

NEZ PERCE TRIBAL HATCHERY COMPLEX

**ANNUAL OPERATION PLAN
JANUARY 1, 2007 – DECEMBER 31, 2007**

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1.0 INTRODUCTION

The Nez Perce Tribal Hatchery Complex (NPTHC) responds directly to a need to mitigate the effects of the Federal Columbia River Hydropower System on naturally-reproducing salmon in the Clearwater River Subbasin. The overall goal is to produce and release fish that will survive to adulthood, spawn in the Clearwater River Subbasin and produce viable offspring that will support natural production and genetic integrity. Several underlying purposes of fisheries management will be maintained through this program:

- Protect, mitigate, and enhance Columbia River Subbasin anadromous fish resources.
- Develop, reintroduce, and increase natural spawning populations of salmon within the Clearwater River Subbasin.
- Provide long-term harvest opportunities for Tribal and non-Tribal anglers within Nez Perce Treaty lands within four generations (20 years) following project completion.
- Sustain long-term fitness and genetic integrity of targeted fish populations.
- Keep ecological and genetic impacts to non-target populations within acceptable limits.
- Promote Nez Perce Tribal Management of Nez Perce Tribal Hatchery Facilities and production areas within Nez Perce Treaty lands.

Nez Perce Tribal Hatchery Complex is a supplementation program that will rear and release spring, fall, and early-fall stocks of Chinook salmon. Two life stages of spring Chinook salmon will be released: parr and presmolts. Fall and early-fall Chinook salmon will be released as subyearling smolts. The intent of NPTHC is to use conventional hatchery and Natural Rearing Enhancement Systems (NATURES) techniques to develop, increase and restore natural populations of spring and fall Chinook salmon in the Clearwater River subbasin

The original design target production for NPTHC was 2.8 million fall Chinook sub-yearlings and 768,000 spring Chinook juveniles. A two phase development process was approved by the Northwest Power Planning Council for NPTHC. Phase I production goals were set at 1.4 million fall Chinook sub-yearlings and 625,000 spring Chinook juveniles (Table 1).

During the first four years of operation, several factors are restricting production at the NPTHC. Limiting factors include broodstock shortages in both spring and fall Chinook, system operation failures, and construction modifications to the surface water intake and filter systems. In addition, the ground water (wells) system is delivering 930 gallon per minute (gpm), which is 570 gpm below the initial estimate of 1,500 gallon per minute (gpm). The chilled surface water system is delivering 580 gpm, which is 20 gpm below the design estimate.

Table 1. Nez Perce Tribal Hatchery Complex Fish Production Numbers.

| Species | Original Design Target | Phase I Goal |
|-----------------------|------------------------|--------------|
| Fall Chinook | | |
| “0+” Smolt | 2,800,000 | 1,400,000 |
| “1+” Smolt | - 0 - | - 0 - |
| Green Eggs | 3,960,000 | 1,978,000 |
| Spring Chinook | | |
| Smolts | - 0 - | - 0 - |
| Parr | 503,000 | 400,000 |
| Pre-Smolts | 265,000 | 225,000 |
| Green Eggs | 1,004,000 | 1,004,000 |

Fish production began at Nez Perce Tribal Hatchery Complex in 2002 when Phase I construction of five remote acclimation sites, the Sweetwater Springs early rearing facility and the 1705 central incubation facility was completed.

1.1. Facilities

Nez Perce Tribal Hatchery Complex consists of several facilities throughout North Central Idaho and in this document is hereafter referred to as Nez Perce Tribal Hatchery Complex – NPTHC. The central incubation and rearing facility is located on the mainstem Clearwater River and identified as Site 1705 (Table 3). Sweetwater Springs, an early rearing facility, is located on Sweetwater Creek (Table 3). The five remote acclimation facilities (AF) are utilized for final rearing and release into NPTHC target streams. Cedar Flats AF, Luke’s Gulch AF, and North Lapwai Valley AF acclimate and release fall Chinook salmon. Newsome Creek AF and Yoosa/Camp AF acclimate and release spring Chinook salmon (Table 2).

