2010

ANNUAL OPERATING PLAN

for

FISH PRODUCTION PROGRAMS

in the

CLEARWATER RIVER BASIN

by

U.S Fish and Wildlife Service

Idaho Department of Fish and Game

Nez Perce Tribe Fisheries

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(Each section lists a contact for additional information, coordination, or notification – contact information is listed in Section 8, pg. 35)

1. STEELHEAD

The total adult return goal for Dworshak NFH and Clearwater Hatchery is 34,000 steelhead to the project area. Broodstock for all facilities are collected at Dworshak and total 4,300 adults. Additional details are listed in the pertinent sections below.

1.1. Broodyear 2009 Steelhead

1.1.1. Dworshak – *Broodstock need for Dworshak mitigation is ~2,300 fish, this number of steelhead is needed to provide enough males to allow a 1:1 spawning ratio for the 630 females needed for egg collection. (An additional 2,000 fish are needed to provide eggs for Clearwater and Magic Valley Hatchery steelhead programs.) Male to female return ratio for two ocean steelhead at Dworshak is typically 1:3, so to collect enough males, more females than needed are collected and then excess steelhead are typically outplanted for natural spawning. This number includes jacks, accounts for pre-spawning mortality, and the 500 steelhead that are collected in the fall to cover the early returning, early spawning component of the run. This brood level provides ~2.1 million smolts at an average of 80% eyed egg-to-smolt survival to meet the adult return goal of 20,000 to the Clearwater River.*

The program goal for SF Clearwater releases stated in the harvest agreement between the States, Tribes, and Federal parties is 533,000 un-clipped steelhead. The agreement of releasing un-clipped fish is to offset reductions in down-river Tribal fisheries. The principle is that the returning un-clipped adult steelhead will escape the sport fishery therefore return at higher numbers to tributaries, to hopefully spawn, thereby increasing natural production.

1.1.1.1. Production status - As of January 1, 2010 there were a total of 1.24 million steelhead on station, 160 mm average total length, 11.5 fpp. Sample counts are performed monthly on representative ponds. *Thomas Trock*

1.1.1.1. Projected release – Both on and offsite releases are planned to occur the week of April 12, 2010. DNFH expects to release just over 1 million steelhead on-site and ~210,000 un-clipped off-site. For the un-clipped releases the NPT will haul 60,000 to Lolo Cr and a COE tanker will haul 150,000 steelhead to SF Clearwater at Peasley Cr. Average total length = 200 mm (6 fpp). (**Table 1**) *Thomas Trock / Howard Burge*

1.1.1.2. Fish health status – Other than IHNV occurring at the 25% rate in the adults, no significant pathogens were detected during spawning. June 26 was first documented isolation of the 2009 IHNV/Coldwater Disease event; this outbreak has caused a more acute mortality than has been seen in previous years. Gas bubbles were seen in the gills and fins of fish during the summer. These same bubbles were also seen in the wild Chinook in the river. No reuse is planned for the BY 09 STT this year (yeah!) All systems have been treated with formalin for Trichodina

infections, a common parasite in the winter. A 60 fish sample will be tested for viral, bacterial, and parasitic pathogens prior to release. *Kathy Clemens*

1.1.1.3. M&E – Six CWT groups of 30k each will be tagged for system contribution and early return groups. Also 45,500 PIT tags will be inserted; 1,500 for the Smolt Monitoring Program, 9,000 for CSS, and 20,000 for Dworshak evaluation, 15,000 for a mixed-cell evaluation. Prior to release 500 marked fish from each CWT group (tag code) are checked for tag retention (ex. BY07 = 96.4%). Also 500 fish are checked for LV clip and AD clip quality. *Chris Peery / Carrie Bretz*

1.1.1.4. Research Requests – FPC requested 1,500 steelhead be PIT tagged for the Smolt Monitoring Program. For 2010 releases 9,000 steelhead were PIT tagged for the Comparative Survival Study (CSS).

Evaluation of Mixed-Cell Fish Rearing Pond at Dworshak National Fish Hatchery *Goal.* We are evaluating the effectiveness of a modified mixed-cell pond to improve rearing conditions and adult returns for steelhead at Dworshak National Fish Hatchery. *Study objectives.*1) Evaluate growth, condition and survival of juvenile steelhead reared in a modified mixed-cell pond. 2) Evaluate adult returns for steelhead reared in modified mixed-cell pond. 3) Evaluate efficiency of use of a modified mixed-cell pond to rear juvenile steelhead. *Study Methods.* Two burrows ponds have been modified to the mixed-cell design and resurfaced. Steelhead are currently being reared in the mixed cells ponds. Their growth and survival will be compared to steelhead rearing in two re-surfaced burrows and two original (not resurfaced) ponds as controls. We are also evaluating ease of using the new pond design. We plan to conduct study through three steelhead broodyears. *Chris Peery*

1.1.2. Clearwater - *Original design memorandum shows the production goal may be as high as two million steelhead smolts. Historically, the steelhead smolt releases from Clearwater Fish Hatchery have ranged from approximately 600 to 1.04 million. Adult return goal for the program is 14,000 steelhead.*

1.1.2.1. Production status / projected release - The estimated number of BY09 steelhead to be released in the spring of 2010 is 850,700. 507,900 AD-clip and 103,700 no ad-clip production into the lower SF Clearwater and Clear Creek, 239,100 no ad-clip and 0 ad-clip production will be released into upper SF Clearwater River tributaries pursuant to the US v. Oregon 2008-2017 Management Agreement. IDFG will contact NPT (Sherman Sprague or Ryan Johnson) to coordinate SF releases. (**Table 1**) *Jerry McGehee*

1.1.2.2. Fish health status - For Egg Disease Certification, all females are sampled (individually) for viral replicating agents. Initial incubation of eggs for CFH occurs at Dworshak hatchery. Eggs from any females that test positive are destroyed, and only eggs that test negative for IHNV are taken to CFH. Juvenile rearing inspections are performed quarterly by Eagle Fish Health Lab. No prophylactic treatments are used during steelhead rearing. Inspections are conducted quarterly. No pathogens detected to

date on inspection sampling. Diagnostics on demand. Pre-liberation samples performed on 60 fish sample prior to release. Viral pathogens have not been detected in these fish. *Flavobacterium psychrophilum, Aeromonas hydrophila, and Aeromonas sobria* were detected in all fish sampled in the outdoor raceways after these fish were marked. Mortality was not high enough to warrant treatment. *Doug Munson*

1.1.2.3. M&E - The fish are sampled monthly between the 25th and 28th of the month. During months of rapid growth, fish are sampled biweekly. Pound counts are taken to track fish growth and monitor if growth is following the annual growth projections. Length frequencies are taken three times during the final rearing cycle, during marking as fish are move outside, at the end of October and 2 weeks prior to outplanting. Approximately 30 days prior to release, 300 fish are sampled to quality check adipose (Ad) fin clips, ventral fin clips, and coded wire tag (CWT) retention. In February, 23,800 steelhead will be PIT tagged to evaluate juvenile timing and survival from release to Lower Granite Dam for each release group and to estimate a combined adult escapement back to Lower Granite Dam. This is also a cooperative effort with the CSS study to evaluate transport and in-river SARs. PIT tags are distributed across release groups in proportion to the release group size. *Jerry McGehee / Carl Stiefel*

1.2. Broodyear 2010 Steelhead

1.2.1. Dworshak

1.2.1.1. Projected adult return - Based average return rates, the predicted steelhead return to Dworshak NFH rack in 2009-2010 would be about 5,471 if the ladder were operated continuously. However, since we open the ladder to only capture what broodstock we need, we typically collect about 3,400 steelhead (**Table 2a**). *Howard Burge / Chris Peery*

1.2.1.2. Ladder operation - The ladder was open October 6-10, 22-24, and 29 for collection of early-return steelhead. During this period there were 587 early-run steelhead collected for spawning in the spring of 2010. There were 201 excess adult steelhead trapped which were outplanted to the mainstem of the Clearwater River at the boat ramp at Ahsahka. There were also fall Chinook trapped along with the steelhead and coho at this time. Based on the steelhead returns we are planning on intermittent ladder operation in the spring of 2010 to prevent excess fish collection. This also keeps steelhead in the river where they are available for sport and tribal harvest and allows us to spawn fish that have not been held in the hatchery for more than a few days. Ladder operation may be modified in-season if weekly goals are not met. The ladder will be reopened February 18, 2010 for the collection of mid and late returning steelhead. *Thomas Trock*

1.2.1.3. Adult fish health – 75 males were injected with the hormone GnRHa prior to spawning, using the implant form, under INAD. This was to insure that there were enough males that were ripe during the first two spawns. Fish

are treated three times per week with formalin for fungus, under a veterinary prescription. A minimum of 60 tissues samples, and 36 ovarian fluid samples/take will be collected at spawning and assayed for viruses, bacteria, and parasites. *Kathy Clemens*

1.2.1.4. Adult outplanting/marking – Ladder opening for collection of spring returns is not planned until February 18. Any fish beyond what is needed for spawning will be directly returned to the river. All released fish will all be marked with left opercle v-notch. Any outplanting involving the NPT will be coordinated with Mike Key. *Carrie Bretz / Chris Peery*

1.2.1.5. Carcass disposition - It appears there will be no food-processing of SST carcasses this year. Various research groups from WSU and the Idaho Fish and Game bear trapping program or similar alternatives will be used to dispose of the carcasses. *Thomas Trock*

1.2.1.6. Adult M&E – System contribution, and early return CWT are being recovered for all three age classes. Returning adults are measured and examined for gender, various clips, tags, and marks then sorted for spawning or holding. *Carrie Bretz / Chris Peery*

1.2.1.7. Spawning/egg take plans, mating protocol - Current plans are to take ~2.7 million eyed eggs for Dworshak, ~1.2 million green for Clearwater and ~1.3 million green for Magic Valley. Potlatch will receive approximately 18,000 green eggs. Similar to last year, Dworshak is cooperating with CRITC and the University of Idaho in a Kelt Reconditioning Project. **Table 3**. *Thomas Trock*

1.2.1.8. Juvenile Production - Incubation: Dworshak will incubate eggs from approximately 560 steelhead females for its program, 130 fall-return adults and 430 from winter and spring returns. After eye-up and enumeration, approximately 2.7 million eyed eggs will go into the Dworshak program. Dworshak will also provide incubation space for up to 1.2 million green eggs for Clearwater Fish Hatchery. *Thomas Trock*

Nursery Rearing: Dworshak will early-rear approximately 2.5 million steelhead in its nursery until the fish reach approximately 100 fpp during the spring and summer of 2010. *Thomas Trock*

Outside Rearing: Approximately 2.4 million steelhead will be moved from nursery tanks to outside burrows ponds from the end of May until September 1, 2010. Up to 78 Burrows ponds will be used for steelhead rearing; additionally the two Burrows ponds modified into mixed cell units will be utilized. Five Burrows ponds will be used to rear BY09 Coho. One Burrows pond will be used to rear rainbow trout for the 2011 Open House. Fish will be moved from the nursery to the ponds using a fish pump from PR Aqua. A marking trailer from Columbia River Fisheries Program Office will AD clip and CWT steelhead. The Burrows ponds will be stocked at approximately 31,000 fish/pond. Most steelhead will receive an adipose-fin clip to designate it as a hatchery fish, the exception being the 200,000 unclipped/unmarked South Fork releases.

Early rearing occurs in the nursery on reservoir water and IHNV is not a factor in mortality during this early life stage. After the fish are moved from the nursery tanks, and reservoir water, to the burrows ponds in Systems 1-3, and NF River water, high mortality resulting from IHNV has plagued the hatchery for years. A more virulent strain of IHNV has been identified at the hatchery and resulted in much higher mortality rates in 2008 and 2009.

