Fall Chinook Acclimation Project

Pittsburg Landing, Captain John Rapids, and Big Canyon

Annual Report 2003

January 2004

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Annual Report 2003

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The Fall Chinook Acclimation Program owes a special thanks to the U.S. Forest Service and the U.S. Army Corps of Engineers. The U.S. Forest Service agreed, in 1998, to allow the Nez Perce Tribe to leave assembled fish rearing tanks and related equipment at a storage area near the fish acclimation site at Pittsburg Landing. This agreement has resulted in considerable dollar savings, greatly reduced equipment fatigue and reduced assembly and disassembly time by half. The U. S. Army Corps of Engineers continues to address modifications needed to correct operational deficiencies at the Capt. John Rapids and Big Canyon facilities. In FY 2003 new variable speed motor controllers were installed on the electric pumps which allow control of the motor speed and hence the water discharge rate.

Nez Perce Tribe Department of Fisheries Resources Management production division shared vehicles and equipment that was invaluable to the success of the program. Becky Ashe, Production Coordinator, provided content and technical review for this report. Letitia Whitman collected information and provided valuable assistance with report editing, formatting, and graphics. Ed Larson, program director, and Becky Ashe assisted with budgets, staffing, facility improvements and with developing goals and objectives. The NPT Fall Chinook Monitoring and Evaluation Project provided assistance and information.

The FCAP staff members who were responsible for the daily operation of the facilities included: Rapheal Johnnie, Arnold Henry, Lou Ann Lasswell, Austin Samuels, George Growing Thunder, Brad Mitchell, Mike Bisbee and Chuck Axtell. Mike Key, Assistant Project Leader directed the assembly and disassembly of the facilities, provided technical assistance for the fish acclimation program and was responsible for staff supervision. Letitia Whitman collected information and prepared this report for publication.

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, were located on the Snake River between Asotin, WA and Hells Canyon Dam and one facility, Big Canyon, was 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 2,400,000 fall Chinook sub-yearlings may be acclimated for 6 weeks, following the smolt release.

The project goal is to increase the naturally 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 2003, a total of 2,138,391 fish weighing 66,201 pounds were released from the three acclimation facilities. The total includes 437,633 yearling fish weighing 44,330 pounds and 1,700,758 sub-yearling fish weighing 21,871 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

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 direct fund operations and maintenance (O&M) and monitoring and evaluation (M&E) for the facilities. The title of this program is the Fall Chinook Acclimation Project (FCAP). This report covers operations & maintenance activities of the project. Results of fish survival and performance of fish reared and released from the FCAP can be found in annual reports from BPA Project # 1998-010-04 (Rocklage and Kellar. 2005a, 2005b, 2005c, 2005d, 2005e 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 nontarget 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 1,345 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 greater 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.”

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 Grand Ronde River and Big Canyon site on the lower Clearwater River (Figure 1).

Figure 1 Map showing location of all 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 is 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, which was the largest number of fish ever released in one year from the acclimation facilities (See Section 3 for a summary of release information for this project). This report contains activities involving acclimation and release of fall Chinook juveniles from the acclimation facilities in 2003.

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), U.S. Fish and Wildlife Service (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	USFWS	Bonneville Power Administration Project # 199801003	M&E of spawning distribution of fall Chinook salmon released as yearlings.

From FCAP Facilities			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 Portland, Oregon 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.

Figure 5 Pittsburg Landing Acclimation Tanks

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. 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 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 provides 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 (see facility improvements). 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 continue to be inadequate to provide the water volume and quality required for acceptable fish culture rearing standards. 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

No contractor is used for the assembly and disassembly of the portable tanks and associated equipment at Pittsburg Landing and Big Canyon sites. The facilities 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 March 01, 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 BioOregon of Warrenton, Oregon. Fish culture methods are the same as

Figure 7 Fish Culture

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.

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 the first group and two to four weeks for the second group prior to 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 2003 OPERATIONS

3.1 Introduction

This report consists of activities conducted during 2003 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 2003 fall Chinook acclimation season began in October 2002 with the ordering of supplies, assembly of staff, designing equipment experiments and consulting with the USCOE on facility improvements.

With Bonneville Power Administration (BPA) confronting a significant financial challenge the 2003-budget process consumed numerous staff hours as BPA embarked on a contracting improvement initiative. The most significant change was moving the administration of the fish and wildlife programs from an obligation-based budgeting to an accrual budgeting system. BPA

took steps to assure that spending on Fish and Wildlife Integrated Programs did not exceed 139 million, including holding 2003 program budgets at the 2002 funding level and eliminating carry-forward dollars. Staff members spent part of 4 weeks during November and December preparing and making corrections to the 2003 budget requests. The final version was submitted on 06 January 2003.