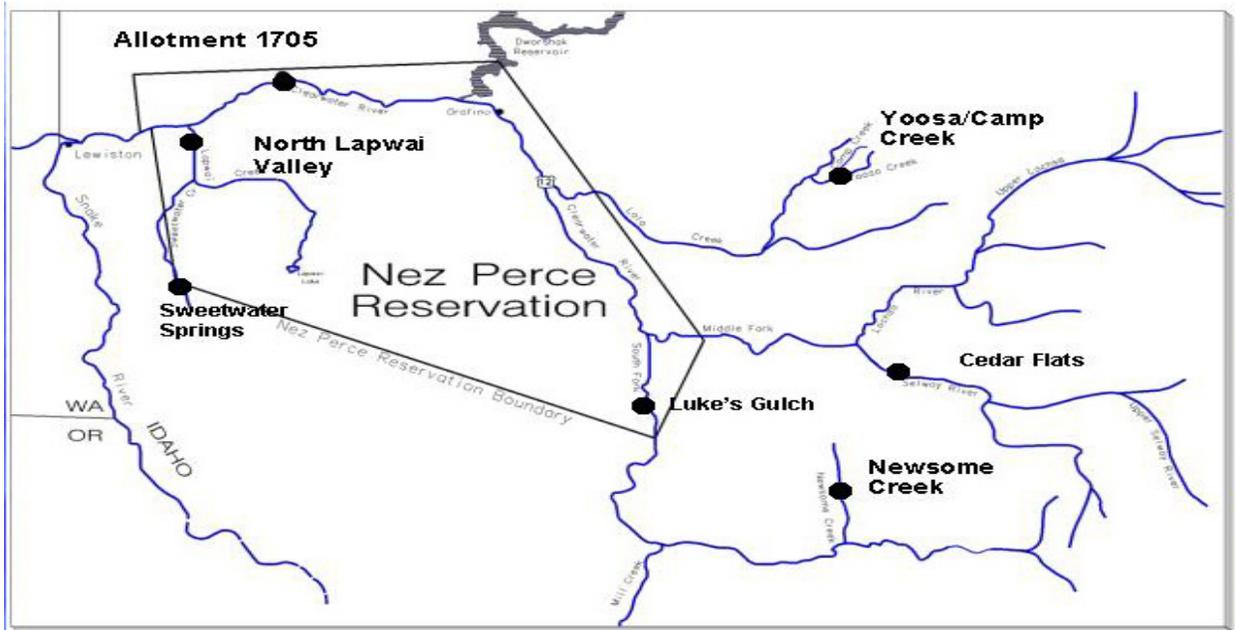


Figure 1

Table 2. Phase I design capacities of the Nez Perce Tribal Hatchery Complex.

| Facility | Location River (mile) | Water source | Species | Capacity (# fish) | Pounds |
|---------------------------|-----------------------------|-----------------------------|--------------------------------|-----------------------------------------------------------|--------------------------|
| Site 1705 (NPTH) | Clearwater (20.5) | Wells, Clearwater R. | Fall Chinook Spring Chinook | 1,036,000 ^a 400,000 226,000 ^b | 11,510 3,430 1,380 |
| Sweetwater Springs (SWS) | Sweetwater Creek | Springs | Fall Chinook | 207,000 ^c | 1,955 |
| Cedar Flats AF (CFAF) | Selway R. (5.0) | Selway R. | Fall Chinook | 200,000 | 3,050 |
| Luke's Gulch AF (LGAF) | S. Fork Clearwater R. (8.0) | Well, S. Fork Clearwater R. | Fall Chinook | 200,000 | 4,260 |
| N. Lapwai Valley AF (NLV) | Lapwai Creek (0.8) | Well, Lapwai Creek | Fall Chinook | 500,000 | 8,930 |
| Newsome Creek AF (NC) | Newsome Creek | Newsome Creek | Spring Chinook | 75,000 | 2,590 |
| Yoosa/Camp Creek AF (YCC) | Yoosa Creek | Camp Creek Yoosa Creek | Spring Chinook | 150,000 | 4,500 |

- a. Current early rearing capacity of 1.4 million sub-yearlings.
- b. For transfer to remote acclimation sites.
- c. Transfer in from Site 1705 and transferred out to Cedar Flats AF.

1.3. Fall Chinook

Snake River fall Chinook salmon are listed as an Evolutionary Significant Unit (ESU) and considered to be part of a single genetically similar aggregate and are managed as a single population. The NPTHC program is integrated with production at Lyons Ferry Hatchery, the Fall Chinook Acclimation Program, and the Idaho Power mitigation program. Currently broodstock for the fall Chinook program are obtained from two sources: volunteers to the ladder/trap at NPTHC and adults collected at Lower Granite Dam. The Nez Perce Tribe (NPT) and Washington Department of Fish and Wildlife (WDFW) share adults collected at Lower Granite Dam, annually working out an allocation and transport schedule.

The Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife and NOAA Fisheries technical staff has drafted a Snake River Fall Chinook Hatchery Management Plan (Zimmerman et al. 2005). This entire document has not been adopted by co-managers and U.S. vs. Oregon parties as an official management plan but was utilized in developing U.S. vs. Oregon production agreements, marking strategies, and annual operation plan strategies for hatchery operation. For brood year 2006 the production priority plan identified in the Snake River Fall Chinook Hatchery Management Plan has been adopted by U.S. vs. Oregon parties, with a “pending” decision on the fall Chinook transportation evaluation production.

The Snake River Fall Chinook Hatchery Management Plan has identified biological objectives for adult escapement. They were developed by co-managers NPT, CTUIR, WDFW, IDFG, ODFW, USFWS, and NOAA but have not been adopted by U.S. vs. Oregon.

Hatchery-Origin Snake River Fall Chinook Adult Return Goals

- Interim goal is to return 14,568 hatchery-origin adults above Lower Monumental Dam – comprised of 9,988 from Lower Snake River Compensation Plan (LSRCP), 2,290 from NPTH, and 2,290 from IPC.
- Long-term goal is to return 24,340 hatchery-origin adults above Lower Monumental Dam – comprised of 18,300 from LSRCP, 3,750 from NPTHC, and 2,290 from Idaho Power Company (IPC).
- Provide approximately 4,000 adults annually to meet the interim hatchery production broodstock requirements. This total is comprised of 3,600 adults needed for Lyons Ferry Hatchery and 1,000 for Nez Perce Tribal Hatchery Complex.