In 2010, we will attempt to utilize reservoir water in System I (in re-use mode) to delay exposure of a portion of the steelhead production to NF River water (a major source of IHNV). The hopeful outcome is that the fish reared outside on reservoir water will not break with IHNV. An evaluation will be incorporated into this effort by comparing fish reared on river water in System II with those reared in reservoir water in System I *Thomas Trock / Mark Drobish*

SF releases – 200,000 of Dworshak NFH reared steelhead are programmed for supplementation releases as part of the US v. OR agreement. For 2010 60,000 will be transported by the NPT and released in Lolo Creek and 150,000 will be transported by COE tanker and released into the SF Clearwater at Peasley Creek. *Howard Burge* / *Becky Johnson*

1.2.1.9. Juvenile Fish health - Upon ponding, juveniles will be monitored for viral pathogens, coldwater disease and parasites. A 60 fish sample will be tested for viral, bacterial, and parasitic pathogens prior to release. *Kathy Clemens*

1.2.1.10. Planned juvenile marking & tagging, release sites – Tentative marking plans for BY10 steelhead at Dworshak NFH are found in **Table 4**. Per the request of IDFG and the NPT, the FRO will determine what percentage of data would be loss will be if the LV clip (CWT indicator for steelhead) is stopped. This will be compiled and a decision made prior to CWT in the early fall. The FRO is reevaluating the entire steelhead CWT program and may make changes prior to tagging. *Howard Burge / Chris Peery*

1.2.1.11. Juvenile M&E - FWS will be CWT 180,000 steelhead total from the three systems and early return progeny. Additional steelhead will receive PIT tags; 1,500 for SMP, 9,000 for CSS, 20,000 for Dworshak evaluation and 15,000 for the mixed-cell study. *Carrie Bretz / Chris Peery*

1.2.1.12. Research Requests –

- Rolf Ingerman, U of Idaho requested 0.4-0.5 ml of milt from 50 males and 600 eggs from 20 females for sperm motility research. *Mark Drobish*
- Matthew Campbell, IDFG requested fin clip samples from all remaining adult steelhead spawned at Dworshak (for all programs). He is investigating the utility of a parentage-based genetic tagging program for Snake River steelhead hatcheries. This involves the annual genotyping of all broodstock at each hatchery, creating a parental genotype database. Progeny from any of these parents (either collected as juveniles or returning adults), if genotyped, could be assigned back to their parents, thus identifying the hatchery they

originated from and exact brood year they were produced in. *Chris Peery / Ray Jones*

- Starting in 2009 Dworshak is cooperating with the University of Idaho in a Kelt Reconditioning Project. The University of Idaho is collecting blood and tissue samples from 10 females and 20 males representative of the early returning adults collected in October. The university will collect additional blood and tissue samples from adults spawned in the middle and later portions of the run. *Christine Moffitt / Mark Drobish*
- Andrew Pierce will be collecting kelts for re-conditioning from Lower Granite Dam. Collecting adults (kelts) that are migrating downstream is preferred for this research rather than using spawning fish at Dworshak. The kelts will be transferred from Granite to Dworshak for re-conditioning. *Andrew Pierce / Mark Drobish*

1.2.1.13. Communication FWS puts out weekly spawning reports and weekly return reports, and annual spawning and adult return reports are also produced.

1.2.2. Kooskia

1.2.2.1. Weir/trap operation - The adult trap will be opened early to mid-March 2010 for BY10 steelhead adult collection. The proposed operation (depending upon renewal by NMFS) is to close the trap April 7, after Chinook and coho smolt releases, and bypass the water intake and Obermeyer weir during this usually high water period. The hatchery must be dewatered between April 7 and May 15 to allow contractors to perform ARRA project construction on the screen chamber. We would reopen the trap on May 15-16. During this dewatered period we would open the picket (fish) weir to allow passage of steelhead, since they could not be trapped anyway. The NPT and IDFG are also interested in operation of the weir and will be kept involved. *Howard Burge*

1.2.2.2. Adult handling/outplanting/marking - All natural (unmarked) fish will be passed upstream of the weir. CWT steelhead will be sacrificed for tag recovery. Adult hatchery steelhead (not taken for CWT) for outplanting will be loaded into NPT truck at time of sorting; NPT contact will be Mike Key for spring outplants. Outplanted steelhead will be given a right opercle v-notch. Any Tribal requests for steelhead will be coordinated through Nancy McAllaster, NPT (208-843-7320 ext.2126). Other native species (bull trout, suckers, whitefish etc.) trapped will be passed upstream above the weir. *Carrie Bretz / Chris Peery*

1.2.2.3. M&E - Returning adults are measured and examined for gender, various clips, tags, and marks then sorted for spawning or holding. CWT steelhead will be sacrificed for tag recovery. No steelhead evaluation is planned at Kooskia at this time. *Carrie Bretz / Chris Peery*

1.2.3. Clearwater

1.2.3.1. Clearwater Hatchery – BY10 smolt release has been set at 843K including 360K for tribal supplementation. 1,206,000 green eggs are requested for Clearwater Hatchery. **Table 3**. All spawning will occur at DNFH. Our expected first spawn date for Clearwater Hatchery egg collection is March

3. Spawning occurs on every Tuesday. When possible 1:1 male:female spawning will be used. On spawning days, eggs taken for CFH and Magic Valley will be from fresh fish that have entered DNFH trap since the last spawning day or fish that were green (not ripe) on previous spawning days and returned to the holding pond. Incubation to eyed stage of eggs destined for CFH production will occur at Dworshak Hatchery. All eggs from positive IHNV parentage will be culled at this point. At Dworshak Hatchery, the eggs will be shocked and then transferred to Clearwater Hatchery where they will be disinfected and placed in Heath egg trays. They will be picked and enumerated the next day. The eggs will then be placed in Heath egg trays for the remaining incubation period. The fry remain in the indoor vats until they are approximately 35 fish per pound. Each vat is loaded with approximately 45k swim-up fry. *Jerry McGehee*

1.2.3.2. SF Clearwater Broodstock - In an attempt to develop a locally adapted steelhead broodstock in the South Fork Clearwater River, managers will be assessing the feasibility of collecting, spawning, and rearing the progeny from B-Run steelhead returning to the South Fork of the Clearwater River in the spring of 2010. PIT tags will be used to evaluate the relative performance of progeny from fish returning to the South Fork Clearwater River and Dworshak NFH.

Project Objectives

- Clearwater Regional staff will coordinate with anglers to collect up to 50 pairs of adults for spawning.
- Clearwater Hatchery staff will operate transport trucks (two, 1 ton truck with transport tanks) and haul adults to Dworshak NFH.
- Adult holding and spawning will occur at Dworshak per protocol mentioned in 1.2.3.1. This will include coordination with IDFG staff for spawning, disease sampling, and testing of samples.
- DNFH will hold the eggs to eye up and culling for diseased eggs. They will then be shipped to Clearwater Hatchery for rearing.
- Clearwater Hatchery will rear 70,000 FTS in one raceway for outplanting to Peasley Creek on the SF Clearwater River.
- Approximately 15,000 juveniles from each group will be PIT tagged to evaluate SARs. Juveniles from these two groups will be adipose fin intact and will come from the 150k smolt release at Red River. Managers have decided that these fish will be released at Peasley Creek instead of Red River (**Table 4**).

1.2.3.3. Magic Valley - 1,326,600 green eggs are requested for Magic Valley. **Table 3**. Our expected first spawn date for these hatcheries is March 18. Eggs are taken to CFH Isolation Incubation each spawning day where they are held until certification of disease status. The isolation incubation building will be used to house and incubate the Dworshak B strain steelhead eggs destined for Magic Valley. Eggs will be received on three different spawning days and held until the fish pathology lab determines virus results. Each female will be tested for viral replicating agents. At

that time, positive IHNV eggs will be destroyed and the negative will be picked, enumerated, and shipped to Magic Valley. *Jerry McGehee*

1.2.3.4. Fish health – Each female spawned at Dworshak NFH (eggs to be reared at Clearwater Hatchery) will have ovarian fluid sample taken and shipped to Eagle Fish Health Lab, and tested for viral replicating agents; only negative tested eyed eggs are transferred to Clearwater Fish Hatchery main incubation for rearing at CFH. Tissues samples (kidney/spleen) will be from at least 30 females. All eggs from virus positive females will be culled from production. Juvenile rearing inspections will be performed each quarter and diagnostic examination on demand by Eagle Fish Health Lab. Pre-liberation inspections will also be performed on a 60 fish sample within 45 days of liberation. No prophylactic treatments are planned at this time. *Doug Munson*

1.2.3.5. Marking plans - Plans for BY10 steelhead from Clearwater hatchery are found in **Table 4**. As fish are moved outside, they receive ad-clips, ventral fin clips, and test groups receive CWT's. Fish will remain there until they are full smolt size and age, maximum of 4.5 to 6.0 fish per pound. (Raceways are loaded with approximately 50,000 -70,000 fish). In February or March, approximately 23,800 fish will be PIT tagged to evaluate juvenile emigration timing and survival from release to Lower Granite Dam for each release group and to estimate a combined adult escapement back to Lower Granite Dam which will be used to estimate SARs. This tagging is also a cooperative effort between CSS and LSRCP. PIT tags will be distributed across release groups in proportion to the release group size. *Tom Rogers / Carl Stiefel*

2. SPRING CHINOOK SALMON

The total adult return goal for Dworshak NFH and Clearwater Hatchery is 21,135 spring Chinook over Lower Granite Dam. An adult goal of 5,200 was calculated for Kooskia NFH and 1,176 adults for the NPTH program. Broodstock needs for all facilities total 4,460 adults, specifically: 1,000 for Dworshak, 600 for Kooskia (+250 for NPT release at Kooskia), 1,860 for Clearwater, 458 for NPTH. Additional details are listed in the pertinent sections below.

2.1. Broodyear 2008 Spring Chinook

2.1.1. Dworshak – *Approximately 1,000 Chinook are needed for broodstock for the Dworshak spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality. This brood level will provide 1.5 million green eggs and 1.05 million smolts at an average of 89% eyed egg-to-smolt survival to meet the adult return goal of 9,135 to the river above Lower Granite Dam.*

2.1.1.1. Production status - On January 1, 2010, there were 1,121,090 BY08 spring Chinook averaging 23 fpp and 134 mm (5.3 inches) total length on station. At present, these fish appear to be on schedule to meet the size-at-release requirements of 18–20 fish per pound. *Thomas Trock*

2.1.1.2. Projected release – In March 2010, projected release will be approximately 1,115,000 spring Chinook. Chinook will be released (forced out of raceways) on two consecutive evenings from A and B banks in mid to late March with a number of environmental factors considered: flows, turbidity, and an increasing hydrograph,– to give fish as much cover from predators as possible. *Thomas Trock* (**Table 5**)

2.1.1.3. Fish health – 17% of the adult SCS sampled were positive for IHNV. BY08 SCS have done very well to date. No treatments have been necessary. Monthly monitoring samples for BKD are currently being taken. A pre-release exam of 60 fish will be sampled for viral and bacterial pathogens prior to release. *Kathy Clemens*

2.1.1.4. M&E - Approximately 120,000 Dworshak stock are CWT for system contribution monitoring. Prior to release 500 marked fish from each coded-wire tag code are checked for tag retention (BY08 = 98-100 %). *Howard Burge*

2.1.1.5. Research Requests –

- 52,000 Dworshak spring Chinook salmon are PIT tagged by the FWS Columbia River Fisheries Program Office (Vancouver) for Dworshak's contribution to the Comparative Survival Study (CSS).
- Kintama Research Corp. and Univ. of BC has conducted a Pacific Ocean Shelf Tracking Project which applied acoustic tags and monitored the early marine survival of spring Chinook salmon from 2005 – 2009. For 2010 the current request is 1,000 spring Chinook salmon smolts for sonic tagging: 400 to represent barging, 400 to represent in-river migration, and 200 as controls to measure tag retention. *Howard Burge / Ray Jones*

2.1.2. Kooskia - *Approximately 600 Chinook are needed for broodstock for the Kooskia spring Chinook salmon mitigation program. This number includes jacks and accounts for pre-spawning mortality. This brood level produces 600,000 smolts for the Kooskia program at an average 80% eyed egg-to-smolt survival.*

2.1.2.1. Production status - There are 633,607 Kooskia Stock spring Chinook fry at Kooskia NFH weighing 18,650 lbs, 4.61 inches or 117 mm long, at 34.0 fish/lb (fpp). The Burrows ponds were put on Clear Creek water October 1, 2009. Chinook will be split from Burrow's ponds into raceways in February, 2009 if densities warrant. *Adam Izbicki*

2.1.2.2. Projected release - KNFH will direct release an estimated total of 633,000 Spring Chinook at 25-30 fpp on or after the last week in March. (**Table 5**) *Adam Izbicki*

2.1.2.3. Fish health – 39% of adult SCS sampled were positive for IHNV. Treated for *Ich* in mid summer 2008. By late summer, cooler water (chilled) cleaned up the fish enough that treatments were no longer required. Monthly monitoring samples for BKD are currently being taken. A sample of 60 fish will be taken and assayed for virus, bacteria, and parasites prior to release. *Marilyn Blair*

2.1.2.4. M&E –Prior to release 500 marked fish from each mark group (tag code) are checked for tag retention (BY08 = 98 %). 15,000 Chinook will be PIT

tagged for the 2010 release for juvenile and adult monitoring. Most of these PIT tags will be requested to be handled in a monitoring mode (14,000) at the dams with 1,000 in the default return to river mode. *Howard Burge*

2.1.3. Clearwater - *Approximately 1,906 Chinook are needed for broodstock for the Clearwater Fish Hatchery spring Chinook salmon program. This number includes 966 for Powell, 940 for the SF program and also accounts for pre-spawning mortality. Original design memorandum shows the production goal may be as high as three million Chinook smolts. Historically, Chinook releases from Clearwater have ranged up to approximately 1.98 million smolts, 1.65million presmolts and 1.0 million parr. Adult return goal for the program is 12,000 adult Chinook over Lower Granite Dam.*

2.1.3.1. Production status/transfer date/projected release – Planned releases of BY08 spring Chinook smolts are for 2,254,350 at an expected 16-20 fish per pound (140,897 pounds of fish). Fish will be released from transportation trucks at designated release sites. The release number is determined by subtracting fish loss from the inventory at the time of Ad clipping. Red River and Powell acclimation ponds will be watered up by the third week of March. Beginning 2010 the Crooked River Spring Chinkook release of 700K will be transferred to Red River in preparation for future Summer Chinook program at Crooked River. Fish will be transported to each facility and placed in the ponds during the last week of March to first week of April, release adjustment will be made depending on ice conditions. Smolts are then released directly from the ponds. At Red River and Powell non-acclimated smolts will be released directly from the ponds daily at sunset. Brian Leth recommended that we hold smolts in ponds as long as Hatchery Manager was comfortable for the fish to be safe and then release the same day. All production Chinook are Ad clipped. During the first week of April (dates) the NPT will transport approximately 300,000 smolts to the Selway River for release near the mouth of Meadow Creek. The 335k pre-smolts previously being used for the Flow Index study were reared to full-term smolts and 229,600 will be released into Clear Creek and 102,300 into the Selway River. The fish going into Clear Creek will be 100% marked with an AD clip and 121,500 will be CWT. Selway transport should be coordinated with Steve Rodgers and Clear Creek release coordinated with Adam Izbicki. (**Table 5**) *Jerry McGehee*

2.1.3.2. Fish health – Brood Powell Spring Chinook: IHNV was detected in 20/60 pools (3 fish per pool) of ovarian fluids (60 fish sampled). These positive detections were reported to the APHIS veterinarian-in-charge. ELISA sampling detected 3 Highs (1.2%) out of 242 fish sampled. Eggs from females with high ELISA values were culled from the Clearwater Chinook salmon program. Prespawning mortality was at 5.25%.
Broodyear 2008 Powell: Pathogens have not been detected in these fish to date during routine sampling.