Task orders for Pittsburg Landing (project # 4235) were received from BPA on 21 February 2003. The Pittsburg Landing budget totaled \$228,225 with \$212,242 provided by the FY 2002 contract balance. The Big Canyon and Capt. John Rapids 2003 budgets were received on 03 April 2003. Big Canyon (project 4297) budget totaled \$264,539 with \$171,715 provided by FY 2002 carryover. Capt. John Rapids (project 4186) budget totaled \$218,776 with \$153,114 provided by FY 2002 carryover. Carry-forward funding has been discontinued by BPA.

The Lyons Ferry Annual Operating Plan (AOP) draft was completed in October 2002 and distributed by the Snake River Lab of WDFW. Nez Perce Tribe Fisheries management personnel attended the coordination meeting of 25 September 2002. Attachment 1 to the AOP summarizes the NPT plan of activities for the FCAP facilities in 2003. The plan covers activities at Lyons Ferry Hatchery from 01 October 2002 to 30 September 2003.

Fisheries Department staff members met with the U.S. Forest Service Supervisor for the Hells Canyon National Recreational Area (HCNRA) regarding the yearly removal of acclimation tanks and other equipment from the Pittsburg Landing site and the possibility of a permanent acclimation site in the area. Following considerable discussion, it was concluded that the acclimation tanks and other equipment must be removed each year to allow other users access to the site and that the cost of completing a NEPA document and cultural resource survey for a permanent site would be more than the cooperators would be willing to spend.

Nez Perce Tribe fisheries personnel attended the Fall Chinook Technical Group meetings on 05 February and 30 July 2003. Cooperators met at Dayton, WA on 23 October to discuss the 2004 Lyons Ferry AOP.

3.3 Facility assembly

The assembly and disassembly of the facilities was done 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 08 January and was completed 22 February 2003.

3.4 Equipment Operation/Testing

New equipment that was tested during the 2003 acclimation season and the results include:

1. Evaluate the performance of new variable speed motor controllers for the 8-inch electric water pumps at Big Canyon.

Results: The pump variable speed motor controllers worked excellent. The controllers allowed staff to control the pumping rate of the electric pumps which helped to reduce plugging of the intake screens and aeration towers. River water flows were very high on several occasions this year with large amounts of debris in the water. The motor controllers also helped to reduce leaks in the water discharge hose by reducing torque on the hose during starting and stopping of the pumps. We are requesting the USCOE install motor controllers on the pumps at Capt. John Rapids.

2. Appraise the operation of the rebuilt water aeration towers and larger Kock rings used to assist in aeration and gas removal of the water.

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 Pittsburg Landing were similarly modified in 2003 for the 2004 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 BKD and/or Erythrocytic Inclusion Body Syndrome (EIBS) related with most fish having fungus on the tail and other parts of the body.

One group of sub-yearling were acclimated at both Pittsburg Landing and Big Canyon and two groups were acclimated at Capt. John Rapids. The sub-yearling fish were smaller in size than they were programmed to be. Subyearlings are programmed to be 75 fish per pound at transfer from Lyons Ferry but in 2003 fish ranged in size from 146 to 84 fish per pound when they were received at the acclimation sites. The smaller size was a result in part to the outbreaks of Bacterial Gill Disease (BGD) while rearing at Lyons Ferry Hatchery. The BGD delayed transport of some sub-yearling groups and required additional therapeutic treatment upon arrival at the acclimation sites.

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. The longer acclimation season (10 weeks) results in potential for greater fish health risks due to environmental stress and mechanical failures. Staff members continue to add improvements that minimize fish stress and help to reduce the risk of a catastrophic fish loss due to mechanical failure.

Pittsburg Landing

A total of 143,492 yearling fish @ 12.0 fpp (11,958 lbs.) were received on 03-05 March 2003 at the Pittsburg Landing facility. Following six weeks of acclimation, 140,383 fall Chinook

yearlings were released from the Pittsburg Landing facility into the Snake River on 13-14 April 2003 (Table 2). These fish were all marked with an adipose fin clip, a Coded Wire Tag (CWT 61-01-20) and a Green Visual Implant Elastomer (VIE) tag near the right eye. Passive Integrated Transponder (PIT) tags were also implanted into 7,492 fish released from this group

A total of 401,564 sub-yearlings were received 06-19 May. Transport of half of the fish to the acclimation site took place on 06 May while shipment of the other half was delayed until 19 May so the fish could be treated for BGD at Lyons Ferry Hatchery. This group was treated again at the acclimation site. A total of 390,183 sub-yearling fish were released on 04 June 2003 after four weeks of acclimation. The use permit for Pittsburg Landing requires removal of equipment from the acclimation site by 15 June. There were 189,782 fish in this group with CWT (61-01-23) and 2,527 PIT tagged fish.

