staff members responded to numerous requests for transport of adults, smolts and fingerling fish. Transport of fish is accomplished by using equipment purchased under BPA contracts.

OBJECTIVE 2. FACILITY DEVELOPMENT:

Task 2.1: Work with the USCOE, Walla Walla, and their contractors to modify the facility and equipment at Capt. John Rapids and schedule an operational test before fish transport.

Response: FCAP staff members continue to work with USCOE in an effort to complete facility modifications. For the second time since operations began at Capt. John Rapids a full operational test was conducted before the arrival of fish at the facility. Several modifications are still pending and discussions with USCOE and LSRCP personnel continue.

Task 2.1.1: Closely monitor and ensure all elements of construction are consistent with fish rearing, acclimation and release goals.

Response: FCAP staff members have identified components and accessories of the facilities that will require modification before being consistent with established fish acclimation and release goals.

Task 2.1.2: Test the river intakes prior to installation and facilitate modification if necessary.

Response: Testing of the river intakes this year did not identify any problems that required correction by the USCOE.

Task 2.1.3: Become familiar with the operation and maintenance of all parts of the facility before the contractor is released.

Response: Training of personnel to operate the water pumps, river intakes, modified alarm system and electrical system is ongoing each year as changes are made to the facility. New contracts are scheduled to be issued early in 2005 for landscape and river bank stabilization.

Task 2.2: Work closely with the USCOE to facilitate the design and installation of pumps at Big Canyon acclimation facility.

Response: Installation of new electric pumps was completed before the 2002 fish acclimation season and tested. Needed modification were identified and corrected before the 2003 acclimation season. The new modified pumps and pumping system performed very satisfactorily during the 2004 acclimation season.

Task 2.3: Continue to improve facilities and equipment at all three acclimation sites.

Response: Nez Perce Tribe fisheries staff members continue each year to identify and correct any deficiencies that will reduce costs and increase fish survival. Equipment needs are identified and justified in the budget process.

OBJECTIVE 3. OPERATIONS AND MAINTENANCE:

Task 3.1: On or about 01 January, assemble staff members to install the portable tanks and equipment at Big Canyon and Pittsburg Landing.

Response: The facilities were assembled and disassembled using FCAP staff members and equipment. This task was completed without problems and within the allotted time period.

Task 3.2: Work with staff members and subcontractors to ensure that the tanks and associated equipment are transported and installed correctly. Install water pumps at Capt. John Rapids.

Response: Staff members provide the knowledge and experience necessary to install the equipment carefully and correctly.

Task 3.3: Prior to fish transport test the facilities for one week to identify faulty components.

Response: Testing of all facilities was completed before the arrival of fish this year.

Task 3.4: On or about 01 March, receive at each facility, 150,000 yearlings @ 12fpp, and rear to 10 fpp for release on or about 15 April. If sub-yearlings are available, rear up to 1,000,000 per site and release on or about 01 June.

Response: Received 421,121 yearling fish @ 12.7 fpp and 1,349,479 sub-yearling fish @ 80.7 fpp between 09 February and 11 May 2004. The average size of the yearling and sub-yearling fish was within the programmed range. Fish health of the yearling and sub-yearling fish was good while in the acclimation facilities.

Task 3.4.1: Collect and record all criteria relevant to fish rearing, e.g. feed use, mortality, fish health checks, oxygen levels, nitrogen saturation, etc.

Response: Relevant fish rearing data and parameters is collected and recorded daily. Staff members are diligent in assuring pertinent data is assembled. Fish health exams were performed weekly as in past years.

Task 3.5: Upon release of fish, monitor the disassembly of the facility and check that equipment is properly stored.

Response: Task was completed in the 2004-second quarter immediately following fish acclimation.

Task 3.6: Critique the assembly, operation and disassembly of the facilities to improve operations and reduce costs.

Response: Task was completed in the 2004-second quarter. Several changes are planned for the 2005 acclimation season including replacing electric pump starters at CJR, improving tank safety issues at Big Canyon and sand problems at Capt. John Rapids.