Natural-Origin Snake River Fall Chinook Adult Return Goals

- Maintain genetic attributes and life history characteristics of the naturally spawning, Chinook aggregate by sustaining a minimum adult spawner (hatchery and/or natural-origin) abundance threshold of 7,500 adults.
- Achieve ESA delisting by attaining interim population abundance in the Snake River of at least 3,000 naturally produced spawners and an eight year geometric mean cohort replacement rate exceeding 1.0 during the eight years.
- Interim goal is to achieve a self-sustaining population of 8,250 natural-origin adult fall Chinook above Lower Monumental Dam. This is comprised of a natural spawning population of 6,500 for the Snake River mainstem and its tributaries, 1,250 for the Clearwater River, and 500 for the Grande Ronde River.
- Long term goal is to achieve a self-sustaining population of 14,360 natural-origin adult fall Chinook above Lower Monumental Dam.
- Maintain out of basin straying above Lower Granite Dam at levels of 5% or less

These objectives, although not identical, are similar to biological objectives identified in the Clearwater Subbasin Plan (See Table 3, Clearwater Management Plan, p. 16).

Should NPTHC, as a supplementation hatchery program, meet its goals and objectives, it will also work towards achieving the biological objectives defined in the Clearwater Subbasin Plan.

1.4. Monitoring and Evaluation

Baseline fall Chinook data collection for adult spawner abundance, spawn timing, and habitat evaluations has been occurring in the Clearwater River and major tributaries including the S.F. Clearwater River, M.F. Clearwater River and lower Selway River since 1988. Monitoring and evaluation (M&E) of fish produced in NPTHC facilities began in 2003. Standardized performance measures quantified and utilized in program performance evaluations are described in Table 3. Some small scale production experiments may also occur as part of the M&E program. A US Army Corps of Engineers Transportation/Spill study was funded in 2005 and may be funded in 2006 which involved PIT tagging additional production fall Chinook (other than for juvenile emigration survivals) at Lukes Gulch and Cedar Flats Acclimation facilities. Also, one female of known stray origin is requested from the broodstock collection for an NPT Salmonid Gamete Preservation Project involving an egg fertilization study.

Table 3. Standardized performance measures and definitions quantified for evaluation of Nez Perce Tribal Hatchery fall Chinook production.

| Performance Measure | | Definition |
|-------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Abundance | 1. Adult Escapement (to Snake Basin upstream of Lower Granite Dam) | Number of adult fish, including jacks that have "escaped" past fisheries to Lower Granite Dam. Partitioned by origin, age, and release group. Based on run-reconstruction. |
| | 4. Index of Spawner Abundance - redd counts | Counts of redds in spawning areas via multiple pass extensive area aerial counts. |
| | 5. Spawner Abundance | Derived measure based on Adult Escapement to Lower Granite Dam adjusted for fish removed for broodstock or by harvest at or upstream of Lower Granite Dam. |
| | 6. Hatchery Fraction | 1) Percent of fish on spawning ground that originated from a hatchery. Determined from carcass sampling for individual spawning aggregates. 2) Also reported for total spawner abundance upstream of Lower Granite Dam. From run-reconstruction. 3) Percentage of fish used in broodstock of Snake Basin hatchery origin. |
| | 7. Ocean/Mainstem Harvest | Raw measure (primary). Number of fish caught in ocean, mainstem or tributary fisheries (commercial, tribal, or recreational). Determined from CWT commercial landings, creel surveys, etc. |
| | 13. Hatchery Production Abundance | Raw measure (primary). Number of parr, presmolts, or smolts released from a hatchery per year. |
| | 15. Run Prediction | Derived measure. Short-term forecast of expected adult returns to some point (e.g., mouth of Columbia, or Snake River) based on current data (e.g., # smolts out, prior years adult returns, etc.). |
| Survival – Productivity | 16. Smolt-to-Adult Return Rate | Raw measure (secondary): Number of adults from a given brood year returning to a point (e.g., LGR dam) divided by the number of smolts that left this point 1-3 years prior, integrated over all return years. |
| | 17. Progeny-per- Parent Ratio | Derived measure: Lambda, the median annual population growth rate estimate from adult-to-adult data (BiOp 2000, pg 6-4). Raw or derived measure: adult-to-adult can be either the ratio of return spawner to parent spawner abundance using expanded estimates, or a raw measure using ratio of return redds to parent redds. |
| | 20. Juvenile Survival to Lower Granite Dam | Raw measure (secondary): Survival rate measure estimated from detection of PIT tagged smolts at first mainstem dam, or model derived survival rates based on detections at first and second mainstem dams (e.g., using SURPH). Smolts or parr are tagged in the tributary rearing areas. |
| | 21. Juvenile Survival to all Mainstem Dams | Raw measure (secondary): Survival from first dam where stock enters mainstem Columbia or Snake River to Bonneville. Derived from PIT tag detections. |
| | 22. In-hatchery Life Stage Survival | Raw measure (secondary): egg to fry, parr or smolt survival in hatchery. Ratio of number of eggs spawned to number at life stage. |
| | 23. Post-release Survival | Raw measure (secondary): Survival from release (e.g., parr, presmolt, or smolt) to further sampling points (e.g., rotary screw traps at outlet of tributary, first mainstem dam encountered by smolts, dam encountered on return). |
| Distribution | 25. Adult Spawner Spatial Distribution | Raw measure: Tributary spawner distribution – extensive estimates of where spawners are found within a tributary. Subbasin spawner distribution - presence/absence surveys across multiple tributaries within a subbasin. |
| | 26. Stray Rate | 1) Percentage of non-Snake Basin hatchery origin adults in the spawner abundance estimate based on run-reconstruction. 2) Percentage of non-Snake Basin hatchery origin fish included in hatchery broodstock (based on known mark type and scale-pattern origin determination). |
| | 28. Disease Frequency | Raw Measure: Percent of fish infected with particular diseases or presence/absence of a particular disease. |
| Genetic | 30. Genetic Diversity | Raw or derived: The use of genetic data (e.g., micro-satellite, single nucleotide polymorphisms etc.) to; evaluate the distribution of diversity within and/or among groups of fish, track the retention of neutral genetic variation over time (e.g., using allelic richness); etc. |
| | 31. Effective Population Size (N_e) | Derived measure: A generational measure of the number of breeding individuals in an idealized population that would show the same amount of dispersion of allele frequencies under random genetic drift or the same amount of inbreeding as the population under consideration |