Big Canyon

A total of 150,016 yearling fish @ 11.89 fpp (12,617 lbs.) were received at the Big Canyon facility from 04-07 March 2003. Approximately 145,331 fall Chinook yearlings were released from the Big Canyon facility into the Clearwater River on 15-16 April 2003 (Table 2). These fish were all marked with an adipose fin clip, CWT (61-01-19) and a green VIE tag near the left eye. This release group received 7,494 PIT tags.

A total of 513,626 sub-yearling fish at 101.3 fpp (5070 lbs.) were received at Big Canyon facility on 07-12 May and acclimated for 3 weeks. Therapeutic treatment of BGD was necessary in one tank of fish at the acclimation site. A total of 506,488 sub-yearlings were released on 03 June 2003 (Table 2). There were 193,255 fish with CWT (61-01-22) in this group of fish and 2,549 were PIT tagged.

Capt. John Rapids

A total of 152,604 yearling fish @ 13.5 fpp (11,600 lbs.) were received 03 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 151,919 yearling fish were released into the Snake River on 08 April 2003 (Table 2). These fish were all marked with an adipose fin clip, a CWT (61-01-18), and a blue VIE tag near the left eye. PIT tags were implanted in 2,497 fish in this release group.

Transport of 513,264 sub-yearling fish @ 94.7 fpp (5420 lbs) to the Capt. John Rapids facility occurred on 22 April and 14 May 2003. The initial fish transport on 22 April included 200,000 fish while the remainder of the fish remained at the Lyons Ferry Hatchery until 14 May so they could be treated for BGD. The sub-yearlings fish were acclimated for five weeks and a total of

512,685 sub-yearling fish were released into the Snake River on 28 May 2003 (Table 2). There were 196,068 with CWT (61-01-21) and 2,549 PIT tags in this group.

A second group of 291,692 sub-yearlings at 85 fpp (3432 lbs) were received on 06 -10 June 2003. A total of 291,402 were released on 12 June because of a pump failure at the acclimation site. There were 186,937 fish with CWT (61-26-54) and no fish with PIT tags.

Table 2. Summary of fall Chinook juveniles reared, acclimated and released from the Fall Chinook Acclimation Project facilities in 2003.

Facility	Number Received at Facility	Age	Date Received	Number Released from Facility	Size at Release (fpp)	Date Released	Survival to release (%)
Pittsburg Landing	143,492	1+	3/3-5/03	140,383	9.1	4/13-14/03	97.8%
Big Canyon	150,016	1+	3/4-7/03	145,331	10.6	4/15-16/03	96.9%
Capt. John Rapids	152,604	1+	2/03/03	151,919	10.0	04/08/03	99.6%
<i>Total Yearling</i>	<i>446,112</i>			<i>437,633</i>			<i>98.1%</i>
Pittsburg Landing	401,564	0+	5/6-19/03	390,183	92.7	06/04/03	97.2%
Big Canyon	513,626	0+	5/7-12/03	506,488	69.3	06/03/03	98.6%
Capt. John Rapids	513,264	0+	4/22-5/14/03	512,685	81.3	05/28/03	99.9%
Capt. John Rapids	291,692	0+	06/05-10/03	291,402	72.0	02/12/03	99.9%
Total							
<i>Sub-yearling</i>	<i>1,720,146</i>			<i>1,700,758</i>			<i>98.9%</i>
2002 Total				2,138,391			

A total of 2,138,391 fish weighing 66,201 pounds were released from the three acclimation facilities. The total includes 437,633 yearling fish weighing 44,330 pounds and 1,700,758 sub-yearling fish weighing 21,871 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 basins and allowed to spawn naturally. The fish would be killed and placed in a landfill if this effort was not undertaken.

In 2003, a total of 2,003 surplus adult Chinook salmon were transported and released, 1,000 adult A-run steelhead were transported from the Oxbow fish hatchery for release in the Little Salmon River or to Lapwai for subsistence distribution and 712 adult B-run steelhead were

recycled from the Dworshak fish hatchery back downstream during collection of coho salmon adults at the facility.