Brood S. F. Clearwater Spring Chinook**:** IHNV was detected in 5/60 pools (3 fish per pool) of ovarian fluids. These positive detections were reported to the APHIS veterinarian-in-charge. ELISA sampling detected 33 Highs (5.4%), out of the 607 females sampled. Eggs from females with high ELISA values were culled from the Clearwater Chinook salmon program. Prespawning mortality was at 4.5%.
Broodyear 2008 S. F. Clearwater Spring Chinook**:** No pathogens have been detected during routine sampling.
Juvenile

- Rearing inspections – Quarterly inspections are performed by Eagle Fish Health Lab. No pathogens detected in regular monthly inspections except for 1 DFAT positive for Renibacterium salmoninarum in the South Fork of the Clearwater spring Chinook salmon.
- Pre-liberation inspections – These inspections are performed by Eagle Fish Health Lab within 45 days of release.
- Quarterly inspections. Pre-liberation prior to release at Satellites (60 fish samples). *Doug Munson*

2.1.3.3. M&E - The fish are sampled monthly between the 25th and 28th of the month. During months of rapid growth, fish are sampled biweekly. Pound counts are taken to track fish growth and monitor if growth is following the annual growth projections. Length frequencies are taken three times during the final rearing cycle, during marking as fish are move outside, at the end of October and 2 weeks prior to outplanting. Approximately 30 days prior to release, up to 300 fish are sampled to quality check Ad clips and CWT retention. In February and March of 2010, 72,800 Chinook salmon will be PIT tagged to evaluate juvenile timing and survival from release to Lower Granite Dam for each release group and to estimate an adult escapement back to Lower Granite Dam from each of the five major smolt release groups as well as to provide a tool for in-season harvest management (Table 5). Similar to the steelhead PIT tagging, this is a cooperative effort with the CSS study to evaluate transport and in-river SARs so PIT tags are separated by code with the majority of the tags representing the run-at-large and a smaller portion being default returned to the river during outmigration. PIT tags are representatively distributed across release groups. *Jerry McGehee / John Cassinelli*

2.1.4. Nez Perce Tribal Hatchery/Clearwater Hatchery

2.1.4.1. Production status - As of December 31, 2009, there were 200,690 BY08 spring Chinook averaging 30 fpp on station. These fish are being reared in the east and west "S" channels at NPTH. Target size at release is 20 fpp.

2.1.4.2. Projected release – Beginning April 1st 2009, these fish will be allowed to leave volitionally for up to two weeks directly into the Clearwater River from the "S" channels at NPTH. Forced release of remaining fish will occur by April 15, and will be determined based on river conditions and other hatchery operational factors. *Steve Rodgers* (**Table 5**)

2.1.4.3. Fish health – Fish are doing well to date. A pre-release exam of 60 fish will be sampled for viral and bacterial pathogens prior to release. *Kathy Clemens*

2.1.4.4. M&E – These fish are 100% CWT'd, and 60K are also AD clipped. Up to 600 fish will be PIT tagged by NPTHC M&E staff prior to release to monitor outmigration survival to Lower Granite Dam.

2.2. Broodyear 2009 Spring Chinook

2.2.1. Dworshak

2.2.1.1. Production status - There were 733,000 eyed eggs of Kooskia stock BY09 SCS shipped to Kooskia NFH during October, 2009. There were also 575,000 eyed eggs of Dworshak stock SCS shipped to Kooskia during October. On January 1, 2010, there were approximately 585,000 Dworshak stock eggs/sac-fry incubating at Dworshak. In the spring of 2010, approximately 550,000 SCS fry of Dworshak stock will be ponded directly from Kooskia into five raceways at Dworshak. There will be 110,000 SCS fry ponded from Dworshak incubators into each of five raceways at Dworshak; three groups directly into a concrete raceway, one group into seven circular tanks, and one group into four rectangular aluminum tanks. *Thomas Trock*

2.2.1.2. Fish health status –Adult IHNV prevalence was 29%. BY09 has experienced no problems to date. 60 fish will be sampled prior to release. *Kathy Clemens*

2.2.1.3. M&E - Approximately 120,000 Dworshak stock will be CWT in August for contribution monitoring (**Table 6**). Tagging plans also include 52,000 PIT tags for the Comparative Survival Study (CSS). The CSS is looking at adult survival of transported vs. non-transported and up-river vs. down-river releases. *Howard Burge*

2.2.2. Kooskia

2.2.2.1. Production status - Kooskia stock BY09 spring Chinook eggs were taken from a total of 223 females spawned with a total of 191 males. This produced an estimated total of 780,500 green eggs. All of the Kooskia stock eggs were transferred to KNFH October 8 - 21, 2009. Eggs were placed on chilled well water (approximately 38°F). Eggs were all hatch out by mid January. Due to a power failure the eggs were not incubated on chilled well water to prevent silt problems due to spring runoff, as planned. Kooskia is carrying an additional 50,000 BY09 fry and these cannot be reared to full smolts due to limited summer rearing space, these fry need to be removed by May 20, 2010. The NPT is various options including rearing at Sweetwater. Approximately 566K Dworshak Stock BY 2009 eggs are currently being incubated at Kooskia NFH. Early rearing of Dworshak stock SCS at Kooskia will alleviate egg chiller capacity demand at Dworshak and take advantage of extra rearing space at Kooskia. Fry will be tanked and reared to app 600-800fpp then trucked back to Dworshak for rearing and release. *Adam Izbicki*

2.2.2.2. Fish health status - Adult IHNV prevalence was 45%. BY09 has experienced no problems to date, 60 fish will be sampled prior to release. *Marilyn Blair*

2.2.2.3. M&E - Adult monitoring for the ISS will continue, as will monitoring of the Kooskia weir. Current plans are to CWT approximately 100,000 in August, 2010 for contribution (**Table 6**) and 15,000 Kooskia stock smolts will receive PIT tags in February, 2011. *Carrie Bretz / Howard Burge*

2.2.3. Clearwater

2.2.3.1. Production status – The proposed number of Clearwater Fish Hatchery fish to be allocated from brood year 2009 is 2.135 million smolts, 200k-220k pre-smolts for NPTH , and 300k parr. *Jerry McGehee*

2.2.3.2. Estimated numbers/planned marking & tagging - All production Chinook are Ad clipped. Planned releases of BY09 Chinook are for 2,135,000 smolts 16-20 fish per pound. (This does not include a TBD # at fish marking that will be transferred to NPTH in Sept 2010 but does include 235K for Clear Creek and 100k Selway River pre-smolts being used for Flow Index study rearing to full-term smolts). The NPT will transfer the extra Clearwater stock fish to NPTH site 1705 during September 2010. Prior to transfer NPT will provide wire for 100% CWT and 33% AD clips. NO pre-smolts and 300K parr 30-50 fpp will be released from transportation trucks at designated release sites. Red River and Powell acclimation ponds will be watered up and screens put in place by the third week of March each year. Beginning 2010 the Crooked River Spring Chinook release of 700K will be transferred to Red River in preparation for future Summer Chinook program at Crooked River. Fish will be transported to each facility and placed in the ponds during the last week of March to first week of April release adjustments will be made depeding on ice conditions. Smolts are then released directly from the ponds. At Red River and Powell non-acclimated smolts will be released directly from the ponds daily at sunset. All production Chinook are Ad clipped. NPT contact for transport is Steve Rodgers. (**Table 6**) *Tom Rogers*

2.2.3.3. Fish health status – Brood Powell Spring Chinook**:** IHNV was detected in 0/90/ (sampled individually) of ovarian fluids and kidney/spleen tissues . ELISA sampling detected 8 Highs (1.9%) of the 428 females spawned. Eggs from females with high ELISA values were culled from the Clearwater Hatchery Chinook salmon program. Prespawning mortality was at 1.8% in 2009.

Brood S.F. Clearwater Spring Chinook**:** IHNV was detected in 4/60 of ovarian fluids and kidney/spleen tissues. These detections were reported to the APHIS veterinarian-in-charge. ELISA sampling detected 25 Highs (5.8%) of the 433 females sampled. Eggs from females with high ELISA values were culled from the Clearwater Hatchery Chinook program. Prespawning mortality was at 3.4% in 2009.

Eggs- Disease Sampling: When the females are spawned, kidney samples are collected from all females; ovarian samples are collected from 60 and kidney/spleen tissues from at least 30 females (viral replicating agent

analysis) as well as head wedges from 20 fish for whirling disease testing. All samples are air freighted weekly to the Eagle Fish Health lab for analysis. Females are screened for BKD using ELISA techniques. Females with optical densities (OD) over 0.25 are culled.

Juvenile

- Rearing inspections – quarterly inspections are performed by Eagle Fish Health Lab
- Pre-liberation inspections – These inspections are performed by Eagle Fish Health Lab
- Quarterly inspections. Preliberations prior to release at Satellites (60 fish samples). *Doug Munson*

2.2.3.4. M&E - The fish are sampled monthly between the 25th and 28th of the month. During months of rapid growth, fish are sampled biweekly. Pound counts are taken to track fish growth and monitor if growth is following the annual growth projections. Length frequencies are taken three times during the final rearing cycle, during marking as fish are move outside, at the end of October and 2 weeks prior to outplanting. Approximately 30 days prior to release, 100 fish are sampled to quality check Ad clips, and CWT retention. In February or March 2011, approximately 51,000 Chinook salmon will be PIT tagged to evaluate juvenile timing and survival from release to Lower Granite Dam for each release group and to estimate an adult escapement back to Lower Granite Dam from each of the five major smolt release groups as well as to provide a tool for in-season fisheries management (Table 5). If CSS funding is available, tag numbers will be closer to 72,800. *Jerry McGehee / John Cassinelli*

2.2.4. Nez Perce Tribal Hatchery *Approximately 458 spring Chinook salmon adults are needed for broodstock for the Nez Perce Tribal Hatchery spring Chinook program. This number does not includes jacks(goal for jacks is less than 5% contribution to production annually), and accounts for pre-spawning mortality. This brood level will provide for a target release of 75,000 presmolts from Newsome Creek (South Fork Clearwater River) acclimation facility, 150,000 presmolts from Yoosa/Camp (Lolo Creek) acclimation facility and 400,000 parr into Meadow Creek (Selway River).*

2.2.4.1. Production status – A total of 277 adults and 246 jack spring Chinook were trapped at Nez Perce Tribal Hatchery facilities in 2009: Lolo Creek (72 adults, 22 jacks), Newsome Creek (63 adults, 28 jacks), NPTH (142 adults, 196 jacks). In addition, 279 adults were obtained from Dworshak to ensure full production was met. From all of these sites, 227 females were spawned: Lolo Creek (18), Newsome Creek (26), Dworshak (150) and NPTH (33). Eggs from three females were culled due to high BKD ELISA values, and water-hardened eggs from four females were also culled. Resultant production was approximately 890,082 eyed eggs. 42,987 sac fry were lost as the result of three blocked water lines during extremely turbid river water conditions in late December. As of December 31, 2009, a total of 756,094 sac fry were on hand at NPTH, which includes

a surplus of approximately 40,000. Disposition of this surplus will be determined in February. Targeted 2010 releases: (**Table 5**).