| Performance Measure | | Definition |
|----------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 33. Effective Population Size to Census Size Ratio (N_e/N) | Derived Measure: Estimated effective population size divided by estimated escapement. Used to probabilistically predict the rate at which genetic variation will be lost given current rates of mortality and/or to gauge the value of alternative management actions and/or to evaluate the optimal size of hatchery broodstock and release goals. Can also be calculated using N . |
| Life History | 34. Age Class Structure | Derived measure: The proportion of escapement composed of individuals of different brood years, typically assessed via length measurements and length at age relationships, from analysis of calcified structures, using scales, and recovering marks. |
| | 35. Age-at-Return | Raw measure (primary): Age distribution of spawners on spawning ground determined from length at age relationships, scale analysis, calcified structure analysis, or mark recovery from carcass surveys. |
| | 36. Age-at-Emigration | Raw measure (primary): Age distribution of emigrants (e.g., proportion of emigrants at fry, parr, pre-smolt, and smolt stages) from tributaries, determined from rotary screw trap or weir collection, scale collection, or inferences from size. |
| | 37. Size-at-Return | Raw measure (primary): Size distribution of spawners on spawning ground determined from length or scale analysis from carcass surveys. |
| | 38. Size-at-Emigration/Release | 1) Size distribution and average (length, weight) of emigrants (e.g., proportion of emigrants at fry, parr, presmolt, and smolt stages) from tributaries determined from seine or rotary screw trap. 2) Length Frequency, average length, and fish/lb estimates for each release group within 3 days of release (start of volitional). |
| | 39. Condition of Juveniles at Emigration | Derived measure: A species-specific length to weight relationship used as an index of growth (W/L^3). Comparative length/weight data are determined from in-hatchery evaluations, tributaries and rotary screw trap operation, or weir collection. |
| | 40. Adult Spawner Sex Ratio | Raw measure (primary): Carcass or weir counts. |
| | 41. Fecundity by Age | Derived or raw measure (primary): Derived if determined indirectly using existing length-fecundity relationships. Raw measure if based on direct sampling of returning females. |
| | 42. Adult Run-timing | Raw measure (primary): Time at arrival at mouth of major tributaries. Peak, range, 10th-90th percentiles |
| | 43. Spawn-timing | Raw measure (primary): Estimated using the observed dates of redd construction within major tributaries. Peak, range and 10 th -90th percentiles. |
| | 44. Juvenile Emigration Timing | Raw measure (primary): Distribution of emigration dates within major tributaries. Peak, range and 10 th -90th percentiles. |
| | 50. Water Temperature | Raw Measure: Water temperature |

2.0 NEZ PERCE TRIBAL HATCHERY COMPLEX OPERATIONS PLAN - 2007

Salmon production proposed from NPTHC in 2006-2007 is listed in Table 4. Fall Chinook salmon juvenile production is expected to be approximately 1.1 million sub-yearlings. Facility testing and system monitoring will continue throughout the coming year to clearly define the operational capabilities/limitations of the central incubation facility.

In July and August 2005, single phase power was brought into the Lukes Gulch Acclimation Facility and 3-phase power to the Cedar Flats Acclimation Facility. Both facilities were set up and operational testing initiated. Testing of the Cedar Flats AF was concluded in August and October for the Lukes Gulch AF. A test group of 25,000 sub-yearling fall Chinook was reared at each facility in 2006. An identical number of fish will be reared at each facility in 2007.

Table 4. Expected Nez Perce Tribal Hatchery Complex 2006-2007 salmon production profile. ^a

| Species | Rearing Site ^b | Number | Pounds | Fish/ lb | Age | Release/ Transfer Time | Release Location |
|-----------------------|---------------------------|----------------------|--------|-------------|-----|------------------------------|---------------------|
| Fall Chinook | NPTH | 500,000 | 10,000 | 50.0 | 0+ | June | Site/Clearwater R. |
| | NLV | 500,000 | 10,000 | 50.0 | 0+ | May | NLV/Lapwai Creek |
| | Site 1705 | 25,000 | 500 | 50.0 | 0+ | April (trans) | CF/Selway River |
| | Site 1705 | 25,000 | 500 | 50.0 | 0+ | April (trans) | LG/S. F. Clearwater |
| Spring Chinook | NPTH | - 0 - ^c | - 0- | 95.0 | 0+ | June | Meadow Cr |
| | NPTH/YCC | 160,000 | 3,556 | 45.0 | 0+ | Aug./Sept. | Yoosa/Camp Cr. |
| | NPTH/YCC | 150,000 ^d | 4,412 | 34.0 | 0+ | October | Yoosa/Camp Cr. |
| | NPTH/NC, | 75,000 ^e | 2,586 | 29.0 | 0+ | October | Newsome Creek |
| | SWS | 75,000 ^f | 1,250 | 40.0 | 0+ | Aug./Sept. | Newsome Creek |

a. Release numbers and pounds for acclimated releases are as measured at acclimation facilities.

b. NPTH = Site 1705, SWSH = Sweetwater Springs Hatchery. Acclimation facilities: NLV = North Lapwai Valley, YCC = Yoosa/Camp Creek, CF = Cedar Flats, LG = Luke's Gulch, NC = Newsome Creek.

c. Rapid River stock returning to Powell.

d. Stock returning to Lolo Creek or S. Fork Clearwater River stock (Rapid River)/Clearwater River returns.

e. Stock returning to Newsome Creek S. Fork Clearwater River stock (Rapid River)/Clearwater River returns.

f. Newsome stock reared at Sweetwater – transferred to NC acclimation facility in late Aug. or early Sept. – Not Additive

Spring Chinook listed in Table 4 are reared at Site 1705 and may affect fall Chinook production. A full spring Chinook program description is provided in the final NPTH 2007 AOP.