3.6 Facility Disassembly

Disassembly of the acclimation tanks and related equipment at Pittsburg Landing was completed by FCAP staff members on 12 June 2003. The USFS agreed, in 1998, to allow the Nez Perce Tribe to leave assembled fish rearing tanks and related equipment at a storage area 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.

Nez Perce Tribal Fisheries personnel has received verbal permission from the Nez Perce Tribe for the Big Canyon acclimation site which allows the fish acclimation tanks and aeration tower to remain on site. Leaving the tanks at the site each year provides the same benefits as at Pittsburg landing but with additional dollar savings because annual assembly and disassembly of the tanks is not necessary. 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 trailer vans at the acclimation site. Disassembly of Big Canyon was completed on 20 June.

3.7 Major Problems

Above normal snow pack and spring rainfall in the Snake and Clearwater River Basins resulted in near record water flows and related problems at all three acclimation facilities. Staff members were diligent in maintaining adequate water flows to the fish acclimation units and were aided by equipment modifications that were placed in operation in 2003.

Idaho Power Company fluctuated water flows from Hells Canyon Dam from very high down to allowed minimums in an effort to control water levels in Hells Canyon Reservoir. High water flows coupled with stream blowouts between the Dam and Pittsburg Landing acclimation site caused large amounts of floating and suspended solids to plug the water intake screens. Increased water flow forced facility staff to pull the screens closer to the river bank to facilitate cleaning of the screens throughout the day and night. The flows would then suddenly be reduced causing the intake screens to be exposed and forcing staff to pull the screens deeper into the river. The intake screens are very heavy and require a minimum of two people and a vehicle winch to move them. Staff members called Idaho Power Company on a daily basis for flow information in an effort to assure that staff members and equipment was available to move the intakes. Idaho Power Company's flow forecasts are habitually inaccurate and only the dedication of staff members has prevented fish loss due to inadequate water flows to the acclimation tanks.

In March and May 2003, 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.

The heavy sand and debris load at Capt. John Rapids caused the pump intake screens to plug on many occasions requiring staff members to air backflush the screens and reset breaker switches. On one occasion the breaker switch for one pump could not be reset and staff operated the facility with one pump until a new breaker switch could be obtained and installed.

One of two water supply pumps at Capt. John Rapids shut down and could not be restarted forcing the last group of sub-yearling fish to be released after only one week of acclimation. Upon inspection of the pump, a rock was found lodged in the pump impeller which had caused the motor to burn out.

Transport of yearling fish to Pittsburg Landing was hampered by heavy snow accumulation on the Deer Creek county road. Transport vehicles (two Nez Perce and two WDFW) were stuck several times despite being chained up while going into and out of the Pittsburg Landing acclimation site. The transport drivers used a team approach to safely deliver the fish and return the transport vehicles back to their starting point after 22 hours of effort.

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 to assure that the facility modifications were compatible with the fish acclimation program.

At Capt. John Rapids the USCOE hired a local contractor to pull the inoperable water intake pump. Inspection of the pump revealed a rock was stuck in the impeller which had burned out the pump motor. Subsequent inspection of the pump intake screens did not indicate a hole in the screens which led to the conclusion that the rock must have been left in the pipe during construction. The USCOE is preparing to issue a contract to replace both the water supply pumps with new pumps and install variable speed pump motor controllers. The new pumps will be installed before the start of the 2004 fish acclimation season. The USCOE are preparing a separate contract to address the remaining landscape issues.

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 Big Canyon 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 allows minimum water flows to the aeration towers which reduces suction pressure at the intake screens and slows plugging from debris. The controllers also allow the pumps to be slowed down during starting and stopping which reduces torque and excessive wear on the 8" plastic intake and discharge hose.

FCAP staff members redesigned the aeration towers at Big Canyon and contracted with a local contractor to rebuild the units. The redesign included moving the location of the aeration towers and water intake piping. This provides easier access to the towers, reduces water overflow from the towers and allows the use of aluminum baskets to hold and quickly replace the degassing Kock rings. The system worked very well during the 2003 acclimation season and the aeration towers at Pittsburg Landing were similarly redesigned for the 2004 acclimation season.