- 150,000 presmolts (acclimated) into Yoosa/Camp/Lolo Creek in October
- 75,000 presmolts (acclimated) into Newsome Creek in October
- 400,000 parr (direct stream) into Meadow Creek in June

The NPT will transfer Clearwater stock BY2009 spring Chinook from Clearwater FH during early September 2010 (section 2.2.3.2). Fish will be reared in the NATURES "S" channels or linear raceways until late-March or early-April 2011 and released at approximately 20 fpp. *Steve Rodgers*

2.2.4.2. Estimated numbers/planned marking & tagging – Fish destined for release from acclimation facilities will be 100% marked (CWT) at approximately 160 fish per pound (2.52 gat either NPTH or Sweetwater Springs. The Newsome Creek fish will be transferred to Sweetwater Springs in early spring to reduce densities at NPTH, and held there until early September. They are then transferred to the Newsome Creek AF in late August or early September for acclimation and final rearing. Lolo Creek fish will be held at NPTH until late August or early September and then transferred to Yoosa/Camp AF for acclimation and final rearing. For smolts being reared at Clearwater Hatchery NPT M&E staff will coordinate with IDFG for CWT and ad-clipping to occur at Clearwater Hatchery. These fish will be marked 36% CWT and Ad and 64% CWT only. Prior to release at NPTH ~600 fish will be PIT tagged by NPT. *Steve Rodgers*

2.2.4.3. Acclimation facility operations/release –

- Yoosa/Camp – Transfer of the fish will occur in late August or early September (when water temperatures cool). Prior to release, 9,000 fish will be tagged with a PIT tag. Volitional release will begin on approximately October 1, with all fish forced out by October 14, 2010. Target size at release is 34 fish per pound (13.3 g). **(Table 5)**.
- Newsome Creek – Transfer of fish will occur in late August or early September (when water temperatures cool Prior to release, 6,000 fish will receive a PIT tag. Volitional release will begin on approximately October 2, with all remaining fish forced out by October 15, 2010. Target size at release is 29 fish per pound (15.6 g). **(Table 5)**.
- Meadow Creek – Approximately 400,000 parr will be direct stream released into Meadow Creek in 2010. Prior to release, 10,000 fish will receive a PIT tag. On June 21 – 25, 2010, the spring Chinook salmon parr will be transported and direct stream released via helicopter into Meadow Creek, Selway River. Target size at release is 117 fish per pound (3.9 grams). **(Table 5)**. *Steve Rodgers*

2.2.4.4. Fish health status – 5.6% of the fish sampled were positive for IHNV. Eggs from 5 females were culled because of high ELISA values. *Kathy Clemens*

2.2.4.5. M&E -

- Tag retention and delayed mortality – Estimate CWT delayed mortality rates within 5 days of tagging. Estimate CWT retention rates 25-35 days after tagging and just prior to release. Estimate PIT tag retention rates and delayed mortality within 7 - 10 days of tagging.
- PIT survival studies- Estimate smolt survival rates and migration timing **(Table 6)**.
- Downstream migration – Operate rotary screw traps within Meadow Creek, Lolo Creek and Newsome Creek to monitor movement, timing, condition factors, and population estimates. *Sherman Sprague*

2.2.4.6. Communication - NPTHC produces monthly production and pathology reports, an annual operation plan and an annual operation report. Fish Research produces weekly weir reports, final weir summary report, spawning ground summary reports, and SURPH survival summary reports.

2.3. Broodyear 2010 Spring Chinook

Spring Coordination Kickoff Meeting is scheduled for March 16th at the Forest Service Office in Enterprise, OR. There are weekly conference calls scheduled for Tuesdays (beginning May 5, 2009), and standardized report tables planned to keep all parties updated, informed, and coordinated on in-season run development, harvest estimates, broodstock collection, priorities for excess broodstock, outplanting plans, etc…

2.3.1. Dworshak

2.3.1.1. Projected adult returns - Based on 2008 tribal harvest, sport harvest data, rack returns, and ocean conditions during emigration; the forecasted return for 2010 Dworshak adult spring Chinook to the Clearwater River is 9,137 fish **(Table 7a)**. Given this prediction FWS is optimistic that they will meet broodstock requirements. It's also highly likely IDFG and the NPT will open sport and tribal fisheries in the Clearwater River in the spring of 2010 after dam counts of PIT tagged adults verify the estimates. *Chris Peery / Howard Burge*

2.3.1.2. Ladder operation – Ladder opening will be heavily influenced by in-season run validation and timing. If the return is as predicted, the plan and agreement of co-managers is to utilize fish for tribal subsistence earlier in the return when they are in better condition, rather than later when they are unfit for human consumption. Snouts would need to be removed from CWT tagged Chinook prior to subsistence distribution. The adult return will be closely monitored and if good DNFH will wait until late June to early July to collect broodstock. *Howard Burge*

2.3.1.3. Adult outplanting / distribution plans – **Table 8a** lists the prearranged streams to receive adult spring Chinook salmon, table is updated with 2010 proposed limits. Outplanting will be coordinated between Mike Key (NPT) and Howard Burge (FWS). The earliest date the NPT trucks would be available for any outplanting is June 23. For outplants to the Upper Selway River, the truck will be loaded beginning at 6 AM to allow time

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for the trip. All adults outplanted from Dworshak will receive a left opercle v-notch as shown in **Table 8b**. *Howard Burge*

2.3.1.4. Adult M&E Returning adults are measured and examined for gender, various clips and tags, and marks then sorted for spawning or holding. *Carrie Bretz*

2.3.1.5. Spawning plans Dworshak will spawn 350-425 females for its program and 250-275 females for Kooskia's program. *Thomas Trock*

2.3.1.6. Egg Incubation All eggs taken for Kooskia and Dworshak will be initially incubated at Dworshak. After eye-up and enumeration, all of Kooskia eggs will be shipped to Kooskia for final incubation. Either all of Dworshak eggs will be incubated at Dworshak or a portion will be shipped to Kooskia for incubation over the winter. *Thomas Trock*

2.3.1.7. Fish health – Every adult female will be sampled individually for BKD with ELISA. Up to 150 ovarian fluid samples (3 pool) will be sampled for viruses. An additional 60 tissue samples will be taken for bacteria assays, and 20 samples for *Myxobolus cerebralis and C. Shasta*. Eggs from high and medium ELISA level females will be culled; exact level will depend upon number of fish returning. *Kathy Clemens*

2.3.1.8. Communication FWS puts out weekly spawning reports and weekly return reports, and annual spawning and adult return reports are also produced.

2.3.2. Kooskia - *Starting in 2009 an additional 250 brood will be collected at Kooskia for a total of 850 broodstock. This brood level would produce 600,000 smolts for the Kooskia mitigation program and approximately 250,000 smolts (reared at Clearwater FH) for release into Clear Creek.*

2.3.2.1. Projected adult returns - Based on 2008 draft tribal harvest, sport harvest data, and rack returns and ocean conditions during emigration; the 2010 forecasted return for Kooskia NFH adult spring Chinook to the Clearwater River is 1,807 fish **(Table 7a)**. Given this prediction FWS is optimistic that they will meet broodstock requirements. It's also likely IDFG and the NPT will open sport and tribal fisheries in the Clearwater River in the spring of 2010 after dam counts of PIT tagged adults verify the estimates. *Chris Peery / Howard Burge*

2.3.2.2. Trap operation – Trap will be opened for Chinook collection around the 15th of May until July 15th when it must be closed due to a construction project. All natural returning adults will be released upstream for natural spawning in accordance with ISS protocol. Returning adults collected for broodstock will be transported to Dworshak for holding until spawning. *Howard Burge*

2.3.2.3. Adult outplanting / distribution plans - **Table 8a** lists the prearranged streams to receive adult spring Chinook salmon. Chinook loaded for adult outplanting will be loaded directly into NPT trucks at Kooskia. Outplanting will be coordinated between Mike Key (NPT) and Howard Burge (FWS). All adults ouplanted from Kooskia will receive two right opercle v-notchs as shown in **Table 8b**. Tribal use of un-anesthetized

jacks for the elder program will need to be coordinated prior to adult sorting. (NPT contact Nancy McAllaster, 208-843-7320 ext.2126)

2.3.2.4. Adult M&E Returning adults are measured and examined for gender, various clips, tags, and marks then sorted for spawning or holding. *Howard Burge*

2.3.2.5. Spawning plans - Kooskia spring Chinook BY 10 adult broodstock will be kept at Dworshak NFH. Spawning normally occurs the third week of August. Eggs collected that are in the low range of the BKD testing will be kept and the medium to high eggs are discarded. Jacks will be utilized for ~10% of the spawners. *Adam Izbicki*

2.3.2.6. Egg incubation - BY10 Kooskia stock (750k) eggs will be transferred to KNFH beginning of November after eye-up. A new egg incubation recirculation system will be constructed summer 2010. BY 2010 eggs will be incubated on that new recirculation system with chilled well water makeup, approximately 38-40°F. Normally eggs all hatch out by mid January and are tanked mid March. *Adam Izbicki*

2.3.2.7. Fish Health - Every adult female will be sampled individually for BKD with ELISA. Up to 150 ovarian fluid samples (3 pool) will be sampled for viruses. An additional 60 tissue samples will be taken for bacteria assays, and 20 samples for *Myxobolus cerebralis and C. shasta.* Eggs from high and medium ELISA level females will be culled; exact level will depend upon number of fish returning. *Kathy Clemens*

2.3.2.8. Communication - FWS puts out weekly spawning reports and weekly return reports, and annual spawning and adult return reports are also produced.

2.3.3. Clearwater - *2010 broodstock collection may be reduced at Powell, if broodstock for the Clear Creek release are collected at Kooskia NFH.*

2.3.3.1. Projected adults returns – IDFG pre-season forecast of spring Chinook returning from Clearwater Hatchery releases is 11,178 for 2 and 3 ocean fish **(Table 7b)**. IDFG will use in-season assessments of overall run strength and returns to specific hatcheries based on analyses of counts and PIT tag detections at dams, to finalize sport harvest seasons and limits. The State sport fishery will be managed to stay within allowable incidental take of ESA listed populations and for 50% of the harvestable share of adult spring Chinook. Real time predictions will be used to adjust the share. *Sam Sharr, Tom Rogers*

2.3.3.2. Trapping operations at satellite facilities - Spring Chinook will be trapped at the Crooked River and Red River weirs, which will be installed for steelhead trapping, approximately the third week of March, prior to high water. Powell trap will go in around June 1. Trapping operations will continue until after September 1 and five consecutive days of zero fish are trapped. Proposed adult needs will be approximately 953 females and 953 males for Clearwater Hatchery allocations. NPT requested adult spring Chinook in excess of Clearwater broodstock requirements be available for broodstock at NPTH. Notify Steve Rodgers and Becky Johnson. If CFH

manager predicts elevated prespawning mortality in holding adults, hatchery manager will compensate for loss by taking and holding additional adult fish. If by commencement of spawning too many adults have been taken, then adult outplants will be implemented at locations and levels given in **Table 8a**. *Jerry McGehee*

2.3.3.3. Adult outplanting / distribution plans - The outplanting protocol [for excess hatchery broodstock] provides for distribution for natural spawning and subsistence use. If adult Chinook, available for release into natural spawning areas, exceed the numbers agreed to in **Table 8a**, further consultation will occur. The general procedure for providing fish for subsistence will be first to tribal programs, then to charitable organizations. Jack Chinook may go to subsistence programs directly. Please see **Tables 8a** and **8b** for outplanting priority streams and marks. *Tom Rogers*

2.3.3.4. Spawning plans - Spawning ratios of 1:1 will be used unless the brood stock population is less than 100 females. If the spawning population is less than 100 females, then eggs from each female will be split into two equal groups. A different male will fertilize each group. One cup of well water will be added to each bucket and set aside for 30 seconds to one minute. The two buckets will be poured together and continued through the spawning process. When brood stock population is 50 to 25 females, the eggs from each female will be split into three equal groups and each group fertilized by a different male. One cup of well water will be added to each bucket and set aside for 30 seconds to one minute; then all three buckets will be poured together. When brood stock population is 25 females or less, the eggs from each female will be divided into four equal groups, each fertilized by a separate male. The process will be completed as previously mentioned to finish the spawning process. During the entire spawning year, at most five to ten percent of the jacks will be used during the spawning process. An effort will be made to use all returning fish for spawning. If presented with an excess number of one sex, gametes from individual parents may be subdivided and each part fertilized with gametes with different parents. The first sort will occur between August 5 and 10. All females will be sorted twice per week, and all ripe females will be spawned each time. Spawning will continue until all females are spawned. NPT assistance will be provided when spawning Chinook for NPTH. If too many eggs are taken for the hatchery program, these eggs can be used to backfill appropriate IDFG programs, other agency programs. If not needed, surplus eggs will be disposed. *Jerry McGehee*

2.3.3.5. Juvenile production - Original design memorandum shows a production goal may be as high as 1.5 million Chinook smolts reared at the main facility, and 1.5 million fall release pre-smolts reared at the three satellite facilities. *Jerry McGehee*

2.3.3.6. Fish Health - All females will be tested by ELISA for Bacterial Kidney Disease (BKD). All eggs from females that are identified at a level of 0.25 OD or higher will be culled. A 60 fish sample (ovarian fluids) and at least

30 kidney/spleen (tissue) samples will be taken for viral replicating agents. A 20 fish sample (head wedge) will be taken for *Myxobolus cerebralis* analysis. Juveniles will be inspected on a quarterly basis. Diagnostics on demand. Pre-liberation samples prior to release at satellites (60 fish sample). *Doug Munson*

2.3.4. Nez Perce Tribal Hatchery

2.3.4.1. Projected adult returns - Projected adult returns estimates to Lolo and Newsome creeks are 447 and 218, respectively **(Table 7c).** At the present time, there are no adult return estimates for Meadow Creek. The 7 year mean of capture efficiency at our Lolo Creek Weirs is 28%, for Newsome Creek it is 82%. The total number of returning adults we expect to capture at our Lolo and Newsome Creek weir sites are 125 and 179, respectively. Broodstock needs are: 110 adults for Lolo Creek, 56 adults for Newsome Creek, and 292 adults for Meadow Creek, Selway. The broodstock needs assumes a 50:50 sex ratio. *Sherman Sprague*

2.3.4.2. Trapping operations at NPTH – The adult ladder and trap at Nez Perce Tribal Hatchery will be operated in 2010 to collect spring Chinook adults as a broodstock source for the Meadow Creek program and a backup brood source for the Lolo and Newsome programs. Trapping operations will begin mid-April and continue through July 31st.