2.2 Fall Chinook

2.2.1 2006 Brood Year Trapping, Spawning, and Incubation

Snake River fall Chinook adults will be collected at Lower Granite Dam (LWG) and transported to Site 1705, in accordance with the U.S. vs. Oregon 2005-07 Interim Management Agreement. Adult fall Chinook may enter the fish ladder and be collected at Site 1705. In addition, adult fall Chinook may also be collected at Dworshak National Fish Hatchery (DNFH). Adults collected at DNFH will receive 1 left opercle v-notch prior to transport to Site 1705 or if released back to the Clearwater River. Assuming a fecundity of 3,500 eggs per female, 372 females would be required in Brood Year (BY) 2006 to provide the 1.3 million green eggs for the production program (Table 4).

Lower Granite Dam

Adult fall Chinook will be collected at Lower Granite Dam (LWG) commencing the last week of August or when water temperatures are below 72° F (22.2° C) for brood year 2006. Activities involving trapping and collection of adult fall Chinook for broodstock are covered under ESA Section 10 Permit No. 1350. Trapping at LWG will continue throughout the run and is anticipated to end by late November or early December. Fall Chinook are collected in the trap as a sub-sample of the returning run. The sub-sample rate for 2006 has been set at 13% of the run over LWG. Currently, all adults trapped at LWG and retained for broodstock will receive a right operculum punch (ROP). Also, all females trapped at LWG will be injected with erythromycin and oxytetracycline during the sorting process at LWG.

Washington Department of Fish and Wildlife (WDFW) Fish Management, Lyons Ferry Hatchery (LFH) and NPTHC will develop a transportation schedule for adults trapped at LWG. The allocation of adults trapped at LWG will be approximately 30% to NPTHC (anticipated to be approximately 750 fish) and 70% to LFH (anticipated to be approximately 1,750 fish). A portion of known LFH origin and unknown origin hatchery fall Chinook will be transported from LWG to Site 1705 for holding and spawning. Coded wire tagged adults, excess to broodstock needs, will be sacrificed for run-reconstruction purposes. Accurate run-reconstruction to LWG is based on a set sub-sampling protocol that requires that all hauled fish be accounted for (i.e., CWT's read and scales read on unmarked/untagged fish for expansion of fish not sampled at LWG). Adults, excess to broodstock needs and without a CWT, will be anesthetized and scale samples taken before they are released into the Clearwater River.

Site 1705

Commencing on August 21, 2006, and continuing through December 5, 2006, the adult ladder and trap will be operated at Site 1705 to collect fall Chinook adults for brood year 2006.

Adults that voluntarily return to Site 1705 will be injected with erythromycin prior to the first spawning. Additionally, all adults will receive formalin treatments every-other day to control fungus and decrease pre-spawning mortality.

Coho salmon adults collected during fall Chinook trapping operations will be held in the trap at Site 1705. The Coho project leader will be contacted and the adults transported to Dworshak National Fish Hatchery.

Spawning

Spawning at Site 1705 will occur weekly, Tuesdays, starting October 24th, and may continue through December 5th. All out-of-Snake River Basin adults, identified as “strays” by CWT or PIT tag, will be culled. Mating will be a 1 x 1 cross (1 female: 1 male).

On all fish spawned, the following data will be collected: fork length, sex, fin clips, visual implant elastomer (VIE) tags (document side and color (e.g., LR for left red)), coded wire tag identification number and operculum punches and V-notches, radio tag number if present and any other identifying marks or tags. All fish will be scanned for a PIT tag and scales will be taken on all unmarked/untagged fish with a sub-sample taken on CWT tagged fish. In addition, tissue samples will be taken on a random sub-sample of 100 spawned females and 100 spawned males for DNA analysis and genetic monitoring.

Every adult female will be sampled individually for BKD using ELISA. Up to 150 ovarian fluid samples (3 fish pools) will be sampled for viruses. An additional 60 tissue samples will be taken for bacteria assays, and sampled for *Myxobolus cerebralis*. Samples will be collected by NPTHC staff and delivered to Idaho Fish Health Center.

Adults transported from Lower Granite Dam (LWG) and excess to broodstock needs will be sampled for run reconstruction purposes. All CWT tagged adults will be sacrificed, those fish without a CWT will be anesthetized and scales taken prior to release into the Clearwater River.

Upon coordination with Idaho Department of Fish and Game, fall Chinook carcasses may be released into free-flowing reaches of the Clearwater River for nutrient enrichment.

Data entry, verification and finalization of all data collected will be coordinated with WDFW and completed by mid-January 2007. Finalized database files will be sent to NPT (Bill Arnsberg), WDFW (Debbie Milks) and Technical Advisory Committee (TAC) (Cindy Lefleur).