Facility improvements contracted for in 2002 but not completed until 2003 include; metal canopy cover for staff trailers at Capt. John Rapids and Big Canyon, equipment storage building at Sweetwater Compound and gravel placement at Sweetwater Compound. Equipment purchased in 2002 for delivery in 2003 includes; Ford F-250 pickup truck, Kenworth tractor truck for equipment and fish transport, fish transport trailer, equipment transport trailer, and forklift for moving equipment and materials. A new tractor with backhoe and front-end loader was purchased with FY 2003 funds (\$46,000).

4.0 FY 2002 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 446,112 yearling and 1,720,146 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 2003 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, dated 02 February 2003 and 25 March 2003, were received 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 2003 acclimation season.

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

Response: Transportation by LSRCP trucks was not needed this year. Fish transport was provided by WDFW and Nez Perce Tribe fisheries department.

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.

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.

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: When all of the new water intake system and related work is completed, training of personnel to operate the river intakes and a modified alarm system will be necessary. A new contract for pump repairs is scheduled to be issued early in 2004.

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.

Task 2.3: Determine the feasibility of relocating the Pittsburg Landing acclimation facility to a permanent location near the temporary site to reduce assembly costs and increase fish survival.

Response: Nez Perce Tribe fisheries staff members met with the USFS personnel (Hells Canyon National Recreation Area) concerning a permanent site for the Pittsburg Landing fish acclimation facility and as a result will not pursue a permanent location. This task will be eliminated from the 2004 objectives.

OBJECTIVE 3. OPERATIONS AND MAINTENANCE:

Task 3.1: Solicit bids and select a contractor to install the portable tanks and associated equipment at the three sites.

Response: No contractor was used for assembly this year. The facilities were assembled and disassembled using FCAP staff members and equipment. This task will be eliminated from the 2004 objectives.

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

Response: See task 3.1.

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 446,112 yearling fish at @ 12.4 fpp and 1,720,146 sub-yearling fish @ 102.4 fpp between 03 February and 05 June 2003. The average size of the sub-yearling was very small as compared to programmed range. Fish health of the sub-yearlings required treatment for BGD 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 2003-second quarter immediately following 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 2003-second quarter. Several changes are planned for the 2004 acclimation season including replacing electric pumps and addressing the sand problem at Capt. John Rapids and modification of the aeration towers at Pittsburg Landing.

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 2004 acclimation season.

OBJECTIVE 4. REPORTS:

Task 4.2: Submit a final operational report of all activities for all three facilities by 01 February 2004 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 2003 fall Chinook fish acclimation program had an excellent season with both yearling and sub-yearling fish being successfully acclimated. A total of 2,138,391 fish were released from the three acclimation facilities, including 437,633 yearling fish and 1,700,758 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 juvenile fall Chinook salmon released from Fall Chinook Acclimation Project 1995-2003.

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

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6.0 APPENDACES

Appendix A: 2003 Fish Production Summaries

Lyons Ferry Hatchery fall chinook releases above Lower Granite Dam in 2003 (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 Unmarked w/o CWT	Number PIT tagged	Gms/fish	Fish/Lb	Total Lbs	Avg FL	CV of Avg FL	Elastomer (side, color/ retention %)*
Age	Brood Year														
1+	2001	Pittsburg	4/13-14	136,455	61-01-20	1,733	2,195	0	7,492	50.1	9.1	15,427	164.2	7.7	RG/84.3
		Total number of yearlings released at Pittsburg Landing: 140,383													
		Captain John	3/30-4/7	147,987	61-01-18	1,430	2,502	0	2,497	45.4	10.0	15,192	153.7	9.1	LB/88.9
		Total number of yearlings released at Captain John: 151,919													
		Big Canyon	4/14-15	140,217	61-01-19	1,665	3,449	0	7,494	42.8	10.6	13,710	155.4	9.4	LG/91.0
		Total number of yearlings released at Big Canyon: 145,331													
0+	2002	Pittsburg	6/4	n/a	61-01-23	n/a	189,782	200,401	2,527	3.5	129.6	3,011	71.5	7.2	None
		Total number of sub-yearlings released at Pittsburg: 390,183													
		Big Canyon	6/3	n/a	61-01-22	n/a	193,255	313,233	2,549	4.8	94.5	5,360	78.3	7.3	None
		Total number of sub-yearlings released at Big Canyon: 506,488													
		Captain John	5/28	n/a	61-01-21	n/a	196,068	316,617	2,549	5.6	81.3	6,307	79.9	6.3	None
			6/12	n/a	61-26-54	n/a	186,937	104,465	0	n/a	n/a	n/a	n/a	n/a	None
		Total number of sub-yearlings released at Captain John: 804,087 (1st group, 2nd group)													
*Notes: Elastomer tag behind eye. Side/color: RG=Right/Green, LG=Left/Green, LB=Left/Blue. Second group of subyearlings CWTtagged by NPT, all other groups tagged by WDFW. Fork length and weight data collected on subyearlings (0+) was for PIT tagged fish only and not representative of entire release.															
Updated 10/22/03. sir															