Task 3.7: Repair and replace equipment as needed (e.g. paint tanks, winterize pumps and travel trailers).

Response: Task will be completed before starting the 2005 acclimation season.

OBJECTIVE 4. REPORTS:

Task 4.1: Submit quarterly progress reports based on the objectives and tasks contained within the statement of work, within 30 days following the quarter.

Response: Quarterly report submitted as required.

Task 4.2: Submit a final operational report of all activities for all three facilities by 01 February 2005 to include: numbers of fish released, procedures, daily observations (morts, etc), problems, operational changes, cost summaries, location of information concerning monitoring activities, copies of permits, and recommendations.

Response: A final report will be submitted as required.

5.0 SUMMARY

The 2004 fall Chinook fish acclimation program had an excellent season with both yearling and sub-yearling fish being successfully acclimated. A total of 1,751,872 fish were released from the three acclimation facilities, including 414,452 yearling fish and 1,337,420 sub-yearling fish. Fish health was improved over the last several years in both fish received and released.

Acclimation sites continue to experience environmental and mechanical problems but staff members were able to make repairs or find alternative methods. Negotiations with the Corps of Engineers for improvements at both Capt. John Rapids and Big Canyon facilities will continue as long as needed. Agreements with the Nez Perce Tribe at Big Canyon and U. S. Forest Service at Pittsburg Landing to leave equipment on or near the acclimation sites will provide a large dollar savings for the program and reduce equipment fatigue. Equipment experiments resulted in finding new methods for next year that will improve fish culture and make it easier for staff members.

Cooperation and communication between the Nez Perce Tribe and cooperators has been excellent and is largely responsible for the success of the program. Cooperation between Nez Perce Tribe fisheries programs has provided needed equipment and manpower for the program.

Table 3 contains a summary of Snake River fall Chinook released from the FCAP facilities to date. It also includes a summary of jack and adult fall Chinook counted over Lower Granite Dam and resultant redds in the Snake and Clearwater River. Adult fall Chinook from FCAP releases began to return to the Snake River in 1998.

Table 3. Summary of Fall Chinook Salmon released from Fall Chinook Acclimation Project 1995-2004.

Year	# of yearlings released	# of sub-yearlings released	# of FCS adults over LGR	# of FCS jacks over LGR	# of FCS redds in Clearwater R.	# of FCS redds in Snake R.
1995			1,067	308	20	65
1996	114,299		1,308	424	69	104
1997	345,769	252,705	1,451	504	72	58
1998	336,191		1,909	2,002	78	185
1999	529,503	670,033	3,384	1,863	184	373
2000	397,339	2,183,447	3,602	7,112	180	346
2001	318,932	1,732,167	8,915	8,834	336	770
2002	479,358	2,398,079	12,347	5,729	527	1,113
2003	437,633	1,700,758	11,724	8,470	571	1,524
2004	414,452	1,337,420	14,960	7,600	630	1,718