Incubation

Fertilized eggs will be water hardened, for one hour in 100 parts per million (ppm) iodophore and placed iso-incubation units. At between 550 and 620 temperature units (TU's) eyed eggs will be shocked, machine sorted the following day and transferred into Heath trays. The trays will then be placed in vertical stacks located in one of the incubation rooms at Site 1705 for hatching.

The eggs from females, with a high Bacterial Kidney Disease (BKD) Enzyme-Linked Immunosorbent Assay (ELISA) value (2.0 and above), will be culled. Scale pattern data will not be used at NPTHC in the culling of eggs. Eggs from stray females may be retained at a rate not to exceed 5%.

During all phases of incubation, water temperatures will be controlled to meet a specific temperature regime of 52° F (11.2° C). At swim-up, the fish will be transferred to production room tanks at ~1,600 fish per pound (0.30 grams).

2.2.2 2006 Brood Year Rearing and Releases

Marking will commence at Site 1705 in mid-April and end in early May 2007, when the fish attain a size of ~180 fish per pound (2.52 grams).

Fall Chinook destined for release from Site 1705 will receive the following marks: 200,000 fish will be marked with a coded wire tag (CWT), and 100,000 fish will be marked with a CWT and an adipose fin clip.

Fall Chinook destined for rearing and acclimation at North Lapwai Valley AF will receive the following marks: 200,000 fish will be marked with a CWT and 100,000 will be marked with a CWT and an adipose fin clip.

The fall Chinook destined for rearing and acclimation at Lukes Gulch AF and Cedar Flats AF will be marked with a CWT - 25,000 for Cedar Flats AF and 25,000 for Lukes Gulch AF. Each release group will be reared separately in production room tanks or raceways at Site 1705.

Site 1705

A release of 500,000 sub-yearlings into the Clearwater River at 50 fish per pound (9.07 grams) is planned. The fish will be transferred directly into the ponds from the marking trailer. Unmarked fish (200,000) destined for release into the Clearwater River will be held in production room tanks at Site 1705 until they attain a size of ~180 fpp (2.52 grams). The fish will then be transferred and divided equally into the two fall Chinook acclimation ponds at Site 1705 for acclimation and release. The ponds will be set-up and operational at least 2 days prior to receiving fish. On or about June 4, 2007, and prior to release, 3,000 fish will be tagged with a PIT tag. Mortalities will be picked

daily and the fish fed 2 times per day. A volitional release is scheduled to begin on June 4, 2007. At the start of the scheduled volitional release, lengths and weights will be taken and recorded on a minimum of 500 fish. Prior to release, a minimum 60 fish sample will be collected from each release group for a pre-release health inspection. Bacteriology, virology and parasitic assays will be performed. Scheduled release date from Site 1705 is June 15.

North Lapwai Valley

A release of 500,000 sub-yearlings into Lapwai Creek at 50 fish per pound (9.07 grams) is planned. Lapwai Creek water temperatures will be monitored from late February through mid-April. In the event the water temperatures in Lapwai Creek demonstrate an upward trend exceeding 55° F (12.8° C) in late March, the 500,000 sub-yearlings may not be transferred to the North Lapwai Valley AF but will be reared at Site 1705 and released into the Clearwater River. If Lapwai Creek water temperatures allow, the transfer of the fish to the North Lapwai Valley AF will occur in mid to late April. The facility will be set-up and operational at least 3 days prior to transfer of fish. On or about May 15, 2007 and prior to release, 3,000 fish will be tagged with a PIT tag. PIT tagging operations at this site will take place prior to water temperatures attaining 62.6° F (17.0° C). PIT tagging operations may take place at Site 1705 prior to the transfer of fish to this facility. Lengths and weights will be taken and recorded on a minimum of 500 fish prior to release. Mortalities will be picked daily and the fish fed 2 times per day. Scheduled release date for North Lapwai Valley AF is May 31.

Lukes Gulch

A release of 25,000 sub-yearlings into the South Fork Clearwater River at 50 fish per pound (9.07 grams) is planned. Transfer of the fish will occur in mid April to early May. The facility will be set-up and operational at least 5 days prior to transfer of fish. If a system failure occurs prior to the transfer of fish from Site 1705, the fish will remain at Site 1705 and be “direct stream” released into the S. F. Clearwater River. On or about May 15, 2007, and prior to release, up to 4,900 fish will be tagged with a PIT tag. PIT tagging operations at this site will take place prior to water temperatures attaining 62.6° F (17.0° C). PIT tagging operations may take place at Site 1705 prior to the transfer of fish to this facility. Lengths and weights will be taken and recorded on a minimum of 500 fish prior to release. Mortalities will be picked daily and the fish fed 2 times per day. Scheduled release date from Lukes Gulch AF is June 15. However, an earlier release may occur to avoid unfavorable water temperatures.

Cedar Flats

A release of 25,000 sub-yearlings into the Selway River at 50 fish per pound (9.07 grams) is planned. Transfer of the fish will occur in mid April to early May. The facility will be set-up and operational at least 5 days prior to transfer of fish. If a system failure occurs prior to the transfer of fish from Site 1705, the fish will remain at Site 1705 and be “direct stream” released into the Selway River. On or about May 17, 2007, and prior to release, up to 4,900 fish will be tagged with a PIT tag. PIT tagging

operations at this site will take place prior to water temperatures attaining 62.6° F (17.0° C). PIT tagging operations may take place at Site 1705 prior to the transfer of fish to this facility. Lengths and weights will be taken and recorded on a minimum of 500 fish prior to release. Mortalities will be picked daily and the fish fed 2 times per day. Scheduled release date from Cedar Flats AF is June 15. However, an earlier release may occur to avoid unfavorable water temperatures.