Appendix B: Acclimation Site Fish Inventories

Nez Perce Tribe										
<u>Inventory-Pittsburg Landing Acclimation Facility</u>										
<u>2003 FALL CHINOOK YEARLINGS</u>										
Received	103,687 fish on 3/3 tanks 1,3,5,7,9,11-16 39,805 fish on 3/5 tanks 4,6,8,10					Released	54,854 on 4/13 tanks 2,11-16 85,530 on 4/14 tanks 1,3-10			
Total	143,492					Total	140,384			
Tank	Starting Inventory	Date Received	FPP *	Morts	Ending Inventory	Percent Mortality	Release Date	FPP **	Days Acclimated	
1	9,440	37,683	12	573	8,867	6	37,725	9	42	
2	0									
3	9,440	37,683	12	35	9,405	0	37,725	9	42	
4	9,558	37,685	12	128	9,430	1	37,725	9	40	
5	9,360	37,683	12	30	9,330	0	37,725	9	42	
6	9,594	37,685	12	55	9,539	1	37,725	9	40	
7	9,360	37,683	12	17	9,343	0	37,725	9	42	
8	9,594	37,685	12	66	9,528	1	37,725	9	40	
9	9,474	37,683	12	357	9,117	4	37,725	9	42	
10	11,059	37,685	12	89	10,970	1	37,725	9	40	
11	9,303	37,683	12	497	8,806	5	37,724	9	41	
12	9,486	37,683	12	174	9,312	2	37,724	9	41	
13	9,402	37,683	12	154	9,248	2	37,724	9	41	
14	9,474	37,683	12	89	9,385	1	37,724	9	41	
15	9,474	37,683	12	426	9,048	4	37,724	9	41	
16	9,474	37,683	12	419	9,055	4	37,724	9	41	
	143,492	Avg FFP	12	3,109	140,383	2	Avg FFP	9		
* Samples taken at Lyons Ferry Hatchery										
** Pit tag sampling only: to prevent stress										
CWT Code- 61-01-20										

Nez Perce Tribe										
<u>Inventory-Pittsburg Landing Acclimation Facility</u>										
<u>2003 FALL CHINOOK SUB-YEARLINGS</u>										
Received	199,964 fish on 5/6 tanks 3,5,7,9,14-16 201,600 fish on 5/19 tanks 2,4,6,8,10-13					Released	390,183 fish on 6/4 tanks 1-16			
Total	401,564					Total	390,183			
Tank	Starting Inventory	Date Received	FPP *	Morts	Ending Inventory	Percent Mortality	Release Date	FPP **	Days Acclimated	
1	0			0	0					
2	25,550	5/19/03	146	353	25,197	1.38	6/4/03	102	16	
3	28,566	5/6/03	135	1,590	26,976	5.57	6/4/03	82	29	
4	25,550	5/19/03	146	149	25,401	0.58	6/4/03	102	16	
5	28,566	5/6/03	135	763	27,803	2.67	6/4/03	82	29	
6	25,550	5/19/03	146	373	25,177	1.46	6/4/03	102	16	
7	28,566	5/6/03	135	1,280	27,286	4.48	6/4/03	82	29	
8	25,550	5/19/03	146	455	25,095	1.78	6/4/03	102	16	
9	28,566	5/6/03	135	1,252	27,314	4.38	6/4/03	82	29	
10	24,850	5/19/03	142	417	24,433	1.68	6/4/03	102	16	
11	24,850	5/19/03	142	1,681	23,169	6.76	6/4/03	102	16	
12	24,850	5/19/03	142	379	24,471	1.53	6/4/03	102	16	
13	24,850	5/19/03	142	682	24,168	2.74	6/4/03	102	16	
14	28,568	5/6/03	135	355	28,213	1.24	6/4/03	82	29	
15	28,566	5/6/03	135	971	27,595	3.40	6/4/03	82	29	
16	28,566	5/6/03	135	681	27,885	2.38	6/4/03	82	29	
	401,564	Avg FFP	139.8	11,381	390,183	2.83	Avg FFP	92.7		
* Samples taken at Lyons Ferry Hatchery										
** Pit tag sampling only: to prevent stress										
CWT Code- 61-01-23										