Broodstock selection will be based on existing fin clips, marks, or tags. Only adipose fin clipped and/or CWT fish will be used as broodstock and will be retained at the rate described above. All natural, non-adipose fin clipped, known Idaho Supplementation Studies (ISS), and radio tagged fish will be returned to the Clearwater River and allowed to continue their spawning migration.

An alternative broodstock source for the Meadow Creek, Selway program is to obtain spring Chinook broodstock from other programs. Per agreement with IDFG and USFWS, adults returning to Crooked River, Rapid River, Red River, Powell satellites and Dworshak Hatchery may also be used for broodstock. Up to 458 adults (229 females and 229 males) may be collected at these facilities if necessary to help NPTHC meet full production, if they are available. Preferably these fish would be spawned at IDFG and USFWS facilities and eggs transported to NPTH for incubation and rearing. *Steve Rodgers*

2.3.4.3. Trapping operations at Lolo Creek and Newsome Creek - Trapping operations on Lolo and Newsome creeks usually begin at the end of May, after peak flows are reached. Trapping will continue through September 19th, or until zero fish are trapped for 7 consecutive days. Two weirs will be operated on Lolo Creek, an upper weir (RKM 51) and a lower weir (RKM 21). Pass/keep ratios will be adjusted on a weekly basis dependent on actual captures. The adult weirs will also be used for escapement, estimating sex composition, age structure, return timing and

genetic tissue sampling. Trapped fish will be transported by NPTHC staff from the weir sites to NPTH for holding and sexual maturation. M&E staff may assist with transport of adults from the upper and lower weirs on Lolo Creek when staff is available. *Sherman Sprague*

2.3.4.4. Adult outplanting plans - Please see **Table 8a** and **8b**. *Becky Johnson*

2.3.4.5. Spawning plans – The first sort and spawn will occur as early as August 3rd. Spawning will occur on Tuesday of each week at NPTH. A spawning ratio of 1:1 will be used. Jacks will be limited to five percent of the male contribution. Spawning will continue until the egg take goal is achieved or all females are spawned. *Steve Rodgers*

2.3.4.6. Juvenile production –

- The current NPTHC production goals are 625,000 parr/pre-smolts. Distribution of juvenile production is 400,000 parr (Meadow Creek), 150,000 pre-smolts (Lolo Creek), and 75,000 pre-smolts (Newsome Creek).
- Juvenile production destined for remote sites will be held in production room tanks, raceways or NATURES "S" channels at NPTH, and also in tanks at the Sweetwater facility. They are transferred to the acclimation facilities when conditions permit (end of August to the second week of September). Production will be 100% marked with a CWT and sub-release groups will be PIT tagged. *Steve Rodgers*

2.3.4.7. Fish Health - All females will be tested by ELISA for Bacterial Kidney Disease (BKD). All eggs from females that are identified at a level of 0.25 OD or higher will be culled. A 150 fish sample (ovarian fluids) will be taken for viral replicating agents. A 20 fish sample (head wedge) will be taken for *Myxobolus cerebralis* analysis. Juveniles will be inspected on a as needed/requested basis. Diagnostics on demand. Pre-liberation samples prior to release (60 fish sample). *Kathy Clemens*

2.3.4.8. Communication - A monthly NPTH narrative and fish health report will be completed and submitted to BPA/COTR, NPT Research and Production divisions, IDFG/Clearwater Fish Hatchery and all other interested parties. NPTHC also produces an annual operation plan and annual operation report for BPA and the comanagers.

3. SUMMER CHINOOK SALMON – *An expected long-term contribution of 5,000-10,000 adults towards the overall Lower Snake River Compensation Plan goal is projected. A long-term broodstock goal of 600 was calculated for the Clearwater Hatchery program. Broodstock needs for Summer Chinook will increase incrementally as the program builds to the full program of 600k to 1.0 mil. full term smolts. The maximum program limit will be determined as the rearing parameters are incrementally (200k fish segments) tested by Clearwater Hatchery staff. Additional details are listed in the pertinent sections below. The egg source will be the South Fork of the Salmon River trap operated by McCall Fish Hatchery. Approximately 68 females and 68 males will be required for each 200k full term smolt allotment for the incrementally increase to 600k to 1.0 mil. This number includes jacks*

and accounts for pre-spawning mortality. This brood level will provide 288k green eggs for each increase of 200k smolts at an average of 72% eyed egg-to-smolt survival to meet the adult return goal.

3.1. Broodyear 2009 Summer Chinook

3.1.1.1. Estimated numbers/ planned marking & tagging - Summer Chinook rearing numbers will increase slowly. Year One, (BY 2009) we increased our production numbers using Option 1 200K from Increased Chinook rearing plan. At the end of Year One we would evaluate how well all stages of production adjusted to the increased 200K. Rearing will be limited to Option 1 of 200k FTS until all program recommendation are in place prior to proceeding to Option 2 and an increase to 400k FTS. Implementation of program parameters are essential to assure safe aquaculture procedures are in place to provide disease free/ stress free environment for rearing of Summer Chinook. The following items are program infrastructure and budget adjustments to be in place prior to proceeding to Option 2.: 1) Rearing cost.; 2) Personnel adjustments to cover project workload {see Increased Chinook Plan}; 3) Infrastructure to accommodate workload, staff housing, 2 pond adult facility, vat space for early rearing, safety modifications to Red River adult weir. If no problems arose we would recommend advancing to Option 2. 400K for Year Two. If we did experience aquaculture problems or infrastructure / personnel adjustments were not in place we would recommend repeating Year One until we were able to fix any problems that arose to reduce risk of fish loss or quality of fish health. On January 19, 2010, 214,150 BY09 fry were on hand. *Jerry McGehee*

3.1.1.2. Projected Release – In March of 2011 the projected release will be approximately 200,000 full term smolts and will be a direct released from the Lower Crooked River trap site.

3.1.1.3. Fish Health - All females were tested by ELISA for Bacterial Kidney Disease (BKD). All eggs from females that were identified at a level of 0.25 OD or higher were culled. A 60 fish sample (ovarian fluids) and at 30 kidney/spleen (tissue) samples were taken for viral replicating agents. A 20 fish sample (head wedge) was taken for *Myxobolus cerebralis* analysis. Juveniles will be inspected on a quarterly basis with additional diagnostics on demand. Pre-liberation samples prior to release at satellites (60 fish sample). *Doug Munson*

3.1.1.4. M&E The fish are pound counted monthly between the 25th and 28th of the month. During months of rapid growth, fish are sampled biweekly. Pound counts are taken to track fish growth and monitor if growth is following the annual growth projections. Length frequencies are taken three times during the final rearing cycle, during marking as fish are move outside, at the end of October and 2 weeks prior to outplanting. Fish will be 100% CWT with no ad clip. Approximately 30 days prior to release, 100 fish are sampled to determine CWT retention. In February or March 2011, approximately 17,100 Chinook salmon will be PIT tagged to evaluate juvenile timing and survival from release to Lower Granite Dam

for each release group and to estimate an adult escapement back to Lower Granite Dam from each of the five major smolt release groups as well as to provide a tool for in-season fisheries management (Table 5). If CSS funding is available, tag numbers will be closer to 85,500. *Jerry McGehee / John Cassinelli*

3.2. Broodyear 2010 Summer Chinook

3.2.1.1. Projected adult returns - IDFG

3.2.1.2. Trapping - Summer Chinook will be trapped at the South Fork of the Salmon trap operated by McCall Fish Hatchery.

3.2.1.3. Spawning – Spawning will occur at the South Fork of the Salmon trap. One or two Clearwater Fish Hatchery staff will travel to there and assist with spawning and disease sampling procedures. They will then package the green eggs for direct transport to the Clearwater Fish Hatchery.

3.2.1.4. Juvenile Production - Summer Chinook rearing numbers will increase slowly. Year One, (BY 2009) we increased our production numbers using Option 1 200K from Increased Chinook rearing plan. At the end of Year One we would evaluate how well all stages of production adjusted to the increased 200K. Rearing will be limited to Option 1 of 200k FTS until all program recommendation are in place prior to proceeding to Option 2 and an increase to 400k FTS. Implementation of program parameters are essential to assure safe aquaculture procedures are in place to provide disease free/ stress free environment for rearing of Summer Chinook. The following items are program infrastructure and budget adjustments to be in place prior to proceeding to Option 2.: 1) Rearing cost.; 2) Personnel adjustments to cover project workload {see Increased Chinook Plan}; 3) Infrastructure to accommodate workload, staff housing, 2 pond adult facility, vat space for early rearing, safety modifications to Red River adult weir. If no problems arose we would recommend advancing to Option 2. 400K for Year Two. If we did experience aquaculture problems or infrastructure / personnel adjustments were not in place we would recommend repeating Year One until we were able to fix any problems that arose to reduce risk of fish loss or quality of fish health. *Jerry McGehee*

3.1.4.4. Fish Health - All females will be tested by ELISA for Bacterial Kidney Disease (BKD). All eggs from females that are identified at a level of 0.25 OD or higher will be culled. A 60 fish sample (ovarian fluids) and at least 30 kidney/spleen (tissue) samples will be taken for viral replicating agents. A 20 fish sample (head wedge) will be taken for *Myxobolus cerebralis* analysis. Juveniles will be inspected on a quarterly basis. Diagnostics on demand. Pre-liberation samples prior to release at satellites (60 fish sample). *Doug Munson*

4. COHO - *A coho reintroduction program was initiated by the Nez Perce Tribe in 1995. Recent production releases have occurred in Lapwai Creek (275,000 smolts), Potlatch Creek (275,000 smolts), Clear Creek (acclimated at Kooskia – 280,000 smolts), and Eldorado*

Creek, Lolo Creek, and Musselshell Creek (total 270,000 pre-smolts). Fish production for this program comes from Eagle Creek NFH, Dworshak, and Clearwater hatcheries.

4.1. Broodyear 2008 Coho

4.1.1. Dworshak

4.1.1.1. Production status – There were 350,499 fish on hand (20,596 pounds, 17.02 fpp) at Dworshak as of January 1st, 2010. *Mike Bisbee*

4.1.1.2. Projected transfer date/acclimation period at Kooskia – 60,000 smolts were transferred to Kooskia NFH in mid-February with the remainder going the first week of March for a 4-5 week acclimation. *Mike Bisbee*

4.1.1.3. Numbers/dates/marks & tags - 61,748 fingerling Coho were marked with a CWT (no AD clip) on May 21st-22nd, 2009. Prior to release from Kooskia 5,000 fish will be PIT tagged. PIT tags will be provided by FWS through Mitchell Act funding. (**Table 9**) *Mike Bisbee*

4.1.1.4. Fish health – These fish had problems with gas bubble disease during the Dworshak attempt to refill the pool and required treatment with florfenicol for Bacteria Coldwater Disease. Fish are sampled no less than quarterly and prior to liberation; a 60 fish sample will be taken and assayed for virus, bacteria, and parasites. *Kathy Clemens*

4.1.1.5. Juvenile M&E –

- Juvenile survival and emigration timing to Lower Granite Dam.
- Smolt-to-adult survival, and adult return timing based on counts at Lower Granite Dam and ladder counts at Dworshak and Kooskia National Fish Hatcheries. *Mike Bisbee*

4.1.2. Transfers from Eagle Creek NFH

4.1.2.1. Projected release - Smolts reared at Eagle Creek NFH will be released into Clear Creek, M.F. Clearwater River and Lapwai Creeks March 2nd and 4th, 2010. Approximately 550,000 (275,000 each stream) will be direct released.