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7.0 APPENDACIES

Appendix A: 2004 Fish Production Summaries

Lyons Ferry Hatchery fall chinook releases above lower Granite Dam in 2004 (preliminary data compiled by Bill Arnsberg, Steve Rocklage and Bruce McLeod, Nez Perce Tribe.)																
Release Type		Release Location	Release Dates	Number ad-clipped w CWT	CWT Code	Number ad-clipped w/o CWT	Number CWT w/o ad clip	Number w/o CWT or ad-clips	Number PIT tagged	Gms/fish	Fish/Lb	Total Lbs	Avg FL	CV of Avg FL	Elastomer (side, color/retention%) ^a	
Age	Brood Year															
1+	2002	Pittsburg	4/12-13	149,349	61-25-02	606	1,488	0	4,983	45.6	9.9	15,224	154.6	13.2	RG/81.9	
		Total number of yearlings released at Pittsburg Landing: 151,443														
		Captain John	4/2-4/7	152,446	61-25-03	613	192	0	4,985	50.0	9.1	16,893	163.0	7.8	LB/86.0	
		Total number of yearlings released at Captain John: 153,251														
		Big Canyon	4/14-15	108,281	61-26-59	1,027	270	0	4,982	48.2	9.4	11,663	160.7	11.2	LG/91.3	
		Total number of yearlings released at Big Canyon: 109,758														
0	2003	Pittsburg	5/24	37473 ^b	10-69-73						54.3				None	
		Pittsburg	5/24	67080 ^b	10-79-76						54.3				None	
		Pittsburg	5/24	64894 ^b	10-80-76						54.3				None	
		Pittsburg	5/31	0	n/a	n/a	n/a	197,687	2,496	8.8	48.2	3,835	92.3	7.7	None	
		Total number of sub-yearlings released at Pittsburg: 363,125 (165,438 from Oxbow, 197,687 from LFH)														
		Big Canyon	6/3	n/a	61-25-00	n/a	198,190	275,366	2,490	5.7	57.6	5,951	83.7	13.1	None	
		Total number of sub-yearlings released at Big Canyon: 473,556														
		Captain John	5/31-6/3	n/a	61-26-00	n/a	192,649	308,090	2,493	8.2	55.3	9,052	88.4	9.8	None	
Total number of sub-yearlings released at Captain John: 500,739																
^a Elastomer tag behind eye. Side/color: RG=Right/Green, LG=Left/Green, LB=Left/Blue. All groups tagged and/or marked by WDFW except Pittsburg subyearlings which were CWTagged and clipped by IDFG.																
^b Number reflects the marked number and not the actual release number (mortality needs to be subtracted and marking data obtained from the IDFG).																

Appendix B: Acclimation Site Fish Inventories

Nez Perce Tribe									
Inventory-Pittsburg Landing Acclimation Facility									
2004 FALL CHINOOK YEARLINGS									
Receiver	38,520	3/1/04					Released	81,302	4/12/2004
	115,631	3/2/04						70,141	4/13/2004
Total	154,151						Total	151,443	
<u>Tank</u>	<u>Starting Inventory</u>	<u>Date Received</u>	<u>FPP *</u>	<u>Morts</u>	<u>Ending Inventory</u>	<u>Percent Mortality</u>	<u>Release Date</u>	<u>FPP **</u>	<u>Days Acclimated</u>
1	9,376	3/2/2004	12.5	185	9,191	1.97	4/13/2004	10.8	42
2	0			0	0				0
3	9,376	3/2/2004	12.5	138	9,238	1.47	4/13/2004	10.8	42
4	11,075	3/2/2004	12.4	128	10,947	1.16	4/13/2004	10.8	42
5	9,889	3/2/2004	12.5	184	9,705	1.86	4/13/2004	10.8	42
6	11,048	3/2/2004	12.4	93	10,955	0.84	4/13/2004	10.8	42
7	9,600	3/2/2004	12.0	357	9,243	3.72	4/13/2004	10.8	42
8	11,048	3/2/2004	12.4	186	10,862	1.68	4/13/2004	10.8	42
9	9,600	3/1/2004	12.0	491	9,109	5.11	4/12/2004	10.8	42
10	11,048	3/2/2004	12.4	144	10,904	1.30	4/12/2004	10.8	41
11	11,075	3/2/2004	12.4	127	10,948	1.15	4/12/2004	10.8	41
12	11,048	3/2/2004	12.4	90	10,958	0.81	4/12/2004	10.8	41
13	11,048	3/2/2004	12.4	88	10,960	0.80	4/12/2004	10.8	41
14	9,640	3/1/2004	11.7	137	9,503	1.42	4/12/2004	10.8	42
15	9,640	3/1/2004	11.7	143	9,497	1.48	4/12/2004	10.8	42
16	<u>9,640</u>	<u>3/1/2004</u>	<u>11.7</u>	<u>217</u>	<u>9,423</u>	<u>2.25</u>	<u>4/12/2004</u>	<u>10.8</u>	<u>42</u>
	154,151	Avg FFP	12.2	2,708	151,443	1.80	Avg FFP	10.8	