Nez Perce Tribe

Inventory-Big Canyon Acclimation Facility

2003 FALL CHINOOK YEARLINGS

Received	19,083 fish on 3/4 tanks 11,12	Released	72,030 fish on 4/15 tanks 1-8
	28,560 fish on 3/5 tanks 8,9,10		73,301 fish on 4/16 tanks 9-16
	57,071 fish on 3/6 tanks 5,6,13-16		
	45,302 fish on 3/7 tanks 1-4,7		
Total	150,016	Total	145,331

Tank	Starting Inventory	Date Received	FPP *	Morts	Ending Inventory	Percent Mortality	Release Date	FPP **	Days Acclimated
1	6,860	3/7/03	12.60	186	6,674	2.71	4/15/03	10.60	39
2	9,594	3/7/03	11.80	289	9,305	3.01	4/15/03	10.60	39
3	9,640	3/7/03	11.80	266	9,374	2.76	4/15/03	10.60	39
4	9,688	3/7/03	11.80	412	9,276	4.25	4/15/03	10.60	39
5	9,520	3/6/03	11.40	133	9,387	1.40	4/15/03	10.60	40
6	9,520	3/6/03	11.40	117	9,403	1.23	4/15/03	10.60	40
7	9,520	3/7/03	11.40	72	9,448	0.76	4/15/03	10.60	39
8	9,520	3/5/03	11.90	357	9,163	3.75	4/15/03	10.60	41
9	9,520	3/5/03	11.90	537	8,983	5.64	4/16/03	10.60	42
10	9,520	3/5/03	11.90	304	9,216	3.19	4/16/03	10.60	42
11	9,594	3/4/03	11.70	280	9,314	2.92	4/16/03	10.60	43
12	9,489	3/4/03	11.70	261	9,228	2.75	4/16/03	10.60	43
13	9,500	3/6/03	12.50	423	9,077	4.45	4/16/03	10.60	41
14	9,512	3/6/03	12.50	328	9,184	3.45	4/16/03	10.60	41
15	9,520	3/6/03	12.30	331	9,189	3.48	4/16/03	10.60	41
16	9,499	3/6/03	11.70	389	9,110	4.10	4/16/03	10.60	41
	150,016	Avg FFP	11.89	4,685	145,331	3.12	Avg FFP	10.60	

* Samples taken at Lyons Ferry Hatchery

** Pit tag sampling only: to prevent stress

CW T Code - 61-01-19

Nez Perce Tribe										
Inventory - Big Canyon Acclimation Facility										
2003 FALL CHINOOK SUB-YEARLINGS										
Received		200,026 fish on 5/7 tanks 11-16 313,600 fish on 5/12 tanks 1-10					Released		506,488 fish on 6/3 tanks 1-16	
Total		513,626					Total		506,488	
Tank	Starting Inventory	Date Received	FPP *	Morts	Ending Inventory	Percent Mortality	Release Date	FPP **	Days acclimated	
1	31,360	5/12/03	98	554	30,806	1.77	6/3/03	71	22	
2	31,360	5/12/03	98	428	30,932	1.36	6/3/03	71	22	
3	31,360	5/12/03	98	274	31,086	0.87	6/3/03	71	22	
4	31,360	5/12/03	98	610	30,750	1.95	6/3/03	71	22	
5	31,360	5/12/03	98	477	30,883	1.52	6/3/03	71	22	
6	31,360	5/12/03	98	548	30,812	1.75	6/3/03	71	22	
7	31,360	5/12/03	98	425	30,935	1.36	6/3/03	71	22	
8	31,360	5/12/03	98	364	30,996	1.16	6/3/03	71	22	
9	31,360	5/12/03	98	408	30,952	1.30	6/3/03	71	22	
10	31,360	5/12/03	98	418	30,942	1.33	6/3/03	67	22	
11	33,276	5/7/03	93	319	32,957	0.96	6/3/03	67	27	
12	33,350	5/7/03	93	352	32,998	1.06	6/3/03	67	27	
13	33,350	5/7/03	118	437	32,913	1.31	6/3/03	67	27	
14	33,350	5/7/03	118	299	33,051	0.90	6/3/03	67	27	
15	33,350	5/7/03	109	204	33,146	0.61	6/3/03	67	27	
16	33,350	5/7/03	109	1021	32,329	3.06	6/3/03	67	27	
513,626		Avg FFP	101	7,138	506,488	1.39	Avg FFP	69.25		
* Samples taken at Lyons Ferry Hatchery										
** Pit tag sampling only: to prevent stress										
CWT Code- 61-01-22										