Table 6. Proposed fall Chinook release numbers, size, and mark type from all sites in 2007 (Brood Year 2006).

| Site | Number | Size #/lb | PIT Tags | Mark/CWT | Release dates |
|------------------------|---------|-----------|--------------------|--------------------------------------------------------------|---------------|
| 1705 | 500,000 | 50 | 3,000 | 100,000 - Ad/CWT 200,000 - CWT Only 200,000 - Unmarked | June 15 |
| North Lapwai Valley AF | 500,000 | 50 | 3,000 | 100,000 - Ad/CWT 200,000 - CWT Only 200,000 Unmarked | May 31 |
| Lukes Gulch AF | 25,000 | 50 | 4,900 ^a | - 0 - Ad/CWT 25,000 - CWT Only | June 15 |
| Cedar Flats AF | 25,000 | 50 | 4,900 ^a | - 0 - Ad/CWT 25,000 - CWT Only | June 15 |

^a Includes 1,900 PIT tags for the Transport Group as part of the proposed NOAA/COE TI study.

2.3 Fish Pathology and Fish Health Monitoring

All fish production at Nez Perce Tribal Hatchery Complex and rearing facilities is conducted according to the United States Fish and Wildlife Service (USFWS) - National Fish Health Policy, Pacific Northwest Fish Health Protection Committee (PNFHPC) - Model Program, and Integrated Hatchery Operations Team (IHOT) policies and guidelines. Specifically, all lots of fish are monitored for fish health, all broodstock are annually inspected, strict hatchery sanitation procedures and fish culture practices (rearing criteria) are followed, and

egg and fish transfer and release requirements are met. In addition, bacterial kidney disease management strategies for Chinook salmon stocks are employed.

2.3.1 Fish Disease Outbreaks

The USFWS – Idaho Fish Health Center fish health specialist will respond to all fish disease outbreaks at the request of the hatchery staff.

2.3.2 Monthly Monitoring

As per our contract with USFWS, Idaho Fish Health Center, a fish health specialist will visit Site 1705 at least once a month. Mortality records and fish in all rearing containers will be inspected. Approximately 12-15 fish of each species will be sacrificed and examined at the discretion of the fish health specialist.

2.3.3 Annual Broodstock Viral Inspections

At spawning, all broodstock (spring and fall Chinook) will be annually tested for viral pathogens. Ovarian fluid from up to 150 spawned female fish will be sampled and tested. Additionally, 60 fish will have kidney/spleen samples taken and sampled for viral and bacterial pathogens.

2.3.4 Pre-release exams on juveniles

Prior to release, a minimum 60 fish sample will be collected from each release group of fall and spring Chinook for a pre-release inspection. Bacteriology, virology and parasitic assays will be performed.

2.3.5 Specific Fish Health Management

1. Bacterial Kidney Disease (BKD) Management
 - a. All female Chinook broodstock will receive a pre-spawning injection with erythromycin.
 - b. Female Chinook broodstock will be tested for BKD via ELISA (Enzyme Linked Immunosorbent Assay).
 - c. Juvenile Chinook may be reared separately based on the BKD-ELISA results.
 - d. Juvenile Chinook (200 fpp or smaller) will be reared at a density index of up to 0.3 lbs\ft³\in.. Juvenile Chinook (180 fpp or larger) will be reared at a density index of 0.1 lbs\ft³\in..

- e. The use of Lutenizing Hormone Releasing Hormone (LHRH), to facilitate spawning of both sexes, may be an option.
- 2. Broodstock and Egg Fungus Management
 - a. Broodstock - All Chinook broodstock will be treated with formalin every other day to control fungus.
 - b. Eggs - All eggs will be treated with formalin daily to control fungus.

2.4 Communication

A monthly NPTHC narrative and fish health report will be completed and submitted to BPA/COTR, NPT Research and Production divisions, Clearwater Fish Hatchery and all other interested parties.

Monthly fish health and pre-release pathology reports will be submitted to the Hatchery Supervisor and maintained in the files at Site 1705.

Weekly broodstock collection and release summary reports will be provided.

Weekly spawning ground survey reports will be provided.

2.5 Hatchery Operation and Maintenance Requirements

2.5.1 Site 1705 – Central Incubation and Rearing Facility

Maintain buildings, equipment and grounds at this facility as specified in the Operation and Maintenance manuals provided by consultants and contractors.

2.5.2 Cedar Flats AF

On or about April 11, 2007, assemble and setup ten 20' circular tanks, the surface water supply pipelines and backup systems and complete seasonal testing in preparation for receiving juvenile fall Chinook. Maintain equipment and grounds at this facility as specified in the Operations and Maintenance manuals and U.S. Forest Service Limited Use Permit. At the completion of rearing season (end of June), winterize water supply pipelines and store equipment in space provided by U.S. Forest Service at the Fenn Ranger Station.

2.5.3 Lukes Gulch AF

On or about April 4, 2007, assemble well and surface water supply pipelines, setup backup systems and complete seasonal testing in preparation for receiving juvenile fall Chinook. At the completion of rearing season (end of June), winterize water supply pipelines and store equipment in storage building located on site. Maintain building, equipment and grounds at this facility as specified in the Operations and Maintenance manuals.