* Samples taken at Lyons Ferry Hatchery
 ** Pit tag sampling only: to prevent stress
 CWT Code- 61-25-02

Nez Perce Tribe									
Inventory-Pittsburg Landing Acclimation Facility									
2004 FALL CHINOOK SUB-YEARLINGS									
Receiver	166,623	5/3/2004					Released	165,438	5/24/04
	200,245	5/10/2004						197,687	5/31/04
Total	366,868						Total	363,125	
<u>Tank</u>	<u>Starting Inventory</u>	<u>Date Received</u>	<u>FPP *</u>	<u>Morts</u>	<u>Ending Inventory</u>	<u>Percent Mortality</u>	<u>Release Date</u>	<u>FPP **</u>	<u>Days Acclimated</u>
1	20,827	5/3/2004	88.0	144	20,683	0.69	5/24/2004	54.3	21
2	25,030	5/10/2004	75.3	424	24,606	1.69	5/31/2004	48.2	21
3	20,827	5/3/2004	88.0	208	20,619	1.00	5/24/2004	54.3	21
4	25,030	5/10/2004	75.3	339	24,691	1.35	5/31/2004	48.2	21
5	20,827	5/3/2004	80.0	156	20,671	0.75	5/24/2004	54.3	21
6	25,030	5/10/2004	75.3	341	24,689	1.36	5/31/2004	48.2	21
7	20,827	5/3/2004	80.0	138	20,689	0.66	5/24/2004	54.3	21
8	25,030	5/10/2004	75.3	185	24,845	0.74	5/31/2004	48.2	21
9	20,827	5/3/2004	80.0	116	20,711	0.56	5/24/2004	54.3	21
10	25,030	5/10/2004	75.3	304	24,726	1.21	5/31/2004	48.2	21
11	25,030	5/10/2004	75.3	494	24,536	1.97	5/31/2004	48.2	21
12	25,030	5/10/2004	75.3	191	24,839	0.76	5/31/2004	48.2	21
13	25,035	5/10/2004	75.3	280	24,755	1.12	5/31/2004	48.2	21
14	20,827	5/3/2004	80.0	135	20,692	0.65	5/24/2004	54.3	21
15	20,827	5/3/2004	80.0	170	20,657	0.82	5/24/2004	54.3	21
16	<u>20,834</u>	<u>5/3/2004</u>	<u>80.0</u>	<u>118</u>	<u>20,716</u>	<u>0.57</u>	<u>5/24/2004</u>	<u>54.3</u>	<u>21</u>
	366,868	Avg FFP	78.7	3,743	363,125	0.99	Avg FFP	51.3	

* Samples taken at Lyons Ferry Hatchery
 ** Pit tag sampling only: to prevent stress
 CWT Code- 10-69-73 , 10-79-76 , 10-80-76

Nez Perce Tribe
Inventory-Big Canyon Acclimation Facility
2004 FALL CHINOOK YEARLINGS

Receive	55,333	3/3/04					Released	56,113	4/14/04
	57,983	3/4/04						53,645	4/15/04
Total	113,316						Total	109,758	

<u>Tank</u>	<u>Starting Inventory</u>	<u>Date Received</u>	<u>FPP *</u>	<u>Morts</u>	<u>Ending Inventory</u>	<u>Percent Mortality</u>	<u>Release Date</u>	<u>FPP **</u>	<u>Days Acclimated</u>
1									
2									
3									
4									
5	10,395	3/4/04	18.9	385	10,010	3.70	4/14/04	9.0	41
6	7,438	3/4/04	11.9	276	7,162	3.71	4/14/04	9.0	41
7	9,520	3/4/04	11.9	202	9,318	2.12	4/14/04	9.0	41
8	9,520	3/4/04	11.9	240	9,280	2.52	4/14/04	9.0	41
9	10,866	3/4/04	18.9	444	10,422	4.09	4/14/04	9.0	41
10	10,244	3/4/04	18.9	323	9,921	3.15	4/14/04	9.0	41
11	9,595	3/3/04	12.1	284	9,311	2.96	4/15/04	9.0	43
12	9,438	3/3/04	12.1	361	9,077	3.82	4/15/04	9.0	43
13	9,075	3/3/04	12.1	231	8,844	2.55	4/15/04	9.0	43
14	9,075	3/3/04	12.1	235	8,840	2.59	4/15/04	9.0	43
15	9,075	3/3/04	12.1	246	8,829	2.71	4/15/04	9.0	43
16	<u>9,075</u>	<u>3/3/04</u>	<u>12.1</u>	<u>331</u>	<u>8,744</u>	<u>3.65</u>	<u>4/15/04</u>	<u>9.0</u>	<u>43</u>
	113,316	Avg FFP	13.75	3,558	109,758	3.42	Avg FFP	9.0	