Nez Perce Tribe Inventory-Captain John Rapids Acclimation Facility 2003 FALL CHINOOK YEARLINGS									
Received	152,604	2/3					Released	151,919 fish on 4/8	Pond 1
Total	152,604						Total	151,919	
Pond	Starting Inventory	Date Received	FPP *	Morts	Ending Inventory	Percent Mortality	Release Date	FPP **	Days Acclimated
1	152,604	2/3/03	13.5	685	151,919	0.45	4/8/03	10	64
**Pit ag sampling only: to prevent stress CWT Code 61-01-19 - Elastomer LB/88.9% retention									

Nez Perce Tribe Inventory-Captain John Rapids Acclimation Facility 2003 FALL CHINOOK SUB-YEARLINGS (Group 1)									
Received	201,120 fish on 4/22 232,344 fish on 5/13 79,800 fish on 5/14						Released	512,685 fish on 5/28	Pond 1
Total	513,264						Total	512,685	
Pond	Starting Inventory	Date Received	FPP *	Morts	Ending Inventory	Percent Mortality	Release Date	FPP **	Days Acclimated
1	513,264	4/22/03	94.7	579	512,685	0.11	5/28/03	64	36
**Pit tag sampling only: to prevent stress CWT Code 61-01-21 (196,068)-no elastomer									

Nez Perce Tribe Inventory-Captain John Rapids Acclimation Facility 2003 FALL CHINOOK SUB-YEARLINGS (Group 2)									
Received	133,780 fish on 6/5 138,912 fish on 6/6 19,000 fish on 6/10						Released	512,685 fish on 6/12	Pond 1
Total	291,692						Total	291,402	
Pond	Starting Inventory	Date Received	FPP *	Morts	Ending Inventory	Percent Mortality	Release Date	FPP **	Days Acclimated
1	291,692	6/5/03	85	290	291,402	0.10	6/12/03	72	7
**No pit tags CWT Code -61-26-54 (186,937)- no elastomer									

Appendix C: Fish Health Report

Fall Chinook Acclimation - 2003

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 except for the Lyons Ferry 1/16 group, these were two pooled. The sub-yearlings were pooled because of the small size.

The following table summarizes ELISA values for all groups.

DATE	SITE/AG E	V. HIGH	HIGH	MEDIUM	LOW	V. LOW	ND
1/16/03	LF - Y	6	1	3	9	2	0
4/9/03	BC - Y	9	3	10	22	16	0
4/10/03	PL - Y	29	15	6	10	0	0
3/24/03	CJ - Y	9	12	10	24	5	0
4/02/03	LF - Y	7	14	13	24	1	0
5/29/03	LF - SY	1	0	3	31	5	0
5/22/03	CJ - SY	0	0	1	17	2	0
6/2/03	BC - SY	0	0	0	13	7	0
6/4/03	PL - SY	0	0	0	0	0	6

ELISA values were fairly consistent between the first sample (1/16/03) 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. Clinical signs of BKD were non-existent in all groups.

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. In the yearling groups, bacteria isolated included *A. hydrophila* and *A. sobria* from Lyons Ferry and *A. sobria* from Captain John Rapids. These are environmental bacteria but can be pathogenic under the right conditions. The Pittsburg Landing and Big Canyon sub-yearling groups required treatment for Bacterial Gill Disease under the USFWS INAD protocols.

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
3/24/03	CJ-Y	2	0	1	0	0	0
3/12/03	CJ-Y	0	0	1	1	9	0
3/6/03	CJ-Y	0	0	1	2	6	0
3/19/03	PL-Y	0	0	1	2	2	0
3/12/03	PL-Y	0	0	1	3	3	0
2/21/03	PL-Y	0	1	0	0	8	2
4/2/03	PL-Y	0	1	1	1	4	1
3/26/03	PL-Y	0	0	0	0	9	2
3/12/03	BC-Y	0	0	0	4	6	0
3/36/03	BC-Y	6	1	2	2	0	0
4/2/03	BC-Y	1	0	1	0	4	0

Conclusions - Yearling groups were relatively healthy fish. *R. salmoninarum* bacteria was present but very little clinical BKD was evident. More problems were caused by the Bacterial Gill Disease in the sub-yearlings; These groups had the infection at Lyons Ferry SFH. Treatment was successful.