2.5.4 North Lapwai Valley AF

On or about March 21, 2007, complete pre-season operational testing of surface and well water delivery systems, backup generator, and fill the two "NATURES" ponds in preparation for receiving fall Chinook juveniles. Throughout the season, maintain structures, equipment and grounds at this facility as specified in the Operations and Maintenance manuals. At the completion of rearing season (late May), winterize water supply pipelines and store equipment in storage building located on site.

2.6 NPTH Staffing - Personnel Positions

| | |
|--------------------------------------------|--------------------------------------------|
| Hatchery Supervisor III: Harold Harty | Hatchery Supervisor I: Jeffrey Lundberg |
| Asst. Hatchery Manager: Aaron Penney | Hatchery Supervisor I/Maintenance: Vacant |
| Fish Technician III: Wayne Penney | Fish Technician III: Shawn Wheeler |
| Fish Tech. III/Maintenance: Bob Samuels | Fish Tech. III/Maintenance: Mark Wilson |
| Fish Technician II: Brett Bisbee | Fish Technician II: Joseph McCormack |
| Fish Technician II: Audrick Chapman | Fish Technician II: Wendall Antell |
| Fish Technician II: Arthur Taylor, Sr. | Fish Technician II: Vacant |
| Fish Technician II: Eric Kash Kash | Fish Technician I (12 Pay Periods): Vacant |
| Fish Technician I (12 Pay Periods): Vacant | |

The tentative plan for 2007 is to fill the vacant Fish Tech. I positions from April thru October (12 pay periods). This will ensure adequate staffing to operate all six remote/satellite facilities. At the present time, we are coordinating with BPA to fill the Hatchery Supervisor I/Maintenance position.

2.7. Contact List

The following list of people are either directly involved in the operation of the NPTHC, or related programs and facilities. Questions about the AOP, or coordination of production or monitoring actions should be directed to the appropriate person.

| Name | Affiliation | Specialty | Phone, ext. | e-mail |
|----------------------|-------------|-------------------------|-------------------------|------------------------------------------------------------------------|
| Policy | | | | |
| Sharon Kiefer | IDFG | Anadromous Coordinator | 208-334-3791 | skiefer@idfg.state.id.us |
| Bill Tweit | WDFW | | 360-902-2723 | tweitwmt@dfw.wa.gov |
| Gary James | CTUIR | | 541-276-4109 | garyjames@ctuir.com |
| Dave Johnson | NPT | Director, DFRM | 208-843-7320, Ext. 2441 | davej@nezperce.org |
| Production | | | | |
| Becky Johnson | NPT | Production Coordinator | 208-843-7320, Ext. 2433 | beckyj@nezperce.org |
| Brad George | IDFG | Clearwater Hatchery | 208-476-3331 | bgeorge@idfg.state.id.us |
| Harold (Butch) Harty | NPT | Hatchery Supervisor III | 208-843-7384, Ext. 3502 | hartyhb@nezperce.org |
| Jeff Lundberg | NPT | Hatchery Supervisor I | 208-843-7384, Ext. 3503 | jeffl@nezperce.org |
| Kent Hills | IDFG | Oxbow Hatchery | 541-785-3459 | oxbowfh@pinetel.com |
| Mike Key | NPT | Acclimation Facilities | 208-843-7320, Ext. 2486 | mikek@nezperce.org |
| Jerry McGehee | IDFG | Clearwater Hatchery | 208-476-3331 | jmcgehee@idfg.state.id.us |
| Bruce McCleod | NPT | Acclimation Facilities | 208-843-7320, Ext. 2403 | brucem@nezperce.org |
| Aaron Penney | NPT | Asst. Hatchery Manager | 208-843-7384, Ext. 3504 | aaronp@nezperce.org |
| Scott Everett | NPT | Coho Project Leader | 208-843-7384, Ext. 2442 | scotte@nezperce.org |
| Brian Zimmerman | CTUIR | Production Coordinator | 541-276-4109 | brianzimmerman@ctuir.com |
| Evaluation | | | | |
| Bill Arnsberg | NPT | Fall Chinook | 208-476-7296, Est. 3578 | billa@nezperce.org |
| Ryan Johnson | NPT | Spring Chinook | 208-476-4920, Ext. 3580 | ryanj@nezperce.org |
| Scott Kellar | NPT | Fall Chinook | 208-476-7296, Ext. 3574 | scottk@nezperce.org |
| Mike Tuell | NPT | Marking Coordinator | 208-476-7296, Ext. 3577 | miket@nezperce.org |
| Sherman Sprague | NPT | M&E Spring Chinook | 208-476-4044, Ext. 3585 | shermans@nezperce.org |
| Mark Schuck | WDFW | WDFW Evaluations | 509-382-1004 | schucmls@dfw.wa.gov |
| Deborah Milks | WDFW | Fall Chinook | 509-382-1710 | milksdjm@dfw.wa.gov |

Management

| | | | | |
|---------------|-------|------------------------|-------------------------|------------------------------------------------------------------------|
| Jay Hesse | NPT | Research Director | 208-843-7145, Ext. 3552 | jayh@nezperce.org |
| Ed Larson | NPT | Production Director | 208-843-7320, Ext. 2440 | edl@nezperce.org |
| Glen Mendel | WDFW | Fish Management | 509-382-1005 | mendegwm@dfw.wa.gov |
| Tom Rogers | IDFG | Hatcheries Supervisor | 208-334-3791 | trogrrs@idfg.state.id.us |
| Kathy Clemens | USFWS | Id. Fish Health Center | 208-476-9500 | kathy_clemens@fws.gov |
| Bill Horton | IDFG | | 208-334-3791 | bhorton@idfg.state.id.us |