* Samples taken at Lyons Ferry Hatchery
** Pit tag sampling only: to prevent stress
CWT Code - 61-26-59

Nez Perce Tribe
Inventory-Big Canyon Acclimation Facility
2004 FALL CHINOOK SUB-YEARLINGS

Received	125,600	5/11/04					Released	473,556	6/3/04
	132,800	5/12/04							
	130,600	5/13/04							
	92,671	5/14/04							
Total	481,671						Total	473,556	

<u>Tank</u>	<u>Starting Inventory</u>	<u>Date Received</u>	<u>FPP *</u>	<u>Morts</u>	<u>Ending Inventory</u>	<u>Percent Mortality</u>	<u>Release Date</u>	<u>FPP **</u>	<u>Days Acclimated</u>
1									
2	30,271	5/14/04	96	700	29,571	2.31	6/3/04	57.6	20
3	31,200	5/14/04	71	346	30,854	1.11	6/3/04	57.6	20
4	31,200	5/14/04	71	340	30,860	1.09	6/3/04	57.6	20
5	31,000	5/13/04	71	626	30,374	2.02	6/3/04	57.6	21
6	33,200	5/13/04	83	339	32,861	1.02	6/3/04	57.6	21
7	33,200	5/13/04	83	423	32,777	1.27	6/3/04	57.6	21
8	33,200	5/13/04	83	669	32,531	2.02	6/3/04	57.6	21
9	33,200	5/12/04	83	646	32,554	1.95	6/3/04	57.6	22
10	33,200	5/12/04	83	658	32,542	1.98	6/3/04	57.6	22
11	33,200	5/12/04	83	650	32,550	1.96	6/3/04	57.6	22
12	33,200	5/12/04	83	646	32,554	1.95	6/3/04	57.6	22
13	31,200	5/11/04	78	486	30,714	1.56	6/3/04	57.6	23
14	31,200	5/11/04	78	416	30,784	1.33	6/3/04	57.6	23
15	31,600	5/11/04	79	583	31,017	1.84	6/3/04	57.6	23
16	<u>31,600</u>	<u>5/11/04</u>	<u>79</u>	<u>587</u>	<u>31,013</u>	<u>1.86</u>	<u>6/3/04</u>	<u>57.6</u>	<u>23</u>
	481,671	Avg FFP	80.27	8,115	473,556	1.89	Avg FFP	57.6	

* Samples taken at Lyons Ferry Hatchery
** Pit tag sampling only: to prevent stress
CWT Code - 61-25-00

Nez Perce Tribe
Inventory- Captain John Rapids Acclimation Facility
2004 FALL CHINOOK YEARLINGS

Received	112,513	2/9/04				Released	153,251	4/7/04	
	8,500	2/10/04							
	11,750	2/11/04							
	20,891	2/12/04							
Total	153,654					Total	153,251		

<u>Pond</u>	<u>Starting Inventory</u>	<u>Date Received</u>	<u>FPP*</u>	<u>Morts</u>	<u>Ending Inventory</u>	<u>Percent Mortality</u>	<u>Release Date</u>	<u>FPP**</u>	<u>Days Acclimated</u>
1	153,654	2/9/04	12.6	403	153,251	0.26	4/7/04	10.3	58