4.1.2.2. Numbers/dates/marks & tags - Coho were marked – 30,000 CWT/Ad and 30,000 CWT only per each release group at Eagle Creek. Prior to transfer from Eagle Creek 10,000 fish will be PIT tagged – 5,000 for release into Clear Creek and 5,000 for release into Lapwai Creek. PIT tags will be provided by FWS through Mitchell Act funding (**Table 9**) *Mike Bisbee*

4.1.2.3. Fish health – Disease history for this broodyear of fish is complete at Lower Columbia River Fish Health Center. All fish are certified disease free. *Kathy Clemens*

4.1.2.4. M&E

- Smolt-to-adult survival and adult return timing based on counts at Lower Granite Dam.
- Juvenile survival to Lower Granite Dam *Mike Bisbee*

4.2. Broodyear 2009 Coho

4.2.1. Dworshak

4.2.1.1. Production status - Adults recognized at Lower Granite Dam totaled 4,629 and 283 jacks in 2009. A total of 1,972 Coho salmon brood stock (939 females, 991 males, 42 jacks) were collected from Dworshak (303) and

Kooskia (1,669) hatcheries. A total of 385 excess adults were outplanted in Lolo, Musselshell, and El Dorado creeks. An additional 218 excess adults were outplanted into the mainstem Clearwater River. The total green egg collection from adults designated as Clearwater stock for 2009 is estimated at 1.6 million. Due to the large adult return we collected enough eggs to produce the Dworshak/Kooskia release (280,000) and the 550,000 smolt production that occurs at Eagle Creek Hatchery. On December 10th and 18th, 2009 eggs were transferred approximately 750,000 eyed eggs to Eagle Creek NFH. On December 17th - 30,524 Clearwater stock eyed eggs were transferred to the Potlatch Corp Union Worker personnel – Brian Henrie. All brood year 2009 Clearwater Coho eggs that were transferred to Eagle Creek NFH and Potlatch Corporation were shocked, picked, and enumerated in December 2009. Eggs were enumerated using a Van Gaalen egg sorter, which showed an 83.4% eye-up for a total of 787,090 eyed eggs. As of January 1, 2010 an estimated 466,000 green eggs are being incubated at Kooskia FH for the 280,000 Dworshak/Kooskia release group. These eggs will be shocked and enumerated using a Van Gaalen egg sorter. *Mike Bisbee*

4.2.1.2. Projected production - The projected Dworshak production will be 350,000 smolts reared through spring 2011. Coho juveniles will be inventoried in the spring and summer of 2011 to ensure that no more than 300,000 fish are reared in the space allotted at Dworshak NFH (System III, Burrows Ponds). Excess Coho parr will be cropped and outplanted to the designated outplant streams. (**Table 9**) *Mike Bisbee*

4.2.1.3. Fish health – Every adult female was sampled individually for BKD with ELISA; values above the cutoff (.25) values resulted in one female's eggs culled. Approximately 435 female ovarian fluid samples were sampled (3 pool) for viruses, 8.6% of the adults sampled were positive for IHNV. An additional 60 tissue samples were taken for bacteria assays, and 60 samples for *M. cerebralis.* Brood fish health samples were taken by NPT staff and delivered to Idaho Fish Health Center personnel for analysis. Juvenile fish will be sampled quarterly and prior to liberation. We suggest treating with Florfenicol prior to transfer to Kooskia to help guard against post-transport, stress induced mortality from Bacterial Coldwater Disease. *Kathy Clemens*

4.2.1.4. M&E - Current plans are to CWT 60,000 in July, 2010 for contribution (**Table 10**). If FWS, through Mitchell Act, is able to provide PIT tags 5,000 smolts will be tagged in February, 2011. Juvenile survival and emigration timing to Lower Granite Dam. Smolt-to-adult survival, and adult return timing based on counts at Lower Granite Dam and ladder counts at Dworshak and Kooskia National Fish Hatcheries. *Mike Bisbee*

4.2.2. Transfers from Eagle Creek NFH

4.2.2.1. Projected release - Smolts reared at Eagle Creek NFH will be released into Clear and Lapwai Creeks in mid-March 2011. Approximately 550,000 (275,000 each stream) will be direct stream released. *Mike Bisbee*

4.2.2.2. Fish health – Disease history for this broodyear of fish is complete at Lower Columbia River Fish Health Center. All fish are certified disease free. *Kathy Clemens*

4.2.2.3. M&E – Marking of fish will occur at Eagle Creek Hatchery. Starting with BY09 fish will receive 30,000 CWT only mark per each release group, 30,000 CWT/Ad clip per each release group (Lapwai Ck and Clear Ck). In addition, prior to transfer from Eagle Creek each release group will be marked with 5,000 PIT tags each for a total of 10,000 PIT tags (Table 10).

- Juvenile survival to Lower Granite Dam.
- Adult return timing based on PIT tags and counts at Lower Granite Dam.
- Approximate smolt-to-adult survival based on PIT tags and the the number of juveniles released and adult returns over Lower Granite Dam. *Mike Bisbee*

4.3. Broodyear 2010 Coho - *A primary program objective is to develop a local Clearwater River Coho stock. To accomplish this, adult Coho returning to the Snake River basin and Clearwater River are a priority for use as broodstock. Fish may be collected at Dworshak NFH, Kooskia NFH, Lyons Ferry FH, and/or Nez Perce Tribal Hatchery, however the priority collection location will be Kooskia. Approximately 1,200 adults are necessary to meet broodstock goals.*

4.3.1. Kooskia

4.3.1.1. Weir/Trap operation - Weir operation will start October 1, 2010 to begin trapping Coho salmon at Kooskia NFH. During the summer of 2010, the NPT, IDFG, and USFWS will meet to determine operation of the weir and trap with respect to coho and disposition of fish returning to Clear Creek that are not necessary for broodstock or tribal harvest. A final decision will be made before the fall operation. *Mike Bisbee*.

4.3.1.2. Adult transfers - Adult steelhead trapped during operation of the Kooskia weir to collect Coho will be loaded and hauled by NPT or USFWS for release into the South Fork Clearwater River. *Mike Bisbee*

4.3.1.3. Coho spawning – All Coho spawning will take place at Kooskia. We will spawn 550 females in order to collect eggs for both the Dworshak program and the Eagle Creek Program. Eggs for the Dworshak/Kooskia group will be incubated and early reared at Kooskia and later transferred to Dworshak. Eggs for the Eagle Creek group will be incubated at Dworshak to eye up stage and transferred to Eagle Creek NFH for final rearing. *Mike Bisbee*

4.3.1.4. Fish Health – The Idaho Fish Health Center will collect the following samples from the returning Adult Coho salmon, 60 head wedges, 60 spleens, 150 Ovarian Fluid, 100% kidneys, and a small amount of intestine samples. Bacteriology will be performed from viral sampling (spleens). 100% sampling will be conducted on ovarian fluid from females whose eggs are destined for Eagle Creek. These samples will be two-pooled. *Corie Samson*

4.3.1.5. Adult carcasses – All adult Coho carcasses post spawn will be out planted into Clear Creek and the mainstem Clearwater River. *Mike Bisbee*

4.3.1.6. Juvenile M&E – NPT have obtained Mitchell Act funds to hire a biologist to oversee and implement coho M&E activities in 2010. The following M&E will occur with the potential to evaluate more information depending on when we are able to get staff on board.

- Smolt-to-adult survival based on weir monitoring in Lapwai Creek and the Potlatch River will not occur unless funding is restored. Limited redd surveys may occur in Lapwai Creek; all adults trapped at Kooskia NFH will replace the former Potlatch River weir counts as they did in 2008.
- Smolt-to-adult survival and adult return timing shall be based on PIT tag information and counts at Lower Granite Dam and ladder counts at Dworshak and Kooskia NFH, Lyons Ferry Hatchery, Nez Perce Tribal Hatchery. *Mike Bisbee*

4.3.2. Dworshak

4.3.2.1. Ladder operation - Ladder operation will start first week of October 2010 to begin trapping steelhead at Dworshak NFH. Depending on the projected return NPT may request that any Coho trapped be retained for broodstock needs. *Mike Bisbee*

4.3.2.2. Adult transfers - Adult Coho retained for broodstock needs will be loaded and transported by the NPT or USFWS to Kooskia for holding until spawning occurs. *Mike Bisbee*

4.3.2.3. Eagle Creek NFH – If sufficient broodstock are collected to provide eggs for the Eagle Creek smolt program then eggs and milt will be collected at Kooskia and transported to Dworshak for delayed fertilization. Eggs will incubate at Dworshak to eye-up stage and then transferred to Eagle Creek NFH in late December/early January for final rearing. *Mike Bisbee*

4.3.2.4. Juvenile M&E –

- To be determined.
- Smolt-to-adult survival and adult return timing shall be based on PIT tag information and counts at Lower Granite Dam and ladder counts at Dworshak and Kooskia NFH, Lyons Ferry Hatchery, Nez Perce Tribal Hatchery. *Mike Bisbee*

4.3.2.5. Communication - – Clearwater Coho Project Leader produces monthly production, semi-annual, and annual reports. *Mike Bisbee*

5. FALL CHINOOK SALMON - *Fall Chinook salmon production in the Clearwater River occurs through two programs – Lower Snake River Compensation Plan/Fall Chinook Acclimation Project and Nez Perce Tribal Hatchery.*

5.1. Broodyear 2008 Fall Chinook

5.1.1. NPT Fall Chinook Acclimation Project – Big Canyon Facility - *The Big Canyon Acclimation facility is a portable acclimation setup designed and operated for acclimation and release of Snake River fall Chinook salmon that are reared at Lyons Ferry Hatchery. Big Canyon facility is operated by the Nez Perce Tribe as part of the Fall Chinook Acclimation Project (FCAP) funded by BPA. The facility*

has capacity to acclimate 150,000 yearlings and 500,000 subyearlings. The facility is operated in conjunction with two other acclimation facilities on the Snake River in an effort to restore ESA listed Snake River fall Chinook salmon and achieve the LSRCP mitigation goal of 18,300 adults to the project area

5.1.1.1. Production status – Approximately 155,000 yearlings are being reared at Lyons Ferry Hatchery for transfer to the Big Canyon acclimation facility on March 3, 4, 5, 2010. *Bruce McLeod / Mike Key*

5.1.1.2. Projected release – Target release will be 150,000 yearlings at 10 fpp on April 15. Fish are 70,000 CWT and ad clipped and 80,000 CWT only. 19,000 will be PIT tagged (see M&E section below). (**Table 11**) *Bruce McLeod / Mike Key*

5.1.1.3. Fish health - Import permit sampling was done on Jan 20, 2010 and results will be sent to Eagle Fish health Lab and Bruce McLeod. Monitoring samples for BKD will be taken weekly and a 60 fish sample will be collected and assayed prior to release from each site. *Kathy Clemens*

5.1.1.4. M&E - Yearling release groups will be sampled for length and weight at time of release. A subsample of approximately 600 fish are collected as the fish are being released. We sample 500 fish from each raceway at LFH for coded wire tag and adipose fin clip retention 21 days after tagging/marking is completed. We will PIT tag 4,000 yearlings to estimate survival, migration rate and timing through the FCRPS. An additional 15,000 PIT tags for the transportation evaluation study – PIT tagging will occur at Lyons Ferry Hatchery. All mortalities at Big Canyon will be scanned for PIT tags. Aerial redd counts and adult spawner carcass sampling in the Clearwater subbasin will be conducted by NPTH M&E personnel. Coded wire tags will provide SAR data. *Bill Arnsberg*

5.1.1.5. Communication - O&M and M&E quarterly and annual reports to BPA.

5.2. Broodyear 2009 Fall Chinook

5.2.1. NPT – Fall Chinook Acclimation Project – Big Canyon Facility

5.2.1.1. Production status – Approximately 500,000 subyearlings are being reared at Lyons Ferry Hatchery for transfer to the Big Canyon acclimation facility on May 5, 6, 7, 2010. *Bruce McLeod / Mike Key*

5.2.1.2. Projected release – Target release is 500,000 subyearlings at 75-50 fpp on May 25, 2010. A group of 100,000 fish are CWT / ad-clipped and 100,000 CWT only for evaluation – the balance of fish are unmarked. 36,765 will be PIT tagged. (**Table 11**) *Bruce McLeod / Mike Key*

5.2.1.3. Fish health - Import permit sampling will be done in March/April. A 60 fish sample will be collected and assayed prior to release from each site. *Kathy Clemens*

5.2.1.4. Juvenile M&E – Subyearling release groups will be sampled for length and weight at time of release. A subsample of approximately 1,000 fish is collected as they are being released. We sample 500 fish from each raceway at LFH for coded wire tag and adipose fin clip retention 21 days after tagging/marking is completed. We will PIT tag 4,233 subyearlings to estimate survival, migration rate and timing through the FCRPS. An

additional 34,708 will be PIT tagged for the transportation evaluation study. All mortalities at Big Canyon will be scanned for PIT tags. Aerial redd counts and adult spawner carcass sampling in the Clearwater subbasin will be conducted by NPTH M&E personnel. Coded wire tags will provide SAR data. *Bill Arnsberg*

5.2.1.5. Communication - O&M and M&E quarterly and annual reports to BPA.

5.2.2. Nez Perce Tribal Hatchery – *Nez Perce Tribal Hatchery Complex is authorized to produce 1.4 million subyearling fall Chinook juveniles annually. Target releases are 500,000 on station into the Clearwater River, 500,000 acclimated and released from North Lapwai Valley facility into the Clearwater River, 200,000 acclimated and released from Lukes Gulch facility into the South Fork Clearwater River, and 200,000 acclimated and released from Cedar Flats facility into the Selway River.*

5.2.2.1. Trap Operation - Adult trapping for the Nez Perce Tribe began at Lower Granite Dam (LGR) on August 18, 2009 and ran through October 30, 2009. A total of 1,829 fall Chinook was transferred from LGR during 18 haul-days. The trap at NPTH was opened from September 22 through November 24, 2009. A total of 5,618 fall Chinook was collected and 328 were retained for broodstock. *Steve Rodgers*

5.2.2.2. Adult Outplant – After final spawning, the 52 remaining adults held at NPTH were out-planted from the adult holding ponds, 4 from the NPTH trap and 48 from LGR transfers. A total of 5,294 fall Chinook adults and jacks were out-planted during 2009 between NPTH and Orofino, of which 5,111 were jacks.

5.2.2.3. Spawning – A total of 494 female fall Chinook was spawned during 7 takes from October 13 to November 24, 2009, yielding 1,890,216 green eggs. The eggs of one female were culled due to high ELISA optical densities, and the eggs from an additional eleven females were water hardened and also culled. Average eye-up was 90.8%. On December 29, 136,580 eyed eggs were transferred to Umatilla Hatchery, to help meet Lyons Ferry Hatchery's US v OR production priority 16. *Steve Rodgers*

5.2.2.4. Production status - As of December 31, 2009, total fall Chinook eggs/fry on hand at NPTH: 1,496,535. *Steve Rodgers*

5.2.2.5. Projected release - Anticipated release: 1.4 million sub-yearlings.

NPTH: A release of 500,000 sub-yearlings into the Clearwater River at 50 fpp (9.1 grams) is planned. As identified in the U.S. vs. Oregon Management Agreement, 200,000 fish will be marked with a CWT, and 100,000 fish will be marked with a CWT and an adipose fin clip (AD), and 200,000 will be unmarked and untagged. Fish are marked and tagged by NPTH M&E employees during transfer to two earthen ponds from the production tanks or from two raceways, after reaching a target mark size of 160 fpp. 3,000 fish are PIT tagged for standard outmigration monitoring with 850 of those also sampled for DNA in cooperation with NOAA's Parentage Study. Prior to release, a minimum 60 fish sample is collected for a pre-release health inspection. Bacteriology, virology and parasitic assays are performed. A volitional

release begins in early June, unless river water temperatures warrant an earlier release. At the start of the scheduled volitional release, hatchery employees take lengths and weights on a minimum of 500 fish (250 from each pond). Scheduled final release date from NPTH is June 12, 2010. A volitional release will begin seven days prior. Hatchery or river conditions may warrant a shortened or no volitional release period.

North Lapwai Valley: A release of 500,000 sub-yearlings in late March. Fish slated for final acclimation and release from North Lapwai Valley AF will be marked at NPTH, prior to being transferred. Per the U.S. vs. Oregon Management Agreement, this group will be comprised of 200,000 CWT only fish, 100,000 AD and CWT fish, and 200,000 unmarked and untagged fish. After marking and tagging at NPTH, they will be transported to North Lapwai Valley AF for final rearing and release into Lapwai Creek. The program release goal is 500,000 sub-yearlings at 50 fpp (9.1 grams). Prior to release, 3,000 fish will be PIT tagged for outmigration monitoring with 850 of those also sampled for DNA in cooperation with NOAA's Parentage Study. Prior to release, a minimum 60 fish sample is collected for a pre-release health inspection. Bacteriology, virology and parasitic assays will be performed. Hatchery staff will take lengths and weights on a minimum of 500 fish. Although the facility was designed for release in mid-June, warming water temperatures and decreasing flows in the creek usually warrant earlier release to avoid disease outbreaks. Employees living at the facility monitor both water temperatures and dissolved oxygen (DO) levels daily, and fish are released when water temperatures reach 63^{o} F (17.2^{o} C) and/or DO levels drop significantly. Target release date is May 15, 2010 with a seven day volitional release period beforehand.

- Cedar Flats: A release of 200,000 sub-yearlings into the Selway River at 50 fpp (9.1 grams) is planned. Transfer of the fish occurs in mid April to early May. Per the U.S. vs. Oregon Management Agreement, they will be 100% CWT'd, and half the release group will also have an AD clip. Up to 14,706 fish will be marked with a PIT tag. Of those, 3,000 are for standard outmigration monitoring by NPT M&E biologists with 650 of those also sampled for DNA in cooperation with NOAA's Parentage Study, and the remaining are part of the ACOE transportation study (pending approval and funding). Prior to release, a minimum 60 fish sample is collected for a pre-release health inspection. Bacteriology, virology and parasitic assays are performed. Hatchery staff will take lengths and weights on a minimum of 500 fish just before release. Scheduled final release date from Cedar Flats AF is June 12, 2010.
- Lukes Gulch: A release of 200,000 sub-yearlings into the S. F. Clearwater River at 50 fpp (9.1 grams) is planned. Transfer of the fish occurs in mid April to early May. Per the U.S. vs. Oregon Management Agreement, they will be 100% CWT'd, and half the release group will also have an AD clip. Prior to release, up to 14,706 fish will be marked

with a PIT tag. Of those, 3,000 are for standard outmigration monitoring by NPT M&E biologists with 650 of those also sampled for DNA in cooperation with NOAA's Parentage Study, and the remaining are part of the COE transportation study (pending approval and funding). Prior to release, a minimum 60 fish sample is collected for a pre-release health inspection. Bacteriology, virology and parasitic assays are performed. Hatchery staff will take lengths and weights on a minimum of 500 fish just before release. Scheduled final release date from Luke's Gulch AF is June 12, 2010. (**Table 11**) *Steve Rodgers*

5.2.2.6. Fish health – Kidney samples were assayed by ELISA on all spawned females; eggs from 5 females were culled due to ELISA OD's above the cut-off (.25). 150 ovarian fluid samples, 60 tissues samples and 30 cranial samples were taken for assay. IHNV was found in 13.5 % of samples tested to date. 60 fish sample will be collected and assayed prior to release. *Kathy Clemens*

5.2.2.7. M&E

- Scan all fish for CWT. Initial tag retention and tagging mortality estimated. Estimate final CWT retention rates 21 days or more after tagging.
- PIT survival studies- PIT tag 3,000 of each release group for survival estimates, growth rates, and migration timing.
- The Luke's Gulch and Cedar Flats release groups may also include 11,706 PIT tags each as part of the ACOE transportation study, in addition to the standard 3,000 PIT tags.
- Obtain a total of 3,000 DNA juvenile upper caudal fin clip samples in cooperation with NOAA's Parentage Study.
- Redd surveys and carcass collection. Scales and genetic samples taken, hatchery/wild determination, scan for PIT tags and CWTs, along with all other biological information.
- Volunteers to NPTH and fish hauled from Lower Granite Dam will be scanned for PIT tags and CWTs and scales and genetics will be taken on all spawned fish and mortalities, along with all other biological information. *Bill Arnsberg / Jay Hesse*

5.2.2.8. Communication - NPTHC produces monthly production and pathology reports, and an annual operation plan and annual operation report for BPA and the comanagers. M&E produces quarterly and annual reports to BPA.

5.2.3. Dworshak NFH

5.2.3.1. Transportation Study – Fall Chinook salmon were temporarily reared at Dworshak NFH in 2005, 2006, 2008, and 2009 for the transportation study. For 2010 roughly 328,000 fertilized eggs will be transported from Lyons Ferry Hatchery to Umatilla Hatcheries. Of these, 70% are being incubated for ponding in February 2010 and 30% are being incubated for ponding in April 2010. After Dworshak spring Chinook salmon are released in early April, the fall Chinook fry will be disease tested and then transferred to Dworshak NFH for rearing to approximate the early life

history of natural Snake River (the 70% ponded in February) and Clearwater River (the 30% ponded in April) fall Chinook salmon. The Snake River "surrogate" subyearlings will be reared to 65-70 mm for PIT tagging and release from mid-May to early June. The Clearwater River surrogates will be reared to 65-70 mm for release from mid-June to earl July. Prior to release, disease testing will be conducted and the PIT-tag codes will be loaded into the separation-by-code systems at Lower Granite, Little Goose, Lower Monumental, and McNary dams. This will provide two groups of fish whose treatment at these four dams will differ to represent two different management strategies: transportation with summer spill and bypass with summer spill. Upon adult return, the smolt-to-adult return rates will be compared to determine if fall Chinook salmon should be transported or bypassed when summer spill is implemented. The transportation study duration is planned until 2011. *Howard Burge / Jay Hesse*

5.2.3.2. Reservoir Study - The U.S. Geological Survey, U.S. Fish and Wildlife Service, Pacific Northwest National Laboratory, NPT, University of Washington, and University of Idaho are involved in a cooperative study of juvenile fall Chinook salmon life history. As part of that study, they will be collecting 100 run-of-river fish from the lower Clearwater River for radio tagging in 2010. Fish and habitat data will be collected in all four lower Snake River Reservoirs. From Lower Granite and Little Goose reservoirs approximately 5,000 natural subyearlings will be PIT tagged and 700 reservoir-type juveniles will be radio tagged in 2010. *Billy Connor/ Kenneth Tiffan* (509) 538-2299 ext. 279 or ktiffan@usgs.gov.

5.3. Brood year 2010 Fall Chinook

5.3.1. Adult collection - Snake River Fall Chinook adults will be collected at Lower Granite Dam (LWG) and transported to NPTH, in accordance with the *U.S. vs. Oregon* Management Agreement. Additionally, adult fall Chinook may enter the fish ladder and be trapped at NPTH.

5.3.1.1. Lower Granite Dam - Adult FCS will be collected at LGR beginning the last week in August or when water temperatures are below 70º F (22.2º C). Activities involving trapping and collection of adult FCS for broodstock are covered under ESA Section 10 Permit No. 1530. Trapping at LGR will continue throughout the run and is anticipated to end by late November or early December. FCS are collected in the trap as a sub-sample of the returning run. The sub-sample rate for 2010 has not been set, and once agreed to may change mid-season based on actual captures. All females trapped at LGR will be injected with erythromycin and oxytetracycline during the sorting process there. Males less than 41 cm (mini-jacks) are not transported to NPTH. Males between 41-56 cm are considered jacks, and will be retained and transported if they are CWT'd, for run reconstruction purposes. PIT tagged jacks will not be retained. Fish transported to NPTH are usually placed in the north holding pond, but may also be placed in the south holding pond if densities become a

concern. Every effort is made to ensure mixing of fish between the two trapping locations is avoided, and NPTH swim-ins are marked with a right operculum V-notch to differentiate them from the LGR fish. WDFW and NPT have cooperatively developed a transportation schedule for adults trapped at LGR. The goal of NPTH is to receive 30% of the females trapped and LFH to receive 70%. This schedule will be modified as needed to ensure equitable distribution of fish between the two programs. A portion of known LFH origin and unknown origin hatchery FCS will be transported from LGR to NPTH for holding and spawning. *Steve Rodgers, Becky Johnson*

5.3.1.2. NPTH - There will be weekly in-season updates on LGR adult hauled numbers and an assessment of actual FCS adults counted at LGR with updated run forecasts to determine if and when the adult ladder and trap may be operated at NPTH to meet full production. Trapping at NPTH typically occurs in September – November. Volunteers to NPTH are typically held in the south adult holding raceway. The ladder will be closed when broodstock needs are met. Trapped adult females will be injected with erythromycin prior to the first spawning. They are also marked with a right operculum V-notch to differentiate them from LGR trapped fish. Additionally, all adults will receive formalin treatments three times per week to control fungus and decrease pre-spawning mortality. NPTH targets trapping only enough adults to meet program goals from both LGR and the NPTH ladder. Adults excess to broodstock and not needed for coded-wire tag recovery, tribal subsistence, food banks, research or other needs, will be outplanted for supplementation. The NPT is developing a Clearwater Basin FCS adult outplant plan for discussion with co-managers in 2010. Until that plan is approved outplanting of excess adult FCS will be coordinated on a seasonal basis with IDFG and FWS. *Steve Rodgers, Becky Johnson*