* Samples taken at Lyons Ferry Hatchery
** Pit tag sampling only: to prevent stress
CWT Code- 61-25-03

Nez Perce Tribe
Inventory- Captain John Rapids Acclimation Facility
2004 FALL CHINOOK SUB-YEARLINGS

Received	156,854	5/10/04				Released	500,739	6/1/04	
	151,360	5/11/04							
	192,726	5/12/04							
Total	500,940					Total	500,739		

<u>Pond</u>	<u>Starting Inventory</u>	<u>Date Received</u>	<u>FPP*</u>	<u>Morts</u>	<u>Ending Inventory</u>	<u>Percent Mortality</u>	<u>Release Date</u>	<u>FPP**</u>	<u>Days Acclimated</u>
1	500,940	5/10/04	83	201	500,739	0.04	6/1/04	52	22

* Samples taken at Lyons Ferry Hatchery
** Pit tag sampling only: to prevent stress
CWT Code- 61-26-00

Appendix C: Fish Health Report

Fall Chinook Acclimation - 2004

Hematocrits were taken from 20 fish from each yearling pre-release group. All groups had hematocrit values within the normal range. Two fish each from Big Canyon and Captain John Rapids had pustules in the kidney; the remaining sites did not have clinical signs of BKD. Descaling and loss of parr marks was evident in all 4 sites.

Individual ELISA assays were run on the yearling groups. The sub-yearlings were pooled because of the small size.

The following table summarizes ELISA values for all groups.

DATE	SITE/AGE	V. HIGH	HIGH	MEDIUM	LOW	V. LOW	ND
1/16/04	LF - Y	6	1	3	9	2	0
4/8/04	BC - Y	8	6	10	35	1	0
4/5/04	PL - Y	1	1	1	14	41	1
4/6/04	CJ - Y	7	9	12	20	12	0
4/13/04	LF - Y	2	3	3	29	23	0
5/29/03	LF - SY	1	0	3	31	5	0
5/25/04	CJ - SY	0	0	0	12	0	0
6/2/03	BC - SY	0	0	0	13	7	0
5/25/04	PL - SY	0	0	1	10	1	6

ELISA values were fairly consistent between the first sample (1/16/04) and the pre-release samples in the yearling group at the acclimation sites and in the group held at Lyons Ferry. The yearlings groups all had most of their levels in the low to high range. Sub yearlings were basically low and below in their ranges.

Again, there has been no statistical analysis done with this data.

Infectious Hematopoietic Necrosis virus (IHNV) was isolated in the pre-release exam on the Big Canyon yearlings and sub-yearlings. There was an increased amount of IHNV throughout the basin this year so this is not a surprise. No mortality was noted as a result of this infection. No other viruses in any other group were detected and no *M. cerebralis* (sampled only from the LF group) was detected.

Regular monitoring samples for BKD were collected at the acclimation sites. The following table summarizes the monitoring results. What monitoring shows is that BKD is still there,

DATE	SITE/AGE	V. HIGH	HIGH	MEDIUM	LOW	V.LOW	ND
3/10/04	CJ-Y	0	0	2	3	0	0
3/17/04	CJ-Y	0	0	0	7	0	0
3/25/04	CJ-Y	0	0	1	3	2	0
3/31/04	CJ-Y	1	0	1	2	1	0
3/17/04	PL-Y	1	0	2	2	0	0
3/10/04	PL-Y	0	0	1	3	1	0
3/24/04	PL-Y	0	0	0	0	4	1
4/7/04	PL-Y	0	0	0	0	5	0
3/10/04	BC-Y	3	7	0	0	0	0
3/17/04	BC-Y	0	0	1	5	0	0
3/24/04	BC-Y	1	0	1	3	0	0
3/31/04	BC-Y	2	0	3	4	0	0
4/7/04	BC-Y	2	0	2	4	1	0
5/26/04	BC-Y	0	0	1	0	0	0

Conclusions - Yearling groups were relatively healthy fish. *R. salmoninarum* bacteria was present but very little clinical BKD was evident.