5.3.1.3. Spawning plans – Spawning at NPTH will occur every Tuesday beginning on October 19th, and continue until program egg-take goals are met, usually by early December. Spawning may also occur on Wednesdays to avoid extremely long days during larger egg takes. Hatchery staff will ensure M&E employees are aware if Wednesday spawning is necessary. Out-of-Snake River Basin adults, identified as "strays" by CWT or PIT tag may be culled or transferred to lower river hatcheries to meet production goals. However, to meet NPTH production, strays may be retained at a rate not to exceed 5%. Mating will be a 1 x 1 cross (1 female: 1 male). No mini-jacks (less than 41 cm) will be spawned and hatchery origin jacks (one ocean males <57 cm fork length) may also be excluded from spawning. Natural Snake River fish will be incorporated into the broodstock at a target rate of up to 30%, provided that this number does not exceed 20% of the natural origin population. Scale pattern data will not be used at NPTH in the culling of eggs. In mid November, Gonadotropin Releasing Hormone (sGnRHa) may be used on remaining un-spawned LGR females to facilitate maturation. Adults and jacks from

LGR that have CWT's and are excess to broodstock needs will be sacrificed to recover the wire for run-reconstruction purposes. Adults and jacks from LGR without wire will have scale samples taken before they are released into Clearwater Basin streams. Fish held at NPTH will have been treated with formalin so if a fishery is occurring in the Clearwater Basin, these fish may be outplanted into closed waters, and/or marked differentially for easy identification by anglers. Any action of this type will be coordinated with the NPT Fish and Wildlife Commission and the comanagers. These fish may also be spawned to backfill for LFH if necessary. Adults and jacks trapped at NPTH in excess to broodstock needs may be returned to the river to spawn naturally. Every adult female will be sampled individually for BKD using enzyme-linked immunosorbant assay (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 IFHC. Whenever possible, eggs from early spawned females will be used for the Luke's Gulch AF and Cedar Flats AF programs, to support an early returning run to the S.F. Clearwater and Selway Rivers. However, the Clearwater River direct release from NPTH is the highest priority in the event of an egg shortage, and that goal will always be met before either the Luke's Gulch or Cedar Flats acclimated programs. The intent of the fall Chinook program is to take eggs across the entire run, and build release groups represented by multiple takes whenever possible. Chinook salmon carcasses will be returned to free-flowing reaches of the Clearwater River for nutrient enhancement. *Steve Rodgers*

5.3.1.4. Egg Incubation – Fertilized eggs will be water hardened for one hour in 100 parts per million iodophore and placed in Heath trays for incubation. At between 550 and 620 temperature units (TU's) eyed eggs will be shocked; machine sorted the following day and transferred back into Heath trays to hatch. The eggs from females with a high BKD ELISA value may be culled. At swim-up, the fish will be transferred to production room tanks at ~1,600 fpp (0.30 grams). Egg transfers from Lyons Ferry Hatchery may occur for brood year 2010 (but are not likely) depending on the broodstock availability for NPTH and Lyons Ferry Hatchery. *Becky Johnson and Steve Rodgers*

5.3.1.5. Adult M&E

- Redd surveys and carcass collection. Scales and genetic samples taken, hatchery/wild determination, scan for PIT tags and CWTs, along with all other biological information.
- Volunteers to NPTH and fish hauled from Lower Granite Dam will be scanned for PIT tags and CWTs and scales and genetics will be taken on all spawned fish and mortalities, along with all other biological information. *Bill Arnsberg, Jay Hesse*

5.3.1.6. Fish health – Every adult female will be sampled individually for BKD with ELISA. Up to 150 ovarian fluid samples (3 pool) will be sampled for

viruses. An additional 60 tissue samples will be taken for bacteria assays, and 20 samples for *Myxobolus cerebralis.* Brood fish health samples will be taken by NPT staff and delivered to Idaho Fish Health Center personnel for analysis. Fish with a high BKD titer will be culled. *Kathy Clemens*

5.3.1.7. Communication - NPTH produces monthly production and pathology reports, and both an annual operation plan and annual operation report for BPA and the co-managers. Fish Research produces quarterly and annual reports to BPA.

6. RAINBOW TROUT

6.1. USFWS Program

6.1.1. Dworshak Kids' Fishing Day

6.1.1.1. Production status - BY09: Dworshak will rear triploid RBT from Troutlodge Hatchery, Sumner, WA, for the Kids' Fishing Day. On January 1, 2010, there were 13,451 triploid rainbows at Dworshak. The rainbow trout are currently being reared in one Burrow's pond in System III. These trout should be close to 13 inches in length (1.0 per lb.) by Kid's Fishing Day on May 15, 2010. *Thomas Trock*

6.1.1.2. Production status – BY10: Dworshak will receive approximately 5,000 triploid RBT from Troutlodge Hatchery, Sumner, WA for its 2011 Kid's Fishing Day program. These eggs should arrive at Dworshak during February, 2010. *Thomas Trock*

6.1.1.3. Excess outplanting - The plan is for several thousand fish to be transferred to Tunnel Pond for the Kid's Fishing Day and those will remain in that Pond, unused fish will go to the Nez Perce and the Coeur D' Alene Tribes. *Howard Burge*

6.2. IDFG Programs –

6.2.1. Dworshak Reservoir

Nampa Fish Hatchery plans on stocking 50,000 sterile triploid rainbows into Dworshak Reservoir, May to early June. Since 1997 Hagerman NFH has raised rainbows for stocking into Southern Idaho reservoirs and IDFG reciprocates by stocking Dworshak Reservoir. *Jerry McGehee* / *Howard Burge*

6.2.2. Clearwater Basin

In past years IDFG annually stocked approximately 50,000 (3,300 lbs) of Kamloops rainbow trout from Lyons Ferry Hatchery into the Clearwater River system. For 2010, 1,650 lbs. (1 fish/lb) will be released into Tunnel Pond and 1,650 lbs. (3 fish/lb) will be released into Lewiston Levee Ponds. The NPT will transport the fish destined for Tunnel Pond and IDFG will transport the Lewiston Levee Pond fish. This program will be evaluated for 5 years to determine if it's meeting the needs of the public in mitigating for lost fisheries.

Spokane rainbows (160,000) from Lyons Ferry Hatchery will be stocked into lowland lakes within the Clearwater drainage in April and May; these unmarked fish provide additional fishing opportunities. This program is funded by the Lower Snake River Compensation Plan and the Dingle-Johnson Program to compensate for dam related losses. *Joe Dupont / Becky Johnson*

The Clearwater Fish Hatchery regional rainbow program redistributes 100,000 Nampa reared trout. A total of 29 plant sites, requiring 110 trips, are stocked April to August. *Jerry McGehee*

7. PACIFIC LAMPREY

7.1. NPT Program Nez Perce Tribal Hatchery - In 2006, the Nez Perce Tribe initiated a Pacific Lamprey restoration initiative. In November, 2009, the NPT transported 4 adult lampreys that were collected at the dewatered north ladder at John Day Dam to Nez Perce Tribal Hatchery. An additional 24 lampreys were collected from the collection channel and junction pool at The Dalles Dam and transported to NPTH in December, 2009, for a total of 28 fish. As a prophylactic treatment to control Furunculous, the lampreys were injected with oxytetracycline. Adults were then transferred into the M&E tanks located adjacent to the NATURES "S" channel release structure. To prevent escapement each tank is sealed with a plywood lid secured with clamps. The water flow source is from the Clearwater River and outfall returns to the Clearwater River downstream of the fish ladder. The adults will be held until April/May of 2010, when the NPT will release them in selected streams to spawn naturally. *Tod Sween*

8. INFORMATION and EDUCATION

8.1. School Programs - The Dworshak Complex I&E program coordinates with approx. 12 schools annually to implement the Hatchery in the Classroom project. Either with their own equipment or hatchery-loaned, classes from 4^{th} – 12^{th} gr. raise either steelhead or Chinook from eyed egg to fry and release them in May.

The FWS, NPT, and IDFG staffs are partners in the Kamiah High School Environmental Science/Aquaculture curriculum and provide technical expertise, program development, hands-on field and classroom activities, and mentorship.

Egg and fish requests for 2010 are:

- Approximately 850 steelhead and 300 spring Chinook eyed eggs for Hatchery in the Classroom projects (13 schools).
- Approximately 200 fry (only needed in the event of high mortality with a Hatchery in the Classroom project).
- Approximately 40 adult steelhead carcasses for dissection and anatomy studies in elementary and high schools; and for outreach events with a Gyotaku (fish printing) activity (Boise Salmon/Steelhead Days in September). *Megan Wandag / Ed Larson*

9. CONTACTS

Name	Agency	Phone No.	email
Bill Arnsberg	NPT - Research	208-621-3578	billa@nezperce.org
Larry Barrett	IDFG - Lewiston	208-799-5010	larry.barrett@idfg.idaho.gov
Mike Bisbee	NPT - DNFH	208-476-4591	mike_bisbee@fws.gov
Brett Bowersox	IDFG - Lewiston	208-799-5010	brett.bowersox@idfg.idaho.gov
Carrie Bretz	FWS, IFRO	208-476-7242	carrie_bretz@fws.gov
Howard Burge	FWS – IFRO	208-476-7242	howard_burge@fws.gov
Kathy Clemens	FWS – IFHC	208-476-9500	kathy_clemens@fws.gov
John Cassinelli	IDFG, Nampa	208-465-8404	john.casinelli@idfg.idaho.gov
Mark Drobish	FWS- DNFH	208-476-4591	mark_drobish@fws.gov
Joe Dupont	IDFG, Lewiston	208-799-5010	joe.dupont@idfg.idaho.gov
Tim Dykstra	COE, Walla Walla	509-527-7125	timothy.a.dykstra@usace.army.mil
Brett Farman	NOAA, Portland	503-231-6222	brett.farman@noaa.gov
Brad George	IDFG – CFH	208-476-3331	brad.george@idfg.idaho.gov
Pete Hassemer	IDFG – Manag.	208-334-3791	pete.hassemer@idfg.idaho.gov
Jay Hesse	NPT – Research	208-621-3552	jayh@nezperce.org
Adam Izbicki	FWS – KNFH	208-926-4272	adam_izbicki@fws.gov
Becky Johnson	NPT – Production	208-621-4629	beckyj@nezperce.org
Ryan Johnson	NPT - Research	208-621-3580	ryanj@nezperce.org
Ray Jones	FWS – IFRO	208-476-7242	ray_jones@fws.gov
Mike Key	NPT – FCAP	208-621-4633	mikek@nezperce.org
Joe Krakker	FWS – LSRCP	208-378-5321	joe_krakker@fws.gov
Ed Larson	NPT – Manag.	208-621-4630	edl@nezperce.org
Brian Leth	IDFG – Nampa	208-465-8404	brian.leth@idfg.idaho.gov
Scott Marshall	FWS – LSRCP	208-378-5321	scott_marshall@fws.gov
Nancy McAllaster	NPT – Commission	208-621-2445	nancymac@nezperce.org
Jerry McGehee	IDFG – CFH	208-476-3331	jerry.mcgehee@idfg.idaho.gov
Bruce McLeod	NPT - Production	208-621-4628	brucem@nezperce.org
Christine Moffitt	Univ of Idaho	208-885-7047	cmoffitt@uidaho.edu
Doug Munson	IDFG – Fish Health	208-939-2413	doug.munson@idfg.idaho.gov
Jill Olson	FWS, DNFH	208-476-4591	jill_olson@fws.gov
Greg Parker	COE – Dworshak	208-476-1251	greg.a.parker@usace.army.mil
Chris Peery	FWS – IFRO	208-476-7242	chris_peery@fws.gov
Larry Peltz	FWS – DFC	208-476-4591	larry_peltz@fws.gov
Aaron Penney	NPT – NPTH	208-621-3504	aaronp@nezperce.org
Zach Penney	NPT – Coho	208-301-1045	zachp@nezperce.org
Andrew Pierce	CRITFC	208- 885-6057	apierce@uidaho.edu
Tom Rogers	IDFG – Production	208-334-3791	tom.rogers@idfg.idaho.gov
Steve Rodgers	NPT – NPTH	208-621-3502	stever@nezperce.org
Stuart Rosenberger	Idaho Power Co	208-388-6121	SRosenberger@idahopower.com
Bill Schrader	IDFG, Nampa	208-465-8404	bill.schrader@idfg.idaho.gov
Sam Sharr	IDFG – Manag.	208-334-3791	sam.sharr@idfg.idaho.gov
Sherman Sprague	NPT - Research	208-621-3585	shermans@nezperce.org
Carl Stiefel	IDFG, Nampa	208-465-8404	carl.stiefel@idfg.idaho.gov
Cassie Sundquist	IDFG – CFH	208-476-3331	cassie.sundquist@idfg.idaho.gov
Tod Sween	NPT – Production	208-621-3582	tods@nezperce.org
Thomas Trock	FWS – DNFH	208-476-4591	thomas_trock@fws.gov
Dave Venditti	IDFG, Nampa	208-465-8404	dave.venditti@idfg.idaho.gov
Jason Vogel	NPT – LSRCP	208-621-3602	jasonv@nezperce.org
Megan Wandag	FWS – DNFH	208-476-4591	megan_wandag@fws.gov
Steve Yundt	FWS – LSRCP	208-378-5227	steve_yundt@fws.gov